GENERAL CATALOGUE

Turning

Boring

Milling

Adaptors









WALTER

WALTER – The modern face of German Engineering

Our employees make our quality products what they are. As their engineering know-how, sector experience, technical support and passion make a success story out of a machining project. We call that "The modern face of German Engineering".



Innovative



Precision tools



High-tech products







WALTER Productivity Services

A productivity increase for the customer is the primary goal for WALTER.
Our employees guarantee this world-wide. On a daily basis, they identify the requirements of the customer because they analyse and understand the customer's production process.

WALTER offers its customers:

- a high-quality, complete range of tools specially in line with the customer's requirements; this applies both for standard and special tools.
- Decades of technical experience and innovative solutions in the engineering sector.

Increase your productivity with WALTER!



Engineering





Special Tools

NOVEXPRESS Special Tools

Complex Special Tools



Tool Data Management



Quality




WALTER



Cutting tool materials with a bite: *Tiger*·tec®

The original: *Tiger*·tec® for cast iron



The first two-colour ***Tiger*·tec®** cast iron turning inserts, boring and milling were launched under the cutting tool material designation WAK. These grades have become the benchmark and are constantly being further developed.

The WAK ***Tiger*·tec®** coated carbide grades are attractive thanks to their long service lives, maximum cutting speeds and unique wear detection characteristics.
The new **WAK 30** grade is available for turning operations for the most difficult of machining conditions and interrupted cuts.



Success story part 2: *Tiger*·tec® for steel and cast iron

Steel is one the most frequently used materials and our modern life is impossible to imagine without it.

Our ***Tiger*·tec® WKP** cutting tool materials are perfectly suited for the reliable boring and milling of this material.
Increases in productivity of up to 100% are possible when used in combination with our ***Xtra*·tec®** milling cutters.

One cutting tool material – two main applications: steel and cast iron!

The next generation: *Tiger*·tec® for steel turning operations



For economic steel turning operations the “WPP Tigers” are a must. The innovative coating structure guarantees maximum wear resistance at maximum toughness.

In addition to the well-known WPP grades, the new **WPP 01** and **WPP 05** grades are now available. These extremely wear-resistant grades facilitate maximum cutting speeds thereby reducing machining times.

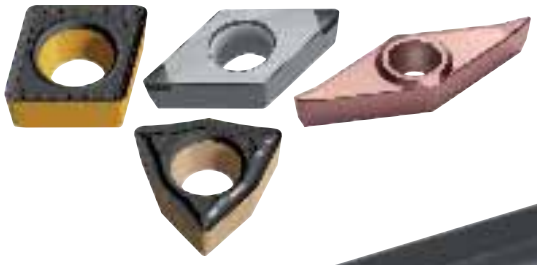
The unequalled world innovation: *Tiger*·tec® PVD-Al_2O_3



For the very first time, we have succeeded in producing aluminium oxide on carbide indexable inserts using the PVD procedure.

The combination of very high hot hardness and extreme toughness leads to increased process reliability at high cutting speeds and thus to increased cost efficiency when milling and turning.
The machining of steel (ISO P) under difficult conditions as well as the machining of stainless steels (ISO M) and materials which are difficult to machine (ISO S), for example titanium or nickel based alloys, are some of the most demanding machining applications which can be solved through the use of the **WSM 30, WSM 35** and **WSP 45** grades.

WALTER turning tools



No more compromises: completely new boring bar range for positive indexable inserts

The Torx Plus screw clamping system for the entire boring bar range guarantees maximum process reliability due to high tightening torques and the resultant secure clamping of the indexable inserts.



Optimum chip removal and cooling are ensured thanks to the internal coolant supply in all tools, regardless of whether they are with or without clamping flats.

Boring bars without clamping flats can be automatically set to the tip height via the centre sleeves which are new to the product range.





WALTER CUT: One system – unlimited possibilities:

275 different hard nickel-plated modules and a large selection of base body tools, for example WALTER CAPTO adaptors, square and round shank tools as well as clamping blocks for deep grooving modules to mention just a few, ensure limitless combination options.

And if that isn't enough, we produce customised solutions for your specific needs.





The new all-purpose UD6 geometry completes the product range for the machining of corrosion resistant materials by generating controlled chip breakage in longitudinal turning in addition to grooving.





WALTER drilling and boring tools



Versatile and uncomplicated: WALTER boring and WALTER precision boring tools

The ScrewFit system, which has been proven in milling, is also available for boring and precision boring in diameters from 20 mm to 70 mm.

The advantages here are a very compact and rigid tool system and high versatility when boring and milling.

The precision boring tools with modular ScrewFit couplings are self-balancing and thus spindle friendly and extremely precise even at cutting speeds of 2000 m/min.







Maximum precision even deep in the workpiece: the *Xtra*·tec® drill

The additional new versions of our proven ***Xtra*·tec®** drill (5 x D, 7 x D) with parallel shank without clamping flat make it possible to optimally clamp this drill even in hydraulic and collet chucks. Even lower tolerances are thus possible.

Long service lives are guaranteed when used in combination with our high-performance cutting tool materials.



Economic and precise: WALTER solid carbide drills

Standard drills in solid carbide design with state-of-the-art coatings provide you with the right tool for almost every machining application.

Additional straight-fluted deep hole drills are the ideal tool solution for short chipping materials.

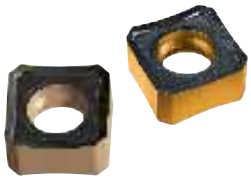


For complex applications: WALTER reaming range

With performance-guaranteed reamers for the precision machining of steel, stainless steel and cast iron bores, our customers have a comprehensive tool range for almost every finishing operation.

WALTER milling cutters





The all-rounder: the WALTER octagon milling cutter expands the *Xtra*·tec® family

The new F 4080 joins the existing ***Xtra*·tec®** surface milling cutters F 4033, F 4047 and F 4048.

Regardless of whether it is a surface milling, circular interpolation or chamfering operation – this tool is suited for all applications.



All options remain open thanks to the approach angle of 43° in combination with the octagonal indexable insert. The soft positive cut ensures very economic and reliable processes.

In combination with the modern ***Tiger*·tec®** cutting tool materials, these tools can be used on almost all materials.



Super strong and soft cutting: the *Xtra*·tec® porcupine cutter

Our ***Xtra*·tec®** series has been expanded by new high-performance milling cutters with the Porcupine® cutters F 4038, F 4138 and F 4238. They are captivating due to their operational smoothness, low power consumption and large chip volumes.



In combination with the AD . . system indexable inserts, which can also be used in the ***Xtra*·tec®** shoulder milling cutter F 4042, surface milling cutter F 2010 and side and face milling cutter F 2252, the tools can be optimally combined for the machining application via the differing corner radii and cutting tool materials.



Quality and increased productivity: WALTER PCD tools

For the economic machining of aluminium with outstanding precision, our specialists developed high-quality PCD tool solutions in close co-operation with our customers.

The emphasis in our work is thereby on improving the quality and increasing the productivity.







Your partner for OEM equipment

Everything from a single source . . .

. . . and the less partners the better is often the specification for original equipment. Fewer interfaces and the planning of the entire machining process with tools from a single source are the guarantees for short run-in cycles and successful machine acceptances.

WALTER is the complete supplier for turning, milling and boring. Additional PCD and reamer capabilities as well as experience in the different industrial sectors make WALTER one of the industry's most complete suppliers.





PCD reamer for valve guide and seal



PCD profile milling cutter for finishing webs



Combination tool for finishing crankshafts





NOVEXPRESS Special Tools

Step drill for tappet drilling on the cylinder head





Competence in the automobile and mass production industry

Productivity increase and process reliability

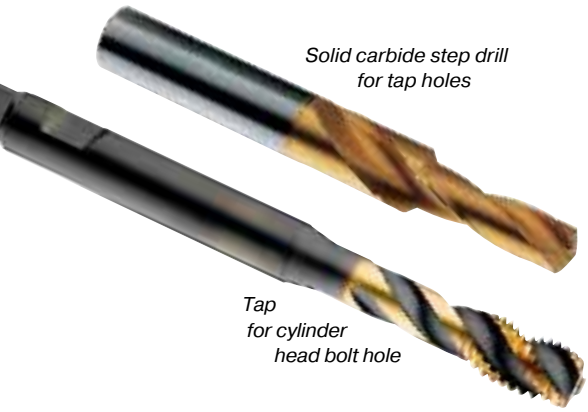
These are the keywords in mass production for automobile manufacturers and their suppliers. Companies demand ever shorter turnarounds and quicker market launches.

Individual solutions, versatility and the ability to react rapidly are the main demands made of the tool partner of today. WALTER can draw on decades of experience in the machining of automotive components. Complex tool concepts, optimised machining strategies as well as special cutting tool material developments like ***Tiger·tec***® are the result of this work.

Increased involvement in the PCD, solid carbide and reaming fields, today makes WALTER a complete supplier of cutting edge technology.



PCD tool for cylinder head surface milling



Solid carbide step drill for tap holes

Tap for cylinder head bolt hole



Combination tool for disc brake calliper machining



External milling cutter for bearing and face machining on crankshafts.













Complete solutions for the power generation industry



Technology partner for complete solutions

Typical machined components in the power generation industry are turbine blades, thermal shafts, electrical shafts and housings.

Special solutions for the machining of winding grooves or blade bases are among the most technologically demanding solutions that WALTER has developed for this sector.

In combination with the new ***Tiger·tec***® PVD-Al_2O_3 WSM and WSP grades, WALTER is the technology partner for complete solutions with the greatest experience for components of this type.

Root milling cutter for curved blade grooves



External profile turning of thermal shafts



Profile milling cutter for blade bases



Milling cutter with round inserts for blade machining





Side and face milling cutter for straight blade grooves





Your partner in the aircraft and aerospace industry





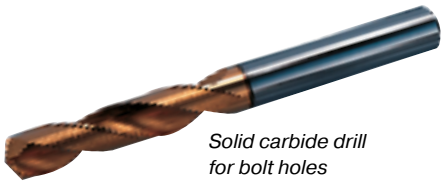


The most modern cutting tool materials and tool concepts

Time and again new alloys in the area of aluminium, titanium or steel with new, improved properties demand the maximum from machining technology.

Our experts keep up-to-date with the technologies of the sector in order to always be informed of the newest trends. Their experience is constantly incorporated into the cutting tool material and tool development. WALTER provides the most modern cutting tool materials and tool concepts, which satisfy the requirements of the materials of today and tomorrow.

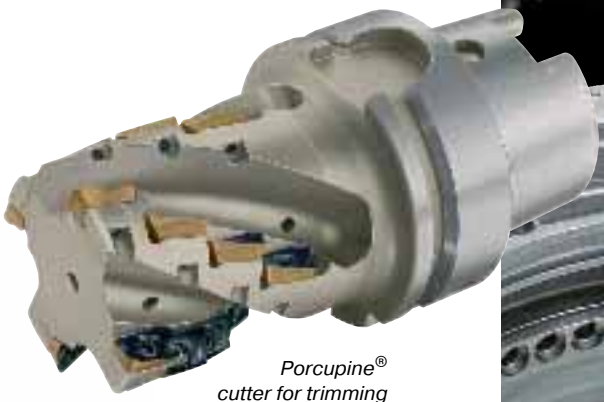
With the new ***Tiger·tec***® PVD-Al_2O_3 WSM and WSP grades, WALTER is a leader in the area of difficult-to-machine materials. International large projects have shown that WALTER is accepted as a competent technology partner in this sector.



Solid carbide drill for bolt holes

Ramping milling cutter for heavy plunge die operations on integral components





Porcupine® cutter for trimming the external contour of the flap track



Combination tool for internal and external turning without tool change





Grooving tool for external groove machining











Total capability in the mould and die making industry

From roughing to finishing, injection die moulding or crimping dies

all aspects of machining are included. The demands on modern tools for the mould and die making industry are equally diverse.

Modularity is of top priority where there is so much variety.
With NCT and ScrewFit, WALTER has very successfully developed couplings which fulfil almost every requirement in tool design.

Together with a multitude of adaptors, WALTER can draw on the most comprehensive tool range with modular couplings.
In combination with modern cutting tool materials like ***Tiger·tec***®, costs can be reduced and operating efficiency significantly increased.





Ball nose cutter for finishing contours



CBN copying insert for finishing free form surfaces

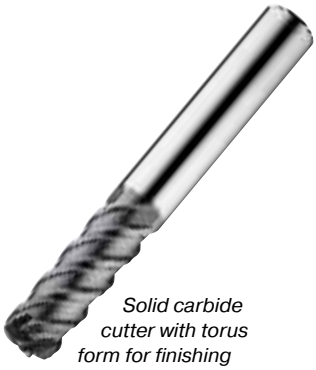




Milling cutter with round inserts for profile machining



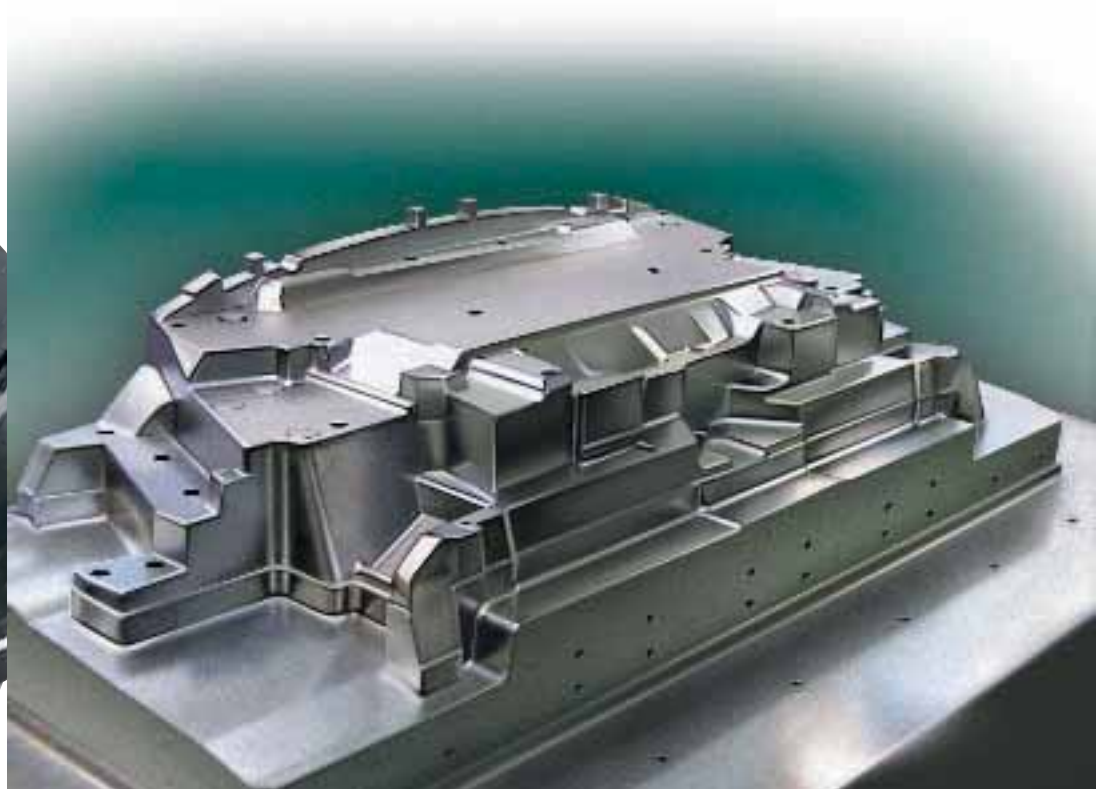
Xtra·tec® shoulder milling cutter for groove and pocket machining



Solid carbide cutter with torus form for finishing pockets and contours

Octagon milling cutter for circular interpolation operations





Clever ideas in general for mechanical engineering

Time optimisation, tool space saving, tolerance reduction

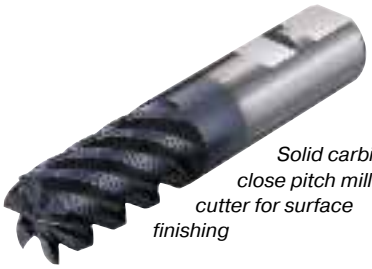
are only a few of the starting points for our experts when it comes to implementing customer-specific requirements.

Whether it is single feature or complete component machining, we always aim to work out the most economic solution. With turning, milling as well as drilling and boring tools from the comprehensive standard product range and partially complex combination tools, our experts develop an ideal solution in accordance with the requirements of our customers.

Significant productivity increases are the result, which are achieved not least thanks to ***Tiger·tec***® and other cutting tool materials.



Tap for coolant connection

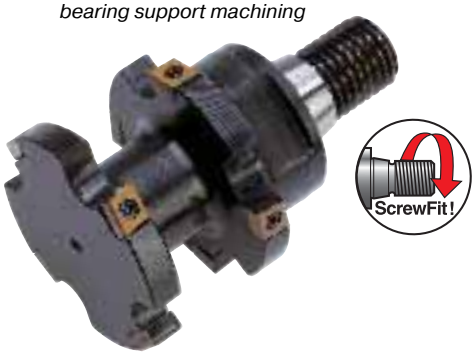


Solid carbide close pitch milling cutter for surface finishing



Solid carbide deep hole drill for lubrication galleries

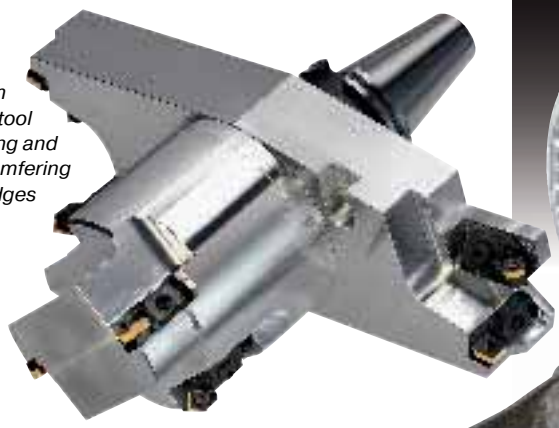
One-piece gang cutter for bearing support machining





Special tool for profile grooving

Aluminium boring tool with boring and chamfering cartridges





Combination tool for complete machining in 4 steps













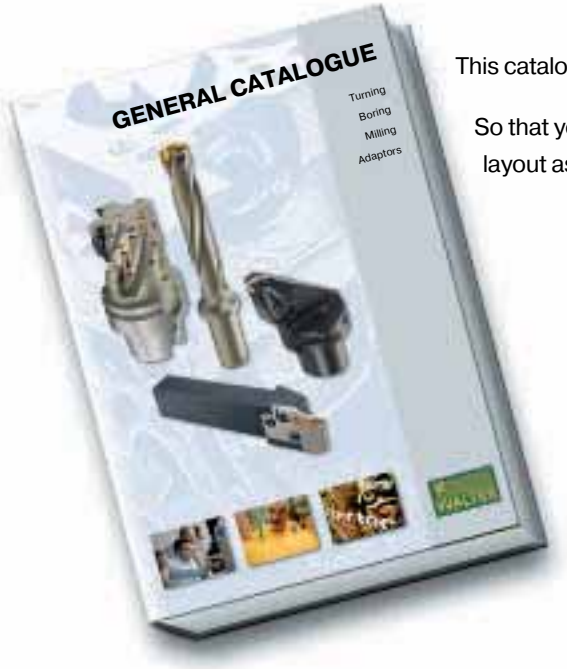








The new WALTER general catalogue



This catalogue replaces the general catalogue 2003 + NEWS II.

So that you quickly find the desired information, we have the kept the catalogue layout as it was in the previous version:

In the **green** part you can learn about **Turning**

In the **red** part you can learn about **Boring**

In the **violet** part you can learn about **Milling**

In the **yellow** part you can learn about **Adaptors**

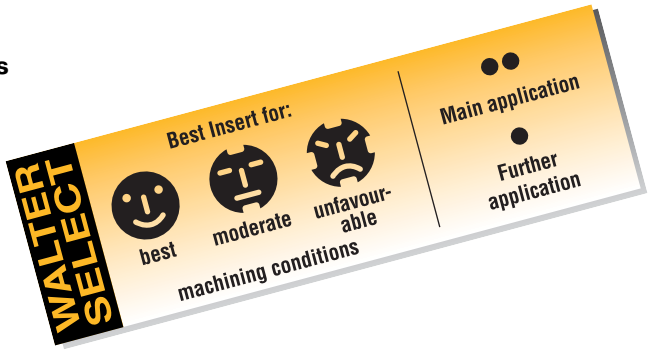
and in the **grey** part **General Information** is given

Find instead of searching - the new WALTER catalogue: readily understood, easily read and clearly arranged

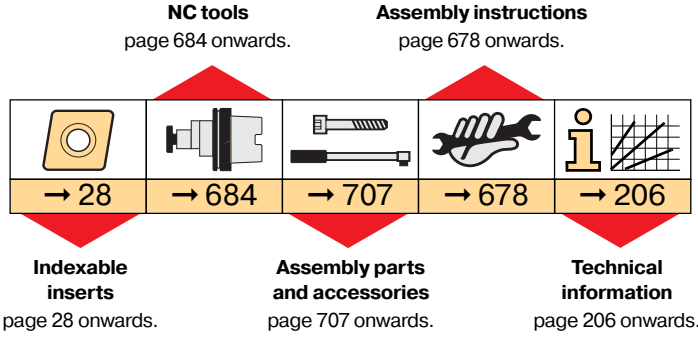
Select the quickest way to the correct tool:

- ➔ Select the subject area directly in the respective **table of contents**
- ➔ Select the suitable tool from the **product range overview**
- ➔ Reliably find the correct tool using the **WALTER SELECT** help tool

. . . and if you already know what you need, simply consult the **alphanumeric index**.



For additional information on tools please refer to the cross-reference instruction bars, for example:



The present catalogue includes the complete range of cemented carbide tools and indexable inserts.
New products to be launched during the validity of this catalogue will be summarised in supplementary brochures.
Therefore, you will, at any time, have only two catalogues providing you with an overview of our complete range.

We reserve the right to make technical changes in the interest of progress.

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Turning

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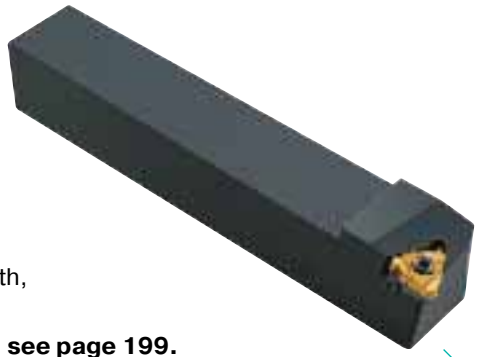
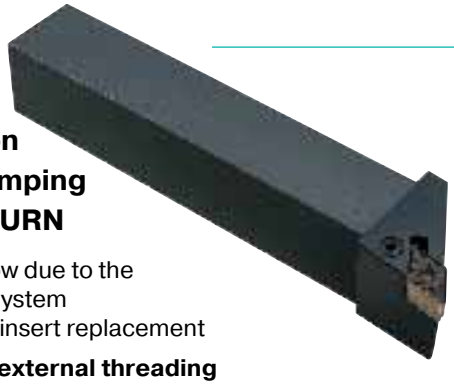
WALTER turning tools



External threading: WALTER NTS

- Three-edge full profile cutting insert
- Universal geometry for ISO P (steel) and ISO M (stainless steel)
- Most popular threads, e.g. ISO metric, Whitworth, American UN etc.

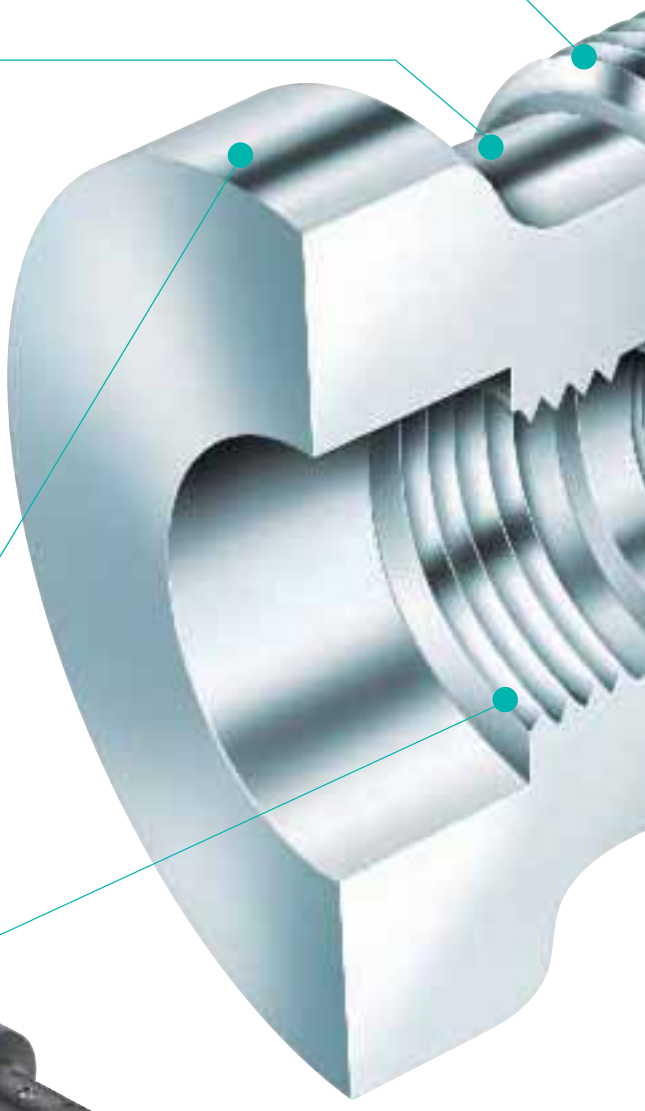
For the complete range of threading products, see page 199.



External application with lever-type clamping system: WALTER TURN

- Unobstructed chip flow due to the lever-type clamping system
- Easy handling during insert replacement

For complete range of external threading products, see page 70.





External application with rigid clamping system: WALTER TURN

- Stable insert clamping at maximum cutting rates
- Secure insert retention even in the case of heavily interrupted cuts
- Contamination resistant

For complete range of external threading products, see page 70.



Internal threading: WALTER NTS

- High profile accuracy due to the gradient angle correction in the holder
- Coupling: round shank or WALTER CAPTO
- Most popular threads, e.g. ISO metric, Whitworth, American UN etc.

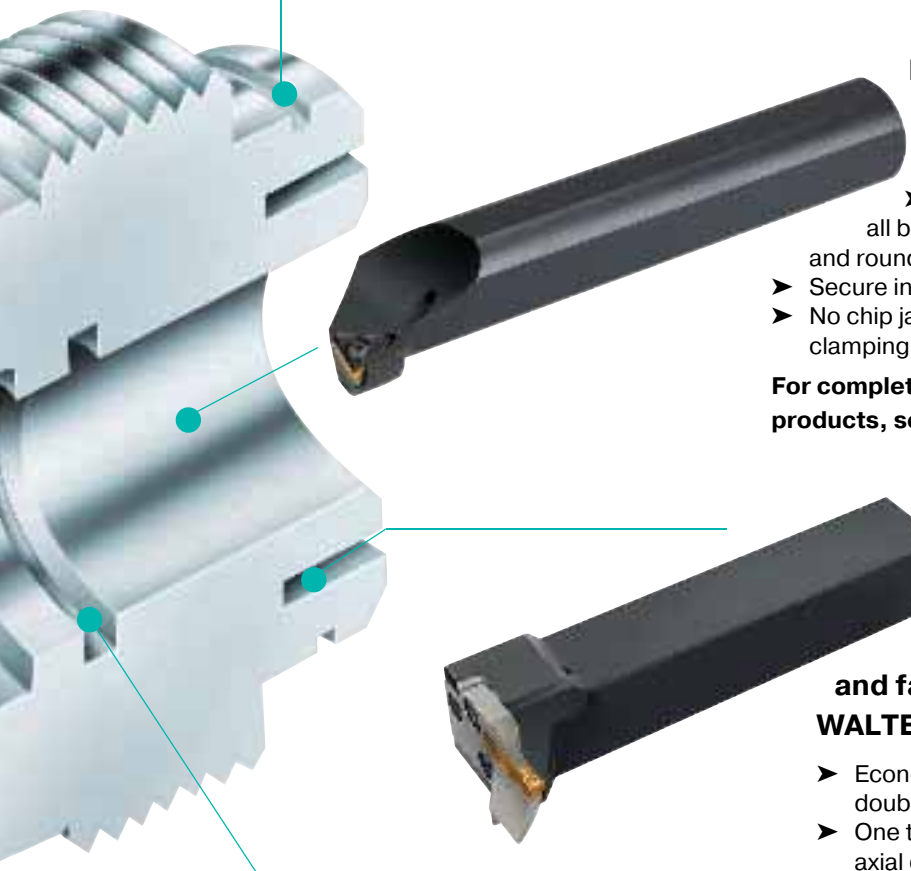
For the complete range of threading products, see page 199.



Radial grooving and longitudinal turning: WALTER CUT

- Modular system for grooving, parting off and longitudinal turning
- Hard nickel-plated modules with high wear resistance
- Six geometries and eight grades for optimal machining

For complete range of grooving products, see page 136.



Internal application with screw clamping: WALTER TURN

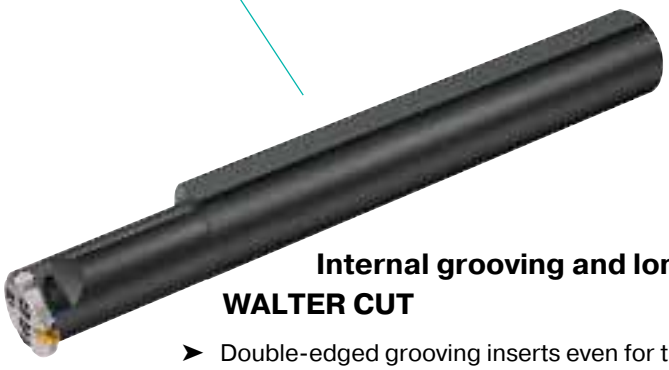
- Internal coolant supply for all boring bars with clamping flats and round shanks
- Secure insert retention via screw clamping
- No chip jam due to build-up of clamping elements

For complete range of internal threading products, see page 109.

Axial grooving and facing: WALTER CUT

- Economic machining via double-edged inserts
- One tool for two operations: axial grooving and facing
- High stability due to the V-guide support of the indexable insert

For complete range of grooving products, see page 138.



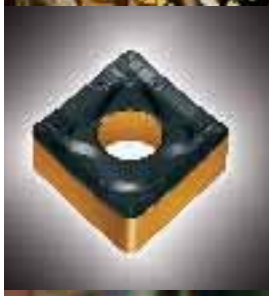
Internal grooving and longitudinal turning: WALTER CUT

- Double-edged grooving inserts even for the smallest diameters
- Versatile due to its modular design
- Comprehensive range of indexable inserts also for circlip grooves and O-ring grooves

For the complete range of grooving products, see page 138.

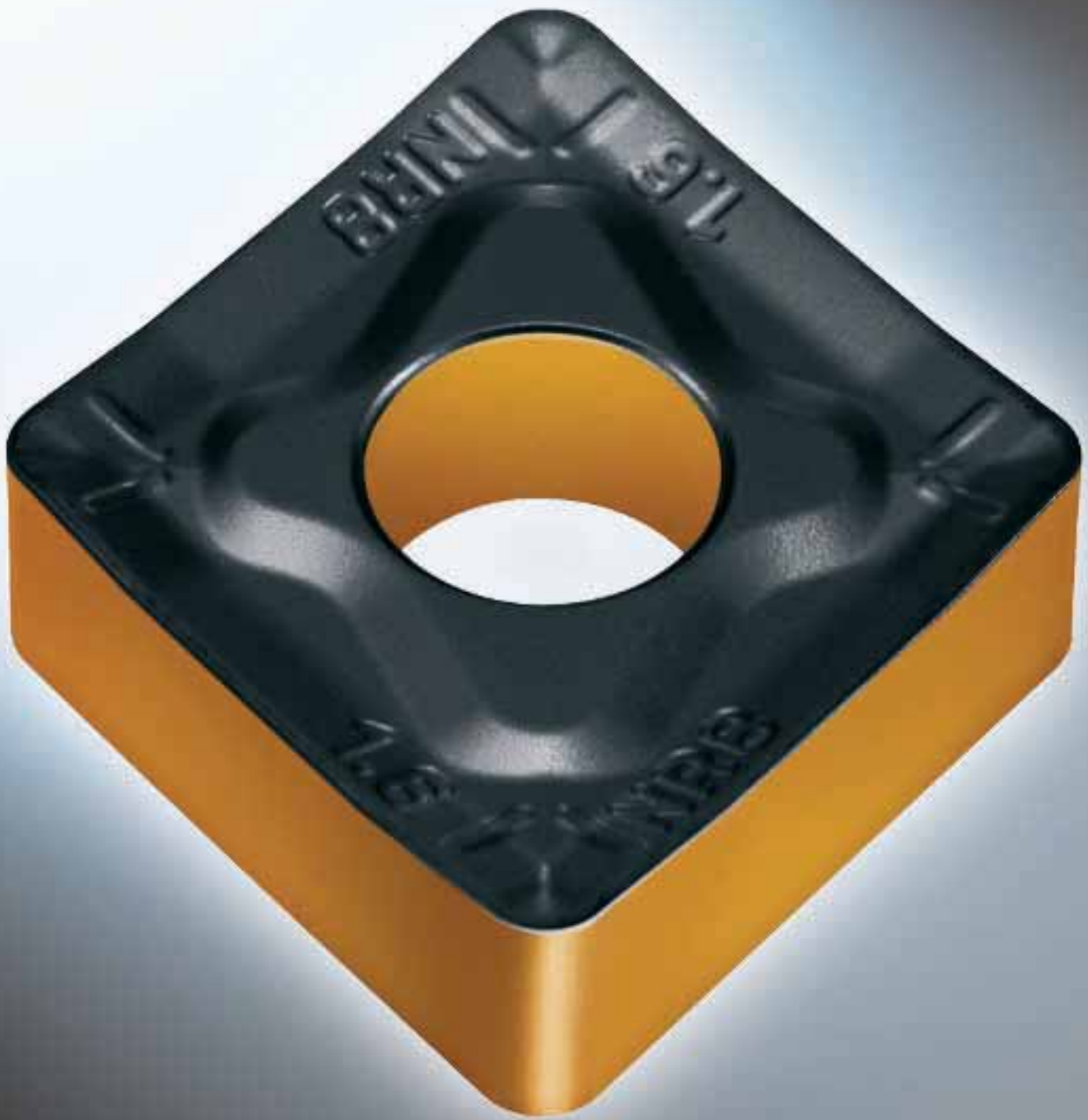




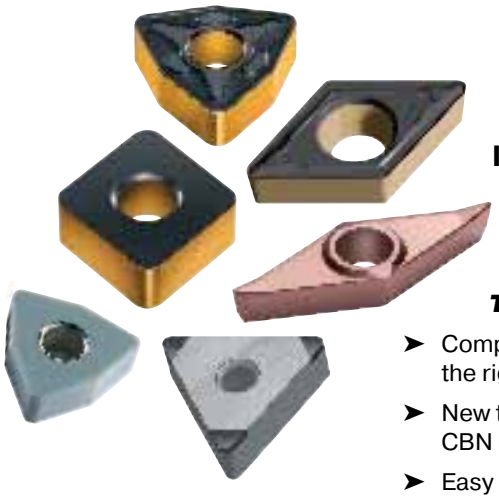








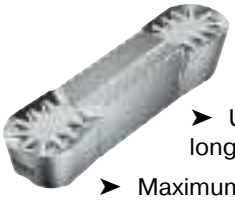
Indexable inserts for turning operations



Indexable inserts for general turning operations

- Maximum productivity thanks to the most modern cutting tool materials and coatings like ***Tiger·tec®***
- Complete product range, from roughing to finishing the right geometry for each material
- New to the product range: economic, multi-edged CBN cutting inserts for hard turning
- Easy selection of the inserts via WALTER SELECT

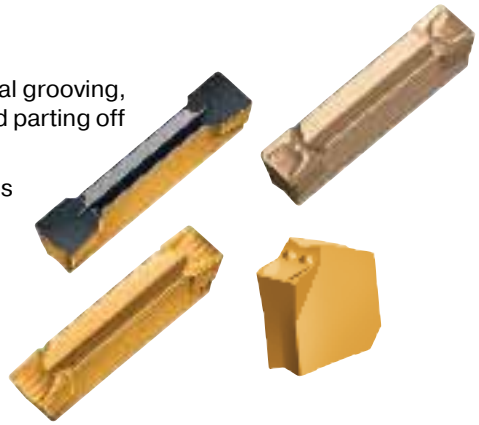
For the complete range of ISO indexable inserts, see page 24 onwards.



Grooving inserts

- Universally applicable geometries for radial grooving, longitudinal turning, axial grooving, facing and parting off
- Maximum process reliability in different materials, thanks to the specially developed geometries for perfect chip breakage
- Double-sided 140° V-guide ensures high operating reliability

For the complete range of grooving inserts, see page 52 onwards.





Threading inserts

- Three-edge full profile cutting inserts for maximum productivity
- Comprehensive range of threading inserts, including all the most popular threads, e.g. ISO metric, Whitworth, American UN etc.
- High profile and repeat accuracy due to precision-ground threading inserts

For the complete range of threading inserts, see page 60 onwards.



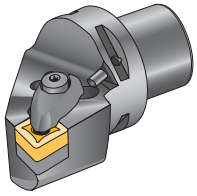
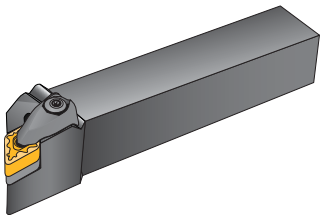
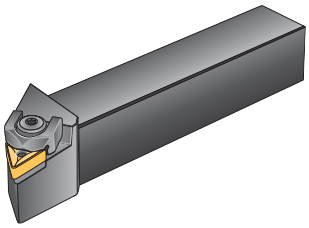
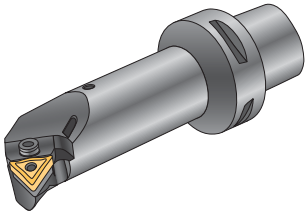
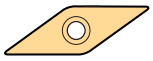
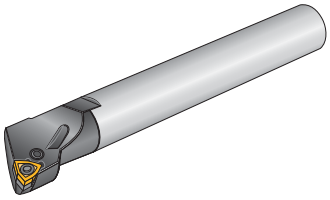




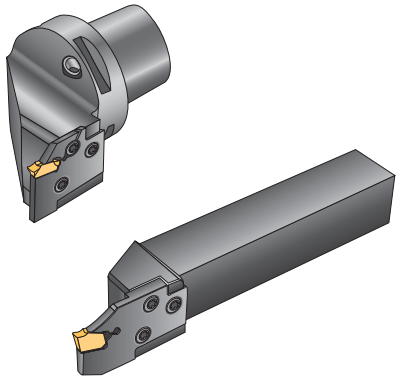


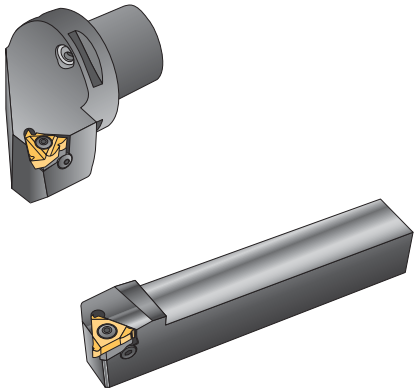


Product range of turning inserts

ISO toolholders	Insert shape	Description	Page
	 C NEW	Negative basic shape Positive basic shape	28 41
	 D NEW	Negative basic shape Positive basic shape	31 43
	 R	Positive basic shape	44
	 S	Negative basic shape Positive basic shape	33 45
	 T NEW	Negative basic shape Positive basic shape	36 46
	 V NEW	Negative basic shape Positive basic shape	38 47
	 W	Negative basic shape Positive basic shape	39 48

Product range of grooving inserts and threading inserts

WALTER CUT grooving holders	Insert shape	Description	Page
	 NEW **GX**	WALTER CUT grooving inserts	54
	 **FX**	WALTER CUT grooving inserts	58
	 **LX**	WALTER CUT grooving inserts	59

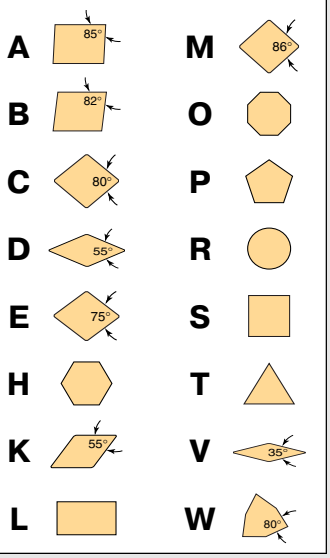
WALTER NTS threading holders	Insert shape	Description	Page
	 **NTS**	WALTER NTS threading inserts	60

Designation key in accordance with ISO 1832

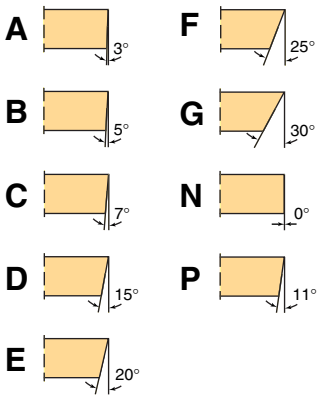
Example 1:

C	N	M	G	12	04	08	– NM 4
1	2	3	4	5	6	7	12

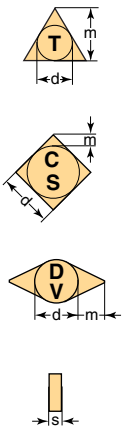
1 Insert shape



2 Clearance angle



3 Tolerances



Permissible deviation in mm for

	d	m	s
A	± 0.025	± 0.005	± 0.025
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
F	± 0.013	± 0.005	± 0.025
G	± 0.025	± 0.025	± 0.130
H	± 0.013	± 0.013	± 0.025
J[1]	± 0.05–0.15[2]	± 0.005	± 0.025
K[1]	± 0.05–0.15[2]	± 0.013	± 0.025
L[1]	± 0.05–0.15[2]	± 0.025	± 0.025
M	± 0.05 –0.15[2]	± 0.08–0.20[2]	± 0.130
N	± 0.05–0.15[2]	± 0.08–0.20[2]	± 0.025
U	± 0.08–0.25[2]	± 0.13 –0.38[2]	± 0.130

[1] inserts with ground secondary cutting edges
[2] depending on the insert size (see ISO standard 1832)

7 Corner radius

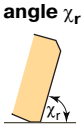


01 r = 0.1
02 r = 0.2
04 r = 0.4
08 r = 0.8
12 r = 1.2
16 r = 1.6
24 r = 2.4



00 for diameters with inch measurements converted to mm.
M0 for diameters in metric measurements.

Approach setting angle χ_r



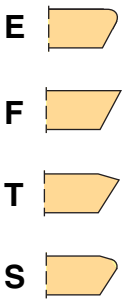
A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = other approach angle

Clearance angle to the secondary cutting edge

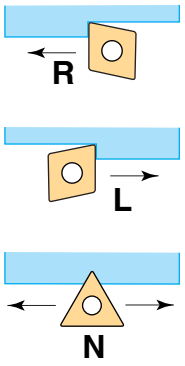


A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = other clearance angle

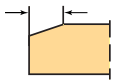
8 Cutting edge formation



9 Cutting edge direction



10 Chamfer width

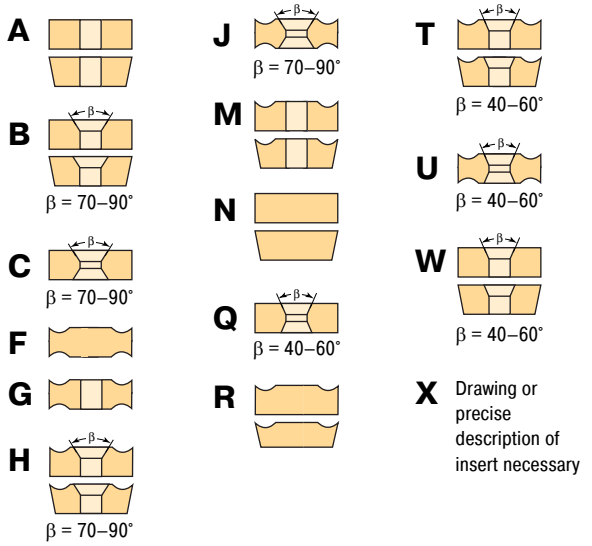


010 = 0.10 mm
020 = 0.20 mm
025 = 0.25 mm
070 = 0.70 mm
150 = 1.50 mm
200 = 2.00 mm

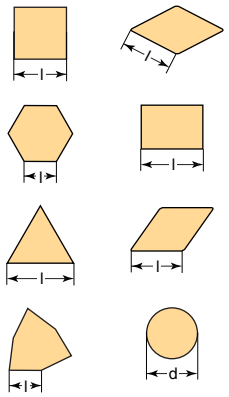
Example 2:

T	N	M	A	16	04	08		T	020	20
1	2	3	4	5	6	7		8	10	11

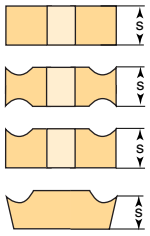
4 Machining and fastening features



5 Cutting edge length

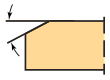


6 Insert thickness



01	s = 1.59
T1	s = 1.98
02	s = 2.38
T2	s = 2.78
03	s = 3.18
T3	s = 3.97
04	s = 4.76
05	s = 5.56
06	s = 6.35
07	s = 7.94
09	s = 9.52

11 Chamfer angle



15 = 15°
20 = 20°

12 Manufacturer's specifications

N	M	4

→ **WALTER geometry index**

The ISO code includes 9 symbols. The symbols 8 and/or 9 should only be used when required.
The manufacturer can add other symbols which can be combined with the ISO code by means of a hyphen (e.g. for the chip breaker shape).

Basic shape	
N	Negative basic shape
P	Positive basic shape

Machining method	
F	Finishing
S	Semi-finishing
M	Medium machining
R	Roughing

Negative basic shape:

NF	NM 6
NF 3	NM 9
NF 4	NR 4
NS 6	NR 6
NM	NR 8
NM 4	-2
NM 5	-3

Positive basic shape:

PF	PM 5
PF 4	PR 5
PF 5	-2
PS 4	
PS 5	
PM	
PM 2	

WALTER SELECT for turning inserts

WALTER SELECT –
Step by step to the optimal indexable insert

➔ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

➔ Step 2

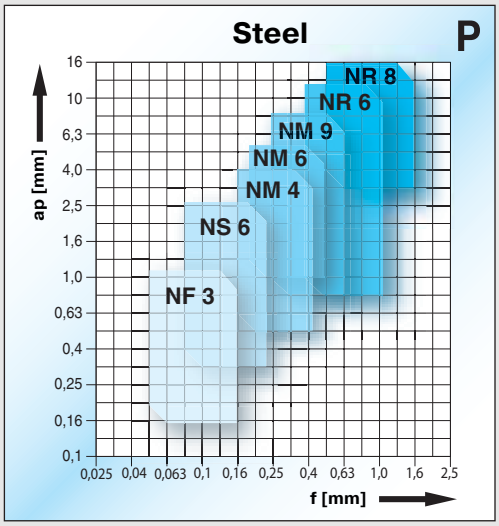
Select the **machining conditions:**

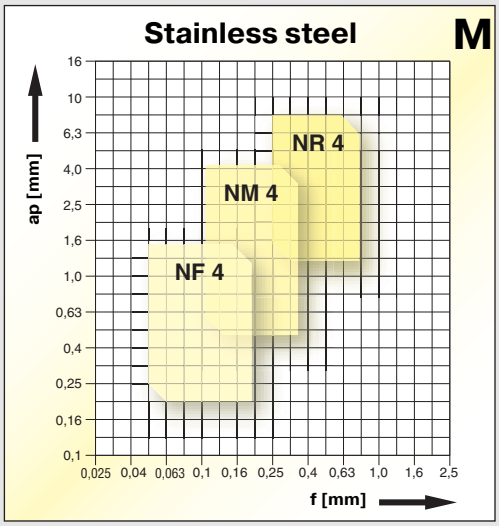
Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut, premachined surface			
Casting or forging skin changing cutting depths minimal interrupted cuts			
Medium interrupted cuts			
Heavily interrupted cuts			

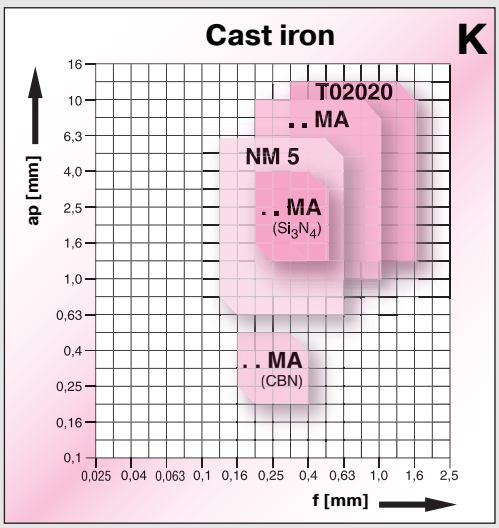
➔ Step 3

Define the **indexable insert geometry** from the cut depth (ap) and the feed rate (f).

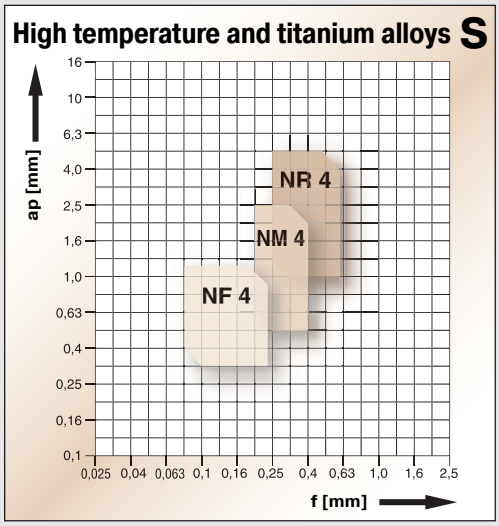
For detailed information on the geometries, see page 212 onwards of the Technical information.

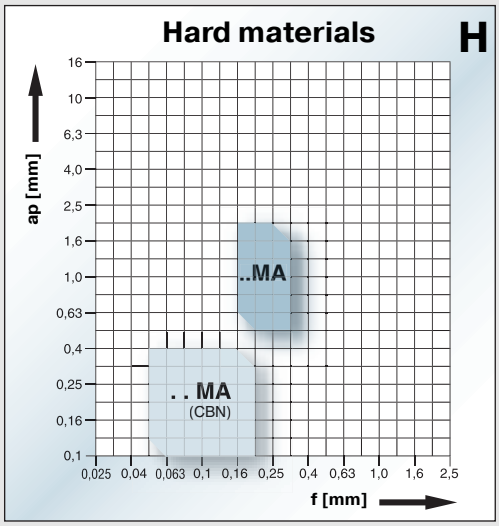












Additional geometries for special applications:

- NM
- NF

Wiper

see Technical information page 218 onwards.

→ Step 4

Define the **cutting tool material** by means of the insert geometry and the machining conditions:

Workpiece material group	WALTER insert geometry	Machining conditions		
P (1–13)	NF 3	WPP 01 / WPP 10	WPP 20	WPP 20
	NS 6	WPP 01 / WPP 10	WPP 20	WPP 20
	NM 4	WPP 05 / WPP 10	WPP 20	WPP 30
	NM 6	WPP 10	WPP 20	WPP 30 / WAK30
	NM 9	WPP 05 / WPP 10	WPP 20	WPP 30
	NR 6	WPP 10	WPP 20	WPP 30 / WAK 30
	NR 8	WPP 10	WPP 20	WPP 30
M (14)	NF 4	WAM 10	WAM 20	WAM 20
	NM 4	WAM 10	WAM 20	WSM 30
	NR 4	WAM 10	WAM 20	WSM 30
K (15–20)	NM 5	WAK 10	WAK 20	WAK 30
	. . MA	WAK 10	WAK 20	WAK 20
	T02020	WAK 10	WAK 20	WAK 20
	. . MA (CBN)	WCB 50	WCB 50	WCB 50
	. . MA (Si_3N_4)	WSN 10	WSN 10	WSN 10
S (31–37)	NF 4	WAM 20	WAM 20	WAM 20
	NM 4	WAM 20	WAM 20	WSM 30
	NR 4	WAM 20	WAM 20	WSM 30
H (38–41)	. . MA	WAK 10	WAK 10	WAK 10
	. . MA (CBN)	WCB 30	WCB 50	WCB 50

→ Step 5

Select the **cutting data** in the Technical information, from page 206 onwards.

Material group	Workpiece material		Brinell hardness HB	Machining group*	Cutting speed v_c [m/min] WPP 01 f [mm] 0.1	0.2	0.4	WPP 05 f [mm] 0.1	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	530	480	410	450	410	330
		approx. 0.45 % C annealed	190	2	450	410	320	380	340	270
		approx. 0.45 % C tempered	250	3	320	290	250	270	240	210
		approx. 0.75 % C annealed	270	4	360	320	290	290	270	240
		approx. 0.75 % C tempered	300	5	270	240	210	230	210	160
	Low-alloyed steel[1]	annealed	180	6	400	360	290	330	300	240
		tempered	275	7	310	280	230	250	230	190
		tempered	300	8	270	240	210	230	210	160
		tempered	350	9	250	230	170	190	170	15
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	420	380	290	340	310	24
		hardened and tempered	325	11	210	190	120	150	130	100
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	320	290	260	270	240	220
		martensitic, tempered	240	13	240	220	170	190	170	130
M	Stainless steel[1]	austenitic[2], quenched	180	14						
K		perlitic/ferritic				400	260	400	360	

WALTER SELECT for turning inserts

WALTER SELECT –
Step by step to the optimal indexable insert

➔ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

➔ Step 2

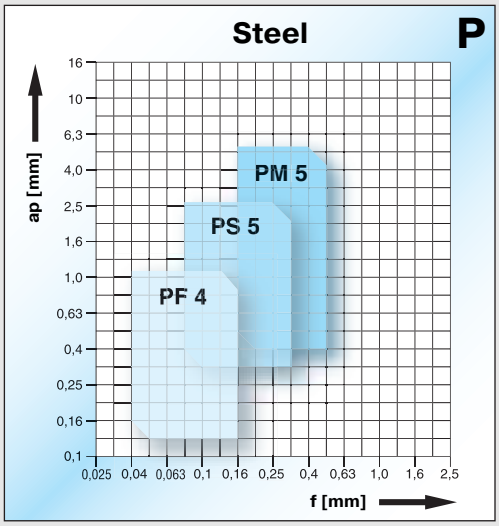
Select the **machining conditions**:

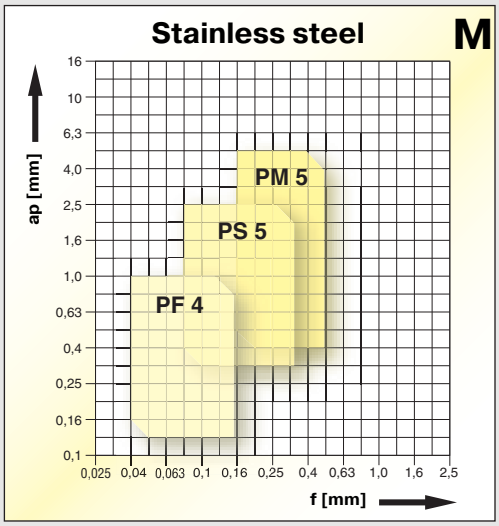
Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut, premachined surface			
Casting or forging skin changing cutting depths minimal interrupted cuts			
Medium interrupted cuts			
Heavily interrupted cuts			

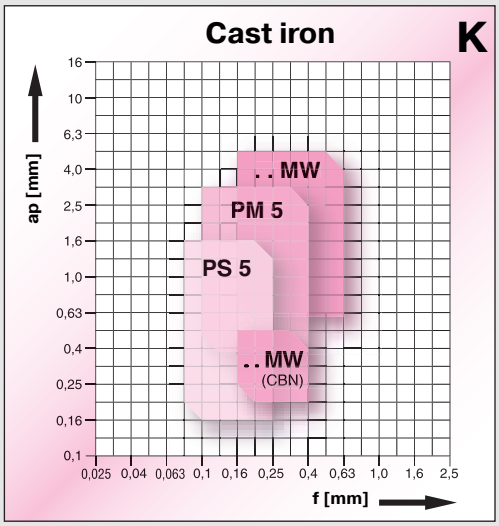
➔ Step 3

Define the **indexable insert geometry** from the cut depth (ap) and the feed rate (f).

For detailed information on the geometries, see page 215 onwards of the Technical information.



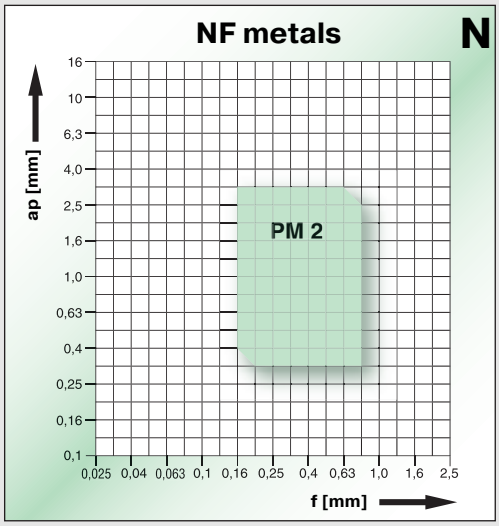


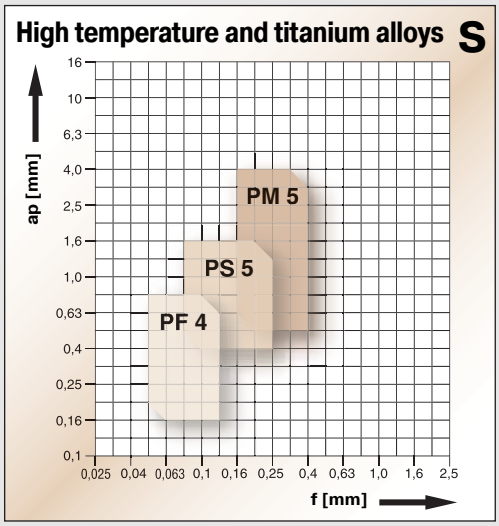


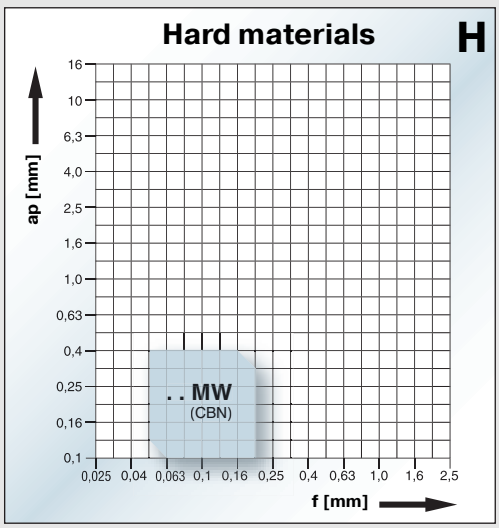


→ Step 4

Define the **cutting tool material** by means of the insert geometry and the machining conditions:







Workpiece material group	WALTER insert geometry	Machining conditions		
		☺	😐	☹
P (1–13)	PF 4	WPP 01	WPP 10	WPP 20
	PS 5	WPP 10	WPP 20	WPP 20
	PM 5	WPP 10	WPP 20	WPP 30 / WAK 30
M (14)	PF 4	WAM 20	WAM 20	WSM 30
	PS 5	WAM 20	WAM 20	WSM 30
	PM 5	WAM 20	WAM 20	WSM 30
K (15–20)	PS 5	WAK 10	WAK 20	WAK 20
	PM 5	WAK 10	WAK 20	WAK 30
	. CMW (CBN)	WCB 50	WCB 50	WCB 50
N (21–30)	PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
S (31–37)	PF 4	WAM 20	WAM 20	WSM 30
	PS 5	WAM 20	WAM 20	WSM 30
	PM 5	WAM 20	WAM 20	WSM 30
H (38–41)	. CMW (CBN)	WCB 30	WCB 50	WCB 50

→ Step 5

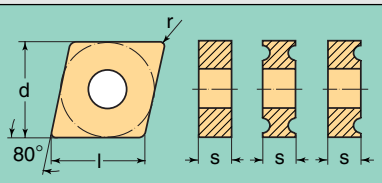
Select the **cutting data** in the Technical information, page 208 onwards.

Material group	Workpiece material		Brinell hardness HB	Machining group*	Cutting speed v_c [m/min] WPP 01 f [mm] 0.1	0.2	0.4	WPP 10 f [mm] 0.1	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	530	480	410	450	410	330
		approx. 0.45 % C annealed	190	2	450	410	320	380	340	270
		approx. 0.45 % C tempered	250	3	320	290	250	270	240	210
		approx. 0.75 % C annealed	270	4	360	320	290	290	270	240
		approx. 0.75 % C tempered	300	5	270	240	210	230	210	160
	Low-alloyed steel[1]	annealed	180	6	400	360	290	330	300	240
		tempered	275	7	310	280	230	250	230	190
		tempered	300	8	270	240	210	230	210	160
		tempered	350	9	250	230	170	190	170	15
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	420	380	290	340	310	24
		hardened and tempered	325	11	210	190	120	150	130	100
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	320	290	260	270	240	220
		martensitic, tempered	240	13	240	220	170	190	170	130
M	Stainless steel[1]	austenitic[2], quenched	180	14						
K		perlitic/ferritic	180			400	260	400	360	

Wiper **Additional geometries for special applications:**
– PM and – PF see Technical information, page 218 onwards.

Turning inserts with negative basic shape

CNMG



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

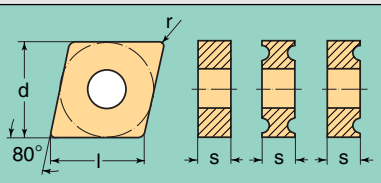
	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
Wiper	CNMG 120404 – NF	12.7	12.9	4.76	0.4	△		△	△			△									
	CNMG 120408 – NF	12.7	12.9	4.76	0.8	△		△	△			△									
Wiper	CNMG 120408 – NM	12.7	12.9	4.76	0.8		△	△	△			△		△	△						
	CNMG 120412 – NM	12.7	12.9	4.76	1.2		△	△	△			△		△	△						
	CNMG 120404 – NF 3	12.7	12.9	4.76	0.4	△		△	△												
	CNMG 120408 – NF 3	12.7	12.9	4.76	0.8	△		△	△												
	CNMG 120412 – NF 3	12.7	12.9	4.76	1.2	△		△	△												
	CNMG 120404 – NF 4	12.7	12.9	4.76	0.4						△	△									
	CNMG 120408 – NF 4	12.7	12.9	4.76	0.8						△	△									
	CNMG 120412 – NF 4	12.7	12.9	4.76	1.2						△	△									
	CNMG 120404 – NS 6	12.7	12.9	4.76	0.4	△		△	△												
	CNMG 120408 – NS 6	12.7	12.9	4.76	0.8	△		△	△												
	CNMG 120412 – NS 6	12.7	12.9	4.76	1.2	△		△	△												
	CNMG 120404 – NM 4	12.7	12.9	4.76	0.4		△	△	△	△	△	△	△						△		
	CNMG 120408 – NM 4	12.7	12.9	4.76	0.8		△	△	△	△	△	△	△						△		
	CNMG 120412 – NM 4	12.7	12.9	4.76	1.2		△	△	△	△	△	△	△						△		
	CNMG 120416 – NM 4	12.7	12.9	4.76	1.6			△	△	△	△	△	△						△		
	CNMG 160608 – NM 4	15.875	16.1	6.35	0.8		△	△	△	△		△	△						△		
	CNMG 160612 – NM 4	15.875	16.1	6.35	1.2		△	△	△	△		△	△						△		
	CNMG 160616 – NM 4	15.875	16.1	6.35	1.6			△	△	△		△	△						△		
	CNMG 120404 – NM 5	12.7	12.9	4.76	0.4									△	△	△					
	CNMG 120408 – NM 5	12.7	12.9	4.76	0.8									△	△	△					
	CNMG 120412 – NM 5	12.7	12.9	4.76	1.2									△	△	△					
	CNMG 120416 – NM 5	12.7	12.9	4.76	1.6									△	△	△					
	CNMG 160608 – NM 5	15.875	16.1	6.35	0.8									△	△	△					
	CNMG 160612 – NM 5	15.875	16.1	6.35	1.2									△	△	△					
	CNMG 160616 – NM 5	15.875	16.1	6.35	1.6									△	△	△					
	CNMG 190612 – NM 5	19.05	19.3	6.35	0.8									△	△	△					
	CNMG 190616 – NM 5	19.05	19.3	6.35	1.2									△	△	△					
	CNMG 190624 – NM 5	19.05	19.3	6.35	1.6									△	△	△					

Wiper

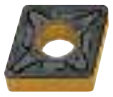
See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®

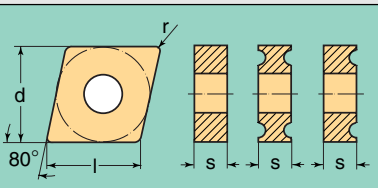
CNMG
CNMM



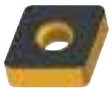
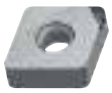
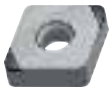
HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	CNMG 120408 – NM 6	12.7	12.9	4.76	0.8			△	△	△						△					
	CNMG 120412 – NM 6	12.7	12.9	4.76	1.2			△	△	△						△					
	CNMG 120416 – NM 6	12.7	12.9	4.76	1.6			△	△	△						△					
	CNMG 160608 – NM 6	15.875	16.1	6.35	0.8			△	△	△						△					
	CNMG 160612 – NM 6	15.875	16.1	6.35	1.2			△	△	△						△					
	CNMG 160616 – NM 6	15.875	16.1	6.35	1.6			△	△	△						△					
	CNMG 190612 – NM 6	19.05	19.3	6.35	1.2			△	△	△						△					
	CNMG 190616 – NM 6	19.05	19.3	6.35	1.6			△	△	△						△					
	CNMG 190624 – NM 6	19.05	19.3	6.35	2.4			△	△	△						△					
	CNMG 120408 – NM 9	12.7	12.9	4.76	0.8		△	△	△	△											
	CNMG 120412 – NM 9	12.7	12.9	4.76	1.2		△	△	△	△											
	CNMG 120416 – NM 9	12.7	12.9	4.76	1.6		△	△	△	△											
	CNMG 160608 – NM 9	15.875	16.1	6.35	0.8			△	△	△											
	CNMG 160612 – NM 9	15.875	16.1	6.35	1.2		△	△	△	△											
	CNMG 160616 – NM 9	15.875	16.1	6.35	1.6		△	△	△	△											
	CNMG 190608 – NM 9	19.05	19.3	6.35	0.8			△	△	△											
	CNMG 190612 – NM 9	19.05	19.3	6.35	1.2		△	△	△	△											
	CNMG 190616 – NM 9	19.05	19.3	6.35	1.6		△	△	△	△											
	CNMG 120408 – NR 4	12.7	12.9	4.76	0.8							△	△						△		
	CNMG 120412 – NR 4	12.7	12.9	4.76	1.2							△	△						△		
	CNMG 120416 – NR 4	12.7	12.9	4.76	1.6							△	△						△		
	CNMG 160608 – NR 4	15.875	16.1	6.35	0.8							△	△						△		
	CNMG 160612 – NR 4	15.875	16.1	6.35	1.2							△	△						△		
	CNMG 160616 – NR 4	15.875	16.1	6.35	1.6							△	△						△		
	CNMG 190612 – NR 4	19.05	19.3	6.35	1.2							△	△						△		
	CNMG 190616 – NR 4	19.05	19.3	6.35	1.6							△	△						△		
	CNMM 120408 – NR 6	12.7	12.9	4.76	0.8			△	△	△						△					
	CNMM 120412 – NR 6	12.7	12.9	4.76	1.2			△	△	△						△					
	CNMM 120416 – NR 6	12.7	12.9	4.76	1.6			△	△	△						△					
	CNMM 160612 – NR 6	15.875	16.1	6.35	1.2			△	△	△						△					
	CNMM 160616 – NR 6	15.875	16.1	6.35	1.6			△	△	△						△					
	CNMM 160624 – NR 6	15.875	16.1	6.35	2.4			△	△	△						△					
	CNMM 190612 – NR 6	19.05	19.3	6.35	1.2			△	△	△						△					
	CNMM 190616 – NR 6	19.05	19.3	6.35	1.6			△	△	△						△					
	CNMM 190624 – NR 6	19.05	19.3	6.35	2.4			△	△	△						△					

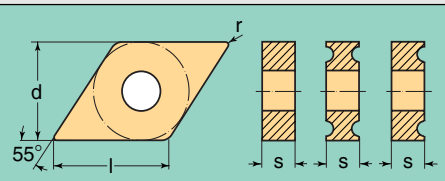
CNMM
CNMA



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	CNMM 120408 – NR 8	12.7	12.9	4.76	0.8			△	△	△											
	CNMM 120412 – NR 8	12.7	12.9	4.76	1.2			△	△	△											
	CNMM 120416 – NR 8	12.7	12.9	4.76	1.6			△	△	△											
	CNMM 160612 – NR 8	15.875	16.1	6.35	1.2			△	△	△											
	CNMM 160616 – NR 8	15.875	16.1	6.35	1.6			△	△	△											
	CNMM 190612 – NR 8	19.05	19.3	6.35	1.2			△	△	△											
	CNMM 190616 – NR 8	19.05	19.3	6.35	1.6			△	△	△											
	CNMM 190624 – NR 8	19.05	19.3	6.35	2.4			△	△	△											
	CNMA 120404	12.7	12.9	4.76	0.4									△	△						
	CNMA 120408	12.7	12.9	4.76	0.8									△	△						
	CNMA 120412	12.7	12.9	4.76	1.2									△	△						
	CNMA 120416	12.7	12.9	4.76	1.6									△	△						
	CNMA 160612	15.875	16.1	6.35	1.2									△	△						
	CNMA 160616	15.875	16.1	6.35	1.6									△	△						
	CNMA 190612	19.05	19.3	6.35	1.2									△	△						
	CNMA 190616	19.05	19.3	6.35	1.6									△	△						
	CNMA 190624	19.05	19.3	6.35	2.4									△	△						
	CNMA 120408 T02020	12.7	12.9	4.76	0.8									△	△						
	CNMA 120412 T02020	12.7	12.9	4.76	1.2									△	△						
	CNMA 120416 T02020	12.7	12.9	4.76	1.6									△	△						
	CNMA 160612 T02020	15.875	16.1	6.35	1.2									△	△						
	CNMA 160616 T02020	15.875	16.1	6.35	1.6									△	△						
	CNMA 190612 T02020	19.05	19.3	6.35	1.2									△	△						
	CNMA 190616 T02020	19.05	19.3	6.35	1.6									△	△						
	CNMA 120408 T02020	12.7	12.9	4.76	0.8												△				
	CNMA 120412 T02020	12.7	12.9	4.76	1.2												△				
	CNMA 120416 T02020	12.7	12.9	4.76	1.6												△				
	CNMA 120404	12.7	12.9	4.76	0.4															△	△
	CNMA 120408	12.7	12.9	4.76	0.8															△	△
	CNMA 120412	12.7	12.9	4.76	1.2															△	△
	CNMA 120404–2	12.7	12.9	4.76	0.4															△	△
	CNMA 120408–2	12.7	12.9	4.76	0.8															△	△
	CNMA 120412–2	12.7	12.9	4.76	1.2															△	△

DNMG



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

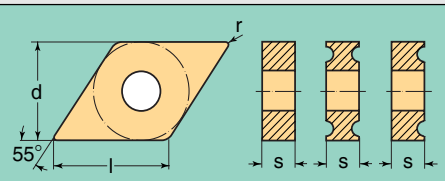
	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
Wiper	DNMG 110408 – NF	9.525	11.6	4.76	0.8	△		△	△			△									
	DNMG 150608 – NF	12.7	15.5	6.35	0.8	△		△	△			△									
Wiper	DNMG 110408 – NM	9.525	11.6	4.76	0.8			△	△					△	△						
	DNMG 110412 – NM	9.525	11.6	4.76	1.2			△	△					△	△						
	DNMG 150608 – NM	12.7	15.5	6.35	0.8		△	△	△					△	△						
	DNMG 150612 – NM	12.7	15.5	6.35	1.2		△	△	△					△	△						
	DNMG 110402 – NF 3	9.525	11.6	4.76	0.2	△		△	△												
	DNMG 110404 – NF 3	9.525	11.6	4.76	0.4	△		△	△												
	DNMG 110408 – NF 3	9.525	11.6	4.76	0.8	△		△	△												
	DNMG 110412 – NF 3	9.525	11.6	4.76	1.2	△		△	△												
	DNMG 150604 – NF 3	12.7	15.5	6.35	0.4	△		△	△												
	DNMG 150608 – NF 3	12.7	15.5	6.35	0.8	△		△	△												
	DNMG 150612 – NF 3	12.7	15.5	6.35	1.2	△		△	△												
	DNMG 110404 – NF 4	9.525	11.6	4.76	0.4						△	△									
	DNMG 110408 – NF 4	9.525	11.6	4.76	0.8						△	△									
	DNMG 150604 – NF 4	12.7	15.5	6.35	0.4						△	△									
	DNMG 150608 – NF 4	12.7	15.5	6.35	0.8						△	△									
	DNMG 150612 – NF 4	12.7	15.5	6.35	1.2						△	△									
	DNMG 110404 – NS 6	9.525	11.6	4.76	0.4	△		△	△												
	DNMG 110408 – NS 6	9.525	11.6	4.76	0.8	△		△	△												
	DNMG 150604 – NS 6	12.7	15.5	6.35	0.4	△		△	△												
	DNMG 150608 – NS 6	12.7	15.5	6.35	0.8	△		△	△												
	DNMG 150612 – NS 6	12.7	15.5	6.35	1.2	△		△	△												
	DNMG 110404 – NM 4	9.525	11.6	4.76	0.4			△	△	△		△	△						△		
	DNMG 110408 – NM 4	9.525	11.6	4.76	0.8			△	△	△		△	△						△		
	DNMG 110412 – NM 4	9.525	11.6	4.76	1.2			△	△	△		△	△						△		
	DNMG 150604 – NM 4	12.7	15.5	6.35	0.4			△	△	△		△	△						△		
	DNMG 150608 – NM 4	12.7	15.5	6.35	0.8		△	△	△	△		△	△						△		
	DNMG 150612 – NM 4	12.7	15.5	6.35	1.2		△	△	△	△		△	△						△		
	DNMG 150616 – NM 4	12.7	15.5	6.35	1.6			△	△	△											
	DNMG 110404 – NM 5	9.525	11.6	4.76	0.4									△	△						
	DNMG 110408 – NM 5	9.525	11.6	4.76	0.8									△	△						
	DNMG 110412 – NM 5	9.525	11.6	4.76	1.2									△	△						
	DNMG 150608 – NM 5	12.7	15.5	6.35	0.8									△	△						
	DNMG 150612 – NM 5	12.7	15.5	6.35	1.2									△	△						
	DNMG 110408 – NM 9	9.525	11.6	4.76	0.8			△	△	△											
	DNMG 110412 – NM 9	9.525	11.6	4.76	1.2			△	△	△											
	DNMG 150608 – NM 9	12.7	15.5	6.35	0.8		△	△	△	△											
	DNMG 150612 – NM 9	12.7	15.5	6.35	1.2		△	△	△	△											
	DNMG 150616 – NM 9	12.7	15.5	6.35	1.6		△	△	△	△											

Wiper

See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®

DNMG
DNMM
DNMA



HC = coated carbide
CN = Silicon nitride Si_3N_4
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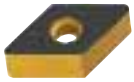
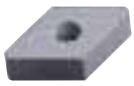
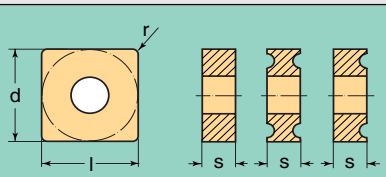
	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	DNMG 110408 – NR 4	9.525	11.6	4.76	0.8							△	△						△		
	DNMG 110412 – NR 4	9.525	11.6	4.76	1.2							△	△						△		
	DNMG 150608 – NR 4	12.7	15.5	6.35	0.8							△	△						△		
	DNMG 150612 – NR 4	12.7	15.5	6.35	1.2							△	△						△		
	DNMM 150608 – NR 6	12.7	15.5	6.35	0.8			△	△	△											
	DNMM 150612 – NR 6	12.7	15.5	6.35	1.2			△	△	△											
	DNMM 150616 – NR 6	12.7	15.5	6.35	1.6			△	△	△											
	DNMA 110404	9.525	11.6	4.76	0.4									△	△						
	DNMA 110408	9.525	11.6	4.76	0.8									△	△						
	DNMA 150608	12.7	15.5	6.35	0.8									△	△						
	DNMA 150612	12.7	15.5	6.35	1.2									△	△						
	DNMA 150608 T02020	12.7	15.5	6.35	0.8												△				
	DNMA 150612 T02020	12.7	15.5	6.35	1.2												△				
	DNMA 150604	12.7	15.5	6.35	0.4															△	△
	DNMA 150608	12.7	15.5	6.35	0.8															△	△
	DNMA 150612	12.7	15.5	6.35	1.2															△	△
	DNMA 150604–2	12.7	15.5	6.35	0.4															△	△
	DNMA 150608–2	12.7	15.5	6.35	0.8															△	△
	DNMA 150612–2	12.7	15.5	6.35	1.2															△	△

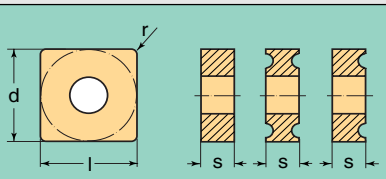
SNMG



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	SNMG 120404 – NF 3	12.7	12.7	4.76	0.4	△		△	△												
	SNMG 120408 – NF 3	12.7	12.7	4.76	0.8	△		△	△												
	SNMG 120412 – NF 3	12.7	12.7	4.76	1.2	△		△	△												
	SNMG 120404 – NF 4	12.7	12.7	4.76	0.4						△	△									
	SNMG 120408 – NF 4	12.7	12.7	4.76	0.8						△	△									
	SNMG 120412 – NF 4	12.7	12.7	4.76	1.2						△	△									
	SNMG 120404 – NS 6	12.7	12.7	4.76	0.4	△		△	△												
	SNMG 120408 – NS 6	12.7	12.7	4.76	0.8	△		△	△												
	SNMG 120412 – NS 6	12.7	12.7	4.76	1.2	△		△	△												
	SNMG 120404 – NM 4	12.7	12.7	4.76	0.4						△	△	△						△		
	SNMG 120408 – NM 4	12.7	12.7	4.76	0.8		△	△	△	△	△	△	△						△		
	SNMG 120412 – NM 4	12.7	12.7	4.76	1.2		△	△	△	△	△	△	△						△		
	SNMG 120416 – NM 4	12.7	12.7	4.76	1.6			△	△	△	△	△	△						△		
	SNMG 150608 – NM 4	15.875	15.875	6.35	0.8			△	△	△											
	SNMG 150612 – NM 4	15.875	15.875	6.35	1.2			△	△	△											
	SNMG 150616 – NM 4	15.875	15.875	6.35	1.6			△	△	△											
	SNMG 120408 – NM 5	12.7	12.7	4.76	0.8									△	△	△					
	SNMG 120412 – NM 5	12.7	12.7	4.76	1.2									△	△	△					
	SNMG 120416 – NM 5	12.7	12.7	4.76	1.6									△	△	△					
	SNMG 150608 – NM 5	15.875	15.875	6.35	0.8									△	△	△					
	SNMG 150612 – NM 5	15.875	15.875	6.35	1.2									△	△	△					
	SNMG 150616 – NM 5	15.875	15.875	6.35	1.6									△	△	△					
	SNMG 190612 – NM 5	19.05	19.05	6.35	1.2									△	△	△					
	SNMG 190616 – NM 5	19.05	19.05	6.35	1.6									△	△	△					
	SNMG 190624 – NM 5	19.05	19.05	6.35	2.4									△	△	△					
	SNMG 120408 – NM 6	12.7	12.7	4.76	0.8			△	△	△						△					
	SNMG 120412 – NM 6	12.7	12.7	4.76	1.2			△	△	△						△					
	SNMG 120416 – NM 6	12.7	12.7	4.76	1.6			△	△	△						△					
	SNMG 150608 – NM 6	15.875	15.875	6.35	0.8			△	△	△						△					
	SNMG 150612 – NM 6	15.875	15.875	6.35	1.2			△	△	△						△					
	SNMG 150616 – NM 6	15.875	15.875	6.35	1.6			△	△	△						△					
	SNMG 190612 – NM 6	19.05	19.05	6.35	1.2			△	△	△						△					
	SNMG 190616 – NM 6	19.05	19.05	6.35	1.6			△	△	△						△					
	SNMG 190624 – NM 6	19.05	19.05	6.35	2.4			△	△	△						△					
	SNMG 120408 – NM 9	12.7	12.7	4.76	0.8			△	△	△											
	SNMG 120412 – NM 9	12.7	12.7	4.76	1.2		△	△	△	△											
	SNMG 120416 – NM 9	12.7	12.7	4.76	1.6		△	△	△	△											
	SNMG 150612 – NM 9	15.875	15.875	6.35	1.2			△	△	△											
	SNMG 150616 – NM 9	15.875	15.875	6.35	1.6			△	△	△											
	SNMG 190612 – NM 9	19.05	19.05	6.35	1.2			△	△	△											
	SNMG 190616 – NM 9	19.05	19.05	6.35	1.6			△	△	△											

SNMG
SNMM
SNMA

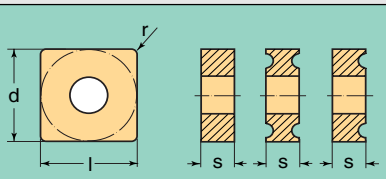


HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	SNMG 120408 – NR 4	12.7	12.7	4.76	0.8							△	△						△		
	SNMG 120412 – NR 4	12.7	12.7	4.76	1.2							△	△						△		
	SNMG 120416 – NR 4	12.7	12.7	4.76	1.6							△	△						△		
	SNMG 150608 – NR 4	15.875	15.875	6.35	0.8							△	△						△		
	SNMG 150612 – NR 4	15.875	15.875	6.35	1.2							△	△						△		
	SNMG 150616 – NR 4	15.875	15.875	6.35	1.6							△	△						△		
	SNMG 190612 – NR 4	19.05	19.05	6.35	1.2							△	△						△		
	SNMG 190616 – NR 4	19.05	19.05	6.35	1.6							△	△						△		
	SNMM 120408 – NR 6	12.7	12.7	4.76	0.8			△	△	△						△					
	SNMM 120412 – NR 6	12.7	12.7	4.76	1.2			△	△	△						△					
	SNMM 120416 – NR 6	12.7	12.7	4.76	1.6			△	△	△						△					
	SNMM 150612 – NR 6	15.875	15.875	6.35	1.2			△	△	△						△					
	SNMM 150616 – NR 6	15.875	15.875	6.35	1.6			△	△	△						△					
	SNMM 150624 – NR 6	15.875	15.875	6.35	2.4			△	△	△						△					
	SNMM 190612 – NR 6	19.05	19.05	6.35	1.2			△	△	△						△					
	SNMM 190616 – NR 6	19.05	19.05	6.35	1.6			△	△	△						△					
	SNMM 190624 – NR 6	19.05	19.05	6.35	2.4			△	△	△						△					
	SNMM 250716 – NR 6	25.4	25.4	7.94	1.6			△	△	△						△					
	SNMM 250724 – NR 6	25.4	25.4	7.94	2.4			△	△	△						△					
	SNMM 250916 – NR 6	25.4	25.4	9.52	1.6			△	△	△						△					
	SNMM 250924 – NR 6	25.4	25.4	9.52	2.4			△	△	△						△					
	SNMM 120408 – NR 8	12.7	12.7	4.76	0.8			△	△	△											
	SNMM 120412 – NR 8	12.7	12.7	4.76	1.2			△	△	△											
	SNMM 120416 – NR 8	12.7	12.7	4.76	1.6			△	△	△											
	SNMM 150612 – NR 8	15.875	15.875	6.35	1.2			△	△	△											
	SNMM 150616 – NR 8	15.875	15.875	6.35	1.6			△	△	△											
	SNMM 190612 – NR 8	19.05	19.05	6.35	1.2			△	△	△											
	SNMM 190616 – NR 8	19.05	19.05	6.35	1.6			△	△	△											
	SNMM 190624 – NR 8	19.05	19.05	6.35	2.4			△	△	△											
	SNMM 250716 – NR 8	25.4	25.4	7.94	1.6			△	△	△											
	SNMM 250724 – NR 8	25.4	25.4	7.94	2.4			△	△	△											
	SNMM 250916 – NR 8	25.4	25.4	9.52	1.6			△	△	△											
	SNMM 250924 – NR 8	25.4	25.4	9.52	2.4			△	△	△											
	SNMA 120408	12.7	12.7	4.76	0.8									△	△						
	SNMA 120412	12.7	12.7	4.76	1.2									△	△						
	SNMA 120416	12.7	12.7	4.76	1.6									△	△						
	SNMA 150612	15.875	15.875	6.35	1.2									△	△						
	SNMA 150616	15.875	15.875	6.35	1.6									△	△						
	SNMA 190612	19.05	19.05	6.35	1.2									△	△						
	SNMA 190616	19.05	19.05	6.35	1.2									△	△						
	SNMA 190624	19.05	19.05	6.35	2.4									△	△						



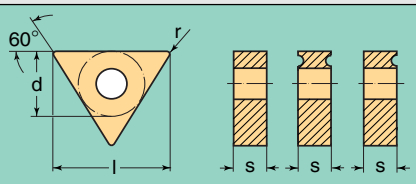
SNMA



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	SNMA 120408 T02020	12.7	12.7	4.76	0.8									△	△						
	SNMA 120412 T02020	12.7	12.7	4.76	1.2									△	△						
	SNMA 120416 T02020	12.7	12.7	4.76	1.6									△	△						
	SNMA 150612 T02020	15.875	15.875	6.35	1.2									△	△						
	SNMA 150616 T02020	15.875	15.875	6.35	1.6									△	△						
	SNMA 190612 T02020	19.05	19.05	6.35	1.2									△	△						
	SNMA 190616 T02020	19.05	19.05	6.35	1.6									△	△						
	SNMA 120408 T02020	12.7	12.7	4.76	0.8												△				
	SNMA 120412 T02020	12.7	12.7	4.76	1.2												△				
	SNMA 120416 T02020	12.7	12.7	4.76	1.6												△				
	SNMA 120404	12.7	12.7	4.76	0.4															△	△
	SNMA 120408	12.7	12.7	4.76	0.8															△	△
	SNMA 120412	12.7	12.7	4.76	1.2															△	△

TNMG
TNMM



HC = coated carbide
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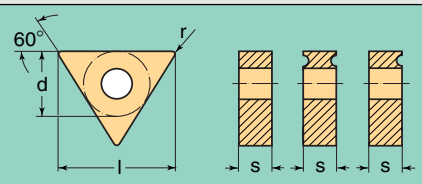
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC					M HC			K HC			CN	N HC	S HC	H BL	H BH
						WPP 01	WPP 05	WPP 10	WPP 20	WPP 30	WAM 10	WAM 20	WSM 30	WAK 10	WAK 20	WAK 30	WSN 10	WXN 10	WSM 30	WCB 30	WCB 50
	TNMG 160404 – NF 3	9.525	16.5	4.76	0.4	△		△	△												
	TNMG 160408 – NF 3	9.525	16.5	4.76	0.8	△		△	△												
	TNMG 160412 – NF 3	9.525	16.5	4.76	1.2	△		△	△												
	TNMG 160404 – NF 4	9.525	16.5	4.76	0.4						△	△									
	TNMG 160408 – NF 4	9.525	16.5	4.76	0.8						△	△									
	TNMG 160412 – NF 4	9.525	16.5	4.76	1.2						△	△									
	TNMG 160404 – NS 6	9.525	16.5	4.76	0.4	△		△	△												
	TNMG 160408 – NS 6	9.525	16.5	4.76	0.8	△		△	△												
	TNMG 160412 – NS 6	9.525	16.5	4.76	1.2	△		△	△												
	TNMG 220408 – NS 6	12.7	22.0	4.76	0.8	△		△	△												
	TNMG 220412 – NS 6	12.7	22.0	4.76	1.2	△		△	△												
	TNMG 160404 – NM 4	9.525	16.5	4.76	0.4			△	△	△	△	△	△						△		
	TNMG 160408 – NM 4	9.525	16.5	4.76	0.8		△	△	△	△	△	△	△						△		
	TNMG 160412 – NM 4	9.525	16.5	4.76	1.2		△	△	△	△	△	△	△						△		
	TNMG 160416 – NM 4	9.525	16.5	4.76	1.6						△	△	△						△		
	TNMG 220408 – NM 4	12.7	22.0	4.76	0.8			△	△	△											
	TNMG 220412 – NM 4	12.7	22.0	4.76	1.2			△	△	△											
	TNMG 160404 – NM 5	9.525	16.5	4.76	0.4									△	△						
	TNMG 160408 – NM 5	9.525	16.5	4.76	0.8									△	△						
	TNMG 160412 – NM 5	9.525	16.5	4.76	1.2									△	△						
	TNMG 160416 – NM 5	9.525	16.5	4.76	1.6									△	△						
	TNMG 220408 – NM 5	12.7	22.0	4.76	0.8									△	△						
	TNMG 220412 – NM 5	12.7	22.0	4.76	1.2									△	△						
	TNMG 220416 – NM 5	12.7	22.0	4.76	1.6									△	△						
	TNMG 160408 – NM 9	9.525	16.5	4.76	0.8		△	△	△	△											
	TNMG 160412 – NM 9	9.525	16.5	4.76	1.2		△	△	△	△											
	TNMG 220408 – NM 9	12.7	22.0	4.76	0.8			△	△	△											
	TNMG 220412 – NM 9	12.7	22.0	4.76	1.2			△	△	△											
	TNMG 220416 – NM 9	12.7	22.0	4.76	1.6			△	△	△											
	TNMG 160408 – NR 4	9.525	16.5	4.76	0.8							△	△						△		
	TNMG 160412 – NR 4	9.525	16.5	4.76	1.2							△	△						△		
	TNMG 220408 – NR 4	12.7	22.0	4.76	0.8							△	△						△		
	TNMG 220412 – NR 4	12.7	22.0	4.76	1.2							△	△						△		
	TNMG 220416 – NR 4	12.7	22.0	4.76	1.6							△	△						△		
	TNMM 160408 – NR 6	9.525	16.5	4.76	0.8			△	△	△											
	TNMM 160412 – NR 6	9.525	16.5	4.76	1.2			△	△	△											
	TNMM 220408 – NR 6	12.7	22.0	4.76	0.8			△	△	△											
	TNMM 220412 – NR 6	12.7	22.0	4.76	1.2			△	△	△											
	TNMM 220416 – NR 6	12.7	22.0	4.76	1.6			△	△	△											

TNMA



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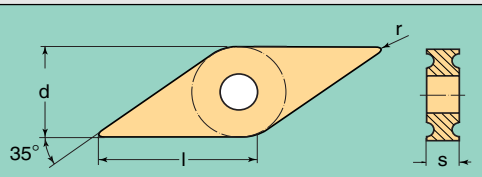
	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	TNMA 160404	9.525	16.5	4.76	0.4									△	△						
	TNMA 160408	9.525	16.5	4.76	0.8									△	△						
	TNMA 160412	9.525	16.5	4.76	1.2									△	△						
	TNMA 160416	9.525	16.5	4.76	1.6									△	△						
	TNMA 220408	12.7	22.0	4.76	0.8									△	△						
	TNMA 220412	12.7	22.0	4.76	1.2									△	△						
	TNMA 220416	12.7	22.0	4.76	1.6									△	△						
	TNMA 160408 T02020	9.525	16.5	4.76	0.8												△				
	TNMA 160412 T02020	9.525	16.5	4.76	1.2												△				
	TNMA 160404	9.525	16.5	4.76	0.4															△	△
	TNMA 160408	9.525	16.5	4.76	0.8															△	△
	TNMA 160412	9.525	16.5	4.76	1.2															△	△
	TNMA 160404–3	9.525	16.5	4.76	0.4															△	△
	TNMA 160408–3	9.525	16.5	4.76	0.8															△	△
	TNMA 160412–3	9.525	16.5	4.76	1.2															△	△



VNMG
VNMA

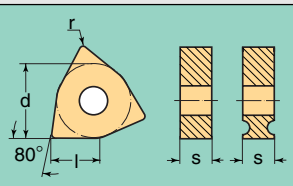


HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
	VNMG 160404 – NF 3	9.525	16.5	4.76	0.4	△		△	△												
	VNMG 160408 – NF 3	9.525	16.5	4.76	0.8	△		△	△												
	VNMG 160404 – NM 4	9.525	16.5	4.76	0.4		△	△	△	△	△	△	△						△		
	VNMG 160408 – NM 4	9.525	16.5	4.76	0.8		△	△	△	△	△	△	△						△		
	VNMG 160404 – NM 5	9.525	16.5	4.76	0.4									△	△						
	VNMG 160408 – NM 5	9.525	16.5	4.76	0.8									△	△						
	VNMG 160412 – NM 5	9.525	16.5	4.76	1.2									△	△						
	VNMA 160404	9.525	16.5	4.76	0.4									△	△						
	VNMA 160408	9.525	16.5	4.76	0.8									△	△						
	VNMA 160412	9.525	16.5	4.76	1.2									△	△						



WNMG



HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

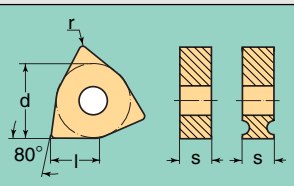
	Designation	d mm	l mm	s mm	r mm	P HC WPP 01	P HC WPP 05	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	K CN WSN 10	N HC WXN 10	S HC WSM 30	H BL WCB 30	H BH WCB 50
 Wiper	WNMG 060404 – NF	9.525	6.5	4.76	0.4	△		△	△			△									
	WNMG 060408 – NF	9.525	6.5	4.76	0.8	△		△	△			△									
	WNMG 080404 – NF	12.7	8.72	4.76	0.4	△		△	△			△									
	WNMG 080408 – NF	12.7	8.72	4.76	0.8	△		△	△			△									
 Wiper	WNMG 060408 – NM	9.525	6.5	4.76	0.8			△	△			△		△	△						
	WNMG 060412 – NM	9.525	6.5	4.76	1.2			△	△			△		△	△						
	WNMG 080408 – NM	12.7	8.72	4.76	0.8		△	△	△			△		△	△						
	WNMG 080412 – NM	12.7	8.72	4.76	1.2		△	△	△			△		△	△						
	WNMG 060404 – NF 3	9.525	6.5	4.76	0.4	△		△	△												
	WNMG 060408 – NF 3	9.525	6.5	4.76	0.8	△		△	△												
	WNMG 060412 – NF 3	9.525	6.5	4.76	1.2	△		△	△												
	WNMG 080404 – NF 3	12.7	8.72	4.76	0.4	△		△	△												
	WNMG 080408 – NF 3	12.7	8.72	4.76	0.8	△		△	△												
	WNMG 080412 – NF 3	12.7	8.72	4.76	1.2	△		△	△												
	WNMG 060404 – NF 4	9.525	6.5	4.76	0.4						△	△									
	WNMG 060408 – NF 4	9.525	6.5	4.76	0.8						△	△									
	WNMG 080404 – NF 4	12.7	8.72	4.76	0.4						△	△									
	WNMG 080408 – NF 4	12.7	8.72	4.76	0.8						△	△									
	WNMG 080412 – NF 4	12.7	8.72	4.76	1.2						△	△									
	WNMG 080404 – NS 6	12.7	8.72	4.76	0.4	△		△	△												
	WNMG 080408 – NS 6	12.7	8.72	4.76	0.8	△		△	△												
	WNMG 080412 – NS 6	12.7	8.72	4.76	1.2	△		△	△												
	WNMG 060404 – NM 4	9.525	6.5	4.76	0.4			△	△	△	△	△	△						△		
	WNMG 060408 – NM 4	9.525	6.5	4.76	0.8			△	△	△	△	△	△						△		
	WNMG 060412 – NM 4	9.525	6.5	4.76	1.2			△	△	△	△	△	△						△		
	WNMG 080404 – NM 4	12.7	8.72	4.76	0.4			△	△	△	△	△	△						△		
	WNMG 080408 – NM 4	12.7	8.72	4.76	0.8		△	△	△	△	△	△	△						△		
	WNMG 080412 – NM 4	12.7	8.72	4.76	1.2		△	△	△	△	△	△	△						△		
	WNMG 080416 – NM 4	12.7	8.72	4.76	1.6			△	△	△	△	△	△						△		
	WNMG 100608 – NM 4	15.875	10.8	6.35	0.8			△	△	△	△	△	△						△		
	WNMG 100612 – NM 4	15.875	10.8	6.35	1.2			△	△	△	△	△	△						△		
	WNMG 100616 – NM 4	15.875	10.8	6.35	1.6			△	△	△											
	WNMG 060404 – NM 5	9.525	6.5	4.76	0.4									△	△						
	WNMG 060408 – NM 5	9.525	6.5	4.76	0.8									△	△						
	WNMG 060412 – NM 5	9.525	6.5	4.76	1.2									△	△						
	WNMG 080404 – NM 5	12.7	8.72	4.76	0.4									△	△						
	WNMG 080408 – NM 5	12.7	8.72	4.76	0.8									△	△						
	WNMG 080412 – NM 5	12.7	8.72	4.76	1.2									△	△						
	WNMG 080416 – NM 5	12.7	8.72	4.76	1.6									△	△						
	WNMG 100608 – NM 5	15.875	10.8	6.35	0.8									△	△						
	WNMG 100612 – NM 5	15.875	10.8	6.35	1.2									△	△						
	WNMG 100616 – NM 5	15.875	10.8	6.35	1.6									△	△						

Wiper

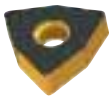
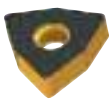
See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®

WNMG
WNMM
WNMA

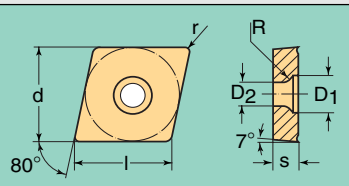


HC = coated carbide
CN = Silicon nitride Si_3N_4
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	P HC					M HC			K HC				K CN	N HC	S HC	H BL	H BH
						WPP 01	WPP 05	WPP 10	WPP 20	WPP 30	WAM 10	WAM 20	WSM 30	WAK 10	WAK 20	WAK 30	WSN 10		WXN 10	WSM 30	WCB 30	WCB 50
	WNMG 080408 – NM 6	12.7	8.72	4.76	0.8			△	△	△												
	WNMG 080412 – NM 6	12.7	8.72	4.76	1.2			△	△	△												
	WNMG 100608 – NM 6	15.875	10.8	6.35	0.8			△	△	△												
	WNMG 100612 – NM 6	15.875	10.8	6.35	1.2			△	△	△												
	WNMG 100616 – NM 6	15.875	10.8	6.35	1.6			△	△	△												
	WNMG 060408 – NM 9	9.525	6.5	4.76	0.8			△	△	△												
	WNMG 060412 – NM 9	9.525	6.5	4.76	1.2			△	△	△												
	WNMG 080408 – NM 9	12.7	8.72	4.76	0.8		△	△	△	△												
	WNMG 080412 – NM 9	12.7	8.72	4.76	1.2		△	△	△	△												
	WNMG 080416 – NM 9	12.7	8.72	4.76	1.6		△	△	△	△												
	WNMG 100608 – NM 9	15.875	10.8	6.35	0.8			△	△	△												
	WNMG 100612 – NM 9	15.875	10.8	6.35	1.2		△	△	△	△												
	WNMG 100616 – NM 9	15.875	10.8	6.35	1.6		△	△	△	△												
	WNMG 060408 – NR 4	9.525	6.5	4.76	0.8							△	△							△		
	WNMG 060412 – NR 4	9.525	6.5	4.76	1.2							△	△							△		
	WNMG 080408 – NR 4	12.7	8.72	4.76	0.8							△	△							△		
	WNMG 080412 – NR 4	12.7	8.72	4.76	1.2							△	△							△		
	WNMG 100608 – NR 4	15.875	10.8	6.35	0.8							△	△							△		
	WNMG 100612 – NR 4	15.875	10.8	6.35	1.2							△	△							△		
	WNMG 100616 – NR 4	15.875	10.8	6.35	1.6							△	△							△		
	WNMM 100612 – NR 6	15.875	10.8	6.35	1.2			△	△	△												
	WNMM 100616 – NR 6	15.875	10.8	6.35	1.6			△	△	△												
	WNMA 060404	9.525	6.5	4.76	0.4									△	△							
	WNMA 060408	9.525	6.5	4.76	0.8									△	△							
	WNMA 060412	9.525	6.5	4.76	1.2									△	△							
	WNMA 080404	12.7	8.72	4.76	0.4									△	△							
	WNMA 080408	12.7	8.72	4.76	0.8									△	△							
	WNMA 080412	12.7	8.72	4.76	1.2									△	△							
	WNMA 100612	15.875	10.8	6.35	1.2									△	△							
	WNMA 100616	15.875	10.8	6.35	1.6									△	△							
	WNMA 060408 T02020	9.525	6.5	4.76	0.8									△	△							
	WNMA 060412 T02020	9.525	6.5	4.76	1.2									△	△							
	WNMA 080408 T02020	12.7	8.72	4.76	0.8									△	△							
	WNMA 080412 T02020	12.7	8.72	4.76	1.2									△	△							
	WNMA 100612 T02020	15.875	10.8	6.35	1.2									△	△							
	WNMA 100616 T02020	15.875	10.8	6.35	1.6									△	△							
	WNMA 080408 T02020	12.7	8.72	4.76	0.8												△					
	WNMA 080412 T02020	12.7	8.72	4.76	1.2												△					
	WNMA 080416 T02020	12.7	8.72	4.76	1.6												△					
	WNMA 080404	12.7	8.72	4.76	0.4																△	△
	WNMA 080408	12.7	8.72	4.76	0.8																△	△
	WNMA 080412	12.7	8.72	4.76	1.2																△	△

Turning inserts with positive basic shape

CCMT CCGT



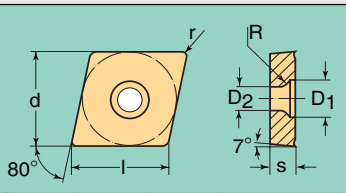
HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
Wiper	CCMT 060204 – PF	6.35	6.45	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	CCMT 060208 – PF	6.35	6.45	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	CCMT 09T304 – PF	9.525	9.67	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	CCMT 09T308 – PF	9.525	9.67	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
Wiper	CCMT 09T304 – PM	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△			△		△	△						
	CCMT 09T308 – PM	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△			△		△	△						
	CCMT 09T312 – PM	9.525	9.67	3.97	1.2	6.0	4.4	1.5		△	△			△		△	△						
	CCMT 120404 – PM	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△			△		△	△						
	CCMT 120408 – PM	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△			△		△	△						
	CCMT 120412 – PM	12.7	12.9	4.76	1.2	7.5	5.5	2.5		△	△			△		△	△						
	CCMT 060202 – PF 4	6.35	6.45	2.38	0.2	3.75	2.8	1.8	△	△	△			△	△						△		
	CCMT 060204 – PF 4	6.35	6.45	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	CCMT 060208 – PF 4	6.35	6.45	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	CCMT 09T302 – PF 4	9.525	9.67	3.97	0.2	6.0	4.4	1.5	△	△	△			△	△						△		
	CCMT 09T304 – PF 4	9.525	9.67	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	CCMT 09T308 – PF 4	9.525	9.67	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	CCMT 120404 – PF 4	12.7	12.9	4.76	0.4	7.5	5.5	2.5	△	△	△			△	△						△		
	CCMT 120408 – PF 4	12.7	12.9	4.76	0.8	7.5	5.5	2.5	△	△	△			△	△						△		
	CCGT 060202 – PF 5	6.35	6.45	2.38	0.2	3.75	2.8	1.8			△	△			△						△		
	CCGT 060204 – PF 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8			△	△			△						△		
	CCGT 09T302 – PF 5	9.525	9.67	3.97	0.2	6.0	4.4	1.5			△	△			△						△		
	CCGT 09T304 – PF 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5			△	△			△						△		
	CCMT 060204 – PS 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8		△	△			△	△	△	△				△		
	CCMT 060208 – PS 5	6.35	6.45	2.38	0.8	3.75	2.8	1.8		△	△			△	△	△	△				△		
	CCMT 09T304 – PS 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△			△	△	△	△				△		
	CCMT 09T308 – PS 5	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△			△	△	△	△				△		
	CCMT 120404 – PS 5	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△			△	△	△	△				△		
	CCMT 120408 – PS 5	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△			△	△	△	△				△		
	CCGT 060201 – PM 2	6.35	6.45	2.38	0.1	3.75	2.8	1.8											△	△			
	CCGT 060202 – PM 2	6.35	6.45	2.38	0.2	3.75	2.8	1.8											△	△			
	CCGT 060204 – PM 2	6.35	6.45	2.38	0.4	3.75	2.8	1.8											△	△			
	CCGT 09T301 – PM 2	9.525	9.67	3.97	0.1	6.0	4.4	1.5											△	△			
	CCGT 09T302 – PM 2	9.525	9.67	3.97	0.2	6.0	4.4	1.5											△	△			
	CCGT 09T304 – PM 2	9.525	9.67	3.97	0.4	6.0	4.4	1.5											△	△			
	CCGT 09T308 – PM 2	9.525	9.67	3.97	0.8	6.0	4.4	1.5											△	△			
	CCGT 120401 – PM 2	12.7	12.9	4.76	0.1	7.5	5.5	2.5											△	△			
	CCGT 120402 – PM 2	12.7	12.9	4.76	0.2	7.5	5.5	2.5											△	△			
	CCGT 120404 – PM 2	12.7	12.9	4.76	0.4	7.5	5.5	2.5											△	△			
	CCGT 120408 – PM 2	12.7	12.9	4.76	0.8	7.5	5.5	2.5											△	△			

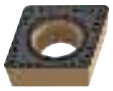
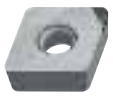
Wiper See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®

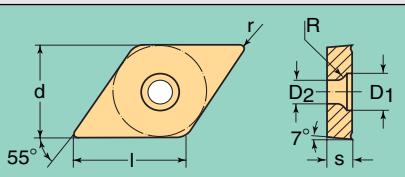
CCGT
CCMT
CCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	CCMT 060204 – PM 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8		△	△	△		△	△	△	△	△			△		
	CCMT 060208 – PM 5	6.35	6.45	2.38	0.8	3.75	2.8	1.8		△	△	△		△	△	△	△	△			△		
	CCMT 09T304 – PM 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	CCMT 09T308 – PM 5	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	CCMT 120404 – PM 5	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	CCMT 120408 – PM 5	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	CCMT 120412 – PM 5	12.7	12.9	4.76	1.2	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	CCMW 060202	6.35	6.45	2.38	0.2	3.75	2.8	1.8								△	△							
	CCMW 060204	6.35	6.45	2.38	0.4	3.75	2.8	1.8								△	△							
	CCMW 060208	6.35	6.45	2.38	0.8	3.75	2.8	1.8								△	△							
	CCMW 09T304	9.525	9.67	3.97	0.4	6.0	4.4	1.5								△	△							
	CCMW 09T308	9.525	9.67	3.97	0.8	6.0	4.4	1.5								△	△							
	CCMW 120404	12.7	12.9	4.76	0.4	7.5	5.5	2.5								△	△							
	CCMW 120408	12.7	12.9	4.76	0.8	7.5	5.5	2.5								△	△							
	CCMW 120412	12.7	12.9	4.76	1.2	7.5	5.5	2.5								△	△							
	CCMW 060204	6.35	6.45	2.38	0.4	3.75	2.8	1.8														△	△
	CCMW 060208	6.35	6.45	2.38	0.8	3.75	2.8	1.8														△	△
	CCMW 09T304	9.525	9.67	3.97	0.4	6.0	4.4	1.5														△	△
	CCMW 09T308	9.525	9.67	3.97	0.8	6.0	4.4	1.5														△	△
	CCMW 120404	12.7	12.9	4.76	0.4	7.5	5.5	2.5														△	△
	CCMW 120408	12.7	12.9	4.76	0.8	7.5	5.5	2.5														△	△
	CCMW 060204–2	6.35	6.45	2.38	0.4	3.75	2.8	1.8														△	△
	CCMW 060208–2	6.35	6.45	2.38	0.8	3.75	2.8	1.8														△	△
	CCMW 09T304–2	9.525	9.67	3.97	0.4	6.0	4.4	1.5														△	△
	CCMW 09T308–2	9.525	9.67	3.97	0.8	6.0	4.4	1.5														△	△

DCMT
DCGT
DCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

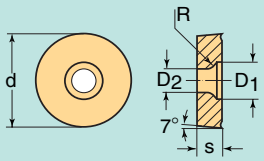
	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
Wiper	DCMT 070204 – PF	6.35	7.75	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	DCMT 070208 – PF	6.35	7.75	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	DCMT 11T304 – PF	9.525	11.63	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	DCMT 11T308 – PF	9.525	11.63	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
Wiper	DCMT 11T304 – PM	9.525	11.63	3.97	0.4	6.0	4.4	1.5		△	△			△		△	△						
	DCMT 11T308 – PM	9.525	11.63	3.97	0.8	6.0	4.4	1.5		△	△			△		△	△						
	DCMT 070202 – PF 4	6.35	7.75	2.38	0.2	3.75	2.8	1.8	△	△	△			△	△						△		
	DCMT 070204 – PF 4	6.35	7.75	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	DCMT 070208 – PF 4	6.35	7.75	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	DCMT 11T302 – PF 4	9.525	11.63	3.97	0.2	6.0	4.4	1.5	△	△	△			△	△						△		
	DCMT 11T304 – PF 4	9.525	11.63	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	DCMT 11T308 – PF 4	9.525	11.63	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	DCMT 070204 – PS 5	6.35	7.75	2.38	0.4	3.75	2.8	1.8		△	△			△	△	△	△				△		
	DCMT 070208 – PS 5	6.35	7.75	2.38	0.8	3.75	2.8	1.8		△	△			△	△	△	△				△		
	DCMT 11T304 – PS 5	9.525	11.63	3.97	0.4	6.0	4.4	1.5		△	△			△	△	△	△				△		
	DCMT 11T308 – PS 5	9.525	11.63	3.97	0.8	6.0	4.4	1.5		△	△			△	△	△	△				△		
	DCGT 070201 – PM 2	6.35	7.75	2.38	0.1	3.75	2.8	1.8										△	△				
	DCGT 070202 – PM 2	6.35	7.75	2.38	0.2	3.75	2.8	1.8										△	△				
	DCGT 070204 – PM 2	6.35	7.75	2.38	0.4	3.75	2.8	1.8										△	△				
	DCGT 11T301 – PM 2	9.525	11.63	3.97	0.1	6.0	4.4	1.5										△	△				
	DCGT 11T302 – PM 2	9.525	11.63	3.97	0.2	6.0	4.4	1.5										△	△				
	DCGT 11T304 – PM 2	9.525	11.63	3.97	0.4	6.0	4.4	1.5										△	△				
	DCGT 11T308 – PM 2	9.525	11.63	3.97	0.8	6.0	4.4	1.5										△	△				
	DCMT 070204 – PM 5	6.35	7.75	2.38	0.4	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	DCMT 070208 – PM 5	6.35	7.75	2.38	0.8	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	DCMT 11T304 – PM 5	9.525	11.63	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	DCMT 11T308 – PM 5	9.525	11.63	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	DCMT 11T312 – PM 5	9.525	11.63	3.97	1.2	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	DCMW 11T304	9.525	11.63	3.97	0.4	6.0	4.4	1.5								△	△						
	DCMW 11T308	9.525	11.63	3.97	0.8	6.0	4.4	1.5								△	△						
	DCMW 11T302	9.525	11.63	3.97	0.2	6.0	4.4	1.5														△	△
	DCMW 11T304	9.525	11.63	3.97	0.4	6.0	4.4	1.5														△	△
	DCMW 11T308	9.525	11.63	3.97	0.8	6.0	4.4	1.5														△	△
	DCMW 11T304–2	9.525	11.63	3.97	0.4	6.0	4.4	1.5														△	△
	DCMW 11T308–2	9.525	11.63	3.97	0.8	6.0	4.4	1.5														△	△

Wiper

See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®

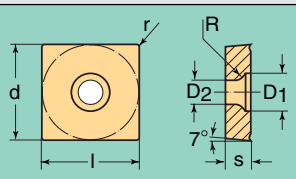
RCMT
RCGT
RCMX



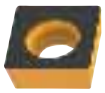
HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm		s mm		D_1 mm	D_2 mm	R mm	P HC				M HC			K HC			N HC	N HW	S HC	H BL	H BH
									WPP 01	WPP 10	WPP 20	WPP 30	WAM 10	WAM 20	WSM 30	WAK 10	WAK 20	WAK 30	WXN 10	WK 1	WSM 30	WCB 30	WCB 50
	RCMT 0602M0 – PF 4	6		2.38		3.75	2.8	1.8	△	△	△			△	△						△		
	RCMT 0803M0 – PF 4	8		3.18		4.5	3.4	1.6	△	△	△			△	△						△		
	RCMT 10T3M0 – PF 4	10		3.97		6.0	4.4	1.5	△	△	△			△	△						△		
	RCMT 1204M0 – PF 4	12		4.76		6.0	4.4	1.5	△	△	△			△	△						△		
	RCGT 0602M0 – PF 5	6		2.38		3.75	2.8	1.8			△	△			△						△		
	RCGT 0803M0 – PF 5	8		3.18		4.5	3.4	1.6			△	△			△						△		
	RCGT 10T3M0 – PF 5	10		3.97		6.0	4.4	1.5			△	△			△						△		
	RCGT 0602M0 – PM 2	6		2.38		3.75	2.8	1.8											△	△			
	RCGT 0803M0 – PM 2	8		3.18		4.5	3.4	1.6											△	△			
	RCGT 10T3M0 – PM 2	10		3.97		6.0	4.4	1.5											△	△			
	RCGT 1204M0 – PM 2	12		4.76		6.0	4.4	1.5											△	△			
	RCMT 10T3M0 T	10		3.97		6.0	4.4	1.5			△	△											
	RCMT 1204M0 T	12		4.76		6.0	4.4	1.5			△	△											
	RCMT 1605M0 T	16		5.56		7.5	5.5	2.5			△	△											
	RCMT 2006M0 T	20		6.35		9.0	6.5	3.5			△	△											
	RCMT 2507M0 T	25		7.94		12.0	8.6	4.0			△	△											
	RCMT 0602M0 – PM 5	6		2.38		3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	RCMT 0803M0 – PM 5	8		3.18		4.5	3.4	1.6		△	△	△		△	△	△	△				△		
	RCMT 10T3M0 – PM 5	10		3.97		6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	RCMT 1204M0 – PM 5	12		4.76		6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	RCMT 1605M0 – PM 5	16		5.56		7.5	5.5	2.5		△	△	△		△	△	△	△				△		
	RCMX 100300 – PR 5	10		3.18		4.39	3.6				△	△											
	RCMX 120400 – PR 5	12		4.76		5.39	4.2				△	△											
	RCMX 160600 – PR 5	16		6.35		6.7	5.2				△	△											
	RCMX 200600 – PR 5	20		6.35		8.0	6.5				△	△											
	RCMX 250700 – PR 5	25		7.94		9.2	7.2				△	△											
	RCMX 320900 – PR 5	32		9.52		11.8	9.5				△	△											

SCMT
SCGT
SCMW

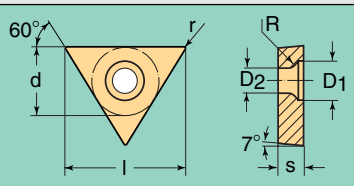


HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	SCMT 09T304 – PF 4	9.525	9.525	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	SCMT 09T308 – PF 4	9.525	9.525	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	SCMT 120404 – PF 4	12.7	12.7	4.76	0.4	7.5	5.5	2.5	△	△	△			△	△						△		
	SCMT 120408 – PF 4	12.7	12.7	4.76	0.8	7.5	5.5	2.5	△	△	△			△	△						△		
	SCMT 09T304 – PS 5	9.525	9.525	3.97	0.4	6.0	4.4	1.5			△			△	△	△	△				△		
	SCMT 09T308 – PS 5	9.525	9.525	3.97	0.8	6.0	4.4	1.5			△			△	△	△	△				△		
	SCMT 120408 – PS 5	12.7	12.7	4.76	0.8	7.5	5.5	2.5			△				△	△	△				△		
	SCGT 09T304 – PM 2	9.525	9.525	3.97	0.4	6.0	4.4	1.5											△	△			
	SCGT 09T308 – PM 2	9.525	9.525	3.97	0.8	6.0	4.4	1.5											△	△			
	SCGT 120408 – PM 2	12.7	12.7	4.76	0.8	7.5	5.5	2.5											△	△			
	SCMT 09T304 – PM 5	9.525	9.525	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	SCMT 09T308 – PM 5	9.525	9.525	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	SCMT 120404 – PM 5	12.7	12.7	4.76	0.4	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	SCMT 120408 – PM 5	12.7	12.7	4.76	0.8	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	SCMT 120412 – PM 5	12.7	12.7	4.76	1.2	7.5	5.5	2.5		△	△	△		△	△	△	△	△			△		
	SCMW 09T304	9.525	9.525	3.97	0.4	6.0	4.4	1.5								△	△						
	SCMW 09T308	9.525	9.525	3.97	0.8	6.0	4.4	1.5								△	△						
	SCMW 120404	12.7	12.7	4.76	0.4	7.5	5.5	2.5								△	△						
	SCMW 120408	12.7	12.7	4.76	0.8	7.5	5.5	2.5								△	△						
	SCMW 120412	12.7	12.7	4.76	1.2	7.5	5.5	2.5								△	△						

Tiger·tec®

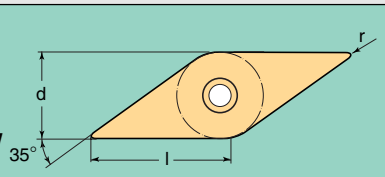
TCMT
TCGT
TCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	TCMT 110202 – PF 4	6.35	11.0	2.38	0.2	3.75	2.8	1.8	△	△	△			△	△						△		
	TCMT 110204 – PF 4	6.35	11.0	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	TCMT 110208 – PF 4	6.35	11.0	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	TCMT 16T302 – PF 4	9.525	16.5	3.97	0.2	6.0	4.4	1.5	△	△	△			△	△						△		
	TCMT 16T304 – PF 4	9.525	16.5	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	TCMT 16T308 – PF 4	9.525	16.5	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	TCMT 110204 – PS 5	6.35	11.0	2.38	0.4	3.75	2.8	1.8			△			△	△	△	△				△		
	TCMT 110208 – PS 5	6.35	11.0	2.38	0.8	3.75	2.8	1.8			△			△	△	△	△				△		
	TCMT 16T304 – PS 5	9.525	16.5	3.97	0.4	6.0	4.4	1.5			△			△	△	△	△				△		
	TCMT 16T308 – PS 5	9.525	16.5	3.97	0.8	6.0	4.4	1.5			△			△	△	△	△				△		
	TCGT 110201 – PM 2	6.35	11.0	2.38	0.1	3.75	2.8	1.8											△	△			
	TCGT 110202 – PM 2	6.35	11.0	2.38	0.2	3.75	2.8	1.8											△	△			
	TCGT 110204 – PM 2	6.35	11.0	2.38	0.4	3.75	2.8	1.8											△	△			
	TCGT 16T301 – PM 2	9.525	16.5	3.97	0.1	6.0	4.4	1.5											△	△			
	TCGT 16T302 – PM 2	9.525	16.5	3.97	0.2	6.0	4.4	1.5											△	△			
	TCGT 16T304 – PM 2	9.525	16.5	3.97	0.4	6.0	4.4	1.5											△	△			
	TCGT 16T308 – PM 2	9.525	16.5	3.97	0.8	6.0	4.4	1.5											△	△			
	TCMT 110204 – PM 5	6.35	11.0	2.38	0.4	3.75	2.8	1.8		△	△	△		△	△	△	△	△			△		
	TCMT 110208 – PM 5	6.35	11.0	2.38	0.8	3.75	2.8	1.8		△	△	△		△	△	△	△	△			△		
	TCMT 16T304 – PM 5	9.525	16.5	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	TCMT 16T308 – PM 5	9.525	16.5	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	TCMT 16T312 – PM 5	9.525	16.5	3.97	1.2	6.0	4.4	1.5		△	△	△		△	△	△	△	△			△		
	TCMW 110202	6.35	11.0	2.38	0.2	3.75	2.8	1.8								△	△						
	TCMW 110204	6.35	11.0	2.38	0.4	3.75	2.8	1.8								△	△						
	TCMW 110208	6.35	11.0	2.38	0.8	3.75	2.8	1.8								△	△						
	TCMW 16T304	9.525	16.5	3.97	0.4	6.0	4.4	1.5								△	△						
	TCMW 16T308	9.525	16.5	3.97	0.8	6.0	4.4	1.5								△	△						
	TCMW 16T312	9.525	16.5	3.97	1.2	6.0	4.4	1.5								△	△						
	TCMW 110204	6.35	11.0	2.38	0.4	3.75	2.8	1.8														△	△
	TCMW 110208	6.35	11.0	2.38	0.8	3.75	2.8	1.8														△	△

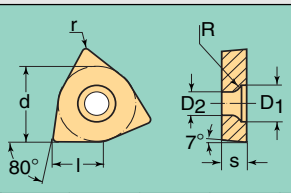
VCMT / VBMT
VCGT / VBGT
VCMW / VBMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	VCMT 110302 – PF 4	6.35	11.0	3.18	0.2	3.75	2.8	1.8	△	△	△			△	△						△		
	VCMT 110304 – PF 4	6.35	11.0	3.18	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	VCMT 160402 – PF 4	9.525	16.6	4.76	0.2	6.0	4.4	1.5	△	△	△			△	△						△		
	VCMT 160404 – PF 4	9.525	16.6	4.76	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	VCMT 160408 – PF 4	9.525	16.6	4.76	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	VBGT 110302 – PF 5	6.35	11.0	3.18	0.2	3.75	2.8	1.8			△	△			△						△		
	VBGT 110304 – PF 5	6.35	11.0	3.18	0.4	3.75	2.8	1.8			△	△			△						△		
	VBMT 110304 – PS 5	6.35	11.0	3.18	0.4	3.75	2.8	1.8		△	△			△	△	△	△				△		
	VBMT 110308 – PS 5	6.35	11.0	3.18	0.8	3.75	2.8	1.8		△	△			△	△	△	△				△		
	VBMT 160404 – PS 5	9.525	16.6	4.76	0.4	6.0	4.4	1.5		△	△			△	△	△	△				△		
	VBMT 160406 – PS 5	9.525	16.6	4.76	0.6	6.0	4.4	1.5		△	△			△	△	△	△				△		
	VBMT 160408 – PS 5	9.525	16.6	4.76	0.8	6.0	4.4	1.5		△	△			△	△	△	△				△		
	VBMT 160412 – PS 5	9.525	16.6	4.76	1.2	6.0	4.4	1.5		△	△			△	△	△	△				△		
	VCGT 110301 – PM 2	6.35	11.0	3.18	0.1	3.75	2.8	1.8											△	△			
	VCGT 110302 – PM 2	6.35	11.0	3.18	0.2	3.75	2.8	1.8											△	△			
	VCGT 110304 – PM 2	6.35	11.0	3.18	0.4	3.75	2.8	1.8											△	△			
	VCGT 110308 – PM 2	6.35	11.0	3.18	0.8	3.75	2.8	1.8											△	△			
	VCGT 130301 – PM 2	7.94	13.1	3.18	0.1	4.75	3.4	2.5											△	△			
	VCGT 130302 – PM 2	7.94	13.1	3.18	0.2	4.75	3.4	2.5											△	△			
	VCGT 130304 – PM 2	7.94	13.1	3.18	0.4	4.75	3.4	2.5											△	△			
	VCGT 160404 – PM 2	9.525	16.6	4.76	0.4	6.0	4.4	1.5											△	△			
	VCGT 160408 – PM 2	9.525	16.6	4.76	0.8	6.0	4.4	1.5											△	△			
	VCGT 160412 – PM 2	9.525	16.6	4.76	1.2	6.0	4.4	1.5											△	△			
	VCMT 110304 – PM 5	6.35	11.0	3.18	0.4	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	VCMT 110308 – PM 5	6.35	11.0	3.18	0.8	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	VCMT 160404 – PM 5	9.525	16.6	4.76	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	VCMT 160406 – PM 5	9.525	16.6	4.76	0.6	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	VCMT 160408 – PM 5	9.525	16.6	4.76	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	VCMT 160412 – PM 5	9.525	16.6	4.76	1.2	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	VCMW 160404	9.525	16.6	4.76	0.4	6.0	4.4	1.5								△	△						
	VCMW 160408	9.525	16.6	4.76	0.8	6.0	4.4	1.5								△	△						
	VCMW 160412	9.525	16.6	4.76	1.2	6.0	4.4	1.5								△	△						
	VBMW 160402	9.525	16.6	4.76	0.2	6.0	4.4	1.5														△	△
	VBMW 160404	9.525	16.6	4.76	0.4	6.0	4.4	1.5														△	△
	VBMW 160408	9.525	16.6	4.76	0.8	6.0	4.4	1.5														△	△
	VBMW 160404–2	9.525	16.6	4.76	0.4	6.0	4.4	1.5														△	△
	VBMW 160408–2	9.525	16.6	4.76	0.8	6.0	4.4	1.5														△	△

WCMT
WCGT
WCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 10	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
 Wiper	WCMT 040204 – PF	6.35	4.3	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	WCMT 040208 – PF	6.35	4.3	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	WCMT 06T304 – PF	9.525	6.5	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	WCMT 06T308 – PF	9.525	6.5	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
 Wiper	WCMT 06T304 – PM	9.525	6.5	3.97	0.4	6.0	4.4	1.5		△	△			△		△	△						
	WCMT 06T308 – PM	9.525	6.5	3.97	0.8	6.0	4.4	1.5		△	△			△		△	△						
	WCMT 080404 – PM	12.7	8.72	4.76	0.4	7.5	5.5	2.5		△	△			△		△	△						
	WCMT 080408 – PM	12.7	8.72	4.76	0.8	7.5	5.5	2.5		△	△			△		△	△						
	WCMT 080412 – PM	12.7	8.72	4.76	1.2	7.5	5.5	2.5		△	△			△		△	△						
	WCMT 040202 – PF 4	6.35	4.3	2.38	0.2	3.75	2.8	1.8	△	△	△			△	△						△		
	WCMT 040204 – PF 4	6.35	4.3	2.38	0.4	3.75	2.8	1.8	△	△	△			△	△						△		
	WCMT 040208 – PF 4	6.35	4.3	2.38	0.8	3.75	2.8	1.8	△	△	△			△	△						△		
	WCMT 06T302 – PF 4	9.525	6.5	3.97	0.2	6.0	4.4	1.5	△	△	△			△	△						△		
	WCMT 06T304 – PF 4	9.525	6.5	3.97	0.4	6.0	4.4	1.5	△	△	△			△	△						△		
	WCMT 06T308 – PF 4	9.525	6.5	3.97	0.8	6.0	4.4	1.5	△	△	△			△	△						△		
	WCMT 080404 – PF 4	12.7	8.72	4.76	0.4	7.5	5.5	2.5	△	△	△			△	△						△		
	WCMT 080408 – PF 4	12.7	8.72	4.76	0.8	7.5	5.5	2.5	△	△	△			△	△						△		
	WCMT 040204 – PS 5	6.35	4.3	2.38	0.4	3.75	2.8	1.8			△					△	△						
	WCMT 040208 – PS 5	6.35	4.3	2.38	0.8	3.75	2.8	1.8			△					△	△						
	WCMT 06T304 – PS 5	9.525	6.5	3.97	0.4	6.0	4.4	1.5			△					△	△						
	WCMT 06T308 – PS 5	9.525	6.5	3.97	0.8	6.0	4.4	1.5			△					△	△						
	WCMT 080404 – PS 5	12.7	8.72	4.76	0.4	7.5	5.5	2.5			△					△	△						
	WCMT 080408 – PS 5	12.7	8.72	4.76	0.8	7.5	5.5	2.5			△					△	△						
	WCGT 030202 – PM 2	5.56	3.8	2.38	0.2	3.3	2.5	2.3											△	△			
	WCGT 030204 – PM 2	5.56	3.8	2.38	0.4	3.3	2.5	2.3											△	△			
	WCGT 040201 – PM 2	6.35	4.3	2.38	0.1	3.75	2.8	1.8											△	△			
	WCGT 040202 – PM 2	6.35	4.3	2.38	0.2	3.75	2.8	1.8											△	△			
	WCGT 040204 – PM 2	6.35	4.3	2.38	0.4	3.75	2.8	1.8											△	△			
	WCGT 06T301 – PM 2	9.525	6.5	3.97	0.1	6.0	4.4	1.5											△	△			
	WCGT 06T302 – PM 2	9.525	6.5	3.97	0.2	6.0	4.4	1.5											△	△			
	WCGT 06T304 – PM 2	9.525	6.5	3.97	0.4	6.0	4.4	1.5											△	△			
	WCGT 080404 – PM 2	12.7	8.72	4.76	0.4	7.5	5.5	2.5											△	△			
	WCGT 080408 – PM 2	12.7	8.72	4.76	0.8	7.5	5.5	2.5											△	△			
	WCMT 030202 – PM 5	5.56	3.8	2.38	0.2	3.3	2.5	2.3		△	△	△		△	△	△	△				△		
	WCMT 040202 – PM 5	6.35	4.3	2.38	0.2	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	WCMT 040204 – PM 5	6.35	4.3	2.38	0.4	3.75	2.8	1.8		△	△	△		△	△	△	△				△		
	WCMT 06T304 – PM 5	9.525	6.5	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	WCMT 06T308 – PM 5	9.525	6.5	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△	△	△				△		
	WCMT 080404 – PM 5	12.7	8.72	4.76	0.4	7.5	5.5	2.5		△	△	△		△	△	△	△				△		
	WCMT 080408 – PM 5	12.7	8.72	4.76	0.8	7.5	5.5	2.5		△	△	△		△	△	△	△				△		
	WCMT 080412 – PM 5	12.7	8.72	4.76	1.2	7.5	5.5	2.5		△	△	△		△	△	△	△				△		
	WCMW 080404	12.7	8.72	4.76	0.4	7.5	5.5	2.5								△	△						
	WCMW 080408	12.7	8.72	4.76	0.8	7.5	5.5	2.5								△	△						
	WCMW 080412	12.7	8.72	4.76	1.2	7.5	5.5	2.5								△	△						

Wiper See the Technical information, page 218 for the achievable surface finishes and possible applications.

Tiger·tec®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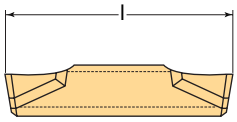
Designation key for GX grooving inserts



09 = 9 mm
16 = 16 mm
24 = 24 mm

Insert length

E

R

Basic shape

R right-hand

L left-hand

N neutral

Version

GX	24	—	2	E	300	N	030

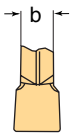
Insert type

GX



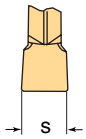
two-edged
grooving insert

Width category

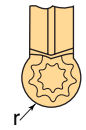


1
2
3
4
5

Groove width

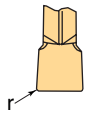


200=2.0mm
250=2.5mm
300=3.0mm
350=3.5mm
400=4.0mm
500=5.0mm
600=6.0mm



300 → r = 3.0 mm
400 → r = 4.0 mm

Corner radius

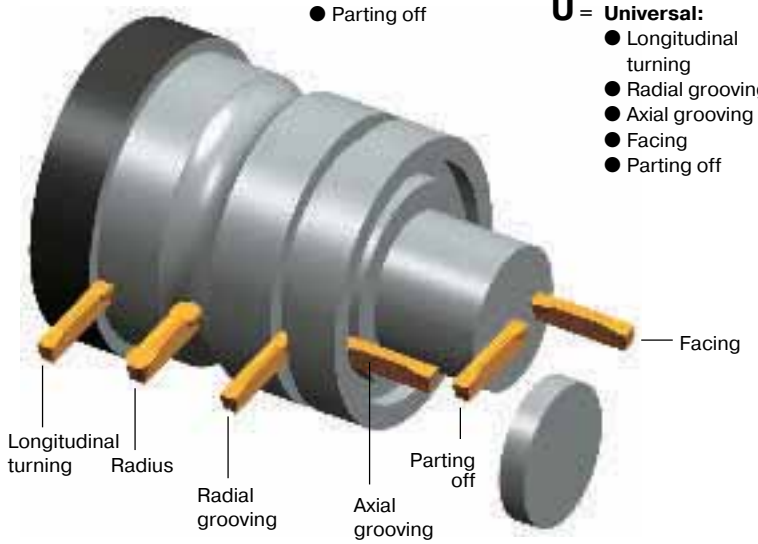


020 → r = 0.2 mm
030 → r = 0.3 mm
040 → r = 0.4 mm
050 → r = 0.5 mm

G = **"Grooving":**
- Radial grooving
- Axial grooving
- Parting off

R = **Radius**

U = **Universal:**
- Longitudinal turning
- Radial grooving
- Axial grooving
- Facing
- Parting off

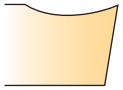
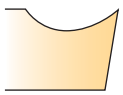
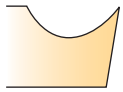


Application

—	U	F	4

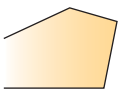
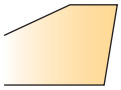
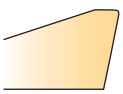
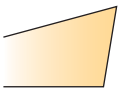
Rake angle

smaller ↓ larger

	A
	D
	F
	K

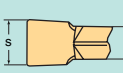
Cutting edge

heavily chamfered ↓ sharp

	1
	3
	4
	6
	8

Special profiles made from standard blanks

available in the cutting tool material grades WAM 20, WAK 30 and multi PVD.





Width category		Designation	s mm	b mm	l mm
	1	GX 16–1E3.30N	3.3	1.4	16.6
	2	GX 16–2E4.30N	4.3	2.1	16.6
		GX 24–2E4.80N	4.8	2.1	24.6
	3	GX 16–3E6.30N	6.3	3.05	16.6
		GX 24–3E6.30N	3.6	3.05	24.6
	4	GX 16–4E8.30N	8.3	4.3	24.6
		GX 24–4E8.30N	8.3	4.3	24.6
	5	GX 24–5E10.30N	10.3	6.2	24.6

Examples for special profiles



WALTER SELECT for grooving inserts

WALTER SELECT –
Step by step to the optimal indexable insert

→ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

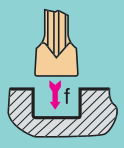
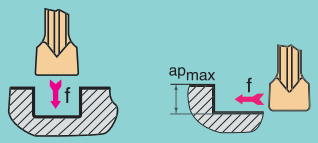
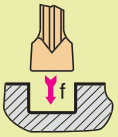
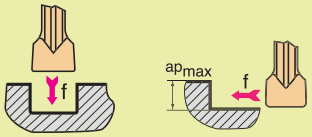
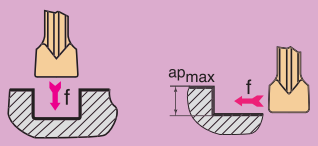
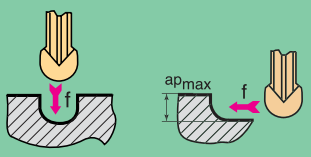
→ Step 2

Select the **machining conditions:**

Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut, premachined surface			
Casting or forging skin changing cutting depths minimal interrupted cuts			
Medium interrupted cuts			
Heavily interrupted cuts			

➔ Step 3

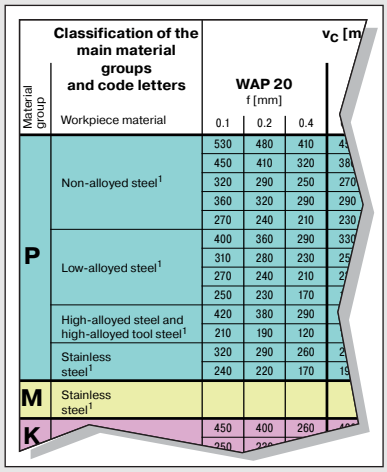
Define the **geometry** and the **cutting tool material** by means of the material, the grooving procedure and the machining conditions.

Work-piece material group	Grooving procedure	Geometry	☺	😐	☹
P (1–13)		GD 3	WAP 20	WAP 30	WXP 43
		UF 4	WAP 20	WAP 30	WXP 43
M (14)		GD 6	WAM 20	WAM 20	WXM 33
		UD 6	WAM 20	WAM 20	WXM 33
K (15–20)		UA 4	WAK 20	WAK 30	WAK 30
N (21–30)		RK 8	WK 1	WK 1	WK 1



➔ Step 4

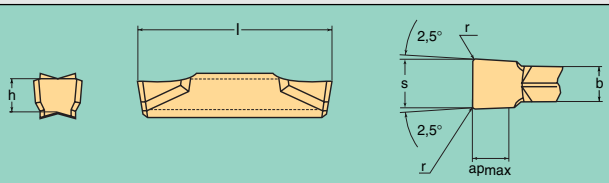
Select the **cutting data** in the Technical information, from page 222.



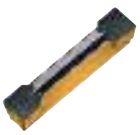
Material group	Classification of the main material groups and code letters Workpiece material	v_c [m/ WAP 20 f [mm] 0.1	0.2	0.4	
P	Non-alloyed steel[1]	530	480	410	4
		450	410	320	38
		320	290	250	270
		360	320	290	290
		270	240	210	230
	Low-alloyed steel[1]	400	360	290	330
		310	280	230	25
		270	240	210	2
		250	230	170	
	High-alloyed steel and high-alloyed tool steel[1]	420	380	290	
		210	190	120	
	Stainless steel[1]	320	290	260	2
		240	220	170	19
M	Stainless steel[1]				
K		450	400	260	
		250			

WALTER CUT GX grooving inserts

GX



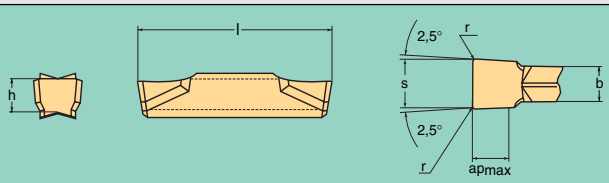
HC = coated carbide
HW = uncoated carbide

	Designation	l mm	s mm	r mm	b mm	h mm	ap_{max} mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	P HC WAP 20	P HC WAP 30	P HC WXP 43	M HC WAM 20	M HC WXM 33	K HC WAK 20	K HC WAK 30	N HW WK 1	
	GX 09–1E200 N020–GD3	9	2.0	0.2	1.40	2.5		±0.02	±0.02	±0.05	△	△	△						
	GX 09–1E250 N020–GD3	9	2.5	0.2	1.40	2.5		±0.02	±0.02	±0.05	△	△	△						
	GX 09–2E300 N030–GD3	9	3.0	0.3	2.10	2.5		±0.02	±0.02	±0.05	△	△	△						
	GX 09–2E350 N030–GD3	9	3.5	0.3	2.10	2.5		±0.02	±0.02	±0.05	△	△	△						
	GX16–1E200 N020–GD3	16	2.0	0.2	1.40	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX16–1E250 N020–GD3	16	2.5	0.2	1.40	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX16–2E300 N030–GD3	16	3.0	0.3	2.10	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX16–3E400 N040–GD3	16	4.0	0.4	3.05	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX16–3E500 N040–GD3	16	5.0	0.4	3.05	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX16–4E600 N050–GD3	16	6.0	0.5	4.30	3.9		±0.02	±0.02	±0.05	△	△	△						
	GX 24–2E300 N030–GD3	24	3.0	0.3	2.10	3.9		±0.15	±0.05	±0.05	△	△	△						
	GX 24–3E400 N040–GD3	24	4.0	0.4	3.05	3.9		±0.15	±0.05	±0.05	△	△	△						
	GX 24–3E500 N040–GD3	24	5.0	0.4	3.05	3.9		±0.15	±0.05	±0.05	△	△	△						
	GX 24–4E600 N050–GD3	24	6.0	0.5	4.30	3.9		±0.15	±0.05	±0.05	△	△	△						
	GX 09–1E200 N020–UF4	9	2.0	0.2	1.40	2.5	1.5	±0.10	±0.05	±0.05	△	△	△						
	GX 09–1E300 N030–UF4	9	3.0	0.3	2.10	2.5	2.0	±0.10	±0.05	±0.05	△	△	△						
	GX16–1E200 N020–UF4	16	2.0	0.2	1.50	3.9	2.5	±0.15	±0.05	±0.05	△	△	△						
	GX16–1E250 N020–UF4	16	2.5	0.2	1.50	3.9	2.5	±0.15	±0.05	±0.05	△	△	△						
	GX16–2E300 N030–UF4	16	3.0	0.3	2.10	3.9	3.0	±0.15	±0.05	±0.05	△	△	△						
	GX16–3E400 N040–UF4	16	4.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05	△	△	△						
	GX16–3E500 N040–UF4	16	5.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05	△	△	△						
	GX16–4E600 N050–UF4	16	6.0	0.5	4.30	3.9	4.0	±0.15	±0.05	±0.05	△	△	△						
	GX 24–2E300 N030–UF4	24	3.0	0.3	2.10	3.9	2.5	±0.15	±0.05	±0.05	△	△	△						
	GX 24–3E400 N040–UF4	24	4.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05	△	△	△						
	GX 24–3E500 N040–UF4	24	5.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05	△	△	△						
	GX 24–4E600 N050–UF4	24	6.0	0.5	4.30	3.9	3.5	±0.15	±0.05	±0.05	△	△	△						
	GX16–1E200 N020–UA4	16	2.0	0.2	1.40	3.9	2.5	±0.15	±0.05	±0.05						△	△		
	GX16–1E250 N020–UA4	16	2.5	0.2	1.40	3.9	2.5	±0.15	±0.05	±0.05						△	△		
	GX16–2E300 N030–UA4	16	3.0	0.3	2.10	3.9	3.0	±0.15	±0.05	±0.05						△	△		
	GX16–3E400 N040–UA4	16	4.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05						△	△		
	GX16–3E500 N040–UA4	16	5.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05						△	△		
	GX16–4E600 N050–UA4	16	6.0	0.5	4.30	3.9	4.0	±0.15	±0.05	±0.05						△	△		
	GX 24–2E300 N030–UA4	24	3.0	0.3	2.10	3.9	2.5	±0.15	±0.05	±0.05						△	△		
	GX 24–3E400 N040–UA4	24	4.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05						△	△		
	GX 24–3E500 N040–UA4	24	5.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05						△	△		
	GX 24–4E600 N050–UA4	24	6.0	0.5	4.30	3.9	3.5	±0.15	±0.05	±0.05						△	△		

* l = Repeat accuracy during insert replacement

WALTER CUT GX grooving inserts

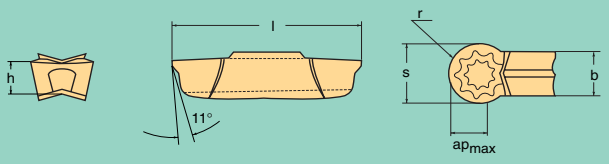
GX



HC = coated carbide
HW = uncoated carbide

	Designation	l mm	s mm	r mm	b mm	h mm	ap_{max} mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	P HC WAP 20	P HC WAP 30	P HC WXP 43	M HC WAM 20	M HC WXM 33	K HC WAK 20	K HC WAK 30	N HW WK 1	
	GX16–1E200 N020–GD6	16	2.0	0.2	1.50	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–1E250 N020–GD6	16	2.5	0.2	1.50	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–2E300 N030–GD6	16	3.0	0.3	2.10	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–3E400 N040–GD6	16	4.0	0.4	3.05	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–3E500 N040–GD6	16	5.0	0.4	3.05	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–4E600 N050–GD6	16	6.0	0.5	4.30	3.9		±0.15	±0.05	±0.05				△	△				
	GX 24–2E300 N030–GD6	24	3.0	0.3	2.10	3.9		±0.15	±0.05	±0.05				△	△				
	GX 24–3E400 N040–GD6	24	4.0	0.4	3.05	3.9		±0.15	±0.05	±0.05				△	△				
	GX 24–3E500 N040–GD6	24	5.0	0.4	3.05	3.9		±0.15	±0.05	±0.05				△	△				
	GX 24–4E600 N050–GD6	24	6.0	0.5	4.30	3.9		±0.15	±0.05	±0.05				△	△				
	GX16–1E200 N020–UD6	16	2.0	0.2	1.50	3.9	2.5	±0.15	±0.05	±0.05				△	△				
	GX16–1E250 N020–UD6	16	2.5	0.2	1.50	3.9	2.5	±0.15	±0.05	±0.05				△	△				
	GX16–2E300 N030–UD6	16	3.0	0.3	2.10	3.9	3.0	±0.15	±0.05	±0.05				△	△				
	GX16–3E400 N040–UD6	16	4.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05				△	△				
	GX16–3E500 N040–UD6	16	5.0	0.4	3.05	3.9	3.5	±0.15	±0.05	±0.05				△	△				
	GX16–4E600 N050–UD6	16	6.0	0.5	4.30	3.9	4.0	±0.15	±0.05	±0.05				△	△				
	GX 24–2E300 N030–UD6	24	3.0	0.3	2.10	3.9	2.5	±0.15	±0.05	±0.05				△	△				
	GX 24–3E400 N040–UD6	24	4.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05				△	△				
	GX 24–3E500 N040–UD6	24	5.0	0.4	3.05	3.9	3.0	±0.15	±0.05	±0.05				△	△				
	GX 24–4E600 N050–UD6	24	6.0	0.5	4.30	3.9	3.5	±0.15	±0.05	±0.05				△	△				

GX



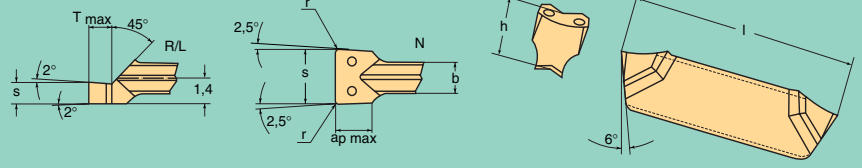
HC = coated carbide
HW = uncoated carbide

	Designation	l mm	s mm	r mm	b mm	h mm	ap_{max} mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	P HC WAP 20	P HC WAP 30	P HC WXP 43	M HC WAM 20	M HC WXM 33	K HC WAK 20	K HC WAK 30	N HW WK 1	
	GX 24–4R300N–RK8	25.37	6.0	3.0	4.3	3.9	4.0	±0.02	±0.02	±0.05								△	
	GX 24–5R400N–RK8	25.37	8.0	4.0	6.2	4.5	5.0	±0.02	±0.02	±0.05								△	

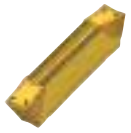
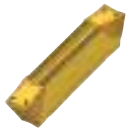
* l = Repeat accuracy during insert replacement

WALTER CUT GX grooving inserts for circlip grooves

GX



HC = coated carbide
HW = uncoated carbide

	Designation	l mm	s mm	DIN 471–472 s_1 mm	DIN 471–472 s_2 mm	r mm	b mm	h mm	T_{max} mm	$a_{p\ max}$ mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	HC WTA 33	HC WTA 43	HC WTP 30	HW WK 1	HW
	GX 09–1S0.60 R	9	0.60	0.40	0.50		1.40	2.5	0.75		±0.02	±0.02	±0.05	△				
	GX 09–1S0.80 R	9	0.80	0.60	0.70		1.40	2.5	0.94		±0.02	±0.02	±0.05	△				
	GX 09–1S0.90 R	9	0.90	0.70	0.80		1.40	2.5	1.04		±0.02	±0.02	±0.05	△				
	GX 09–1S1.00 R	9	1.00	0.80	0.90		1.40	2.5	1.14		±0.02	±0.02	±0.05	△				
	GX 09–1S1.20 R	9	1.20	1.00	1.10		1.40	2.5	1.34		±0.02	±0.02	±0.05	△				
	GX 09–1S1.40 R	9	1.40	1.20	1.30		1.40	2.5	1.53		±0.02	±0.02	±0.05	△				
	GX 09–1S1.70 R	9	1.70	1.50	1.60		1.40	2.5	1.82		±0.02	±0.02	±0.05	△				
	GX 09–1S0.60 L	9	0.60	0.40	0.50		1.40	2.5	0.75		±0.02	±0.02	±0.05	△				
	GX 09–1S0.80 L	9	0.80	0.60	0.70		1.40	2.5	0.94		±0.02	±0.02	±0.05	△				
	GX 09–1S0.90 L	9	0.90	0.70	0.80		1.40	2.5	1.04		±0.02	±0.02	±0.05	△				
	GX 09–1S1.00 L	9	1.00	0.80	0.90		1.40	2.5	1.14		±0.02	±0.02	±0.05	△				
	GX 09–1S1.20 L	9	1.20	1.00	1.10		1.40	2.5	1.34		±0.02	±0.02	±0.05	△				
	GX 09–1S1.40 L	9	1.40	1.20	1.30		1.40	2.5	1.53		±0.02	±0.02	±0.05	△				
	GX 09–1S1.70 L	9	1.70	1.50	1.60		1.40	2.5	1.82		±0.02	±0.02	±0.05	△				
	GX 09–1S1.95 N	9	1.95	1.75	1.85	0.1	1.40	2.5		2.0	±0.02	±0.02	±0.05	△				
	GX 09–1S2.25 N	9	2.25	2.00	2.15	0.1	1.40	2.5		2.0	±0.02	±0.02	±0.05	△				
	GX 09–2S2.75 N	9	2.75	2.50	2.65	0.1	2.10	2.5		2.0	±0.02	±0.02	±0.05	△				
	GX 09–2S3.25 N	9	3.25	3.00	3.15	0.1	2.10	2.5		2.0	±0.02	±0.02	±0.05	△				
	GX 16–2S0.60 R	16	0.60	0.40	0.50		2.10	3.9	0.75		±0.02	±0.02	±0.05	△				
	GX 16–2S0.80 R	16	0.80	0.60	0.70		2.10	3.9	0.94		±0.02	±0.02	±0.05	△				
	GX 16–2S0.90 R	16	0.90	0.70	0.80		2.10	3.9	1.04		±0.02	±0.02	±0.05	△				
	GX 16–2S1.00 R	16	1.00	0.80	0.90		2.10	3.9	1.14		±0.02	±0.02	±0.05	△				
	GX 16–2S1.20 R	16	1.20	1.00	1.10		2.10	3.9	1.34		±0.02	±0.02	±0.05	△				
	GX 16–2S1.40 R	16	1.40	1.20	1.30		2.10	3.9	1.53		±0.02	±0.02	±0.05	△				
	GX 16–2S1.70 R	16	1.70	1.50	1.60		2.10	3.9	1.82		±0.02	±0.02	±0.05	△				
	GX 16–2S1.95 R	16	1.95	1.75	1.85		2.10	3.9	2.07		±0.02	±0.02	±0.05	△				
	GX 16–2S2.25 R	16	2.25	2.00	2.15		2.10	3.9	2.36		±0.02	±0.02	±0.05	△				
	GX 16–2S0.60 L	16	0.60	0.40	0.50		2.10	3.9	0.75		±0.02	±0.02	±0.05	△				
	GX 16–2S0.80 L	16	0.80	0.60	0.70		2.10	3.9	0.94		±0.02	±0.02	±0.05	△				
	GX 16–2S0.90 L	16	0.90	0.70	0.80		2.10	3.9	1.04		±0.02	±0.02	±0.05	△				
	GX 16–2S1.00 L	16	1.00	0.80	0.90		2.10	3.9	1.14		±0.02	±0.02	±0.05	△				
	GX 16–2S1.20 L	16	1.20	1.00	1.10		2.10	3.9	1.34		±0.02	±0.02	±0.05	△				
	GX 16–2S1.40 L	16	1.40	1.20	1.30		2.10	3.9	1.53		±0.02	±0.02	±0.05	△				
	GX 16–2S1.70 L	16	1.70	1.50	1.60		2.10	3.9	1.82		±0.02	±0.02	±0.05	△				
	GX 16–2S1.95 L	16	1.95	1.75	1.85		2.10	3.9	2.07		±0.02	±0.02	±0.05	△				
	GX 16–2S2.25 L	16	2.25	2.00	2.15		2.10	3.9	2.36		±0.02	±0.02	±0.05	△				
	GX 16–2S2.75 N	16	2.75	2.50	2.65	0.1	2.10	3.9		3.0	±0.02	±0.02	±0.05	△				
	GX 16–2S3.25 N	16	3.25	3.00	3.15	0.1	2.10	3.9		3.0	±0.02	±0.02	±0.05	△				
	GX 16–3S4.25 N	16	4.25	4.00	4.15	0.2	3.05	3.9		3.5	±0.02	±0.02	±0.05	△				
	GX 16–4S5.25 N	16	5.25	5.00	5.15	0.2	4.30	3.9		4.0	±0.02	±0.02	±0.05	△				

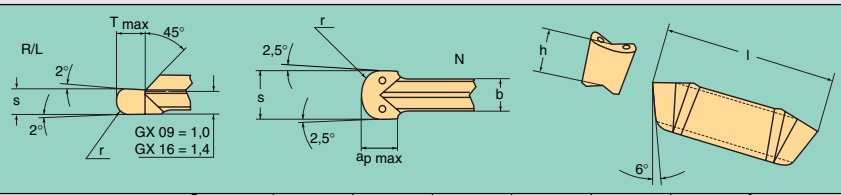
* l = Repeat accuracy during insert replacement

DIN 471–472 = DIN standard for circlip grooves **s** insert width **s_1** circlip thickness **s_2** standard groove width H13 (+0.14 /0)

R/L = right-, left-hand version (r.h. version shown in the drawing and picture) **N** = neutral execution (neutral grooving inserts are fitted in standard modules for grooving and turning)

WALTER CUT GX grooving inserts for O-ring grooves and side turning**

GX



HC = coated carbide
HW = uncoated carbide

	Designation	l mm	s mm	r mm	b mm	h mm	T_{max} mm	$a_{p\ max}$ mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	HC WTA 33	HC WTA 43	HC WTP 30	HW WK 1	HW
	GX 09–1R0.80 R	9	1.6	0.8	1.40	2.5	1.78		±0.02	±0.02	±0.05	△				
	GX 09–1R0.80 L	9	1.6	0.8	1.40	2.5	1.78		±0.02	±0.02	±0.05	△				
	GX 09–1R1.00 N**	9	2.0	1.0	1.40	2.5		1.0	±0.02	±0.02	±0.05	△				
	GX 09–1R1.20 N**	9	2.4	1.2	1.40	2.5		1.2	±0.02	±0.02	±0.05	△				
	GX 16–2R0.80 R	16	1.6	0.8	2.10	3.9	1.78		±0.02	±0.02	±0.05	△				
	GX 16–2R1.00 R	16	2.0	1.0	2.10	3.9	2.18		±0.02	±0.02	±0.05	△				
	GX 16–2R1.20 R	16	2.4	1.2	2.10	3.9	2.58		±0.02	±0.02	±0.05	△				
	GX 16–2R0.80 L	16	1.6	0.8	2.10	3.9	1.78		±0.02	±0.02	±0.05	△				
	GX 16–2R1.00 L	16	2.0	1.0	2.10	3.9	2.18		±0.02	±0.02	±0.05	△				
	GX 16–2R1.20 L	16	2.4	1.2	2.10	3.9	2.58		±0.02	±0.02	±0.05	△				
	GX 16–2R1.50 N**	16	3.0	1.5	2.10	3.9		1.5	±0.02	±0.02	±0.05	△				
	GX 16–3R2.00 N**	16	4.0	2.0	3.05	3.9		2.0	±0.02	±0.02	±0.05	△				
	GX 16–3R2.50 N**	16	5.0	2.5	3.05	3.9		2.5	±0.02	±0.02	±0.05	△				
	GX 16–4R3.00 N**	16	6.0	3.0	4.30	3.9		3.0	±0.02	±0.02	±0.05	△				

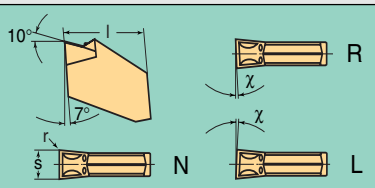
*l = Repeat accuracy during insert replacement

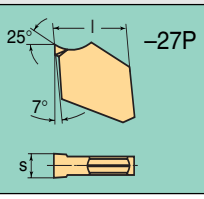
** only the neutral (N) version is suitable for longitudinal turning

R/L right-, left-hand version – r.h. version shown in the drawing and picture
N neutral version

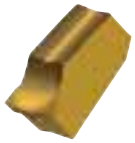
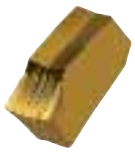
WALTER CUT FX grooving inserts

FX





HC = coated carbide
HW = uncoated carbide

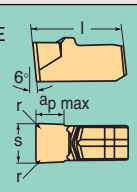
	Designation	s mm	r mm	χ	Tolerances l* mm	Tolerances s mm	Tolerances r mm	HC WTA 33	HC WTA 43	HC WTP 30	HW WK 1	
	FX 2.2 N0.10–M1	2.2	0.10	0°	±0.13	-0.10	±0.05	△	△	△		
	FX 2.2 R4–M1	2.2	0.10	4°	±0.13	-0.10	±0.05	△	△	△		
	FX 2.2 L4–M1	2.2	0.10	4°	±0.13	-0.10	±0.05	△	△	△		
	FX 3.1 N0.15–M1	3.1	0.15	0°	±0.13	-0.10	±0.05	△	△	△		
	FX 3.1 R6–M1	3.1	0.15	6°	±0.13	-0.10	±0.05	△	△	△		
	FX 3.1 L6–M1	3.1	0.15	6°	±0.13	-0.10	±0.05	△	△	△		
	FX 4.1 N0.20–M1	4.1	0.20	0°	±0.13	-0.10	±0.05	△	△	△		
	FX 4.1 R6–M1	4.1	0.20	6°	±0.13	-0.10	±0.05	△	△	△		
	FX 4.1 L6–M1	4.1	0.20	6°	±0.13	-0.10	±0.05	△	△	△		
	FX 5.1 N0.25–M1	5.1	0.25	0°	±0.13	-0.15	±0.05	△	△	△		
	FX 5.1 L6–M1	5.1	0.25	6°	±0.13	-0.15	±0.05	△				
	FX 6.5 N0.30–M1	6.5	0.30	0°	±0.13	-0.15	±0.05	△	△	△		
	FX 6.5 L6–M1	6.5	0.30	6°	±0.13	-0.15	±0.05	△				
	FX 8.2 N0.40–M1	8.2	0.40	0°	±0.15	-0.20	±0.10	△	△			
	FX 9.7 N0.40–M1	9.7	0.40	0°	±0.15	-0.20	±0.10	△	△			
	FX 2.2 N0.10–27P	2.2	0.10	0°	±0.13	-0.10	±0.05				△	
	FX 3.1 N0.15–27P	3.1	0.15	0°	±0.13	-0.10	±0.05				△	
	FX 4.1 N0.15–27P	4.1	0.15	0°	±0.13	-0.10	±0.05				△	
	FX 2.2 N0.15–F1	2.2	0.15	0°	±0.13	-0.10	±0.05	△	△			
	FX 2.2 R5–F1	2.2	0.15	5°	±0.13	-0.10	±0.05		△			
	FX 2.2 L5–F1	2.2	0.15	5°	±0.13	-0.10	±0.05		△			
	FX 3.1 N0.20–F1	3.1	0.20	0°	±0.13	-0.10	±0.05	△	△			
	FX 3.1 N0.40–F1	3.1	0.40	0°	±0.13	-0.10	±0.05	△	△			
	FX 3.1 R5–F1	3.1	0.20	5°	±0.13	-0.10	±0.05		△			
	FX 3.1 L5–F1	3.1	0.20	5°	±0.13	-0.10	±0.05		△			
	FX 4.1 N0.20–F1	4.1	0.20	0°	±0.13	-0.10	±0.05	△	△			
	FX 4.1 N0.50–F1	4.1	0.50	0°	±0.13	-0.10	±0.05	△	△			
	FX 4.1 R5–F1	4.1	0.20	5°	±0.13	-0.10	±0.05		△			
	FX 4.1 L5–F1	4.1	0.20	5°	±0.13	-0.10	±0.05		△			
	FX 3.1 N0.40–R2	3.1	0.40	0°	±0.13	-0.10	±0.05	△	△			
	FX 4.1 N0.20–R1	4.1	0.20	0°	±0.13	-0.10	±0.05			△		
	FX 4.1 N0.50–R2	4.1	0.50	0°	±0.13	-0.10	±0.05	△	△			
	FX 6.5 N0.30–R1	6.5	0.30	0°	±0.13	-0.15	±0.10			△		
	FX 6.5 N0.80–R1	6.5	0.80	0°	±0.13	-0.15	±0.10			△		

* l = Repeat accuracy during insert replacement

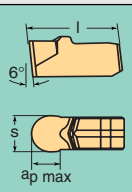
WALTER CUT LX grooving inserts

LX

LX–E



LX–R



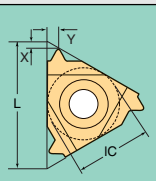
HC = coated carbide
HW = uncoated carbide

	Designation	s mm	r mm	χ	$a_{p\ max}$ mm	Tolerances l* mm	Tolerances s mm	Tolerances r mm	HC WTA 33	HC WTA 43	HC WTP 30	HW WK 1	HW
	LX–E8.00 N0.80–M2	8.0	0.80	0°	5	±0.15	±0.08	±0.10	△	△			
	LX–R4.00 N–M3	8.0	4.0		5	±0.15	±0.08	±0.10	△	△			

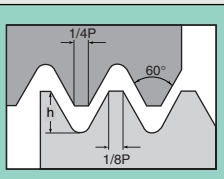
* l = Repeat accuracy during insert replacement

WALTER NTS threading inserts
Full profile, ISO metric 60°
External thread

NTS
ISO metric



nut



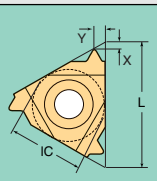
pin

HC = coated carbide

	Designation	Lead mm	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20	
	NTS ER–16 0.50 ISO	0.5	16	3/8''	0.31	0.6	0.4	△	△	
	NTS ER–16 0.60 ISO	0.6	16	3/8''	0.37	0.6	0.6	△	△	
	NTS ER–16 0.70 ISO	0.7	16	3/8''	0.43	0.6	0.6	△	△	
	NTS ER–16 0.75 ISO	0.75	16	3/8''	0.46	0.6	0.6	△	△	
	NTS ER–16 0.80 ISO	0.8	16	3/8''	0.49	0.6	0.6	△	△	
	NTS ER–16 1.00 ISO	1.0	16	3/8''	0.61	0.7	0.7	△	△	
	NTS ER–16 1.25 ISO	1.25	16	3/8''	0.77	0.8	0.9	△	△	
	NTS ER–16 1.50 ISO	1.5	16	3/8''	0.92	0.8	1.0	△	△	
	NTS ER–16 1.75 ISO	1.75	16	3/8''	1.07	0.9	1.2	△	△	
	NTS ER–16 2.00 ISO	2.0	16	3/8''	1.23	1.0	1.3	△	△	
	NTS ER–16 2.50 ISO	2.5	16	3/8''	1.53	1.1	1.5	△	△	
	NTS ER–16 3.00 ISO	3.0	16	3/8''	1.84	1.2	1.6	△	△	
	NTS ER–22 3.50 ISO	3.5	22	1/2''	2.15	1.6	2.3	△	△	
	NTS ER–22 4.00 ISO	4.0	22	1/2''	2.45	1.6	2.3	△	△	
	NTS ER–22 4.50 ISO	4.5	22	1/2''	2.76	1.7	2.4	△	△	
	NTS ER–22 5.00 ISO	5.0	22	1/2''	3.07	1.7	2.5	△	△	
	NTS EL–16 0.50 ISO	0.5	16	3/8''	0.31	0.6	0.4	△	△	
	NTS EL–16 0.60 ISO	0.6	16	3/8''	0.37	0.6	0.6	△	△	
	NTS EL–16 0.70 ISO	0.7	16	3/8''	0.43	0.6	0.6	△	△	
	NTS EL–16 0.75 ISO	0.75	16	3/8''	0.46	0.6	0.6	△	△	
	NTS EL–16 0.80 ISO	0.8	16	3/8''	0.49	0.6	0.6	△	△	
	NTS EL–16 1.00 ISO	1.0	16	3/8''	0.61	0.7	0.7	△	△	
	NTS EL–16 1.25 ISO	1.25	16	3/8''	0.77	0.8	0.9	△	△	
	NTS EL–16 1.50 ISO	1.5	16	3/8''	0.92	0.8	1.0	△	△	
	NTS EL–16 1.75 ISO	1.75	16	3/8''	1.07	0.9	1.2	△	△	
	NTS EL–16 2.00 ISO	2.0	16	3/8''	1.23	1.0	1.3	△	△	
	NTS EL–16 2.50 ISO	2.5	16	3/8''	1.53	1.1	1.5	△	△	
	NTS EL–16 3.00 ISO	3.0	16	3/8''	1.84	1.2	1.6	△	△	
	NTS EL–22 3.50 ISO	3.5	22	1/2''	2.15	1.6	2.3	△	△	
	NTS EL–22 4.00 ISO	4.0	22	1/2''	2.45	1.6	2.3	△	△	
	NTS EL–22 4.50 ISO	4.5	22	1/2''	2.76	1.7	2.4	△	△	
	NTS EL–22 5.00 ISO	5.0	22	1/2''	3.07	1.7	2.5	△	△	

WALTER NTS threading inserts
Full profile, ISO metric 60°
Internal thread

NTS
ISO metric



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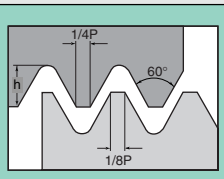


pin

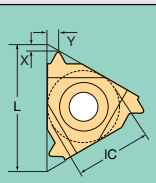
HC = coated carbide



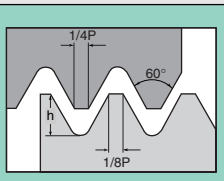
Designation	Lead mm	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20
NTS IR–16 0.50 ISO	0.5	16	3/8''	0.29	0.6	0.4	△	△
NTS IR–16 0.60 ISO	0.6	16	3/8''	0.35	0.6	0.6	△	△
NTS IR–16 0.70 ISO	0.7	16	3/8''	0.40	0.6	0.6	△	△
NTS IR–16 0.75 ISO	0.75	16	3/8''	0.43	0.6	0.6	△	△
NTS IR–16 0.80 ISO	0.8	16	3/8''	0.46	0.6	0.6	△	△
NTS IR–16 1.00 ISO	1.0	16	3/8''	0.58	0.6	0.7	△	△
NTS IR–16 1.25 ISO	1.25	16	3/8''	0.72	0.8	0.9	△	△
NTS IR–16 1.50 ISO	1.5	16	3/8''	0.87	0.8	1.0	△	△
NTS IR–16 1.75 ISO	1.75	16	3/8''	1.01	0.9	1.2	△	△
NTS IR–16 2.00 ISO	2.0	16	3/8''	1.15	1.0	1.3	△	△
NTS IR–16 2.50 ISO	2.5	16	3/8''	1.44	1.1	1.5	△	△
NTS IR–16 3.00 ISO	3.0	16	3/8''	1.73	1.1	1.5	△	△
NTS IR–22 3.50 ISO	3.5	22	1/2''	2.02	1.6	2.3	△	△
NTS IR–22 4.00 ISO	4.0	22	1/2''	2.31	1.6	2.3	△	△
NTS IR–22 4.50 ISO	4.5	22	1/2''	2.60	1.6	2.4	△	△
NTS IR–22 5.00 ISO	5.0	22	1/2''	2.89	1.6	2.3	△	△
NTS IL–16 0.50 ISO	0.5	16	3/8''	0.29	0.6	0.4	△	△
NTS IL–16 0.60 ISO	0.6	16	3/8''	0.35	0.6	0.6	△	△
NTS IL–16 0.70 ISO	0.7	16	3/8''	0.40	0.6	0.6	△	△
NTS IL–16 0.75 ISO	0.75	16	3/8''	0.43	0.6	0.6	△	△
NTS IL–16 0.80 ISO	0.8	16	3/8''	0.46	0.6	0.6	△	△
NTS IL–16 1.00 ISO	1.0	16	3/8''	0.58	0.6	0.7	△	△
NTS IL–16 1.25 ISO	1.25	16	3/8''	0.72	0.8	0.9	△	△
NTS IL–16 1.50 ISO	1.5	16	3/8''	0.87	0.8	1.0	△	△
NTS IL–16 1.75 ISO	1.75	16	3/8''	1.01	0.9	1.2	△	△
NTS IL–16 2.00 ISO	2.0	16	3/8''	1.15	1.0	1.3	△	△
NTS IL–16 2.50 ISO	2.5	16	3/8''	1.44	1.1	1.5	△	△
NTS IL–16 3.00 ISO	3.0	16	3/8''	1.73	1.1	1.5	△	△
NTS IL–22 3.50 ISO	3.5	22	1/2''	2.02	1.6	2.3	△	△
NTS IL–22 4.00 ISO	4.0	22	1/2''	2.31	1.6	2.3	△	△
NTS IL–22 4.50 ISO	4.5	22	1/2''	2.60	1.6	2.4	△	△
NTS IL–22 5.00 ISO	5.0	22	1/2''	2.89	1.6	2.3	△	△

WALTER NTS threading inserts
Full profile, American UN 60°
External thread

NTS
American UN



nut



pin

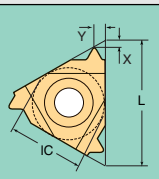
HC = coated carbide



Designation	Lead T/inch	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20
NTS ER–16 048 UN	48	16	3/8''	0.32	0.6	0.6	△	△
NTS ER–16 044 UN	44	16	3/8''	0.35	0.6	0.6	△	△
NTS ER–16 040 UN	40	16	3/8''	0.39	0.6	0.6	△	△
NTS ER–16 036 UN	36	16	3/8''	0.43	0.6	0.6	△	△
NTS ER–16 032 UN	32	16	3/8''	0.49	0.6	0.6	△	△
NTS ER–16 028 UN	28	16	3/8''	0.56	0.6	0.7	△	△
NTS ER–16 027 UN	27	16	3/8''	0.58	0.7	0.8	△	△
NTS ER–16 024 UN	24	16	3/8''	0.65	0.7	0.8	△	△
NTS ER–16 020 UN	20	16	3/8''	0.78	0.8	0.9	△	△
NTS ER–16 018 UN	18	16	3/8''	0.87	0.8	1.0	△	△
NTS ER–16 016 UN	16	16	3/8''	0.97	0.9	1.1	△	△
NTS ER–16 014 UN	14	16	3/8''	1.11	1.0	1.2	△	△
NTS ER–16 013 UN	13	16	3/8''	1.20	1.0	1.3	△	△
NTS ER–16 012 UN	12	16	3/8''	1.30	1.1	1.4	△	△
NTS ER–16 011 UN	11	16	3/8''	1.42	1.1	1.5	△	△
NTS ER–16 010 UN	10	16	3/8''	1.56	1.1	1.5	△	△
NTS ER–16 009 UN	9	16	3/8''	1.73	1.2	1.7	△	△
NTS ER–16 008 UN	8	16	3/8''	1.95	1.2	1.6	△	△
NTS ER–22 007 UN	7	22	1/2''	2.22	1.6	2.3	△	△
NTS ER–22 006 UN	6	22	1/2''	2.60	1.6	2.3	△	△
NTS ER–22 005 UN	5	22	1/2''	3.12	1.7	2.5	△	△
NTS EL–16 048 UN	48	16	3/8''	0.32	0.6	0.6	△	△
NTS EL–16 044 UN	44	16	3/8''	0.35	0.6	0.6	△	△
NTS EL–16 040 UN	40	16	3/8''	0.39	0.6	0.6	△	△
NTS EL–16 036 UN	36	16	3/8''	0.43	0.6	0.6	△	△
NTS EL–16 032 UN	32	16	3/8''	0.49	0.6	0.6	△	△
NTS EL–16 028 UN	28	16	3/8''	0.56	0.6	0.7	△	△
NTS EL–16 027 UN	27	16	3/8''	0.58	0.7	0.8	△	△
NTS EL–16 024 UN	24	16	3/8''	0.65	0.7	0.8	△	△
NTS EL–16 020 UN	20	16	3/8''	0.78	0.8	0.9	△	△
NTS EL–16 018 UN	18	16	3/8''	0.87	0.8	1.0	△	△
NTS EL–16 016 UN	16	16	3/8''	0.97	0.9	1.1	△	△
NTS EL–16 014 UN	14	16	3/8''	1.11	1.0	1.2	△	△
NTS EL–16 013 UN	13	16	3/8''	1.20	1.0	1.3	△	△
NTS EL–16 012 UN	12	16	3/8''	1.30	1.1	1.4	△	△
NTS EL–16 011 UN	11	16	3/8''	1.42	1.1	1.5	△	△
NTS EL–16 010 UN	10	16	3/8''	1.56	1.1	1.5	△	△
NTS EL–16 009 UN	9	16	3/8''	1.73	1.2	1.7	△	△
NTS EL–16 008 UN	8	16	3/8''	1.95	1.2	1.6	△	△
NTS EL–22 007 UN	7	22	1/2''	2.22	1.6	2.3	△	△
NTS EL–22 006 UN	6	22	1/2''	2.60	1.6	2.3	△	△
NTS EL–22 005 UN	5	22	1/2''	3.12	1.7	2.5	△	△

WALTER NTS threading inserts
Full profile, American UN 60°
Internal thread

NTS
American UN



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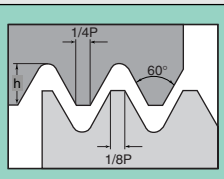


pin

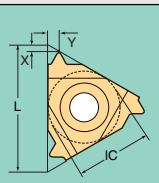
HC = coated carbide



Designation	Lead T/inch	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20
NTS IR–16 048 UN	48	16	3/8''	0.31	0.6	0.6	△	△
NTS IR–16 044 UN	44	16	3/8''	0.33	0.6	0.6	△	△
NTS IR–16 040 UN	40	16	3/8''	0.37	0.6	0.6	△	△
NTS IR–16 036 UN	36	16	3/8''	0.41	0.6	0.6	△	△
NTS IR–16 032 UN	32	16	3/8''	0.51	0.6	0.6	△	△
NTS IR–16 028 UN	28	16	3/8''	0.52	0.6	0.7	△	△
NTS IR–16 027 UN	27	16	3/8''	0.54	0.7	0.8	△	△
NTS IR–16 024 UN	24	16	3/8''	0.61	0.7	0.8	△	△
NTS IR–16 020 UN	20	16	3/8''	0.73	0.8	0.9	△	△
NTS IR–16 018 UN	18	16	3/8''	0.81	0.8	1.0	△	△
NTS IR–16 016 UN	16	16	3/8''	0.92	0.9	1.1	△	△
NTS IR–16 014 UN	14	16	3/8''	1.05	0.9	1.2	△	△
NTS IR–16 013 UN	13	16	3/8''	1.13	1.0	1.3	△	△
NTS IR–16 012 UN	12	16	3/8''	1.22	1.1	1.4	△	△
NTS IR–16 011 UN	11	16	3/8''	1.33	1.1	1.5	△	△
NTS IR–16 010 UN	10	16	3/8''	1.47	1.1	1.5	△	△
NTS IR–16 009 UN	9	16	3/8''	1.63	1.2	1.7	△	△
NTS IR–16 008 UN	8	16	3/8''	1.83	1.1	1.5	△	△
NTS IR–22 007 UN	7	22	1/2''	2.09	1.6	2.3	△	△
NTS IR–22 006 UN	6	22	1/2''	2.44	1.6	2.3	△	△
NTS IR–22 005 UN	5	22	1/2''	2.93	1.6	2.3	△	△
NTS IL–16 048 UN	48	16	3/8''	0.31	0.6	0.6	△	△
NTS IL–16 044 UN	44	16	3/8''	0.33	0.6	0.6	△	△
NTS IL–16 040 UN	40	16	3/8''	0.37	0.6	0.6	△	△
NTS IL–16 036 UN	36	16	3/8''	0.41	0.6	0.6	△	△
NTS IL–16 032 UN	32	16	3/8''	0.51	0.6	0.6	△	△
NTS IL–16 028 UN	28	16	3/8''	0.52	0.6	0.7	△	△
NTS IL–16 027 UN	27	16	3/8''	0.54	0.7	0.8	△	△
NTS IL–16 024 UN	24	16	3/8''	0.61	0.7	0.8	△	△
NTS IL–16 020 UN	20	16	3/8''	0.73	0.8	0.9	△	△
NTS IL–16 018 UN	18	16	3/8''	0.81	0.8	1.0	△	△
NTS IL–16 016 UN	16	16	3/8''	0.92	0.9	1.1	△	△
NTS IL–16 014 UN	14	16	3/8''	1.05	0.9	1.2	△	△
NTS IL–16 013 UN	13	16	3/8''	1.13	1.0	1.3	△	△
NTS IL–16 012 UN	12	16	3/8''	1.22	1.1	1.4	△	△
NTS IL–16 011 UN	11	16	3/8''	1.33	1.1	1.5	△	△
NTS IL–16 010 UN	10	16	3/8''	1.47	1.1	1.5	△	△
NTS IL–16 009 UN	9	16	3/8''	1.63	1.2	1.7	△	△
NTS IL–16 008 UN	8	16	3/8''	1.83	1.1	1.5	△	△
NTS IL–22 007 UN	7	22	1/2''	2.09	1.6	2.3	△	△
NTS IL–22 006 UN	6	22	1/2''	2.44	1.6	2.3	△	△
NTS IL–22 005 UN	5	22	1/2''	2.93	1.6	2.3	△	△

WALTER NTS threading inserts
Full profile, Whitworth 55° for BSW, BSP
External thread

NTS
BSW, BSP



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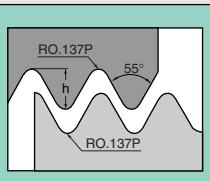


pin

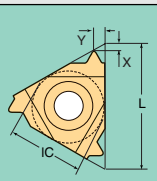
HC = coated carbide



Designation	Lead T/inch	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20
NTS ER–16 048 W	48	16	3/8''	0.34	0.6	0.6	△	△
NTS ER–16 040 W	40	16	3/8''	0.41	0.6	0.6	△	△
NTS ER–16 036 W	36	16	3/8''	0.45	0.6	0.6	△	△
NTS ER–16 032 W	32	16	3/8''	0.51	0.6	0.6	△	△
NTS ER–16 028 W	28	16	3/8''	0.58	0.6	0.7	△	△
NTS ER–16 026 W	26	16	3/8''	0.63	0.7	0.8	△	△
NTS ER–16 024 W	24	16	3/8''	0.68	0.7	0.8	△	△
NTS ER–16 022 W	22	16	3/8''	0.74	0.8	0.9	△	△
NTS ER–16 020 W	20	16	3/8''	0.81	0.8	0.9	△	△
NTS ER–16 019 W	19	16	3/8''	0.86	0.8	1.0	△	△
NTS ER–16 018 W	18	16	3/8''	0.90	0.8	1.0	△	△
NTS ER–16 016 W	16	16	3/8''	1.02	0.9	1.1	△	△
NTS ER–16 014 W	14	16	3/8''	1.16	1.0	1.2	△	△
NTS ER–16 012 W	12	16	3/8''	1.36	1.1	1.4	△	△
NTS ER–16 011 W	11	16	3/8''	1.48	1.1	1.5	△	△
NTS ER–16 010 W	10	16	3/8''	1.63	1.1	1.5	△	△
NTS ER–16 009 W	9	16	3/8''	1.81	1.2	1.7	△	△
NTS ER–16 008 W	8	16	3/8''	2.03	1.2	1.5	△	△
NTS ER–22 007 W	7	22	1/2''	2.32	1.6	2.3	△	△
NTS ER–22 006 W	6	22	1/2''	2.71	1.6	2.3	△	△
NTS ER–22 005 W	5	22	1/2''	3.25	1.7	2.4	△	△
NTS EL–16 048 W	48	16	3/8''	0.34	0.6	0.6	△	△
NTS EL–16 040 W	40	16	3/8''	0.41	0.6	0.6	△	△
NTS EL–16 036 W	36	16	3/8''	0.45	0.6	0.6	△	△
NTS EL–16 032 W	32	16	3/8''	0.51	0.6	0.6	△	△
NTS EL–16 028 W	28	16	3/8''	0.58	0.6	0.7	△	△
NTS EL–16 026 W	26	16	3/8''	0.63	0.7	0.8	△	△
NTS EL–16 024 W	24	16	3/8''	0.68	0.7	0.8	△	△
NTS EL–16 022 W	22	16	3/8''	0.74	0.8	0.9	△	△
NTS EL–16 020 W	20	16	3/8''	0.81	0.8	0.9	△	△
NTS EL–16 019 W	19	16	3/8''	0.86	0.8	1.0	△	△
NTS EL–16 018 W	18	16	3/8''	0.90	0.8	1.0	△	△
NTS EL–16 016 W	16	16	3/8''	1.02	0.9	1.1	△	△
NTS EL–16 014 W	14	16	3/8''	1.16	1.0	1.2	△	△
NTS EL–16 012 W	12	16	3/8''	1.36	1.1	1.4	△	△
NTS EL–16 011 W	11	16	3/8''	1.48	1.1	1.5	△	△
NTS EL–16 010 W	10	16	3/8''	1.63	1.1	1.5	△	△
NTS EL–16 009 W	9	16	3/8''	1.81	1.2	1.7	△	△
NTS EL–16 008 W	8	16	3/8''	2.03	1.2	1.5	△	△
NTS EL–22 007 W	7	22	1/2''	2.32	1.6	2.3	△	△
NTS EL–22 006 W	6	22	1/2''	2.71	1.6	2.3	△	△
NTS EL–22 005 W	5	22	1/2''	3.25	1.7	2.4	△	△

WALTER NTS threading inserts
Full profile, Whitworth 55° for BSW, BSP
Internal thread

NTS
BSW, BSP



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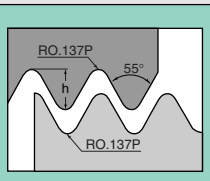


pin

HC = coated carbide



Designation	Lead T/inch	l mm	IC	h min mm	X mm	Y mm	HC WXP 20	HC WXM 20
NTS IR–16 048 W	48	16	3/8''	0.34	0.6	0.6	△	△
NTS IR–16 040 W	40	16	3/8''	0.41	0.6	0.6	△	△
NTS IR–16 036 W	36	16	3/8''	0.45	0.6	0.6	△	△
NTS IR–16 032 W	32	16	3/8''	0.51	0.6	0.6	△	△
NTS IR–16 028 W	28	16	3/8''	0.58	0.6	0.7	△	△
NTS IR–16 026 W	26	16	3/8''	0.63	0.7	0.8	△	△
NTS IR–16 024 W	24	16	3/8''	0.68	0.7	0.8	△	△
NTS IR–16 022 W	22	16	3/8''	0.74	0.8	0.9	△	△
NTS IR–16 020 W	20	16	3/8''	0.81	0.8	0.9	△	△
NTS IR–16 019 W	19	16	3/8''	0.86	0.8	1.0	△	△
NTS IR–16 018 W	18	16	3/8''	0.90	0.8	1.0	△	△
NTS IR–16 016 W	16	16	3/8''	1.02	0.9	1.1	△	△
NTS IR–16 014 W	14	16	3/8''	1.16	1.0	1.2	△	△
NTS IR–16 012 W	12	16	3/8''	1.36	1.1	1.4	△	△
NTS IR–16 011 W	11	16	3/8''	1.48	1.1	1.5	△	△
NTS IR–16 010 W	10	16	3/8''	1.63	1.1	1.5	△	△
NTS IR–16 009 W	9	16	3/8''	1.81	1.2	1.7	△	△
NTS IR–16 008 W	8	16	3/8''	2.03	1.2	1.5	△	△
NTS IR–22 007 W	7	22	1/2''	2.32	1.6	2.3	△	△
NTS IR–22 006 W	6	22	1/2''	2.71	1.6	2.3	△	△
NTS IR–22 005 W	5	22	1/2''	3.25	1.7	2.4	△	△
NTS IL–16 048 W	48	16	3/8''	0.34	0.6	0.6	△	△
NTS IL–16 040 W	40	16	3/8''	0.41	0.6	0.6	△	△
NTS IL–16 036 W	36	16	3/8''	0.45	0.6	0.6	△	△
NTS IL–16 032 W	32	16	3/8''	0.51	0.6	0.6	△	△
NTS IL–16 028 W	28	16	3/8''	0.58	0.6	0.7	△	△
NTS IL–16 026 W	26	16	3/8''	0.63	0.7	0.8	△	△
NTS IL–16 024 W	24	16	3/8''	0.68	0.7	0.8	△	△
NTS IL–16 022 W	22	16	3/8''	0.74	0.8	0.9	△	△
NTS IL–16 020 W	20	16	3/8''	0.81	0.8	0.9	△	△
NTS IL–16 019 W	19	16	3/8''	0.86	0.8	1.0	△	△
NTS IL–16 018 W	18	16	3/8''	0.90	0.8	1.0	△	△
NTS IL–16 016 W	16	16	3/8''	1.02	0.9	1.1	△	△
NTS IL–16 014 W	14	16	3/8''	1.16	1.0	1.2	△	△
NTS IL–16 012 W	12	16	3/8''	1.36	1.1	1.4	△	△
NTS IL–16 011 W	11	16	3/8''	1.48	1.1	1.5	△	△
NTS IL–16 010 W	10	16	3/8''	1.63	1.1	1.5	△	△
NTS IL–16 009 W	9	16	3/8''	1.81	1.2	1.7	△	△
NTS IL–16 008 W	8	16	3/8''	2.03	1.2	1.5	△	△
NTS IL–22 007 W	7	22	1/2''	2.32	1.6	2.3	△	△
NTS IL–22 006 W	6	22	1/2''	2.71	1.6	2.3	△	△
NTS IL–22 005 W	5	22	1/2''	3.25	1.7	2.4	△	△

Cutting tool material application tables – Turning

Tiger·tec®



WALTER grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range	Coating procedure	Coating structure
WPP 01	HC – P 01	●●						01 05 10 15 20 25 30 35 40 45	CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 10			●						
WPP 05	HC – P 05	●●							CVD	TiCN + Al_2O_3 (+TiN)
WPP 10	HC – P 10	●●							CVD	TiCN + Al_2O_3 (TiN)
	HC – K 20			●						
WPP 20	HC – P 20	●●							CVD	TiCN + Al_2O_3 (TiN)
	HC – K 30			●						
WPP 30	HC – P 30	●●							CVD	TiCN + Al_2O_3 (TiN)
WAM 10	HC – M 10		●●						CVD	TiCN + Al_2O_3 + HfN
	HC – P 20	●								
WAM 20	HC – M 20		●●						CVD	TiCN + Al_2O_3 + HfN
	HC – S 20					●				
WSM 30	HC – M 30		●●						PVD	TiAlN + Al_2O_3 (ZrCN)
	HC – S 30					●●				
WAK 10	HC – K 10			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – H 30						●			
WAK 20	HC – K 20			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – P 10	●								
WAK 30	HC – K 30			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – P 40	●								
WSN 10	CN – K 20			●●						
WXN 10	HC – N 10				●●				PVD	TiCN*plus*
	HC – M 01		●							
WK 1	HW – N 10				●●					
	HW – S 10					●				
WCB 30	BL – H 05						●●			
WCB 50	BH – H 10						●●			
	BH – K 10			●						

Cutting tool material application tables – Grooving and threading

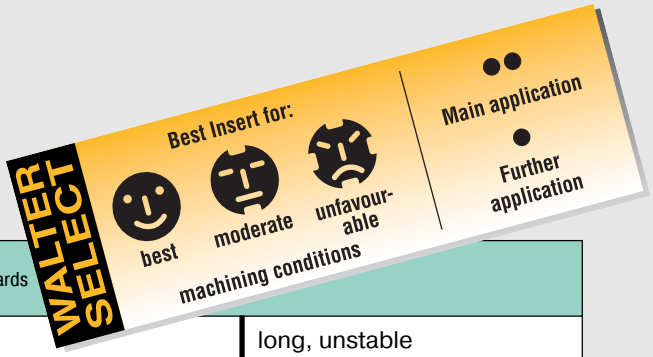
WALTER grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating structure
WAP 20	HC – P 20	●●							CVD	TiCN + Al_2O_3 +TiN
	HC – K 30			●						
WAP 30	HC – P 30	●●							CVD	TiCN + Al_2O_3 +TiN
WXP 43	HC – P 40	●●							PVD	Multilayer TiAlN / TiN
	HC – M 35		●							
WAM 20	HC – M 20		●●						CVD	TiCN + Al_2O_3 + HfN
	HC – S 20					●				
WXM 33	HC – M 35		●●						PVD	Multilayer TiAlN / TiN + ZrCN
	HC – P 40	●								
WAK 20	HC – K 20			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – H 10						●			
WAK 30	HC – K 30			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – P 40	●								
WK 1	HW – N 10				●●					
	HW – S 10					●				
WTA 33	HC – P 10	●●							CVD	TiCN + Al_2O_3
	HC – K 10			●						
WTA 43	HC – P 20	●●							CVD	TiCN + Al_2O_3
	HC – K 20			●						
WTP 30	HC – P 35	●●							CVD	TiCN
	HC – M 35		●							
WXP 20	HC – P 20	●●							PVD	TiN
	HC – K 20			●						
WXM 20	HC – M 20		●●						PVD	TiCN
	HC – N 20				●					

HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4

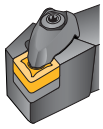
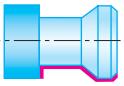
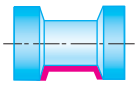
●● Main application
● Additional application


WALTER

WALTER SELECT for turning toolholders

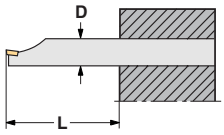
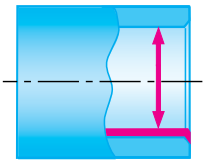
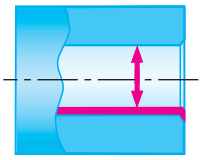
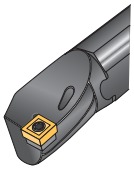
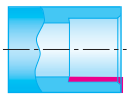
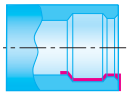
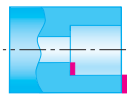


External application see page 70 onwards

Workpiece characteristics		short, stable 			long, unstable 
Holder clamping system WALTER TURN / WALTER CAPTO		**Negative basic shape** Page 74–93 Rigid clamping system* 	Lever-type clamping system 	Wedge-type clamping system 	**Positive basic shape** Page 94–107 Lever-type clamping system 
	**Longitudinal turning/ facing**	●●	●●	●	●●
	**Profile turning**	●●	●●	●●	●●
	**Facing**	●●	●●		●●
	**Necking**	●●			●●

* for heavy metal removal, e.g. cast iron machining with ***Tiger·tec*** and heavily interrupted cuts.

Internal application see page 109 onwards

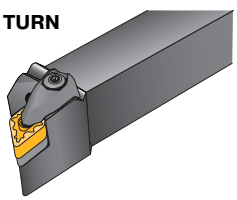
		 **from dia. 25 mm** L / D = 3 / 1	 **from dia. 13 mm*** L / D = 4 / 1 **additional boring bars from dia. 2 mm in a steel or solid carbide version, see page 336 (precision boring product range)*	
Holder clamping system WALTER TURN / WALTER CAPTO		**Negative basic shape** Lever-type clamping system Page 112–121 	**Positive basic shape** Screw clamping Page 122–133 	
	**Longitudinal turning/ facing**	●●	●●	
	**Profile turning**	●●	●●	
	**Facing**	●●	●●	

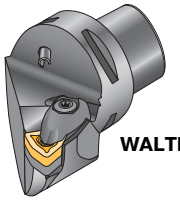
Product range overview

Rigid-clamping system

Negative basic shape

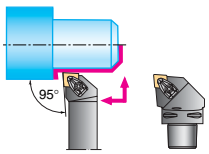
WALTER TURN



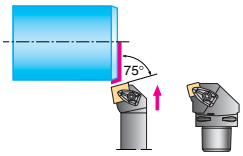


WALTER CAPTO

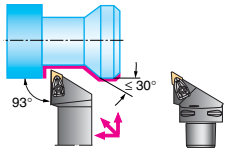
95° — **DCLN R/L**
Page 74



75° — **DSKN R/L**
Page 86

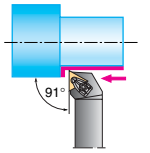


93° — **DDJN R/L**
Page 78



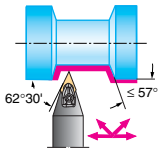
91° — **DTGN R/L**
Page 88

NEW



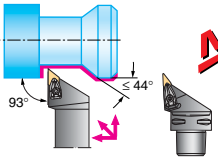
62°30' — **DDNN N**
Page 78

NEW

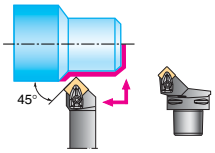


93° — **DVJN R/L**
Page 91

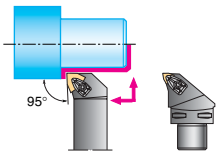
NEW



45° — **DSSN R/L**
Page 80

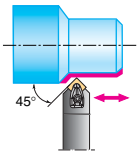


95° — **DWLN R/L**
Page 92



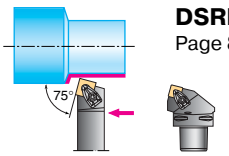
45° — **DSDN N**
Page 82

NEW



75° — **DSBN R/L**
Page 84

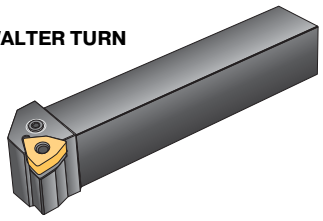
DSRN R/L
Page 84

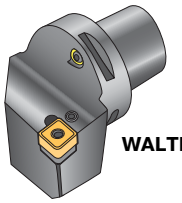


Lever-type clamping system

Negative basic shape

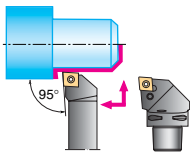
WALTER TURN



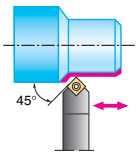


WALTER CAPTO

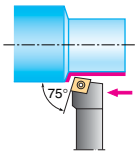
95° — **PCLN R/L**
Page 75



45° — **PSDN N**
Page 83

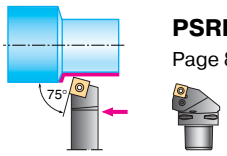


75° — **PCBN R/L**
Page 76

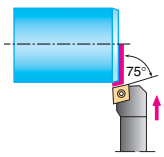


75° — **PSBN R/L**
Page 85

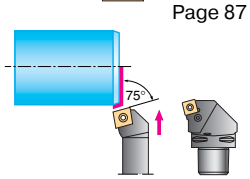
PSRN R/L
Page 85



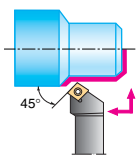
75° — **PCKN R/L**
Page 77



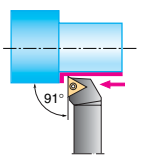
75° — **PSKN R/L**
Page 87



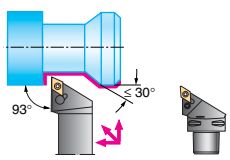
45° — **PCSN R/L**
Page 77



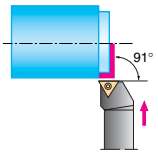
91° — **PTGN R/L**
Page 89



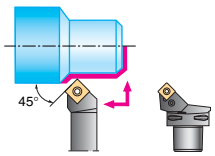
93° — **PDJN R/L**
Page 79



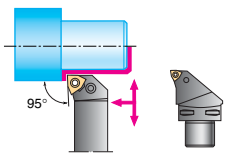
91° — **PTFN R/L**
Page 89



45° — **PSSN R/L**
Page 81



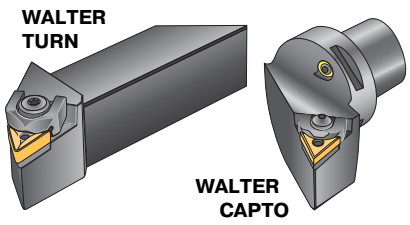
95° — **PWLN R/L**
Page 93



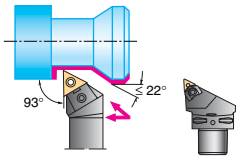
Toolholders for external turning

Wedge-type clamping system

Negative basic shape

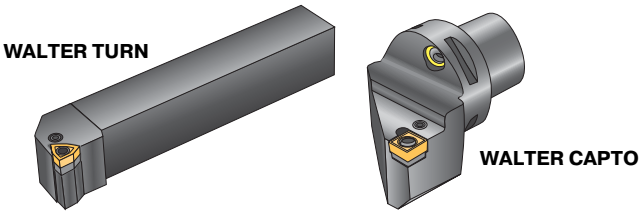


93° **MTJN R/L**
Page 90

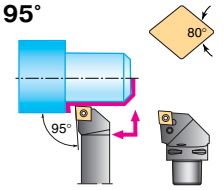


Lever-type clamping system

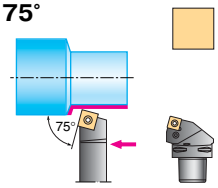
Positive basic shape



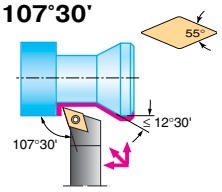
95° **PCLC R/L**
Page 94–95



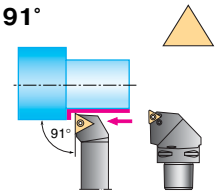
75° **PSRC R/L**
Page 102



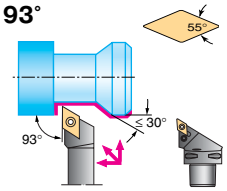
107°30' **SDHC R/L*** **PDHC R/L**
Page 96



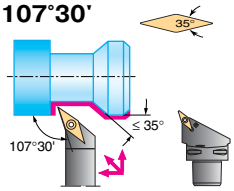
91° **STGC R/L*** **PTGC R/L**
Page 103



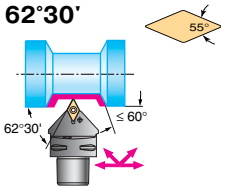
93° **SDJC R/L*** **PDJC R/L**
Page 96–97



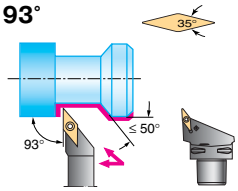
107°30' **PVHB R/L**
Page 104



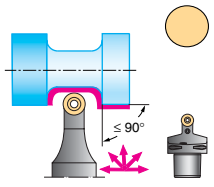
62°30' **PDNC N**
Page 97



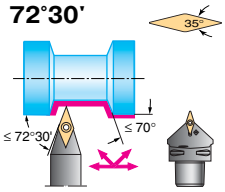
93° **PVJB R/L**
Page 105



SRDC N* **PRDC N**
Page 98–99

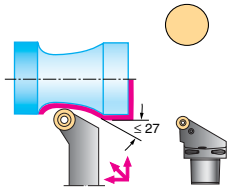


72°30' **PVVB N**
Page 106

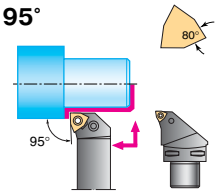


SRGC R/L* **PRGC R/L**
Page 100

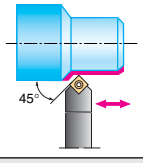
SRSC R/L* **PRSC R/L**
Page 101



95° **PWLC R/L**
Page 107



45° **PSDC N**
Page 102



* with screw clamping

ISO designation key – External turning

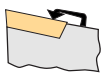
C Top clamping

D Top and hole clamping

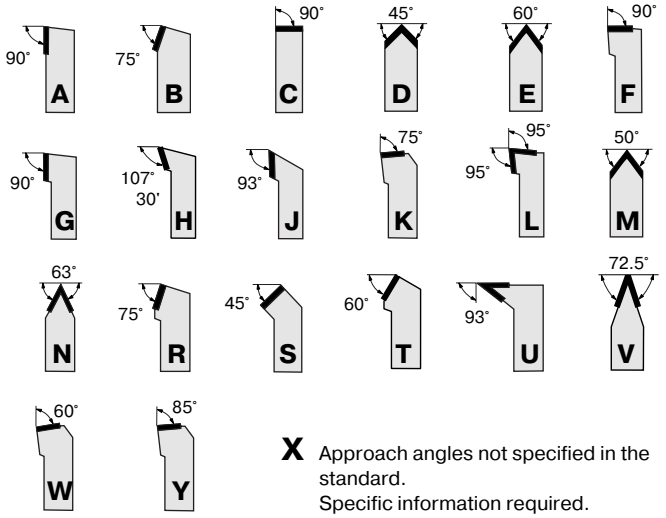
M Top and hole clamping

P Hole clamping

S Screw clamping



Type of clamping system



X Approach angles not specified in the standard.
Specific information required.

Approach angle

WALTER TURN

P	W	L	N	R

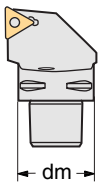
WALTER CAPTO

C5	—	P	W	L	N	R

Coupling size

C = WALTER CAPTO
dm = coupling size

C3 → dm = 32
C4 → dm = 40
C5 → dm = 50
C6 → dm = 63



Basic shape of indexable insert

C 80°
D 55°
R
S 90°
T 60°
V 35°
W 80°

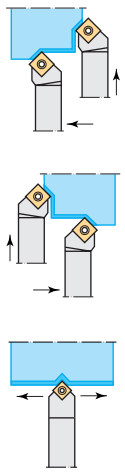
Clearance angle of indexable insert

Clearance angle α

B 5°
C 7°
E 20°
F 25°
N 0°
P 11°

Toolholder design

R
L
N



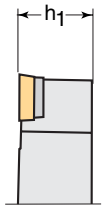
WALTER TURN toolholder
WALTER CAPTO toolholder

Shank height

The height of the cutting edge h_1 is shown in mm.

Figures after the decimal point are ignored.

Integers are preceded by a "0"
Example:
h_1 = 8 mm = 08.



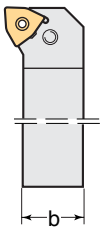
Shank width WALTER TURN

Shank width b in mm.

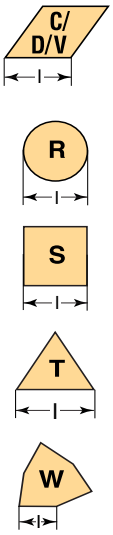
Figures after the decimal point are ignored.

Integers are preceded by a "0"
Example:
b = 8 mm = 08.

For cartridges CA.

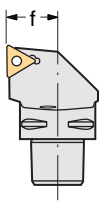


Size of inserts



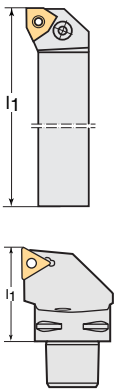
25	25	M		08	
—	22	110	—	08	...

f-dimension WALTER CAPTO



Toolholder length

32 = A
40 = B
50 = C
60 = D
70 = E
80 = F
90 = H
100 = H
110 = J
125 = K
140 = L
150 = M
160 = N
170 = P
180 = Q
200 = R
250 = S
300 = T
350 = U
400 = V
450 = W

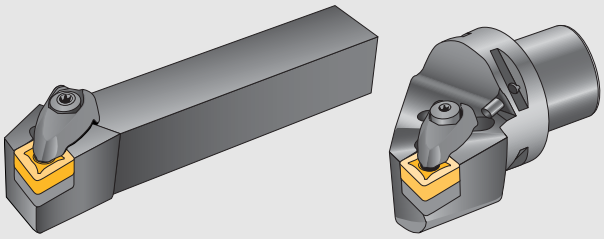


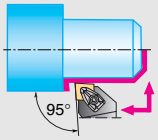
special = X
500 = Y

Manufacturer's option

If necessary, an additional symbol of max. 3 letters or figures can be added to the standard code.

This symbol is separated from the standard designation by a dash (e.g. –W for wedge design).





DCLN

WALTER TURN
WALTER CAPTO

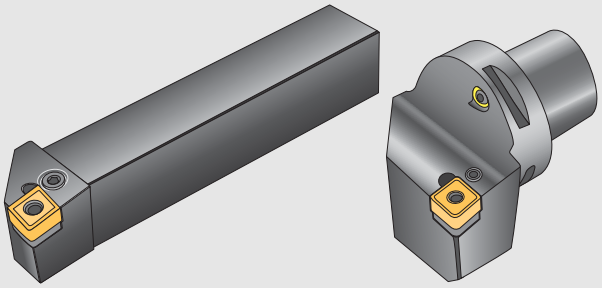
Tool	Designation		$h = h_1$ mm	b mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 95°	DCLN R/L 2020 K12	12	20	20		25	125	32.1	
	DCLN R/L 2525 M12	12	25	25		32	150	32.1	CN . . 1204 . .
	DCLN R/L 3225 P12	12	32	25		32	170	32.1	
	DCLN R/L 2525 M16	16	25	25		32	150	39.1	
	DCLN R/L 3225 P16	16	32	25		32	170	39.1	CN . . 1606 . .
	DCLN R/L 3232 P16	16	32	32		40	170	39.1	
	DCLN R/L 3232 P19	19	32	32		40	170	43.5	CN . . 1906 . .
κ = 95°	C4–DCLN R/L–27050–12	12			40	27	50		
	C5–DCLN R/L–35060–12	12			50	35	60		CN . . 1204 . .
	C6–DCLN R/L–45065–12	12			63	45	65		
	C4–DCLN R/L–27055–16	16			40	27	55		
	C5–DCLN R/L–35060–16	16			50	35	60		CN . . 1606 . .
	C6–DCLN R/L–45065–16	16			63	45	65		
	C5–DCLN R/L–35060–19	19			50	35	60		CN . . 1906 . .
	C6–DCLN R/L–45065–19	19			63	45	65		

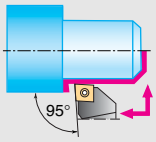
Measured with master inserts CN . . 120408 / CN . . 160612 / CN . . 190612
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		12	16	19	
	Shim	AP 301–CN12	AP 302–CN16	AP 303–CN19	
	Screw for shim	FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	FS 1463 (Torx 20 IP)	
	Clamp	PK 241	PK 242	PK 243	
	Screw for clamp	FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	FS 1474 (Torx 20 IP)	
	Tightening torque	3.9 Nm	6.4 Nm	6.4 Nm	
	Pressure spring	FS 1470	FS 1471	FS 1471	
	Pin	RS 117	RS 117	RS 117	
	Coolant nozzle for WALTER CAPTO	FS 1475	FS 1475	FS 1475	
	Wrench (Torx)	FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	FS 1464 (Torx 20 IP)	*IP = Torx Plus*

Accessories		12	16	19	
	Clamp set (consisting of standard assembly parts)	PK 241–Set	PK 242–Set	PK 243–Set	
	Clamp set with carbide clamping plate	PK 245–Set	PK 246–Set	—	

→ 28 | → 684 | → 220 | → 206

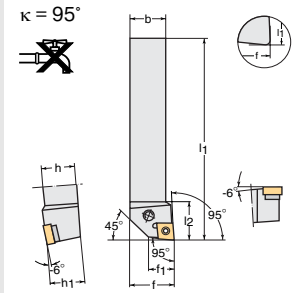




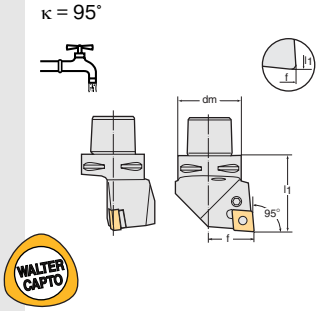
PCLN

WALTER TURN
WALTER CAPTO

Tool



Designation		h = h_1 mm	b mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
PCLN R/L 2020 K12	12	20	20		25	15	125	26	CN . . 1204 . .
PCLN R/L 2525 M12	12	25	25		32	16	150	26	
PCLN R/L 3225 P12	12	32	25		32	16	170	26	
PCLN R/L 2525 M16	16	25	25		32	19	150	28	CN . . 1606 . .
PCLN R/L 3225 P16	16	32	25		32	19	170	38	
PCLN R/L3232 P16	16	32	32		40	19	170	36	
PCLN R/L 3232 P19	19	32	32		40	22	170	36	CN . . 1906 . .
PCLN R/L 4040 S19	19	40	40		50	22	250	36	



Designation		h = h_1 mm	b mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
C3–PCLN R/L–22040–12	12			32	22		40		CN . . 1204 . .
C4–PCLN R/L–27050–12	12			40	27		50		
C5–PCLN R/L–35060–12	12			50	35		60		
C6–PCLN R/L–45065–12	12			63	45		65		
C4–PCLN R/L–27050–16	16			40	27		50		CN . . 1606 . .
C5–PCLN R/L–35060–16	16			50	35		60		
C6–PCLN R/L–45065–16	16			63	45		65		
C5–PCLN R/L–35060–19	19			50	35		60		CN . . 1906 . .
C6–PCLN R/L–45065–19	19			63	45		65		

Measured with master inserts CN . . 120408 / CN . . 160612 / CN . . 190612
Bodies and assembly parts are included in the scope of delivery.

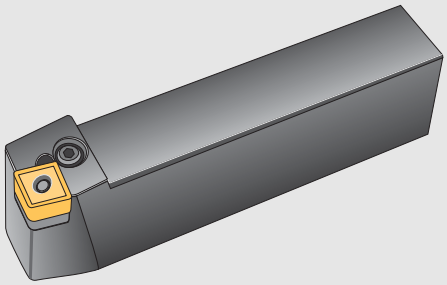
Assembly parts

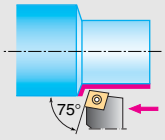
			12	16	19	
	Shim		AP 134–CN1216 for r ≤ 1.6	AP 135–CN1624 for r ≤ 2.4	AP 136–CN1924 for r ≤ 2.4	
	Lever		KN 102	KN 104	KN 106	
	Clamping screw		FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)	
	Pipe pin		RS 102	RS 103	RS 104	
	Assembly plug		MD 101	MD 102	MD 102	
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	FS 1019	
		C6	FS 1019	FS 1019	FS 1019	

Accessories

		12	16	19	
	Shim	AP 134–CN1208 for r ≤ 0.8	AP 135–CN1616 for r ≤ 1.6	AP 136–CN1912 for r ≤ 1.2	

→ 28 → 684 → 206





PCBN

WALTER TURN

Tool

Designation	⌀	h = h_1 mm	b mm	a mm	f mm	l_1 mm	l_2 mm	Type
κ = 75°								
PCBN R/L 2525 M 12	12	25	25	3.1	22	150	26	CN . . 1204 . .
PCBN R/L 2525 M16	16	25	25	3.8	22	150	28	CN . . 1606 . .
PCBN R/L 3232 P16	16	32	32	3.8	27	170	38	
PCBN R/L 3232 P 19	19	32	32	4.6	27	170	38	CN . . 1906 . .

Measured with master inserts CN . . 120408 / CN . . 160612 / CN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

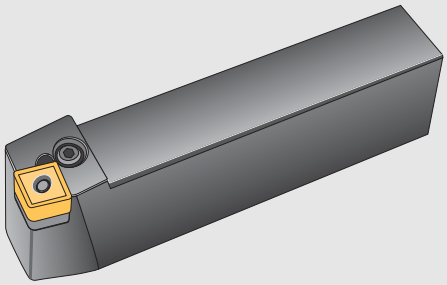
Assembly parts

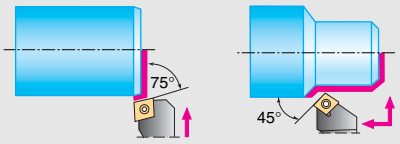
	⌀12	⌀16	⌀19	
Shim	AP 134–CN1216 for r ≤ 1.6	AP 135–CN1624 for r ≤ 2.4	AP 136–CN1924 for r ≤ 2.4	
Lever	KN 102	KN 104	KN 106	
Clamping screw	FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)	
Pipe pin	RS 102	RS 103	RS 104	
Assembly plug	MD 101	MD 102	MD 102	

Accessories

	⌀12	⌀16	⌀19	
Shim	AP 134–CN1208 for r ≤ 0.8	AP 135–CN1616 for r ≤ 1.6	AP 136–CN1912 for r ≤ 1.2	

→ 28 | → 684 | | → 206





PCKN / PCSN

WALTER TURN

Tool	Designation		$h = h_1$ mm	b mm	a mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 75°	PCKN R/L 2525 M12	12	25	25	3.1	32		150	26	CN . . 1204 . .
κ = 45°	PCSN R/L 2525 M12	12	25	25	8.3	32	23.9	150	28	CN . . 1204 . .

Measured with master inserts CN . . 120408.
Bodies and assembly parts are included in the scope of delivery.

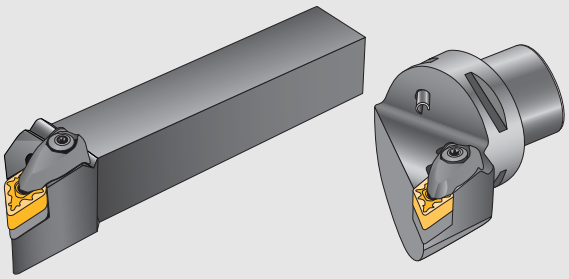
Assembly parts

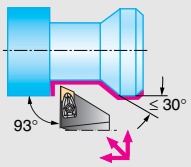
		12	
	Shim for r ≤ 1.6	AP 134–CN1216	
	Lever	KN 102	
	Clamping screw	FS 352 (SW 3)	
	Pipe pin	RS 102	
	Assembly plug	MD 101	

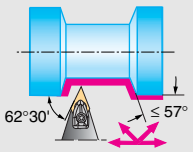
Accessories

		12	
	Shim for r ≤ 0.8	AP 134–CN1208	

→ 28 | → 684 | → 206







DDJN / DDNN

WALTER TURN
WALTER CAPTO

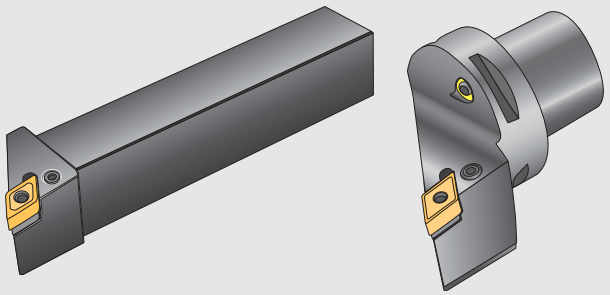
Tool	Designation		h = h_1 mm	b mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 93°	DDJN R/L 2020 K11	11	20	20		25	125	30.0	DN . . 1104 . .
	DDJN R/L 2525 M11	11	25	25		32	150	30.0	
	DDJN R/L 3225 P11	11	32	25		32	170	30.0	
	DDJN R/L 2020 K15	15	20	20		25	125	39.5	DN . . 1506 . .
	DDJN R/L 2525 M15	15	25	25		32	150	39.5	
	DDJN R/L 3225 P15	15	32	25		32	170	39.5	
	DDJN R/L 3232 P15	15	32	32		40	170	39.5	
κ = 62.5°	DDNN N 2020 K11	11	20	20		10.5	125	31.2	DN . . 1104 . .
	DDNN N 2525 M11	11	25	25		13	150	31.2	
	DDNN N 2525 M15	15	25	25		13	150	40.8	DN . . 1506 . .
	DDNN N 2225 P15	15	32	25		13	170	40.8	
κ = 93°	C4–DDJN R/L–27050–11	11			40	27	50		DN . . 1104 . .
	C5–DDJN R/L–35060–11	11			50	35	60		
	C6–DDJN R/L–45065–11	11			63	45	65		
	C4–DDJN R/L–27055–15	15			40	27	55		DN . . 1506 . .
	C5–DDJN R/L–35060–15	15			50	35	60		
	C6–DDJN R/L–45065–15	15			63	45	65		

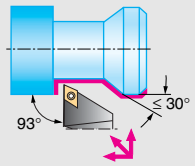
Measured with master inserts DN . . 110408 / DN . . 150608. Bodies and assembly parts are included in the scope of delivery.

Assembly parts		11	15	
	Shim	AP 305–DN11	AP 304–DN15	
	Screw for shim	FS 1462 (Torx 9 IP)	FS 1461 (Torx 15 IP)	
	Clamp	PK 240	PK 241	
	Screw for clamp	FS 1472 (Torx 9 IP)	FS 1473 (Torx 15 IP)	
	Tightening torque	1.7 Nm	3.9 Nm	
	Pressure spring	FS 1469	FS 1470	
	Pin	RS 116	RS 117	
	Coolant nozzle for WALTER CAPTO C4	FS 1477	FS 1477	
	Coolant nozzle for WALTER CAPTO C5	FS 1476	FS 1475	
	Coolant nozzle for WALTER CAPTO C6	FS 1476	FS 1476	
	Wrench (Torx)	FS 1466 (Torx 9 IP)	FS 1465 (Torx 15 IP)	*IP = Torx Plus*

Accessories		11	15	
	Clamp set (consisting of standard assembly parts)	PK 240–Set	PK 241–Set	
	Clamp set with carbide clamping plate	—	PK 245–Set	

→ 31 | → 684 | → 220 | → 206





PDJN

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	dm mm	f mm	l_1 mm	l_2 mm	Type
PDJN R/L 1616 H11	11	16	16		20	100	28	DN . . 1104 . .
PDJN R/L 2020 K11	11	20	20		25	125	28	
PDJN R/L 2525 M11	11	25	25		32	150	28	
PDJN R/L 3225 P11	11	32	25		32	170	28	
PDJN R/L 2020 K15	15	20	20		25	125	36	DN . . 1506 . .
PDJN R/L 2525 M15	15	25	25		32	150	36	
PDJN R/L 3225 P15	15	32	25		32	170	36	
PDJN R/L 3232 P15	15	32	32		40	170	36	
C3–PDJN R/L–22045–11	11			32	22	45		DN . . 1104 . .
C4–PDJN R/L–27050–11	11			40	27	50		
C5–PDJN R/L–35060–11	11			50	35	60		
C6–PDJN R/L–45065–11	11			63	45	65		
C4–PDJN R/L–27050–15	15			40	27	50		DN . . 1506 . .
C5–PDJN R/L–35060–15	15			50	35	60		
C6–PDJN R/L–45065–15	15			63	45	65		

Measured with master inserts DN . . 110408 / DN . . 150608.
Bodies and assembly parts are included in the scope of delivery.

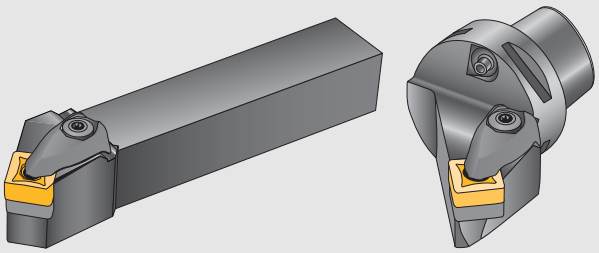
Assembly parts

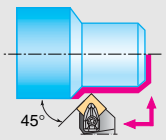
		11	15	
Shim		AP 171–DN1112 for r ≤ 1.2	AP 145–DN1516 for r ≤ 1.6	
Lever		KN 119	KN 103	
Clamping screw		FS 351 (SW 2.5)	FS 355 (SW 3)	
Pipe pin		RS 101	RS 102	
Assembly plug		MD 101	MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	

Accessories

	11	15	
Shim for r ≤ 0.8	AP 171–DN1108	AP 145–DN1508	

→ 31 | → 684 | → 206





DSSN

WALTER TURN
WALTER CAPTO

Tool

Designation		h = h_1 mm	b mm	a mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 45°										
DSSN R/L 2020 K12	12	20	20	8.3		25		125	37.1	
DSSN R/L 2525 M12	12	25	25	8.3		32		150	37.1	SN . . 1204 . .
DSSN R/L 3225 P12	12	32	25	8.3		32		170	37.1	
DSSN R/L 2525 M15	15	25	25	10.2		32		150	45.1	
DSSN R/L 3225 P15	15	32	25	10.2		32		170	45.1	SN . . 1506 . .
DSSN R/L 3232 P15	15	32	32	10.2		40		170	45.1	
DSSN R/L 3232 P19	19	32	32	12.5		40		170	49.5	SN . . 1906 . .
κ = 45°										
C4–DSSN R/L–27042–12	12				40	27	18.7	42	50.3	
C5–DSSN R/L–35052–12	12				50	35	26.7	52	60.3	SN . . 1204 . .
C6–DSSN R/L–45056–12	12				63	45	36.7	56	64.3	
C4–DSSN R/L–27045–15	15				40	27	16.8	45	50.2	
C5–DSSN R/L–35050–15	15				50	35	24.8	50	60.2	SN . . 1506 . .
C6–DSSN R/L–45054–15	15				63	45	34.8	54	64.2	
C5–DSSN R/L–35048–19	19				50	35	22.5	48	60.5	SN . . 1906 . .
C6–DSSN R/L–45052–19	19				63	45	32.5	52	64.5	

Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

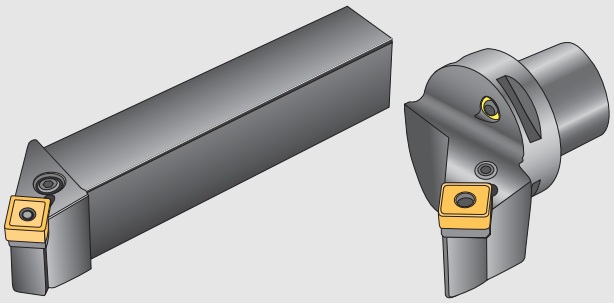
Assembly parts

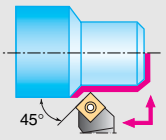
		⌀12	⌀15	⌀19	
Shim		AP 308–SN12	AP 309–SN15	AP 310–SN19	
Screw for shim		FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	FS 1463 (Torx 20 IP)	
Clamp		PK 241	PK 242	PK 243	
Screw for clamp		FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	FS 1474 (Torx 20 IP)	
Tightening torque		3.9 Nm	6.4 Nm	6.4 Nm	
Pressure spring		FS 1470	FS 1471	FS 1471	
Pin		RS 117	RS 117	RS 117	
Coolant nozzle for WALTER CAPTO	C4	FS 1477	FS 1477	—	
	C5	FS 1476	FS 1476	FS 1476	
	C6	FS 1475	FS 1475	FS 1476	
Wrench (Torx)		FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	FS 1464 (Torx 20 IP)	*IP = Torx Plus*

Accessories

	⌀12	⌀15	⌀19	
Clamp set (consisting of standard assembly parts)	PK 241–Set	PK 242–Set	PK 243–Set	
Clamp set with carbide clamping plate	PK 245–Set	PK 246–Set	—	

→ 33 | → 684 | → 220 | → 206





PSSN

WALTER TURN
WALTER CAPTO

Tool

Designation	⌀	h = h_1 mm	b mm	a mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 45°										
PSSN R/L 2020 K12	12	20	20	8.3		25	16.7	125	28.0	SN . . 1204 . .
PSSN R/L 2525 M12	12	25	25	8.3		32	23.7	150	28.0	
PSSN R/L 3225 P12	12	32	25	8.3		32	23.7	170	29.0	
PSSN R/L 2525 M15	15	25	25	10.2		32	21.8	150	32.0	SN . . 1506 . .
PSSN R/L 3232 P15	15	32	32	10.2		40	29.8	170	32.0	
PSSN R/L 3232 P19	19	32	32	12.5		40	27.5	170	37.5	SN . . 1906 . .
κ = 45°										
C3–PSSN R/L–22032–12	12				32	22	13.4	32	40.3	SN . . 1204 . .
C4–PSSN R/L–27042–12	12				40	27	18.7	42	50.3	
C5–PSSN R/L–35052–12	12				50	35	26.7	52	60.3	
C6–PSSN R/L–45056–12	12				63	45	36.7	56	64.3	
C4–PSSN R/L–27040–15	15				40	27	16.8	40	50.2	SN . . 1506 . .
C5–PSSN R/L–35050–15	15				50	35	24.8	50	60.2	
C6–PSSN R/L–45054–15	15				63	45	34.8	54	64.2	
C5–PSSN R/L–35048–19	19				50	35	22.5	48	60.5	SN . . 1906 . .
C6–PSSN R/L–45052–19	19				63	45	32.5	52	64.5	

Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

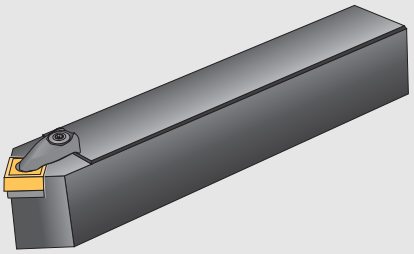
Assembly parts

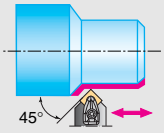
	⌀ 12	⌀ 15	⌀ 19
Shim	AP 141–SN1216 for r ≤ 1.6	AP 142–SN1524 for r ≤ 2.4	AP 143–SN1924 for r ≤ 2.4
Lever	KN 102	KN 104	KN 106
Clamping screw	FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)
Pipe pin	RS 102	RS 103	RS 104
Assembly plug	MD 101	MD 102	MD 102
Coolant nozzle for WALTER CAPTO C3	FS 1230	FS 1230	FS 1230
Coolant nozzle for WALTER CAPTO C4	FS 1018	FS 1018	FS 1018
Coolant nozzle for WALTER CAPTO C5	FS 1019	FS 1019	FS 1019
Coolant nozzle for WALTER CAPTO C6	FS 1019	FS 1019	FS 1019

Accessories

	⌀ 12	⌀ 15	⌀ 19
Shim	AP 141–SN1208 for r ≤ 0.8	AP 142–SN1516 for r ≤ 1.6	AP 143–SN1912 for r ≤ 1.2

→ 33 → 684 → 206





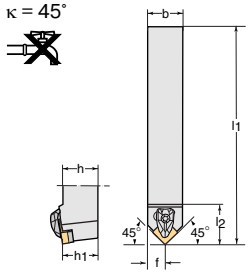
DSDN

WALTER TURN

Tool

Designation		$h = h_1$ mm	b mm	f mm	l_1 mm	l_2 mm	Type
DSDN N 2020 K12	12	20	20	10.0	125	36.5	SN . . 1204 . .
DSDN N 2525 M12	12	25	25	12.8	150	36.5	
DSDN N 3225 P12	12	32	25	12.8	170	36.5	
DSDN N 2525 M15	15	25	25	12.8	150	44.8	SN . . 1506 . .
DSDN N 3232 P19	19	32	25	13.0	170	49.5	SN . . 1906 . .

κ = 45°



Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

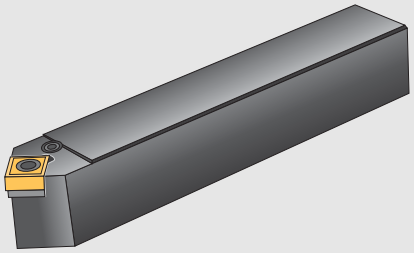
	12	15	19	
Shim	AP 308–SN12	AP 309–SN15	AP 310–SN19	
Screw for shim	FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	FS 1463 (Torx 20 IP)	
Clamp	PK 241	PK 242	PK 243	
Screw for clamp	FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	FS 1474 (Torx 20 IP)	
Tightening torque	3.9 Nm	6.4 Nm	6.4 Nm	
Pressure spring	FS 1470	FS 1471	FS 1471	
Pin	RS 117	RS 117	RS 117	
Wrench (Torx)	FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	FS 1464 (Torx 20 IP)	

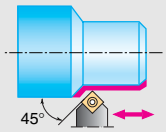
IP = Torx Plus

Accessories

	12	15	19	
Clamp set (consisting of standard assembly parts)	PK 241–Set	PK 242–Set	PK 243–Set	
Clamp set with carbide clamping plate	PK 245–Set	PK 246–Set	—	

→ 33 → 684 → 220 → 206



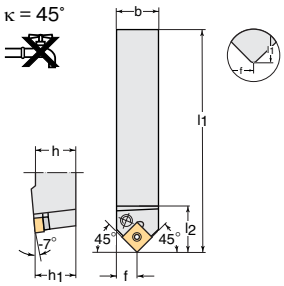


PSDN

WALTER TURN

Tool

Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_2 mm	Type
PSDN N 2020 K12	12	20	20	10	125	28	SN . . 1204 . .
PSDN N 2525 M12	12	25	25	12.5	150	28	
PSDN N 3225 P12	12	32	25	12.5	170	28	
PSDN N 3225 P15	15	32	25	12.5	170	36	SN . . 1506 . .
PSDN N 3232 P19	19	32	32	16	170	40	SN . . 1906 . .



Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

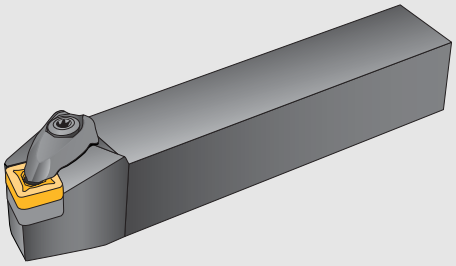
Assembly parts

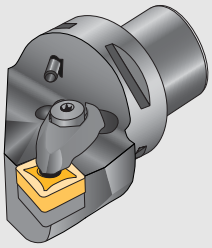
	12	15	19	25
Shim	AP 141–SN1216 for r ≤ 1.6	AP 142–SN1524 for r ≤ 2.4	AP 143–SN1924 for r ≤ 2.4	AP 144–SN2524 for r ≤ 2.4
Lever	KN 102	KN 104	KN 106	KN 107
Clamping screw	FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)	FS 357 (SW 5)
Pipe pin	RS 102	RS 103	RS 104	RS 105
Assembly plug	MD 101	MD 102	MD 102	MD 103

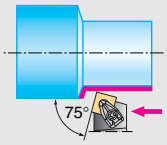
Accessories

	12	15	19	
Shim	AP 141–SN1208 for r ≤ 0.8	AP 142–SN1516 for r ≤ 1.6	AP 143–SN1912 for r ≤ 1.2	

→ 33 → 684 → 206







DSBN / DSRN

WALTER TURN
WALTER CAPTO

Tool	Designation		$h = h_1$ mm	b mm	a mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 75°	DSBN R/L 2525 M12	12	25	25	3.1		22	150	34.1	SN . . 1204 . .
	DSBN R/L 3225 P12	12	32	25	3.1		22	170	34.1	
	DSBN R/L 3232 P15	15	32	32	3.8		27	170	41.5	SN . . 1506 . .
	DSBN R/L 3232 P19	19	32	32	4.6		27	170	46.3	SN . . 1906 . .
	DSBN R/L 4040 S19	19	40	40	4.9		35	250	46.5	
κ = 75°	C4–DSRN R/L–22050–12	12				40	22	50		SN . . 1204 . .
	C5–DSRN R/L–27060–12	12				50	27	60		
	C6–DSRN R/L–35065–12	12				63	35	65		
	C5–DSRN R/L–27060–15	15				50	27	60		SN . . 1506 . .
	C6–DSRN R/L–35065–15	15				63	35	65		
	C6–DSRN R/L–35065–19	19				63	35	65		SN . . 1906 . .

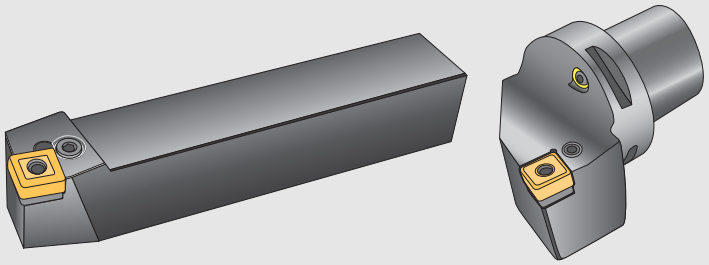
Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

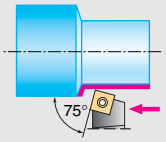
Assembly parts		12	15	19
	Shim	AP 308–SN12	AP 309–SN15	AP 310–SN19
	Screw for shim	FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	FS 1463 (Torx 20 IP)
	Clamp	PK 241	PK 242	PK 243
	Screw for clamp	FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	FS 1474 (Torx 20 IP)
	Tightening torque	3.9 Nm	6.4 Nm	6.4 Nm
	Pressure spring	FS 1470	FS 1471	FS 1471
	Pin	RS 117	RS 117	RS 117
	Coolant nozzle for WALTER CAPTO	FS 1475	FS 1475	FS 1475
	Wrench (Torx)	FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	FS 1464 (Torx 20 IP)

IP = Torx Plus

Accessories		12	15	19
	Clamp set (consisting of standard assembly parts)	PK 241–Set	PK 242–Set	PK 243–Set
	Clamp set with carbide clamping plate	PK 245–Set	PK 246–Set	—

→ 33 | → 684 | → 220 | → 206





PSBN / PSRN

WALTER TURN
WALTER CAPTO

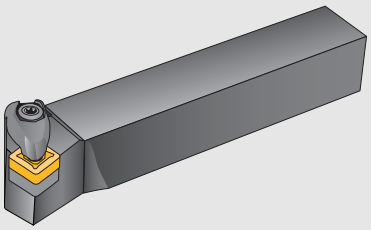
Tool	Designation		h = h_1 mm	b mm	a mm		f mm	l_1 mm	l_2 mm	Type
κ = 75°	PSBN R/L 2020 K 12	12	20	20	3.1		17	125	26	SN . . 1204 . .
	PSBN R/L 2525 M12	12	25	25	3.1		22	150	26	
	PSBN R/L 3225 P12	12	32	25	3.1		22	170	26	
	PSBN R/L 2525 M15	15	25	25	3.8		22	150	36	SN . . 1506 . .
	PSBN R/L 3232 P15	15	32	32	3.8		27	170	33	
	PSBN R/L 3232 P19	19	32	32	4.6		27	170	40	SN . . 1906 . .
	PSBN R/L 4040 S19	19	40	40	4.6		35	250	38	
	PSBN R/L 4040 S25	25	40	40	5.9		35	250	47	SN . . 2507 . .
κ = 75°	C3–PSRN R/L–17040–12	12				32	17	40		SN . . 1204 . .
	C4–PSRN R/L–22050–12	12				40	22	50		
	C5–PSRN R/L–27060–12	12				50	27	60		
	C6–PSRN R/L–35065–12	12				63	35	65		
	C4–PSRN R/L–22050–15	15				40	22	50		SN . . 1506 . .
	C5–PSRN R/L–27060–15	15				50	27	60		
	C6–PSRN R/L–35065–15	15				63	35	65		
	C5–PSRN R/L–27060–19	19				50	27	60		SN . . 1906 . .
	C6–PSRN R/L–35065–19	19				63	35	65		

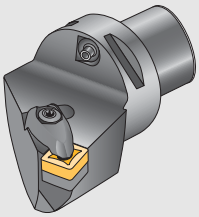
Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

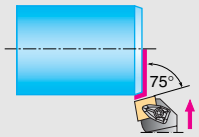
Assembly parts			12	15	19	25
	Shim		AP 141–SN1216 for r ≤ 1.6	AP 142–SN1524 for r ≤ 2.4	AP 143–SN1924 for r ≤ 2.4	AP 144–SN2524 for r ≤ 2.4
	Lever		KN 102	KN 104	KN 106	KN 107
	Clamping screw		FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)	FS 357 (SW 5)
	Pipe pin		RS 102	RS 103	RS 104	RS 105
	Assembly plug		MD 101	MD 102	MD 102	MD 103
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	FS 1019	
		C6	FS 1019	FS 1019	FS 1019	

Accessories		12	15	19	
	Shim	AP 141–SN1208 for r ≤ 0.8	AP 142–SN1516 for r ≤ 1.6	AP 143–SN1912 for r ≤ 1.2	

→ 33 → 684 → 206







DSKN

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	a mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 75°	DSKN R/L 2525 M12	12	25	25	3.1		32	150	23.5	SN . . 1204 . .
	DSKN R/L 3232 P15	15	32	32	3.9		40	170	28.9	SN . . 1506 . .
κ = 75°	C4–DSKN R/L–27050–12	12				40	27	50		
	C5–DSKN R/L–35060–12	12				50	35	60		SN . . 1204 . .
	C6–DSKN R/L–45065–12	12				63	45	65		
	C5–DSKN R/L–35060–15	15				50	35	60		SN . . 1506 . .
	C6–DSKN R/L–45065–15	15				63	45	65		
	C6–DSKN R/L–45065–19	19				63	45	65		SN . . 1906 . .

Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

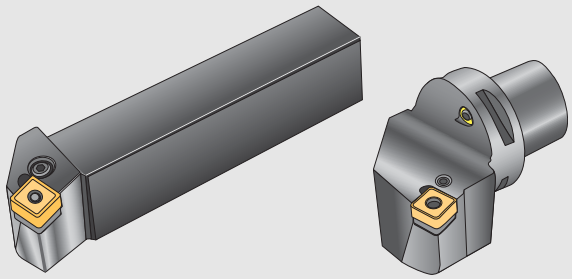
Assembly parts

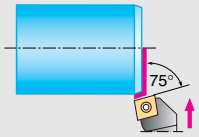
			12	15	19	
	Shim		AP 308–SN12	AP 309–SN15	AP 310–SN19	
	Screw for shim		FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	FS 1463 (Torx 20 IP)	
	Clamp		PK 241	PK 242	PK 243	
	Screw for clamp		FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	FS 1474 (Torx 20 IP)	
	Tightening torque		3.9 Nm	6.4 Nm	6.4 Nm	
	Pressure spring		FS 1470	FS 1471	FS 1471	
	Pin		RS 117	RS 117	RS 117	
	Coolant nozzle for WALTER CAPTO	C4	FS 1477	—	—	
		C5	FS 1476	FS 1476	—	
		C6	FS 1476	FS 1476	FS 1476	
	Wrench (Torx)		FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	FS 1464 (Torx 20 IP)	*IP = Torx Plus*

Accessories

		12	15	19	
	Clamp set (consisting of standard assembly parts)	PK 241–Set	PK 242–Set	PK 243–Set	
	Clamp set with carbide clamping plate	PK 245–Set	PK 246–Set	—	

→ 33 | → 684 | → 220 | → 206





PSKN

WALTER TURN
WALTER CAPTO

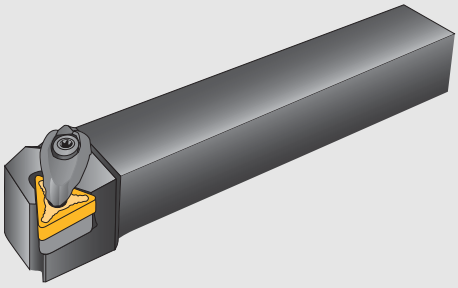
Tool	Designation		h = h_1 mm	b mm	a mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 75°	PSKN R/L 2020 K12	12	20	20	3.1		25	125	25	SN . . 1204 . .
	PSKN R/L 2525 M12	12	25	25	3.1		32	150	26	
κ = 75°	C3–PSKN R/L–22040–12	12				32	22	40		SN . . 1204 . .
	C4–PSKN R/L–27050–12	12				40	27	50		
	C5–PSKN R/L–35060–12	12				50	35	60		
	C6–PSKN R/L–45065–12	12				63	45	65		
	C4–PSKN R/L–27050–15	15				40	27	50		SN . . 1506 . .
	C5–PSKN R/L–35060–15	15				50	35	60		
	C6–PSKN R/L–45065–15	15				63	45	65		
	C5–PSKN R/L–35060–19	19				50	35	60		SN . . 1906 . .
	C6–PSKN R/L–45065–19	19				63	45	65		

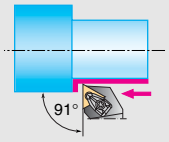
Measured with master inserts SN . . 120408 / SN . . 150612 / SN . . 190612.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts			12	15	19	
	Shim		AP 141–SN1216 for r ≤ 1.6	AP 142–SN1524 for r ≤ 2.4	AP 143–SN1924 for r ≤ 2.4	
	Lever		KN 102	KN 104	KN 106	
	Clamping screw		FS 352 (SW 3)	FS 354 (SW 3)	FS 356 (SW 4)	
	Pipe pin		RS 102	RS 103	RS 104	
	Assembly plug		MD 101	MD 102	MD 102	
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	FS 1019	
		C6	FS 1019	FS 1019	FS 1019	

Accessories		12	15	19	
	Shim	AP 141–SN1208 for r ≤ 0.8	AP 142–SN1516 for r ≤ 1.6	AP 143–SN1912 for r ≤ 1.2	

→ 33 → 684 → 206



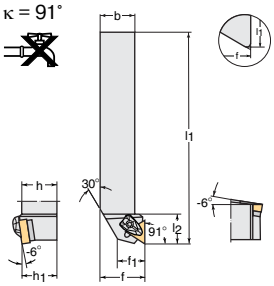


DTGN

WALTER TURN

Tool

κ = 91°



Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_2 mm	Type
DTGN R/L 2020 K16	16	20	20	25	125	25.4	TN . . 1604 . .
DTGN R/L 2525 M16	16	25	25	32	150	24.6	
DTGN R/L 3225 P16	16	32	25	32	170	25.3	
DTGN R/L 2525 M22	22	25	25	32	150	32.1	TN . . 2204 . .
DTGN R/L 3225 P22	22	32	25	32	170	33.1	

Measured with master inserts TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

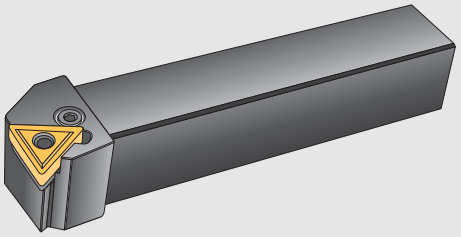
		16	22	
	Shim	AP 321–TN16	AP 322–TN 22	
	Screw for shim	FS 1462 (Torx 9 IP)	FS 1461 (Torx 15 IP)	
	Clamp	PK 240	PK 241	
	Screw for clamp	FS 1472 (Torx 9 IP)	FS 1473 (Torx 15 IP)	
	Tightening torque	1.7 Nm	3.9 Nm	
	Pressure spring	FS 1469	FS 1470	
	Pin	RS 116	RS 117	
	Wrench (Torx)	FS 1466 (Torx 9 IP)	FS 1465 (Torx 15 IP)	

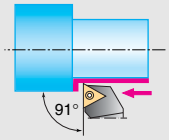
IP = Torx Plus

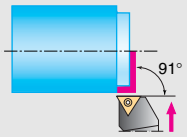
Accessories

		16	22	
	Clamp set (consisting of standard assembly parts)	PK 240–Set	PK 241–Set	
	Clamp set with carbide clamping plate	—	PK 245–Set	

→ 36 | → 684 | → 220 | → 206







PTGN / PTFN

WALTER TURN

Tool

Designation	h = h_1 mm	b mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 91°							
PTGN R/L 2020 K16	16	20	20	25	18	125	20	
PTGN R/L 2525 M16	16	25	25	32	20.2	150	20	TN . . 1604 . .
PTGN R/L 3225 P16	16	32	25	32	20.2	170	20	
PTGN R/L 3232 P22	22	32	32	40	24.1	170	26	TN . . 2204 . .
κ = 91°							
PTFN R/L 2020 K16	16	20	20	25	17.5	125	20	
PTFN R/L 2525 M16	16	25	25	32	17.5	150	20	TN . . 1604 . .
PTFN R/L 3225 P16	16	32	25	32	17.5	170	20	

Measured with master inserts TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

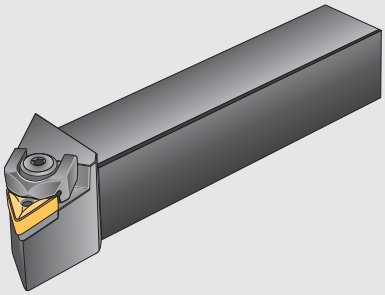
Assembly parts

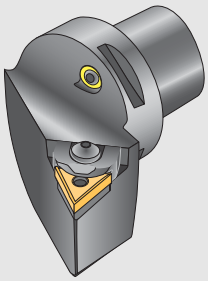
	←16→	←22→	
Shim for r ≤ 1.6	AP 137–TN1616	AP 138–TN2216	
Lever	KN 101	KN 102	
Clamping screw	FS 351 (SW 2.5)	FS 352 (SW 3)	
Pipe pin	RS 101	RS 102	
Assembly plug	MD 101	MD 101	

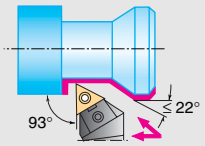
Accessories

	←16→	←22→	
Shim for r ≤ 0.8	AP 137–TN1608	AP 138–TN2208	

→ 36 | → 684 | → 206



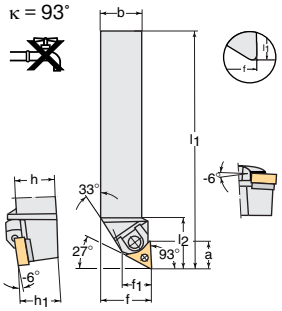
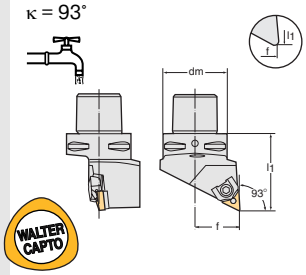




MTJN

WALTER TURN
WALTER CAPTO

Tool

Designation		h = h_1 mm	b mm	a mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 93° 	MTJN R/L 2020 K 16	16	20	20	14.6		25	17.3	125	30.8	
	MTJN R/L 2525 M16	16	25	25	14.6		32	17.3	150	30.8	TN . . 1604 . .
	MTJN R/L 3225 P16	16	32	25	14.6		32	17.3	170	30.8	
	MTJN R/L 2525 M22	22	25	25	20.1		32	22.4	150	34.8	TN . . 2204 . .
	MTJN R/L 3225 P22	22	32	25	20.1		32	22.4	170	34.8	
κ = 93° 	C3–MTJN R/L–22040–16	16				32	22		40		
	C4–MTJN R/L–27050–16	16				40	27		50		TN . . 1604 . .
	C5–MTJN R/L–35060–16	16				50	35		60		
	C4–MTJN R/L–27050–22	22				40	27		50		
	C5–MTJN R/L–35060–22	22				50	35		60		TN . . 2204 . .
	C6–MTJN R/L–45065–22	22				63	45		65		

Measured with master inserts TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

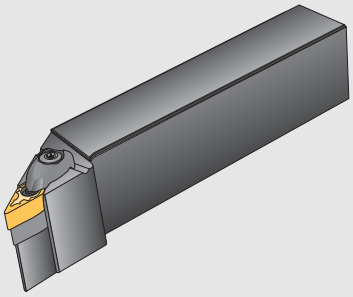
Assembly parts

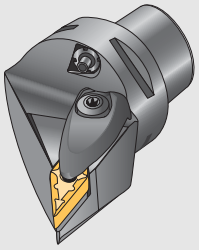
			←16→	←22→	
	Shim r ≤ 1.6		AP 147	AP 148	
	Clamping wedge set		FK 303 (SW 2.5)	FK 304 (SW 3)	
	Pin		RS 106	RS 107	
	Clamping screw		FS 358 (SW 3)	FS 358 (SW 3)	
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	
		C6	FS 1019	FS 1019	

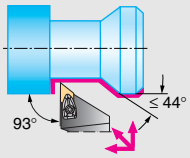
Accessories

		←22→	
	Shim for r ≤ 0.8	AP 149	

→ 36 | → 684 | → 206







DVJN

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	dm mm	f mm	l_1 mm	l_2 mm	Type
κ = 93°								
DVJN R/L 2020 K16	16	20	20		25	125	41	VN . . 1604 . .
DVJN R/L 2525 M16	16	25	25		32	150	42	
DVJN R/L 3225 P16	16	32	25		32	170	42	
C4–DVJN R/L 27062–16	16			40	27	62		VN . . 1604 . .
C5–DVJN R/L 35065–16	16			50	35	65		
C6–DVJN R/L 45065–16	16			63	45	65		

Measured with master inserts VN . . 160408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

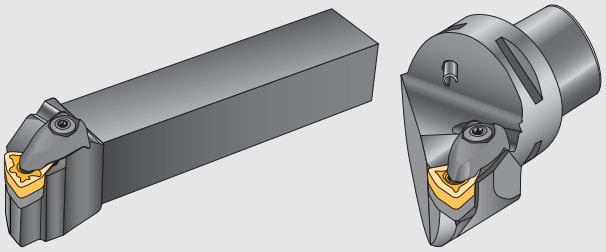
Shim		AP 312–VN 16	
Screw for shim		FS 1467 (Torx 15 IP)	
Clamp		PK 244	
Screw for clamp		FS 1473 (Torx 15 IP)	
Tightening torque		1.7 Nm	
Pressure spring		FS 1470	
Pin		RS 117	
Coolant nozzle for WALTER CAPTO	C4	FS 1477	
	C5	FS 1476	
	C6	FS 1476	
Wrench (Torx)		FS 1465 (Torx 15 IP)	

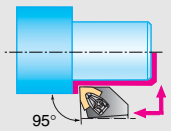
IP = Torx Plus

Accessories

Clamp set (consisting of standard assembly parts)	PK 244–Set	

→ 38 | → 684 | → 220 | → 206





DWLN

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	dm mm	f mm	l_1 mm	l_2 mm	Type
DWLN R/L 2020 K06	06	20	20		25	125	26.3	WN . . 0604 . .
DWLN R/L 2525 M06	06	25	25		32	150	26.3	
DWLN R/L 3225 P06	06	32	25		32	170	26.3	
DWLN R/L 2020 K08	08	20	20		25	125	34.2	WN . . 0804 . .
DWLN R/L 2525 M08	08	25	25		32	150	34.2	
DWLN R/L 3225 P08	08	32	25		32	170	34.2	
DWLN R/L 2525 M10	10	25	25		32	150		WN . . 1006 . .
DWLN R/L 3225 P10	10	32	25		32	170		
DWLN R/L 3232 P10	10	32	32		40	170		
C4–DWLN R/L–27050–06	06			40	27	50		WN . . 0604 . .
C5–DWLN R/L–35060–06	06			50	35	60		
C6–DWLN R/L–45065–06	06			63	45	65		
C4–DWLN R/L–27050–08	08			40	27	50		WN . . 0804 . .
C5–DWLN R/L–35060–08	08			50	35	60		
C6–DWLN R/L–45065–08	08			63	45	65		
C5–DWLN R/L–35060–10	10			50	35	60		WN . . 1006 . .
C6–DWLN R/L–45065–10	10			63	45	65		

Measured with master inserts WN . . 060408 / WN . . 080408 / WN . . 100612.
Bodies and assembly parts are included in the scope of delivery.

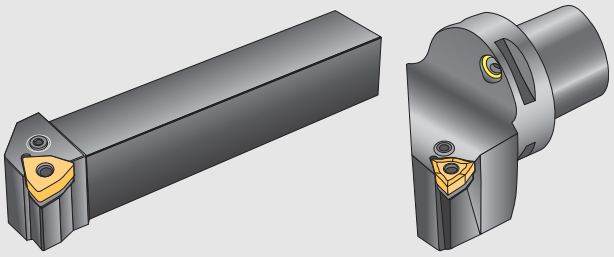
Assembly parts

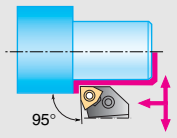
		06	08	10	
Shim		AP 306–WN06	AP 307–WN08	AP 311–WN10	
Screw for shim		FS 1462 (Torx 9 IP)	FS 1461 (Torx 15 IP)	FS 1463 (Torx 20 IP)	
Clamp		PK 240	PK 241	PK 242	
Screw for clamp		FS 1472 (Torx 9 IP)	FS 1473 (Torx 15 IP)	FS 1474 (Torx 20 IP)	
Tightening torque		1.7 Nm	3.9 Nm	6.4 Nm	
Pressure spring		FS 1469	FS 1470	FS 1471	
Pin		RS 116	RS 117	RS 117	
Coolant nozzle for WALTER CAPTO	C4	FS 1477	FS 1477	—	
	C5	FS 1475	FS 1475	FS 1475	
	C6	FS 1475	FS 1475	FS 1475	
Wrench (Torx)		FS 1466 (Torx 9 IP)	FS 1465 (Torx 15 IP)	FS 1464 (Torx 20 IP)	*IP = Torx Plus*

Accessories

	06	08	10	
Clamp set (consisting of standard assembly parts)	PK 240–Set	PK 241–Set	PK 242–Set	
Clamp set with carbide clamping plate	—	PK 245–Set	PK 246–Set	

→ 39 | → 684 | → 220 | → 206





PWLN

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	dm mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
PWLN R/L 1616 H06	06	16	16		20	16	100	18.5	WN . . 0604 . .
PWLN R/L 2020 K06	06	20	20		25	16	125	18.5	
PWLN R/L 2525 M06	06	25	25		32	18	150	18.5	
PWLN R/L 2020 K08	08	20	20		25	20	125	22.0	WN . . 0804 . .
PWLN R/L 2525 M08	08	25	25		32	20	150	22.0	
PWLN R/L 3225 P08	08	32	25		32	20	170	22.0	
PWLN R/L 2525 M10	10	25	25		32	28	150	22.0	WN . . 1006 . .
PWLN R/L 3225 P10	10	32	25		32	28	170	22.0	
PWLN R/L 3232 P10	10	32	32		40	32	170	24.0	
C3–PWLN R/L–22040–06	06			32	22		40		WN . . 0604 . .
C4–PWLN R/L–27050–06	06			40	27		50		
C5–PWLN R/L–35060–06	06			50	35		60		
C6–PWLN R/L–45065–06	06			63	45		65		
C3–PWLN R/L–22040–08	08			32	22		40		WN . . 0804 . .
C4–PWLN R/L–27050–08	08			40	27		50		
C5–PWLN R/L–35060–08	08			50	35		60		
C6–PWLN R/L–45065–08	08			63	45		65		
C5–PWLN R/L–35060–10	10			50	35		60		WN . . 1006 . .
C6–PWLN R/L–45065–10	10			63	45		65		

Measured with master inserts WN . . 060408 / WN . . 080408 / WN . . 100612.
Bodies and assembly parts are included in the scope of delivery.

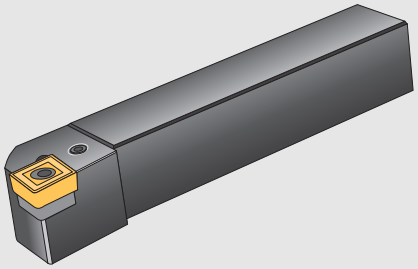
Assembly parts

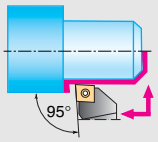
		06	08	10	
Shim		AP 172–WN0612 for r ≤ 1.2	AP 170–WN0816 for r ≤ 1.6	AP 174–WN1016 for r ≤ 1.6	
Lever		KN 101	KN 102	KN 104	
Clamping screw		FS 351 (SW 2.5)	FS 352 (SW 3)	FS 354 (SW 3)	
Pipe pin		RS 101	RS 102	RS 103	
Assembly plug		MD 101	MD 101	MD 102	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	FS 1019	

Accessories

		08		
Shim for r ≤ 0.8		AP 170–WN0808		

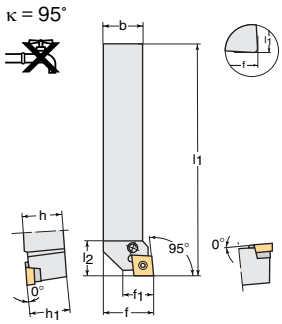
→ 39 → 684 → 206





PCLC

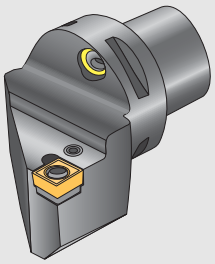
WALTER TURN

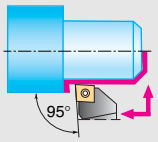
Tool									
	Designation		$h = h_1$ mm	b mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
	PCLC R/L 1212 F06	06	12	12	16	13	80	18	CC . . 0602 . .
	PCLC R/L 1616 H06	06	16	16	20	17	100	25	
	PCLC R/L 2020 K06	06	20	20	25	17	125	25	
	PCLC R/L 1212 F09	09	12	12	16	13	80	18	CC . . 09T3 . .
	PCLC R/L 1616 H09	09	16	16	20	17	100	25	
	PCLC R/L 2020 K09	09	20	20	25	17	125	25	
	PCLC R/L 2525 M09	09	25	25	32	22	150	25	
	PCLC R/L 1616 H12	12	16	16	20	17	100	25	CC . . 1204 . .
	PCLC R/L 2020 K12	12	20	20	25	17	125	25	
	PCLC R/L 2525 M12	12	25	25	32	22	150	25	

Measured with master inserts CC . . 060204 / CC . . 09T308 / CC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		06	09	12	
	Shim			AP 161	
	Lever	KN 118	KN 115	KN 117	
	Clamping screw	FS 347 (SW 2)	FS 346 (SW 2)	FS 332 (SW 2.5)	
	Pipe pin			RS 102	
	Assembly plug			MD 101	
	Torx key	FS 1154 (SW 2)	FS 1154 (SW 2)	FS 1155 (SW 2.5)	

→ 41 | → 684 | | → 208



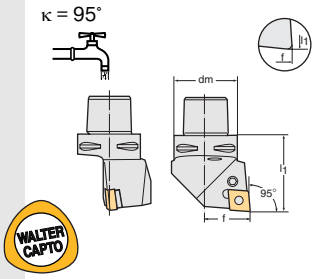


PCLC

WALTER CAPTO

Tool

Designation	09	d_m mm	f mm	l_1 mm				Type
C3–PCLC R/L–22040–09	09	32	22	40				CC . . 09T3 . .
C4–PCLC R/L–27050–09	09	40	27	50				
C5–PCLC R/L–35060–09	09	50	35	60				
C6–PCLC R/L–45065–09	09	63	45	65				
C3–PCLC R/L–22040–12	12	32	22	40				CC . . 1204 . .
C4–PCLC R/L–27050–12	12	40	27	50				
C5–PCLC R/L–35060–12	12	50	35	60				
C6–PCLC R/L–45065–12	12	63	45	65				

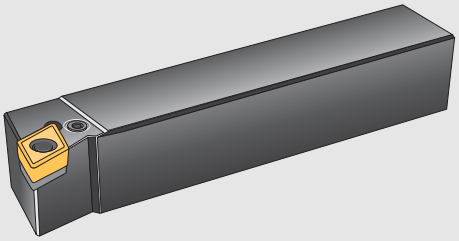


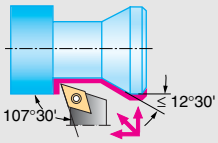
Measured with master inserts CC . . 060204 / CC . . 09T308 / CC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

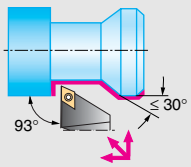
Assembly parts

		09	12	
Shim			AP 161	
Lever		KN 115	KN 117	
Clamping screw		FS 346 (SW 2)	FS 332 (SW 2.5)	
Pipe pin			RS 102	
Assembly plug			MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	
Torx key		FS 1154 (SW 2)	FS 1155 (SW 2.5)	

→ 41 | → 684 | → 208







SDHC / PDHC
SDJC / PDJC

WALTER TURN

Tool

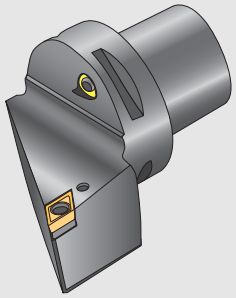
Designation		h = h_1 mm	b mm	f mm	l_1 mm	l_2 mm	Type
κ = 107°30'							
SDHC R/L 1212 F07	07	12	12	16	80	18	DC . . 0702 . .
PDHC R/L 1616 H11	11	16	16	20	100	22	DC . . 11T3 .
PDHC R/L 2020 K11	11	20	20	25	125	22	
PDHC R/L 2525 M11	11	25	25	32	150	28	
PDHC R/L 3225 P11	11	32	25	32	170	28	
κ = 93°							
SDJC R/L 1212 F07	07	12	12	16	80	18	DC . . 0702 . .
PDJC R/L 1616 H11	11	16	16	20	100	25	DC . . 11T3 .
PDJC R/L 2020 K11	11	20	20	25	125	25	
PDJC R/L 2525 M11	11	25	25	32	150	32	
PDJC R/L 3225 P11	11	32	25	32	170	32	

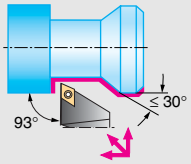
Measured with master inserts DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.

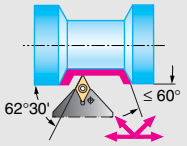
Assembly parts

	Screw	FS 322 (Torx 7)		
	Shim		AP 169	
	Lever		KN 114	
	Clamping screw		FS 332 (SW 2.5)	
	Pipe pin		RS 101	
	Assembly plug		MD101	
	Torx key	FS 325 (Torx 7)	FS 1155 (SW 2.5)	

→ 43 | → 684 | | → 208







SDJC / PDJC
PDNC

WALTER CAPTO

Tool

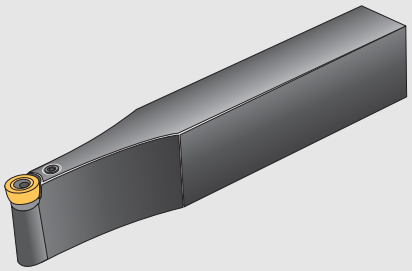
Designation		d_m mm	f mm	l_1 mm				Type
κ = 93°								
C3–SDJC R/L–22040–07	07	32	22	40				DC . . 0702 . .
C4–SDJC R/L–27050–07	07	40	27	50				
C3–PDJC R/L–22040–11	11	32	22	40				DC . . 11T3 . .
C4–PDJC R/L–27050–11	11	40	27	50				
C5–PDJC R/L–35060–11	11	50	35	60				
C6–PDJC R/L–45065–11	11	63	45	65				
κ = 63°								
C3–PDNC N–00040–11	11	32	0.5	40				DC . . 11T3 .
C4–PDNC N–00050–11	11	40	0.5	50				
C5–PDNC N–00060–11	11	50	0.5	60				

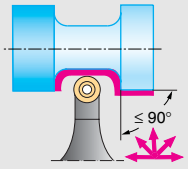
Measured with master inserts DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		07	11	
Screw		FS 322 (Torx 7)		
Shim for r ≤ 1.6			AP 169	
Lever			KN 114	
Clamping screw			FS 332 (SW 2.5)	
Pipe pin			RS 101	
Assembly plug			MD101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	
Torx key		FS 325 (Torx 7)	FS 1155 (SW 2.5)	

→ 43 | → 684 | → 208

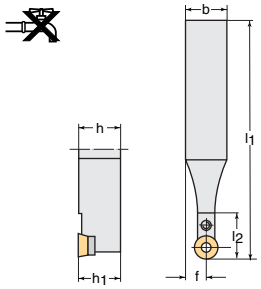




SRDC / PRDC

WALTER TURN

Tool



Designation	⌀	$h = h_1$ mm	b mm	f mm	l_1 mm	l_2 mm	Type
SRDC N 1212 F06	06	12	12	6	80	12	RC . . 0602 . .
SRDC N 2020 K06	06	20	20	10	125	24	
SRDC N 2525 M06	06	25	25	12.5	150	25	
SRDC N 1616 H08	08	16	16	8	100	16	RC . . 0803 . .
SRDC N 2020 K08	08	20	20	10	125	24	
SRDC N 2525 M08	08	25	25	12.5	150	25	
PRDC N 2020 K10	10	20	20	10	125	24	RC . . 10T3 . . *RC . . 1003 . .
PRDC N 2525 M10	10	25	25	12.5	150	25	
PRDC N 2020 K12	12	20	20	10	125	24	RC . . 1204 . .
PRDC N 2525 M12	12	25	25	12.5	150	25	
PRDC N 3225 P12	12	32	25	12.5	170	28	
PRDC N 3225 P16	16	32	25	12.5	170	32	RC . . 1605 . . *RC . . 1606 . .
PRDC N 3225 P20	20	32	25	12.5	170	32	RC . . 2006 . .
PRDC N 4040 S25	25	40	40	20	250	50	RC . . 2507 . .

Measured with master inserts RC . . 0602M0 . . / RC . . 0803M0 . . / RC . . 10T3M0 . . / RC . . 1204M0 . . / RC . . 1605M0 . . / RC . . 2006M0 . . / RC . . 2507M0 . .
Bodies and assembly parts are included in the scope of delivery.

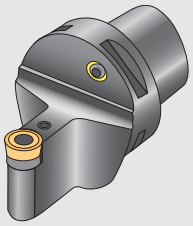
Assembly parts

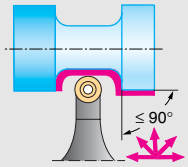
	⌀06	⌀08	⌀10	⌀12	⌀16	⌀20	⌀25
Screw	FS 322 (Torx 7)	FS 246 (Torx 8)					
Shim			AP 155 (for RC . . 10T3)	AP 156	AP 157 (for RC . . 1605)	AP 158	AP 159
Lever			KN 110	KN 110	KN 111	KN 112	KN 113
Clamping screw			FS 351 (SW 2.5)	FS 351 (SW 2.5)	FS 344 (SW 2.5)	FS 354 (SW 3)	FS 377 (SW 4)
Pipe pin			RS 101	RS 101	RS 108	RS 103	RS 111
Assembly plug			MD 101	MD 101	MD 102	MD 102	MD 102
Torx key	FS 325 (Torx 7)	FS 257 (Torx 8)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)		

Accessories

	⌀10	⌀16
*Shim	AP 175 (for RC . . 1003)	AP 188 (for RC . . 1606)

→ 44 | → 684 | → 208





SRDC / PRDC

WALTER CAPTO

Tool

Designation		d_m mm	f mm	l_1 mm	l_2 mm		Type
C3–SRDC N–00040–06	06	32	3	40	12		RC . . 0602 . .
C4–SRDC N–00050–06	06	40	3	50	12		
C5–SRDC N–00060–06	06	50	3	60	12		
C3–SRDC N–00040–08	08	32	4	40	16		RC . . 0803 . .
C4–SRDC N–00050–08	08	40	4	50	16		
C5–SRDC N–00060–08	08	50	4	60	16		
C3–PRDC N–00040–10	10	32	5	40	20		RC . . 10T3 . . *RC . . 1003 . .
C4–PRDC N–00050–10	10	40	5	50	25		
C5–PRDC N–00060–10	10	50	5	60	25		
C6–PRDC N–00065–10	10	63	5	65	25		
C4–PRDC N–00050–12	12	40	6	50	28		RC . . 1204 . .
C5–PRDC N–00060–12	12	50	6	60	28		
C6–PRDC N–00065–12	12	63	6	65	28		
C5–PRDC N–00060–16	16	50	8	60	35		RC . . 1605 . . *RC . . 1606 . .
C6–PRDC N–00065–16	16	63	8	65	35		
C5–PRDC N–00060–20	20	50	10	60	40		RC . . 2006 . .
C6–PRDC N–00065–20	20	63	10	65	40		

Measured with master inserts RC . . 0602M0 . . / RC . . 0803M0 . . / RC . . 10T3M0 . . / RC . . 1204M0 . . / RC . . 1605M0 . . / RC . . 2006M0 . .
Bodies and assembly parts are included in the scope of delivery.

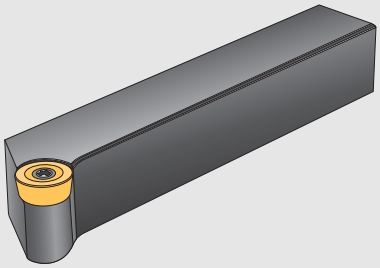
Assembly parts

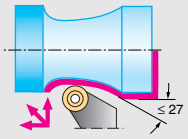
		06	08	10	12	16	20
Screw		FS 322 (Torx 7)	FS 246 (Torx 8)				
Shim				AP 155 (for RC . . 10T3)	AP 156	AP 157 (for RC . . 1605)	AP 158
Lever				KN 110	KN 110	KN 111	KN 112
Clamping screw				FS 351 (SW 2.5)	FS 351 (SW 2.5)	FS 344 (SW 2.5)	FS 354 (SW 3)
Pipe pin				RS 101	RS 101	RS 108	RS 103
Assembly plug				MD 101	MD 101	MD 102	MD 102
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	FS 1230	FS 1230	FS 1230
	C4	FS 1018	FS 1018	FS 1018	FS 1018	FS 1018	FS 1018
	C5	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019
	C6	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019
Torx key		FS 325 (Torx 7)	FS 257 (Torx 8)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	

Accessories

		10	16
*Shim		AP 175 (for RC . . 1003)	AP 188 (for RC . . 1606)

→ 44 → 684 → 208

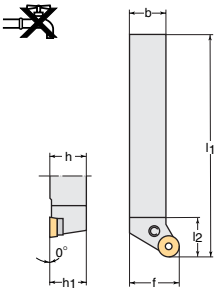




SRGC / PRGC

WALTER TURN

Tool



Designation	⌀	h = h_1 mm	b mm	f mm	l_1 mm	l_2 mm	Type
SRGC R/L 2020 K06	06	20	20	25	125	20	RC . . 0602 . .
SRGC R/L 2525 M06	06	25	25	32	150	20	
SRGC R/L 2020 K08	08	20	20	25	125	20	RC . . 0803 . .
SRGC R/L 2525 M08	08	25	25	32	150	20	
PRGC R/L 2020 K10	10	20	20	25	125	20	RC . . 10T3 . .
PRGC R/L 2525 M10	10	25	25	32	150	20	*RC . . 1003 . .
PRGC R/L 2020 K12	12	20	20	25	125	22	RC . . 1204 . .
PRGC R/L 2525 M12	12	25	25	32	150	22	
PRGC R/L 3225 P12	12	32	25	32	170	22	
PRGC R/L 3225 P16	16	32	25	32	170	28	RC . . 1605 . . *RC . . 1606 . .
PRGC R/L 3225 P20	20	32	25	32	170	32	RC . . 2006 . .
PRGC R/L 4040 S25	25	40	40	50	250	38	RC . . 2507 . .

Measured with master inserts RC . . 0602M0 . . / RC . . 0803M0 . . / RC . . 10T3M0 . . / RC . . 1204M0 . . / RC . . 1605M0 . . / RC . . 2006M0 . . / RC . . 2507M0 . .

Bodies and assembly parts are included in the scope of delivery.

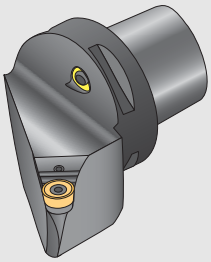
Assembly parts

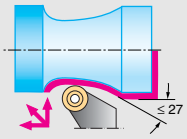
	⌀06	⌀08	⌀10	⌀12	⌀16	⌀20	⌀25
Screw	FS 322 (Torx 7)	FS 246 (Torx 8)					
Shim			AP 155 (for RC . . 10T3)	AP 156	AP 157 (for RC . . 1605)	AP 158	AP 159
Lever			KN 110	KN 110	KN 111	KN 112	KN 113
Clamping screw			FS 351 (SW 2.5)	FS 351 (SW 2.5)	FS 344 (SW 2.5)	FS 354 (SW 3)	FS 377 (SW 4)
Pipe pin			RS 101	RS 101	RS 108	RS 103	RS 111
Assembly plug			MD 101	MD 101	MD 102	MD 102	MD 102
Torx key	FS 325 (Torx 7)	FS 257 (Torx 8)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)		

Accessories

	⌀10	⌀16
*Shim	AP 175 (for RC . . 1003)	AP 188 (for RC . . 1606)

→ 44 | → 684 | → 208

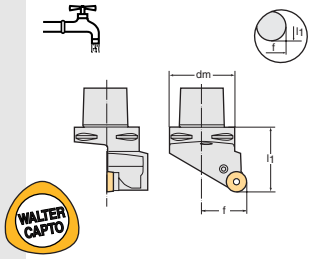




SRSC / PRSC

WALTER CAPTO

Tool



Designation		d_m mm	f mm	l_1 mm			Type
C3–SRSC R/L–22040–06	06	32	22	40			RC . . 0602 . .
C4–SRSC R/L–27050–06	06	40	27	50			
C5–SRSC R/L–35060–06	06	50	35	60			
C3–SRSC R/L–22040–08	08	32	22	40			RC . . 0803 . .
C4–SRSC R/L–27050–08	08	40	27	50			
C5–SRSC R/L–35060–08	08	50	35	60			
C3–PRSC R/L–22040–10	10	32	22	40			RC . . 10T3 . . *RC . . 1003 . .
C4–PRSC R/L–27050–10	10	40	27	50			
C5–PRSC R/L–35060–10	10	50	35	60			
C6–PRSC R/L–45065–10	10	63	45	65			
C4–PRSC R/L–27050–12	12	40	27	50			RC . . 1204 . .
C5–PRSC R/L–35060–12	12	50	35	60			
C6–PRSC R/L–45065–12	12	63	45	65			
C5–PRSC R/L–35060–16	16	50	35	60			RC . . 1605 . . *RC . . 1606 . .
C6–PRSC R/L–45065–16	16	63	45	65			
C5–PRSC R/L–35060–20	20	50	35	60			RC . . 2006 . .
C6–PRSC R/L–45065–20	20	63	45	65			
C6–PRSC R/L–45065–25	25	63	45	65			RC . . 2507 . .

Measured with master inserts RC . . 0602M0 . . / RC . . 0803M0 . . / RC . . 10T3M0 . . / RC . . 1204M0 . . / RC . . 1605M0 . . / RC . . 2006M0 . . / RC . . 2507M0 . .
Bodies and assembly parts are included in the scope of delivery.

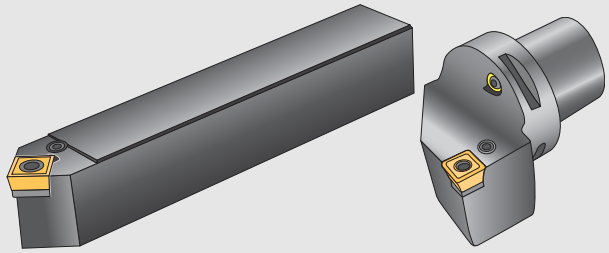
Assembly parts

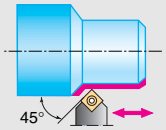
		06	08	10	12	16	20	25
Screw		FS 322 (Torx 7)	FS 246 (Torx 8)					
Shim				AP 155 (for RC . . 10T3)	AP 156	AP 157 (for RC . . 1605)	AP 158	AP 159
Lever				KN 110	KN 110	KN 111	KN 112	KN 113
Clamping screw				FS 351 (SW 2.5)	FS 351 (SW 2.5)	FS 344 (SW 2.5)	FS 354 (SW 3)	FS 377 (SW 4)
Pipe pin				RS 101	RS 101	RS 108	RS 103	RS 111
Assembly plug				MD 101	MD 101	MD 102	MD 102	MD 102
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	FS 1230	FS 1230	FS 1230	FS 1230
	C4	FS 1018	FS 1018	FS 1018	FS 1018	FS 1018	FS 1018	FS 1018
	C5	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019
	C6	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019	FS 1019
Torx key		FS 325 (Torx 7)	FS 257 (Torx 8)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)		

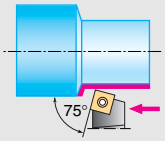
Accessories

		10	16
*Shim		AP 175 (for RC . . 1003)	AP 188 (for RC . . 1606)

→ 44 | → 684 | → 208







PSDC / PSRC

WALTER TURN
WALTER CAPTO

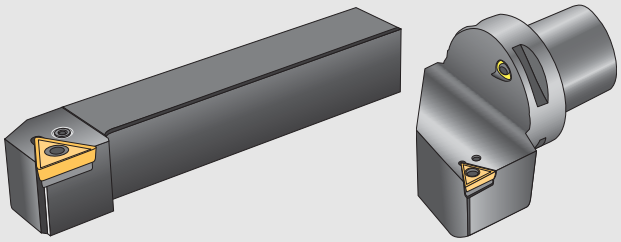
Tool	Designation		$h = h_1$ mm	b mm	d_m mm	f mm	l_1 mm	l_2 mm	Type
κ = 45°	PSDC N 1212 F09	09	12	12		6	80	20	SC . . 09T3 . .
	PSDC N 1616 H12	12	16	16		8	100	25	
	PSDC N 2020 K12	12	20	20		10	125	25	SC . . 1204 . .
	PSDC N 2525 M12	12	25	25		12.5	150	25	
κ = 75°	PSRC R/L 1212 F09	09	12	12		13	80	20	SC . . 09T3 . .
	PSRC R/L 1616 H12	12	16	16		17	100	25	
	PSRC R/L 2020 K12	12	20	20		22	125	25	SC . . 1204 . .
	PSRC R/L 2525 M12	12	25	25		27	150	25	
κ = 75°	C3–PSRC R/L–17040–09	09			32	17	40		SC . . 09T3 . .
	C4–PSRC R/L–22050–12	12			40	22	50		SC . . 1204 . .
	C5–PSRC R/L–27060–12	12			50	27	60		

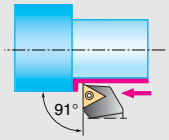
Measured with master inserts SC . . 09T308 / SC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

			09	12	
	Shim			AP 163	
	Lever		KN 115	KN 117	
	Clamping screw		FS 346 (SW 2)	FS 332 (SW 2.5)	
	Pipe pin			RS 102	
	Assembly plug			MD 101	
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	
	Torx key		FS 1154 (SW 2)	FS 1155 (SW 2.5)	

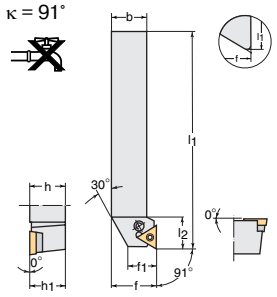
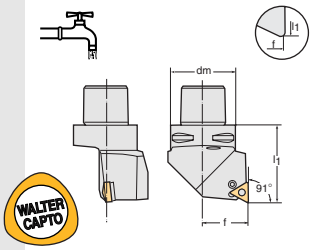
→ 45 → 684 → 208





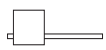
PTGC / STGC

WALTER TURN
WALTER CAPTO

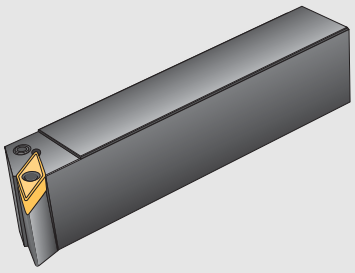
Tool	Designation		h = h_1 mm	b mm	d_m mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 91° 	PTGC R/L 1616 H16	16	16	16		20	17	100	22	TC . . 16T3 . .
	PTGC R/L 2020 K16	16	20	20		25	19	125	22	
	PTGC R/L 2525 M16	16	25	25		32	22	150	22	
κ = 91° 	C3–STGC R/L–22040–11	11			32	22		40		TC . . 1102 . .
	C4–STGC R/L–27050–11	11			40	27		50		
	C5–STGC R/L–35060–11	11			50	35		60		
	C3–PTGC R/L–22040–16	16			32	22		40		TC . . 16T3 . .
	C4–PTGC R/L–27050–16	16			40	27		50		
	C5–PTGC R/L–35060–16	16			50	35		60		
	C6–PTGC R/L–45065–16	16			63	45		65		

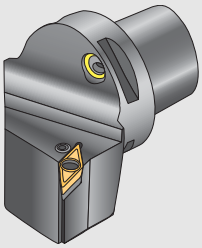
Measured with master inserts TC . . 16T308 / TC . . 110204.
Bodies and assembly parts are included in the scope of delivery.

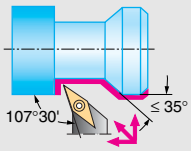
Assembly parts

			←11→	←16→	
	Screw		FS 375 (Torx 7)		
	Shim			AP 168	
	Lever			KN 114	
	Clamping screw			FS 332 (SW 2.5)	
	Pipe pin			RS 101	
	Assembly plug			MD 101	
	Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
		C4	FS 1018	FS 1018	
		C5	FS 1019	FS 1019	
		C6	FS 1019	FS 1019	
	Torx key		FS 325 (Torx 7)	FS 1155 (SW 2.5)	

→ 46 | → 684 | → 208







PVHB

WALTER TURN
WALTER CAPTO

Tool

Designation		h = h_1 mm	b mm	d_m mm	f mm	l_1 mm	l_2 mm	Type
κ = 107°30'								
PVHB R/L 1616 H11	11	16	16		20	100	25	VB . . 1103 . . VC . . 1103 . .
PVHB R/L 2020 K11	11	20	20		25	125	25	
PVHB R/L 2525 M11	11	25	25		32	150	32	
PVHB R/L 2020 K16	16	20	20		25	125	28	VB . . 1604 . . VC . . 1604 . .
PVHB R/L 2525 M16	16	25	25		32	150	28	
PVHB R/L 3225 P16	16	32	25		32	170	28	
κ = 107°30'								
C3–PVHB R/L–22040–11	11			32	22	40		VB . . 1103 . . VC . . 1103 . .
C4–PVHB R/L–27050–11	11			40	27	50		
C5–PVHB R/L–35060–11	11			50	35	60		
C4–PVHB R/L–27050–16	16			40	27	50		VB . . 1604 . . VC . . 1604 . .
C5–PVHB R/L–35060–16	16			50	35	60		
C6–PVHB R/L–45065–16	16			63	45	65		

Measured with master inserts VB . . 110304 / VB . . 160408.
Bodies and assembly parts are included in the scope of delivery.

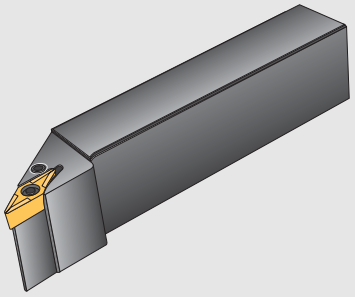
Assembly parts

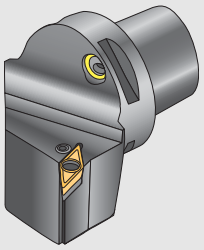
		←11→	←16→	
Shim			AP 153 for r ≤ 0.8	
Lever		KN 118	KN 110	
Clamping screw		FS 347 (SW 2)	FS 351 (SW 2.5)	
Pipe pin			RS 101	
Assembly plug			MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	
Torx key		FS 1154 (SW 2)	FS 1155 (SW 2.5)	

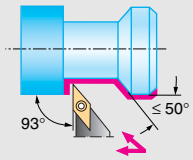
Accessories

		←16→	
Shim for r = 1.2		AP 154	

→ 47 | → 684 | | → 208







PVJB

WALTER TURN
WALTER CAPTO

Tool

Designation		h = h_1 mm	b mm	d_m mm	f mm	l_1 mm	l_2 mm	Type
κ = 93°								
PVJB R/L 1616 H11	11	16	16		20	100	25	VB . . 1103 . . VC . . 1103 . .
PVJB R/L 2020 K11	11	20	20		25	125	25	
PVJB R/L 2525 M11	11	25	25		32	150	32	
PVJB R/L 1616 H16	16	16	16		20	100	32	VB . . 1604 . . VC . . 1604 . .
PVJB R/L 2020 K16	16	20	20		25	125	34	
PVJB R/L 2525 M16	16	25	25		32	150	38	
PVJB R/L 3225 P16	16	32	25		32	170	38	
κ = 93°								
C3–PVJB R/L–22040–11	11			32	22	40		VB . . 1103 . . VC . . 1103 . .
C4–PVJB R/L–27050–11	11			40	27	50		
C5–PVJB R/L–35060–11	11			50	35	60		
C4–PVJB R/L–27050–16	16			40	27	50		VB . . 1604 . . VC . . 1604 . .
C5–PVJB R/L–35060–16	16			50	35	60		
C6–PVJB R/L–45065–16	16			63	45	65		

Measured with master inserts VB . . 110304 / VB . . 160408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		11	16	
Shim			AP 153 for r ≤ 0.8	
Lever		KN 118	KN 110	
Clamping screw		FS 347 (SW 2)	FS 351 (SW 2.5)	
Pipe pin			RS 101	
Assembly plug			MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	
Torx key		FS 1154 (SW 2)	FS 1155 (SW 2.5)	

Accessories

		16	
Shim for r = 1.2		AP 154	

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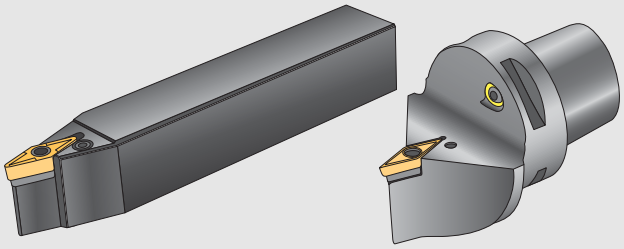

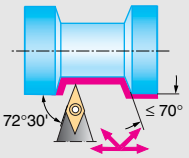

PVVB

WALTER TURN
WALTER CAPTO

Tool

Designation		h = h_1 mm	b mm	d_m mm	f mm	l_1 mm	l_2 mm	Type
κ = 72°30'								
PVVB N 1616 H11	11	16	16		8	100	25	VB . . 1103 . . VC . . 1103 . .
PVVB N 2020 K11	11	20	20		10	125	25	
PVVB N 2525 M11	11	25	25		12.5	150	25	
PVVB N 2020 K16	16	20	20		10	125	34	VB . . 1604 . . VC . . 1604 . .
PVVB N 2525 M16	16	25	25		12.5	150	34	
PVVB N 3225 P16	16	32	25		12.5	170	34	
κ = 72°30'								
C3–PVVB N–00040–11	11			32	0.3	40		VB . . 1103 . . VC . . 1103 . .
C4–PVVB N–00050–11	11			40	0.3	50		
C4–PVVB N–00050–16	16			40	0.6	50		VB . . 1604 . . VC . . 1604 . .
C5–PVVB N–00060–16	16			50	0.6	60		
C6–PVVB N–00065–16	16			63	0.6	65		

Measured with master inserts VB . . 110304 / VB . . 160408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		–11–	–16–	
Shim			AP 153 for r ≤ 0.8	
Lever		KN 118	KN 110	
Clamping screw		FS 347 (SW 2)	FS 351 (SW 2.5)	
Pipe pin			RS 101	
Assembly plug			MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	
Torx key		FS 1154 (SW 2)	FS 1155 (SW 2.5)	

Accessories

	–16–	
Shim for r = 1.2	AP 154	

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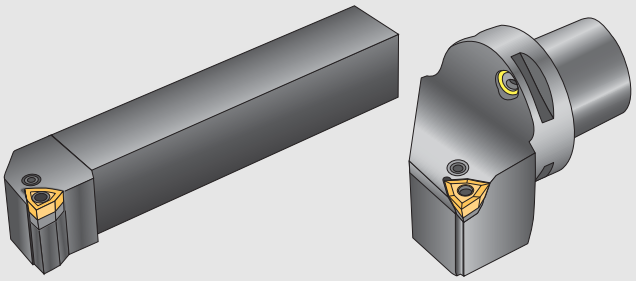

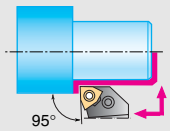

PWLC

WALTER TURN
WALTER CAPTO

Tool

Designation		$h = h_1$ mm	b mm	d_m mm	f mm	f_1 mm	l_1 mm	l_2 mm	Type
κ = 95°									
PWLC R/L 1212 F04	04	12	12		16	13	80	15	WC . . 0402 . .
PWLC R/L 1616 H04	04	16	16		20	14	100	15	
PWLC R/L 2020 K04	04	20	20		25	15	125	15	
PWLC R/L 1212 F06	06	12	12		16	14.5	80	18	WC . . 06T3 . .
PWLC R/L 1616 H06	06	16	16		20	15	100	20	
PWLC R/L 2020 K06	06	20	20		25	18	125	25	
PWLC R/L 2525 M06	06	25	25		32	22	150	25	
PWLC R/L 2020 K08	08	20	20		25	22	125	25	WC . . 0804 . .
PWLC R/L 2525 M08	08	25	25		32	24	150	25	
κ = 95°									
C3–PWLC R/L–22040–06	06			32	22		40		WC . . 06T3 . .
C4–PWLC R/L–27050–06	06			40	27		50		
C5–PWLC R/L–35060–06	06			50	35		60		
C5–PWLC R/L–35060–08	08			50	35		60		WC . . 0804 . .
C6–PWLC R/L–45065–08	08			63	45		65		

Measured with master inserts WC . . 040204 / WC . . 06T308 / WC . . 080408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		04	06	08	
Shim				AP 173	
Lever		KN 118	KN 115	KN 117	
Clamping screw		FS 347 (SW 2)	FS 346 (SW 2)	FS 332 (SW 2.5)	
Pipe pin				RS 102	
Assembly plug				MD 101	
Coolant nozzle for WALTER CAPTO	C3	FS 1230	FS 1230	FS 1230	
	C4	FS 1018	FS 1018	FS 1018	
	C5	FS 1019	FS 1019	FS 1019	
	C6	FS 1019	FS 1019	FS 1019	
Torx key		FS 1154 (SW 2)	FS 1154 (SW 2)	FS 1155 (SW 2.5)	

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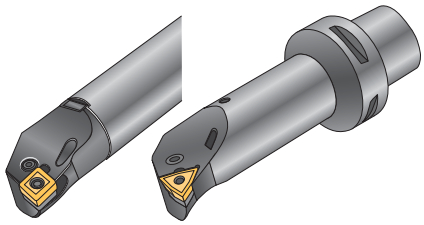
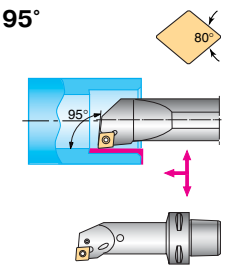
Product range overview Toolholders for internal turning

Lever-type clamping system

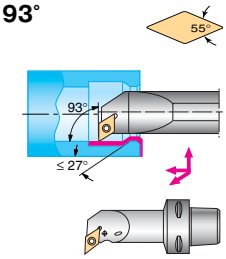
Negative basic shape



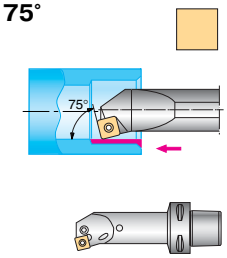
95° **PCLN R/L**
Page 112–113



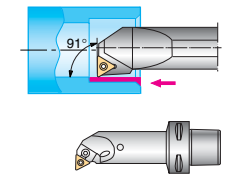
93° **PDUN R/L**
Page 114–115



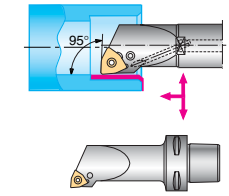
75° **PSKN R/L**
Page 116–117



91° **PTFN R/L**
Page 118–119

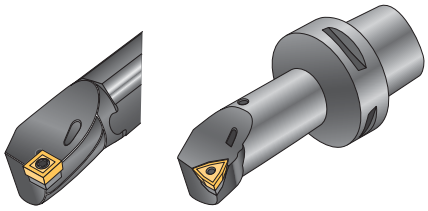


95° **PWLN R/L**
Page 120–121

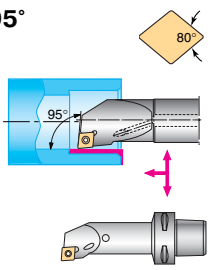


Screw clamping system

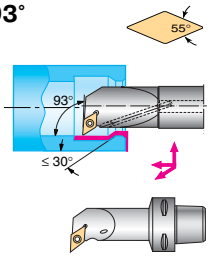
Positive basic shape



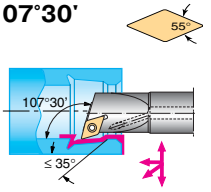
95° **SCLC R/L**
Page 122–123



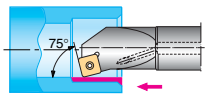
93° **SDUC R/L**
Page 124–125



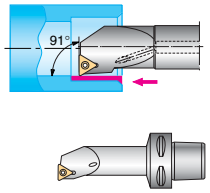
107°30' **SDQC R/L**
Page 126



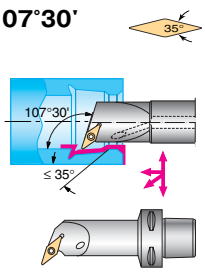
75° **SSKC R/L**
Page 127



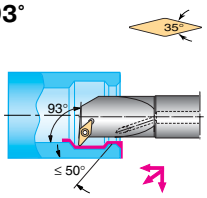
91° **STFC R/L**
Page 128–129



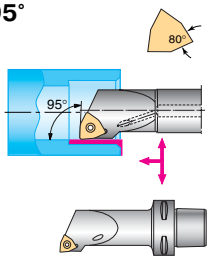
107°30' **SVQB R/L**
PVQB R/L*
Page 130–131



93° **PVUB R/L***
Page 130



95° **SWLC R/L**
Page 132–133

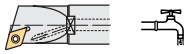


For additional boring bars from dia. 2 mm in a steel or solid carbide version, see page 336.

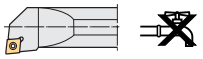
* with lever-type clamping system

ISO designation key – Internal turning

A Solid steel design with internal coolant supply



S Solid steel design



E Tungsten carbide shank with steel head, internal coolant supply



C Tungsten carbide shank with steel head

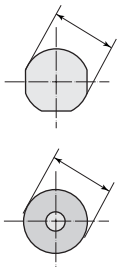


Shank design

Diameter of shank is shown in mm.

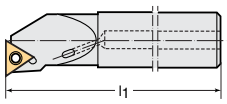
Figures after the decimal point are ignored.

Integers are preceded by a "0".



Shank diameter

32 = A	160 = N
40 = B	170 = P
50 = C	180 = Q
60 = D	200 = R
70 = E	250 = S
80 = F	300 = T
100 = H	350 = U
110 = J	400 = V
125 = K	450 = W
140 = L	special = X
150 = M	500 = Y



Toolholder length WALTER TURN

C 80°

D 55°

R

S 90°

T 60°

V 35°

W 80°

Basic shape of indexable insert

Clearance angle α

B 5°

C 7°

E 20°

F 25°

N 0°

P 11°

Clearance angle of indexable insert

WALTER TURN

A	20	S	—	S	C	L	C

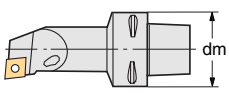
WALTER CAPTO

C4	—	S	C	L	C

Coupling size WALTER CAPTO

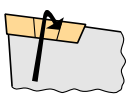
C = WALTER CAPTO
dm = coupling size

C3 → dm = 32
C4 → dm = 40
C5 → dm = 50
C6 → dm = 63

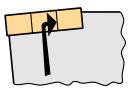


Clamping system

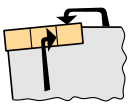
S Screw clamping



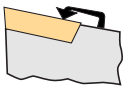
P Hole clamping



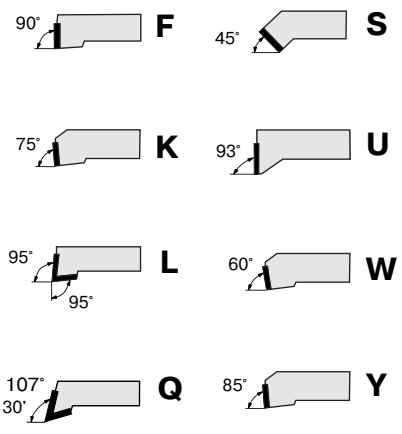
M Top and hole clamping



C Top clamping

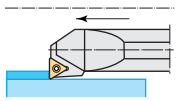


Approach setting angle

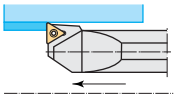


WALTER TURN toolholder
WALTER CAPTO toolholder

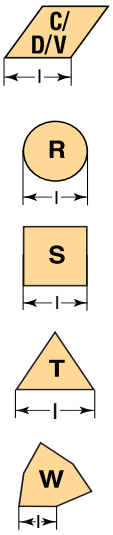
R = r. h. cutting



L = l. h. cutting

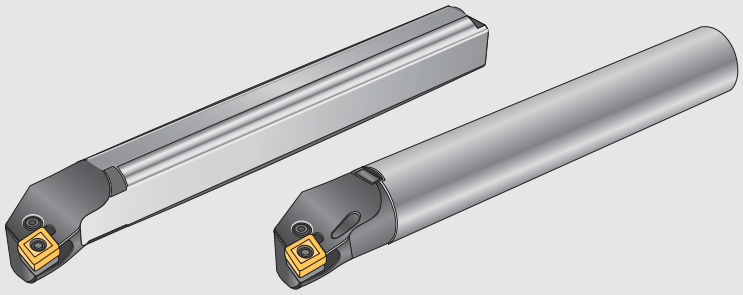


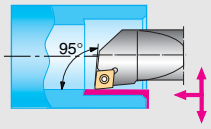
Toolholder design



Size of inserts

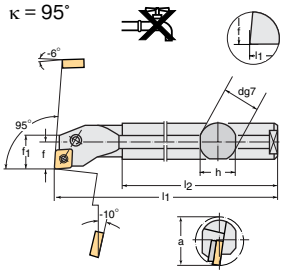
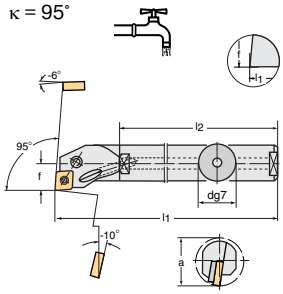
R	◄- - - -





S–PCLN
A– PCLN

WALTER TURN

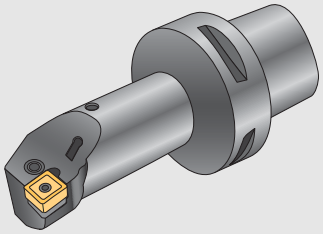
Tool	Designation		a min. mm	dg 7 mm	f mm	f_1 mm	h mm	l_1 mm	l_2 mm	λ_s	Type
κ = 95° 	S 25 T – PCLN R/L 12		12	32	25	17	21	23	300	250	–10°	CN . . 1204 . .
	S 32 U – PCLN R/L 12		12	40	32	22	24.6	30	350	300	–10°	
	S 40 V – PCLN R/L 12		12	50	40	27	28.5	37	400	350	–10°	
	S 32 U – PCLN R/L 16		16	55	32	22	27	30	350	300	–10°	CN . . 1606 . .
	S 40 V – PCLN R/L 16		16	58	40	27	33	37	400	350	–10°	
κ = 95° 	A 25 R – PCLN R/L 12		12	32	25	17			200	150	–10°	CN . . 1204 . .
	A 32 S – PCLN R/L 12		12	40	32	22			250	200	–10°	
	A 40 T – PCLN R/L 12		12	50	40	27			300	250	–10°	

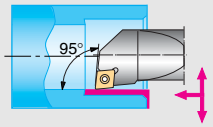
Measured with master inserts CN . . 120408 / CN . . 160612.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		for a min. 32		
		12	12	16
	Shim		AP 134–CN1216 for r ≤ 1.6	AP 135–CN1624 for r ≤ 2.4
	Lever	KN 109	KN 102	KN 104
	Clamping screw	FS 332 (SW 2.5)	FS 352 (SW 3)	FS 354 (SW 3)
	Pipe pin		RS 102	RS 103
	Assembly plug		MD 101	MD 102

Accessories			12	16
	Shim		AP 134–CN1208 for r ≤ 0.8	AP 135–CN1616 for r ≤ 1.6

→ 28 | → 684 | | → 206





PCLN

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
κ = 95°									
C3–PCLN R/L–17090–12	12	32	25	32	17	90	74	–12°	CN . . 1204 . .
C3–PCLN R/L–22064–12	12	40	32	32	22	64	49	–10°	
C3–PCLN R/L–22096–12	12	40	32	32	22	96	81	–10°	
C4–PCLN R/L–17090–12	12	32	25	40	17	90	68	–12°	
C4–PCLN R/L–22110–12	12	40	32	40	22	110	89	–10°	
C4–PCLN R/L–27080–12	12	50	40	40	27	80	60	–10°	
C4–PCLN R/L–27120–12	12	50	40	40	27	120	100	–10°	
C5–PCLN R/L–17090–12	12	32	25	50	17	90	67	–12°	
C5–PCLN R/L–22110–12	12	40	32	50	22	110	88	–10°	
C5–PCLN R/L–27140–12	12	50	40	50	27	140	119	–10°	
C5–PCLN R/L–35100–12	12	63	50	50	35	100	80	–7°	
C6–PCLN R/L–17100–12	12	32	25	63	17	100	73	–12°	
C6–PCLN R/L–22110–12	12	40	32	63	22	110	84	–10°	
C5–PCLN R/L–35150–16	16	63	50	50	35	150	130	–11°	CN . . 1606 . .
C6–PCLN R/L–27140–16	16	50	40	63	27	140	115	–11°	
C6–PCLN R/L–35175–16	16	63	50	63	35	175	152	–11°	

Measured with master inserts CN . . 120408 / CN . . 160612.
Bodies and assembly parts are included in the scope of delivery.

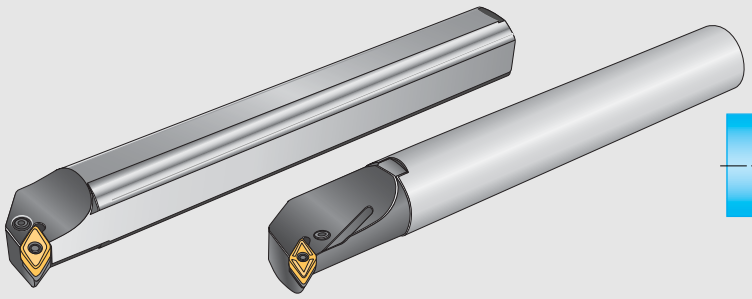
Assembly parts

	for a min. 32	12	16	
Shim		AP 134–CN1216 for r ≤ 1.6	AP 135–CN1624 for r ≤ 2.4	
Lever	KN 109	KN 102	KN 104	
Clamping screw	FS 332 (SW 2.5)	FS 352 (SW 3)	FS 354 (SW 3)	
Pipe pin		RS 102	RS 103	
Assembly plug		MD 101	MD 102	

Accessories

	12	16	
Shim	AP 134–CN1208 for r ≤ 0.8	AP 135–CN1616 for r ≤ 1.6	

→ 28 → 684 → 206



S–PDUN
A–PDUN

WALTER TURN

Tool

Designation		a min. mm	dg 7 mm	f mm	f_1 mm	h mm	l_1 mm	l_2 mm	λ_s	Type
κ = 93°										
S 40 V–PDUN R/L 15	15	50	40	27	30	37	400	360	–10°	DN . . 1506 . .
A 25 R – PDUN R/L 11	11	32	25	17	23		200	155	–10°	
A 32 S – PDUN R/L 11	11	40	32	22	27		250	195	–10°	DN . . 1104 . .
A 40 T – PDUN R/L 11	11	50	40	27	30		300	235	–10°	

Measured with master inserts DN . . 110408 / DN . . 150608
Bodies and assembly parts are included in the scope of delivery.

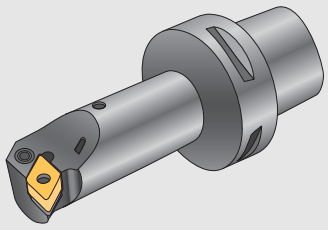
Assembly parts

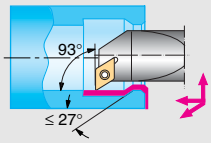
		←11→	←11→ for a min. 32	←15→	
	Shim	AP 171–DN1112 for r ≤ 1.2		AP 145–DN1516 for r ≤ 1.6	
	Lever	KN 119	KN 120	KN 103	
	Clamping screw	FS 351 (SW 2.5)	FS 905 (SW 2)	FS 355 (SW 3)	
	Pipe pin	RS 101		RS 102	
	Assembly plug	MD 101		MD 101	

Accessories

		←11→		←15→	
	Shim for r ≤ 0.8	AP 171–DN1108		AP 145–DN1508	

→ 31 | → 684 | | → 206





PDUN

WALTER CAPTO

Tool

Designation	a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–PDUN R/L–17090–11	11	32	25	32	17	90	74	–11°	DN . . 1104 . .
C3–PDUN R/L–22064–11	11	40	32	32	22	64	49	–10°	
C3–PDUN R/L–22096–11	11	40	32	32	22	96	81	–10°	
C4–PDUN R/L–17090–11	11	32	25	40	17	90	68	–11°	
C4–PDUN R/L–22110–11	11	40	32	40	22	110	89	–10°	
C5–PDUN R/L–17090–11	11	32	25	50	17	90	67	–11°	
C5–PDUN R/L–22110–11	11	40	32	50	22	110	88	–10°	
C6–PDUN R/L–17100–11	11	32	25	63	17	100	73	–11°	
C4–PDUN R/L–27080–15	15	50	40	40	27	80	60	–10°	DN . . 1506 . .
C4–PDUN R/L–27120–15	15	50	40	40	27	120	100	–10°	
C5–PDUN R/L–27140–15	15	50	40	50	27	140	119	–10°	
C5–PDUN R/L–35100–15	15	63	50	50	35	100	80	–10°	
C5–PDUN R/L–35150–15	15	63	50	50	35	150	130	–10°	
C6–PDUN R/L–27140–15	15	50	40	63	27	140	115	–10°	
C6–PDUN R/L–35175–15	15	63	50	63	35	175	152	–10°	

Measured with master inserts DN . . 110408 / DN . . 150608.
Bodies and assembly parts are included in the scope of delivery.

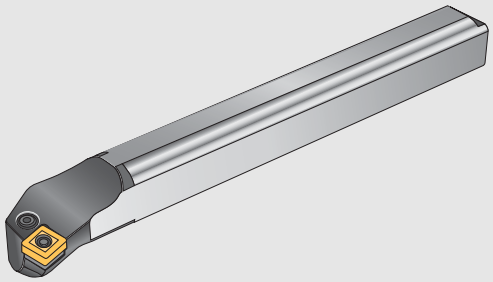
Assembly parts

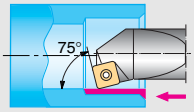
	for a min. 32		
Shim		AP 171–DN1112 for r ≤ 1.2	AP 145–DN1516 for r ≤ 1.6
Lever	KN 120	KN 119	KN 103
Clamping screw	FS 905 (SW 2)	FS 351 (SW 2.5)	FS 355 (SW 3)
Pipe pin		RS 101	RS 102
Assembly plug		MD 101	MD 101

Accessories

Shim for r ≤ 0.8		AP 171–DN1108	AP 145–DN1508

→ 31 → 684 → 206



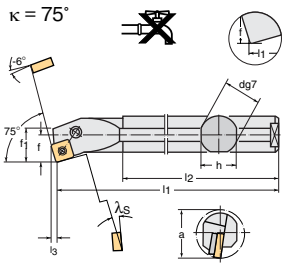


S–PSKN

WALTER TURN

Tool

Designation		a min. mm	dg 7 mm	f mm	f_1 mm	h mm	l_1 mm	l_2 mm	l_3 mm	λ_s	Type
S 25 T – PSKN R/L 12	12	32	25	17	23	23	300	250	3.1	–10°	SN . . 1204 . .
S 32 U – PSKN R/L 12	12	40	32	22	24	30	350	300	3.1	–10°	
S 40 V – PSKN R/L 12	12	50	40	27	29	37	400	350	3.1	–10°	



Measured with master insert SN . . 120408.
Bodies and assembly parts are included in the scope of delivery.

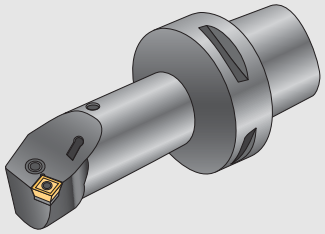
Assembly parts

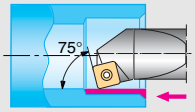
		12	12 for a min. 32	
	Shim	AP 141–SN1216 for r ≤ 1.6		
	Lever	KN 102	KN 109	
	Clamping screw	FS 352 (SW 3)	FS 332 (SW 2.5)	
	Pipe pin	RS 102		
	Assembly plug	MD 101		

Accessories

		12		
	Shim	AP 141–SN1208 for r ≤ 0.8		

→ 33 | → 684 | | → 206



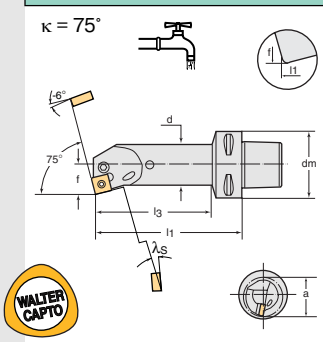


PSKN

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–PSKN R/L–17090–12	12	32	25	32	17	90	74	–12°	SN . . 1204 . .
C3–PSKN R/L–22064–12	12	40	32	32	22	64	49	–10°	
C3–PSKN R/L–22096–12	12	40	32	32	22	96	81	–10°	
C4–PSKN R/L–17090–12	12	32	25	40	17	90	68	–12°	
C4–PSKN R/L–22110–12	12	40	32	40	22	110	89	–10°	
C4–PSKN R/L–27080–12	12	50	40	40	27	80	60	–10°	
C4–PSKN R/L–27120–12	12	50	40	40	27	120	100	–10°	
C5–PSKN R/L–17090–12	12	32	25	50	17	90	67	–12°	
C5–PSKN R/L–22110–12	12	40	32	50	22	110	88	–10°	
C5–PSKN R/L–27140–12	12	50	40	50	27	140	119	–10°	
C6–PSKN R/L–22110–12	12	40	32	63	22	110	84	–10°	
C5–PSKN R/L–35100–15	15	63	50	50	35	100	80	–10°	SN . . 1506 . .
C5–PSKN R/L–35150–15	15	63	50	50	35	150	130	–10°	
C6–PSKN R/L–27140–15	15	50	40	63	27	140	115	–10°	
C6–PSKN R/L–35175–15	15	63	50	63	35	175	152	–10°	



Measured with master insert SN . . 120408.
Bodies and assembly parts are included in the scope of delivery.

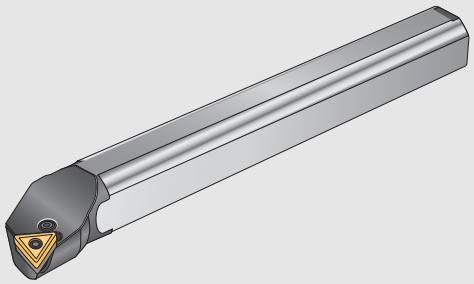
Assembly parts

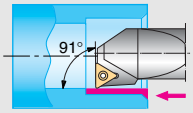
	12	12 for a min. 32	15	
Shim	AP 141–SN1216 for r ≤ 1.6		AP 142–SN1524 for r ≤ 2.4	
Lever	KN 102	KN 109	KN 104	
Clamping screw	FS 352 (SW 3)	FS 332 (SW 2.5)	FS 354 (SW 3)	
Pipe pin	RS 102		RS 103	
Assembly plug	MD 101		MD 102	

Accessories

	12		15	
Shim	AP 141–SN1208 for r ≤ 0.8		AP 142–SN1516 for r ≤ 1.6	

→ 33 → 684 → 206



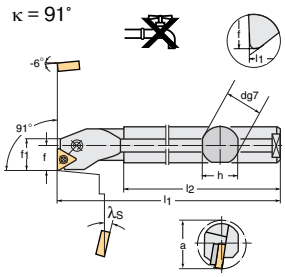


S–PTFN

WALTER TURN

Tool

Designation	a min. mm	dg 7 mm	f mm	f_1 mm	h mm	l_1 mm	l_2 mm	λ_s	Type
S 25 T – PTFN R/L 16	16	32	25	17	18	23	300	260	–10°	TN . . 1604 . .
S 32 U – PTFN R/L 16	16	40	32	22	19.5	30	350	300	–10°	
S 40 V – PTFN R/L 22	22	50	40	27	29.5	37	400	350	–10°	TN . . 2204 . .



Measured with master inserts TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

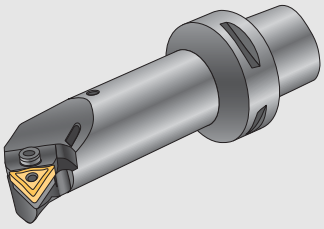
Assembly parts

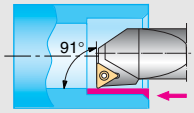
	Shim r ≤ 1.6	AP 137–TN1616	AP 138–TN2216	
	Lever	KN 101	KN 102	
	Clamping screw	FS 351 (SW 2.5)	FS 352 (SW 3)	
	Pipe pin	RS 101	RS 102	
	Assembly plug	MD 101	MD 101	

Accessories

	Shim for r ≤ 0.8	AP 137–TN1608	AP 138–TN2208	

→ 36 | → 684 | | → 206





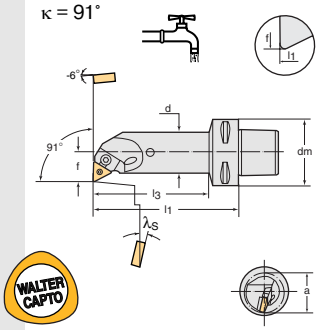
PTFN

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3-PTFN R/L-17090-16W	16	32	25	32	17	90	74	–13°	TN . . 1604 . .
C3-PTFN R/L-22096-16W	16	40	32	32	22	96	81	–12°	
C4-PTFN R/L-17090-16W	16	32	25	40	17	90	68	–13°	
C4-PTFN R/L-22110-16W	16	40	32	40	22	110	89	–12°	
C4-PTFN R/L-27120-16W	16	50	40	40	27	120	100	–11°	
C5-PTFN R/L-17090-16W	16	32	25	50	17	90	67	–13°	
C5-PTFN R/L-22110-16W	16	40	32	50	22	110	88	–12°	
C5-PTFN R/L-27140-16W	16	50	40	50	27	140	119	–11°	
C6-PTFN R/L-22110-16W	16	40	32	63	22	110	84	–12°	
C6-PTFN R/L-27140-16W	16	50	40	63	27	140	115	–11°	
C4-PTFN R/L-27120-22W	22	50	40	40	27	120	100	–11°	TN . . 2204 . .
C5-PTFN R/L-27140-22W	22	50	40	50	27	140	119	–11°	
C5-PTFN R/L-35150-22W	22	63	50	50	35	150	130	–10°	
C6-PTFN R/L-27140-22W	22	50	40	63	27	140	115	–11°	
C6-PTFN R/L-35175-22W	22	63	50	63	35	175	152	–10°	

κ = 91°

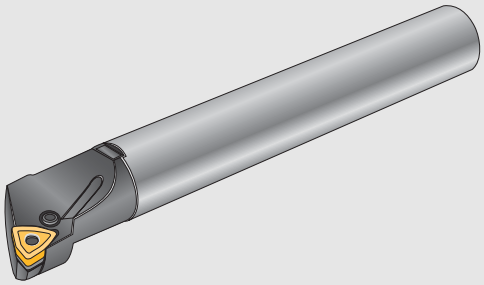


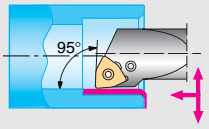
Measured with master inserts TN . . 160408 / TN . . 220408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Shim	Wedge set	Pin	Screw
for a min. 32 (16)		FK 307	RS 113	FS 1156
(16)	AP 147	FK 308	RS 114	FS 1156
(22)	AP 148	FK 309	RS 115	FS 1158

→ 36 | → 684 | → 206



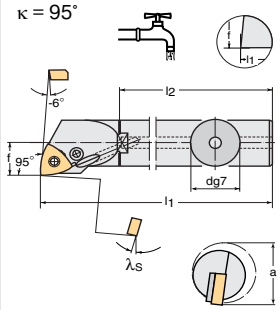


A–PWLN

WALTER TURN

Tool

κ = 95°



Designation		a min. mm	dg 7 mm	f mm	l_1 mm	l_2 mm	λ_s	Type
A 20 Q – PWLN R/L 06	06	25	20	13	180	140	–15°	WN . . 0604 . .
A 25 R – PWLN R/L 06	06	32	25	17	200	155	–12°	
A 32 S – PWLN R/L 06	06	40	32	22	250	195	–12°	
A 25 R – PWLN R/L 08	08	32	25	17	200	160	–10°	WN . . 0804 . .
A 32 S – PWLN R/L 08	08	40	32	22	250	195	–10°	
A 40 T – PWLN R/L 08	08	50	40	27	300	235	–10°	

Measured with master inserts WN . . 060408 / WN . . 080408 / WN . . 100612.
Bodies and assembly parts are included in the scope of delivery.

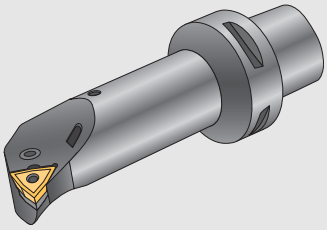
Assembly parts

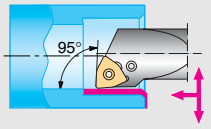
	06	06 for a min. 40	08	08 for a min. 32	
Shim		AP 172–WN0612 for r ≤ 1.2	AP 170–WN0816 for r ≤ 1.6		
Lever	KN 108	KN 101	KN 102	KN 109	
Clamping screw	FS 331 (SW 2)	FS 351 (SW 2.5)	FS 352 (SW 3)	FS 332 (SW 2.5)	
Pipe pin		RS 101	RS 102		
Assembly plug		MD 101	MD 101		

Accessories

				08		
Shim for r ≤ 0.8			AP 170–WN0808		

→ 39 → 684 → 206





PWLN

WALTER CAPTO

Tool

Designation	06	a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–PWLN R/L–13075–06	06	25	20	32	13	75	58	–15°	WN . . 0604 . .
C3–PWLN R/L–17090–06	06	32	25	32	17	90	74	–12°	
C4–PWLN R/L–13075–06	06	25	20	40	13	75	52	–15°	
C4–PWLN R/L–17090–06	06	32	25	40	17	90	68	–12°	
C5–PWLN R/L–17090–06	06	32	25	50	17	90	67	–12°	
C5–PWLN R/L–22110–06	06	40	32	50	22	110	88	–12°	
C5–PWLN R/L–27140–06	06	50	40	50	27	140	119	–10°	
C6–PWLN R/L–27140–06	06	50	40	63	27	140	115	–10°	
C6–PWLN R/L–35175–06	06	63	50	63	35	175	152	–10°	
C3–PWLN R/L–17090–08	08	32	25	32	17	90	74	–10°	WN . . 0804 . .
C3–PWLN R/L–22064–08	08	40	32	32	22	64	49	–10°	
C3–PWLN R/L–22096–08	08	40	32	32	22	96	81	–10°	
C4–PWLN R/L–17090–08	08	32	25	40	17	90	67	–10°	
C4–PWLN R/L–22110–08	08	40	32	40	22	110	89	–10°	
C4–PWLN R/L–27120–08	08	50	40	40	27	120	100	–12°	
C5–PWLN R/L–17090–08	08	32	25	50	17	90	67	–10°	
C5–PWLN R/L–22110–08	08	40	32	50	22	110	88	–10°	
C5–PWLN R/L–27140–08	08	50	40	50	27	140	119	–10°	
C6–PWLN R/L–27140–08	08	50	40	63	27	140	115	–10°	
C6–PWLN R/L–35175–08	08	63	50	63	35	175	152	–10°	
C5–PWLN R/L–27140–10	10	50	40	50	27	140	115	–12°	WN . . 1006 . .
C5–PWLN R/L–35175–10	10	63	50	50	35	175	152	–12°	
C6–PWLN R/L–27140–10	10	50	40	63	27	140	115	–12°	
C6–PWLN R/L–35175–10	10	63	50	63	35	175	152	–12°	

Measured with master inserts WN . . 060408 / WN . . 080408 / WN . . 100612.
Bodies and assembly parts are included in the scope of delivery.

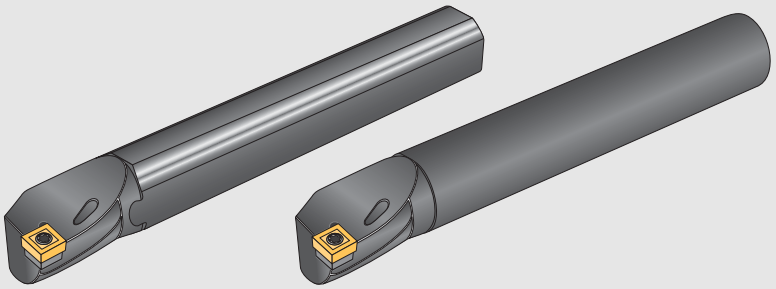
Assembly parts

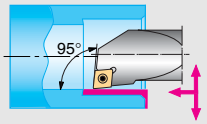
	06	06 for a min. 40	08	08 for a min. 32	10
Shim		AP 172–WN0612 for r ≤ 1.2	AP 170–WN0816 for r ≤ 1.6		AP 174–WN1016 for r ≤ 1.6
Lever	KN 108	KN 101	KN 102	KN 109	KN 104
Clamping screw	FS 331 (SW 2)	FS 351 (SW 2.5)	FS 352 (SW 3)	FS 332 (SW 2.5)	FS 354 (SW 3)
Pipe pin		RS 101	RS 102		RS 103
Assembly plug		MD 101	MD 101		MD 102

Accessories

	08			
Shim for r ≤ 0.8		AP 170–WN0808		

→ 39 → 684 → 206





A–SCLC
A–SCLC–R

WALTER TURN

Tool

Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
κ = 95°								
A 12 M – SCLC R/L 06	06	16	12	9	11	150	–7	CC . . 0602 . .
A 16 R – SCLC R/L 09	09	20	16	11	15	200	–8.5	CC . . 09T3 . .
A 20 S – SCLC R/L 09	09	25	20	13	18	250	–6	
A 25 T – SCLC R/L 09	09	32	25	17	23	300	–3.5	
A 25 T – SCLC R/L 12	12	32	25	17	23	300	–4.5	CC . . 1204 . .
A 32 T – SCLC R/L 12	12	40	32	22	30	300	–10	
κ = 95°								
A 12 M – SCLC R/L 06–R	06	16	12	9		150	–7	CC . . 0602 . .
A 16 R – SCLC R/L 09–R	09	20	16	11		200	–8.5	CC . . 09T3 . .
A 20 S – SCLC R/L 09–R	09	25	20	13		250	–6	

Measured with master inserts CC . . 060204 / CC . . 09T308 / CC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

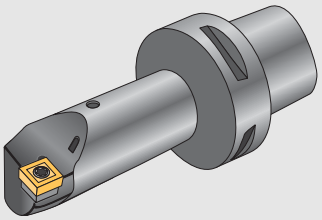
	06	09	09 for a min. 32	12 for a min. 32	12 for a min. 40
Screw for insert	FS 2066 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	FS 2064 (Torx 15 IP)	FS 2065 (Torx 15 IP)
Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	3.0 Nm	3.0 Nm
Shim					AP 314–CC1212
Screw for shim					FS 2069 (SW 4)
Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1496 (Torx 15 IP / SW 4)	FS 1496 (Torx 15 IP / SW 4)

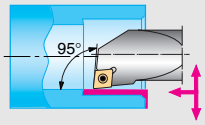
IP = Torx Plus

Accessories

	dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm		
Coolant adapter	K600.12.38.086	K600.16.40.137	K600.20.40.137		

→ 41 | → 720 | | → 208





SCLC

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–SCLC R/L–11065–09	9	20	16	32	11	65	48.4	–8.5°	CC . . 09T3 . .
C3–SCLC R/L–13075–09	9	25	20	32	13	75	58.9	–6°	
C3–SCLC R/L–17090–09	9	32	25	32	17	90	74.6	–3.5°	
C4–SCLC R/L–11070–09	9	20	16	40	11	70	47.3	–8.5°	
C4–SCLC R/L–13080–09	9	25	20	40	13	80	57.9	–6°	
C4–SCLC R/L–17090–09	9	32	25	40	17	90	68.5	–3.5°	
C4–SCLC R/L–27080–09	9	50	40	40	27	80	60.4	–6°,5°	
C5–SCLC R/L–11070–09	9	20	16	50	11	70	46.0	–8.5°	
C5–SCLC R/L–13080–09	9	25	20	50	13	80	56.5	–6°	
C5–SCLC R/L–17090–09	9	32	25	50	17	90	67.2	–3.5°	
C5–SCLC R/L–35100–09	9	63	50	50	35	100	80.4	–4.5°	
C3–SCLC R/L–22064–12	12	40	32	32	22	64	49.4	–10°	CC . . 1204 . .
C4–SCLC R/L–17090–12	12	32	25	40	17	90	68.5	–4.5°	
C4–SCLC R/L–22110–12	12	40	32	40	22	110	89.5	–10°	
C4–SCLC R/L–27080–12	12	50	40	40	27	80	60.4	–7°	
C5–SCLC R/L–17090–12	12	32	25	50	17	90	67.2	–4.5°	
C5–SCLC R/L–22110–12	12	40	32	50	22	110	88.1	–10°	
C5–SCLC R/L–27140–12	12	50	40	50	27	140	119.2	–7°	

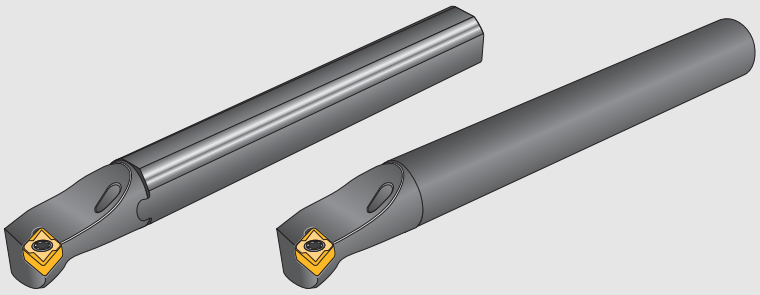
Measured with master inserts CC . . 09T308 / CC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

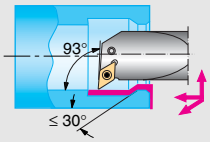
Assembly parts

	up to a min. 25	for a min. 32	for a min. 50	for a min. 32	
Screw for insert	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	FS 2060 (Torx 15 IP)	FS 2064 (Torx 15 IP)	FS 2065 (Torx 15 IP)
Tightening torque	3.0 Nm	3.0 Nm	3.0 Nm	3.0 Nm	3.0 Nm
Shim			AP 313–CC0908		AP 314–CC1212
Screw for shim			FS 2068 (SW 3.5)		FS 2069 (SW 4)
Torx key	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1496 (Torx 15 IP / SW 4.0)	FS 1496 (Torx 15 IP / SW 4.0)

IP = Torx Plus

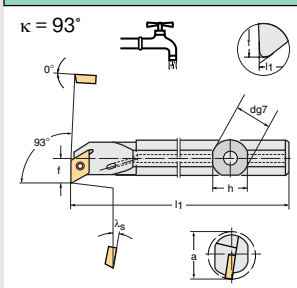
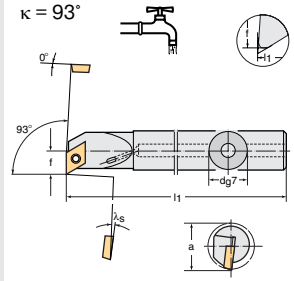
→ 41 → 684 → 208



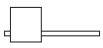


A–SDUC
A–SDUC–R

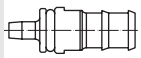
WALTER TURN

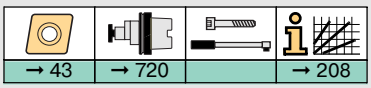
Tool	Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
	A 12M – SDUC R/L 07	07	16	12	9	11	150	–6.5	DC . . 0702 . .
	A 16R – SDUC R/L 07	07	20	16	11	15	200	–4	
	A 20S – SDUC R/L 11	11	25	20	13	18	250	–6	DC . . 11T3 . .
	A 25T – SDUC R/L 11	11	32	25	17	23	300	–3	
	A 12M – SDUC R/L 07–R	07	16	12	9		150	–6.5	DC . . 0702 . .
	A 16R – SDUC R/L 07–R	07	20	16	11		200	–4	
	A 20S – SDUC R/L 11–R	11	25	20	13		250	–6	DC . . 11T3 . .

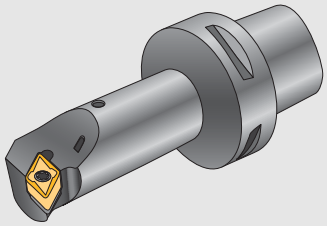
Measured with master inserts DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.

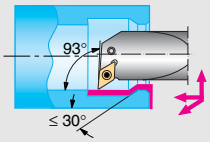
Assembly parts		07	11	11 for a min. 32	
	Screw for insert	FS 2061 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	
	Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	
	Shim				
	Screw for shim				
	Torx key	FS 1490 (Torx 7 IP)	FS 1490 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	

IP = Torx Plus

Accessories		dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm	
	Coolant adapter	K600.12.38.086	K600.16.40.137	K600.20.40.137	







SDUC

WALTER CAPTO

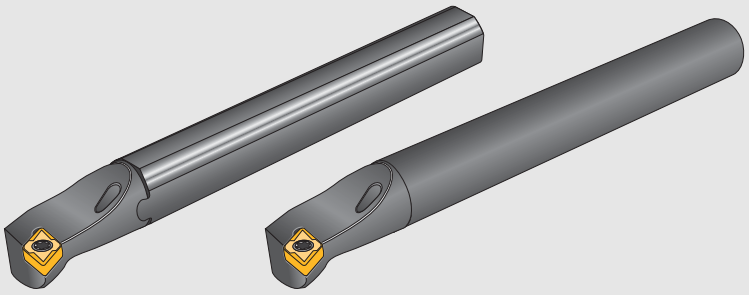
Tool	Designation	a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
κ = 93°	C3–SDUC R/L–11065–07	7	20	16	32	11	65	48.4	–4.5°	DC . . 0702 . .
	C4–SDUC R/L–11070–07	7	20	16	40	11	70	47.3	–4.5°	
	C5–SDUC R/L–11070–07	7	20	16	50	11	70	46	–4.5°	
	C3–SDUC R/L–13075–11	11	25	20	32	13	75	58.9	–6°	DC . . 11T3 . .
	C3–SDUC R/L–17090–11	11	32	25	32	17	90	73.9	–3.5°	
	C4–SDUC R/L–13080–11	11	25	20	40	13	80	57.9	–6°	
	C4–SDUC R/L–17090–11	11	32	25	40	17	90	68.5	–3.5°	
	C4–SDUC R/L–22110–11	11	40	32	40	22	110	89.5	–7°,5°	
	C4–SDUC R/L–27080–11	11	50	40	40	27	80	60.4	–5.5°	
	C5–SDUC R/L–13080–11	11	25	20	50	13	80	56.5	–6°	
	C5–SDUC R/L–17090–11	11	32	25	50	17	90	67.2	–3.5°	
	C5–SDUC R/L–22110–11	11	40	32	50	22	110	88.1	–7°,5°	

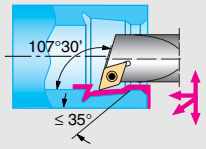
Measured with master inserts DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		07	11 for a min. 25	11 for a min. 32	11
	Screw for insert	FS 2061 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	FS 2060 (Torx 15 IP)
	Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	3.0 Nm
	Shim				AP 315–DC1108
	Screw for shim				FS 2068 (SW 3.5)
	Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)

IP = Torx Plus

→ 43 | → 684 | → 208





A–SDQC
A–SDQC–R

WALTER TURN

Tool

Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
κ = 107°30'								
A 12 M – SDQC R/L 07	07	16	12	9	11	150	–7	DC . . 0702 . .
A 16 R – SDQC R/L 07	07	20	16	11	15	200	–5	
A 20 S – SDQC R/L 11	11	25	20	13	18	250	–6	DC . . 11T3 . .
A 25 T – SDQC R/L 11	11	32	25	17	23	300	–3.5	
κ = 107°30'								
A 12M – SDQC R/L 07–R	07	16	12	9		150	–7	DC . . 0702 . .
A 16R – SDQC R/L 07–R	07	20	16	11		200	–5	
A 20S – SDQC R/L 11–R	11	25	20	13		250	–6	DC . . 11T3 . .

Measured with master inserts DC . . 070204 / DC . . 11T308.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

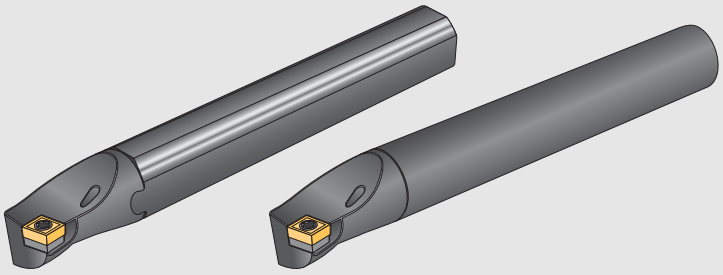
	07	11	11 for a min. 32
Screw for insert	FS 2061 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)
Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm
Shim			
Screw for shim			
Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)

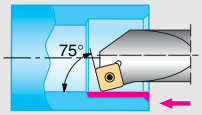
IP = Torx Plus

Accessories

	dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm
Coolant adapter	K600.12.38.086	K600.16.40.137	K600.20.40.137

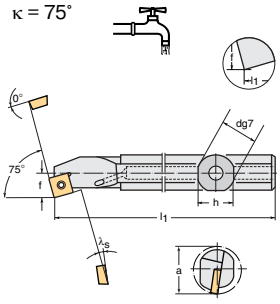
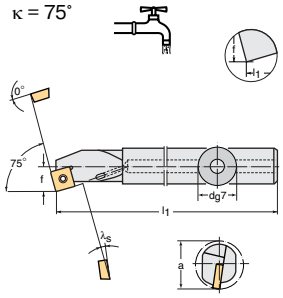
→ 43 → 720 → 208



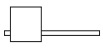


A–SSKC
A–SSKC–R

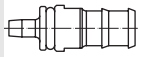
WALTER TURN

Tool	Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
κ = 75° 	A 16R – SSKC R/L 09	09	20	16	11	15	200	–9	SC . . 09T3 . .
	A 20S – SSKC R/L 09	09	25	20	13	18	250	–6	
	A 25T – SSKC R/L 12	12	32	25	17	23	300	–4.5	SC . . 1204 . .
	A 32T – SSKC R/L 12	12	40	32	22	30	300	–9	
κ = 75° 	A 16R – SSKC R/L 09–R	09	20	16	11		200	–9	SC . . 09T3 . .

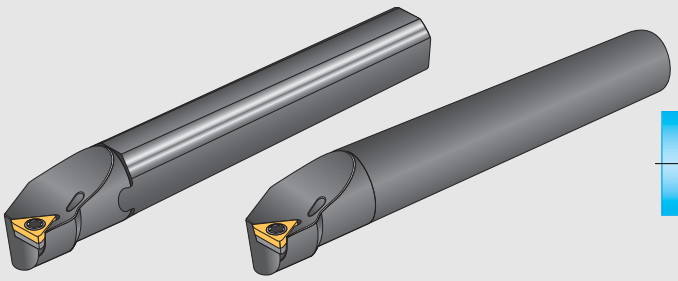
Measured with master inserts SC . . 09T308 / SC . . 120408.
Bodies and assembly parts are included in the scope of delivery.

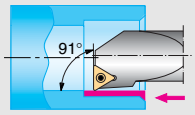
Assembly parts		09	for 12 a min. 32	for 12 a min. 40	
	Screw for insert	FS 2062 (Torx 15 IP)	FS 2064 (Torx 15 IP)	FS 2065 (Torx 15 IP)	
	Tightening torque	3.0 Nm	3.0 Nm	3.0 Nm	
	Shim			AP 319–SC1212	
	Screw for shim			FS 2069 (SW 4)	
	Torx key	FS 1465 (Torx 15 IP / SW 3.5)	FS 1496 (Torx 15 IP / SW 4.0)	FS 1496 (Torx 15 IP / SW 4)	

IP = Torx Plus

Accessories		dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm	
	Coolant adapter	K600.12.38.086	K600.16.40.137	K600.20.40.137	

→ 45 → 720 → 208





A–STFC
A–STFC–R

WALTER TURN

Tool

Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
κ = 91°	A 12 M – STFC R/L 11	11	16	12	9	11	150	–6.5	TC . . 1102 . .
	A 16 R – STFC R/L 11	11	20	16	11	15	200	–4.5	
	A 20 S – STFC R/L 11	11	25	20	13	18	250	–3	
	A 25 T – STFC R/L 16	16	32	25	17	23	300	–3	TC . . 16T3 . .
	A 32 T – STFC R/L 16	16	40	32	22	30	300	–7	
κ = 91°	A 12 M – STFC R/L 11–R	11	16	12	9		150	–6.5	TC . . 1102 . .
	A 16 R – STFC R/L 11–R	11	20	16	11		200	–4.5	

Measured with master inserts TC . . 110204 / TC . . 16T308.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

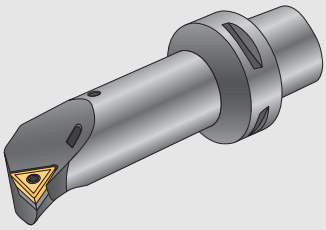
	for 11	for 11 a min. 16	for 16 a min. 32	for 16 a min. 40
Screw for insert	FS 2061 (Torx 7 IP)	FS 2067 (Torx 7 IP)	FS 2063 (Torx 15 IP)	FS 2060 (Torx 15 IP)
Tightening torque	0.9 Nm	0.9 Nm	3.0 Nm	3.0 Nm
Shim				AP 317–TC1612
Screw for shim				FS 2068 (SW 3.5)
Torx key	FS 1490 (Torx 7 IP)	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)

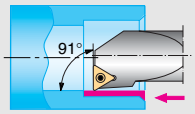
IP = Torx Plus

Accessories

	dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm	
Coolant adapter	K600.12.38.086	K600.16.40.137	K600.20.40.137	

→ 46 | → 720 | | → 208





STFC

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
κ = 91°	C3–STFC R/L–11065–11	11	20	16	32	11	65	48.4	–4.5°	TC . . 1102 . .
	C3–STFC R/L–13075–11	11	25	20	32	13	75	58.9	–3°	
	C4–STFC R/L–11070–11	11	20	16	40	11	70	47.3	–4.5°	
	C4–STFC R/L–13080–11	11	25	20	40	13	80	57.9	–3°	
	C5–STFC R/L–11070–11	11	20	16	50	11	70	46	–4.5°	
	C5–STFC R/L–13080–11	11	25	20	50	13	80	56.5	–3°	
	C4–STFC R/L–17090–16	16	32	25	40	17	90	68.5	–3.5°	TC . . 16T3 . .
	C4–STFC R/L–22110–16	16	40	32	40	22	110	89.5	–7°	
	C5–STFC R/L–17090–16	16	32	25	50	17	90	67.2	–3.5°	
	C5–STFC R/L–22110–16	16	40	32	50	22	110	88.1	–7°	

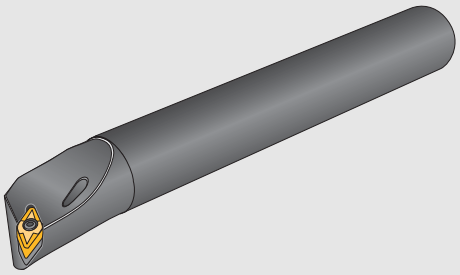
Measured with master inserts TC . . 110204 / TC . . 16T308.
Bodies and assembly parts are included in the scope of delivery.

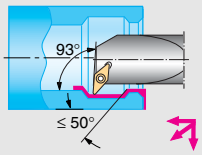
Assembly parts

		11	for a min. 32	for a min. 40	
	Screw for insert	FS 2061 (Torx 7 IP)	FS 2063 (Torx 15 IP)	FS 2060 (Torx 15 IP)	
	Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	
	Shim			AP 317–TC1612	
	Screw for shim			FS 2068 (SW 3.5)	
	Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	

IP = Torx Plus

→ 46 → 684 → 208





A–PVQB
A–PVUB

WALTER TURN

Tool

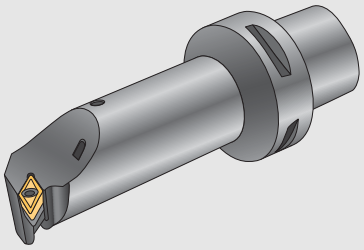
Designation	a min. mm	dg7 mm	f mm	l_1 mm	λ_s	Type
κ = 107°30'						
A 20 Q – PVQB R/L 11	11	25	20	13	180	−6°	VB . . 1103 . . VC . . 1103 . .
A 25 R – PVQB R/L 11	11	32	25	17	200	−6°	
A 32 S – PVQB R/L 16	16	40	32	22	250	−8°	VB . . 1604 . . VC . . 1604 . .
A 40 T – PVQB R/L 16	16	50	40	27	300	−8°	
κ = 93°						
A 20 Q – PVUB R/L 11	11	25	20	13	180	−6°	VB . . 1103 . . VC . . 1103 . .
A 25 R – PVUB R/L 11	11	32	25	17	200	−6°	
A 32 S – PVUB R/L 16	16	40	32	22	250	−8°	VB . . 1604 . . VC . . 1604 . .
A 40 T – PVUB R/L 16	16	50	40	27	300	−8°	

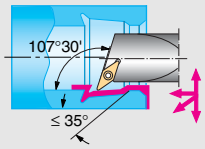
Measured with master inserts VB . . 110304 / VB . . 160408
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	for a min. 11	for a min. 40	for a min. 50	
Shim			AP 153	
Lever	KN 118	KN 114	KN 110	
Clamping screw	FS 347 (SW 2)	FS 332 (SW 2.5)	FS 351 (SW 2.5)	
Pipe pin		RS 101	RS 101	
Assembly plug			MD 101	
Torx key	FS 1154 (SW 2)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)	

→ 47 | → 684 | → 208





PVQB / SVQB

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–PVQB R/L–13070–11	11	25	20	32	13	70	53	–6°	VB . . 1103 . . VC . . 1103 . .
C3–PVQB R/L–15080–11	11	27	20	32	15	80	64	–6°	
C4–PVQB R/L–13070–11	11	25	20	40	13	70	47	–6°	
C4–PVQB R/L–15080–11	11	27	20	40	15	80	58	–6°	
C5–PVQB R/L–15080–11	11	27	20	50	15	80	57	–6°	
C3–PVQB R/L–22064–16	16	40	32	32	22	64	49	–8°	VB . . 1604 . . VC . . 1604 . .
C3–PVQB R/L–22096–16	16	40	32	32	22	96	81	–8°	
C4–SVQB R/L–18090–16	16	33	25	40	18	90	68.5	–7°	
C4–PVQB R/L–22110–16	16	40	32	40	22	110	89	–8°	
C4–PVQB R/L–27080–16	16	50	40	40	27	80	60	–8°	
C4–PVQB R/L–27120–16	16	50	40	40	27	120	100	–8°	
C5–SVQB R/L–18090–16	16	33	25	50	18	90	67.2	–6°	
C5–PVQB R/L–22110–16	16	40	32	50	22	110	88	–8°	
C5–PVQB R/L–27140–16	16	50	40	50	27	140	119	–8°	
C5–PVQB R/L–35100–16	16	63	50	50	35	100	80	–7°	
C5–PVQB R/L–35150–16	16	63	50	50	35	150	130	–7°	
C6–PVQB R/L–22120–16	16	40	32	63	22	120	94	–8°	
C6–PVQB R/L–27145–16	16	50	40	63	27	145	120	–8°	
C6–PVQB R/L–35175–16	16	63	50	63	35	175	152	–8°	

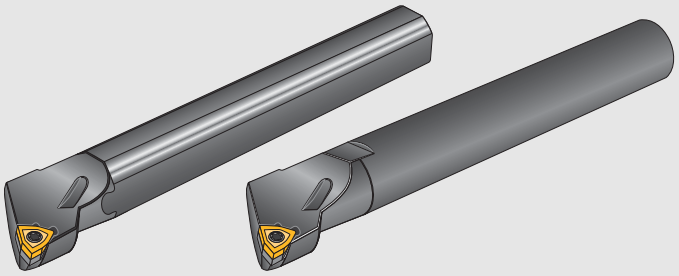
Measured with master inserts VB . . 110304 / VB . . 160408.
Bodies and assembly parts are included in the scope of delivery.

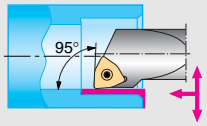
Assembly parts

	11	for a min. 33 (16)	for a min. 40 (16)	for a min. 50 + 63 (16)
Screw		FS 2063 (Torx 15 IP)		
Shim				AP 153
Lever	KN 118		KN 114	KN 110
Clamping screw	FS 347 (SW 2)		FS 332 (SW 2.5)	FS 351 (SW 2.5)
Pipe pin			RS 101	RS 101
Assembly plug				MD 101
Torx key	FS 1154 (SW 2)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1155 (SW 2.5)	FS 1155 (SW 2.5)

IP = Torx Plus

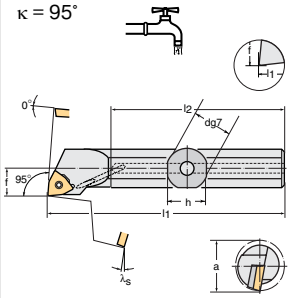
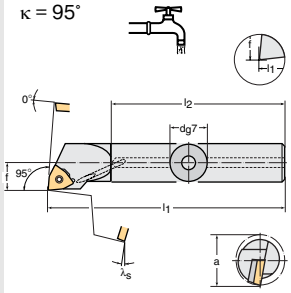
→ 47 | → 684 | → 208





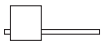
A–SWLC
A–SWLC–R

WALTER TURN

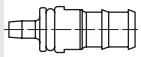
Tool	Designation		a min. mm	dg7 mm	f mm	h mm	l_1 mm	λ_s	Type
κ = 95° 	A 25 T – SWLC R/L 06	06	32	25	17	23	300	–3.5°	WC . . 06T3 . .
	A 32 T – SWLC R/L 06	06	40	32	22	30	300	–5.5°	
	A 25 T – SWLC R/L 08	08	32	25	17	23	300	–4°	WC . . 0804 . .
	A 32 T – SWLC R/L 08	08	40	32	22	30	300	–9°	
κ = 95° 	A 10 K – SWLC R/L 04–R	04	13	10	7		125	–10°	
	A 12 M – SWLC R/L 04–R	04	16	12	9		150	–7°	WC . . 0402 . .
	A 16 R – SWLC R/L 04–R	04	20	16	11		200	–5°	
	A 20 S – SWLC R/L 06–R	06	25	20	13		250	–6°	WC . . 06T3 . .

Measured with master inserts WC . . 040204 / WC . . 06T308 / WC . . 080408.
Bodies and assembly parts are included in the scope of delivery.

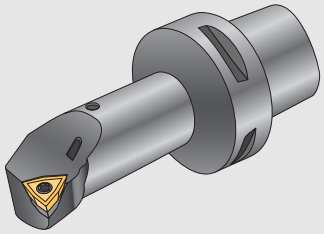
For additional boring bars from dia. 2 mm in a steel or solid carbide version, see page 336.

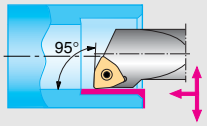
Assembly parts		04	06	06 for a min. 40	08 for a min. 32	08 for a min. 40
	Screw for insert	FS 2067 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	FS 2064 (Torx 15 IP)	FS 2065 (Torx 15 IP)
	Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	3.0 Nm	3.0 Nm
	Shim			AP 318–WC0608		AP 320–WC0812
	Screw for shim			FS 2068 (SW 3.5)		FS 2069 (SW 4)
	Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1496 (Torx 15 IP / SW 4)	FS 1496 (Torx 15 IP / SW 4)

IP = Torx Plus

Accessories		dg7 = 10 mm	dg7 = 12 mm	dg7 = 16 mm	dg7 = 20 mm
	Coolant adapter	K600.10.28.086	K600.12.38.086	K600.16.40.137	K600.20.40.137

→ 48 | → 720 | | → 208





SWLC

WALTER CAPTO

Tool

Designation		a min. mm	d mm	d_m mm	f mm	l_1 mm	l_3 mm	λ_s	Type
C3–SWLC R/L–11065–06	6	20	16	32	11	65	48.4	–8.5°	WC . . 06T3 . .
C3–SWLC R/L–13075–06	6	25	20	32	13	75	58.9	–6°	
C3–SWLC R/L–17090–06	6	32	25	32	17	90	74.6	–3.5°	
C4–SWLC R/L–11070–06	6	20	16	40	11	70	47.3	–8.5°	
C4–SWLC R/L–13080–06	6	25	20	40	13	80	57.9	–6°	
C4–SWLC R/L–17090–06	6	32	25	40	17	90	68.5	–3.5°	
C4–SWLC R/L–27080–06	6	50	40	40	27	80	60.4	–4°	
C5–SWLC R/L–13080–06	6	25	20	50	13	80	56.5	–6°	
C5–SWLC R/L–17090–06	6	32	25	50	17	90	67.2	–3.5°	
C5–SWLC R/L–35100–06	6	63	50	50	35	100	80.4	–2.5°	
C3–SWLC R/L–22064–08	8	40	32	32	22	64	49.4	–9.5°	WC . . 0804 . .
C4–SWLC R/L–17090–08	8	32	25	40	17	90	68.5	–4°	
C4–SWLC R/L–22110–08	8	40	32	40	22	110	89.5	–9.5°	
C4–SWLC R/L–27080–08	8	50	40	40	27	80	60.4	–7°	
C5–SWLC R/L–17090–08	8	32	25	50	17	90	67.2	–4°	
C5–SWLC R/L–22110–08	8	40	32	50	22	110	88.1	–9.5°	
C5–SWLC R/L–27140–08	8	50	40	50	27	140	119.2	–7°	
C5–SWLC R/L–35100–08	8	63	50	50	35	100	80.4	–5°	

Measured with master inserts WC . . 06T308 / WC . . 080408.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

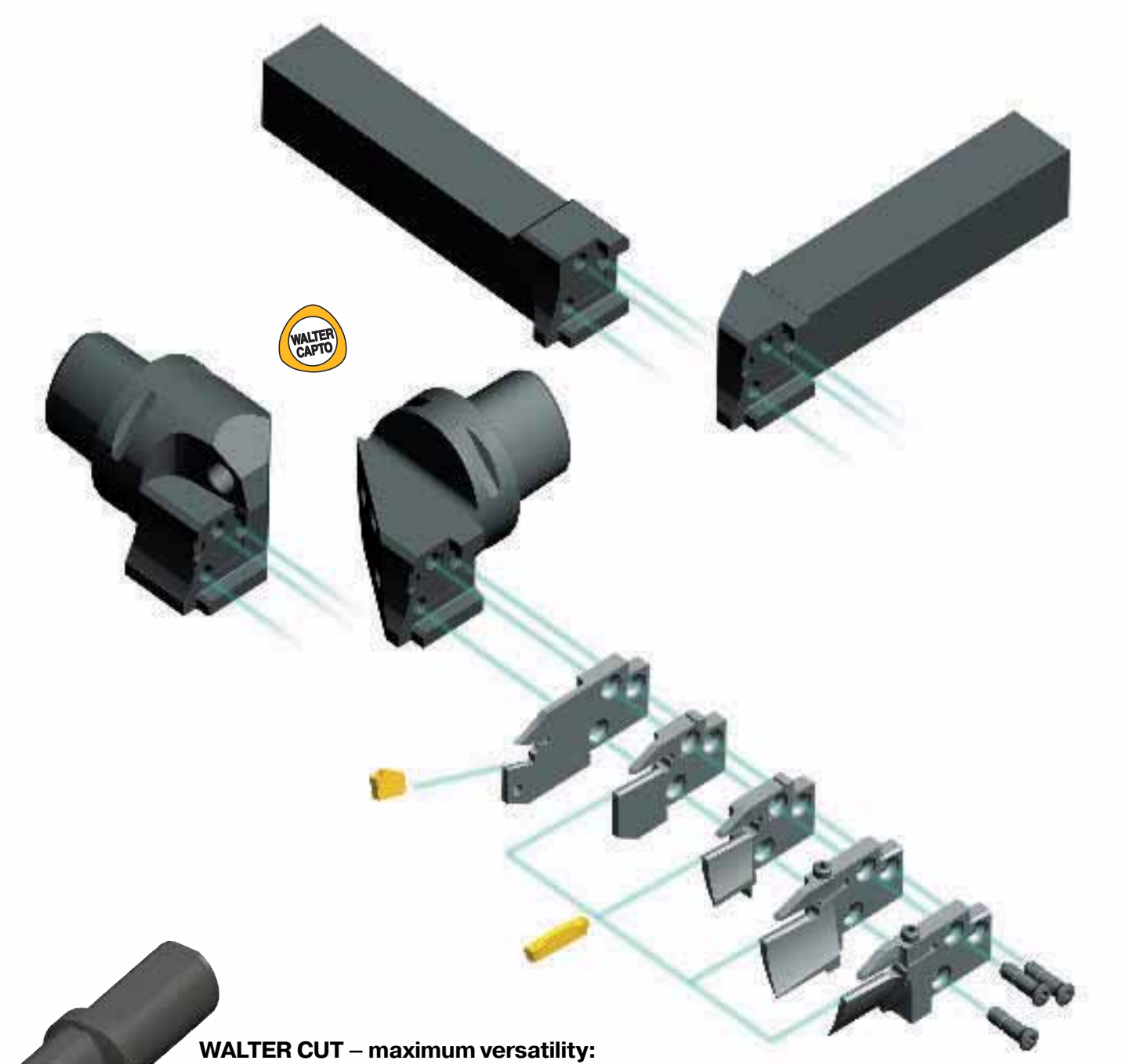
	04	06	06 for a min. 40	08 for a min. 32	08 for a min. 40
Screw for insert	FS 2067 (Torx 7 IP)	FS 2062 (Torx 15 IP)	FS 2063 (Torx 15 IP)	FS 2064 (Torx 15 IP)	FS 2065 (Torx 15 IP)
Tightening torque	0.9 Nm	3.0 Nm	3.0 Nm	3.0 Nm	3.0 Nm
Shim			AP 318–WC0608		AP 320–WC0812
Screw for shim			FS 2068 (SW 3.5)		FS 2069 (SW 4)
Torx key	FS 1490 (Torx 7 IP)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1465 (Torx 15 IP / SW 3.5)	FS 1496 (Torx 15 IP / SW 4)	FS 1496 (Torx 15 IP / SW 4)

IP = Torx Plus

→ 48 → 684 → 208


3
2
WALTER
1

System overview for WALTER CUT grooving tools





WALTER CUT – maximum versatility:

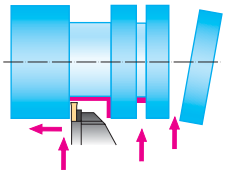
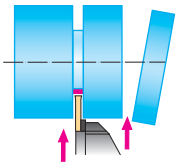
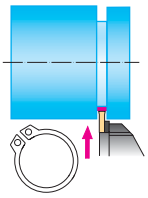
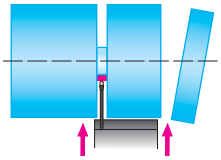
These tools can be delivered with ISO shank or CAPTO adaptor. There are straight or right angle versions as well as versions for internal and external applications. Regardless of whether you are working with the single-edged FX or the double-edged GX grooving inserts, the toolholder remains unchanged, only the grooving module must be exchanged.

The double-edged grooving inserts of the GX series are suitable for most applications. They are available in the following insert lengths 09, 16 and 24.

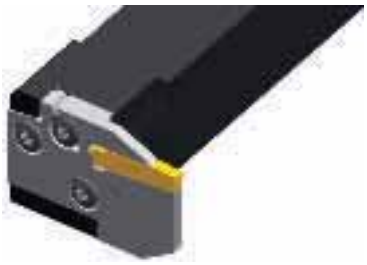
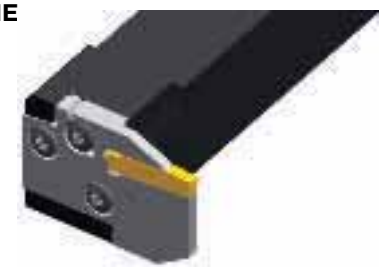
For circlip grooves there are specially ground inserts, which are available from groove widths of 0.6 mm. Single-edged FX grooving inserts, with which groove depths of up to 80 mm are possible, can be used if particularly deep grooves are required.



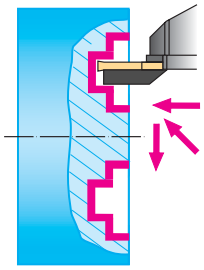
Product range overview for WALTER CUT grooving tools

Application	Grooving inserts	Groove depth T_{max} [mm]	Groove width s [mm]	0° right
Grooving **Longitudinal turning** **Parting off** 	**GX grooving inserts** 	21	2.0–8.0	**NCAE / NCBE**  Modular tool Page 142 | WALTER CAPTO Page 144
Grooving **Parting off** 	**FX grooving inserts**  **LX grving inserts** 	45	2.2–8.0	**NCDE**  Modular tool Page 150 | WALTER CAPTO Page 152
		25	2.2–4.1	**one-piece XLCE tools**  Modular tool Page 192
Circlip grooves 	**GX grooving inserts** 	3	0.6–5.25	**NCCE**  Modular tool Page 146 | WALTER CAPTO Page 148
Deep radial grooving 	**GX grooving inserts**  **FX grooving inserts**  **LX grooving inserts** 	80	2.2–9.7	**Tools with clamping block and blade** **NCKE** 

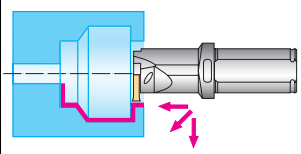
External application – Radial grooving

	0° left	90° right	90° left
	NCAE / NCBE  Modular tool Page 142 | WALTER CAPTO Page 144	**NCLE**  Modular tool Page 154 | WALTER CAPTO Page 156	**NCLE**  Modular tool Page 154 | WALTER CAPTO Page 156
	NCDE  Modular tool Page 150 | WALTER CAPTO Page 152	**NCME**  Modular tool Page 162 | WALTER CAPTO Page 164	**NCME**  Modular tool Page 162 | WALTER CAPTO Page 164
	XLCE  Modular tool Page 192		
	NCCE  Modular tool Page 146 | WALTER CAPTO Page 148	**NCNE**  Modular tool Page 158 | WALTER CAPTO Page 160	**NCNE**  Modular tool Page 158 | WALTER CAPTO Page 160
	NCKE  T_{max} = 21 mm s = 3.0–6.0 mm Page 190	**NCKE**  T_{max} = 80 mm s = 2.2–9.7 mm Page 190	

Product range overview for WALTER CUT grooving tools

Application	Grooving inserts	Groove depth T_{max} [mm]	Groove width s [mm]	0° right
Axial grooving **Facing** 	**GX grooving inserts** 	15	3.0–6.0	**NCEE**  Modular tool Page 166 WALTER CAPTO Page 168
		21	3.0–6.0	**NCFE**  Modular tool Page 170 WALTER CAPTO Page 172
				NCFE–C  Modular tool Page 174 WALTER CAPTO Page 176

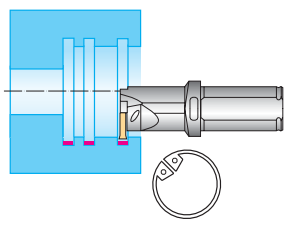
Product range overview for WALTER CUT grooving tools

Machining method	Grooving inserts	Groove depth T_{max} [mm]	Groove width s [mm]	right-hand	left-hand
Grooving **Longitudinal turning** 	**GX grooving inserts** 	19	2.0–6.0	**NCAI**  Modular tool Page 194	**NCAI**  Modular tool Page 194
		3	2.0–3.5	**For one-piece tools, see page 193.**	

External application – Axial grooving

	0° left	90° right	90° left
	NCEE  Modular tool Page 166 WALTER CAPTO Page 168	**NCHE**  Modular tool Page 178 WALTER CAPTO Page 180	**NCHE**  Modular tool Page 178 WALTER CAPTO Page 180
	NCFE  Modular tool Page 170 WALTER CAPTO Page 172	**NCOE**  Modular tool Page 182 WALTER CAPTO Page 184	**NCOE**  Modular tool Page 182 WALTER CAPTO Page 184
	NCFE–C  Modular tool Page 174 WALTER CAPTO Page 176	**NCOE–C**  Modular tool Page 186 WALTER CAPTO Page 188	**NCOE–C**  Modular tool Page 186 WALTER CAPTO Page 188

Internal application

	Machining method	Grooving inserts	Groove depth T_{max} [mm]	Groove width s [mm]	right-hand	left-hand
	Circlip grooves 	**GX grooving inserts** 	3	0.6–5.25	**NCCI**  Modular tool Page 196	**NCCI**  Modular tool Page 196

Designation keys

Example for clamping block + blade

Application	
E	External
I	Internal

Clamping block / blade
h_3
26
32
46

Shank dimensions	
Clamping block/ blade	
$h_1 = h_2$	b
20	20
25	29
32	37
40	

N	C	K	E	32	—	32 29	N

Machining method			
A	0° radial grooving and turning GX	K	Deep radial grooving with clamping block and blade GX, FX, LX
B		H	90° axial grooving and facing GX
C	0° circlip and O-ring grooves GX	L	90° radial grooving and turning GX
D	0° radial grooving and parting off GX	M	90° radial grooving and parting off FX, LX
E	0° axial grooving and facing GX	N	90° circlip and O-ring grooves GX
F	0° deep axial grooving and facing GX	O	90° deep axial grooving and facing GX

Holder design	
right-hand	R
left-hand	L
neutral	N

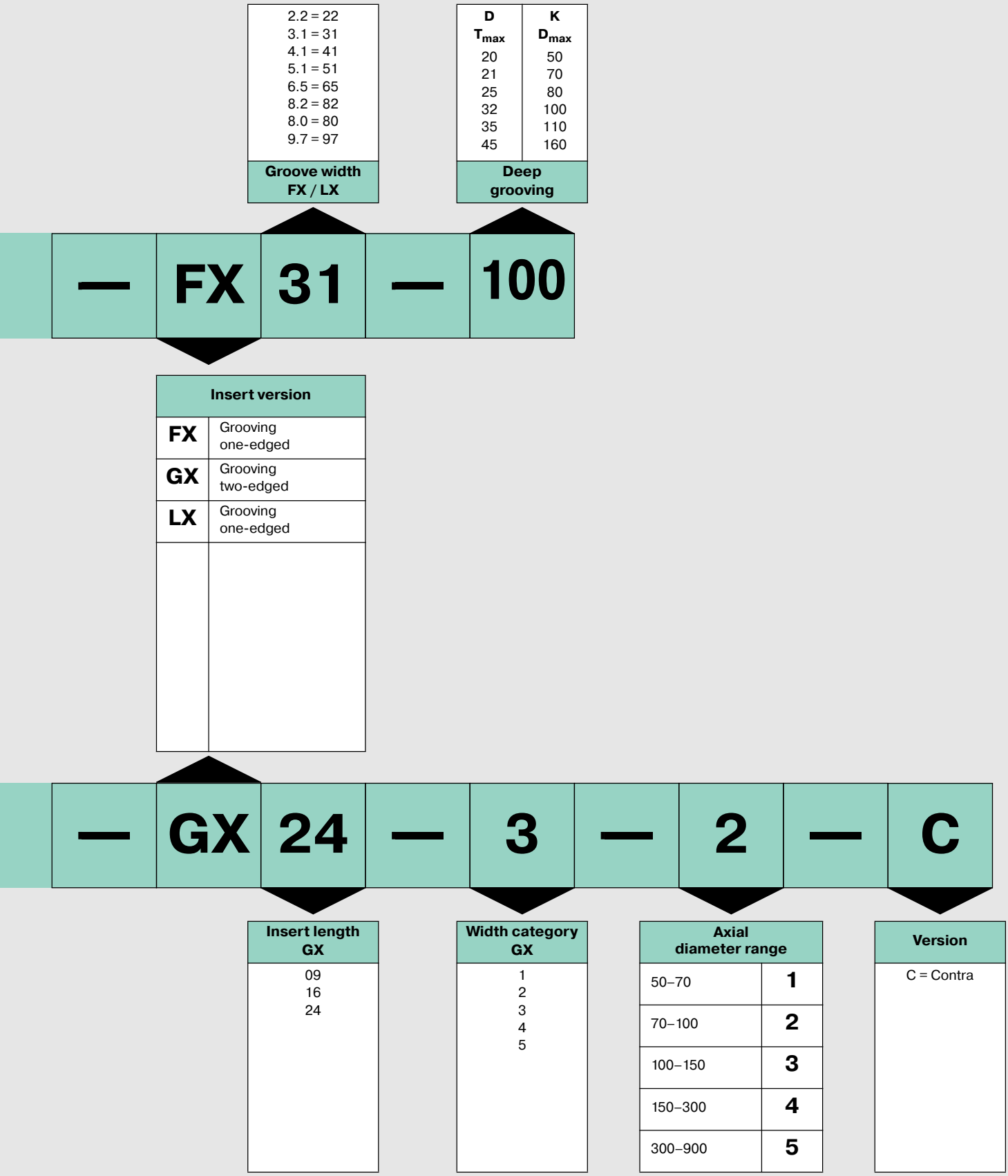
N	C	E	E	25	—	25 25	R

Example for axial grooving 0°

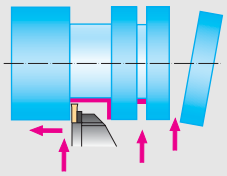
Application	
E	External
I	Internal

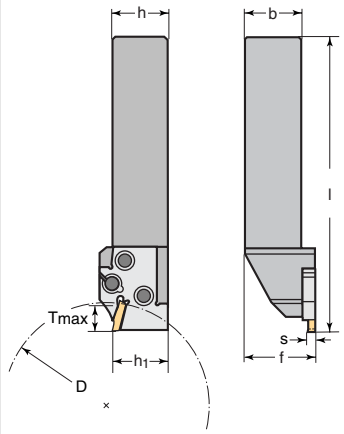
Module size
12
16
20
25
32
40

Shank dimensions				WALTER CAPTO
External		Internal		External
Height	Width	d_1	d / I	
12	12	20	1/1.5 =15	C3 00
16	16	25	1/2.5 = 25	C4 00
20	20	32		C5 00
25	25	40		C6 00
32	25			


2.2 = 22
3.1 = 31
4.1 = 41
5.1 = 51
6.5 = 65
8.2 = 82
8.0 = 80
9.7 = 97
Groove width FX / LX
D
T_{max}
20
21
25
32
35
45
K
D_{max}
50
70
80
100
110
160
Deep grooving
— FX 31 — 100
Insert version
FX Grooving one-edged
GX Grooving two-edged
LX Grooving one-edged
— GX 24 — 3 — 2 — C
Insert length GX
09
16
24
Width category GX
1
2
3
4
5
Axial diameter range
50–70 1
70–100 2
100–150 3
150–300 4
300–900 5
Version
C = Contra





Tool	T_{max}* mm	s mm	h = h_1 mm	b mm	**Complete tool**** designation	Type
	**7**	**1.95–2.5**	12	12	NCAE 12–1212 R/L–GX 09–1	GX 09–1 ...
			16	16	NCAE 16–1616 R/L–GX 09–1	
		3.0–3.5	12	12	NCAE 12–1212 R/L–GX 09–2	GX 09–2 ...
			16	16	NCAE 16–1616 R/L–GX 09–2	
	12	**2.0–2.5**	20	20	NCAE 20–2020 R/L–GX 16–1	GX 16–1 ...
			25	25	NCAE 25–2525 R/L–GX 16–1	
		3.0–3.5	20	20	NCAE 20–2020 R/L–GX 16–2	GX 16–2 ...
			25	25	NCAE 25–2525 R/L–GX 16–2	
			32	25	NCAE 32–3225 R/L–GX 16–2	
		4.0–5.0	20	20	NCAE 20–2020 R/L–GX 16–3	GX 16–3 ...
			25	25	NCAE 25–2525 R/L–GX 16–3	
			32	25	NCAE 32–3225 R/L–GX 16–3	
		6.0	25	25	NCAE 25–2525 R/L–GX 16–4	GX 16–4 ...
			30	25	NCAE 32–3225 R/L–GX 16–4	
	21	**3.0**	20	20	NCBE 20–2020 R/L–GX 24–2–21	GX 24–2 ...
			25	25	NCBE 25–2525 R/L–GX 24–2–21	
		4.0–5.0	25	25	NCBE 25–2525 R/L–GX 24–3–21	GX 24–3 ...
			32	25	NCBE 32–3225 R/L–GX 24–3–21	
		6.0	25	25	NCBE 25–2525 R/L–GX 24–4–21	GX 24–4 ...
			32	25	NCBE 32–3225 R/L–GX 24–4–21	
		8.0	25	25	NCBE 25–2525 R/L–GX 24–5–21	GX 24–5 ...

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCAE 12–1212 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCAE 12–1212 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for grooving, longitudinal turning and parting off

NCAE / NCBE

Radial grooving 0°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	15.55	78	36	E 12	MSS–E12 R/L 07–GX 09–1	MSS–E12 R/L 00–1212 E
	19.55	98	52	E 16	MSS–E16 R/L 07–GX 09–1	MSS–E16 R/L 00–1616 G
	15.55	78	36	E 12	MSS–E12 R/L 07–GX 09–2	MSS–E12 R/L 00–1212 E
	19.55	98	52	E 16	MSS–E16 R/L 07–GX 09–2	MSS–E16 R/L 00–1616 G
	24.55	123	63	E 20	MSS–E20 R/L 12–GX 16–1	MSS–E20 R/L 00–2020 J
	31.40	153	79	E 25	MSS–E25 R/L 12–GX 16–1	MSS–E25 R/L 00–2525 L
	24.55	123	63	E 20	MSS–E20 R/L 12–GX 16–2	MSS–E20 R/L 00–2020 J
	31.40	153	79	E 25	MSS–E25 R/L 12–GX 16–2	MSS–E25 R/L 00–2525 L
	31.40	173	100	E 32	MSS–E32 R/L 12–GX 16–2	MSS–E32 R/L 00–3225 N
	24.55	123	63	E 20	MSS–E20 R/L 12–GX 16–3	MSS–E20 R/L 00–2020 J
	31.40	153	79	E 25	MSS–E25 R/L 12–GX 16–3	MSS–E25 R/L 00–2525 L
	31.40	173	100	E 32	MSS–E32 R/L 12–GX 16–3	MSS–E32 R/L 00–3225 N
	31.40	153	79	E 25	MSS–E25 R/L 12–GX 16–4	MSS–E25 R/L 00–2525 L
	31.40	173	100	E 32	MSS–E32 R/L 12–GX 16–4	MSS–E32 R/L 00–3225 N
	24.55	132	63	E 20	MSS–E20 R/L 21–GX 24–2	MSS–E20 R/L 00–2020 J
	31.40	162	79	E 25	MSS–E25 R/L 21–GX 24–2	MSS–E25 R/L 00–2525 L
	31.40	162	79	E 25	MSS–E25 R/L 21–GX 24–3	MSS–E25 R/L 00–2525 L
	31.40	182	100	E 32	MSS–E32 R/L 21–GX 24–3	MSS–E32 R/L 00–3225 N
	31.40	162	79	E 25	MSS–E25 R/L 21–GX 24–4	MSS–E25 R/L 00–2525 L
	31.40	182	100	E 32	MSS–E32 R/L 21–GX 24–4	MSS–E32 R/L 00–3225 N
	31.40	162	79	E 25	MSS–E25 R/L 21–GX 24–5	MSS–E25 R/L 00–2525 L

Assembly parts

		for module size E 12	E 16	E 20	E 25	E 32
	Screw	FS 1051 (Torx 8)	FS 1052 (Torx 15)	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	2.0 Nm	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 257 (Torx 8)	FS 1047 (Torx 15)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)

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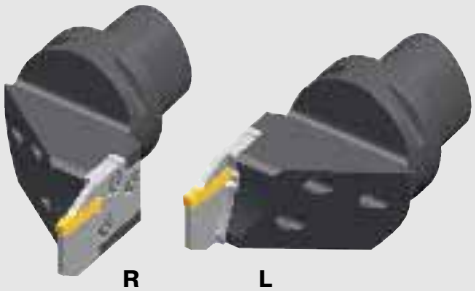
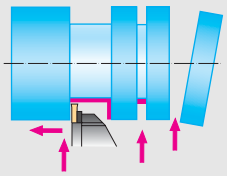
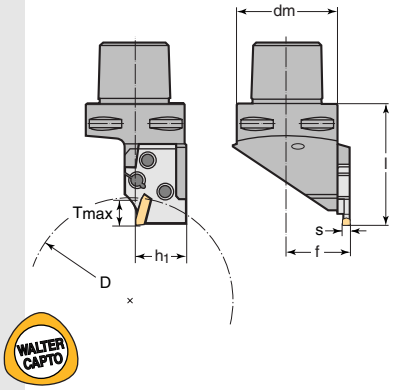




Tool	T_{max}* mm	s mm	h = h_1 mm	dm mm	**Complete tool**** designation	Type
	**7**	**1.95–2.5**	16	32	NCAE 16–C300 R/L–GX 09–1	GX 09–1 …
		3.0–3.5	16	32	NCAE 16–C300 R/L–GX 09–2	GX 09–2 …
	12	**2.0–2.5**	20	32	NCAE 20–C300 R/L–GX 16–1	GX 16–1 …
			25	40	NCAE 25–C400 R/L–GX 16–1	
			25	50	NCAE 25–C500 R/L–GX 16–1	
		3.0–3.5	20	32	NCAE 20–C300 R/L–GX 16–2	GX 16–2 …
			25	40	NCAE 25–C400 R/L–GX 16–2	
			25	50	NCAE 25–C500 R/L–GX 16–2	
			32	63	NCAE 32–C600 R/L–GX 16–2	
		4.0–5.0	20	32	NCAE 20–C300 R/L–GX 16–3	GX 16–3 …
			25	40	NCAE 25–C400 R/L–GX 16–3	
			25	50	NCAE 25–C500 R/L–GX 16–3	
			32	63	NCAE 32–C600 R/L–GX 16–3	
		6.0	25	40	NCAE 25–C400 R/L–GX 16–4	GX 16–4 …
			25	50	NCAE 25–C500 R/L–GX 16–4	
			32	63	NCAE 32–C600 R/L–GX 16–4	
	21	**3.0–3.5**	20	32	NCBE 20–C300 R/L–GX 24–2–21	GX 24–2 …
			25	40	NCBE 25–C400 R/L–GX 24–2–21	
			25	50	NCBE 25–C500 R/L–GX 24–2–21	
		4.0–5.0	25	40	NCBE 25–C400 R/L–GX 24–3–21	GX 24–3 …
			25	50	NCBE 25–C500 R/L–GX 24–3–21	
			32	63	NCBE 32–C600 R/L–GX 24–3–21	
		6.0	25	40	NCBE 25–C400 R/L–GX 24–4–21	GX 24–4 …
			25	50	NCBE 25–C500 R/L–GX 24–4–21	
			32	63	NCBE 32–C600 R/L–GX 24–4–21	
		8.0	25	40	NCBE 25–C400 R/L–GX 24–5–21	GX 24–5 …
			25	50	NCBE 25–C500 R/L–GX 24–5–21	

WALTER CAPTO

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCAE 16–C300 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCAE 16–C300 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for grooving, longitudinal turning and parting off

NCAE / NCBE

Radial grooving 0°

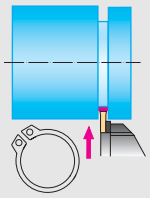
External application

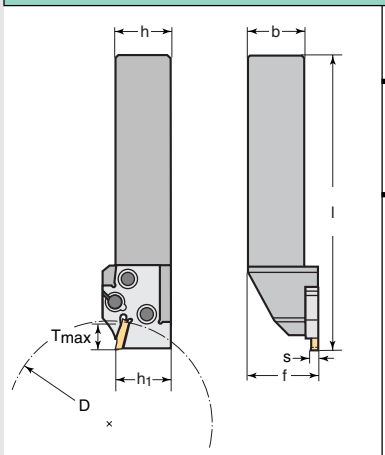
	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	20.4	40.5	52	E 16	MSS–E16 R/L 07–GX 09–1	C3–MSS–E16 R/L 00
	20.4	40.5	52	E 16	MSS–E16 R/L 07–GX 09–2	C3–MSS–E16 R/L 00
	20.4	40.5	63	E 20	MSS–E20 R/L 12–GX 16–1	C3–MSS–E16 R/L 00
	26.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–1	C4–MSS–E25 R/L 00
	31.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–1	C5–MSS–E25 R/L 00
	20.4	40.5	63	E 20	MSS–E20 R/L 12–GX 16–2	C3–MSS–E16 R/L 00
	26.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–2	C4–MSS–E25 R/L 00
	31.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–2	C5–MSS–E25 R/L 00
	37.4	66.5	100	E 32	MSS–E32 R/L 12–GX 16–2	C6–MSS–E32 R/L 00
	20.4	40.5	63	E 20	MSS–E20 R/L 12–GX 16–3	C3–MSS–E16 R/L 00
	26.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–3	C4–MSS–E25 R/L 00
	31.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–3	C5–MSS–E25 R/L 00
	37.4	66.5	100	E 32	MSS–E32 R/L 12–GX 16–3	C6–MSS–E32 R/L 00
	26.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–4	C4–MSS–E25 R/L 00
	31.4	60.5	79	E 25	MSS–E25 R/L 12–GX 16–4	C5–MSS–E25 R/L 00
	37.4	66.5	100	E 32	MSS–E32 R/L 12–GX 16–4	C6–MSS–E32 R/L 00
	20.4	58.5	63	E 20	MSS–E20 R/L 21–GX 24–2	C3–MSS–E20 R/L 00
	26.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–2	C4–MSS–E25 R/L 00
	31.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–2	C5–MSS–E25 R/L 00
	26.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–3	C4–MSS–E25 R/L 00
	31.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–3	C5–MSS–E25 R/L 00
	37.4	75.5	100	E32	MSS–E32 R/L 21–GX 24–3	C6–MSS–E32 R/L 00
	26.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–4	C4–MSS–E25 R/L 00
	31.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–4	C5–MSS–E25 R/L 00
	37.4	75.5	100	E 32	MSS–E32 R/L 21–GX 24–4	C6–MSS–E32 R/L 00
	26.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–5	C4–MSS–E25 R/L 00
	31.4	69.5	79	E 25	MSS–E25 R/L 21–GX 24–5	C5–MSS–E25 R/L 00

Assembly parts		for module size E 16	E 20	E 25	E 32
	Screw	FS 1052 (Torx 15)	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 1047 (Torx 15)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max}* mm	s mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type
	**2**	**0.6–1.70**	12	12	NCCE 12–1212 R/L–GX 09–1	GX 09–1 ... R/L
			16	16	NCCE 16–1616 R/L–GX 09–1	
	3	**0.6–2.25**	20	20	NCCE 20–2020 R/L–GX 16–2	GX 16–2 ... R7L
			25	25	NCCE 25–2525 R/L–GX 16–2	
			32	25	NCCE 32–3225 R/L–GX 16–2	

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCCE 12–1212 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCCE 12–1212 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for circlip grooves

NCCE

Radial grooving 0°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	15.55	78	36	E 12	MSS–E12 R/L 02–GX 09–1	MSS–E12 R/L 00–1212 E
	19.55	98	52	E 16	MSS–E16 R/L 02–GX 09–1	MSS–E16 R/L 00–1616 G
	24.55	123	63	E 20	MSS–E20 R/L 03–GX 16–2	MSS–E20 R/L 00–2020 J
	31.40	153	79	E 25	MSS–E25 R/L 03–GX 16–2	MSS–E25 R/L 00–2525 L
	31.40	173	100	E 32	MSS–E32 R/L 03–GX 16–2	MSS–E32 R/L 00–3225 N

Assembly parts		for module size E 12	E 16	E 20	E 25	E 32
	Screw	FS 1051 (Torx 8)	FS 1052 (Torx 15)	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	2.0 Nm	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 257 (Torx 8)	FS 1047 (Torx 15)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)

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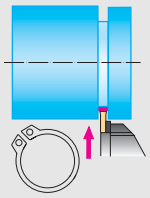
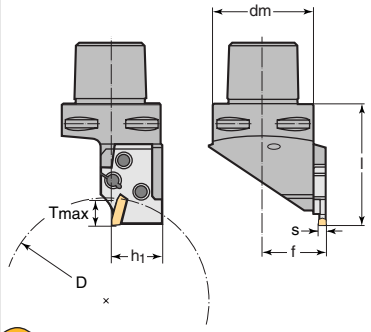
R



L



Tool	T_{max}* mm	s mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	**2**	**0.6–1.70**	16	32	NCCE 16–C300 R/L–GX 09–1	GX 09–1 ... R/L
	3	**0.6–2.25**	20	32	NCCE 20–C300 R/L–GX 16–2	GX 16–2 ... R/L
			25	40	NCCE 25–C400 R/L–GX 16–2	
			25	50	NCCE 25–C500 R/L–GX 16–2	
			32	63	NCCE 32–C600 R/L–GX 16–2	

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCCE 16–C300 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCCE 16–C300 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for circlip grooves

NCCE

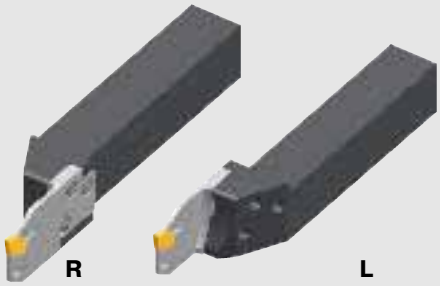
Radial grooving 0°

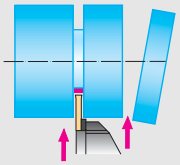
External application

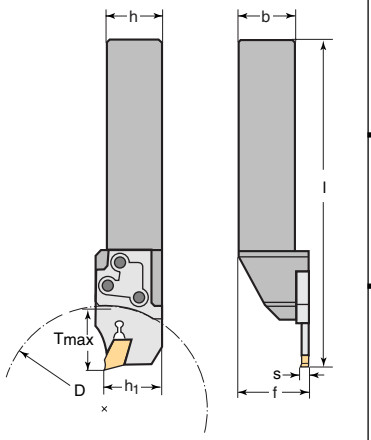
	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	20.4	40.5	52	E 16	MSS–E16 R/L 02–GX 09–1	C3–MSS–E16 R/L 00
	20.4	49.5	52	E 16	MSS–E20 R/L 03–GX 16–2	C3–MSS–E20 R/L 00
	26.4	60.5	63	E 20	MSS–E25 R/L 03–GX 16–2	C4–MSS–E25 R/L 00
	31.4	60.5	79	E 25	MSS–E25 R/L 03–GX 16–2	C5–MSS–E25 R/L 00
	37.4	66.5	100	E 32	MSS–E32 R/L 03–GX 16–2	C6–MSS–E32 R/L 00

Assembly parts		for module size E 12	E 16	E 20	E 25	E 32
	Screw	FS 1051 (Torx 8)	FS 1052 (Torx 15)	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	2.0 Nm	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 257 (Torx 8)	FS 1047 (Torx 15)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)

→ 54 | → 684 | → 226 | → 224





Tool	T_{max}* mm	s mm	h = h_1 mm	b mm	**Complete tool**** designation	Type
	**20**	**2.2**	20	20	NCDE 20–2020 R/L–FX 22–20	FX 2.2 ...
			25	25	NCDE 25–2525 R/L–FX 22–20	
		3.1	20	20	NCDE 20–2020 R/L–FX 31–20	FX 3.1 ...
		4.1	20	20	NCDE 20–2020 R/L–FX 41–20	FX 4.1 ...
	25	**3.1**	25	25	NCDE 25–2525 R/L–FX 31–25	FX 3.1 ...
		4.1	25	25	NCDE 25–2525 R/L–FX 41–25	FX 4.1 ...
		5.1	25	25	NCDE 25–2525 R/L–FX 51–25	FX 5.1 ...
		6.5	25	25	NCDE 25–2525 R/L–FX 65–25	FX 6.5 ...
	32	**3.1**	32	25	NCDE 32–3225 R/L–FX 31–32	FX 3.1 ...
		4.1	32	25	NCDE 32–3225 R/L–FX 41–32	FX 4.1 ...
		5.1	32	25	NCDE 32–3225 R/L–FX 51–32	FX 5.1 ...
		6.5	32	25	NCDE 32–3225 R/L–FX 65–32	FX 6.5 ...
		8.0	32	25	NCDE 32–3225 R/L–LX 80–32	LX – ...[1]
	35	**3.1**	25	25	NCDE 25–2525 R/L–FX 31–35	FX 3.1 ...
		4.1	25	25	NCDE 25–2525 R/L–FX 41–35	FX 4.1 ...
		5.1	25	25	NCDE 25–2525 R/L–FX 51–35	FX 5.1 ...
		6.5	25	25	NCDE 25–2525 R/L–FX 65–35	FX 6.5 ...
	45	**3.1**	32	25	NCDE 32–3225 R/L–FX 31–45	FX 3.1 ...
		4.1	32	25	NCDE 32–3225 R/L–FX 41–45	FX 4.1 ...
		5.1	32	25	NCDE 32–3225 R/L–FX 51–45	FX 5.1 ...
		6.5	32	25	NCDE 32–3225 R/L–FX 65–45	FX 6.5 ...
		8.0	32	25	NCDE 32–3225 R/L–LX 80–45	LX – ...[1]

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.
[1] indexable insert also clamped by means of clamping screw.

Order example:
right-hand complete tool: NCDE 20–2020 **R**–FX 22–20 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCDE 20–2020 **L**–FX 22–20 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for grooving and parting off

NCDE

Radial grooving 0°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	24.55	132	63	E 20	MSS–E20 R/L 20–FX 2.2	MSS–E20 R/L 00–2020J
	31.40	162	79	E 25	MSS–E25 R/L 20–FX 2.2	MSS–E25 R/L 00–2525L
	24.55	132	63	E 20	MSS–E20 R/L 20–FX 3.1	MSS–E20 R/L 00–2020J
	24.55	132	63	E 20	MSS–E20 R/L 20–FX 4.1	MSS–E20 R/L 00–2020J
	31.40	167	79	E 25	MSS–E25 R/L 25–FX 3.1	MSS–E25 R/L 00–2525L
	31.40	167	79	E 25	MSS–E25 R/L 25–FX 4.1	MSS–E25 R/L 00–2525L
	31.40	167	79	E 25	MSS–E25 R/L 25–FX 5.1	MSS–E25 R/L 00–2525L
	31.40	167	79	E 25	MSS–E25 R/L 25–FX 6.5	MSS–E25 R/L 00–2525L
	31.40	194	100	E 32	MSS–E32 R/L 32–FX 3.1	MSS–E32 R/L 00–3225 N
	31.40	194	100	E 32	MSS–E32 R/L 32–FX 4.1	MSS–E32 R/L 00–3225 N
	31.40	194	100	E 32	MSS–E32 R/L 32–FX 5.1	MSS–E32 R/L 00–3225 N
	31.40	194	100	E 32	MSS–E32 R/L 32–FX 6.5	MSS–E32 R/L 00–3225 N
	32.30	194	100	E 32	MSS–E32 N 32–LX	MSS–E32 R/L 00–3225 N
	31.40	177	79	E 25	MSS–E25 R/L 35–FX 3.1	MSS–E25 R/L 00–2525L
	31.40	177	79	E 25	MSS–E25 R/L 35–FX 4.1	MSS–E25 R/L 00–2525L
	31.40	177	79	E 25	MSS–E25 R/L 35–FX 5.1	MSS–E25 R/L 00–2525L
	31.40	177	79	E 25	MSS–E25 R/L 35–FX 6.5	MSS–E25 R/L 00–2525L
	31.40	207	100	E 32	MSS–E32 R/L 45–FX 3.1	MSS–E32 R/L 00–3225 N
	31.40	207	100	E 32	MSS–E32 R/L 45–FX 4.1	MSS–E32 R/L 00–3225 N
	31.40	207	100	E 32	MSS–E32 R/L 45–FX 5.1	MSS–E32 R/L 00–3225 N
	31.40	207	100	E 32	MSS–E32 R/L 45–FX 6.5	MSS–E32 R/L 00–3225 N
	32.30	207	100	E 32	MSS–E32 N 45–LX	MSS–E32 R/L 00–3225 N

Assembly parts

		for module size E 20	E 25	E 32
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)
	Clamping screw for LX grooving inserts	FS 1217 (Torx 20)		
	Tightening torque	2.0 Nm		

Accessories

		where s = 2.2 mm	where s = 3.1-6.5 mm
	Mounting wrench for FX grooving inserts	FS 1494	FS 1493
	Wrench for LX grooving inserts	FS 1048 (Torx 20)	

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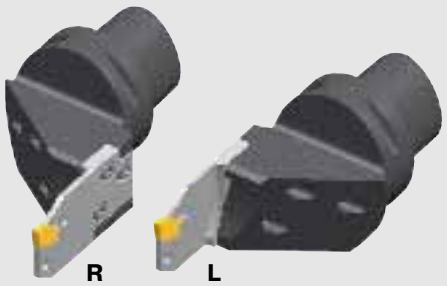
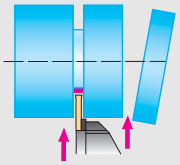
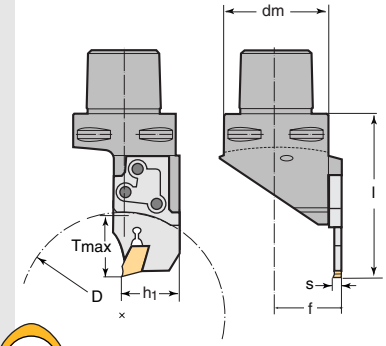




Tool



T_{max}* mm	s mm	h = h_1 mm	dm mm	Complete tool** designation	Type
20	2.2	20	32	NCDE 20–C300 R/L–FX 22–20	FX 2.2 ...
		25	40	NCDE 25–C400 R/L–FX 22–20	
		25	50	NCDE 25–C500 R/L–FX 22–20	
	3.1	20	32	NCDE 20–C300 R/L–FX 31–20	FX 3.1 ...
	4.1	20	32	NCDE 20–C300 R/L–FX 41–20	FX 4.1 ...
25	3.1	25	40	NCDE 25–C400 R/L–FX 31–25	FX 3.1 ...
		25	50	NCDE 25–C500 R/L–FX 31–25	
	4.1	25	40	NCDE 25–C400 R/L–FX 41–25	FX 4.1 ...
		25	50	NCDE 25–C500 R/L–FX 41–25	
	5.1	25	40	NCDE 25–C400 R/L–FX 51–25	FX 5.1 ...
		25	50	NCDE 25–C500 R/L–FX 51–25	
32	3.1	32	63	NCDE 32–C600 R/L–FX 31–32	FX 3.1 ...
	4.1	32	63	NCDE 32–C600 R/L–FX 41–32	FX 4.1 ...
	5.1	32	63	NCDE 32–C600 R/L–FX 51–32	FX 5.1 ...
	6.5	32	63	NCDE 32–C600 R/L–FX 65–32	FX 6.5 ...
	8.0	32	63	NCDE 32–C600 R/L–LX 80–32	LX – ...[1]
35	3.1	25	40	NCDE 25–C400 R/L–FX 31–35	FX 3.1 ...
		25	50	NCDE 25–C500 R/L–FX 31–35	
	4.1	25	40	NCDE 25–C400 R/L–FX 41–35	FX 4.1 ...
		25	50	NCDE 25–C500 R/L–FX 41–35	
	5.1	25	50	NCDE 25–C500 R/L–FX 51–35	FX 5.1 ...
45	3.1	32	63	NCDE 32–C600 R/L–FX 31–45	FX 3.1 ...
	4.1	32	63	NCDE 32–C600 R/L–FX 41–45	FX 4.1 ...
	5.1	32	63	NCDE 32–C600 R/L–FX 51–45	FX 5.1 ...
	6.5	32	63	NCDE 32–C600 R/L–FX 65–45	FX 6.5 ...
	8.0	32	63	NCDE 32–C600 R/L–LX 80–45	LX – ...[1]

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.
[1] indexable insert also clamped by means of clamping screw.

Order example:
right-hand complete tool: NCDE 20–C300 **R**–FX 22–20 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCDE 20–C300 **L**–FX 22–20 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for grooving and parting off

NCDE

Radial grooving 0°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	20.4	58.5	63	E 20	MSS–E20 R/L 20–FX 2.2	C3–MSS–E20 R/L 00
	26.4	69.5	79	E 25	MSS–E25 R/L 20–FX 2.2	C4–MSS–E25 R/L 00
	31.4	69.5	79	E 25	MSS–E25 R/L 20–FX 2.2	C5–MSS–E25 R/L 00
	20.4	58.5	63	E 20	MSS–E20 R/L 20–FX 3.1	C3–MSS–E20 R/L 00
	20.4	58.5	63	E 20	MSS–E20 R/L 20–FX 4.1	C3–MSS–E20 R/L 00
	26.4	74.5	79	E 25	MSS–E25 R/L 25–FX 3.1	C4–MSS–E25 R/L 00
	31.4	74.5	79	E 25	MSS–E25 R/L 25–FX 3.1	C5–MSS–E25 R/L 00
	26.4	74.5	79	E 25	MSS–E25 R/L 25–FX 4.1	C4–MSS–E25 R/L 00
	31.4	74.5	79	E 25	MSS–E25 R/L 25–FX 4.1	C5–MSS–E25 R/L 00
	26.4	74.5	79	E 25	MSS–E25 R/L 25–FX 5.1	C4–MSS–E25 R/L 00
	31.4	74.5	79	E 25	MSS–E25 R/L 25–FX 5.1	C5–MSS–E25 R/L 00
	37.4	87.5	100	E 32	MSS–E32 R/L 32–FX 3.1	C6–MSS–E32 R/L 00
	37.4	87.5	100	E 32	MSS–E32 R/L 32–FX 4.1	C6–MSS–E32 R/L 00
	37.4	87.5	100	E 32	MSS–E32 R/L 32–FX 5.1	C6–MSS–E32 R/L 00
	37.4	87.5	100	E 32	MSS–E32 R/L 32–FX 6.5	C6–MSS–E32 R/L 00
	38.3	95.5	100	E 32	MSS–E32 N 32–LX	C6–MSS–E32 R/L 00
	26.4	84.5	79	E 25	MSS–E25 R/L 35–FX 3.1	C4–MSS–E25 R/L 00
	31.4	84.5	79	E 25	MSS–E25 R/L 35–FX 3.1	C5–MSS–E25 R/L 00
	26.4	84.5	79	E 25	MSS–E25 R/L 35–FX 4.1	C4–MSS–E25 R/L 00
	31.4	84.5	79	E 25	MSS–E25 R/L 35–FX 4.1	C5–MSS–E25 R/L 00
	31.4	84.5	79	E 25	MSS–E25 R/L 35–FX 5.1	C5–MSS–E25 R/L 00
	37.4	100.5	100	E 32	MSS–E32 R/L 45–FX 3.1	C6–MSS–E32 R/L 00
	37.4	100.5	100	E 32	MSS–E32 R/L 45–FX 4.1	C6–MSS–E32 R/L 00
	37.4	100.5	100	E 32	MSS–E32 R/L 45–FX 5.1	C6–MSS–E32 R/L 00
	37.4	100.5	100	E 32	MSS–E32 R/L 45–FX 6.5	C6–MSS–E32 R/L 00
	38.3	115.5	100	E 32	MSS–E32 N 45–LX	C6–MSS–E32 R/L 00

Assembly parts

		for module size E 20	E 25	E 32
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)
	Clamping screw for LX grooving inserts	FS 1217 (Torx 20)		
	Tightening torque	2.0 Nm		

Accessories

		where s = 2.2 mm	where s = 3.1-6.5 mm
	Mounting wrench for FX grooving inserts	FS 1494	FS 1493
	Wrench for LX grooving inserts	FS 1048 (Torx 20)	

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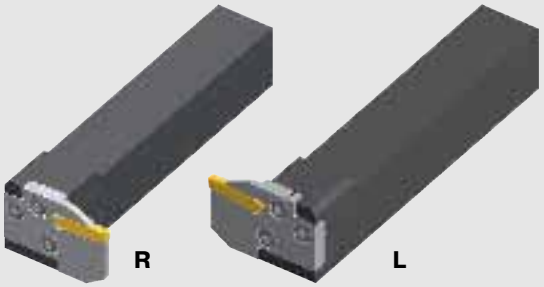
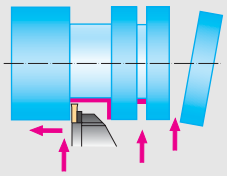
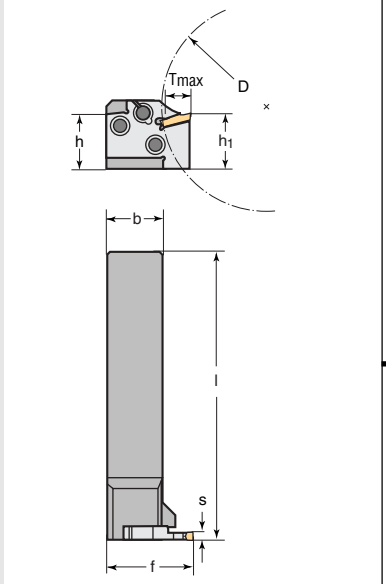




Tool	T_{max}* mm	s mm	h = h_1 mm	b mm	Complete tool** designation	Type
	12	1.95–2.5	20	20	NCLE 20–2020 R/L–GX 16–1	GX 16–1 ...
			25	25	NCLE 25–2525 R/L–GX 16–1	
		3.0–3.5	20	20	NCLE 20–2020 R/L–GX 16–2	GX 16–2 ...
			25	25	NCLE 25–2525 R/L–GX 16–2	
			32	25	NCLE 32–3225 R/L–GX 16–2	
		4.0–5.0	20	20	NCLE 20–2020 R/L–GX 16–3	GX 16–3 ...
			25	25	NCLE 25–2525 R/L–GX 16–3	
			32	25	NCLE 32–3225 R/L–GX 16–3	
		6.0	25	25	NCLE 25–2525 R/L–GX 16–4	GX 16–4 ...
			30	25	NCLE 32–3225 R/L–GX 16–4	
	21	3.0	20	20	NCLE 20–2020 R/L–GX 24–2–21	GX 24–2 ...
			25	25	NCLE 25–2525 R/L–GX 24–2–21	
		4.0–5.0	25	25	NCLE 25–2525 R/L–GX 24–3–21	GX 24–3 ...
			32	25	NCLE 32–3225 R/L–GX 24–3–21	
		6.0	25	25	NCLE 25–2525 R/L–GX 24–4–21	GX 24–4 ...
			32	25	NCLE 32–3225 R/L–GX 24–4–21	
		8.0	25	25	NCLE 25–2525 R/L–GX 24–5–21	GX 24–5 ...

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCLE 20–2020 **R**–GX 16–1 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCLE 20–2020 **L**–GX 16–1 (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for grooving, longitudinal turning and parting off

NCLE

Radial grooving 90°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	33	111.00	63	E 20	MSS–E20 R/L12–GX 16–1	MSS–E20 R/L 90–2020 J
	38	141.50	79	E 25	MSS–E25 R/L 12–GX 16–1	MSS–E25 R/L 90–2525 L
	33	110.90	63	E 20	MSS–E20 R/L 12–GX 16–2	MSS–E20 R/L 90–2020 J
	38	141.40	79	E 25	MSS–E25 R/L 12–GX 16–2	MSS–E25 R/L 90–2525 L
	45	161.40	100	E 32	MSS–E32 R/L 12–GX 16–2	MSS–E32 R/L 90–3225 N
	33	111.43	63	E 20	MSS–E20 R/L 12–GX 16–3	MSS–E20 R/L 90–2020 J
	38	141.93	79	E 25	MSS–E25 R/L 12–GX 16–3	MSS–E25 R/L 90–2525 L
	45	161.93	100	E 32	MSS–E32 R/L 12–GX 16–3	MSS–E32 R/L 90–3225 N
	38	141.80	79	E 25	MSS–E25 R/L 12–GX 16–4	MSS–E25 R/L 90–2525 L
	45	161.80	100	E 32	MSS–E32 R/L 12–GX 16–4	MSS–E32 R/L 90–3225 N
	42	110.90	63	E 20	MSS–E20 R/L 21–GX 24–2	MSS–E20 R/L 90–2020 J
	47	141.40	79	E 25	MSS–E25 R/L 21–GX 24–2	MSS–E25 R/L 90–2525 L
	47	141.93	63	E 25	MSS–E25 R/L 21–GX 24–3	MSS–E25 R/L 90–2525 L
	54	161.93	79	E 32	MSS–E32 R/L 21–GX 24–3	MSS–E32 R/L 90–3225 N
	47	141.80	100	E 25	MSS–E25 R/L 21–GX 24–4	MSS–E25 R/L 90–2525 L
	54	161.80	63	E 32	MSS–E32 R/L 21–GX 24–4	MSS–E32 R/L 90–3225 N
	47	142.03	79	E 25	MSS–E25 R/L 21–GX 24–5	MSS–E25 R/L 90–2525 L

Assembly parts		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

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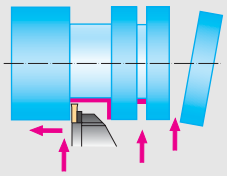
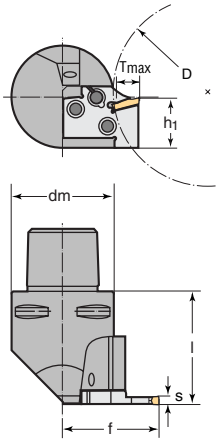
R



L



Tool	T_{max}* mm	s mm	h = h_1 mm	dm mm	Complete tool** designation	Type
	12	2.0–2.5	20	32	NCLE 20–C300 R/L–GX 16–1	GX 16–1 ... N
			25	40	NCLE 25–C400 R/L–GX 16–1	
			25	50	NCLE 25–C500 R/L–GX 16–1	
		3.0–3.5	20	32	NCLE 20–C300 R/L–GX 16–2	GX 16–2 ... N
			25	40	NCLE 25–C400 R/L–GX 16–2	
			25	50	NCLE 25–C500 R/L–GX 16–2	
			32	63	NCLE 32–C600 R/L–GX 16–2	
		4.0–5.0	20	32	NCLE 20–C300 R/L–GX 16–3	GX 16–3 ... N
			25	40	NCLE 25–C400 R/L–GX 16–3	
			25	50	NCLE 25–C500 R/L–GX 16–3	
			32	63	NCLE 32–C600 R/L–GX 16–3	
		6.0	25	40	NCLE 25–C400 R/L–GX 16–4	GX 16–4 ...
			25	50	NCLE 25–C500 R/L–GX 16–4	
			32	63	NCLE 32–C600 R/L–GX 16–4	
	21	3.0	20	32	NCLE 20–C300 R/L–GX 24–2–21	GX 24–2 ...
			25	40	NCLE 25–C400 R/L–GX 24–2–21	
			25	50	NCLE 25–C500 R/L–GX 24–2–21	
		4.0–5.0	25	40	NCLE 25–C400 R/L–GX 24–3–21	GX 24–3 ...
			25	50	NCLE 25–C500 R/L–GX 24–3–21	
			32	63	NCLE 32–C600 R/L–GX 24–3–21	
		6.0	25	40	NCLE 25–C400 R/L–GX 24–4–21	GX 24–4 ...
			25	50	NCLE 25–C500 R/L–GX 24–4–21	
			32	63	NCLE 32–C600 R/L–GX 24–4–21	
		8.0	25	40	NCLE 25–C400 R/L–GX 24–5–21	GX 24–5 ...
			25	50	NCLE 25–C500 R/L–GX 24–5–21	

WALTER CAPTO

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCLE 20–C300 **R**–GX 16–1 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCLE 20–C300 **L**–GX 16–1 (= right-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for grooving, longitudinal turning and parting off

NCLE

Radial grooving 90°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	33	37.00	63	E 20	MSS–E20 R/L 12–GX 16–1	C3–MSS–E20 R/L 90
	33	55.00	79	E 25	MSS–E25 R/L 12–GX 16–1	C4–MSS–E25 R/L 90
	38	55.00	79	E 25	MSS–E25 R/L 12–GX 16–1	C5–MSS–E25 R/L 90
	33	36.90	63	E 20	MSS–E20 R/L 12–GX 16–2	C3–MSS–E20 R/L 90
	33	54.90	79	E 25	MSS–E25 R/L 12–GX 16–2	C4–MSS–E25 R/L 90
	38	54.90	79	E 25	MSS–E25 R/L 12–GX 16–2	C5–MSS–E25 R/L 90
	40	63.40	100	E 32	MSS–E32 R/L 12–GX 16–2	C6–MSS–E32 R/L 90
	33	37.43	63	E 20	MSS–E20 R/L 12–GX 16–3	C3–MSS–E20 R/L 90
	33	55.43	79	E 25	MSS–E25 R/L 12–GX 16–3	C4–MSS–E25 R/L 90
	38	55.43	79	E 25	MSS–E25 R/L 12–GX 16–3	C5–MSS–E25 R/L 90
	40	63.93	100	E 32	MSS–E32 R/L 12–GX 16–3	C6–MSS–E32 R/L 90
	33	55.30	79	E 25	MSS–E25 R/L 12–GX 16–4	C4–MSS–E25 R/L 90
	38	55.30	79	E 25	MSS–E25 R/L 12–GX 16–4	C5–MSS–E25 R/L 90
	40	63.80	100	E 32	MSS–E32 R/L 12–GX 16–4	C6–MSS–E32 R/L 90
	42	36.90	63	E 20	MSS–E20 R/L 21–GX 24–2	C3–MSS–E20 R/L 90
	42	54.90	79	E 25	MSS–E25 R/L 21–GX 24–2	C4–MSS–E25 R/L 90
	47	54.90	79	E 25	MSS–E25 R/L 21–GX 24–2	C5–MSS–E25 R/L 90
	42	55.43	79	E 25	MSS–E25 R/L 21–GX 24–3	C4–MSS–E25 R/L 90
	47	55.43	79	E 25	MSS–E25 R/L 21–GX 24–3	C5–MSS–E25 R/L 90
	49	63.93	100	E32	MSS–E32 R/L 21–GX 24–3	C6–MSS–E32 R/L 90
	42	55.30	79	E 25	MSS–E25 R/L 21–GX 24–4	C4–MSS–E25 R/L 90
	47	55.30	79	E 25	MSS–E25 R/L 21–GX 24–4	C5–MSS–E25 R/L 90
	49	63.80	100	E 32	MSS–E32 R/L 21–GX 24–4	C6–MSS–E32 R/L 90
	42	55.53	79	E 25	MSS–E25 R/L 21–GX 24–5	C4–MSS–E25 R/L 90
	47	55.53	79	E 25	MSS–E25 R/L 21–GX 24–5	C5–MSS–E25 R/L 90

Assembly parts

		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

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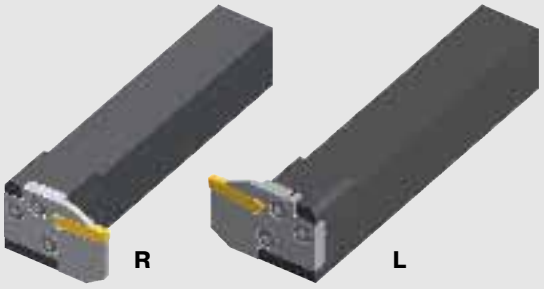
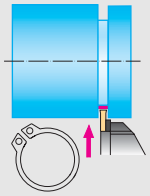
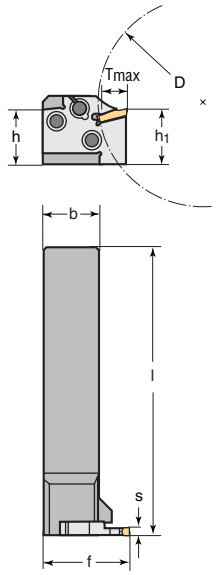




Tool	T_{max} mm	s mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type
	**3**	**0.6–2.25**	20	20	NCNE 20–2020 R/L–GX 16–2	GX 16–2 … R/L
			25	25	NCNE 25–2525 R/L–GX 16–2	
			32	25	NCNE 32–3225 R/L–GX 16–2	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCNE 20–2020 **R**–GX 16–2 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCNE 20–2020 **L**–GX 16–2 (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for circlip grooves

NCNE

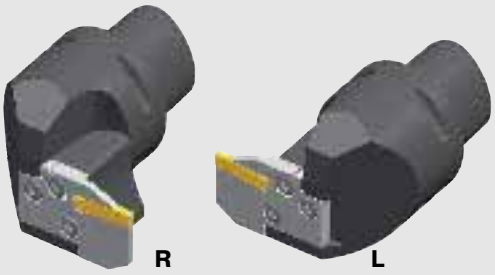
Radial grooving 90°

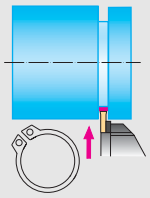
External application

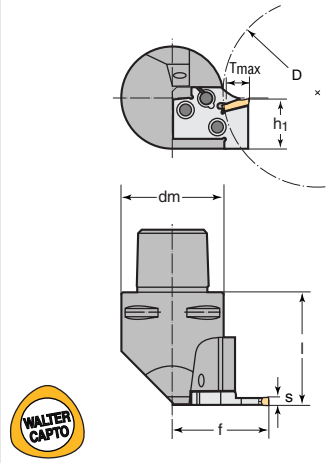
	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	33	110.9	63	E 20	MSS–E20 R/L 03–GX 16–2	MSS–E20 R/L 90–2020 J
	38	141.4	79	E 25	MSS–E25 R/L 03–GX 16–2	MSS–E25 R/L 90–2525 L
	45	161.4	100	E 32	MSS–E32 R/L 03–GX 16–2	MSS–E32 R/L 90–3225 N

Assembly parts		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

→ 54 | → 684 | → 226 | → 224





Tool	T_{max} mm	s mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	**3**	**0.6–2.25**	20	32	NCNE 20–C300 R/L–GX 16–2	GX 16–2 ... R/L
			25	40	NCNE 25–C400 R/L–GX 16–2	
			25	50	NCNE 25–C500 R/L–GX 16–2	
			32	63	NCNE 32–C600 R/L–GX 16–2	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCNE 20–C300 **R**–GX 16–2 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCNE 20–C300 **L**–GX 16–2 (= right-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for circlip grooves

NCNE

Radial grooving 90°

External application

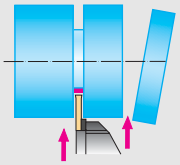
	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	33	36.9	63	E 20	MSS–E20 R/L 03–GX 16–2	C3–MSS–E20 R/L 90
	33	54.9	79	E 25	MSS–E25 R/L 03–GX 16–2	C4–MSS–E25 R/L 90
	38	54.9	79	E 25	MSS–E25 R/L 03–GX 16–2	C5–MSS–E25 R/L 90
	40	63.4	100	E 32	MSS–E32 R/L 03–GX 16–2	C6–MSS–E32 R/L 90

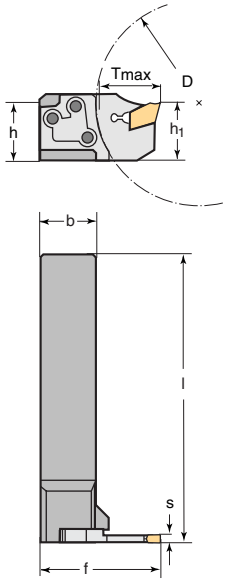
Assembly parts

		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

→ 54 | → 684 | → 226 | → 224





Tool	T_{max}* mm	s mm	h = h_1 mm	b mm	Complete tool** designation	Type
	**20**	**2.2**	20	20	NCME 20–2020 R/L–FX22–20	FX 2.2 ...
			25	25	NCME 25–2525 R/L–FX22–20	
		3.1	20	20	NCME 20–2020 R/L–FX31–20	FX 3.1 ...
		4.1	20	20	NCME 20–2020 R/L–FX41–20	FX 4.1 ...
	25	**3.1**	25	25	NCME 25–2525 R/L–FX31–25	FX 3.1 ...
		4.1	25	25	NCME 25–2525 R/L–FX41–25	FX 4.1 ...
		5.1	25	25	NCME 25–2525 R/L–FX51–25	FX 5.1 ...
		6.5	25	25	NCME 25–2525 R/L–FX65–25	FX 6.5 ...
	32	**3.1**	32	25	NCME 32–3225 R/L–FX31–32	FX 3.1 ...
		4.1	32	25	NCME 32–3225 R/L–FX41–32	FX 4.1 ...
		5.1	32	25	NCME 32–3225 R/L–FX51–32	FX 5.1 ...
		6.5	32	25	NCME 32–3225 R/L–FX65–32	FX 6.5 ...
		8.0	32	25	NCME 32–3225 R/L–LX80–32	LX – ,...[1]
	35	**3.1**	25	25	NCME 25–2525 R/L–FX31–35	FX 3.1 ...
		4.1	25	25	NCME 25–2525 R/L–FX41–35	FX 4.1 ...
		5.1	25	25	NCME 25–2525 R/L–FX51–35	FX 5.1 ...
		6.5	25	25	NCME 25–2525 R/L–FX65–35	FX 6.5 ...
	45	**3.1**	32	25	NCME 32–3225 R/L–FX31–45	FX 3.1 ...
		4.1	32	25	NCME 32–3225 R/L–FX41–45	FX 4.1 ...
		5.1	32	25	NCME 32–3225 R/L–FX51–45	FX 5.1 ...
		6.5	32	25	NCME 32–3225 R/L–FX65–45	FX 6.5 ...
		8.0	32	25	NCME 32–3225 R/L–LX80–45	LX – ...[1]

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.
[1] indexable insert also clamped by means of clamping screw.

Order example:
right-hand complete tool: NCME 20–2020 **R**–FX22–20 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCME 20–2020 **L**–FX 22–20 (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for grooving and parting off

NCME

Radial grooving 90°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	42.00	110.68	63	E 20	MSS–E20 R/L 20–FX2.2	MSS–E20 R/L 90–2020 J
	47.00	141.18	79	E 25	MSS–E25 R/L 20–FX2.2	MSS–E25 R/L 90–2525 L
	46.62	110.75	63	E 20	MSS–E20 R/L 20–FX3.1	MSS–E20 R/L 90–2020 J
	46.62	110.85	63	E 20	MSS–E20 R/L 20–FX4.1	MSS–E20 R/L 90–2020 J
	51.62	141.25	79	E 25	MSS–E25 R/L 25–FX3.1	MSS–E25 R/L 90–2525 L
	51.62	141.35	79	E 25	MSS–E25 R/L 25–FX4.1	MSS–E25 R/L 90–2525 L
	51.62	141.45	79	E 25	MSS–E25 R/L 25–FX5.1	MSS–E25 R/L 90–2525 L
	51.62	141.55	79	E 25	MSS–E25 R/L 25–FX6.5	MSS–E25 R/L 90–2525 L
	58.62	161.25	100	E 32	MSS–E32 R/L 32–FX3.1	MSS–E32 R/L 90–3225 N
	58.62	161.35	100	E 32	MSS–E32 R/L 32–FX4.1	MSS–E32 R/L 90–3225 N
	58.62	161.45	100	E 32	MSS–E32 R/L 32–FX5.1	MSS–E32 R/L 90–3225 N
	58.62	161.55	100	E 32	MSS–E32 R/L 32–FX6.5	MSS–E32 R/L 90–3225 N
	66.00	162.40	100	E 32	MSS–E32N32–LX	MSS–E32 R/L 90–3225 N
	51.62	141.25	79	E 25	MSS–E25 R/L 35–FX3.1	MSS–E25 R/L 90–2525 L
	51.62	141.35	79	E 25	MSS–E25 R/L 35–FX4.1	MSS–E25 R/L 90–2525 L
	51.62	141.45	79	E 25	MSS–E25 R/L 35–FX5.1	MSS–E25 R/L 90–2525 L
	51.62	141.55	79	E 25	MSS–E25 R/L 35–FX6.5	MSS–E25 R/L 90–2525 L
	58.62	161.25	100	E 32	MSS–E32 R/L 45–FX3.1	MSS–E32 R/L 90–3225 N
	58.62	161.35	100	E 32	MSS–E32 R/L 45–FX4.1	MSS–E32 R/L 90–3225 N
	58.62	161.45	100	E 32	MSS–E32 R/L 45–FX5.1	MSS–E32 R/L 90–3225 N
	58.62	161.55	100	E 32	MSS–E32 R/L 45–FX6.5	MSS–E32 R/L 90–3225 N
	79.00	162.40	100	E 32	MSS–E32N45–LX	MSS–E32 R/L 90–3225 N

Assembly parts

		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	
	Clamping screw for LX grooving inserts	FS 1217 (Torx 20)			
	Tightening torque	2.0 Nm			

Accessories

		where s = 2.2 mm	where s = 3.1-6.5 mm		
	Mounting wrench for FX grooving inserts	FS 1494	FS 1493		
	Wrench for LX grooving inserts	FS 1048 (Torx 20)			

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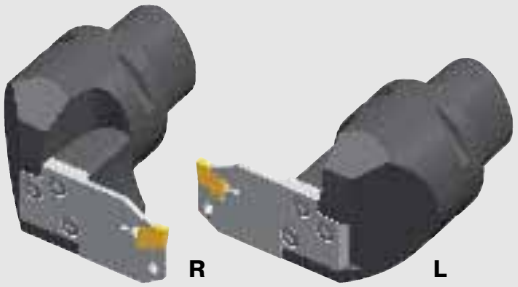
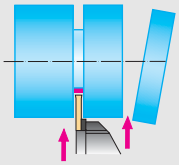
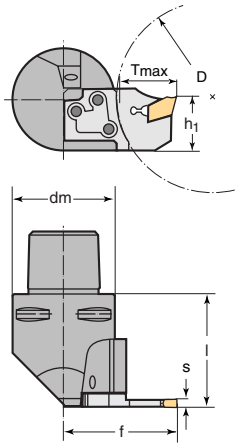




Tool	T_{max}* mm	s mm	h = h_1 mm	dm mm	Complete tool** designation	Type	
	**20**	**2.2**	20	32	NCME 20–C300 R/L–FX22–20	FX 2.2 ...	
			25	40	NCME 25–C400 R/L–FX22–20		
			25	50	NCME 25–C500 R/L–FX22–20		
		3.1	20	32	NCME 20–C300 R/L–FX31–20	FX 3.1 ...	
		4.1	20	32	NCME 20–C300 R/L–FX41–20	FX 4.1 ...	
	25	**3.1**	25	40	NCME 25–C400 R/L–FX31–25	FX 3.1 ...	
			25	50	NCME 25–C500 R/L–FX31–25		
		4.1	25	40	NCME 25–C400 R/L–FX41–25	FX 4.1 ...	
			25	50	NCME 25–C500 R/L–FX41–25		
		5.1	25	40	NCME 25–C400 R/L–FX51–25	FX 5.1 ...	
			25	50	NCME 25–C500 R/L–FX51–25		
	32	**3.1**	32	63	NCME 32–C600 R/L–FX31–32	FX 3.1 ...	
		4.1	32	63	NCME 32–C600 R/L–FX41–32	FX 4.1 ...	
		5.1	32	63	NCME 32–C600 R/L–FX51–32	FX 5.1 ...	
		6.5	32	63	NCME 32–C600 R/L–FX65–32	FX 6.5 ...	
		8.0	32	63	NCME 32–C600 R/L–LX80–32	LX – ...[1]	
	35	**3.1**	25	40	NCME 25–C400 R/L–FX31–35	FX 3.1 ...	
			25	50	NCME 25–C500 R/L–FX31–35		
		4.1	25	40	NCME 25–C400 R/L–FX41–35	FX 4.1 ...	
			25	50	NCME 25–C500 R/L–FX41–35		
		5.1	25	50	NCME 25–C500 R/L–FX51–35	FX 5.1 ...	
	45	**3.1**	32	63	NCME 32–C600 R/L–FX31–45	FX 3.1 ...	
		4.1	32	63	NCME 32–C600 R/L–FX41–45	FX 4.1 ...	
		5.1	32	63	NCME 32–C600 R/L–FX51–45	FX 5.1 ...	
		6.5	32	63	NCME 32–C600 R/L–FX65–45	FX 6.5 ...	
		8.0	32	63	NCME 32–C600 R/L–LX80–45	LX – ...[1]	

WALTER CAPTO

* T_{max} for larger diameters than D, see Technical information page 227.
** Bodies and assembly parts are included in the scope of delivery.
[1] indexable insert also clamped by means of clamping screw.

Order example:
right-hand complete tool: NCME 20–C300 **R**–FX22–20 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCME 20–C300 **L**–FX22 –20 (= right-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for grooving and parting off

NCME

Radial grooving 90°

External application

	f mm	l mm	D mm	Module size	**Grooving module** designation	**Toolholder** designation
	42.00	36.68	63	E 20	MSS–E20 R/L 20–FX2.2	C3–MSS–E20 R/L 90
	42.00	54.68	79	E 25	MSS–E25 R/L 20–FX2.2	C4–MSS–E25 R/L 90
	47.00	54.68	79	E 25	MSS–E25 R/L 20–FX2.2	C5–MSS–E25 R/L 90
	46.62	36.75	63	E 20	MSS–E20 R/L 20–FX3.1	C3–MSS–E20 R/L 90
	46.62	36.85	63	E 20	MSS–E20 R/L 20–FX4.1	C3–MSS–E20 R/L 90
	46.62	54.75	79	E 25	MSS–E25 R/L 25–FX3.1	C4–MSS–E25 R/L 90
	51.62	54.75	79	E 25	MSS–E25 R/L 25–FX3.1	C5–MSS–E25 R/L 90
	46.62	54.85	79	E 25	MSS–E25 R/L 25–FX4.1	C4–MSS–E25 R/L 90
	51.62	54.85	79	E 25	MSS–E25 R/L 25–FX4.1	C5–MSS–E25 R/L 90
	46.62	54.95	79	E 25	MSS–E25 R/L 25–FX5.1	C4–MSS–E25 R/L 90
	51.62	54.95	79	E 25	MSS–E25 R/L 25–FX5.1	C5–MSS–E25 R/L 90
	53.62	63.25	100	E 32	MSS–E32 R/L 32–FX3.1	C6–MSS–E32 R/L 90
	53.62	63.35	100	E 32	MSS–E32 R/L 32–FX4.1	C6–MSS–E32 R/L 90
	53.62	63.45	100	E 32	MSS–E32 R/L 32–FX5.1	C6–MSS–E32 R/L 90
	53.62	63.55	100	E 32	MSS–E32 R/L 32–FX6.5	C6–MSS–E32 R/L 90
	61.00	64.40	100	E 32	MSS–E32 N 32–LX	C6–MSS–E32 R/L 90
	46.62	54.75	79	E 25	MSS–E25 R/L 35–FX3.1	C4–MSS–E25 R/L 90
	51.62	54.75	79	E 25	MSS–E25 R/L 35–FX3.1	C5–MSS–E25 R/L 90
	46.62	54.85	79	E 25	MSS–E25 R/L 35–FX4.1	C4–MSS–E25 R/L 90
	51.62	54.85	79	E 25	MSS–E25 R/L 35–FX4.1	C5–MSS–E25 R/L 90
	51.62	54.95	79	E 25	MSS–E25 R/L 35–FX5.1	C5–MSS–E25 R/L 90
	53.62	63.25	100	E 32	MSS–E32 R/L 45–FX3.1	C6–MSS–E32 R/L 90
	53.62	63.35	100	E 32	MSS–E32 R/L 45–FX4.1	C6–MSS–E32 R/L 90
	53.62	63.45	100	E 32	MSS–E32 R/L 45–FX5.1	C6–MSS–E32 R/L 90
	53.62	63.55	100	E 32	MSS–E32 R/L 45–FX6.5	C6–MSS–E32 R/L 90
	74.00	64.40	100	E 32	MSS–E32 N 45–LX	C6–MSS–E32 R/L 90

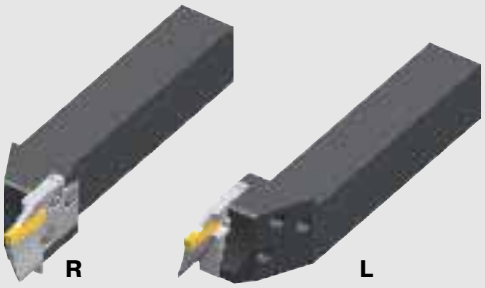
Assembly parts

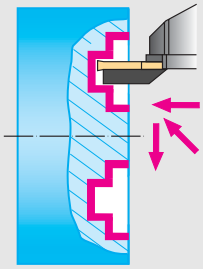
		for module size E 20	E 25	E 32
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)
	Clamping screw for LX grooving inserts	FS 1217 (Torx 20)		
	Tightening torque	2.0 Nm		

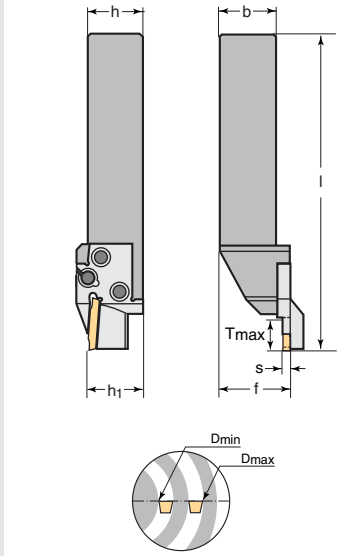
Accessories

		where s = 2.2 mm	where s = 3.1-6.5 mm
	Mounting wrench for FX grooving inserts	FS 1494	FS 1493
	Wrench for LX grooving inserts	FS 1048 (Torx 20)	

→ 58 | → 684 | → 226 | → 224





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type
	**14**	**3.0–3.5**	**50–70**	20	20	NCEE 20–2020 R/L–GX 24–2–1	GX 24–2 …
			70–100	20	20	NCEE 20–2020 R/L–GX 24–2–2	
			100–150	20	20	NCEE 20–2020 R/L–GX 24–2–3	
	15	**3.0–3.5**	**50–70**	25	25	NCEE 25–2525 R/L–GX 24–2–1	GX 24–2 …
			70–100	25	25	NCEE 25–2525 R/L–GX 24–2–2	
			100–150	25	25	NCEE 25–2525 R/L–GX 24–2–3	
		4.0–5.0	**50–70**	25	25	NCEE 25–2525 R/L–GX 24–3–1	GX 24–3 …
			70–100	25	25	NCEE 25–2525 R/L–GX 24–3–2	
				32	25	NCEE 32–3225 R/L–GX 24–3–2	
			100–150	25	25	NCEE 25–2525 R/L–GX 24–3–3	
				32	25	NCEE 32–3225 R/L–GX 24–3–3	
			150–300	25	25	NCEE 25–2525 R/L–GX 24–3–4	
				32	25	NCEE 32–3225 R/L–GX 24–3–4	
		6.0	**50–70**	25	25	NCEE 25–2525 R/L–GX 24–4–1	GX 24–4 …
			70–100	25	25	NCEE 25–2525 R/L–GX 24–4–2	
				32	25	NCEE 32–3225 R/L–GX 24–4–2	
			100–150	25	25	NCEE 25–2525 R/L–GX 24–4–3	
				32	25	NCEE 32–3225 R/L–GX 24–4–3	
			150–300	25	25	NCEE 25–2525 R/L–GX 24–4–4	
				32	25	NCEE 32–3225 R/L–GX 24–4–4	
			300–900	32	25	NCEE 32–3225 R/L–GX 24–4–5	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCEE 20–2020 **R**–GX 24–2–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCEE 20–2020 **L**–GX 24–2–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for axial grooving and facing

NCEE

Axial grooving 0°

External application

	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	24.55	132		E 20	MSS–E20 R/L 14–GX 24–2 A 5070	MSS–E20 R/L 00–2020 J
	24.55	132		E 20	MSS–E20 R/L 14–GX 24–2 A 70100	MSS–E20 R/L 00–2020 J
	24.55	132		E 20	MSS–E20 R/L 14–GX 24–2 A 100150	MSS–E20 R/L 00–2020 J
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	MSS–E25 R/L 00–2525 L
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	MSS–E25 R/L 00–2525 L
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	MSS–E25 R/L 00–2525 L
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	MSS–E25 R/L 00–2525 L
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–3 A 70100	MSS–E32 R/L 00–3225 N
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–3 A 100150	MSS–E32 R/L 00–3225 N
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–3 A 150300	MSS–E32 R/L 00–3225 N
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	MSS–E25 R/L 00–2525 L
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–4 A 70100	MSS–E32 R/L 00–3225 N
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–4 A 100150	MSS–E32 R/L 00–3225 N
	31.40	162		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	MSS–E25 R/L 00–2525 L
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–4 A 150300	MSS–E32 R/L 00–3225 N
	31.40	182		E 32	MSS–E32 R/L 15–GX 24–4 A 300900	MSS–E32 R/L 00–3225 N

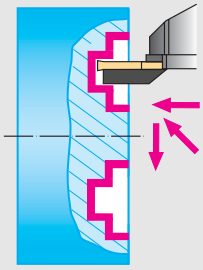
Assembly parts

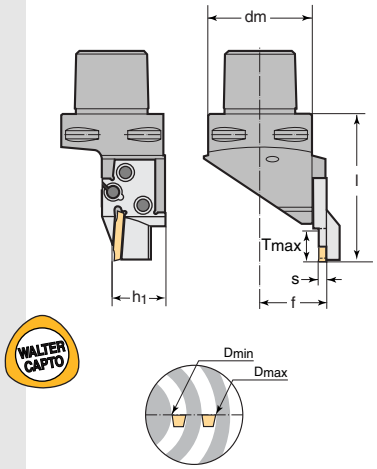
		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

→ 54 | → 684 | → 226 | → 222







Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	**14**	**3.0–3.5**	**50–70**	20	32	NCEE 20–C300 R/L–GX 24–2–1	GX 24–2 …
			70–100	20	32	NCEE 20–C300 R/L–GX 24–2–2	
			100–150	20	32	NCEE 20–C300 R/L–GX 24–2–3	
	15	**3.0–3.5**	**50–70**	25	40	NCEE 25–C400 R/L–GX 24–2–1	GX 24–2 …
				25	50	NCEE 25–C500 R/L–GX 24–2–1	
			70–100	25	40	NCEE 25–C400 R/L–GX 24–2–2	
				25	50	NCEE 25–C500 R/L–GX 24–2–2	
			100–150	25	40	NCEE 25–C400 R/L–GX 24–2–3	
				25	50	NCEE 25–C500 R/L–GX 24–2–3	
		4.0–5.0	**50–70**	25	40	NCEE 25–C400 R/L–GX 24–3–1	GX 24–3 …
				25	50	NCEE 25–C500 R/L–GX 24–3–1	
			70–100	25	40	NCEE 25–C400 R/L–GX 24–3–2	
				25	50	NCEE 25–C500 R/L–GX 24–3–2	
				32	63	NCEE 32–C600 R/L–GX 24–3–2	
			100–150	25	40	NCEE 25–C400 R/L–GX 24–3–3	
				25	50	NCEE 25–C500 R/L–GX 24–3–3	
				32	63	NCEE 32–C600 R/L–GX 24–3–3	
			150–300	25	40	NCEE 25–C400 R/L–GX 24–3–4	
				25	50	NCEE 25–C500 R/L–GX 24–3–4	
				32	63	NCEE 32–C600 R/L–GX 24–3–4	
		6.0	**50–70**	25	40	NCEE 25–C400 R/L–GX 24–4–1	GX 24–4 …
				25	50	NCEE 25–C500 R/L–GX 24–4–1	
			70–100	25	40	NCEE 25–C400 R/L–GX 24–4–2	
				25	50	NCEE 25–C500 R/L–GX 24–4–2	
				32	63	NCEE 32–C600 R/L–GX 24–4–2	
			100–150	25	40	NCEE 25–C400 R/L–GX 24–4–3	
				25	50	NCEE 25–C500 R/L–GX 24–4–3	
				32	63	NCEE 32–C600 R/L–GX 24–4–3	
			150–300	25	40	NCEE 25–C400 R/L–GX 24–4–4	
				25	50	NCEE 25–C500 R/L–GX 24–4–4	
				32	63	NCEE 32–C600 R/L–GX 24–4–4	
			300–900	32	63	NCEE 32–C600 R/L–GX 24–4–5	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCEE 20–C300 **R**–GX 24–2–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCEE 20–C300 **L**–GX 24–2–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for grooving and parting off

NCEE

Axial grooving 0°

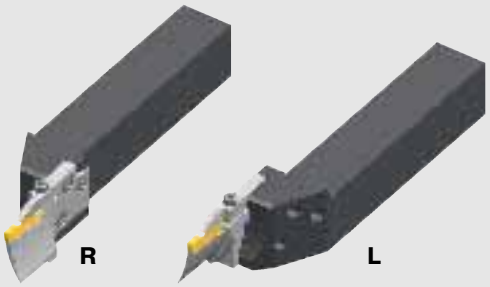
External application

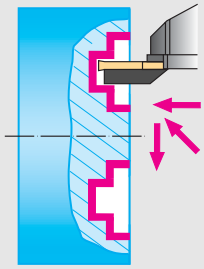
f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
20.4	58.5		E 20	MSS–E20 R/L 14–GX 24–2 A 5070	C3–MSS–E20 R/L 00
20.4	58.5		E 20	MSS–E20 R/L 14–GX 24–2 A 70100	C3–MSS–E20 R/L 00
20.4	58.5		E 20	MSS–E20 R/L 14–GX 24–2 A 100150	C3–MSS–E20 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	C5–MSS–E25 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	C5–MSS–E25 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	C5–MSS–E25 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	C5–MSS–E25 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–3 A 70100	C6–MSS–E32 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–3 A 100150	C6–MSS–E32 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–3 A 150300	C6–MSS–E32 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	C5–MSS–E25 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–4 A 70100	C6–MSS–E32 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–4 A 100150	C6–MSS–E32 R/L 00
26.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	C4–MSS–E25 R/L 00
31.4	69.5		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	C5–MSS–E25 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–4 A 150300	C6–MSS–E32 R/L 00
37.4	75.5		E 32	MSS–E32 R/L 15–GX 24–4 A 300900	C6–MSS–E32 R/L 00

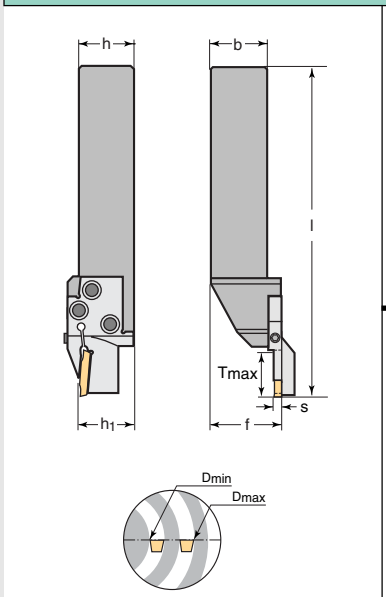
Assembly parts

		for module size E 20	E 25	E 32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type	
	**21**	**4.0–5.0**	**50–70**	25	25	NCFE 25–2525 R/L–GX 24–3–1	GX 24–3 …	
			70–100	25	25	NCFE 25–2525 R/L–GX 24–3–2		
			100–150	25	25	NCFE 25–2525 R/L–GX 24–3–3		
			150–300	25	25	NCFE 25–2525 R/L–GX 24–3–4		
		6.0	**50–70**	25	25	NCFE 25–2525 R/L–GX 24–4–1	GX 24–4 …	
			70–100	25	25	NCFE 25–2525 R/L–GX 24–4–2		
			100–150	25	25	NCFE 25–2525 R/L–GX 24–4–3		
			150–300	25	25	NCFE 25–2525 R/L–GX 24–4–4		

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCFE 25–2525 **R**–GX 24–3–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCFE 25–2525 **L**–GX 24–3–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for deep axial grooving and facing

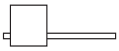
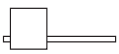
NCFE

Axial grooving 0°

External application

	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	MSS–E25 R/L 00–2525 L

Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

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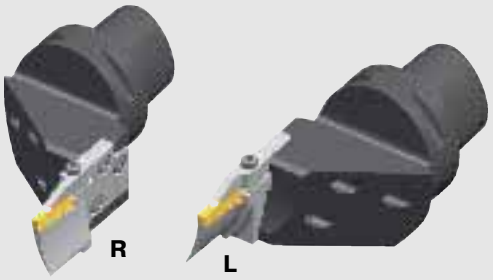
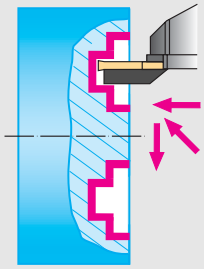
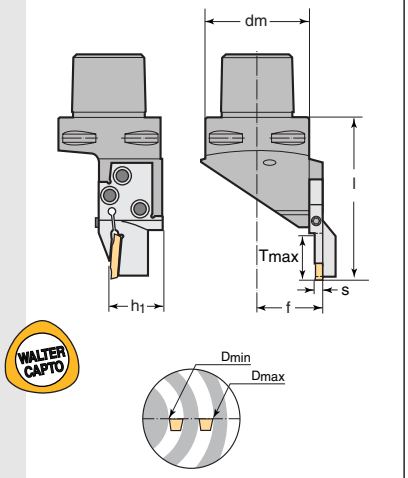




Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	21	4.0–5.0	50–70	25	40	NCFE 25–C400 R/L–GX 24–3–1	GX 24–3 …
				25	50	NCFE 25–C500 R/L–GX 24–3–1	
			70–100	25	40	NCFE 25–C400 R/L–GX 24–3–2	
				25	50	NCFE 25–C500 R/L–GX 24–3–2	
			100–150	25	40	NCFE 25–C400 R/L–GX 24–3–3	
				25	50	NCFE 25–C500 R/L–GX 24–3–3	
			150–300	25	40	NCFE 25–C400 R/L–GX 24–3–4	
				25	50	NCFE 25–C500 R/L–GX 24–3–4	
		6.0	50–70	25	40	NCFE 25–C400 R/L–GX 24–4–1	GX 24–4 …
				25	50	NCFE 25–C500 R/L–GX 24–4–1	
			70–100	25	40	NCFE 25–C400 R/L–GX 24–4–2	
				25	50	NCFE 25–C500 R/L–GX 24–4–2	
			100–150	25	40	NCFE 25–C400 R/L–GX 24–4–3	
				25	50	NCFE 25–C500 R/L–GX 24–4–3	
			150–300	25	40	NCFE 25–C400 R/L–GX 24–4–4	
				25	50	NCFE 25–C500 R/L–GX 24–4–4	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCFE 25–C400 **R**–GX 24–3–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCFE 25–C400 **L**–GX 24–3–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for deep axial grooving and facing

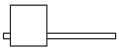
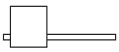
NCFE

Axial grooving 0°

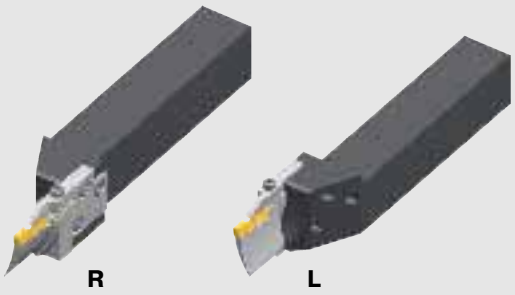
External application

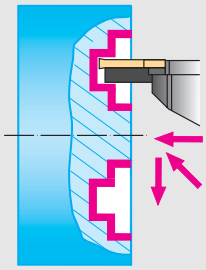
	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	C5–MSS–E25 R/L 20
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	C4–MSS–E25 R/L 20
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	C5–MSS–E25 R/L 20

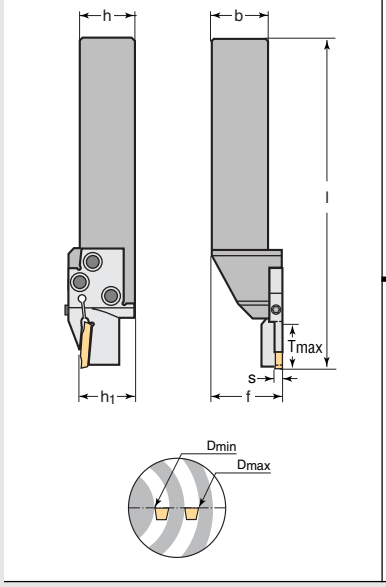
Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type	
	**21**	**4.0–5.0**	**50–70**	25	25	NCFE 25–2525 R/L–GX 24–3–1 C	GX 24–3 …	
			70–100	25	25	NCFE 25–2525 R/L–GX 24–3–2 C		
			100–150	25	25	NCFE 25–2525 R/L–GX 24–3–3 C		
			150–300	25	25	NCFE 25–2525 R/L–GX 24–3–4 C		
		6.0	**50–70**	25	25	NCFE 25–2525 R/L–GX 24–4–1 C	GX 24–4 …	
			70–100	25	25	NCFE 25–2525 R/L–GX 24–4–2 C		
			100–150	25	25	NCFE 25–2525 R/L–GX 24–4–3 C		
			150–300	25	25	NCFE 25–2525 R/L–GX 24–4–4 C		

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCFE 25–2525 **R**–GX 24–3–1 C (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCFE 25–2525 **L**–GX 24–3–1 C (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for deep axial grooving and facing

Contra design

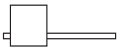
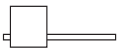
NCFE–C

Axial grooving 0°

External application

	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	MSS–E25 R/L 00–2525 L
	31.4	175		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	MSS–E25 R/L 00–2525 L

Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

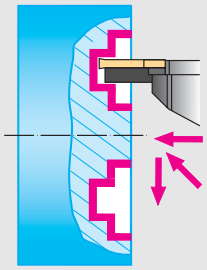
→ 54 | → 684 | → 226 | → 222

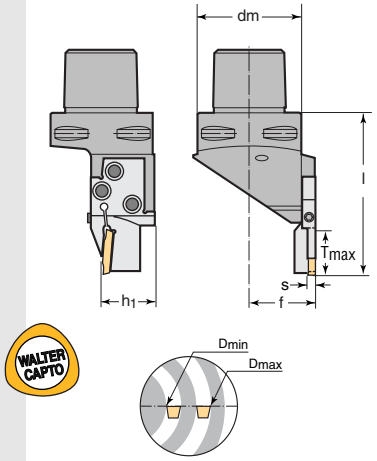


R



L



Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	21	4.0–5.0	50–70	25	40	NCFE 25–C400 R/L–GX 24–3–1 C	GX 24–3 …
				25	50	NCFE 25–C500 R/L–GX 24–3–1 C	
			70–100	25	40	NCFE 25–C400 R/L–GX 24–3–2 C	
				25	50	NCFE 25–C500 R/L–GX 24–3–2 C	
			100–150	25	40	NCFE 25–C400 R/L–GX 24–3–3 C	
				25	50	NCFE 25–C500 R/L–GX 24–3–3 C	
			150–300	25	40	NCFE 25–C400 R/L–GX 24–3–4 C	
				25	50	NCFE 25–C500 R/L–GX 24–3–4 C	
		6.0	50–70	25	40	NCFE 25–C400 R/L–GX 24–4–1 C	GX 24–4 …
				25	50	NCFE 25–C500 R/L–GX 24–4–1 C	
			70–100	25	40	NCFE 25–C400 R/L–GX 24–4–2 C	
				25	50	NCFE 25–C500 R/L–GX 24–4–2 C	
			100–150	25	40	NCFE 25–C400 R/L–GX 24–4–3 C	
				25	50	NCFE 25–C500 R/L–GX 24–4–3 C	
			150–300	25	40	NCFE 25–C400 R/L–GX 24–4–4 C	
				25	50	NCFE 25–C500 R/L–GX 24–4–4 C	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCFE 25–C400 **R**–GX 24–3–1 C (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCFE 25–C400 **L**–GX 24–3–1 C (= right-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for deep axial grooving and facing

Contra design

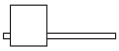
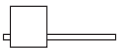
NCFE–C

Axial grooving 0°

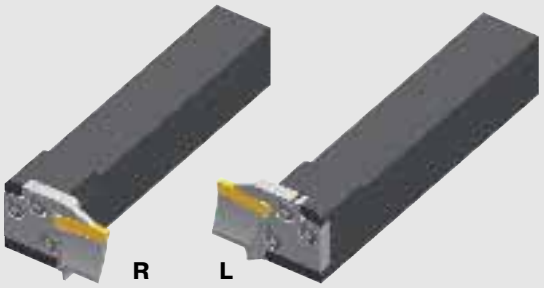
External application

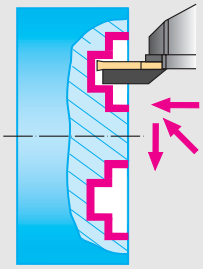
	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 5070	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 70100	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 100150	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 21–GX 24–3 AS 150300	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 5070	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 70100	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 100150	C5–MSS–E25 R/L 00
	26.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	C4–MSS–E25 R/L 00
	31.4	82.5		E 25	MSS–E25 R/L 25–GX 24–4 AS 150300	C5–MSS–E25 R/L 00

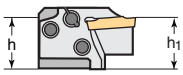
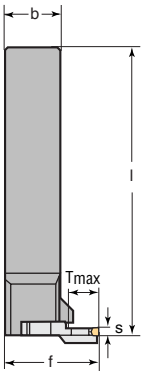
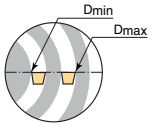
Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type
	**14**	**3.0–3.5**	**50–70**	20	20	NCHE 20–2020 R/L–GX 24–2–1	GX 24–2 ...
			70–100	20	20	NCHE 20–2020 R/L–GX 24–2–2	
			100–150	20	20	NCHE 20–2020 R/L–GX 24–2–3	
	**15**	**3.0–3.5**	**50–70**	25	25	NCHE 25–2525 R/L–GX 24–2–1	GX 24–2 ...
			70–100	25	25	NCHE 25–2525 R/L–GX 24–2–2	
			100–150	25	25	NCHE 25–2525 R/L–GX 24–2–3	
		4.0–5.0	**50–70**	25	25	NCHE 25–2525 R/L–GX 24–3–1	GX 24–3 ...
			70–100	25	25	NCHE 25–2525 R/L–GX 24–3–2	
				32	25	NCHE 32–3225 R/L–GX 24–3–2	
			100–150	25	25	NCHE 25–2525 R/L–GX 24–3–3	
				32	25	NCHE 32–3225 R/L–GX 24–3–3	
			150–300	25	25	NCHE 25–2525 R/L–GX 24–3–4	
				32	25	NCHE 32–3225 R/L–GX 24–3–4	
		**6.0**	**50–70**	25	25	NCHE 25–2525 R/L–GX 24–4–1	GX 24–4 ...
			70–100	25	25	NCHE 25–2525 R/L–GX 24–4–2	
				32	25	NCHE 32–3225 R/L–GX 24–4–2	
			100–150	25	25	NCHE 25–2525 R/L–GX 24–4–3	
				32	25	NCHE 32–3225 R/L–GX 24–4–3	
			150–300	25	25	NCHE 25–2525 R/L–GX 24–4–4	
				32	25	NCHE 32–3225 R/L–GX 24–4–4	
			300–900	32	25	NCHE 32–3225 R/L–GX 24–4–5	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCHE 20–2020 **R**–GX 24–2–1 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCHE 20–2020 **L**–GX 24–2–1 (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for axial grooving and facing

NCHE

Axial grooving 90°

External application

f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
42	≈ 110		E 20	MSS–E20 R/L 14–GX 24–2 A 5070	MSS–E20 R/L 90–2020 J
42	≈ 110		E 20	MSS–E20 R/L 14–GX 24–2 A 70100	MSS–E20 R/L 90–2020 J
42	≈ 110		E 20	MSS–E20 R/L 14–GX 24–2 A 100150	MSS–E20 R/L 90–2020 J
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	MSS–E25 R/L 90–2525 L
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	MSS–E25 R/L 90–2525 L
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	MSS–E25 R/L 90–2525 L
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	MSS–E25 R/L 90–2525 L
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–3 A 70100	MSS–E32 R/L 90–3225 N
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–3 A 100150	MSS–E32 R/L 90–3225 N
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–3 A 150300	MSS–E32 R/L 90–3225 N
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	MSS–E25 R/L 90–2525 L
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–4 A 70100	MSS–E32 R/L 90–3225 N
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–4 A 100150	MSS–E32 R/L 90–3225 N
47	≈ 140		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	MSS–E25 R/L 90–2525 L
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–4 A 150300	MSS–E32 R/L 90–3225 N
54	≈ 160		E 32	MSS–E32 R/L 15–GX 24–4 A 300900	MSS–E32 R/L 90–3225 N

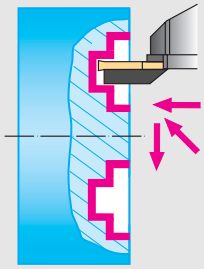
Assembly parts

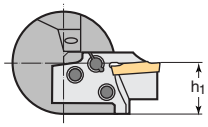
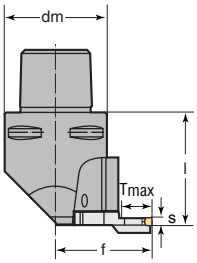
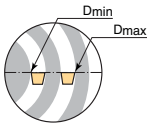
		for module size E 20	E 25	E32	
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)	
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm	
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)	

→ 54 | → 684 | → 226 | → 222







Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	**14**	**3.0–3.5**	**50–70**	20	32	NCHE 20–C300 R/L–GX 24–2–1	GX 24–2 …
			70–100	20	32	NCHE 20–C300 R/L–GX 24–2–2	
			100–150	20	32	NCHE 20–C300 R/L–GX 24–2–3	
	**15**	**3.0–3.5**	**50–70**	25	40	NCHE 25–C400 R/L–GX 24–2–1	GX 24–2 …
			50–70	25	50	NCHE 25–C500 R/L–GX 24–2–1	
			70–100	25	40	NCHE 25–C400 R/L–GX 24–2–2	
			70–100	25	50	NCHE 25–C500 R/L–GX 24–2–2	
			100–150	25	40	NCHE 25–C400 R/L–GX 24–2–3	
			100–150	25	50	NCHE 25–C500 R/L–GX 24–2–3	
		4.0–5.0	**50–70**	25	40	NCHE 25–C400 R/L–GX 24–3–1	GX 24–3 …
			50–70	25	50	NCHE 25–C500 R/L–GX 24–3–1	
			70–100	25	40	NCHE 25–C400 R/L–GX 24–3–2	
			70–100	25	50	NCHE 25–C500 R/L–GX 24–3–2	
			70–100	25	63	NCHE 32–C600 R/L–GX 24–3–2	
			100–150	25	40	NCHE 25–C400 R/L–GX 24–3–3	
			100–150	25	50	NCHE 25–C500 R/L–GX 24–3–3	
			100–150	25	63	NCHE 32–C600 R/L–GX 24–3–3	
			150–300	25	40	NCHE 25–C400 R/L–GX 24–3–4	
			150–300	25	50	NCHE 25–C500 R/L–GX 24–3–4	
			150–300	25	63	NCHE 32–C600 R/L–GX 24–3–4	
		**6.0**	**50–70**	25	40	NCHE 25–C400 R/L–GX 24–4–1	GX 24–4 …
			50–70	25	50	NCHE 25–C500 R/L–GX 24–4–1	
			70–100	25	40	NCHE 25–C400 R/L–GX 24–4–2	
			70–100	25	50	NCHE 25–C500 R/L–GX 24–4–2	
			70–100	25	63	NCHE 32–C600 R/L–GX 24–4–2	
			100–150	25	40	NCHE 25–C400 R/L–GX 24–4–3	
			100–150	25	50	NCHE 25–C500 R/L–GX 24–4–3	
			100–150	25	63	NCHE 32–C600 R/L–GX 24–4–3	
			150–300	25	40	NCHE 25–C400 R/L–GX 24–4–4	
			150–300	25	50	NCHE 25–C500 R/L–GX 24–4–4	
			150–300	25	63	NCHE 32–C600 R/L–GX 24–4–4	
			300–900	25	63	NCHE 32–C600 R/L–GX 24–4–5	

WALTER CAPTO

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCHE 20–C300 **R**–GX 24–2–1 (= left-hand grooving module + right-hand toolholder)
left-hand complete tool: NCHE 20–C300 **L**–GX 24–2–1 (= right-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for axial grooving and facing

NCHE

Axial grooving 90°

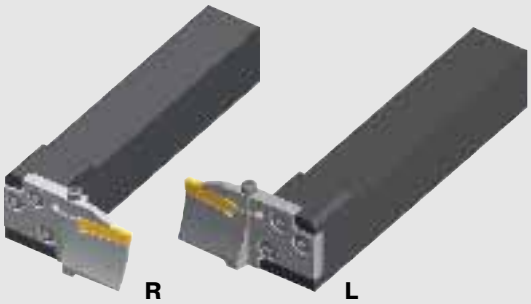
External application

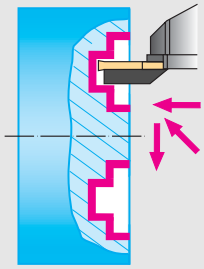
f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
42	36.4		E 20	MSS–E20 R/L 14–GX 24–2 A 5070	C3–MSS–E20 R/L 90
42	36.4		E 20	MSS–E20 R/L 14–GX 24–2 A 70100	C3–MSS–E20 R/L 90
42	36.4		E 20	MSS–E20 R/L 14–GX 24–2 A 100150	C3–MSS–E20 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 5070	C5–MSS–E25 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 70100	C5–MSS–E25 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–2 A 100150	C5–MSS–E25 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 5070	C5–MSS–E25 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 70100	C5–MSS–E25 R/L 90
49	62.9		E 25	MSS–E32 R/L 15–GX 24–3 A 70100	C6–MSS–E32 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 100150	C5–MSS–E25 R/L 90
49	62.9		E 25	MSS–E32 R/L 15–GX 24–3 A 100150	C6–MSS–E32 R/L 90
42	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	C4–MSS–E25 R/L 90
47	54.4		E 25	MSS–E25 R/L 15–GX 24–3 A 150300	C5–MSS–E25 R/L 90
49	62.9		E 25	MSS–E32 R/L 15–GX 24–3 A 150300	C6–MSS–E32 R/L 90
42*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	C4–MSS–E25 R/L 90
47*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 5070	C5–MSS–E25 R/L 90
42*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	C4–MSS–E25 R/L 90
47*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 70100	C5–MSS–E25 R/L 90
49*	62.9		E 25	MSS–E32 R/L 15–GX 24–4 A 70100	C6–MSS–E32 R/L 90
42*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	C4–MSS–E25 R/L 90
47*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 100150	C5–MSS–E25 R/L 90
49*	62.9		E 25	MSS–E32 R/L 15–GX 24–4 A 100150	C6–MSS–E32 R/L 90
42*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	C4–MSS–E25 R/L 90
47*	54.4		E 25	MSS–E25 R/L 15–GX 24–4 A 150300	C5–MSS–E25 R/L 90
49*	62.9		E 25	MSS–E32 R/L 15–GX 24–4 A 150300	C6–MSS–E32 R/L 90
49*	62.9		E 25	MSS–E32 R/L 15–GX 24–4 A 300900	C6–MSS–E32 R/L 90

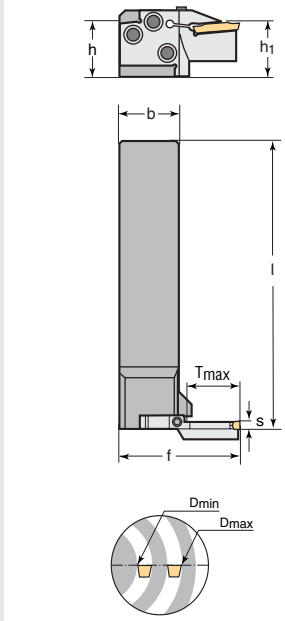
Assembly parts

		for module size E 20	E 25	E32
	Screw	FS 1053 (Torx 15)	FS 1054 (Torx 20)	FS 1055 (Torx 25)
	Tightening torque	2.0 Nm	3.0 Nm	3.0 Nm
	Wrench	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1049 (Torx 25)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	Complete tool** designation	Type	
	21	4.0–5.0	50–70	25	25	NCOE 25–2525 R/L–GX 24–3–1	GX 24–3 ...	
			70–100	25	25	NCOE 25–2525 R/L–GX 24–3–2		
			100–150	25	25	NCOE 25–2525 R/L–GX 24–3–3		
			150–300	25	25	NCOE 25–2525 R/L–GX 24–3–4		
		6.0	50–70	25	25	NCOE 25–2525 R/L–GX 24–4–1	GX 24–4 ...	
			70–100	25	25	NCOE 25–2525 R/L–GX 24–4–2		
			100–150	25	25	NCOE 25–2525 R/L–GX 24–4–3		
			150–300	25	25	NCOE 25–2525 R/L–GX 24–4–4		

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCOE 25–2525 **R**–GX 24–3–1 (= left-hand grooving module + right-hand toolholder
left-hand complete tool: NCOE 25–2525 **L**–GX 24–3–1 (= right-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for deep axial grooving and facing

NCOE

Axial grooving 90°

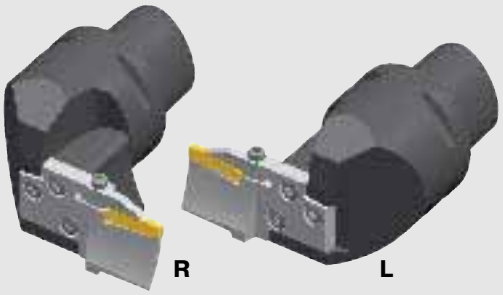
External application

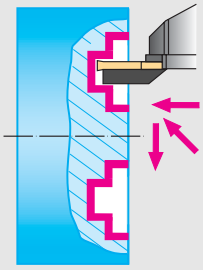
	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 5070	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 70100	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 100150	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 150300	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 5070	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 70100	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 100150	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 150300	MSS–E25 R/L 90–2525 L

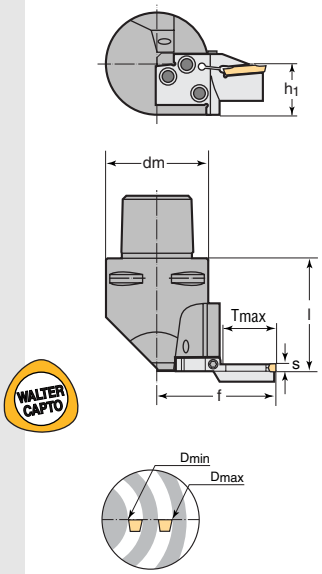
Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	21	4.0–5.0	50–70	25	40	NCOE 25–C400 R/L–GX 24–3–1	GX 24–3 …
				25	50	NCOE 25–C500 R/L–GX 24–3–1	
			70–100	25	40	NCOE 25–C400 R/L–GX 24–3–2	
				25	50	NCOE 25–C500 R/L–GX 24–3–2	
			100–150	25	40	NCOE 25–C400 R/L–GX 24–3–3	
				25	50	NCOE 25–C500 R/L–GX 24–3–3	
			150–300	25	40	NCOE 25–C400 R/L–GX 24–3–4	
				25	50	NCOE 25–C500 R/L–GX 24–3–4	
		6.0	50–70	25	40	NCOE 25–C400 R/L–GX 24–4–1	GX 24–4 …
				25	50	NCOE 25–C500 R/L–GX 24–4–1	
			70–100	25	40	NCOE 25–C400 R/L–GX 24–4–2	
				25	50	NCOE 25–C500 R/L–GX 24–4–2	
			100–150	25	40	NCOE 25–C400 R/L–GX 24–4–3	
				25	50	NCOE 25–C500 R/L–GX 24–4–3	
			150–300	25	40	NCOE 25–C400 R/L–GX 24–4–4	
				25	50	NCOE 25–C500 R/L–GX 24–4–4	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCOE 25–C400 **R**–GX 24–3–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCOE 25–C400 **L**–GX 24–3–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for deep axial grooving and facing

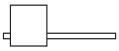
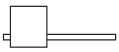
NCOE

Axial grooving 90°

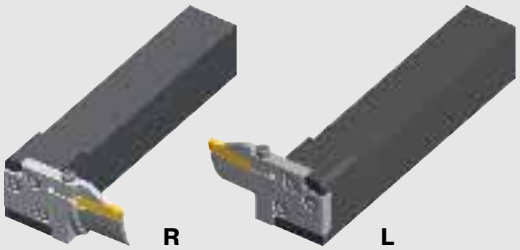
External application

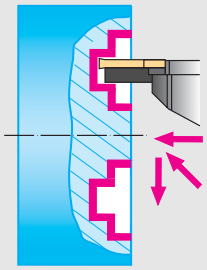
	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 5070	C4–MSS–E25 R/L 90
	47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 5070	C5–MSS–E25 R/L 90
	42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 70100	C4–MSS–E25 R/L 90
	47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 70100	C5–MSS–E25 R/L 90
	42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 100150	C4–MSS–E25 R/L 90
	47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 100150	C5–MSS–E25 R/L 90
	42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 150300	C4–MSS–E25 R/L 90
	47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 150300	C5–MSS–E25 R/L 90
	42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 5070	C4–MSS–E25 R/L 90
	47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 5070	C5–MSS–E25 R/L 90
	42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 70100	C4–MSS–E25 R/L 90
	47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 70100	C5–MSS–E25 R/L 90
	42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 100150	C4–MSS–E25 R/L 90
	47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 100150	C5–MSS–E25 R/L 90
	42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 150300	C4–MSS–E25 R/L 90
	47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 150300	C5–MSS–E25 R/L 90

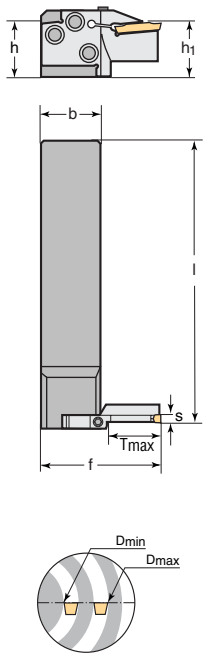
Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	b mm	**Complete tool**** designation	Type	
	21	4.0–5.0	**50–70**	25	25	NCOE 25–2525 R/L–GX 24–3–1 C	GX 24–3 …	
			70–100	25	25	NCOE 25–2525 R/L–GX 24–3–2 C		
			100–150	25	25	NCOE 25–2525 R/L–GX 24–3–3 C		
			150–300	25	25	NCOE 25–2525 R/L–GX 24–3–4 C		
		6.0	**50–70**	25	25	NCOE 25–2525 R/L–GX 24–4–1 C	GX 24–4 …	
			70–100	25	25	NCOE 25–2525 R/L–GX 24–4–2 C		
			100–150	25	25	NCOE 25–2525 R/L–GX 24–4–3 C		
			150–300	25	25	NCOE 25–2525 R/L–GX 24–4–4 C		

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCOE 25–2525 **R**–GX 24–3–1 C (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCOE 25–2525 **L**–GX 24–3–1 C (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for deep axial grooving and facing

Contra design

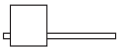
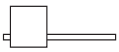
NCOE–C

Axial grooving 90°

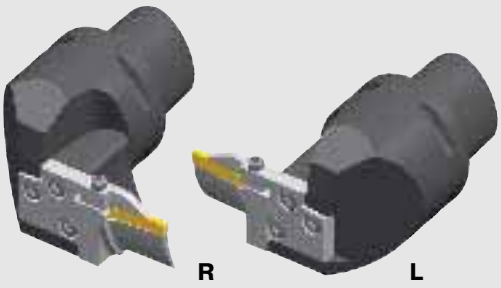
External application

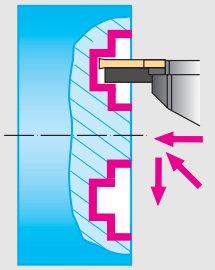
	f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 5070	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 70100	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 100150	MSS–E25 R/L 90–2525 L
	47	141.93		E 25	MSS–E25 R/L 21–GX 24–3C 150300	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 5070	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 70100	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 100150	MSS–E25 R/L 90–2525 L
	47	141.80		E 25	MSS–E25 R/L 25–GX 24–4C 150300	MSS–E25 R/L 90–2525 L

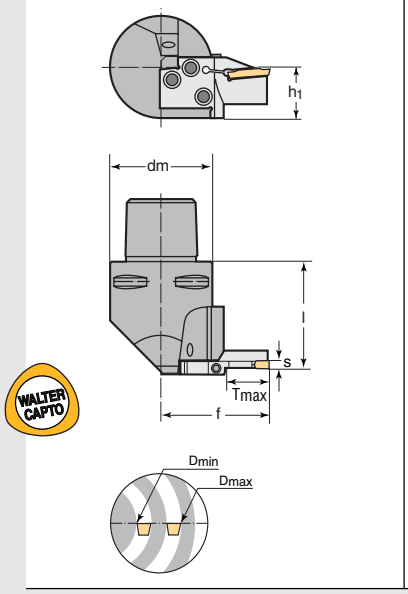
Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	Grooving range D mm	$h = h_1$ mm	dm mm	**Complete tool**** designation	Type
	21	4.0–5.0	50–70	25	40	NCOE 25–C400 R/L–GX 24–3–1 C	GX 24–3 …
				25	50	NCOE 25–C500 R/L–GX 24–3–1 C	
			70–100	25	40	NCOE 25–C400 R/L–GX 24–3–2 C	
				25	50	NCOE 25–C500 R/L–GX 24–3–2 C	
			100–150	25	40	NCOE 25–C400 R/L–GX 24–3–3 C	
				25	50	NCOE 25–C500 R/L–GX 24–3–3 C	
			150–300	25	40	NCOE 25–C400 R/L–GX 24–3–4 C	
				25	50	NCOE 25–C500 R/L–GX 24–3–4 C	
		6.0	50–70	25	40	NCOE 25–C400 R/L–GX 24–4–1 C	GX 24–4 …
				25	50	NCOE 25–C500 R/L–GX 24–4–1 C	
			70–100	25	40	NCOE 25–C400 R/L–GX 24–4–2 C	
				25	50	NCOE 25–C500 R/L–GX 24–4–2 C	
			100–150	25	40	NCOE 25–C400 R/L–GX 24–4–3 C	
				25	50	NCOE 25–C500 R/L–GX 24–4–3 C	
			150–300	25	40	NCOE 25–C400 R/L–GX 24–4–4 C	
				25	50	NCOE 25–C500 R/L–GX 24–4–4 C	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCOE 25–C400 **R**–GX 24–3–1 C (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCOE 25–C400 **L**–GX 24–3–1 C (= left-hand grooving module + left-hand toolholder)

WALTER CUT CAPTO tool

for deep axial grooving and facing

Contra design

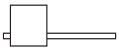
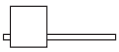
NCOE–C

Axial grooving 90°

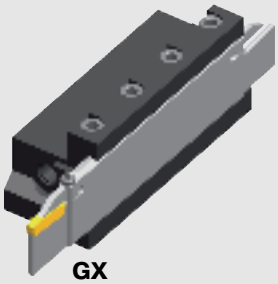
External application

f mm	l mm		Module size	**Grooving module** designation	**Toolholder** designation
42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 5070	C4–MSS–E25 R/L 90
47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 5070	C5–MSS–E25 R/L 90
42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 70100	C4–MSS–E25 R/L 90
47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 70100	C5–MSS–E25 R/L 90
42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 100150	C4–MSS–E25 R/L 90
47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 100150	C5–MSS–E25 R/L 90
42	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 150300	C4–MSS–E25 R/L 90
47	55.43		E 25	MSS–E25 R/L 21–GX 24–3C 150300	C5–MSS–E25 R/L 90
42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 5070	C4–MSS–E25 R/L 90
47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 5070	C5–MSS–E25 R/L 90
42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 70100	C4–MSS–E25 R/L 90
47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 70100	C5–MSS–E25 R/L 90
42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 100150	C4–MSS–E25 R/L 90
47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 100150	C5–MSS–E25 R/L 90
42	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 150300	C4–MSS–E25 R/L 90
47	55.30		E 25	MSS–E25 R/L 25–GX 24–4C 150300	C5–MSS–E25 R/L 90

Assembly parts

	Clamping screw for grooving insert	FS 1342 (Torx 15)
	Tightening torque	1.0 Nm
	Wrench for FS 1342	FS 1047 (Torx 15)
	Clamping screw for grooving module	FS 1054 (Torx 20)
	Tightening torque	3.0 Nm
	Wrench for FS 1054	FS 1048 (Torx 20)

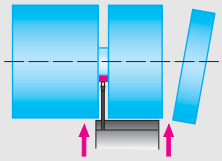
→ 54 | → 684 | → 226 | → 222

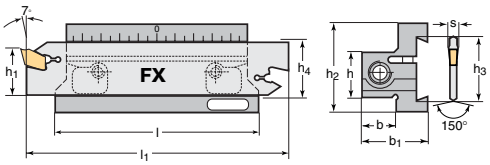


GX



FX



Tool	T_{max} mm	s mm	h mm	b mm	**Complete tool**** designation	Type
	21	**3.0–3.5**	32	29	NCKE 32–3229 N–GX 24–2	GX 24–2 ...[1]
		4.0–5.0	32	29	NCKE 32–3229 N–GX 24–3	GX 24–3 ...[1]
		6.0	32	29	NCKE 32–3229 N–GX 24–4	GX 24–4 ...[1]
	25	**2.2**	20	20	NCKE 26–2020 N–FX 22–50	FX 2.2 ...
	30	**2.2**	25	20	NCKE 32–2520 N–FX 22–60	FX 2.2 ...
			32	29	NCKE 32–3229 N–FX 22–60	
	35	**3.1**	20	20	NCKE 26–2020 N–FX 31–70	FX 3.1 ...
	40	**4.1**	20	20	NCKE 26–2020 N–FX 41–80	FX 4.1 ...
	50	**3.1**	25	20	NCKE 32–2520 N–FX 31–100	FX 3.1 ...
			32	29	NCKE 32–3229 N–FX 31–100	
		4.1	25	20	NCKE 32–2520 N–FX 41–100	FX 4.1 ...
			32	29	NCKE 32–3229 N–FX 41–100	
	55	**5.1**	25	20	NCKE 32–2520 N–FX 51–110	FX 5.1 ...
			32	29	NCKE 32–3229 N–FX 51–110	
		6.5	25	20	NCKE 32–2520 N–FX 65–110	FX 6.5 ...
			32	29	NCKE 32–3229 N–FX 65–110	
	80	**8.0**	32	29	NCKE 46–3229 N–LX 80–160	LX – ...[1]
			40	37	NCKE 46–4037 N–LX 80–160	
		8.2	32	29	NCKE 46–3229 N–FX 82–160	FX 8.2 ...
			40	37	NCKE 46–4037 N–FX 82–160	
		9.7	32	29	NCKE 46–3229 N–FX 97–160	FX 9.7 ...

** Bodies and assembly parts are included in the scope of delivery.
[1] indexable insert also clamped by means of clamping screw.

Order example:
NCKE 32–3229 N–GX 24–2

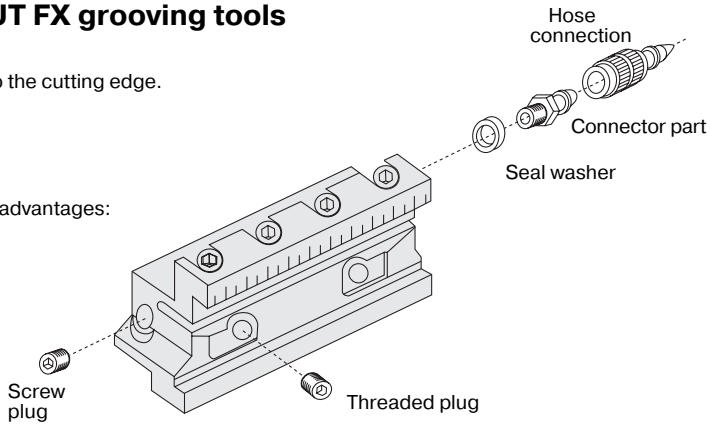
Use of internal coolant set with WALTER CUT FX grooving tools

The coolant flows through the tool block along the blade directly onto the cutting edge.

Recommended coolant pressure: ≥ **1 bar**
Recommended coolant flow rate: ≥ **15 l/min**

Grooving tools with fixing stop and coolant supply have the following advantages:

- improved cooling of the insert and the blade, even in the case of deeper cuts the coolant flow is not diverted by the chip being generated
- longer tool life
- improved surface finish
- exact parting and grooving due to accurate positioning of the cut



WALTER CUT deep grooving tool

NCKE

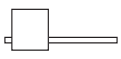
Tools with clamping block and blade
for deep radial grooving

Radial grooving 0°
External application

b_1 mm	h_1 mm	h_2 mm	$h_3 = h_4$* mm	l mm	l_1 mm	**Blade** designation	**Clamping block** designation
44.5	24.2	48	32	120	178.5	XLCFN 3203–GX24–2S	SBN 3229–32–K
44.5	24.2	48	32	120	178.5	XLCFN 3204–GX24–3S	SBN 3229–32–K
44.5	24.2	48	32	120	178.5	XLCFN 3206–GX24–4S	SBN 3229–32–K
33.0	21.1	39	26	90	109	XLCEN 2602 J22–FX	SBN 2020–26–K
36.0	24.8	48	32	110	150	XLCEN 3202 M22–FX	SBN 2520–32–K
44.5	24.8	48	32	120	150	XLCEN 3202 M22–FX	SBN 3229–32–K
33.0	21.0	39	26	90	109	XLCFN 2603 J31–FX	SBN 2020–26–K
33.0	20.9	39	26	90	109	XLCFN 2604 J41–FX	SBN 2020–26–K
36.0	24.6	48	32	110	150	XLCFN 3203 M31–FX	SBN 2520–32–K
44.5	24.6	48	32	120	150	XLCFN 3203 M31–FX	SBN 3229–32–K
36.0	24.5	48	32	110	150	XLCFN 3204 M41–FX	SBN 2520–32–K
44.5	24.5	48	32	120	150	XLCFN 3204 M41–FX	SBN 3229–32–K
36.0	24.4	48	32	110	150	XLCFN 3205 M51–FX	SBN 2520–32–K
44.5	24.4	48	32	120	150	XLCFN 3205 M51–FX	SBN 3229–32–K
36.0	24.3	48	32	110	150	XLCFN 3206 M65–FX	SBN 2520–32–K
44.5	24.3	48	32	120	150	XLCFN 3206 M65–FX	SBN 3229–32–K
44.5	37.0	70	46	150	248	XLCEN 4608–LX	SBN 3229–46–K
60.0	37.0	70	46	150	248	XLCEN 4608–LX	SBN 4037–46–K
44.5	37.0	70	46	150	248	XLCEN 4608 S82–FX	SBN 3229–46–K
60.0	37.0	70	46	150	248	XLCEN 4608 S82–FX	SBN 4037–46–K
44.5	36.8	70	46	150	248	XLCEN 4609 S97–FX	SBN 3229–46–K

* theoretical dimension

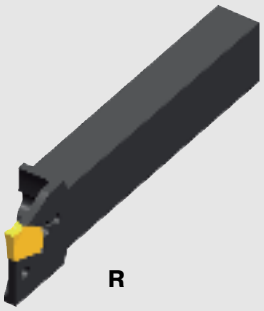
Assembly parts

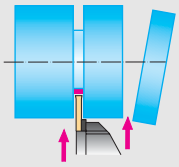
		for grooving insert type GX 24–...	for grooving insert type LX E8 ...	
	Clamping screw for grooving insert	FS 1342 (Torx 15)	FS 1217 (Torx 20)	
	Tightening torque	1.0 Nm	2.0 Nm	
	Torx Key	FS 1047 (Torx 15)	FS 1048 (Torx 20)	

Accessories

		for grooving insert size FX 2.2 ...	FX 3.1 ... – 6.5...	FX 8.2 ... – 9.7...
	Mounting wrench for FX grooving inserts	FS 1494	FS 1493	FS 1493
	DIN 912 clamping screw for blade	M 6 x 25	M 6 x 25	M 8 x 35
	Threaded plug	M 6 x 8	M 6 x 8	M 8 x 10
	Coolant set	FS 1058	FS 1058	FS 1059

→ 54 | → 684 | → 222



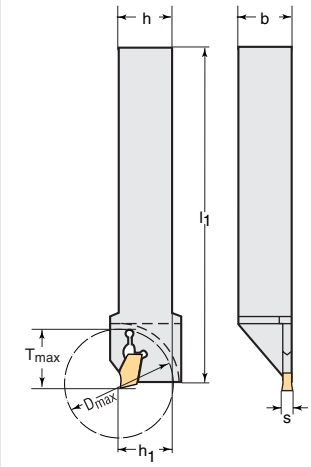


WALTER CUT

one-piece modular tool
for grooving and parting off

XCLE / XCLF

Radial grooving 0°
External application

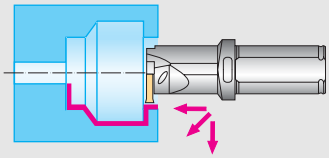
Tool	T_{max} mm	D_{max} mm	s mm	$h=h_1$ mm	b mm	l_1 mm	**Modular tool** designation	Type
	**15**	**30**	**2.2**	10	10	150	XLCE R/L 1010 M22–FX	FX 2.2 ...
				12	12	80	XLCE R/L 1212 F22–FX	
				12	12	150	XLCE R/L 1212 M22–FX	
				14	14	150	XLCE R/L 1414 M22–FX	
				16	12	100	XLCE R/L 1612 H22–FX	
			3.1	16	12	100	XLCF R/L 1612 H31–FX	FX 3.1 ...
	20	**40**	**3.1**	20	16	125	XLCF R/L 2016 K31–FX	FX 3.1 ...
			4.1	20	16	125	XLCF R/L 2016 K41–FX	FX 4.1 ...
	25	**50**	**3.1**	25	20	150	XLCF R/L 2520 M31–FX	FX 3.1 ...
			4.1	25	20	150	XLCF R/L 2520 M41–FX	FX 4.1 ...

Order example:
right-hand modular tool: XLCE **R** 1010 M22–FX
left-hand modular tool: XLCE **L** 1010 M22–FX

Accessories		for grooving insert FX 2.2 ...	for grooving insert FX 3.1 ...– FX 4.1	
	Mounting wrench	FS 1494	FS 1493	

→ 58 | → 684 | | → 224

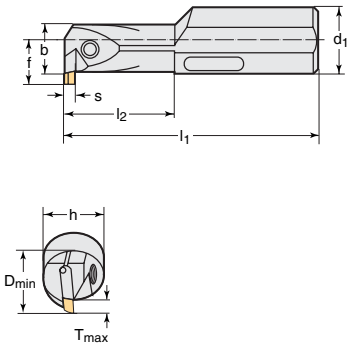




WALTER CUT I 12 R/L

one-piece modular tool
for grooving and longitudinal turning

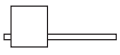
Radial grooving 0°
Internal application

Tool	T_{max} mm	s mm	D_{min} mm	l_2 mm	d_1 mm	b mm	f mm	h mm	l_1 mm	**Modular tool**** designation	Type
	**3**	**1.95–2.5**	**16**	30	16	11.6	11	15.25	150	I 12 R/L 90–2,5D–GX 09	GX 09–1 ...

** Bodies and assembly parts are included in the scope of delivery.

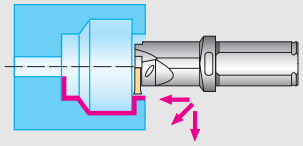
Order example:
right-hand modular tool: I 12 **R** 90–2.5D–GX09
left-hand modular tool: I 12 **L** 90–2.5D–GX09

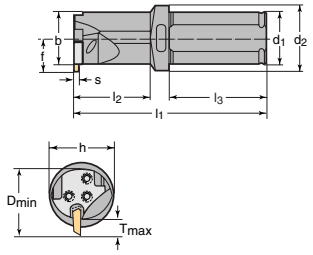
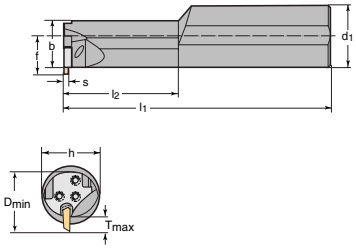
Assembly parts

	Screw	FS 1052 (Torx 15)
	Tightening torque	2.0 Nm
	Wrench	FS 1047 (Torx 15)

→ 54 | → 684 | → 222





Tool	T_{max} mm	s mm	D_{min} mm	l_2 mm	d_1 mm	**Complete tool**** designation	Type
1.5 x D 	**4**	**1.95–2.5**	**20**	24	20	NCAI 16–2015 R/L–GX 09–1	GX 09–1
		3.0–3.5	**20**	24	20	NCAI 16–2015 R/L–GX 09–2	GX 09–2
	5	**1.95–2.5**	**25**	30	20	NCAI 20–2015 R/L–GX 09–1	GX 09–1
		3.0–3.5	**25**	30	20	NCAI 20–2015 R/L–GX 09–2	GX 09–2
	6	**1.95–2.5**	**32**	38	25	NCAI 25–2515 R/L–GX 09–1	GX 09–1
		3.0–3.5	**32**	38	25	NCAI 25–2515 R/L–GX 09–2	GX 09–2
	9	**2.0–2.5**	**40**	48	32	NCAI 32–3215 R/L–GX 16–1	GX 16–1
		3.0–3.5	**40**	48	32	NCAI 32–3215 R/L–GX 16–2	GX 16–2
		4.0–5.0	**40**	48	32	NCAI 32–3215 R/L–GX 16–3	GX 16–3
		6.0	**40**	48	32	NCAI 32–3215 R/L–GX 16–4	GX 16–4
	10	**2.0–2.5**	**50**	60	40	NCAI 40–4015 R/L–GX 16–1	GX 16–1
		3.0–3.5	**50**	60	40	NCAI 40–4015 R/L–GX 16–2	GX 16–2
		4.0–5.0	**50**	60	40	NCAI 40–4015 R/L–GX 16–3	GX 16–3
		6.0	**50**	60	40	NCAI 40–4015 R/L–GX 16–4	GX 16–4
	19	**4.0–5.0**	**60**	60	40	NCAI 40–4015 R/L–GX 24–3	GX 24–3
		6.0	**60**	60	40	NCAI 40–4015 R/L–GX 24–4	GX 24–4
2.5 x D 	**4**	**1.95–2.5**	**20**	40	20	NCAI 16–2025 R/L–GX 09–1	GX 09–1
		3.0–3.5	**20**	40	20	NCAI 16–2025 R/L–GX 09–2	GX 09–2
	5	**1.95–2.5**	**25**	50	25	NCAI 20–2525 R/L–GX 09–1	GX 09–1
		3.0–3.5	**25**	50	25	NCAI 20–2525 R/L–GX 09–2	GX 09–2
	6	**1.95–2.5**	**32**	63	32	NCAI 25–3225 R/L–GX 09–1	GX 09–1
		3.0–3.5	**32**	63	32	NCAI 25–3225 R/L–GX 09–2	GX 09–2
	9	**2.0–2.5**	**40**	80	40	NCAI 32–4025 R/L–GX 16–1	GX 16–1
		3.0–3.5	**40**	80	40	NCAI 32–4025 R/L–GX 16–2	GX 16–2
		4.0–5.0	**40**	80	40	NCAI 32–4025 R/L–GX 16–3	GX 16–3
		6.0	**40**	80	40	NCAI 32–4025 R/L–GX 16–4	GX 16–4
	10	**2.0–2.5**	**50**	100	50	NCAI 40–5025 R/L–GX 16–1	GX 16–1
		3.0–3.5	**50**	100	50	NCAI 40–5025 R/L–GX 16–2	GX 16–2
		4.0–5.0	**50**	100	50	NCAI 40–5025 R/L–GX 16–3	GX 16–3
		6.0	**50**	100	50	NCAI 40–5025 R/L–GX 16–4	GX 16–4
	19	**4.0–5.0**	**60**	100	50	NCAI 40–5025 R/L–GX 24–3	GX 24–3
		6.0	**60**	100	50	NCAI 40–5025 R/L–GX 24–4	GX 24–4

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCAI 16–2015 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCAI 16–2015 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for grooving and longitudinal turning

NCAI

Internal application

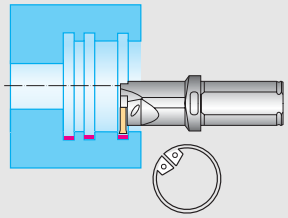
b mm	d_2 mm	f mm	h mm	l_3 mm	l_1 mm	Module size	**Grooving module** designation	**Toolholder** designation
14.5	25	11		50	82	I 16	MSS–I16 R/L 04–GX 09–1	MSS–I16 R/L 90–1,5D N
14.5	25	11		50	82	I 16	MSS–I16 R/L 04–GX 09–2	MSS–I16 R/L 90–1,5D N
17.5	25	13		50	87	I 20	MSS–I20 R/L 05–GX 09–1	MSS–I20 R/L 90–1,5D N
17.5	25	13		50	87	I 20	MSS–I20 R/L 05–GX 09–2	MSS–I20 R/L 90–1,5D N
23.0	32	17		56	102	I 25	MSS–I25 R/L 06–GX 09–1	MSS–I25 R/L 90–1,5D N
23.0	32	17		56	102	I 25	MSS–I25 R/L 06–GX 09–2	MSS–I25 R/L 90–1,5D N
28.5	40	22		60	119	I 32	MSS–I32 R/L 09–GX 16–1	MSS–I32 R/L 90–1,5D N
28.5	40	22		60	119	I 32	MSS–I32 R/L 09–GX 16–2	MSS–I32 R/L 90–1,5D N
28.5	40	22		60	119	I 32	MSS–I32 R/L 09–GX 16–3	MSS–I32 R/L 90–1,5D N
28.5	40	22		60	119	I 32	MSS–I32 R/L 09–GX 16–4	MSS–I32 R/L 90–1,5D N
36.5	50	27		70	142	I 40	MSS–I40 R/L 10–GX 16–1	MSS–I40 R/L 90–1,5D N
36.5	50	27		70	142	I 40	MSS–I40 R/L 10–GX 16–2	MSS–I40 R/L 90–1,5D N
36.5	50	27		70	142	I 40	MSS–I40 R/L 10–GX 16–3	MSS–I40 R/L 90–1,5D N
36.5	50	27		70	142	I 40	MSS–I40 R/L 10–GX 16–4	MSS–I40 R/L 90–1,5D N
36.5	50	36		70	142	I 40	MSS–I40 N 19–GX 24–3	MSS–I40 R/L 90–1,5D N
36.5	50	36		70	142	I 40	MSS–I40 N 19–GX 24–4	MSS–I40 R/L 90–1,5D N
14.5		14.5	19.0		180	I 16	MSS–I16 R/L 04–GX 09–1	MSS–I16 R/L 90–2,5D N
14.5		14.5	19.0		180	I 16	MSS–I16 R/L 04–GX 09–2	MSS–I16 R/L 90–2,5D N
17.5		18.0	24.0		200	I 20	MSS–I20 R/L 05–GX 09–1	MSS–I20 R/L 90–2,5D N
17.5		18.0	24.0		200	I 20	MSS–I20 R/L 05–GX 09–2	MSS–I20 R/L 90–2,5D N
23.0		22.5	31.0		250	I 25	MSS–I25 R/L 06–GX 09–1	MSS–I25 R/L 90–2,5D N
23.0		22.5	31.0		250	I 25	MSS–I25 R/L 06–GX 09–2	MSS–I25 R/L 90–2,5D N
28.5		29.5	38.0		300	I 32	MSS–I32 R/L 09–GX 16–1	MSS–I32 R/L 90–2,5D N
28.5		29.5	38.0		300	I 32	MSS–I32 R/L 09–GX 16–2	MSS–I32 R/L 90–2,5D N
28.5		29.5	38.0		300	I 32	MSS–I32 R/L 09–GX 16–3	MSS–I32 R/L 90–2,5D N
28.5		29.5	38.0		300	I 32	MSS–I32 R/L 09–GX 16–4	MSS–I32 R/L 90–2,5D N
36.5		36.0	48.5		350	I 40	MSS–I40 R/L 10–GX 16–1	MSS–I40 R/L 90–2,5D N
36.5		36.0	48.5		350	I 40	MSS–I40 R/L 10–GX 16–2	MSS–I40 R/L 90–2,5D N
36.5		36.0	48.5		350	I 40	MSS–I40 R/L 10–GX 16–3	MSS–I40 R/L 90–2,5D N
36.5		36.0	48.5		350	I 40	MSS–I40 R/L 10–GX 16–4	MSS–I40 R/L 90–2,5D N
36.5		45.0	48.5		350	I 40	MSS–I40 N 19–GX 24–3	MSS–I40 R/L 90–2,5D N
36.5		45.0	48.5		350	I 40	MSS–I40 N 19–GX 24–4	MSS–I40 R/L 90–2,5D N

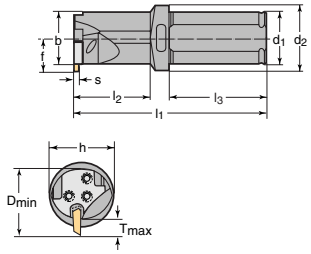
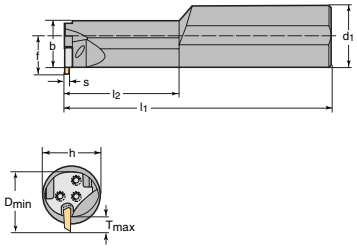
Assembly parts

	for module size I 16	I 20	I 25	I 32	I 40
Screw	FS 1051 (Torx 8)	FS 1056 (Torx 10)	FS 1052 (Torx 15)	FS 1057 (Torx 20)	FS 1054 (Torx 20)
Tightening torque	2.0 Nm	2.0 Nm	2.0 Nm	3.0 Nm	3.0 Nm
Wrench	FS 257 (Torx 8)	FS 1050 (Torx 10)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	FS 1048 (Torx 20)

→ 54 | → 684 | → 226 | → 222





Tool	T_{max} mm	s mm	D_{min} mm	l_2 mm	d_1 mm	**Complete tool**** designation	Type
1.5 x D 	**2**	**0.6–1.70**	**20**	24	20	NCCI 16–2015 R/L–GX 09–1	GX 09–1
			25	30	20	NCCI 20–2015 R/L–GX 09–1	
			32	38	25	NCCI 25–2515 R/L–GX 09–1	
	3	**0.6–2.25**	**40**	48	32	NCCI 32–3215 R/L–GX 16–2	GX 16–2
			50	60	40	NCCI 40–4015 R/L–GX 16–2	
2.5 x D 	**2**	**0.6–1.70**	**20**	40	20	NCCI 16–2025 R/L–GX 09–1	GX 09–1
			25	50	25	NCCI 20–2525 R/L–GX 09–1	
			32	63	32	NCCI 25–3225 R/L–GX 09–1	
	3	**0.6–2.25**	**40**	80	40	NCCI 32–4025 R/L–GX 16–2	GX 16–2
			50	100	50	NCCI 40–5025 R/L–GX 16–2	

** Bodies and assembly parts are included in the scope of delivery.

Order example:
right-hand complete tool: NCCI 16–2015 **R**–GX 09–1 (= right-hand grooving module + right-hand toolholder)
left-hand complete tool: NCCI 16–2015 **L**–GX 09–1 (= left-hand grooving module + left-hand toolholder)

WALTER CUT modular tool

for circlip grooves

NCCI

Internal application

	b mm	d_2 mm	f mm	h mm	l_3 mm	l_1 mm	Module size	**Grooving module** designation	**Toolholder** designation
	14.5	25	11		50	82	I 16	MSS–I16 R/L 02–GX 09–1	MSS–I16 R/L 90–1,5D N
	17.5	25	13		50	87	I 16	MSS–I20 R/L 02–GX 09–1	MSS–I20 R/L 90–1,5D N
	23.0	32	17		56	102	I 20	MSS–I25 R/L 02–GX 09–1	MSS–I25 R/L 90–1,5D N
	28.5	40	22		60	129	I 20	MSS–I32 R/L 03–GX 16–2	MSS–I32 R/L 90–1,5D N
	36.5	50	27		70	142	I 25	MSS–I40 R/L 03–GX 16–2	MSS–I40 R/L 90–1,5D N
	14.5		14.5	19.0		180	I 25	MSS–I16 R/L 02–GX 09–1	MSS–I16 R/L 90–2,5D N
	17.5		18.0	24.0		200	I 32	MSS–I20 R/L 02–GX 09–1	MSS–I20 R/L 90–2,5D N
	23.0		22.5	31.0		250	I 32	MSS–I25 R/L 02–GX 09–1	MSS–I25 R/L 90–2,5D N
	28.5		29.5	38.0		300	I 32	MSS–I32 R/L 03–GX 16–2	MSS–I32 R/L 90–2,5D N
	36.5		35.5	48.5		350	I 32	MSS–I40 R/L 03–GX 16–2	MSS–I40 R/L 90–2,5D N

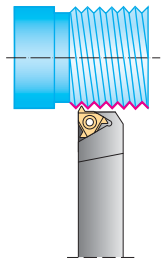
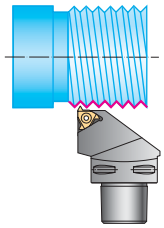
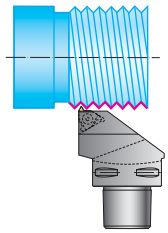
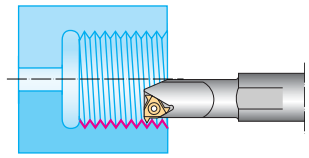
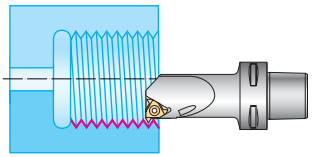
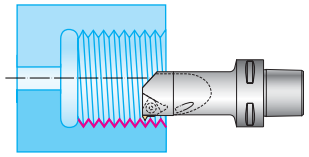
Assembly parts		for module size I 16	I 20	I 25	I 32	
	Screw	FS 1051 (Torx 8)	FS 1056 (Torx 10)	FS 1052 (Torx 15)	FS 1057 (Torx 20)	
	Tightening torque	2.0 Nm	2.0 Nm	2.0 Nm	3.0 Nm	
	Wrench	FS 257 (Torx 8)	FS 1050 (Torx 10)	FS 1047 (Torx 15)	FS 1048 (Torx 20)	

→ 54 | → 684 | → 226 | → 224



Product range overview
WALTER THREAD SYSTEM / WALTER CAPTO

Threading

	**External threading** WALTER THREAD SYSTEM	**NTSSE** Page 202
	**External threading, standard position** WALTER CAPTO	**NTSSE** Page 202
	**External threading, overhead position** WALTER CAPTO	**NTSOE** Page 202
	**Internal threading** WALTER THREAD SYSTEM	**NTSI** Page 203
	**Internal threading, standard position** WALTER CAPTO	**NTSSI** Page 204
	**Internal threading, overhead position** WALTER CAPTO	**NTSOI** Page 205

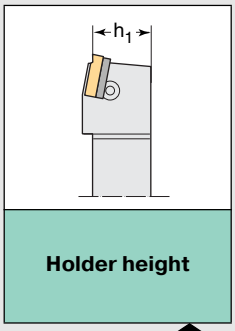
Designation keys

Example for external application

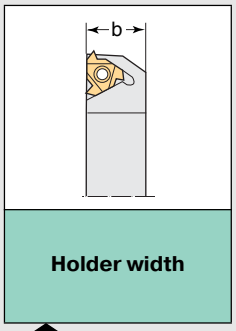
NTS S E L – 16 16 – 16

S	Screw
P	Clamp

Clamping system



Holder height



Holder width

Tool version

E	external
I	internal

Shank version

R	right-hand
L	left-hand

Cutting edge length



l = 16
l = 22

Example for internal application

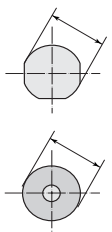
S 32 S – NTS I R – 16 – 16

Type of clamping system

S	Screw clamping

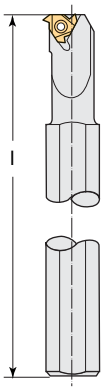
Shank diameter

The shank diameter is shown in mm. Figures after the decimal point are ignored. Integers are preceded by a "0".



Tool length

32 = A
40 = B
50 = C
60 = D
70 = E
80 = F
100 = H
110 = J
125 = K
140 = L
150 = M
160 = N
170 = P
180 = Q
200 = R
250 = S
300 = T
350 = U
400 = V
450 = W
special = X

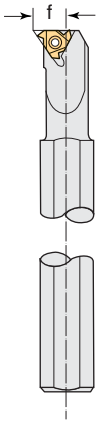


Cutting edge length



l = 16
l = 22

f-dimension



WALTER THREAD SYSTEM / WALTER CAPTO toolholders

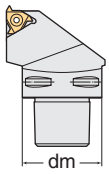
Example for WALTER CAPTO

C4	–	NTS	S	E	R	–	27	050	–	16

Coupling size

C = WALTER CAPTO
dm = coupling size

C3 → dm = 32
C4 → dm = 40
C5 → dm = 50
C6 → dm = 63



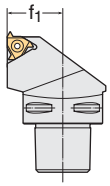
Tool position

S	Standard position
O	Overhead position

Shank version

R	right-hand
L	left-hand

f_1 dimension



Cutting edge length

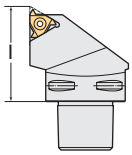


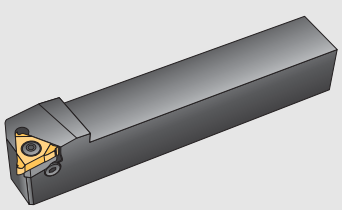
l = 16
l = 22

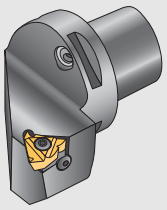
Tool version

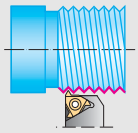
E	External
I	Internal

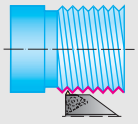
Tool length





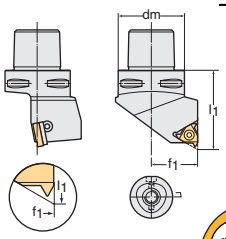
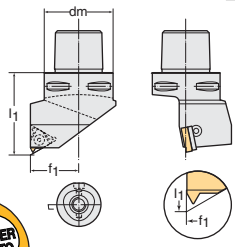
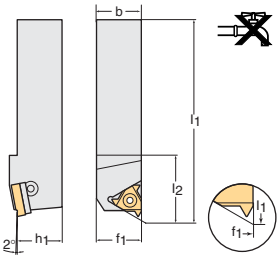






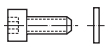
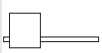
WALTER NTS
WALTER NTS Capto

Threading – External thread

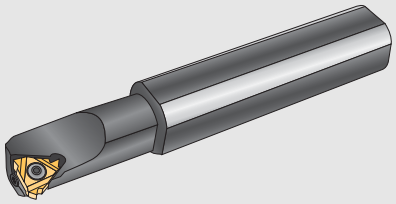
Tool	Designation	$h=h_1=b$ mm	d_m mm	f_1 mm	l_1 mm	l_2 mm	Inclination range mm / G“	Threading insert type
Standard position  	C3–NTS SE R/L 22040-16	16		32	22	40		
	C4–NTS SE R/L 27050-16	16		40	27	50	0.5–3.0 / 48–8	NTS E . . . -16
	C5–NTS SE R/L 35060-16	16		50	35	60		
	C6–NTS SE R/L 45065-16	16		63	45	65		
	C4–NTS SE R/L 27050-22	22		40	27	50		
	C5–NTS SE R/L 35060-22	22		50	35	60	3.5–6.0 / 7–5	NTS E . . . -22
	C6–NTS SE R/L 45065-22	22		63	45	65		
Overhead position   	C3–NTS OE R/L 22040-16	16		32	22	40		
	C4–NTS OE R/L 27050-16	16		40	27	50	0.5–3.0 / 48–8	NTS E . . . -16
	C5–NTS OE R/L 35060-16	16		50	35	60		
	C6–NTS OE R/L 45065-16	16		63	45	65		
	C4–NTS OE R/L 27050-22	22		40	27	50		
	C5–NTS OE R/L 35060-22	22		50	35	60	3.5–6.0 / 7–5	NTS E . . . -22
	C6–NTS OE R/L 45065-22	22		63	45	65		
	NTS SE R/L 1216-16	16	12		16	83.2	22	
	NTS SE R/L 1616-16	16	16		16	100	22	
	NTS SE R/L 2020-16	16	20		20	128.6	30	0.5–3.0 / 48–8	NTS E . . . -16
	NTS SE R/L 2525-16	16	25		25	153.6	30	
	NTS SE R/L 3232-16	16	32		32	173.6	30	
	NTS SE R/L 2525-22	22	25		25	155.7	36	
	NTS SE R/L 3232-22	22	32		32	175.7	36	3.5–6.0 / 7–5	NTS E . . . -22
	NTS SE R/L 4040-22	22	40		40	205.7	36	

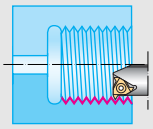
Bodies and assembly parts are included in the scope of delivery.
The listed toolholders are designed for an inclination angle of 1.5°.
For additional shims for gradient angle correction, see page 231.

Assembly parts

		←16→	←22→	
	Clamping screw for threading insert	SA 3 T (Torx 10)	SA 4 T (Torx 20)	
	Locking screw + washer for shim	SY 3 T	SY 4 T	
	Shims right-hand	YE 3	YE 4	
	Shims left-hand	YI 3	YI 4	
	Wrench	K 3 T (Torx 10)	K 4 T (Torx 20)	

→ 60 | → 684 | → 230

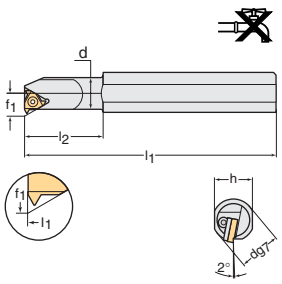




WALTER NTS

Threading – Internal thread

Tool



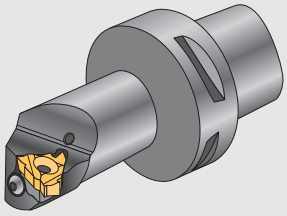
Designation	a min. mm	dg 7 mm	f_1 mm	d mm	l_1 mm	l_2 mm	h mm	Threading insert type
S 16 M – NTS I R/L 16-20	16	20	16	11.3	16.0	150	32	15.2	NTS I . . . -16
S 20 Q – NTS I R/L 16-17	16	17	20	10.3	12.7	180	32	18.0	
S 20 Q – NTS I R/L 16-20	16	20	20	11.5	16.0	180	40	18.0	
S 20 Q – NTS I R/L 16-24	16	24	20	13.4	20.0	180	40	18.0	
S 25 R – NTS I R/L 16-29	16	29	25	16.1	24.6	200	45	22.6	
S 32 S – NTS I R/L 16-29	16	29	32	16.3	25.0	250	60	29.0	
S 32 S – NTS I R/L 16-36	16	36	32	19.6	32.0	250	60	29.0	
S 40 T – NTS I R/L 16-44	16	44	40	23.8	40.0	300	60	36.0	
S 20 Q – NTS I R/L 22-27	22	27	20	15.6	20.0	180	50	18.0	NTS I . . . -22
S 25 R – NTS I R/L 22-32	22	32	25	17.2	24.6	200	45	22.6	
S 32 S – NTS I R/L 22-32	22	32	32	17.4	25.0	250	60	29.0	
S 32 S – NTS I R/L 22-39	22	39	32	21.5	32.0	250	60	29.0	
S 40 T – NTS I R/L 22-47	22	47	40	25.8	40.0	300	60	36.0	

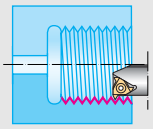
Bodies and assembly parts are included in the scope of delivery.
The listed toolholders are designed for an inclination angle of 1.5°.
For additional shims for gradient angle correction, see page 231.

Assembly parts

		up to a min. 20 (16)	(16)	up to a min. 27 (22)	(22)
Clamping screw for threading insert		SN 3 T (Torx 10)	SA 3 T (Torx 10)	SN 4 T (Torx 20)	SA 4 T (Torx 20)
Locking screw + washer for shim		—	SY 3 T	—	SY 4 T
Shims	right-hand	—	YI 3	—	YI 4
	left-hand	—	YE 3	—	YE 4
Wrench		K 3 T (Torx 10)	K 3 T (Torx 10)	K 4 T (Torx 20)	K 4 T (Torx 20)

→ 60 | → 684 | → 230





WALTER NTS Capto

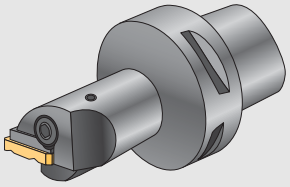
Threading – Internal thread – Standard position

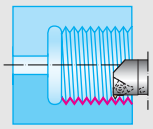
Tool		Designation		a min mm	d mm	d_m mm	f_1 mm	l_1 mm	l_3 mm	Inclination range mm / G“	Threading insert type
Standard position		C3–NTS SI R/L 22085-16	16	40	32	32	22	85	70	0.5–3.0 / 48–8	NTS I . . . -16
		C4–NTS SI R/L 22090-16	16	40	32	40	22	90	69		
		C4–NTS SI R/L 27080-16	16	50	39.5	40	27	80	60		
		C5–NTS SI R/L 22090-16	16	40	32	50	22	90	68		
		C5–NTS SI R/L 27105-16	16	50	40	50	27	105	84		
		C6–NTS SI R/L 22090-16	16	40	32	63	22	90	64		
		C6–NTS SI R/L 27105-16	16	50	40	63	27	105	80		
		C4–NTS SI R/L 22090-22	22	40	31.5	40	22	90	69	3.5–6.0 / 7–5	NTS I . . . -22
		C4–NTS SI R/L 27080-22	22	50	39.5	40	27	80	60		
		C5–NTS SI R/L 22090-22	22	40	31.5	50	22	90	68		
		C5–NTS SI R/L 27105-22	22	50	40	50	27	105	84		
		C6–NTS SI R/L 22090-22	22	40	31.5	63	22	90	64		
		C6–NTS SI R/L 27105-22	22	50	40	63	27	105	80		

Bodies and assembly parts are included in the scope of delivery.
The listed toolholders are designed for an inclination angle of 1.5°.
For additional shims for gradient angle correction, see page 231.

Assembly parts		16	22	
	Clamping screw for threading insert	SA 3 T (Torx 10)	SA 4 T (Torx 20)	
	Locking screw + washer for shim	SY 3 T	SY 4 T	
	Shims right-hand	YI 3	YI 4	
	Shims left-hand	YE 3	YE 4	
	Wrench	K 3 T (Torx 10)	K 4 T (Torx 20)	

→ 60 | → 684 | | → 230





WALTER NTS Capto

Threading – Internal thread – Overhead position

Tool

Designation		a min mm	d mm	d_m mm	f_1 mm	l_1 mm	l_3 mm	Inclination range mm / G“	Threading insert type
Overhead position	C3–NTS OI R/L 22085-16	16	40	32	32	22	85	70	0.5–3.0 / 48–8	NTS I . . . -16
	C4–NTS OI R/L 22090-16	16	40	32	40	22	90	69		
	C4–NTS OI R/L 27080-16	16	50	39.5	40	27	80	60		
	C5–NTS OI R/L 22090-16	16	40	32	50	22	90	68		
	C5–NTS OI R/L 27105-16	16	50	40	50	27	105	84		
	C6–NTS OI R/L 22090-16	16	40	32	63	22	90	64		
	C6–NTS OI R/L 27105-16	16	50	40	63	27	105	80		
	C4–NTS OI R/L 22090-22	22	40	31.5	40	22	90	69	3.5–6.0 / 7–5	NTS I . . . -22
	C4–NTS OI R/L 27080-22	22	50	39.5	40	27	80	60		
	C5–NTS OI R/L 22090-22	22	40	31.5	50	22	90	68		
	C5–NTS OI R/L 27105-22	22	50	40	50	27	105	84		
	C6–NTS OI R/L 22090-22	22	40	31.5	63	22	90	64		
	C6–NTS OI R/L 27105-22	22	50	40	63	27	105	80		

Bodies and assembly parts are included in the scope of delivery.
The listed toolholders are designed for an inclination angle of 1.5°.
For additional shims for gradient angle correction, see page 231.

Assembly parts

		16	22	
Clamping screw for threading insert		SA 3 T (Torx 10)	SA 4 T (Torx 20)	
Locking screw + washer for shim		SY 3 T	SY 4 T	
Shims	right-hand	YI 3	YI 4	
	left-hand	YE 3	YE 4	
Wrench		K 3 T (Torx 10)	K 4 T (Torx 20)	

→ 60 | → 684 | → 230

Cutting data for turning inserts with negative basic shape – coated carbide grades

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Cutting speed v_c [m/min]								
						WPP 01			WPP 05			WPP 10		
						f [mm]			f [mm]			f [mm]		
						0.1	0.2	0.3	0.1	0.4	0.6	0.1	0.4	0.6
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	620	590	560	610	470	350	590	450	340
		approx. 0.45 % C	annealed	190	2	530	500	480	520	380	300	500	360	290
		approx. 0.45 % C	tempered	250	3	380	360	340	380	290	240	360	280	230
		approx. 0.75 % C	annealed	270	4	420	400	380	420	330	290	400	320	280
		approx. 0.75 % C	tempered	300	5	320	300	290	310	240	220	300	230	210
	Low-alloyed steel[1]	annealed		180	6	460	440	420	460	330	290	440	320	280
		tempered		275	7	360	340	320	360	260	240	340	250	230
		tempered		300	8	320	300	290	310	240	200	300	230	190
		tempered		350	9	290	280	270	290	200	180	280	190	170
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	480	460	440	480	220	220	460	320	210
		hardened and tempered		325	11	240	230	220	240	130	100	230	130	100
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	380	360	340	380	300	260	360	290	250
		martensitic, tempered		240	13	280	270	260	280	200	160	270	190	150
M	Stainless steel[1]	austenitic[2], quenched		180	14									
K	Grey cast iron	perlitic/ferritic		180	15	550	490	440				550	320	230
		perlitic (martensitic)		260	16	300	270	250				300	210	140
	Cast iron with spheroidal graphite	ferritic		160	17	320	290	260				320	230	170
		perlitic		250	18	230	210	190				230	170	140
	Malleable cast iron	ferritic		130	19	370	330	300				370	310	250
		perlitic		230	20	270	240	220				270	170	120
N	Aluminium wrought alloys	can not be hardened		60	21									
		can be hardened, hardened		100	22									
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23									
		≤ 12 % Si, can be hardened, hardened		90	24									
		> 12 % Si, can not be hardened		130	25									
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26									
		Brass, red brass		90	27									
		Bronze, lead-free copper and electrolytic copper		100	28									
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29									
		Hard rubber			30									
S	Heat-resistant alloys	Fe basis	annealed	200	31									
			hardened	280	32									
		Ni or Co basis	annealed	250	33									
			hardened	350	34									
			cast	320	35									
	Titanium alloys	Pure titanium		400[3]	36									
		Alpha + Beta alloys, hardened		1050[3]	37									
H	Hardened steel	hardened and tempered		55[4]	38									
		hardened and tempered		60[4]	39									
	Chilled cast iron	cast		400	40									
	Hardened cast iron	hardened and tempered		55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Cutting speed v_c [m/min]

WPP 20			WPP 30			WAM 10			WAM 20			WSM 30			WAK 10			WAK 20			WAK 30		
f [mm]			f [mm]			f [mm]			f [mm]			f [mm]			f [mm]			f [mm]			f [mm]		
0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.3	0.5	0.1	0.4	0.6	0.1	0.4	0.6	0.1	0.4	0.6
500	370	300	430	290	240													620	470	360	340	230	190
420	300	230	360	240	190													530	380	310	290	190	150
300	230	180	240	190	140													380	290	240	190	150	110
320	270	220	260	210	170													420	340	290	210	170	140
250	180	160	200	140	110													320	240	220	160	110	90
370	270	220	300	210	190													460	340	290	240	170	150
280	210	180	220	160	120													360	260	240	180	130	100
250	180	140	190	140	110													320	240	200	150	110	90
210	160	120	170	110	100													290	200	180	140	90	80
380	270	160	300	210	120													480	340	220	240	170	100
170	110	80	110	80	60													240	140	100	90	60	50
300	240	190	230	190	150	300	240	190	280	240	200	230	200	160				380	310	260	180	150	120
210	140	110	160	110	100	210	140	110	190	150	130	150	130	110				280	200	160	130	90	80
						310	220	130	260	170	110	220	140	90									
490	250	180													620	410	300	550	320	230	490	250	180
230	170	110													390	260	180	300	210	140	230	170	110
250	180	130													410	300	230	320	230	170	250	180	130
180	130	110													300	230	180	230	170	140	180	130	110
290	260	190													480	370	330	370	310	250	290	260	190
210	130	100													340	230	150	270	170	120	210	130	100
									100	60		90	50										
									80	50		70	40										
									80	40		70	30										
									80	50		60	30										
									60	30		50	20										
									70	40													
															45								
															35								
															55								
															45								

Cutting data for turning inserts with positive basic shape – coated carbide grades

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Cutting speed v_c [m/min]								
						WPP 01			WPP 10			WPP 20		
						f [mm]			f [mm]			f [mm]		
						0.1	0.2	0.3	0.1	0.2	0.4	0.1	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	560	530	500	530	480	410	450	410	330
		approx. 0.45 % C	annealed	190	2	480	450	430	450	410	320	380	340	270
		approx. 0.45 % C	tempered	250	3	340	320	310	320	290	250	270	240	210
		approx. 0.75 % C	annealed	270	4	380	360	340	360	320	290	290	270	240
		approx. 0.75 % C	tempered	300	5	290	270	260	270	240	210	230	210	160
	Low-alloyed steel[1]		annealed	180	6	410	400	380	400	360	290	330	300	240
			tempered	275	7	320	310	290	310	280	230	250	230	190
			tempered	300	8	290	270	260	270	240	210	230	210	160
			tempered	350	9	260	250	240	250	230	170	190	170	150
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	430	410	400	420	380	290	340	310	240
			hardened and tempered	325	11	220	210	200	210	190	120	150	130	100
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	340	320	310	320	290	260	270	240	220
			martensitic, tempered	240	13	250	240	230	240	220	170	190	170	130
M	Stainless steel[1]		austenitic[2], quenched	180	14									
K	Grey cast iron		perlitic/ferritic	180	15	500	440	400	500	450	290	450	470	230
			perlitic (martensitic)	260	16	270	240	230	270	240	190	210	180	150
	Cast iron with spheroidal graphite		ferritic	160	17	290	260	230	290	260	210	230	200	160
			perlitic	250	18	210	190	170	210	190	160	160	150	120
	Malleable cast iron		ferritic	130	19	330	300	270	330	300	280	250	230	240
			perlitic	230	20	240	220	200	240	220	150	190	170	110
N	Aluminium wrought alloys		can not be hardened	60	21									
			can be hardened, hardened	100	22									
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23									
			≤ 12 % Si, can be hardened, hardened	90	24									
			> 12 % Si, can not be hardened	130	25									
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26									
			Brass, red brass	90	27									
			Bronze, lead-free copper and electrolytic copper	100	28									
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29									
			Hard rubber		30									
S	Heat-resistant alloys	Fe basis	annealed	200	31									
			hardened	280	32									
		Ni or Co basis	annealed	250	33									
			hardened	350	34									
			cast	320	35									
	Titanium alloys		Pure titanium	400[3]	36									
			Alpha + Beta alloys, hardened	1050[3]	37									
H	Hardened steel		hardened and tempered	55[4]	38									
			hardened and tempered	60[4]	39									
	Chilled cast iron		cast	400	40									
	Hardened cast iron		hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Cutting speed v_C [m/min]

WPP 30			WAM 20			WSM 30			WAK 10			WAK 20			WAK 30			WXN 10		
f [mm]			f [mm]			f [mm]			f [mm]			f [mm]			f [mm]			f [mm]		
0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.1	0.2	0.4	0.15	0.3	0.5
430	390	290										560	500	420	430	390	290			
360	320	240										480	430	340	360	320	240			
240	220	190										340	300	260	240	220	190			
260	240	210										380	340	300	260	240	210			
200	180	140										290	260	220	200	180	140			
300	270	210										410	370	310	300	270	210			
220	200	160										320	290	230	220	200	160			
190	170	140										290	260	220	190	170	140			
170	150	110										260	230	180	170	150	110			
300	270	210										430	390	300	300	270	210			
110	100	80										220	200	130	110	100	80			
230	210	190	250	240	200	210	200	160				340	300	280	230	210	190			
160	140	110	170	150	130	140	130	110				250	220	180	160	140	110			
			240	170	110	200	140	90										220	200	
									560	500	370	500	450	290	450	470	230			
									350	320	240	270	240	190	210	180	150			
									370	330	270	290	260	210	230	200	160			
									270	240	210	210	190	160	160	150	120			
									430	390	330	330	300	280	250	230	240			
									310	280	210	240	220	150	190	170	110			
																		2900	2200	1600
																		900	720	360
																		960	540	360
																		600	360	240
																		720	480	320
																		480	360	300
																		340	240	160
																			360	240
																			540	360
			90	60		80	50											110	90	
			70	50		60	40											80	70	
			70	40		60	30											60	50	
			70	50		50	30											60	25	
			50	30		40	20											50	25	
																		220	200	160
			60	40														100	70	60
									40	35										
									30	25										
									50	45										
									40	35										

Cutting data for turning inserts with negative and positive basic shape for uncoated carbide grades, Si_3N_4 and CBN

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	HW: Positive basic shape, Cutting speed v_C [m/min], WK 1, f [mm] 0.15	0.3	0.5
P	Non-alloyed steel[1]	approx. 0.15 % C annealed		125	1			
		approx. 0.45 % C annealed		190	2			
		approx. 0.45 % C tempered		250	3			
		approx. 0.75 % C annealed		270	4			
		approx. 0.75 % C tempered		300	5			
	Low-alloyed steel[1]	annealed		180	6			
		tempered		275	7			
		tempered		300	8			
		tempered		350	9			
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10			
		hardened and tempered		325	11			
	Stainless steel[1]	ferritic / martensitic, annealed		200	12			
		martensitic, tempered		240	13			
M	Stainless steel[1]	austenitic[2], quenched		180	14			
K	Grey cast iron	perlitic/ferritic		180	15			
		perlitic (martensitic)		260	16			
	Cast iron with spheroidal graphite	ferritic		160	17			
		perlitic		250	18			
	Malleable cast iron	ferritic		130	19			
		perlitic		230	20			
N	Aluminium wrought alloys	can not be hardened		60	21	2400	1800	1300
		can be hardened, hardened		100	22	750	600	300
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23	800	450	300
		≤ 12 % Si, can be hardened, hardened		90	24	500	300	200
		> 12 % Si, can not be hardened		130	25			
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26	600	400	270
		Brass, red brass		90	27	400	300	250
		Bronze, lead-free copper and electrolytic copper		100	28	280	200	130
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29		300	200
		Hard rubber			30		450	300
S	Heat-resistant alloys	Fe basis	annealed	200	31			
			hardened	280	32			
		Ni or Co basis	annealed	250	33			
			hardened	350	34			
			cast	320	35			
	Titanium alloys	Pure titanium		400[3]	36			
		Alpha + Beta alloys, hardened		1050[3]	37			
H	Hardened steel	hardened and tempered		55[4]	38			
		hardened and tempered		60[4]	39			
	Chilled cast iron	cast		400	40			
	Hardened cast iron	hardened and tempered		55[4]	41			

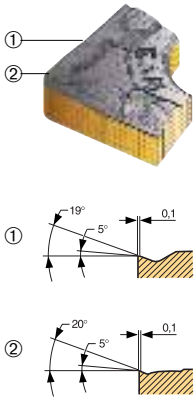
[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm² [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	CBN									CN (Si_3N_4)		
	Negative + positive basic shape v_C [m/min]									Negative basic shape v_C [m/min]		
	ap = 0.1–0.4 mm **WCB 30** f [mm]			ap = 0.2–0.5 mm **WCB 50** f [mm]						uncoated **WSN 10** f [mm]		
	0.05	0.1	0.15	0.05	0.1	0.15	0.2	0.3	0.4	0.2	0.4	0.6
							1500	1000	500	850	600	500
							500	400	300	650	500	400
										550	450	350
							1300	800	500	550	450	350
							1500	1300	1000	750	600	500
							1300	1100	800	650	500	400
				175	140							
				175	140							
				175	130							
	250	220	180	180	150	100						
	200	180	150	150	120	80						
							130	100	80		50	40
							180	150	110		40	30

Application ranges for turning inserts

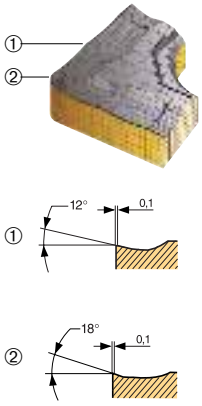
1. Indexable inserts with negative basic shape: Steel machining

– NF 3



ISO designation	Cutting data ap [mm]	Cutting data f [mm]
CNMG 120404 – NF 3	0.1 – 1.5	0.04 – 0.20
CNMG 120408 – NF 3	0.2 – 2.0	0.08 – 0.25
CNMG 120412 – NF 3	0.5 – 2.5	0.10 – 0.25
DNMG 110402 – NF 3	0.1 – 0.5	0.04 – 0.12
DNMG 110404 – NF 3	0.1 – 1.5	0.04 – 0.20
DNMG 110408 – NF 3	0.2 – 2.0	0.08 – 0.25
DNMG 110412 – NF 3	0.5 – 2.5	0.10 – 0.25
DNMG 150604 – NF 3	0.1 – 1.5	0.05 – 0.20
DNMG 150608 – NF 3	0.2 – 2.0	0.08 – 0.25
DNMG 150612 – NF 3	0.5 – 2.5	0.10 – 0.25
SNMG 120404 – NF 3	0.1 – 1.8	0.04 – 0.22
SNMG 120408 – NF 3	0.2 – 2.0	0.08 – 0.25
SNMG 120412 – NF 3	0.5 – 2.5	0.10 – 0.25
TNMG 160404 – NF 3	0.1 – 1.5	0.04 – 0.20
TNMG 160408 – NF 3	0.2 – 2.0	0.08 – 0.25
TNMG 160412 – NF 3	0.5 – 2.5	0.10 – 0.25
VNMG 160404 – NF 3	0.1 – 1.5	0.04 – 0.22
VNMG 160408 – NF 3	0.2 – 2.0	0.08 – 0.25
WNMG 060404 – NF 3	0.1 – 1.5	0.04 – 0.20
WNMG 060408 – NF 3	0.2 – 2.0	0.08 – 0.25
WNMG 060412 – NF 3	0.5 – 2.5	0.10 – 0.25
WNMG 080404 – NF 3	0.1 – 1.5	0.05 – 0.20
WNMG 080408 – NF 3	0.2 – 2.0	0.08 – 0.25
WNMG 080412 – NF 3	0.5 – 2.5	0.10 – 0.25

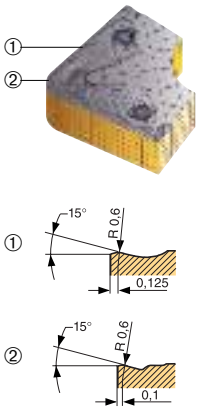
– NS 6



ISO designation	Cutting data ap [mm]	Cutting data f [mm]
CNMG 120404 – NS 6	0.32 – 2.0	0.08 – 0.20
CNMG 120408 – NS 6	0.60 – 2.5	0.12 – 0.32
CNMG 120412 – NS 6	1.20 – 3.2	0.16 – 0.40
DNMG 110404 – NS 6	0.32 – 2.0	0.08 – 0.20
DNMG 110408 – NS 6	0.60 – 2.5	0.12 – 0.32
DNMG 150604 – NS 6	0.32 – 2.0	0.08 – 0.20
DNMG 150608 – NS 6	0.60 – 2.5	0.12 – 0.32
DNMG 150612 – NS 6	1.20 – 3.2	0.16 – 0.40
SNMG 120404 – NS 6	0.32 – 2.0	0.08 – 0.20
SNMG 120408 – NS 6	0.60 – 2.5	0.12 – 0.32
SNMG 120412 – NS 6	1.20 – 3.2	0.16 – 0.40
TNMG 160404 – NS 6	0.32 – 2.0	0.08 – 0.20
TNMG 160408 – NS 6	0.60 – 2.5	0.12 – 0.32
TNMG 160412 – NS 6	1.20 – 3.2	0.16 – 0.40
TNMG 220408 – NS 6	0.60 – 2.5	0.12 – 0.32
TNMG 220412 – NS 6	1.20 – 3.2	0.16 – 0.40
WNMG 080404 – NS 6	0.32 – 2.0	0.08 – 0.20
WNMG 080408 – NS 6	0.60 – 2.5	0.12 – 0.32
WNMG 080412 – NS 6	1.20 – 3.2	0.16 – 0.40

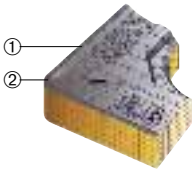
Comment: cross sections show CNMG 120408 . . and CNMM 120408 . .

– NM 4



ISO designation	Cutting data ap [mm]	Cutting data f [mm]
CNMG 120404 – NM 4	0.5 – 4.0	0.16 – 0.25
CNMG 120408 – NM 4	0.6 – 5.0	0.18 – 0.40
CNMG 120412 – NM 4	1.0 – 5.0	0.20 – 0.40
CNMG 120416 – NM 4	1.2 – 5.0	0.25 – 0.40
CNMG 160608 – NM 4	0.8 – 7.0	0.25 – 0.50
CNMG 160612 – NM 4	1.0 – 7.0	0.30 – 0.50
CNMG 160616 – NM 4	1.2 – 7.0	0.35 – 0.55
DNMG 110404 – NM 4	0.5 – 4.0	0.16 – 0.25
DNMG 110408 – NM 4	0.6 – 4.0	0.18 – 0.35
DNMG 110412 – NM 4	1.0 – 4.0	0.20 – 0.35
DNMG 150604 – NM 4	0.5 – 4.0	0.16 – 0.25
DNMG 150608 – NM 4	0.6 – 5.0	0.18 – 0.35
DNMG 150612 – NM 4	1.0 – 5.0	0.20 – 0.40
DNMG 150616 – NM 4	1.2 – 5.0	0.25 – 0.40
SNMG 120408 – NM 4	0.6 – 5.0	0.18 – 0.40
SNMG 120412 – NM 4	1.0 – 5.0	0.20 – 0.40
SNMG 120416 – NM 4	1.2 – 5.0	0.25 – 0.40
SNMG 150608 – NM 4	0.8 – 8.0	0.25 – 0.50
SNMG 150612 – NM 4	1.0 – 8.0	0.30 – 0.50
SNMG 150616 – NM 4	1.2 – 8.0	0.35 – 0.55
TNMG 160404 – NM 4	0.5 – 4.0	0.16 – 0.25
TNMG 160408 – NM 4	0.6 – 4.0	0.18 – 0.35
TNMG 160412 – NM 4	1.0 – 4.0	0.20 – 0.35
TNMG 220408 – NM 4	0.8 – 5.0	0.18 – 0.35
TNMG 220412 – NM 4	1.0 – 5.0	0.20 – 0.40
VNMG 160404 – NM 4	0.5 – 4.0	0.16 – 0.25
VNMG 160408 – NM 4	0.6 – 4.0	0.18 – 0.35
WNMG 060404 – NM 4	0.5 – 4.0	0.16 – 0.25
WNMG 060408 – NM 4	0.6 – 4.0	0.18 – 0.35
WNMG 060412 – NM 4	1.0 – 4.0	0.20 – 0.35
WNMG 080404 – NM 4	0.5 – 4.0	0.16 – 0.25
WNMG 080408 – NM 4	0.6 – 5.0	0.18 – 0.40
WNMG 080412 – NM 4	1.0 – 5.0	0.20 – 0.40
WNMG 080416 – NM 4	1.2 – 5.0	0.25 – 0.45
WNMG 100608 – NM 4	0.8 – 7.0	0.25 – 0.50
WNMG 100612 – NM 4	1.0 – 7.0	0.30 – 0.50
WNMG 100616 – NM 4	1.2 – 7.0	0.35 – 0.55

– NM 6



ISO designation	Cutting data ap [mm]	Cutting data f [mm]
CNMG 120408 – NM 6	0.8 – 5.0	0.25 – 0.50
CNMG 120412 – NM 6	1.2 – 5.0	0.30 – 0.50
CNMG 120416 – NM 6	1.5 – 5.0	0.35 – 0.50
CNMG 160608 – NM 6	0.8 – 6.0	0.30 – 0.50
CNMG 160612 – NM 6	1.2 – 6.0	0.35 – 0.60
CNMG 160616 – NM 6	1.5 – 6.0	0.40 – 0.60
CNMG 190612 – NM 6	1.2 – 7.0	0.35 – 0.60
CNMG 190616 – NM 6	1.5 – 7.0	0.40 – 0.60
CNMG 190624 – NM 6	2.5 – 7.0	0.40 – 0.60
SNMG 120408 – NM 6	0.8 – 5.0	0.25 – 0.50
SNMG 120412 – NM 6	1.2 – 5.0	0.30 – 0.50
SNMG 120416 – NM 6	1.5 – 5.0	0.35 – 0.50

Continued – NM 6	ISO designation	Cutting data	
		ap [mm]	f [mm]
① 18° R 0,4 0,16	SNMG 150608 – NM 6	0.8 – 6.0	0.30 – 0.50
	SNMG 150612 – NM 6	1.2 – 6.0	0.35 – 0.60
	SNMG 150616 – NM 6	1.5 – 6.0	0.40 – 0.60
	SNMG 190612 – NM 6	1.2 – 7.0	0.35 – 0.60
	SNMG 190616 – NM 6	1.5 – 7.0	0.40 – 0.60
	SNMG 190624 – NM 6	2.5 – 7.0	0.40 – 0.60
② 18° R 0,4 0,16	WNMG 080408 – NM 6	1.0 – 5.0	0.16 – 0.45
	WNMG 080412 – NM 6	1.5 – 5.0	0.20 – 0.45
	WNMG 100608 – NM 6	1.0 – 8.0	0.25 – 0.45
	WNMG 100612 – NM 6	1.5 – 8.0	0.25 – 0.60
	WNMG 100616 – NM 6	2.0 – 8.0	0.35 – 0.70

– NM 9	ISO designation	Cutting data	
		ap [mm]	f [mm]
① ②	CNMG 120408 – NM 9	1.0 – 6.0	0.20 – 0.40
	CNMG 120412 – NM 9	1.0 – 6.0	0.25 – 0.55
	CNMG 120416 – NM 9	1.0 – 6.0	0.35 – 0.65
	CNMG 160608 – NM 9	2.0 – 8.0	0.20 – 0.45
	CNMG 160612 – NM 9	2.0 – 8.0	0.25 – 0.60
	CNMG 160616 – NM 9	2.0 – 8.0	0.35 – 0.70
	CNMG 190608 – NM 9	2.0 – 10.0	0.20 – 0.50
	CNMG 190612 – NM 9	2.0 – 10.0	0.30 – 0.65
	CNMG 190616 – NM 9	2.0 – 10.0	0.35 – 0.80
① 2° 0,2 R 0,8	DNMG 110408 – NM 9	1.0 – 4.0	0.15 – 0.35
	DNMG 110412 – NM 9	1.0 – 4.0	0.20 – 0.40
	DNMG 150608 – NM 9	1.0 – 5.0	0.15 – 0.35
② 23° 3° 0,2	DNMG 150612 – NM 9	1.0 – 5.0	0.20 – 0.40
	DNMG 150616 – NM 9	1.0 – 6.0	0.25 – 0.50
	SNMG 120408 – NM 9	1.0 – 6.0	0.20 – 0.50
	SNMG 120412 – NM 9	1.0 – 6.0	0.25 – 0.65
	SNMG 120416 – NM 9	1.0 – 6.0	0.35 – 0.75
	SNMG 150608 – NM 9	2.0 – 8.0	0.20 – 0.55
	SNMG 150612 – NM 9	2.0 – 8.0	0.25 – 0.70
	SNMG 150616 – NM 9	2.0 – 8.0	0.35 – 0.80
	SNMG 190612 – NM 9	2.0 – 10.0	0.30 – 0.75
	SNMG 190616 – NM 9	2.0 – 10.0	0.35 – 0.90
	TNMG 160408 – NM 9	1.0 – 5.0	0.20 – 0.40
	TNMG 160412 – NM 9	1.0 – 5.0	0.25 – 0.55
	TNMG 220408 – NM 9	2.0 – 7.0	0.20 – 0.45
	TNMG 220412 – NM 9	2.0 – 7.0	0.25 – 0.60
	TNMG 220416 – NM 9	2.0 – 7.0	0.35 – 0.70
	WNMG 060408 – NM 9	0.8 – 4.0	0.20 – 0.40
	WNMG 060412 – NM 9	0.8 – 4.0	0.25 – 0.50
	WNMG 080408 – NM 9	1.0 – 6.0	0.20 – 0.40
	WNMG 080412 – NM 9	1.0 – 6.0	0.25 – 0.55
	WNMG 080416 – NM 9	1.0 – 6.0	0.35 – 0.65
	WNMG 100608 – NM 9	2.0 – 8.0	0.20 – 0.45
	WNMG 100612 – NM 9	2.0 – 8.0	0.25 – 0.60
	WNMG 100616 – NM 9	2.0 – 8.0	0.35 – 0.70

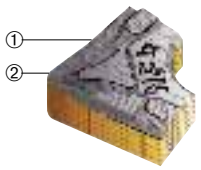
– NR 6	ISO designation	Cutting data	
		ap [mm]	f [mm]
① ②	CNMM 120408 – NR 6	0.8 – 7.0	0.35 – 0.50
	CNMM 120412 – NR 6	0.8 – 7.0	0.40 – 0.60
	CNMM 120416 – NR 6	0.8 – 7.0	0.45 – 0.80
	CNMM 160612 – NR 6	1.0 – 9.0	0.40 – 0.65
	CNMM 160616 – NR 6	1.0 – 9.0	0.45 – 0.85
	CNMM 160624 – NR 6	2.0 – 9.0	0.55 – 1.00
	CNMM 190612 – NR 6	2.0 – 10.0	0.40 – 0.70
	CNMM 190616 – NR 6	2.0 – 10.0	0.45 – 0.90
	CNMM 190624 – NR 6	2.5 – 10.0	0.55 – 1.20
① 25° R 0,6 0,15	DNMM 150608 – NR 6	0.8 – 5.0	0.35 – 0.45
	DNMM 150612 – NR 6	0.8 – 5.0	0.35 – 0.50
	DNMM 150616 – NR 6	0.8 – 5.0	0.35 – 0.55
② R 0,6 0,15	SNMM 120408 – NR 6	0.8 – 7.0	0.35 – 0.55
	SNMM 120412 – NR 6	0.8 – 7.0	0.40 – 0.65
	SNMM 120416 – NR 6	0.8 – 7.0	0.45 – 0.85
	SNMM 150612 – NR 6	1.0 – 9.0	0.40 – 0.70
	SNMM 150616 – NR 6	1.0 – 9.0	0.45 – 0.90
	SNMM 150624 – NR 6	2.0 – 9.0	0.55 – 1.10
	SNMM 190612 – NR 6	2.0 – 10.0	0.40 – 0.75
	SNMM 190616 – NR 6	2.0 – 10.0	0.45 – 0.95
	SNMM 190624 – NR 6	2.5 – 10.0	0.55 – 1.25
	SNMM 250716 – NR 6	2.0 – 12.0	0.45 – 1.00
	SNMM 250724 – NR 6	2.5 – 12.0	0.55 – 1.30
	SNMM 250916 – NR 6	2.0 – 12.0	0.45 – 1.10
	SNMM 250924 – NR 6	2.5 – 12.0	0.55 – 1.40
	TNMM 160408 – NR 6	0.8 – 6.0	0.35 – 0.45
	TNMM 160412 – NR 6	0.8 – 6.0	0.35 – 0.50
	TNMM 220408 – NR 6	0.8 – 7.0	0.35 – 0.50
	TNMM 220412 – NR 6	0.8 – 7.0	0.40 – 0.60
	TNMM 220416 – NR 6	0.8 – 7.0	0.45 – 0.80
	WNMM 100612 – NR 6	0.8 – 7.0	0.40 – 0.60
	WNMM 100616 – NR 6	0.8 – 7.0	0.45 – 0.80

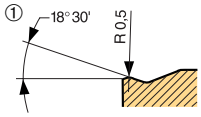
– NR 8	ISO designation	Cutting data	
		ap [mm]	f [mm]
① ②	CNMM 120408 – NR 8	1.0 – 6.0	0.30 – 0.50
	CNMM 120412 – NR 8	1.5 – 6.0	0.35 – 0.65
	CNMM 120416 – NR 8	1.8 – 6.5	0.50 – 0.85
	CNMM 160612 – NR 8	1.5 – 8.0	0.40 – 0.70
	CNMM 160616 – NR 8	1.8 – 9.0	0.50 – 0.90
	CNMM 190612 – NR 8	1.5 – 10.0	0.50 – 0.70
	CNMM 190616 – NR 8	1.8 – 12.0	0.60 – 0.90
	CNMM 190624 – NR 8	3.0 – 12.0	0.70 – 1.20
① 18° 10°	SNMM 120408 – NR 8	1.5 – 6.0	0.35 – 0.55
	SNMM 120412 – NR 8	1.9 – 6.5	0.40 – 0.70
	SNMM 120416 – NR 8	2.5– 7.5	0.50 – 0.90
	SNMM 150612 – NR 8	1.5 – 8.0	0.50 – 0.70
	SNMM 150616 – NR 8	2.5 – 9.0	0.60 – 0.90
	SNMM 190612 – NR 8	2.5 – 10.0	0.50 – 0.80
	SNMM 190616 – NR 8	3.0 – 12.0	0.60 – 0.90
	SNMM 190624 – NR 8	4.0 – 12.0	0.70 – 1.30
	SNMM 250716 – NR 8	4.0 – 13.0	0.70 – 1.00
	SNMM 250724 – NR 8	4.0 – 15.0	0.70 – 1.50
	SNMM 250916 – NR 8	4.0 – 13.0	0.70 – 1.00
	SNMM 250924 – NR 8	4.0– 15.0	0.70 – 1.50
② 18° 6°			

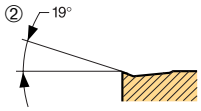
Application ranges for turning inserts

2. Indexable inserts with negative basic shape: Corrosion resistant machining

– NF 4

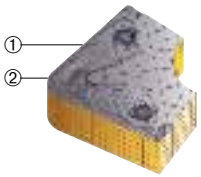


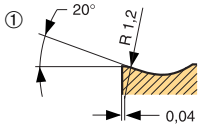


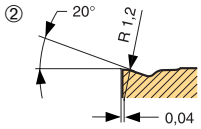


ISO designation	Cutting data	
	ap [mm]	f [mm]
CNMG 120404 – NF 4	0.2 – 1.0	0.05 – 0.12
CNMG 120408 – NF 4	0.4 – 1.5	0.07 – 0.16
CNMG 120412 – NF 4	0.5 – 1.6	0.10 – 0.20
DNMG 110404 – NF 4	0.2 – 1.0	0.05 – 0.12
DNMG 110408 – NF 4	0.4 – 1.5	0.07 – 0.16
DNMG 150604 – NF 4	0.2 – 1.0	0.05 – 0.12
DNMG 150608 – NF 4	0.4 – 1.5	0.07 – 0.16
DNMG 150612 – NF 4	0.5 – 1.6	0.10 – 0.20
SNMG 120404 – NF 4	0.2 – 1.0	0.05 – 0.12
SNMG 120408 – NF 4	0.4 – 1.5	0.07 – 0.16
SNMG 120412 – NF 4	0.5 – 1.6	0.10 – 0.20
TNMG 160404 – NF 4	0.2 – 1.0	0.05 – 0.12
TNMG 160408 – NF 4	0.4 – 1.5	0.07 – 0.16
TNMG 160412 – NF 4	0.5 – 1.6	0.10 – 0.20
WNMG 060404 – NF 4	0.2 – 1.0	0.05 – 0.12
WNMG 060408 – NF 4	0.4 – 1.5	0.07 – 0.16
WNMG 080404 – NF 4	0.2 – 1.0	0.05 – 0.12
WNMG 080408 – NF 4	0.4 – 1.5	0.07 – 0.16
WNMG 080412 – NF 4	0.5 – 1.6	0.10 – 0.20

– NM 4





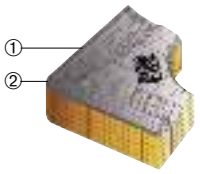


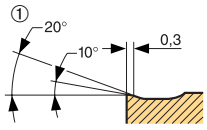
ISO designation	Cutting data	
	ap [mm]	f [mm]
CNMG 120404 – NM 4	0.5 – 2.0	0.10 – 0.18
CNMG 120408 – NM 4	0.8 – 3.0	0.15 – 0.25
CNMG 120412 – NM 4	0.8 – 3.5	0.18 – 0.30
CNMG 120416 – NM 4	1.0 – 4.0	0.20 – 0.35
CNMG 160608 – NM 4	0.8 – 4.0	0.15 – 0.30
CNMG 160612 – NM 4	0.8 – 4.5	0.18 – 0.35
CNMG 160616 – NM 4	1.0 – 4.0	0.20 – 0.40
DNMG 110404 – NM 4	0.5 – 2.0	0.10 – 0.18
DNMG 110408 – NM 4	0.8 – 3.0	0.15 – 0.25
DNMG 110412 – NM 4	0.8 – 3.5	0.18 – 0.30
DNMG 150604 – NM 4	0.5 – 2.5	0.10 – 0.18
DNMG 150608 – NM 4	0.8 – 3.5	0.15 – 0.25
DNMG 150612 – NM 4	0.8 – 4.0	0.18 – 0.3
SNMG 120404 – NM 4	0.5 – 2.0	0.10 – 0.18
SNMG 120408 – NM 4	0.8 – 3.0	0.15 – 0.25
SNMG 120412 – NM 4	0.8 – 3.5	0.18 – 0.30
SNMG 120416 – NM 4	1.0 – 4.0	0.20 – 0.35
SNMG 150608 – NM 4	0.8 – 4.0	0.15 – 0.30
SNMG 150612 – NM 4	0.8 – 4.5	0.18 – 0.35
SNMG 150616 – NM 4	1.0 – 4.0	0.20 – 0.40
TNMG 160404 – NM 4	0.5 – 2.0	0.10 – 0.18
TNMG 160408 – NM 4	0.8 – 3.0	0.15 – 0.25
TNMG 160412 – NM 4	0.8 – 3.5	0.18 – 0.30
TNMG 160416 – NM 4	1.0 – 4.0	0.20 – 0.35

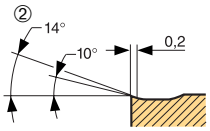
Continued – NM 4

ISO designation	Cutting data	
	ap [mm]	f [mm]
VNMG 160404 – NM 4	0.5 – 2.0	0.10 – 0.18
VNMG 160408 – NM 4	0.8 – 3.0	0.15 – 0.25
WNMG 060404 – NM 4	0.5 – 2.0	0.10 – 0.18
WNMG 060408 – NM 4	0.8 – 2.5	0.15 – 0.25
WNMG 060412 – NM 4	0.8 – 3.0	0.18 – 0.30
WNMG 080404 – NM 4	0.5 – 2.0	0.10 – 0.18
WNMG 080408 – NM 4	0.8 – 3.0	0.15 – 0.25
WNMG 080412 – NM 4	0.8 – 3.5	0.18 – 0.30
WNMG 080416 – NM 4	1.0 – 4.0	0.20 – 0.35
WNMG 100608 – NM 4	0.8 – 4.0	0.15 – 0.30
WNMG 100612 – NM 4	0.8 – 4.5	0.18 – 0.35
WNMG 100616 – NM 4	1.0 – 4.0	0.20 – 0.40

– NR 4



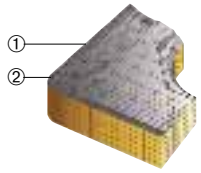
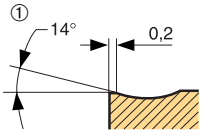
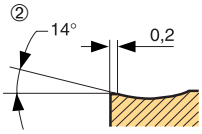




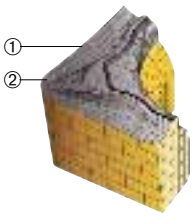
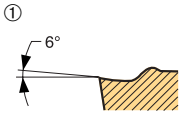
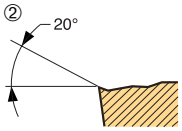
ISO designation	Cutting data	
	ap [mm]	f [mm]
CNMG 120408 – NR 4	1.2 – 4.0	0.22 – 0.40
CNMG 120412 – NR 4	1.5 – 4.5	0.25 – 0.50
CNMG 120416 – NR 4	2.0 – 5.0	0.30 – 0.55
CNMG 160608 – NR 4	1.2 – 6.0	0.22 – 0.45
CNMG 160612 – NR 4	1.5 – 6.0	0.25 – 0.60
CNMG 160616 – NR 4	2.0 – 7.0	0.30 – 0.65
CNMG 190612 – NR 4	1.5 – 8.0	0.25 – 0.60
CNMG 190616 – NR 4	2.0 – 8.5	0.30 – 0.80
DNMG 110408 – NR 4	1.2 – 3.0	0.22 – 0.40
DNMG 110412 – NR 4	1.5 – 3.5	0.25 – 0.50
DNMG 150608 – NR 4	1.2 – 4.0	0.22 – 0.40
DNMG 150612 – NR 4	1.5 – 4.5	0.25 – 0.50
SNMG 120408 – NR 4	1.2 – 4.0	0.22 – 0.40
SNMG 120412 – NR 4	1.5 – 4.5	0.25 – 0.50
SNMG 120416 – NR 4	2.0 – 5.0	0.30 – 0.55
SNMG 150608 – NR 4	1.2 – 6.0	0.22 – 0.45
SNMG 150612 – NR 4	1.5 – 6.0	0.25 – 0.60
SNMG 150616 – NR 4	2.0 – 7.0	0.30 – 0.65
SNMG 190612 – NR 4	1.5 – 8.0	0.25 – 0.60
SNMG 190616 – NR 4	2.0 – 8.5	0.30 – 0.80
TNMG 160408 – NR 4	1.2 – 4.0	0.22 – 0.40
TNMG 160412 – NR 4	1.5 – 4.5	0.25 – 0.50
TNMG 220408 – NR 4	1.2 – 5.0	0.22 – 0.40
TNMG 220412 – NR 4	1.5 – 6.0	0.25 – 0.55
TNMG 220416 – NR 4	2.0 – 7.0	0.30 – 0.60
WNMG 060408 – NR 4	1.2 – 3.0	0.22 – 0.40
WNMG 060412 – NR 4	1.5 – 3.5	0.25 – 0.50
WNMG 080408 – NR 4	1.2 – 4.0	0.22 – 0.40
WNMG 080412 – NR 4	1.5 – 4.5	0.25 – 0.50
WNMG 100608 – NR 4	1.2 – 6.0	0.22 – 0.45
WNMG 100612 – NR 4	1.5 – 6.0	0.25 – 0.60
WNMG 100616 – NR 4	2.0 – 7.0	0.30 – 0.65

Comment: cross sections show CNMG 120408 . . and CCMT 09T304 . .

3. Indexable inserts with negative basic shape: Cast iron machining

– NM 5	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CNMG 120404 – NM 5	0.6 – 5.0	0.16 – 0.25
	CNMG 120408 – NM 5	0.8 – 5.0	0.25 – 0.50
	CNMG 120412 – NM 5	1.2 – 5.0	0.30 – 0.50
	CNMG 120416 – NM 5	1.5 – 5.0	0.35 – 0.50
	CNMG 160608 – NM 5	0.8 – 7.0	0.25 – 0.50
	CNMG 160612 – NM 5	1.2 – 7.0	0.30 – 0.60
	CNMG 160616 – NM 5	1.5 – 7.0	0.35 – 0.60
	CNMG 190612 – NM 5	1.2 – 8.0	0.30 – 0.65
	CNMG 190616 – NM 5	1.5 – 8.0	0.35 – 0.80
	CNMG 190624 – NM 5	2.5 – 8.0	0.40 – 0.90
	DNMG 110404 – NM 5	0.6 – 4.0	0.16 – 0.25
	DNMG 110408 – NM 5	0.6 – 4.0	0.15 – 0.40
	DNMG 110412 – NM 5	1.0 – 4.0	0.20 – 0.50
	DNMG 150608 – NM 5	0.8 – 5.0	0.25 – 0.45
	DNMG 150612 – NM 5	1.2 – 5.0	0.30 – 0.45
	SNMG 120408 – NM 5	0.8 – 5.0	0.25 – 0.50
	SNMG 120412 – NM 5	1.2 – 5.0	0.30 – 0.50
	SNMG 120416 – NM 5	1.5 – 5.0	0.35 – 0.50
	SNMG 150608 – NM 5	0.8 – 7.0	0.25 – 0.50
	SNMG 150612 – NM 5	1.2 – 7.0	0.30 – 0.60
	SNMG 150616 – NM 5	1.5 – 7.0	0.35 – 0.60
	SNMG 190612 – NM 5	1.2 – 8.0	0.30 – 0.65
	SNMG 190616 – NM 5	1.5 – 8.0	0.35 – 0.80
	SNMG 190624 – NM 5	2.5 – 8.0	0.40 – 0.90
	TNMG 160404 – NM 5	0.6 – 4.0	0.16 – 0.25
	TNMG 160408 – NM 5	0.8 – 5.0	0.25 – 0.45
	TNMG 160412 – NM 5	1.2 – 5.0	0.30 – 0.45
	TNMG 160416 – NM 5	1.5 – 5.0	0.35 – 0.45
	TNMG 220408 – NM 5	1.0 – 6.0	0.25 – 0.45
	TNMG 220412 – NM 5	1.4 – 6.0	0.30 – 0.45
	TNMG 220416 – NM 5	1.6 – 6.0	0.35 – 0.45
	VNMG 160404– NM 5	0.6 – 4.0	0.16 – 0.25
	VNMG 160408 – NM 5	0.8 – 4.0	0.18 – 0.35
	WNMG 060404 – NM 5	0.6 – 4.0	0.16 – 0.25
	WNMG 060408 – NM 5	0.8 – 4.0	0.20 – 0.40
	WNMG 060412 – NM 5	1.2 – 4.0	0.22 – 0.50
	WNMG 080404 – NM 5	0.6 – 5.0	0.16 – 0.25
	WNMG 080408 – NM 5	1.2 – 5.0	0.20 – 0.45
	WNMG 080412 – NM 5	1.5 – 5.0	0.22 – 0.50
	WNMG 080416 – NM 5	2.0 – 5.0	0.25 – 0.55
	WNMG 100608 – NM 5	0.8 – 7.0	0.25 – 0.50
	WNMG 100612 – NM 5	1.2 – 7.0	0.30 – 0.60
	WNMG 100616 – NM 5	1.5 – 7.0	0.35 – 0.60

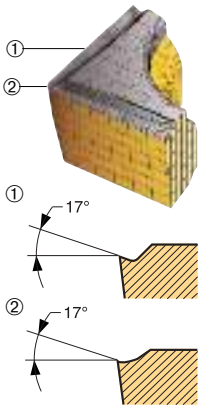
4. Indexable inserts with positive basic shape: Steel and corrosion resistant machining

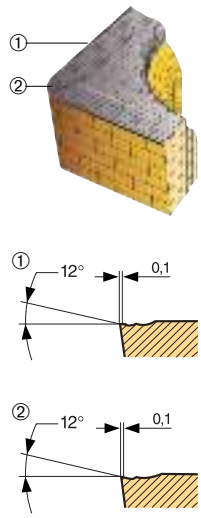
– PF 4	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CCMT 060202 – PF 4	0.1 – 1.0	0.04 – 0.12
	CCMT 060204 – PF 4	0.1 – 1.5	0.05 – 0.16
	CCMT 060208 – PF 4	0.1 – 2.5	0.08 – 0.20
	CCMT 09T302 – PF 4	0.1 – 1.0	0.04 – 0.12
	CCMT 09T304 – PF 4	0.1 – 1.5	0.05 – 0.16
	CCMT 09T308 – PF 4	0.1 – 2.5	0.08 – 0.20
	CCMT 120404 – PF 4	0.1 – 1.5	0.05 – 0.16
	CCMT 120408 – PF 4	0.1 – 2.5	0.08 – 0.20
	DCMT 070202 – PF 4	0.1 – 1.0	0.04 – 0.12
	DCMT 070204 – PF 4	0.1 – 1.5	0.05 – 0.16
	DCMT 070208 – PF 4	0.1 – 2.5	0.08 – 0.20
	DCMT 11T302 – PF 4	0.1 – 1.0	0.04 – 0.12
	DCMT 11T304 – PF 4	0.1 – 1.5	0.05 – 0.16
	DCMT 11T308 – PF 4	0.1 – 2.5	0.08 – 0.20
	RCMT 0602M0 – PF 4	0.6 – 2.5	0.07 – 0.30
	RCMT 0803M0 – PF 4	0.8 – 3.0	0.08 – 0.30
	RCMT 10T3M0 – PF 4	1.0 – 4.0	0.10 – 0.35
	RCMT 1204M0 – PF 4	1.2 – 5.0	0.12 – 0.40
	SCMT 09T304 – PF 4	0.1 – 1.5	0.05 – 0.15
	SCMT 09T308 – PF 4	0.1 – 1.8	0.05 – 0.18
	SCMT 120404 – PF 4	0.1 – 1.5	0.05 – 0.15
	SCMT 120408 – PF 4	0.1 – 1.8	0.05 – 0.18
	TCMT 110202 – PF 4	0.1 – 1.0	0.04 – 0.12
	TCMT 110204 – PF 4	0.1 – 1.5	0.05 – 0.16
	TCMT 110208 – PF 4	0.1 – 2.5	0.08 – 0.20
	TCMT 16T302 – PF 4	0.1 – 1.0	0.04 – 0.12
	TCMT 16T304 – PF 4	0.1 – 1.5	0.05 – 0.16
	TCMT 16T308 – PF 4	0.1 – 2.5	0.08 – 0.20
	VCMT 110302 – PF 4	0.1 – 1.0	0.04 – 0.12
	VCMT 110304 – PF 4	0.1 – 1.5	0.05 – 0.16
	VCMT 160402 – PF 4	0.1 – 1.0	0.04 – 0.12
	VCMT 160404 – PF 4	0.1 – 1.5	0.05 – 0.16
	VCMT 160408 – PF 4	0.1 – 2.5	0.08 – 0.20
	WCMT 040202 – PF 4	0.1 – 1.0	0.04 – 0.12
	WCMT 040204 – PF 4	0.1 – 1.5	0.05 – 0.16
	WCMT 040208 – PF 4	0.1 – 2.5	0.08 – 0.20
	WCMT 06T302 – PF 4	0.1 – 1.0	0.04 – 0.12
	WCMT 06T304 – PF 4	0.1 – 1.5	0.05 – 0.16
	WCMT 06T308 – PF 4	0.1 – 2.5	0.08 – 0.20
	WCMT 080404 – PF 4	0.1 – 1.5	0.05 – 0.16
	WCMT 080408 – PF 4	0.1 – 2.5	0.08 – 0.20

Application ranges for turning inserts

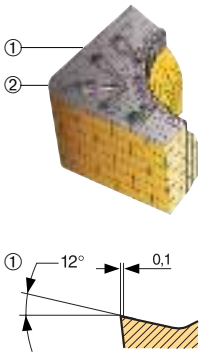
Continued

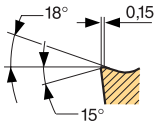
4. Indexable inserts with positive basic shape:
Steel and corrosion resistant machining

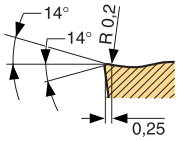
– PF 5	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CCGT 060202 – PF 5	0.1 – 0.6	0.04 – 0.10
	CCGT 060204 – PF 5	0.2 – 0.6	0.06 – 0.12
	CCGT 09T302 – PF 5	0.1 – 1.0	0.04 – 0.10
	CCGT 09T304 – PF 5	0.2 – 1.0	0.06 – 0.12
	RCGT 0602M0 – PF 5	0.6 – 2.5	0.07 – 0.25
	RCGT 0803M0 – PF 5	0.8 – 3.0	0.08 – 0.30
	RCGT 10T3M0 – PF 5	1.0 – 4.0	0.10 – 0.35
	VBGT 110302 – PF 5	0.1 – 0.6	0.04 – 0.10
	VBGT 110304 – PF 5	0.2 – 0.6	0.06 – 0.12

– PS 5	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CCMT 060204 – PS 5	0.3 – 1.6	0.08 – 0.25
	CCMT 060208 – PS 5	0.5 – 1.6	0.12 – 0.30
	CCMT 09T304 – PS 5	0.3 – 2.0	0.08 – 0.25
	CCMT 09T308 – PS 5	0.5 – 2.0	0.12 – 0.32
	CCMT 120404 – PS 5	0.3 – 2.5	0.10 – 0.25
	CCMT 120408 – PS 5	0.5 – 2.5	0.12 – 0.32
	DCMT 070204 – PS 5	0.3 – 1.6	0.08 – 0.25
	DCMT 070208 – PS 5	0.6 – 1.6	0.12 – 0.30
	DCMT 11T304 – PS 5	0.3 – 2.0	0.08 – 0.25
	DCMT 11T308 – PS 5	0.6 – 2.0	0.12 – 0.32
	SCMT 09T304 – PS 5	0.3 – 2.0	0.08 – 0.25
	SCMT 09T308 – PS 5	0.5 – 2.0	0.12 – 0.30
	SCMT 120404 – PS 5	0.3 – 2.5	0.08 – 0.25
	SCMT 120408 – PS 5	0.5 – 2.5	0.12 – 0.32
	TCMT 110204 – PS 5	0.3 – 1.6	0.08 – 0.25
	TCMT 110208 – PS 5	0.5 – 1.6	0.12 – 0.30
	TCMT 16T304 – PS 5	0.3 – 2.0	0.08 – 0.25
	TCMT 16T308 – PS 5	0.5 – 2.5	0.12 – 0.32
	VBMT 110304 – PS 5	0.3 – 1.6	0.08 – 0.20
	VBMT 110308 – PS 5	0.5 – 1.6	0.12 – 0.30
	VBMT 160404 – PS 5	0.3 – 2.0	0.08 – 0.25
	VBMT 160406 – PS 5	0.4 – 2.0	0.12 – 0.30
	VBMT 160408 – PS 5	0.6 – 2.5	0.12 – 0.30
	VBMT 160412 – PS 5	1.0 – 2.5	0.15 – 0.30
	WCMT 040204 – PS 5	0.3 – 1.6	0.08 – 0.25
	WCMT 040208 – PS 5	0.5 – 1.6	0.12 – 0.30
	WCMT 06T304 – PS 5	0.3 – 2.0	0.08 – 0.25
	WCMT 06T308 – PS 5	0.5 – 2.0	0.12 – 0.32
	WCMT 080404 – PS 5	0.3 – 2.5	0.08 – 0.25
	WCMT 080408 – PS 5	0.5 – 2.5	0.12 – 0.32

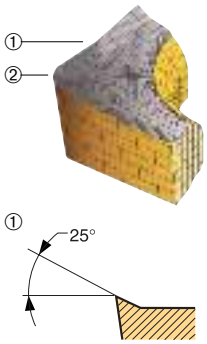
Comment: cross sections show CCMT 09T304 . . and RCM . 10 . . . .

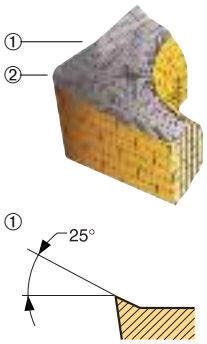
– PM 5	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CCMT 060204 – PM 5	0.4 – 2.5	0.12 – 0.25
	CCMT 060208 – PM 5	0.6 – 2.5	0.16 – 0.30
	CCMT 09T304 – PM 5	0.4 – 3.0	0.12 – 0.25
	CCMT 09T308 – PM 5	0.6 – 4.0	0.16 – 0.35
	CCMT 120404 – PM 5	0.4 – 3.0	0.12 – 0.25
	CCMT 120408 – PM 5	0.6 – 5.0	0.16 – 0.40
	CCMT 120412 – PM 5	0.8 – 5.0	0.20 – 0.50
	DCMT 070204 – PM 5	0.4 – 2.0	0.12 – 0.20
	DCMT 070208 – PM 5	0.6 – 2.0	0.16 – 0.25
	DCMT 11T304 – PM 5	0.4 – 3.0	0.12 – 0.25
	DCMT 11T308 – PM 5	0.6 – 4.0	0.16 – 0.30
	DCMT 11T312 – PM 5	0.8 – 4.0	0.20 – 0.35
	RCMT 0602M0 – PM 5	0.6 – 2.50	0.08 – 0.5
	RCMT 0803M0 – PM 5	0.8 – 3.0	0.10 – 0.6
	RCMT 10T3M0 – PM 5	1.0 – 4.0	0.12 – 0.8
	RCMT 1204M0 – PM 5	1.2 – 5.0	0.12 – 1.0
	RCMT 1605M0 – PM 5	1.6 – 7.0	0.15 – 1.2
	SCMT 09T304 – PM 5	0.4 – 3.0	0.12 – 0.25
	SCMT 09T308 – PM 5	0.6 – 4.0	0.16 – 0.35
	SCMT 120404 – PM 5	0.4 – 3.0	0.12 – 0.25
	SCMT 120408 – PM 5	0.6 – 5.0	0.16 – 0.40
	SCMT 120412 – PM 5	0.8 – 5.0	0.20 – 0.50
	TCMT 110204 – PM 5	0.4 – 3.0	0.12 – 0.25
	TCMT 110208 – PM 5	0.6 – 3.0	0.16 – 0.30
	TCMT 16T304 – PM 5	0.4 – 3.0	0.12 – 0.25
	TCMT 16T308 – PM 5	0.6 – 4.0	0.16 – 0.30
	TCMT 16T312 – PM 5	0.8 – 4.0	0.20 – 0.40
	VCMT 110304 – PM 5	0.4 – 2.5	0.12 – 0.20
	VCMT 110308 – PM 5	0.6 – 3.0	0.16 – 0.25
	VCMT 160404 – PM 5	0.4 – 2.5	0.12 – 0.25
	VCMT 160406 – PM 5	0.6 – 3.0	0.15 – 0.25
	VCMT 160408 – PM 5	0.6 – 3.0	0.16 – 0.30
	VCMT 160412 – PM 5	0.8 – 4.0	0.20 – 0.35
	WCMT 030202 – PM 5	0.2 – 1.5	0.08 – 0.12
	WCMT 040202 – PM 5	0.4 – 2.0	0.08 – 0.12
	WCMT 040204 – PM 5	0.4 – 2.5	0.12 – 0.25
	WCMT 06T304 – PM 5	0.4 – 3.0	0.12 – 0.25
	WCMT 06T308 – PM 5	0.6 – 4.0	0.16 – 0.35
	WCMT 080404 – PM 5	0.4 – 3.0	0.12 – 0.25
	WCMT 080408 – PM 5	0.6 – 4.0	0.16 – 0.40
	WCMT 080412 – PM 5	0.8 – 5.0	0.20 – 0.55

– M0T	ISO designation	Cutting data	
		ap [mm]	f [mm]
	RCMT 10T3M0T	1.0 – 4.0	0.12 – 0.8
	RCMT 1204M0T	1.2 – 5.0	0.12 – 1.0
	RCMT 1605M0T	1.6 – 7.0	0.15 – 1.1
	RCMT 2006M0T	2.0 – 9.0	0.20 – 1.2
	RCMT 2507M0T	2.5 – 11.0	0.20 – 1.3

– PR 5	ISO designation	Cutting data	
		ap [mm]	f [mm]
	RCMX 100300 – PR 5	1.0 – 4.0	0.20 – 1.0
	RCMX 120400 – PR 5	1.2 – 5.0	0.20 – 1.2
	RCMX 160600 – PR 5	1.6 – 7.0	0.20 – 1.3
	RCMX 200600 – PR 5	2.0 – 9.0	0.25 – 1.4
	RCMX 250700 – PR 5	2.5 – 11.0	0.30 – 1.6
	RCMX 320900 – PR 5	3.2 – 15.0	0.30 – 1.7

5. Indexable inserts with positive basic shape: Aluminium machining

– PM 2	ISO designation	Cutting data	
		ap [mm]	f [mm]
	CCGT 060201 – PM 2	0.5-1.5	0.02-0.06
	CCGT 060202 – PM 2	0.5-2.0	0.05-0.12
	CCGT 060204 – PM 2	0.6-3.0	0.08-0.25
	CCGT 09T301 – PM 2	0.5-1.5	0.02-0.06
	CCGT 09T302 – PM 2	0.5-2.0	0.05-0.12
	CCGT 09T304 – PM 2	0.6-4.0	0.08-0.25
	CCGT 09T308 – PM 2	0.8-4.0	0.10-0.35
	CCGT 120401 – PM 2	0.5-1.5	0.02-0.06
	CCGT 120402 – PM 2	0.5-2.0	0.05-0.12
	CCGT 120404 – PM 2	0.6-5.0	0.08-0.25
	CCGT 120408 – PM 2	0.8-5.0	0.10-0.35
	DCGT 070201 – PM 2	0.5-1.5	0.02-0.06
	DCGT 070202 – PM 2	0.5-2.0	0.05-0.12
	DCGT 070204 – PM 2	0.6-2.5	0.08-0.25
	DCGT 11T301 – PM 2	0.5-1.5	0.02-0.06
	DCGT 11T302 – PM 2	0.5-2.0	0.05-0.12
	DCGT 11T304 – PM 2	0.6-3.0	0.08-0.25
	DCGT 11T308 – PM 2	0.8-3.5	0.10-0.30
	RCGT 0602M0 – PM 2	0.6-2.5	0.10-0.55
	RCGT 0803M0 – PM 2	0.7-3.0	0.12-0.60
	RCGT 10T3M0 – PM 2	0.8-4.0	0.15-0.70
	RCGT 1204M0 – PM 2	1.0-5.0	0.18-0.80
	SCGT 09T304 – PM 2	0.6-4.0	0.08-0.25
	SCGT 09T308 – PM 2	0.7-4.0	0.10-0.35
	SCGT 120408 – PM 2	0.8-6.0	0.10-0.40

Continued – PM 2	ISO designation	Cutting data	
		ap [mm]	f [mm]
	TCGT 110201 – PM 2	0.5-1.5	0.02-0.06
	TCGT 110202 – PM 2	0.6-2.0	0.05-0.12
	TCGT 110204 – PM 2	0.6-3.0	0.08-0.25
	TCGT 16T301 – PM 2	0.5-1.5	0.02-0.06
	TCGT 16T302 – PM 2	0.5-2.0	0.05-0.12
	TCGT 16T304 – PM 2	0.6-4.0	0.08-0.25
	TCGT 16T308 – PM 2	0.8-4.0	0.10-0.35
	VCGT 110301 – PM 2	0.5-1.5	0.02-0.06
	VCGT 110302 – PM 2	0.5-2.0	0.05-0.12
	VCGT 110304 – PM 2	0.6-2.5	0.08-0.25
	VCGT 110308 – PM 2	0.8-3.0	0.10-0.35
	VCGT 130301 – PM 2	0.5-1.5	0.02-0.06
	VCGT 130302 – PM 2	0.5-2.0	0.05-0.12
	VCGT 130304 – PM 2	0.6-3.0	0.08-0.25
	VCGT 160404 – PM 2	0.6-3.5	0.08-0.25
	VCGT 160408 – PM 2	0.8-3.5	0.10-0.35
	VCGT 160412 – PM 2	1.0-3.5	0.10-0.45
	WCGT 030202 – PM 2	0.5-1.5	0.05-0.12
	WCGT 030204 – PM 2	0.6-1.5	0.08-0.20
	WCGT 040201 – PM 2	0.5-1.5	0.02-0.06
	WCGT 040202 – PM 2	0.5-2.0	0.05-0.12
	WCGT 040204 – PM 2	0.6-2.5	0.08-0.25
	WCGT 06T301 – PM 2	0.5-1.5	0.02-0.06
	WCGT 06T302 – PM 2	0.6-2.0	0.05-0.12
	WCGT 06T304 – PM 2	0.6-3.0	0.08-0.25
	WCGT 080404 – PM 2	0.6-4.0	0.08-0.25
	WCGT 080408 – PM 2	0.8-4.0	0.10-0.35

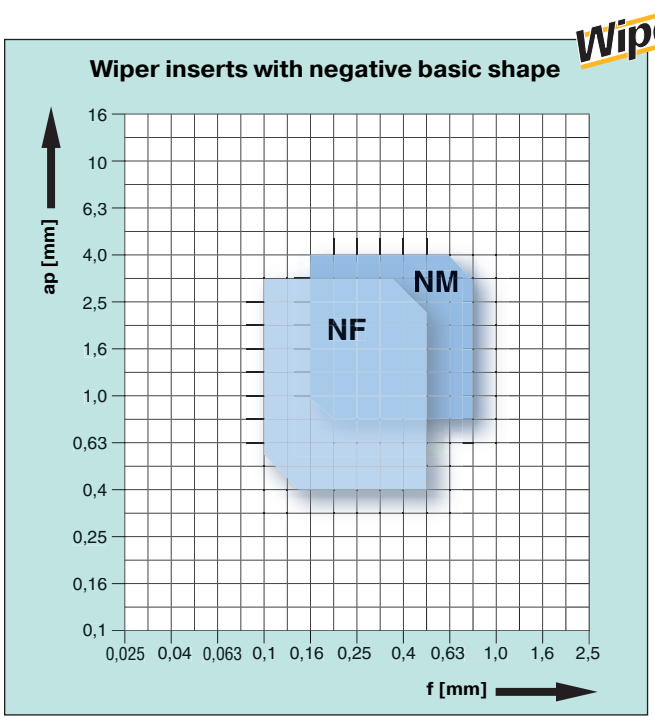
Achievable surface finish with standard radius

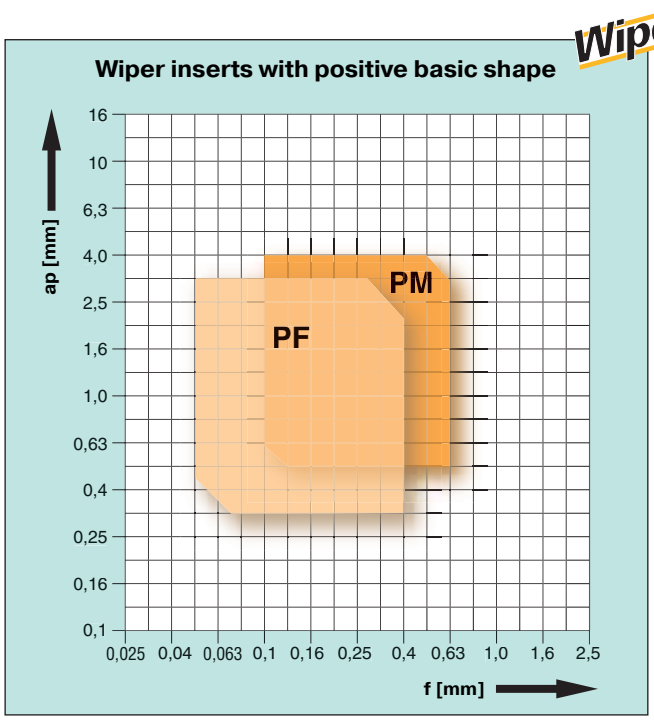
Select the maximum permissible workpiece profile cutting radius, system rigidity and cutting control.

Theoretical Ra/Rz values depending on the feed rate and insert radius								Feed rate ranges depending on insert radius and type of machining operation	
Insert radius mm	Round insert dia. mm	Ra/Rz in µm 0.4/1.6	1.6/6.3	3.2/12.5	6.3/25	8/32	32/100	Medium to rough machining	Fine to medium machining
		Feed rate in mm						Feed rate in mm	
0.2		0.05	0.08	0.13					0.04–0.15
0.4		0.07	0.11	0.17	0.22				0.07–0.22
0.8		0.10	0.15	0.24	0.30	0.38		0.25–0.60	0.10–0.30
1.2			0.19	0.29	0.37	0.47		0.35–0.85	0.20–0.40
1.6				0.34	0.43	0.54	1.08	0.40–1.00	
2.4				0.42	0.53	0.66	1.32	0.50–1.20	
	6	0.20	0.31	0.49	0.62				0.20–0.60
	8	0.23	0.36	0.56	0.72				0.23–0.70
	10	0.25	0.40	0.63	0.80	1.00			0.25–0.80
	12		0.44	0.69	0.88	1.10		0.40–0.80	
	16		0.51	0.80	1.01	1.26	2.54	0.50–1.00	
	20			0.89	1.13	1.42	2.94	0.60–1.25	
	25				1.26	1.58	3.33	0.70–1.50	

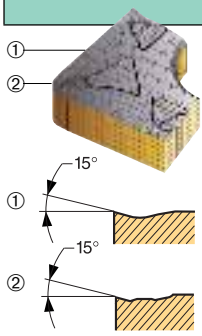
Technical information for Wiper inserts

1. Achievable chip breaking range for steel, stainless steel and cast iron

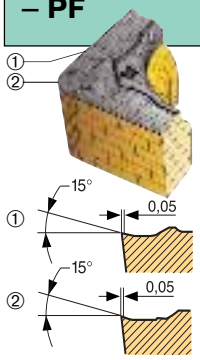




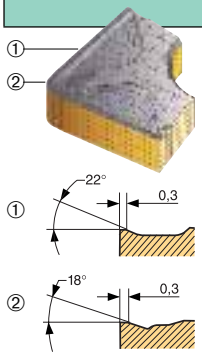
– NF	ISO designation	Cutting data ap = mm	Cutting data f = mm
① ②	CNMG 120404 – NF	0.4 – 2.0	0.10 – 0.40
	CNMG 120408 – NF	0.5 – 3.0	0.15 – 0.55
	DNMG 110408 – NF	0.5 – 3.0	0.15 – 0.50
	DNMG 150608 – NF	0.5 – 3.0	0.15 – 0.50
	WNMG 060404 – NF	0.4 – 2.0	0.10 – 0.40
	WNMG 060408 – NF	0.5 – 3.0	0.15 – 0.50
	WNMG 080404 – NF	0.4 – 2.0	0.20 – 0.40
	WNMG 080408 – NF	0.5 – 3.0	0.25 – 0.55



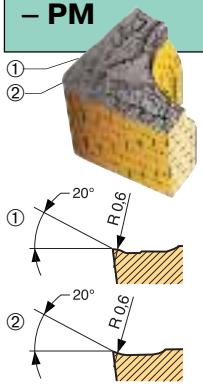
– PF	ISO designation	Cutting data ap = mm	Cutting data f = mm
① ②	CCMT 060204 – PF	0.3 - 2.0	0.05 - 0.30
	CCMT 060208 – PF	0.3 - 2.0	0.09 - 0.35
	CCMT 09T304 – PF	0.3 - 3.0	0.07 - 0.30
	CCMT 09T308 – PF	0.3 - 3.0	0.12 - 0.45
	DCMT 070204 – PF	0.3 - 2.0	0.05 - 0.25
	DCMT 070208 – PF	0.3 - 2.0	0.09 - 0.35
	DCMT 11T304 – PF	0.3 - 3.0	0.07 - 0.30
	DCMT 11T308 – PF	0.3 - 3.0	0.12 - 0.40
	WCMT 040204 – PF	0.3 - 1.5	0.05 - 0.30
	WCMT 040208 – PF	0.3 - 1.5	0.07 - 0.35
	WCMT 06T304 – PF	0.3 - 2.0	0.07 - 0.30
	WCMT 06T308 – PF	0.3 - 2.0	0.07 - 0.35



– NM	ISO designation	Cutting data ap = mm	Cutting data f = mm
① ②	CNMG 120408 – NM	0.8 – 3.0	0.20 – 0.55
	CNMG 120412 – NM	1.5 – 4.0	0.25 – 0.70
	DNMG 110408 – NM	0.8 – 3.0	0.15 – 0.50
	DNMG 110412 – NM	1.5 – 4.0	0.20 – 0.60
	DNMG 150608 – NM	0.8 – 3.0	0.15 – 0.50
	DNMG 150612 – NM	1.5 – 4.0	0.20 – 0.60
	WNMG 060408 – NM	0.8 – 3.0	0.20 – 0.55
	WNMG 060412 – NM	1.5 – 4.0	0.25 – 0.70
	WNMG 080408 – NM	0.8 – 3.0	0.20 – 0.55
	WNMG 080412 – NM	1.5 – 4.0	0.25 – 0.70

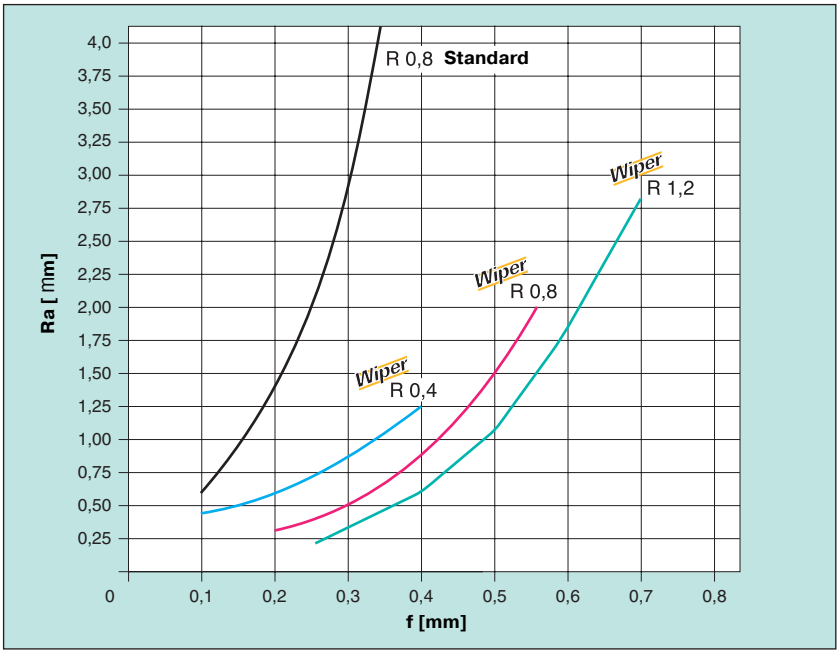


– PM	ISO designation	Cutting data ap = mm	Cutting data f = mm
① ②	CCMT 09T304 – PM	0.5 - 4.0	0.12 - 0.40
	CCMT 09T308 – PM	0.7 - 4.0	0.15 - 0.50
	CCMT 09T312 – PM	0.7 - 4.0	0.17 - 0.50
	CCMT 120404 – PM	0.5 - 4.0	0.15 - 0.40
	CCMT 120408 – PM	0.7 - 4.0	0.15 - 0.50
	CCMT 120412 – PM	0.7 - 4.0	0.17 - 0.60
	DCMT 11T304 – PM	0.5 - 4.0	0.12 - 0.40
	DCMT 11T308 – PM	0.5 - 4.0	0.15 - 0.50
	WCMT 06T304 – PM	0.5 - 2.5	0.12 - 0.35
	WCMT 06T308 – PM	0.5 - 2.5	0.12 - 0.40
	WCMT 080404 – PM	0.5 - 3.0	0.12 - 0.35
	WCMT 080408 – PM	0.5 - 3.0	0.12 - 0.40
	WCMT 080412 – PM	0.7 - 3.0	0.15 - 0.50



Comment: cross sections show CNMG 120408 . . and CCMT 09T308 . .

2. Achievable surface finishes



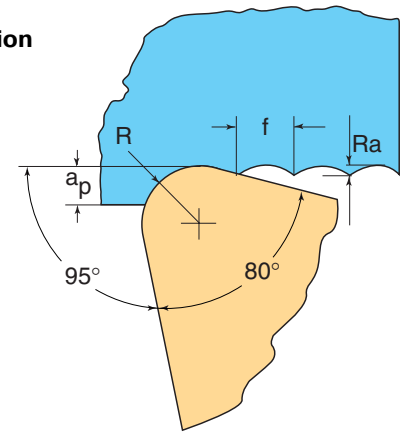
Wiper

One geometry for two applications!

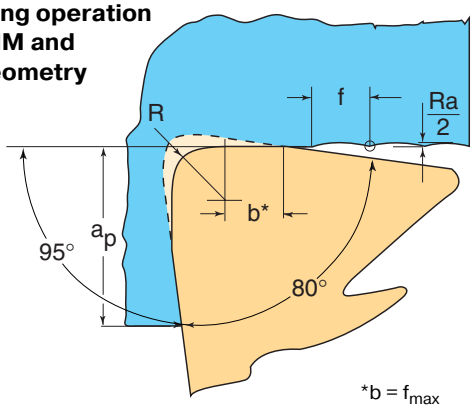
- ➔ Same surface finish at double the feed rate
- ➔ Twice as good a surface finish with the same feed rate

3. Cutting edge formation
Comparison between standard indexable inserts and Wiper inserts

Standard finishing operation



Wiper finishing operation with –NF/–NM and –PF/–PM geometry



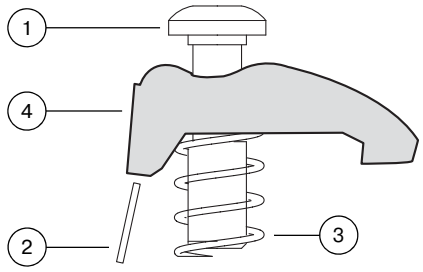
To achieve the specified surfaces, please note:

1. Ensure precise alignment of the ISO holder
2. Only mount the CNMG/CCMT and WNMG/WCMT inserts in toolholder with the approach angle χ = 95° DNMG/DCMT inserts only in toolholder with the approach angle χ = 93°
3. The specified surface finish only applies to longitudinal turning and facing
4. The prescribed maximum feed rates must not be exceeded:

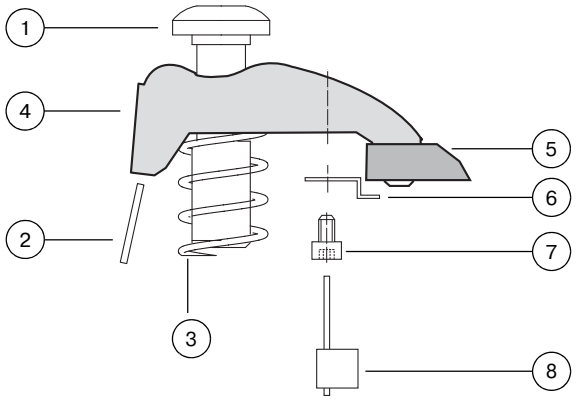
R	f_{max} [mm]
0.4	ð 0.4
0.8	ð 0.55
1.2	ð 0.7

Assembly parts and accessories for the rigid clamping system

Standard clamping system



Reinforced clamping system



Basic shape and size of indexable insert		Standard clamping system					Reinforced clamping system with carbide clamping plate	
				CN 12 . .	CN 16 . .	CN 19 . .	CN 12 . .	CN 16 . .
		DN 11 . .		DN 15 . .	DN 15 . .		DN 15 . .	DN 15 . .
					SN 15 . .	SN 19 . .		SN 15 . .
		TN 16 .. .		TN 22 . .			TN 22 . .	
			VN 16 . .					
		WN 06 . .		WN 08 . .	WN 10. .		WN 08 . .	WN 10. .
	Set	**PK 240 set**	**PK 244 set**	**PK 241 set**	**PK 242 set**	**PK 243 set**	**PK 245 set**	**PK 246 set**
1	Screw for clamp	FS 1472 (9 IP)	FS 1473 (15 IP)	FS 1473 (15 IP)	FS 1474 (20 IP)	FS 1474 (20 IP)	FS 1473 (15 IP)	FS 1474 (20 IP)
2	Pin (mounted in toolholder)	RS 116	RS 117	RS 117	RS 117	RS 117	RS 117	RS 117
3	Pressure spring	FS 1469	FS 1470	FS 1470	FS 1471	FS 1471	FS 1470	FS 1471
4	Clamp	PK 240	PK 244	PK 241	PK 242	PK 243	PK 245	PK 246
5	Carbide clamping plate						FK 371	FK 372
6	Clip for clamping plate						FK 373	FK 373
7	Screw for clamping plate						FS 1492	FS 1492
8	Wrench for clip bolt						FS 1490 (7 IP)	FS 1490 (7 IP)

Turning calculation formulas

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed rate

$$v_f = n \times f \quad [mm/min]$$

Metal removal rate

$$Q = v_c \times a_p \times f \quad [cm^3/min]$$

Chip section

$$A = h \times b = a_p \times f \quad [mm^2]$$

Chip width, thickness

$$b = \frac{a_p}{\sin\kappa} \quad [mm] \qquad h = f \times \sin\kappa \quad [mm]$$

Main cutting force

$$F_c = A \times k_c1.1 \times h^{-mc} \quad [N]$$

Power requirement

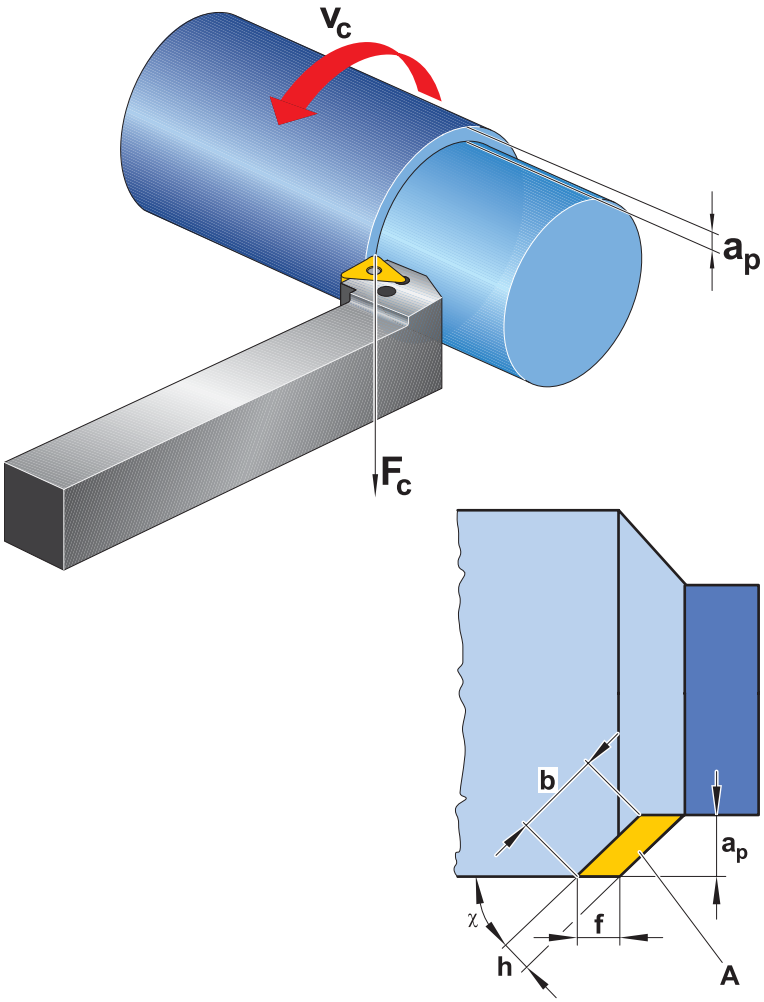
$$P_{mot} = \frac{F_c \times v_c}{60000 \times 2} \quad [kW]$$

Engagement period

$$t_h = \frac{l_m}{f \times n} \quad [min]$$

Roughness profile depth

$$R_{max} = \frac{f^2}{8 \times r} \times 1000 \quad [\mu m]$$



n	Speed	min^{-1}
D_C	Cutting diameter	mm
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f	Feed rate per turn	mm
Q	Metal removal rate	cm^3/min
a_p	Cut depth	mm
A	Chip section	mm^2
h	Chip thickness	mm
b	Chip width	mm
κ	Approach setting angle	°
F_c	Main cutting force	N
$k_c1.1$*	Specific cutting force for 1 mm^2 chip section	N/mm^2
m_c*	k_c curve rise	
P_{mot}	Power requirement	kW
t_h	Engagement period	min
l_m	Machining length	mm
R_{max}	Roughness profile depth	µm
r	Corner radius of indexable insert	mm

*m_c and k_c 1.1 see table on page 797.

Cutting data for WALTER CUT: GX grooving inserts

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Cutting speed v_c [m/min]								
						WAP 20			WAP 30			WXP 43		
						f [mm]			f [mm]			f [mm]		
						0.08	0.15	0.30	0.08	0.15	0.30	0.08	0.15	0.30
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	280	240	200	260	220	180	200	180	150
		approx. 0.45 % C	annealed	190	2	250	200	150	240	180	130	180	150	120
		approx. 0.45 % C	tempered	250	3	220	180	130	200	150	120	160	130	100
		approx. 0.75 % C	annealed	270	4	200	160	120	180	140	120	130	100	80
		approx. 0.75 % C	tempered	300	5	180	150	110	160	120	100	100	80	60
	Low-alloyed steel[1]	annealed		180	6	220	200	180	200	180	160	160	140	120
		tempered		275	7	200	180	160	180	160	140	160	120	100
		tempered		300	8	180	160	140	160	140	120	130	110	90
		tempered		350	9	160	140	120	140	120	100	90	80	70
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	200	180	160	180	160	140	100	90	80
		hardened and tempered		325	11	160	140	120	120	100	80			
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	250	220	200	200	150	130	200	160	140
		martensitic, tempered		240	13	120	100	80	100	80	60	80	70	60
M	Stainless steel[1]	austenitic[2], quenched		180	14							180	140	100
K	Grey cast iron	perlitic/ferritic		180	15	220	170	130						
		perlitic (martensitic)		260	16	180	130	110						
	Cast iron with spheroidal graphite	ferritic		160	17	280	250	220						
		perlitic		250	18	250	210	170						
	Malleable cast iron	ferritic		130	19	110	90	70						
		perlitic		230	20	90	70	40						
N	Aluminium wrought alloys	can not be hardened		60	21									
		can be hardened, hardened		100	22									
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23									
		≤ 12 % Si, can be hardened, hardened		90	24									
		> 12 % Si, can not be hardened		130	25									
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26									
		Brass, red brass		90	27									
		Bronze, lead-free copper and electrolytic copper		100	28									
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29									
		Hard rubber			30									
S	Heat-resistant alloys	Fe basis	annealed	200	31									
			hardened	280	32									
		Ni or Co basis	annealed	250	33									
			hardened	350	34									
			cast	320	35									
	Titanium alloys	Pure titanium		400[3]	36									
		Alpha + Beta alloys, hardened		1050[3]	37									
H	Hardened steel	hardened and tempered		55[4]	38									
		hardened and tempered		60[4]	39									
	Chilled cast iron	cast		400	40									
	Hardened cast iron	hardened and tempered		55[4]	41									

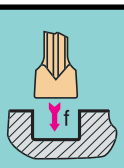
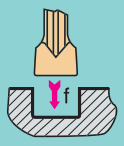
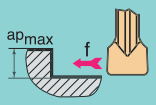
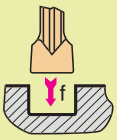
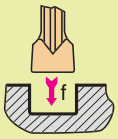
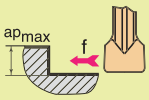
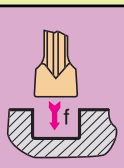
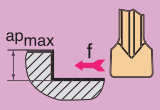
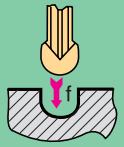
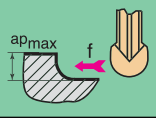
[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C

[5] The machining group assignment can be found in the General catalogue from page 798.

Cutting speed v_c [m/min]

WAM 20			WXM 33			WAK 20			WAK 30			WK 1		
f [mm]			f [mm]			f [mm]			f [mm]			f [mm]		
0.08	0.15	0.30	0.08	0.15	0.30	0.08	0.15	0.30	0.08	0.15	0.30	0.08	0.15	0.30
			200	180	150	300	260	220	260	220	190			
			180	150	120	270	220	160	230	190	140			
			160	130	100	240	190	140	200	160	120			
			130	100	80	220	170	130	190	140	110			
			100	80	60	190	160	120	160	140	100			
			160	140	120	240	220	190	200	190	160			
			160	120	100	220	190	170	190	160	140			
			130	110	90	190	170	150	160	140	130			
			90	80	70	170	150	130	140	130	110			
			100	90	80	220	190	170	190	160	140			
						170	150	130	140	130	110			
210	160	130	200	160	140	270	240	220	230	200	190			
110	90	70	80	70	60	130	110	90	110	90	80			
200	170	150	180	140	100									
						300	280	260	280	260	240			
						280	260	240	260	240	220			
						300	280	260	280	260	240			
						260	220	190	240	200	170			
						150	120	100	120	100	80			
						130	110	90	100	70	50			
												1000	900	650
												700	600	300
												600	350	200
												400	250	150
												600	400	250
												400	300	250
												300	200	130
						40	35							
						30	25							
						50	45							
						40	35							

Feed rate f [mm]

Geometry	Groove width [mm]	a_{pmax} [mm]	f [mm]
GD 3 	2–3.5		0.01–0.15
	4		0.05–0.25
	5–6		0.10–0.30
UF 4 	2–3.5		0.06– 0.15
	4		0.05–0.25
	5–6		0.10–0.30
	2–3.5	2.5	0.10–0.25
	4	3.0	0.10–0.35
	5–6	4.0	0.10–0.40
GD 6 	2–3.5		0.06–0.16
	4		0.08–0.25
	5–6		0.10–0.35
UD 6 	2–3.5		0.08–0.20
	4		0.10–0.25
	5–6		0.12–0.40
	2–3.5	2.5	0.10–0.25
	4	3.0	0.10–0.35
	5–6	4.0	0.10–0.40
UA 4 	2–3.5		0.06–0.25
	4		0.06–0.30
	5–6		0.10–0.35
	2–3.5	3.0	0.06–0.25
	4	3.0	0.06–0.35
	5–6	4.0	0.06–0.40
RK 8 	6		0.10–0.30
	8		0.10–0.35
	6	4.0	0.10–0.60
	8	5.0	0.10–0.80

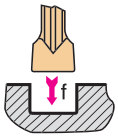
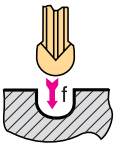
Cutting data for WALTER CUT: FX, LX and GX grooving inserts

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Cutting speed v_c [m/min] WTA 33 f [mm] 0.05	0.2	0.4	WTA 43 f [mm] 0.05	0.2	0.4	WTP 30 f [mm] 0.05	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C annealed		125	1	280	220	150	240	180	130	200	150	120
		approx. 0.45 % C annealed		190	2	250	180	120	220	150	110	180	130	100
		approx. 0.45 % C tempered		250	3	220	170	100	200	130	90	160	110	70
		approx. 0.75 % C annealed		270	4	200	150	100	170	120	80	130	100	60
		approx. 0.75 % C tempered		300	5	180	130	80	140	110	60	100	80	50
	Low-alloyed steel[1]	annealed		180	6	220	180	140	200	140	110	160	120	70
		tempered		275	7	200	160	140	180	150	110	160	110	70
		tempered		300	8	180	150	120	150	110	80	130	90	60
		tempered		350	9	150	130	100	120	100	80	90	70	50
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	200	160	130	150	130	100	100	80	70
		hardened and tempered		325	11	140	100	70	110	80	50			
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	250	200	150	200	150	120	200	140	110
		martensitic, tempered		240	13	100	80	60	80	60	50	80	60	40
M	Stainless steel[1]	austenitic[2], quenched		180	14	200	150	120	200	150	120	180	130	90
K	Grey cast iron	perlitic/ferritic		180	15	200	150	120	150	110	80			
		perlitic (martensitic)		260	16	160	120	100	120	100	60			
	Cast iron with spheroidal graphite	ferritic		160	17	280	240	200	230	200	170			
		perlitic		250	18	230	190	150	200	170	150			
	Malleable cast iron	ferritic		130	19	100	80	60	90	70	50			
		perlitic		230	20	80	60	40	70	50	30			
N	Aluminium wrought alloys	can not be hardened		60	21									
		can be hardened, hardened		100	22									
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23									
		≤ 12 % Si, can be hardened, hardened		90	24									
		> 12 % Si, can not be hardened		130	25									
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26									
		Brass, red brass		90	27									
		Bronze, lead-free copper and electrolytic copper		100	28									
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29									
		Hard rubber			30									
S	Heat-resistant alloys	Fe basis	annealed	200	31									
			hardened	280	32									
		Ni or Co basis	annealed	250	33									
			hardened	350	34									
			cast	320	35									
	Titanium alloys	Pure titanium		400[3]	36									
		Alpha + Beta alloys, hardened		1050[3]	37									
H	Hardened steel	hardened and tempered		55[4]	38									
		hardened and tempered		60[4]	39									
	Chilled cast iron	cast		400	40									
	Hardened cast iron	hardened and tempered		55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

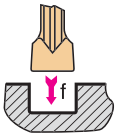
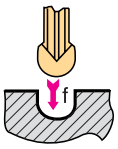
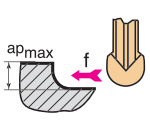
	v_C [m/min]		
	WK 1		
	f [mm]		
	0.05	0.1	0.2
	1000	900	650
	700	600	300
	600	350	200
	400	250	150
	600	400	250
	400	300	250
	300	200	130

Feed rate values for FX and LX grooving inserts

Geometry		Groove width [mm]	Feed rate f [mm] P f [mm]	M f [mm]	K f [mm]	N f [mm]
	**F1**	2.2	0.05–0.15	0.05–0.15	0.05–0.15	
		3.1	0.05–0.25	0.05–0.20	0.05–0.25	
		4.1	0.08–0.25	0.08–0.20	0.08–0.20	
	M1	2.2	0.05–0.15	0.05–0.15	0.05–0.10	
		3.1–4.1	0.10–0.30	0.10–0.20	0.05–0.25	
		5.1–6.5	0.10–0.35	0.10–0.30	0.08–0.30	
		8.2–9.7	0.15–0.40	0.15–0.30	0.10–0.35	
	R1	4.1	0.15–0.25			
		6.5	0.20–0.50			
	R2	3.1	0.10–0.30	0.10–0.30	0.10–0.30	
		4.1	0.15–0.35	0.15–0.35	0.15–0.35	
	**27P**	2.2				0.05–0.10
		3.1				0.05–0.15
		4.1				0.05–0.20
	M2*	8.0	0.20–0.50		0.20–0.50	
	M3*	8.0	0.15–0.50		0.15–0.50	

* also suitable for longitudinal turning.

Feed rate values for GX grooving inserts

Geometry		Groove width [mm]	a_{pmax} [mm]	Feed rate f [mm] P f [mm]	M f [mm]	K f [mm]
Circlip grooves 		0.6–1.7		0.02–0.08	0.02–0.08	0.02–0.08
		1.9–3.25		0.03–0.10	0.03–0.10	0.03–0.10
		4.25–5.25		0.05–0.25	0.05–0.25	0.05–0.25
O-ring grooves GX 09 / GX 16		1.6–2.4		0.05–0.15	0.05–0.15	0.05–0.15
		3.0–4.0		0.10–0.35	0.10–0.35	0.10–0.35
		5.0–6.0		0.15–0.40	0.15–0.40	0.15–0.40
		3.0–4.0	2.5	0.15–0.50	0.15–0.50	0.15–0.50
		5.0–6.0	4.0	0.20–0.60	0.20–0.60	0.20–0.60

Assembly instructions for WALTER CUT

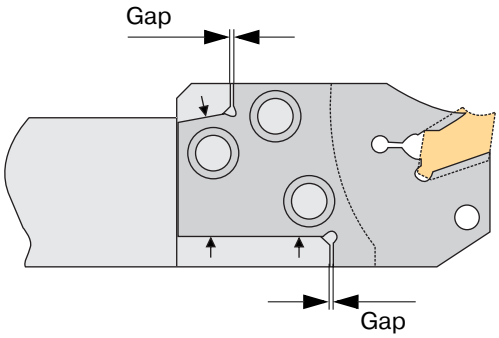
WALTER CUT – the strong connection

The axial clamping of the module and basic holder ensures backlash-free connection for maximum stability when tightening the screws.

The graphics show the module in the clamped and unclamped condition, and the forces acting between the module and the tool

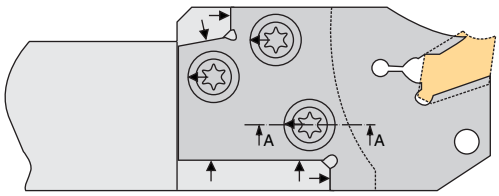
Unclamped module

→ Gap between the module and the flat support face for axial clamping



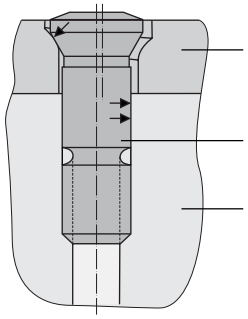
Clamped module

→ Axial clamping with support face
→ Backlash-free connection ensuring maximum stability



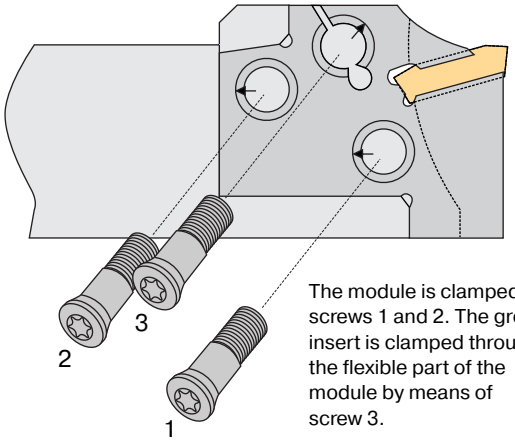
Clamped screw

Section A–A:
Clamping screw with greater clamping power



The system with two clamping functions

– GX: for grooving and turning

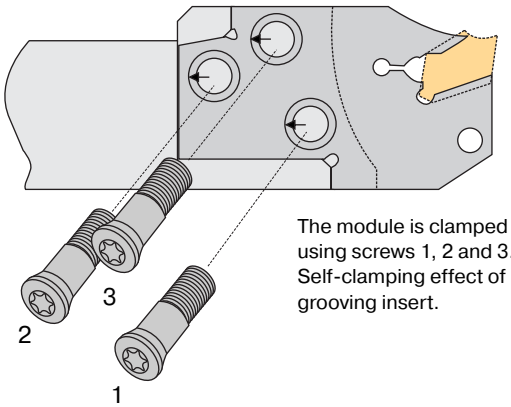


The module is clamped using screws 1 and 2. The grooving insert is clamped through the flexible part of the module by means of screw 3.

Important:
Observe the sequence for clamping the module:

Step	Operation	Screw no.
A	Pretension the module	1 – 2 (2 – 1)
B	Retension the module	1 – 2 (2 – 1)
C	Clamp the GX grooving insert	3

– FX: for parting off and deep grooving

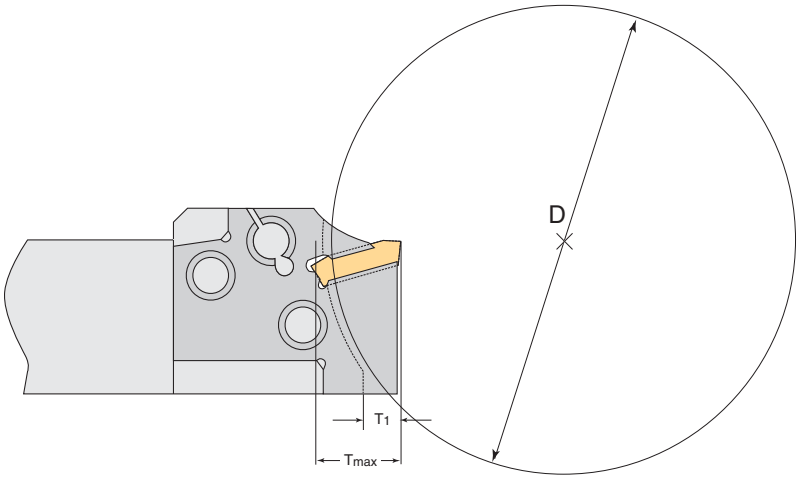


The module is clamped using screws 1, 2 and 3. Self-clamping effect of grooving insert.

Important:
Observe the sequence for clamping the module:

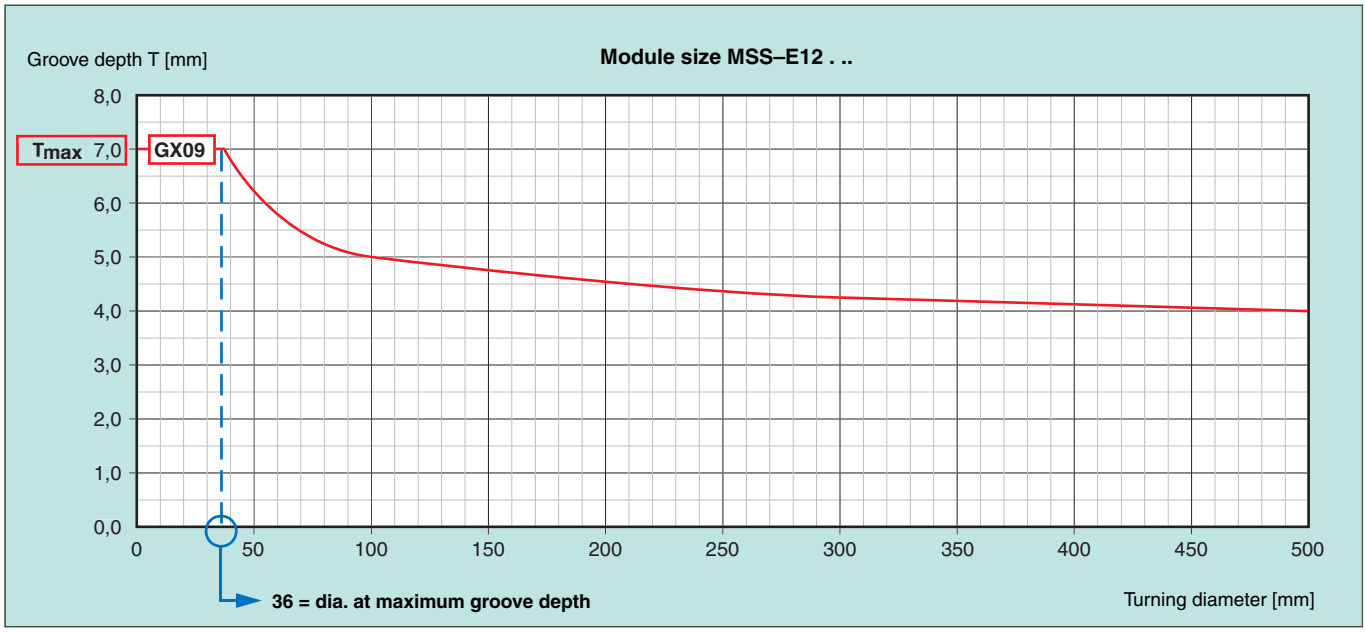
Step	Operation	Screw no.
A	Pretension the module	1 – 2 – 3
B	Retension the module	1 – 2 – 3
C	Clamp the FX grooving insert	Assembly wrench

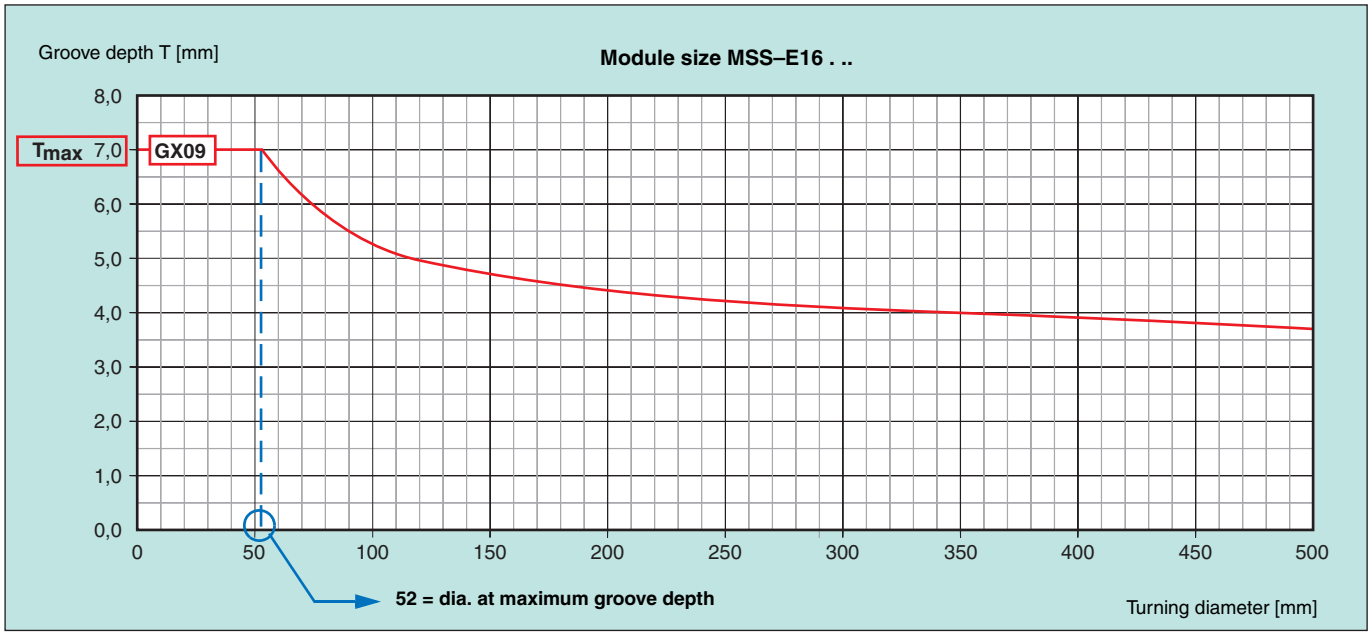
Groove depths depending on turning diameter



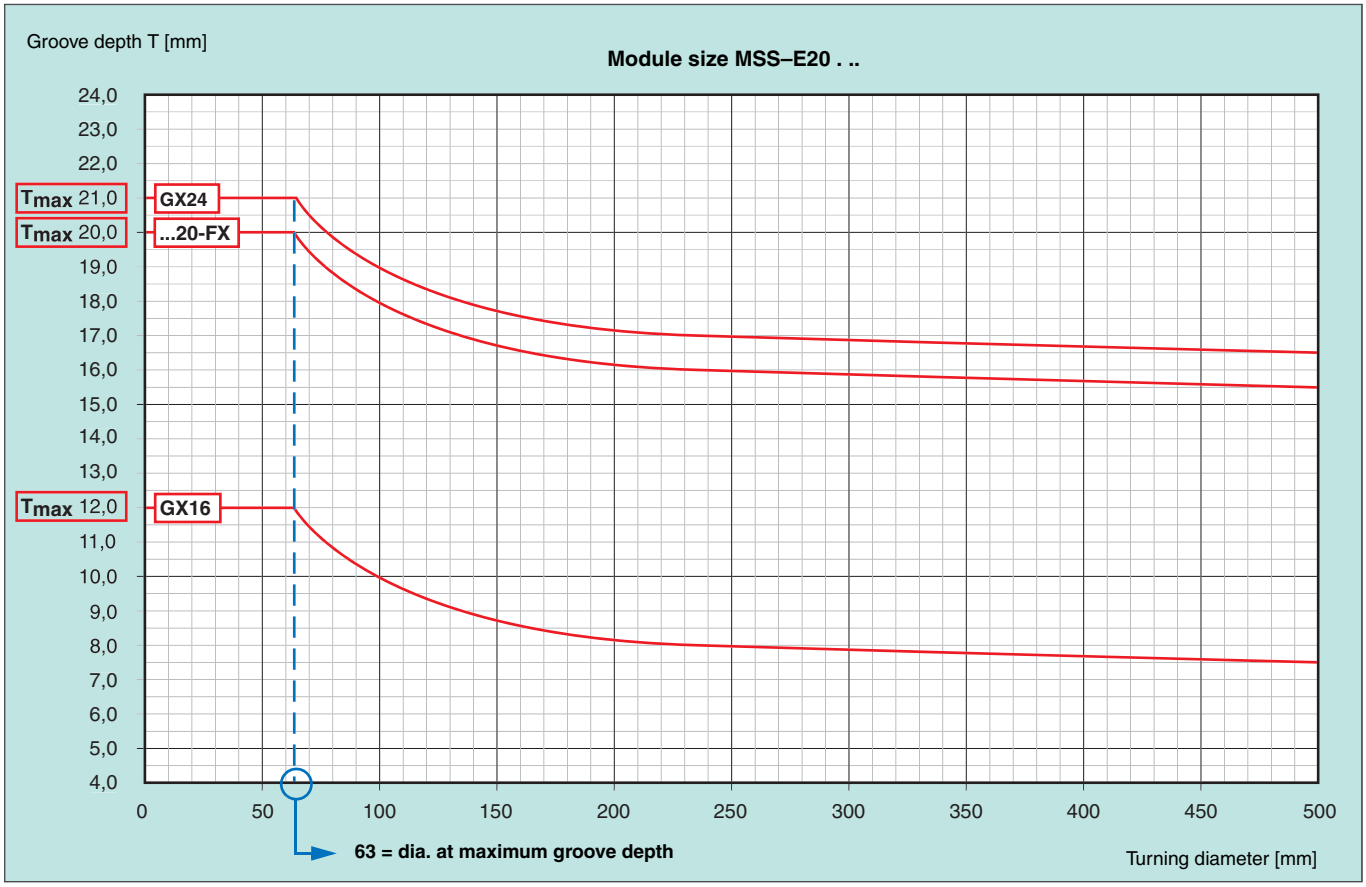
T_{max} = maximum groove depth **depending** on turning diameter D

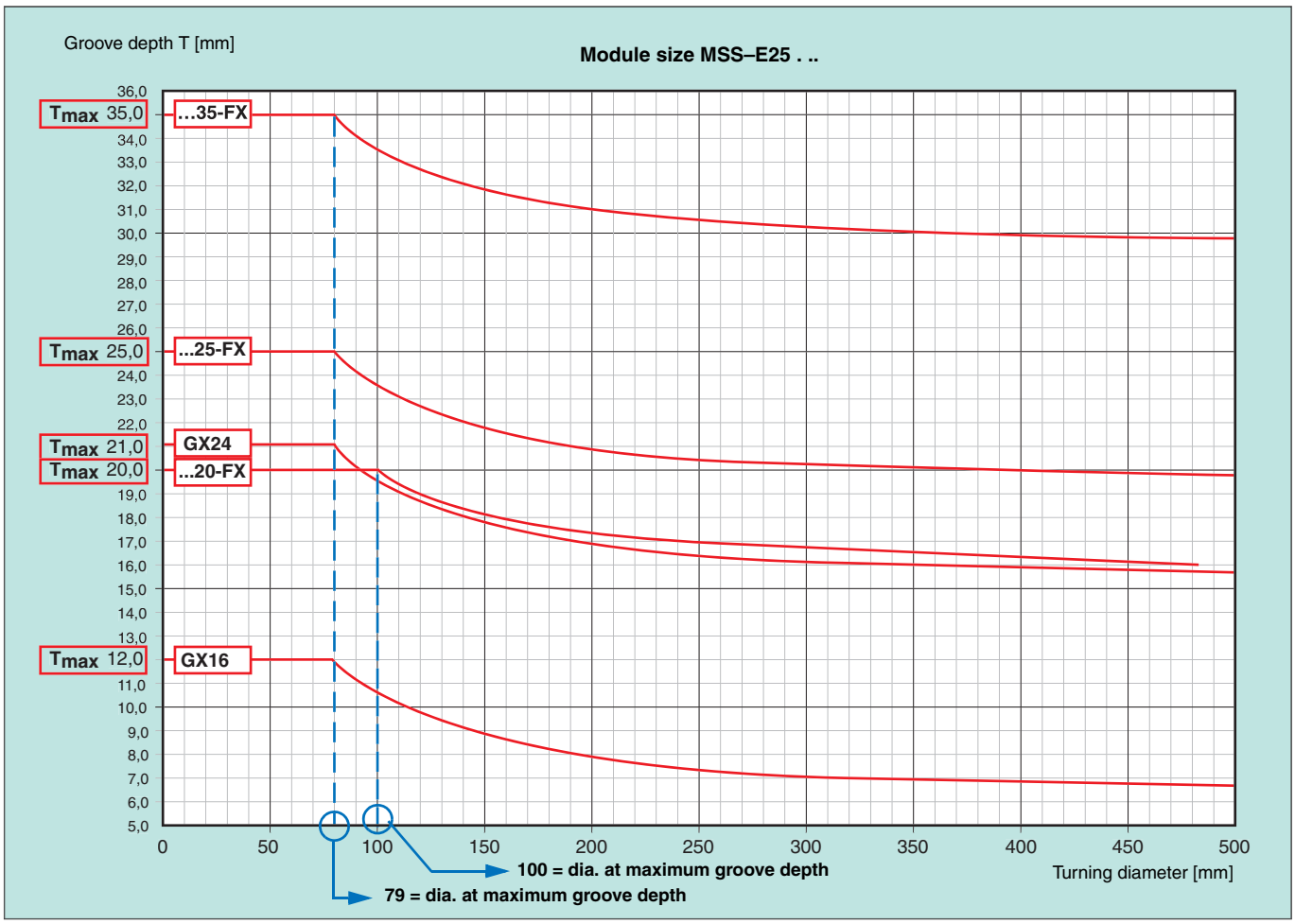
T_1 = groove depth **independent** of turning diameter D



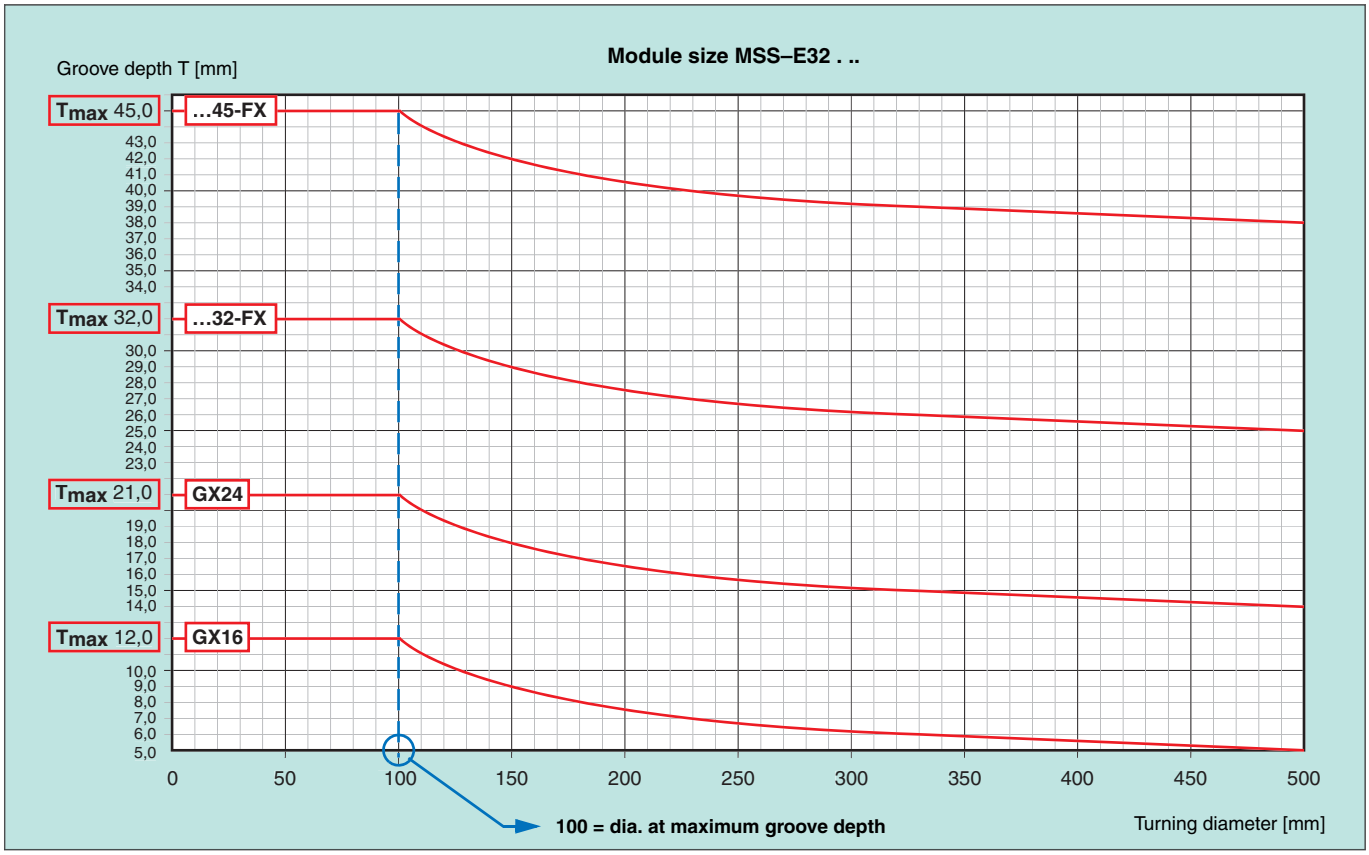


Continued - groove depths depending on turning diameter





Continued - groove depths depending on turning diameter



Cutting data for threading

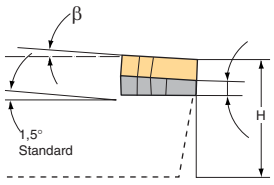
Material group	Classification of the main material groups and code letters: Workpiece material		Brinell hardness HB	Machining group[5]	Cutting speed v_C [m/min] WXP 20 Lead 0.5–1.25 mm 48–19 T/inch	WXP 20 Lead 1.5–3.0 mm 18–10 T/inch	WXP 20 Lead 3.5–6.0 mm 9–5 T/inch	WXM 20 Lead 0.5–1.25 mm 48–19 T/inch	WXM 20 Lead 1.5–3.0 mm 18–10 T/inch	WXM 20 Lead 3.5–6.0 mm 9–5 T/inch
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	200	240	300			
		approx. 0.45 % C annealed	190	2	180	200	280			
		approx. 0.45 % C tempered	250	3	150	180	230			
		approx. 0.75 % C annealed	270	4	110	130	170			
		approx. 0.75 % C tempered	300	5	80	100	120			
	Low-alloyed steel[1]	annealed	180	6	150	170	200			
		tempered	275	7	120	130	180			
		tempered	300	8	80	120	130			
		tempered	350	9	60	80	100			
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	90	100	120			
		hardened and tempered	325	11	50	60	80			
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	110	130	170	150	180	200
		martensitic, tempered	240	13	90	110	130	120	150	160
M	Stainless steel[1]	austenitic[2], quenched	180	14				180	220	250
K	Grey cast iron	perlitic/ferritic	180	15	170	200	240			
		perlitic (martensitic)	260	16	120	150	180			
	Cast iron with spheroidal graphite	ferritic	160	17	100	120	150			
		perlitic	250	18	80	90	110			
	Malleable cast iron	ferritic	130	19	110	130	150			
		perlitic	230	20	80	100	120			
N	Aluminium wrought alloys	can not be hardened	60	21				350	400	450
		can be hardened, hardened	100	22				250	300	350
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened	75	23				380	400	430
		≤ 12 % Si, can be hardened, hardened	90	24				270	320	370
		> 12 % Si, can not be hardened	130	25						
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %	110	26				220	250	280
		Brass, red brass	90	27				220	250	280
		Bronze, lead-free copper and electrolytic copper	100	28				180	200	220
	Non-metallic materials	Curable plastics, fibre-reinforced plastics		29				220	250	280
		Hard rubber		30						
S	Heat-resistant alloys	Fe basis annealed	200	31						
		Fe basis hardened	280	32						
		Ni or Co basis annealed	250	33						
		Ni or Co basis hardened	350	34						
		Ni or Co basis cast	320	35						
	Titanium alloys	Pure titanium	400[3]	36						
		Alpha + Beta alloys, hardened	1050[3]	37						
H	Hardened steel	hardened and tempered	55[4]	38						
		hardened and tempered	60[4]	39						
	Chilled cast iron	cast	400	40						
	Hardened cast iron	hardened and tempered	55[4]	41						

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

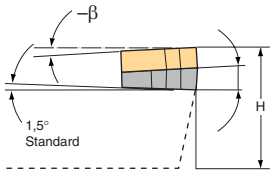
Threading – Gradient angle corrections

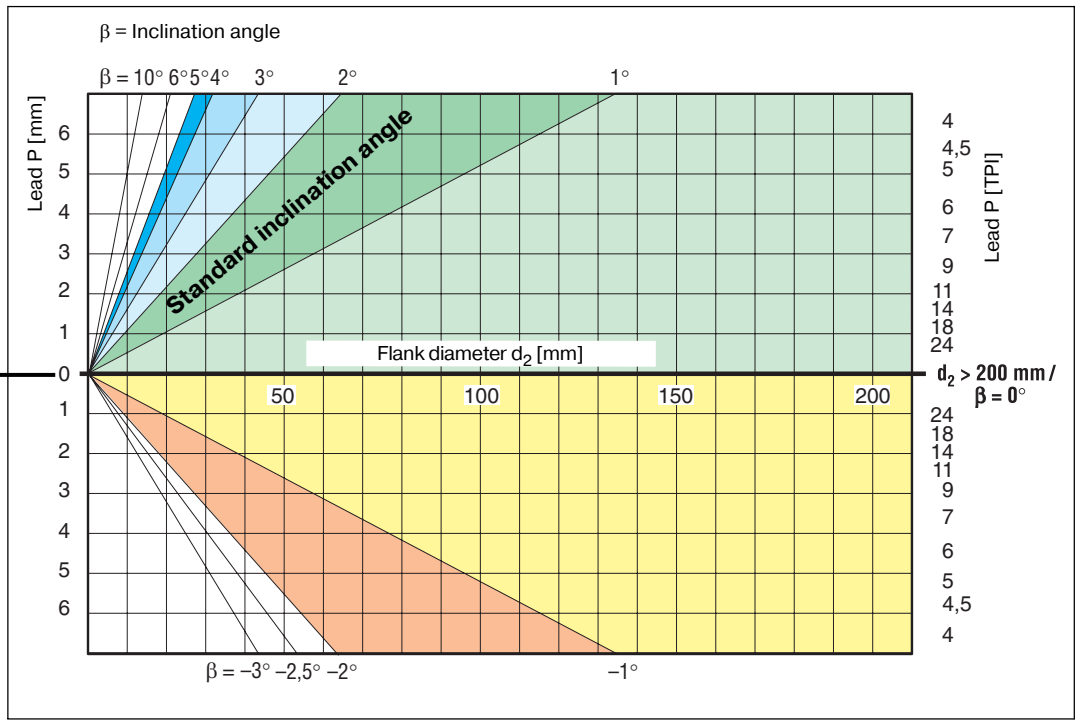
Inclination angle diagram

Standard inclination angle
Feed rate in head stock direction



Opposite inclination angle
Feed rate in tail stock direction

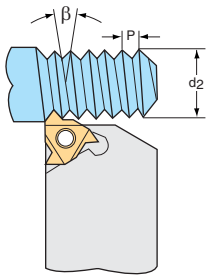




The colours of the inclination angle diagram correspond with the colours of the shim table.

No values must be read off.

Selection of the suitable shim



The inclination angle is calculated according to the following formula:

$$\beta = \arctan \frac{P}{\pi \times d_2}$$

β = inclination angle[°]
P = thread pitch [mm]
d_2 = flank diameter [mm]

The inclination angle can also be determined using the diagram.
The suitable shim is selected according to the table

Shims

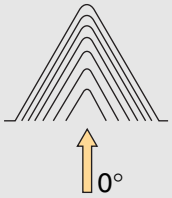
The inclination angle of standard toolholders (internal and β = external) is 1.5°.

Insert size		Tool holder	Reference no.							
IC	L [mm]		β = 4.5°	β = 3.5°	β = 2.5°	β = 1.5°	β = 0.5°	β = 0	β = −0.5°	β = −1.5°
3/8"	16	ER / IL	YE 3–3P	YE 3–2P	YE 3–1P	YE 3	YE 3–1N	YE 3–1.5N	YE 3–2N	YE 3–3N
		EL / IR	YI 3–3P	YI 3–2P	YI 3–1P	YI 3	YI 3–1N	YI 3–1.5N	YI 3–2N	YI 3–3N
1/2"	22	ER / IL	YE 4–3P	YE 4–2P	YE 4–1P	YE 4	YE 4–1N	YE 4–1.5N	YE 4–2N	YE 4–3N
		EL / IR	YI 4–3P	YI 4–2P	YI 4–1P	YI 4	YI 4–1N	YI 4–1.5N	YI 4–2N	YI 4–3N

Recommended values for threading with WALTER NTS

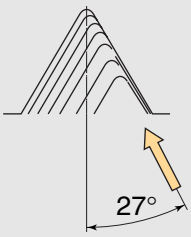
Positioning and its influence on the cutting results

Radial positioning / Example 0°



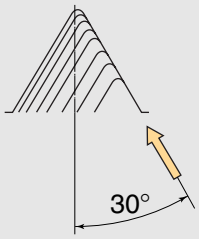
- formation of V-shaped chips
- both cutting edges engaged
- increased cutting heat
- cutting radius overloaded
- large amount of chips

Positioning through flank / Example 27°



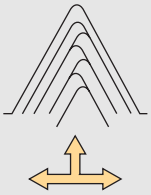
- good chip removal
- formation of flat chips
- both cutting edges engaged
- chip removal away from the thread
- threading flanks with excellent surface finish

Positioning through flank / Example 30°



- formation of flat chips
- cutting heat distribution over the secondary cutting edge
- slight loading of the cutting radius
- small positioning marks in the upper part of the flank surface
- chip removal away from the thread

Changing positioning



- good chip removal
- formation of flat chips
- both cutting edges are evenly engaged, thus providing balanced wear
- application on conventional lathes and large threads

Recommended values for the number of radial infeeds for each thread cutting pass on manual lathes

The specified distribution of a cut is to be considered as a recommendation only. The values were established for machining steels of medium strength under favourable machining conditions. In the case of high tensile steels, the number of infeeds should be increased. It is important to reduce the initial threading cuts in this case.
If the working conditions are different, the infeed should be modified accordingly. This applies to internal threading cuts with a projection length of over 2.5 x boring bar diameter.

Whitworth (WH), external and internal operations

No. of infeeds	Lead (TPI)														
	28	26	20	19	18	16	14	12	11	10	9	8	7	6	5
16															
15														**2.80**	**3.34**
14														0.10	0.10
13												**2.09**	**2.41**	0.12	0.12
12											**1.87**	0.08	0.08	0.14	0.15
11										**1.69**	0.08	0.12	0.12	0.14	0.17
10									**1.54**	0.08	0.12	0.12	0.14	0.15	0.18
9						**1.12**	**1.23**	**1.42**	0.08	0.12	0.12	0.13	0.15	0.16	0.19
8					**1.07**	0.08	0.08	0.08	0.12	0.13	0.13	0.14	0.16	0.17	0.20
7			**0.87**	**0.91**	0.08	0.10	0.11	0.13	0.13	0.13	0.14	0.15	0.18	0.19	0.22
6	**0.64**	**0.68**	0.08	0.08	0.11	0.10	0.12	0.14	0.14	0.15	0.15	0.16	0.19	0.20	0.24
5	0.08	0.08	0.11	0.12	0.13	0.12	0.13	0.15	0.16	0.16	0.17	0.18	0.21	0.21	0.27
4	0.11	0.11	0.13	0.13	0.14	0.14	0.15	017	0.18	0.18	0.19	0.20	0.23	0.24	0.30
3	0.12	0.14	0.15	0.16	0.17	0.16	0.18	0.21	0.21	0.21	0.22	0.23	0.27	0.28	0.36
2	0.15	0.16	0.19	0.20	0.21	0.20	0.22	0.26	0.25	0.26	0.27	0.28	0.33	0.34	0.41
1	0.18	0.19	0.21	0.22	0.23	0.22	0.24	0.28	0.27	0.27	0.28	0.30	0.35	0.36	0.43
	Radial infeed (mm) ← Cutting speed reduction														

External operation, metric 60°

No. of infeeds	Lead (mm)																	
	0.5	0.6	0.7	0.75	0.8	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
																	3.41	**3.72**
16																	0.10	0.10
15														**2.50**	**2.80**	**3.12**	0.12	0.12
14														0.08	0.10	0.10	0.13	0.14
13												**1.89**	**2.20**	0.11	0.12	0.12	0.13	0.15
12												0.08	0.08	0.12	0.13	0.15	0.15	0.16
11											**1.58**	0.10	0.11	0.12	0.14	0.16	0.16	0.18
10											0.08	0.11	0.12	0.13	0.15	0.17	0.17	0.19
9									**1.14**	**1.28**	0.11	0.12	0.14	0.14	0.16	0.18	0.18	0.20
8									0.08	0.08	0.11	0.12	0.14	0.15	0.17	0.19	0.19	0.21
7							**0.80**	**0.94**	0.10	0.11	0.12	0.13	0.15	0.16	0.18	0.20	0.20	0.22
6						**0.67**	0.08	0.08	0.10	0.12	0.13	0.14	0.17	0.17	0.20	0.22	0.22	0.24
5	**0.34**	**0.40**	**0.47**	**0.50**	**0.54**	0.08	0.10	0.12	0.12	0.14	0.15	0.16	0.18	0.19	0.22	0.24	0.24	0.27
4	0.07	0.07	0.07	0.07	0.08	0.11	0.11	0.14	0.14	0.16	0.17	0.18	0.21	0.22	0.24	0.27	0.27	0.30
3	0.07	0.08	0.10	0.11	0.12	0.13	0.14	0.17	0.17	0.18	0.20	0.21	0.25	0.25	0.28	0.32	0.32	0.35
2	0.09	0.11	0.14	0.15	0.16	0.16	0.17	0.21	0.21	0.24	0.24	0.26	0.31	0.32	0.34	0.39	0.40	0.43
1	0.11	0.14	0.16	0.17	0.18	0.19	0.20	0.22	0.22	0.25	0.27	0.28	0.34	0.34	0.37	0.41	0.43	0.46
	Radial infeed (mm) ◄ Cutting speed reduction																	

Internal operation, metric 60°

No. of infeeds	Lead (mm)																	
	0.5	0.6	0.7	0.75	0.8	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
																	3.20	**3.46**
16																	0.10	0.10
15														**2.32**	**2.62**	**2.89**	0.12	0.12
14														0.08	0.10	0.10	0.12	0.13
13												**1.77**	**2.04**	0.10	0.11	0.12	0.13	0.14
12												0.08	0.08	0.10	0.12	0.14	0.14	0.15
11											**1.49**	0.09	0.10	0.11	0.12	0.14	0.14	0.15
10											0.08	0.10	0.11	0.12	0.13	0.15	0.15	0.16
9									**1.07**	**1.20**	0.10	0.10	0.12	0.12	0.14	0.15	0.16	0.18
8									0.08	0.08	0.10	0.11	0.13	0.13	0.15	0.16	0.17	0.19
7							**0.77**	**0.90**	0.09	0.10	0.11	0.12	0.14	0.14	0.16	0.17	0.18	0.20
6						**0.63**	0.08	0.08	0.09	0.11	0.12	0.13	0.15	0.15	0.19	0.20	0.20	0.22
5	**0.34**	**0.38**	**0.44**	**0.48**	**0.51**	0.08	0.09	0.11	0.10	0.12	0.13	0.14	0.17	0.18	0.21	0.22	0.22	0.24
4	0.07	0.07	0.07	0.07	0.07	0.09	0.10	0.13	0.13	0.14	0.15	0.16	0.19	0.21	0.23	0.25	0.26	0.28
3	0.07	0.08	0.08	0.10	0.11	0.11	0.13	0.15	0.15	0.17	0.18	0.20	0.23	0.24	0.27	0.30	0.32	0.35
2	0.09	0.11	0.13	0.14	0.15	0.16	0.17	0.21	0.21	0.23	0.25	0.26	0.30	0.31	0.33	0.38	0.38	0.41
1	0.11	0.12	0.16	0.17	0.18	0.19	0.20	0.22	0.22	0.25	0.27	0.28	0.32	0.33	0.36	0.41	0.41	0.44
	Radial infeed (mm) ◄ Cutting speed reduction																	

Continued - recommended values for threading with WALTER NTS

External operation, UN 60°

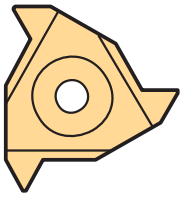
No. of infeeds	Lead (TPI)															
	32	28	24	20	18	16	14	13	12	11	10	9	8	7	6	5
16																
15															**2.66**	**3.19**
14															0.10	0.10
13													**2.01**	**2.28**	0.11	0.12
12												**1.79**	0.08	0.08	0.12	0.15
11											**1.63**	0.08	0.11	0.11	0.13	0.17
10										**1.48**	0.08	0.11	0.12	0.12	0.14	0.18
9							**1.17**	**1.26**	**1.36**	0.08	0.11	0.12	0.12	0.14	0.15	0.19
8						**1.03**	0.08	0.08	0.08	0.11	0.12	0.12	0.13	0.15	0.16	0.19
7				**0.83**	**0.93**	0.08	0.10	0.11	0.12	0.12	0.13	0.13	0.14	0.16	0.17	0.20
6		**0.62**	**0.71**	0.08	0.08	0.11	0.11	0.12	0.13	0.13	0.14	0.14	0.15	0.17	0.18	0.22
5	**0.52**	0.08	0.08	0.10	0.12	0.12	0.12	0.13	0.14	0.15	0.15	0.16	0.17	0.19	0.20	0.24
4	0.08	0.10	0.12	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.22	0.23	0.28
3	0.12	0.12	0.15	0.14	0.16	0.16	0.17	0.18	0.20	0.20	0.20	0.21	0.22	0.26	0.27	0.32
2	0.15	0.15	0.17	0.19	0.21	0.21	0.22	0.24	0.26	0.25	0.26	0.26	0.28	0.33	0.34	0.40
1	0.17	0.17	0.19	0.20	0.23	0.22	0.23	0.25	0.27	0.27	0.27	0.28	0.30	0.35	0.36	0.43
	Radial infeed (mm)															
	← Cutting speed reduction															

Internal operation, UN 60°

No. of infeeds	Lead (TPI)															
	32	28	24	20	18	16	14	13	12	11	10	9	8	7	6	5
16																
15															**2.44**	**2.93**
14															0.10	0.10
13													**1.86**	**2.11**	0.11	0.12
12												**1.66**	0.08	0.08	0.11	0.14
11											**1.49**	0.08	0.10	0.11	0.12	0.14
10										**1.38**	0.08	0.09	0.10	0.12	0.12	0.15
9							**1.10**	**1.17**	**1.26**	0.08	0.10	0.10	0.11	0.12	0.13	0.16
8						**0.95**	0.08	0.08	0.08	0.10	0.10	0.11	0.11	0.13	0.14	0.17
9				**0.78**	**0.86**	0.08	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.14	0.15	0.18
6		**0.59**	**0.66**	0.08	0.08	0.09	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.15	0.16	0.20
5	**0.49**	0.08	0.08	0.09	0.10	0.10	0.11	0.12	0.13	0.13	0.13	0.14	0.15	0.17	0.18	0.22
4	0.08	0.10	0.10	0.11	0.12	0.12	0.13	0.13	0.15	0.15	0.15	0.16	0.17	0.20	0.20	0.25
3	0.10	0.10	0.14	0.13	0.14	0.14	0.15	0.16	0.18	0.18	0.18	0.19	0.21	0.23	0.24	0.30
2	0.14	0.14	0.16	0.17	0.19	0.20	0.21	0.22	0.24	0.24	0.25	0.26	0.28	0.28	0.32	0.38
1	0.17	0.17	0.18	0.20	0.23	0.22	0.23	0.25	0.27	0.27	0.27	0.28	0.30	0.34	0.35	0.42
	Radial infeed (mm)															
	← Cutting speed reduction															

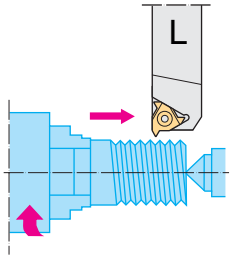
WALTER NTS threading – application strategy

Performance features

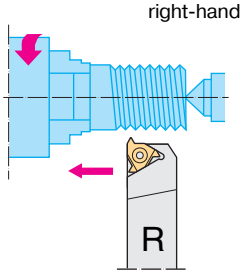


- High precision, ground profile
- Ground-in chip breaker
- Excellent cutting behaviour and reliable chip clearance due to the positive cutting edge shape
- Right-hand and left-hand version
- By changing the bottom shim, threads running in the opposite direction can be produced
- High repeat accuracy
- Great profile versatility
- Full profile and part profile
- PVD coated carbide grades

External application

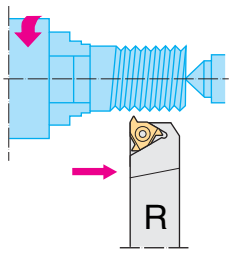


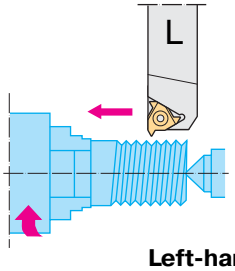
Right-hand thread
right-hand toolholder
right-hand insert



Right-hand thread
left-hand toolholder
left-hand insert
opposite lead angle

Left-hand thread
right-hand toolholder
right-hand insert
opposite lead angle

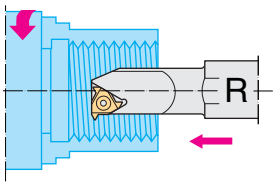




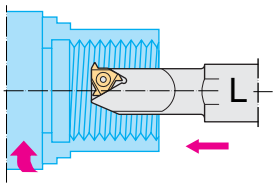
Left-hand thread
left-hand toolholder
left-hand insert

Internal application

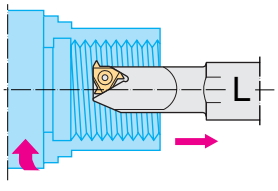
Right-hand thread
right-hand toolholder
right-hand insert



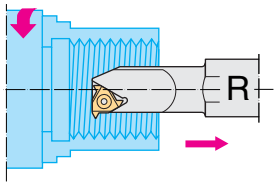
Left-hand thread
left-hand toolholder
left-hand insert



Right-hand thread
left-hand toolholder
left-hand insert
opposite lead angle



Left-hand thread
right-hand toolholder
right-hand insert
opposite lead angle





Boring

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WALTER drilling and boring tools



WALTER Boring *MEDIUM* tool B 3220

- Diameter range: 20–70 mm with C and W inserts
- Compact and rigid tool system thanks to the ScrewFit coupling
- Easy handling due to front assembly

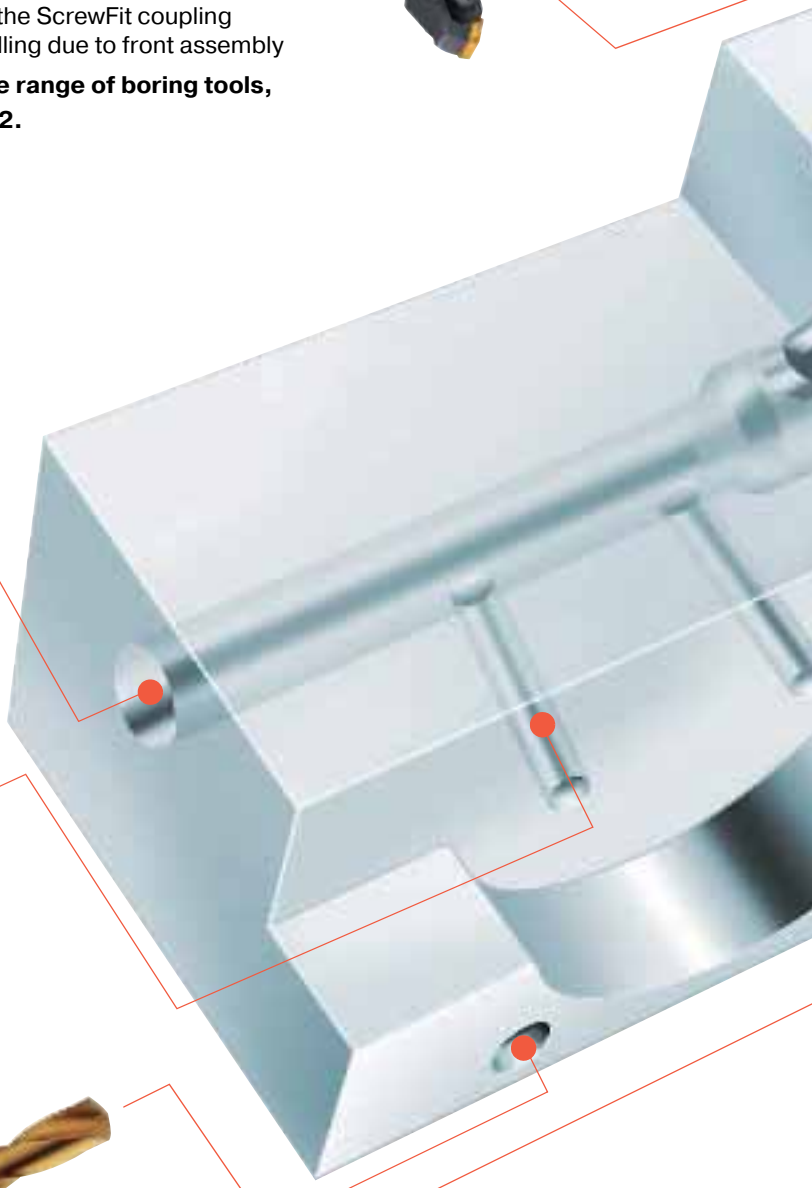
For complete range of boring tools, see page 322.



WALTER STARDRILL

- Indexable insert drill up to 5 x Dc drilling depth
- Comprehensive range from 16–58 mm in diameter
- Economic, 4-edge inserts

For complete range of drills, see page 278.



WALTER MINI-STARDRILL B 1333

- Straight fluted solid carbide drill for short chipping materials
- Up to 12 x Dc drilling depth
- High precision, excellent surface finish

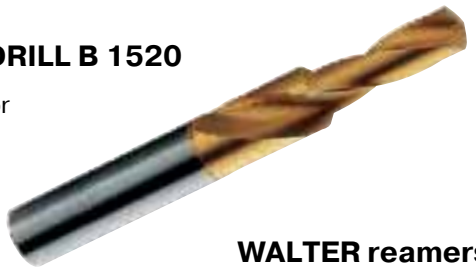
For complete range of solid carbide drills, see page 311.



WALTER MINI-STARDRILL B 1520

- Solid carbide step drill for standard tap drill holes
- For threads M4-M16
- Universal geometry for the most varied of materials

For complete range of solid carbide drills, see page 311.



WALTER reamers R 4061

- Rail-guided reamers for highly precise bores (ISO tolerance H6)
- Diameter range of 6–25 mm
- Customised solutions for through and blind bores

For complete range of reamers, see page 323.





WALTER STARDRILL

- World's smallest indexable insert drill
- Up to 4 x Dc drilling depth
- Comprehensive range, including core hole diameters of 10–18 mm

For complete range of drills, see page 278.





WALTER drills B 4013, B 4015, B 4017

- Simple clamping of drill bits via a central clamping screw
- Diameter range of 12–31.75 mm for drilling depths up to 7 x Dc
- Maximum process reliability due to the axial and radial clamping of insert in the body

For complete range of drills, see page 278.

WALTER Precision *MEDIUM* boring tool B 4030

- Self-balancing precision boring tools for spindle-saving applications
- Diameters of 33–153 mm
- With NCT or ScrewFit coupling for maximum precision and rigidity

For complete range of precision boring tools, see page 322.



WALTER Boring *MAXI* bridge-type boring tool B 3220

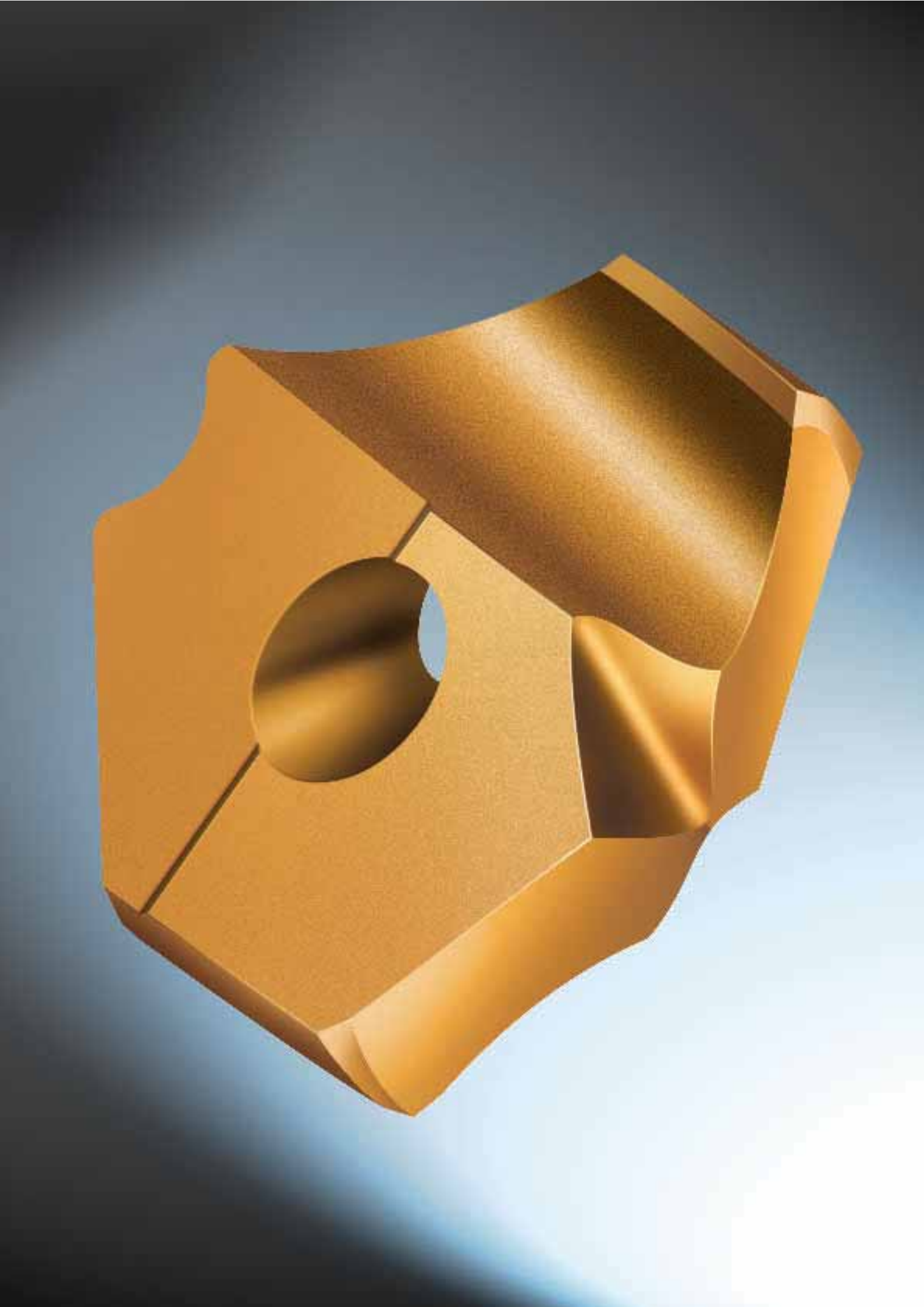
- Diameter range of 150–640 mm
- Precise, unlimited adjustment within the operating range thanks to the precise cartridge guidance
- Tried and tested modular NCT short taper coupling for maximum precision

For complete range of boring tools, see page 322.









Indexable inserts for drilling and boring



Drill bits for the *Xtra*·tec® drill

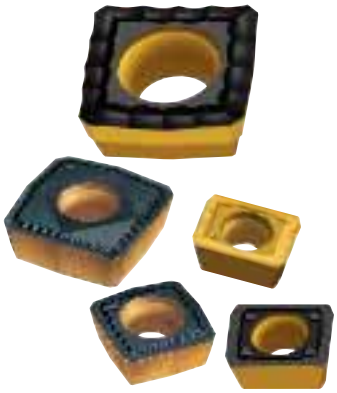
- Double the feed rate and economic drilling is guaranteed due to the two cutting edges
- Maximum process reliability due to drill bit clamping via a V-guide and an inclined bore
- High bore precision and excellent surface finishes due to the drill margin at the bit and drill
- Special geometries for steel and cast iron machining

For the complete *Xtra*·tec® range of drill bits, see page 250 onwards.

Indexable inserts for the WALTER STARDRILL drill

- The WALTER STARDRILL system inserts offer the right geometry and grade for each application
- Just one basic shape for inner and outer cutting inserts
- New ***Tiger*·tec®** grades allow for shorter machining times and more reliable chip removal

For the complete indexable insert range for drills, see page 248 onwards.





Boring inserts, precision boring and reaming

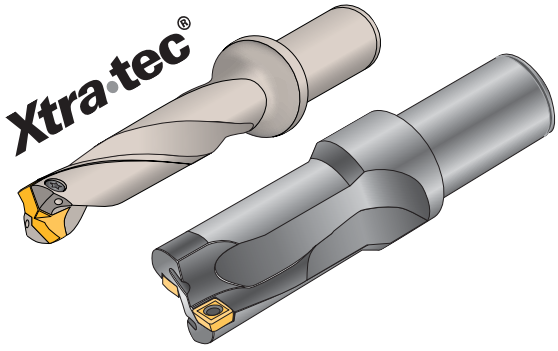
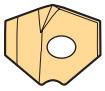
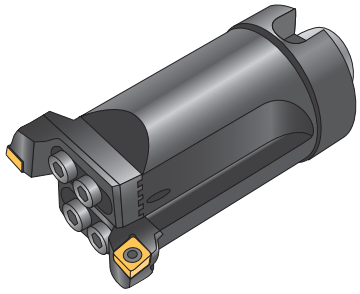
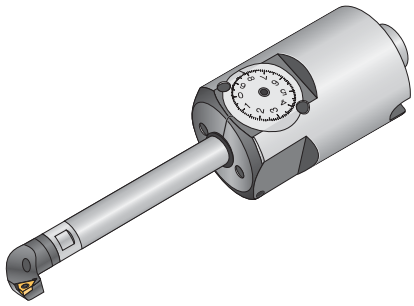
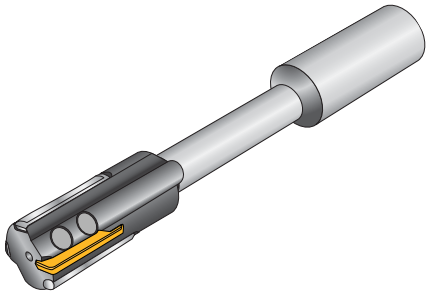
- Excellent chip breakage due to specially adapted geometries
- Comprehensive range allows for optimal adjustment to every machining application
- PVD and CVD coated carbide grades and CBN and PCD equipped indexable inserts allow for the machining of almost all materials

For the complete range of

- **indexable inserts, see page 256 onwards**
- **precision boring tools, see page 261 onwards**
- **reamers, see page 267 onwards**

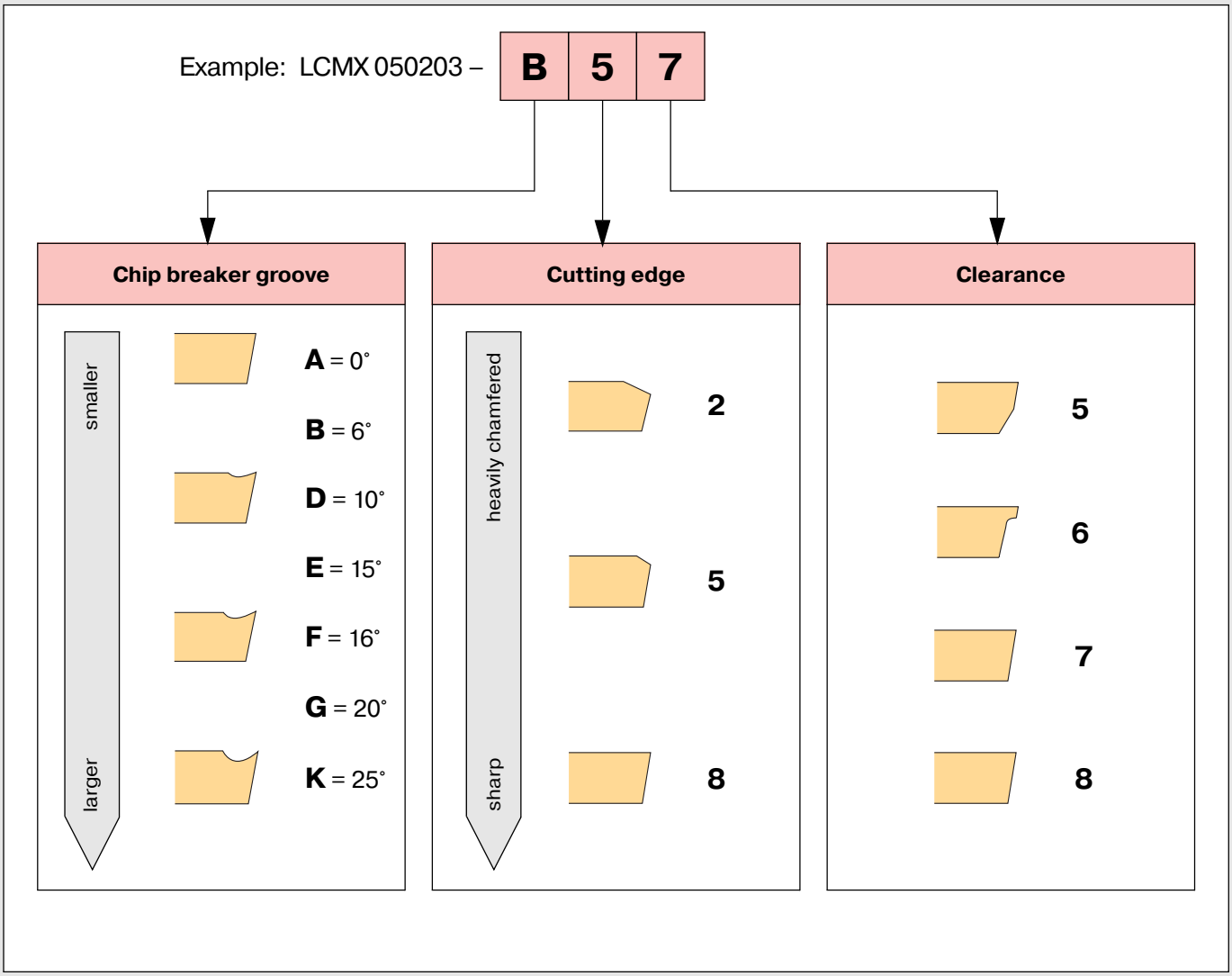


Product range overview of indexable for drilling inserts and reaming

	Insert shape		Description	Page
		**P 6001 . .** **P 6002 . .**	for drilling	250 253
		**L**	for drilling	248
		**P 284 . .**	for drilling	249
		**W**	for drilling	255
		**C**	for boring	258
		**W**	for boring	259
		**C**	for precision boring	264
		**W**	for precision boring	266
		**P 6500**	for reaming	267

WALTER geometry designation key

for drilling inserts

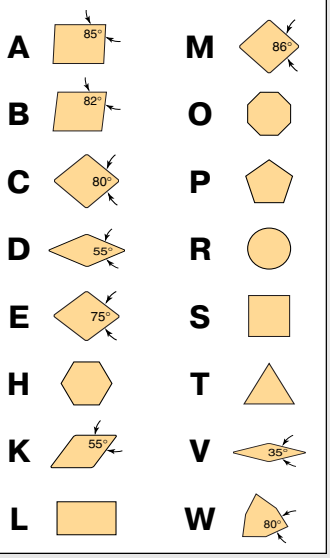


Designation key in accordance with ISO 1832

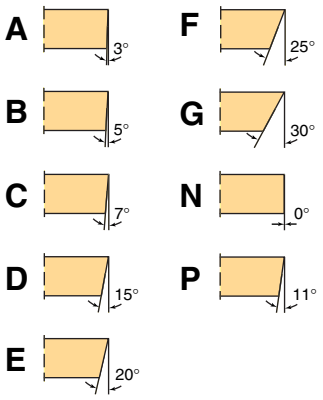
Example for drilling inserts:

L	C	M	X	06	T2	04	– D 57
1	2	3	4	5	6	7	12

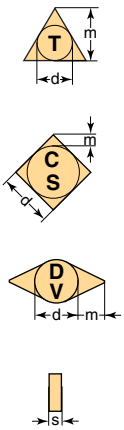
1 Insert shape



2 Clearance angle



3 Tolerances

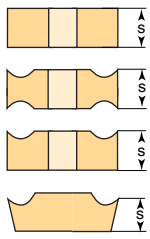


Permissible deviation in mm for

	d	m	s
A	± 0.025	± 0.005	± 0.025
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
F	± 0.013	± 0.005	± 0.025
G	± 0.025	± 0.025	± 0.130
H	± 0.013	± 0.013	± 0.025
J[1]	± 0.05–0.15[2]	± 0.005	± 0.025
K[1]	± 0.05–0.15[2]	± 0.013	± 0.025
L[1]	± 0.05–0.15[2]	± 0.025	± 0.025
M	± 0.05–0.15[2]	± 0.08–0.20[2]	± 0.130
N	± 0.05–0.15[2]	± 0.08–0.20[2]	± 0.025
U	± 0.08–0.25[2]	± 0.13–0.38[2]	± 0.130

[1] inserts with ground secondary cutting edges
[2] depending on the insert size (see ISO standard 1832)

6 Insert thickness



01 s = 1.59
T1 s = 1.98
02 s = 2.38
T2 s = 2.78
03 s = 3.18
T3 s = 3.97
04 s = 4.76
05 s = 5.56
06 s = 6.35
07 s = 7.94
09 s = 9.52

7 Corner radius

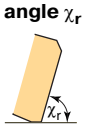


01 r = 0.1
02 r = 0.2
04 r = 0.4
08 r = 0.8
12 r = 1.2
16 r = 1.6
24 r = 2.4

R

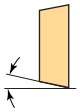
00 for diameters with inch measurements converted to mm.
M0 for diameters in metric measurements.

Approach setting angle χ_r



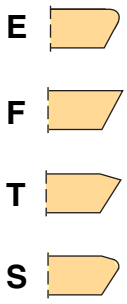
A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = other approach angle

Clearance angle to the secondary cutting edge

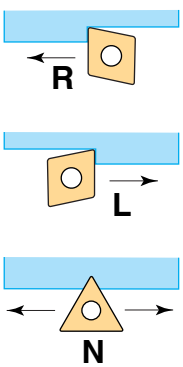


A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = other clearance angle

8 Cutting edge formation



9 Cutting edge direction



Example for Boring and Precision boring inserts:

W	C	G	T	04	02	04	– X 15
1	2	3	4	5	6	7	12

4 Machining and fastening features

A

B β = 70–90°

C β = 70–90°

F

G

H β = 70–90°

J β = 70–90°

M

N

Q β = 40–60°

R

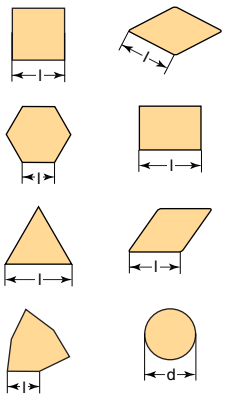
T β = 40–60°

U β = 40–60°

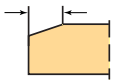
W β = 40–60°

X Drawing or precise description of insert is required

5 Cutting edge length

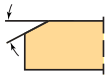


10 Chamfer width



010 = 0.10 mm
025 = 0.25 mm
070 = 0.70 mm
150 = 1.50 mm
200 = 2.00 mm

11 Chamfer angle



15 = 15°
20 = 20°

12 Manufacturer's specifications

The ISO code includes 9 symbols. The symbols 8 and/or 9 should be only used when required.

The manufacturer can add other symbols which can be combined with the ISO code by means of a hyphen (e.g. for the chip breaker shape).

Drilling:
B 57
D 57
E 57

Boring:
PF 4
PF 5
PS 5
PM 2
PM 5

Precision Boring:
X 5
X 15
X 25
PM 2
PF
PF 4
PF 5

WALTER SELECT for drilling inserts

WALTER SELECT –
Step by step to the optimal indexable insert

→ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

→ Step 2

Select the **machining conditions:**

Entry/exit conditions	Machine stability, clamping system and workpiece		
	very good	good	moderate
Entry/exit level			
Inclined standard cast/ forged surfaces ≤ 5°			
Heavily inclined entry/exit > 5° Cross-holes			

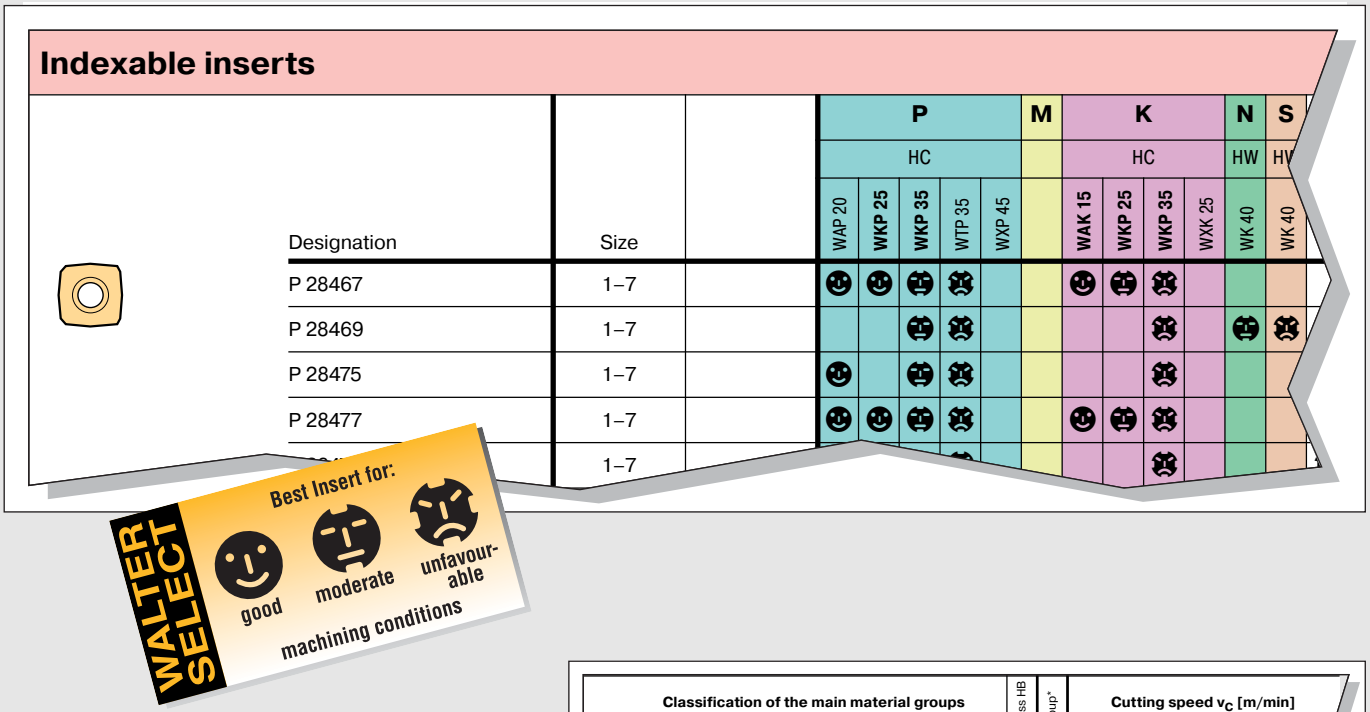
➔ Step 3

Select the **tool** in accordance with the application:

Drilling depth	Page
2 x D_C	280
3 x D_C	284
4 x D_C	292
5 x D_C	298
7 x D_C	304

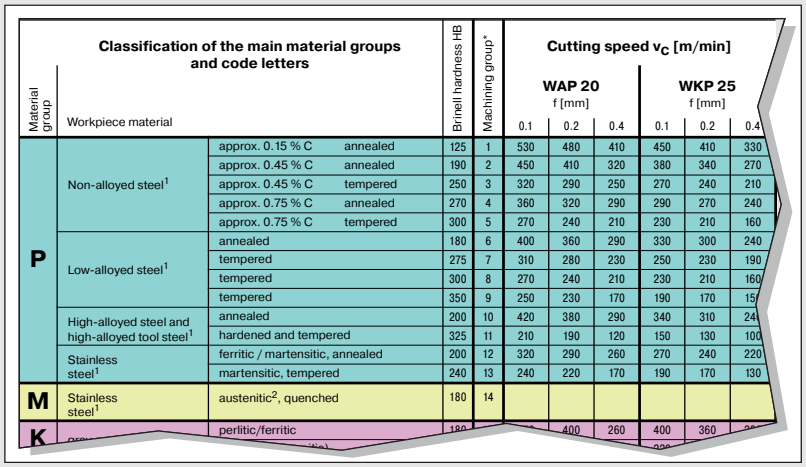
➔ Step 4

Define your optimal **indexable insert grades and geometries** on the appropriate tool page.
Here please take into consideration the machining conditions (step 2) and the material to be machined.



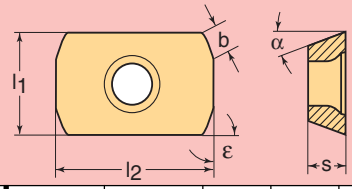
➔ Step 5

Select the **cutting data** in the technical information, from page 366.



Drilling inserts

Square LCMX

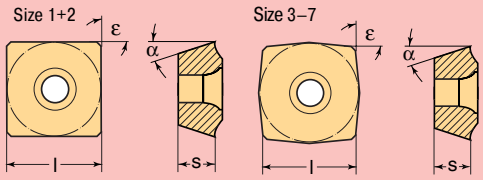


HC = coated carbide
HW = uncoated carbide

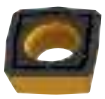
	Designation	Cutting edges	l_1 X l_2 mm	s mm	α°	b	ε°	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
	LCMX 050203 – B 57	2	4 x 5.2	2.38	7	0.6 x 20°	90			△	△					△				△
	LCMX 06T204 – B 57	2	5.2 x 6.6	2.78	7	0.8 x 20°	90			△	△					△				△
	LCMX 050203 – D 57	2	4 x 5.2	2.38	7	0.6 x 20°	90	△	△	△	△				△	△				△
	LCMX 06T204 – D 57	2	5.2 x 6.6	2.78	7	0.8 x 20°	90	△	△	△	△				△	△				△
	LCMX 050203 – E 57	2	4 x 5.2	2.38	7	0.6 x 20°	90	△												△
	LCMX 06T204 – E 57	2	5.2 x 6.6	2.78	7	0.8 x 20°	90	△												△



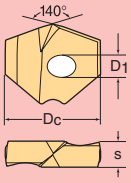
P 284 . .



HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	l mm	s mm	α°	ε°	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
	P 28467 – 1	4	6.35	2.38	14	90	△	△	△	△			△	△	△				
	P 28467 – 2	4	7.80	3.18	14	90	△	△	△	△			△	△	△				
	P 28467 – 3	4	9.52	3.97	11	96	△	△	△	△			△	△	△				
	P 28467 – 4	4	11.0	3.97	11	96	△	△	△	△			△	△	△				
	P 28467 – 5	4	12.7	4.76	11	96	△	△	△	△			△	△	△				
	P 28467 – 6	4	15.0	4.76	11	96	△	△	△	△			△	△	△				
	P 28467 – 7	4	17.6	5.56	11	96	△	△	△	△			△	△	△				
	P 28469 – 1	4	6.35	2.38	14	90			△	△					△		△	△	
	P 28469 – 2	4	7.80	3.18	14	90			△	△					△		△	△	
	P 28469 – 3	4	9.52	3.97	11	96			△	△					△		△	△	
	P 28469 – 4	4	11.0	3.97	11	96			△	△					△		△	△	
	P 28469 – 5	4	12.7	4.76	11	96			△	△					△		△	△	
	P 28469 – 6	4	15.0	4.76	11	96			△	△					△		△	△	
	P 28469 – 7	4	17.6	5.56	11	96			△	△					△		△	△	
	P 28475 – 1	4	6.35	2.38	14	90	△		△	△					△				△
	P 28475 – 2	4	7.80	3.18	14	90	△		△	△					△				△
	P 28475 – 3	4	9.52	3.97	11	96	△		△	△					△				△
	P 28475 – 4	4	11.0	3.97	11	96	△		△	△					△				△
	P 28475 – 5	4	12.7	4.76	11	96	△		△	△					△				△
	P 28475 – 6	4	15.0	4.76	11	96	△		△	△					△				△
	P 28475 – 7	4	17.6	5.56	11	96	△		△	△					△				△
	P 28477 – 1	4	6.35	2.38	14	90	△	△	△	△			△	△	△				△
	P 28477 – 2	4	7.80	3.18	14	90	△	△	△	△			△	△	△				△
	P 28477 – 3	4	9.52	3.97	11	96	△	△	△	△			△	△	△				△
	P 28477 – 4	4	11.0	3.97	11	96	△	△	△	△			△	△	△				△
	P 28477 – 5	4	12.7	4.76	11	96	△	△	△	△			△	△	△				△
	P 28477 – 6	4	15.0	4.76	11	96	△	△	△	△			△	△	△				△
	P 28477 – 7	4	17.6	5.56	11	96	△	△	△	△			△	△	△				△
	P 28479 – 1	4	6.35	2.38	14	90			△	△					△				△
	P 28479 – 2	4	7.80	3.18	14	90			△	△					△				△
	P 28479 – 3	4	9.52	3.97	11	96			△	△					△				△
	P 28479 – 4	4	11.0	3.97	11	96			△	△					△				△
	P 28479 – 5	4	12.7	4.76	11	96			△	△					△				△
	P 28479 – 6	4	15.0	4.76	11	96			△	△					△				△
	P 28479 – 7	4	17.6	5.56	11	96			△	△					△				△

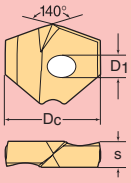
Drill bit P 6001
for *Xtra*·tec®-Drill
(D_C 12–17.86 mm)



HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	D_C mm	D_1 mm	s mm	P			M	K			N	S		
						HC			HC	HC			HW	HW	HC	
						WXP 45				WXK 25						
	P 6001 – D12.00 R	2	12.00	3	3.6	△										
	P 6001 – D12.10 R	2	12.10	3	3.6	△										
	P 6001 – D12.20 R	2	12.20	3	3.6	△										
	P 6001 – D12.30 R	2	12.30	3	3.6	△										
	P 6001 – D12.40 R	2	12.40	3	3.6	△										
	P 6001 – D12.50 R	2	12.50	3	3.6	△										
	P 6001 – D12.60 R	2	12.60	3	3.6	△										
	P 6001 – D12.70 R	2	12.70	3	3.6	△										
	P 6001 – D12.80 R	2	12.80	3	3.6	△										
	P 6001 – D12.90 R	2	12.90	3	3.6	△										
	P 6001 – D13.00 R	2	13.00	3	3.6	△										
	P 6001 – D13.11 R	2	13.11	3	3.6	△										
	P 6001 – D13.20 R	2	13.20	3	3.6	△										
	P 6001 – D13.30 R	2	13.30	3	3.6	△										
	P 6001 – D13.40 R	2	13.40	3	3.6	△										
	P 6001 – D13.50 R	2	13.50	3	3.6	△										
	P 6001 – D13.60 R	2	13.60	3	3.6	△										
	P 6001 – D13.70 R	2	13.70	3	3.6	△										
	P 6001 – D13.80 R	2	13.80	3	3.6	△										
	P 6001 – D13.89 R	2	13.89	3	3.6	△										
	P 6001 – D14.00 R	2	14.00	3	4.0	△										
	P 6001 – D14.10 R	2	14.10	3	4.0	△										
	P 6001 – D14.20 R	2	14.20	3	4.0	△										
	P 6001 – D14.30 R	2	14.30	3	4.0	△										
	P 6001 – D14.40 R	2	14.40	3	4.0	△										
	P 6001 – D14.50 R	2	14.50	3	4.0	△										
	P 6001 – D14.60 R	2	14.60	3	4.0	△										
	P 6001 – D14.68 R	2	14.68	3	4.0	△										
	P 6001 – D14.80 R	2	14.80	3	4.0	△										
	P 6001 – D14.90 R	2	14.90	3	4.0	△										
	P 6001 – D15.00 R	2	15.00	3	4.0	△										
	P 6001 – D15.09 R	2	15.09	3	4.0	△										
	P 6001 – D15.20 R	2	15.20	3	4.0	△										
	P 6001 – D15.30 R	2	15.30	3	4.0	△										
	P 6001 – D15.40 R	2	15.40	3	4.0	△										
	P 6001 – D15.50 R	2	15.50	3	4.0	△										
	P 6001 – D15.60 R	2	15.60	3	4.0	△										
	P 6001 – D15.70 R	2	15.70	3	4.0	△										
	P 6001 – D15.80 R	2	15.80	3	4.0	△										
	P 6001 – D15.87 R	2	15.87	3	4.0	△										
	P 6001 – D16.00 R	2	16.00	4	4.5	△										
	P 6001 – D16.26 R	2	16.26	4	4.5	△										
	P 6001 – D16.50 R	2	16.50	4	4.5	△										
	P 6001 – D16.66 R	2	16.66	4	4.5	△										
	P 6001 – D17.00 R	2	17.00	4	4.5	△										
	P 6001 – D17.07 R	2	17.07	4	4.5	△										
	P 6001 – D17.45 R	2	17.45	4	4.5	△										
	P 6001 – D17.50 R	2	17.50	4	4.5	△										
	P 6001 – D17.70 R	2	17.70	4	4.5	△										
	P 6001 – D17.86 R	2	17.86	4	4.5	△										

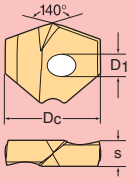
Drill bit P 6001 for *Xtra*·tec®-Drill (D_C 18–27.78 mm)



HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	D_C mm	D_1 mm	s mm	P			M	K			N	S		
						HC			HC	HC			HW	HW	HC	
						WXP 45				WXK 25						
	P 6001 – D18.00 R	2	18.00	4	5.0	△										
	P 6001 – D18.24 R	2	18.24	4	5.0	△										
	P 6001 – D18.50 R	2	18.50	4	5.0	△										
	P 6001 – D18.65 R	2	18.65	4	5.0	△										
	P 6001 – D19.00 R	2	19.00	4	5.0	△										
	P 6001 – D19.05 R	2	19.05	4	5.0	△										
	P 6001 – D19.25 R	2	19.25	4	5.0	△										
	P 6001 – D19.43 R	2	19.43	4	5.0	△										
	P 6001 – D19.50 R	2	19.50	4	5.0	△										
	P 6001 – D19.70 R	2	19.70	4	5.0	△										
	P 6001 – D19.84 R	2	19.84	4	5.0	△										
	P 6001 – D20.00 R	2	20.00	5	5.5	△										
	P 6001 – D20.24 R	2	20.24	5	5.5	△										
	P 6001 – D20.50 R	2	20.50	5	5.5	△										
	P 6001 – D20.62 R	2	20.62	5	5.5	△										
	P 6001 – D20.70 R	2	20.70	5	5.5	△										
	P 6001 – D21.00 R	2	21.00	5	5.5	△										
	P 6001 – D21.41 R	2	21.41	5	5.5	△										
	P 6001 – D21.50 R	2	21.50	5	5.5	△										
	P 6001 – D21.70 R	2	21.70	5	5.5	△										
	P 6001 – D21.83 R	2	21.83	5	5.5	△										
	P 6001 – D22.00 R	2	22.00	5	6.0	△										
	P 6001 – D22.22 R	2	22.22	5	6.0	△										
	P 6001 – D22.50 R	2	22.50	5	6.0	△										
	P 6001 – D22.62 R	2	22.62	5	6.0	△										
	P 6001 – D22.70 R	2	22.70	5	6.0	△										
	P 6001 – D23.00 R	2	23.00	5	6.0	△										
	P 6001 – D23.39 R	2	23.39	5	6.0	△										
	P 6001 – D23.50 R	2	23.50	5	6.0	△										
	P 6001 – D23.70 R	2	23.70	5	6.0	△										
	P 6001 – D23.80 R	2	23.80	5	6.0	△										
	P 6001 – D24.00 R	2	24.00	5	6.5	△										
	P 6001 – D24.21 R	2	24.21	5	6.5	△										
	P 6001 – D24.50 R	2	24.50	5	6.5	△										
	P 6001 – D24.59 R	2	24.59	5	6.5	△										
	P 6001 – D24.70 R	2	24.70	5	6.5	△										
	P 6001 – D25.00 R	2	25.00	5	6.5	△										
	P 6001 – D25.25 R	2	25.25	5	6.5	△										
	P 6001 – D25.40 R	2	25.40	5	6.5	△										
	P 6001 – D25.50 R	2	25.50	5	6.5	△										
	P 6001 – D25.65 R	2	25.65	5	6.5	△										
	P 6001 – D25.80 R	2	25.80	5	6.5	△										
	P 6001 – D26.00 R	2	26.00	6	7.1	△										
	P 6001 – D26.25 R	2	26.25	6	7.1	△										
	P 6001 – D26.50 R	2	26.50	6	7.1	△										
	P 6001 – D26.59 R	2	26.59	6	7.1	△										
	P 6001 – D27.00 R	2	27.00	6	7.1	△										
	P 6001 – D27.38 R	2	27.38	6	7.1	△										
	P 6001 – D27.50 R	2	27.50	6	7.1	△										
	P 6001 – D27.78 R	2	27.78	6	7.1	△										

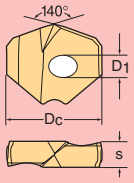
Drill bit P 6001
for *Xtra*·tec®-Drill
(D_C 28–31.75 mm)



HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	D_C mm	D_1 mm	s mm	P			M	K			N	S		
						HC			HC	HC			HW	HW	HC	
						WXP 45				WXK 25						
	P 6001 – D28.00 R	2	28.00	6	7.7	△										
	P 6001 – D28.17 R	2	28.17	6	7.7	△										
	P 6001 – D28.50 R	2	28.50	6	7.7	△										
	P 6001 – D28.57 R	2	28.57	6	7.7	△										
	P 6001 – D29.00 R	2	29.00	6	7.7	△										
	P 6001 – D29.37 R	2	29.37	6	7.7	△										
	P 6001 – D29.50 R	2	29.50	6	7.7	△										
	P 6001 – D29.77 R	2	29.77	6	7.7	△										
	P 6001 – D30.00 R	2	30.00	6	8.0	△										
	P 6001 – D30.15 R	2	30.15	6	8.0	△										
	P 6001 – D30.50 R	2	30.50	6	8.0	△										
	P 6001 – D31.00 R	2	31.00	6	8.0	△										
	P 6001 – D31.50 R	2	31.50	6	8.0	△										
	P 6001 – D31.75 R	2	31.75	6	8.0	△										

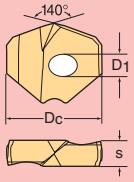
Drill bit P 6002
for *Xtra*·tec®-Drill
(D_C 12–21.83 mm)



HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	D_C mm	D_1 mm	s mm	P			M	K			N	S		
						HC			HC	HC			HW	HW	HC	
						WXP 45				WXK 25						
	P 6002 – D12.00 R	2	12.00	3	3.6					△						
	P 6002 – D12.50 R	2	12.50	3	3.6					△						
	P 6002 – D12.70 R	2	12.70	3	3.6					△						
	P 6002 – D13.00 R	2	13.00	3	3.6					△						
	P 6002 – D13.11 R	2	13.11	3	3.6					△						
	P 6002 – D13.50 R	2	13.50	3	3.6					△						
	P 6002 – D13.70 R	2	13.70	3	3.6					△						
	P 6002 – D13.89 R	2	13.89	3	3.6					△						
	P 6002 – D14.00 R	2	14.00	3	4.0					△						
	P 6002 – D14.30 R	2	14.30	3	4.0					△						
	P 6002 – D14.50 R	2	14.50	3	4.0					△						
	P 6002 – D14.68 R	2	14.68	3	4.0					△						
	P 6002 – D15.00 R	2	15.00	3	4.0					△						
	P 6002 – D15.09 R	2	15.09	3	4.0					△						
	P 6002 – D15.47 R	2	15.47	3	4.0					△						
	P 6002 – D15.50 R	2	15.50	3	4.0					△						
	P 6002 – D15.70 R	2	15.70	3	4.0					△						
	P 6002 – D15.87 R	2	15.87	3	4.0					△						
	P 6002 – D16.00 R	2	16.00	4	4.5					△						
	P 6002 – D16.26 R	2	16.26	4	4.5					△						
	P 6002 – D16.50 R	2	16.50	4	4.5					△						
	P 6002 – D16.66 R	2	16.66	4	4.5					△						
	P 6002 – D17.00 R	2	17.00	4	4.5					△						
	P 6002 – D17.07 R	2	17.07	4	4.5					△						
	P 6002 – D17.45 R	2	17.45	4	4.5					△						
	P 6002 – D17.50 R	2	17.50	4	4.5					△						
	P 6002 – D17.70 R	2	17.70	4	4.5					△						
	P 6002 – D17.86 R	2	17.86	4	4.5					△						
	P 6002 – D18.00 R	2	18.00	4	5.0					△						
	P 6002 – D18.24 R	2	18.24	4	5.0					△						
	P 6002 – D18.50 R	2	18.50	4	5.0					△						
	P 6002 – D18.65 R	2	18.65	4	5.0					△						
	P 6002 – D18.70 R	2	18.70	4	5.0					△						
	P 6002 – D19.00 R	2	19.00	4	5.0					△						
	P 6002 – D19.05 R	2	19.05	4	5.0					△						
	P 6002 – D19.43 R	2	19.43	4	5.0					△						
	P 6002 – D19.50 R	2	19.50	4	5.0					△						
	P 6002 – D19.70 R	2	19.70	4	5.0					△						
	P 6002 – D19.84 R	2	19.84	4	5.0					△						
	P 6002 – D20.00 R	2	20.00	5	5.5					△						
	P 6002 – D20.24 R	2	20.24	5	5.5					△						
	P 6002 – D20.50 R	2	20.50	5	5.5					△						
	P 6002 – D20.62 R	2	20.62	5	5.5					△						
	P 6002 – D20.70 R	2	20.70	5	5.5					△						
	P 6002 – D21.00 R	2	21.00	5	5.5					△						
	P 6002 – D21.41 R	2	21.41	5	5.5					△						
	P 6002 – D21.50 R	2	21.50	5	5.5					△						
	P 6002 – D21.70 R	2	21.70	5	5.5					△						
	P 6002 – D21.83 R	2	21.83	5	5.5					△						

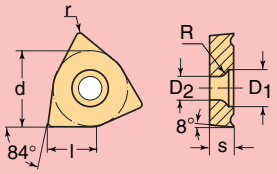
Drill bit P 6002
for *Xtra*·tec®-Drill
(D_C 22–31.75 mm)



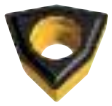
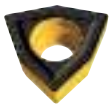
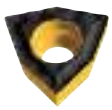
HC = coated carbide
HW = uncoated carbide

	Designation	Cutting edges	D_C mm	D_1 mm	s mm	P			M	K			N	S		
						HC			HC	HC			HW	HW	HC	
						WXP 45				WXK 25						
	P 6002 – D22.00 R	2	22.00	5	6.0					△						
	P 6002 – D22.22 R	2	22.22	5	6.0					△						
	P 6002 – D22.50 R	2	22.50	5	6.0					△						
	P 6002 – D22.62 R	2	22.62	5	6.0					△						
	P 6002 – D22.70 R	2	22.70	5	6.0					△						
	P 6002 – D23.00 R	2	23.00	5	6.0					△						
	P 6002 – D23.39 R	2	23.39	5	6.0					△						
	P 6002 – D23.50 R	2	23.50	5	6.0					△						
	P 6002 – D23.70 R	2	23.70	5	6.0					△						
	P 6002 – D23.80 R	2	23.80	5	6.0					△						
	P 6002 – D24.00 R	2	24.00	5	6.5					△						
	P 6002 – D24.21 R	2	24.21	5	6.5					△						
	P 6002 – D24.50 R	2	24.50	5	6.5					△						
	P 6002 – D24.59 R	2	24.59	5	6.5					△						
	P 6002 – D24.70 R	2	24.70	5	6.5					△						
	P 6002 – D25.00 R	2	25.00	5	6.5					△						
	P 6002 – D25.40 R	2	25.40	5	6.5					△						
	P 6002 – D25.50 R	2	25.50	5	6.5					△						
	P 6002 – D25.80 R	2	25.80	5	6.5					△						
	P 6002 – D26.00 R	2	26.00	6	7.1					△						
	P 6002 – D26.25 R	2	26.25	6	7.1					△						
	P 6002 – D26.50 R	2	26.50	6	7.1					△						
	P 6002 – D26.59 R	2	26.59	6	7.1					△						
	P 6002 – D27.00 R	2	27.00	6	7.1					△						
	P 6002 – D27.38 R	2	27.38	6	7.1					△						
	P 6002 – D27.50 R	2	27.50	6	7.1					△						
	P 6002 – D27.78 R	2	27.78	6	7.1					△						
	P 6002 – D28.00 R	2	28.00	6	7.7					△						
	P 6002 – D28.17 R	2	28.17	6	7.7					△						
	P 6002 – D28.50 R	2	28.50	6	7.7					△						
	P 6002 – D28.57 R	2	28.57	6	7.7					△						
	P 6002 – D29.00 R	2	29.00	6	7.7					△						
	P 6002 – D29.37 R	2	29.37	6	7.7					△						
	P 6002 – D29.50 R	2	29.50	6	7.7					△						
	P 6002 – D29.77 R	2	29.77	6	7.7					△						
	P 6002 – D30.00 R	2	30.00	6	8.0					△						
	P 6002 – D30.15 R	2	30.15	6	8.0					△						
	P 6002 – D30.50 R	2	30.50	6	8.0					△						
	P 6002 – D31.00 R	2	31.00	6	8.0					△						
	P 6002 – D31.50 R	2	31.50	6	8.0					△						
	P 6002 – D31.75 R	2	31.75	6	8.0					△						

Trigon indexable inserts for drills WOMX / WOEX



HC = coated carbide
HW = uncoated carbide

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
	WOMX 030204 – B 57	5.00	3.31	2.30	0.4	2.95	2.30	0.50			△						△				
	WOMX 040304 – B 57	6.35	4.20	3.18	0.4	3.43	2.60	0.75			△						△				
	WOMX 05T304 – B 57	8.00	5.29	3.80	0.4	3.82	2.87	1.00			△						△				
	WOMX 06T304 – B 57	10.00	6.62	3.80	0.4	5.58	4.07	1.00			△						△				
	WOMX 080408 – B 57	12.00	7.94	4.80	0.8	6.53	4.97	1.50			△						△				
	WOMX 100508 – B 57	15.00	9.92	5.30	0.8	6.53	4.97	1.50			△						△				
	WOMX 120608 – B 57	17.60	11.64	6.00	0.8	7.68	5.97	1.80			△						△				
	WOMX 020102 – D 57	4.00	2.65	1.61	0.2	2.60	2.00	0.25	△		△				△		△				△
	WOMX 030204 – D 57	5.00	3.31	2.30	0.4	2.95	2.30	0.75	△		△				△		△				△
	WOMX 040304 – D 57	6.35	4.20	3.18	0.4	3.43	2.60	0.75	△		△				△		△				△
	WOMX 05T304 – D 57	8.00	5.29	3.80	0.4	3.82	2.87	1.00	△		△				△		△				△
	WOMX 06T304 – D 57	10.00	6.62	3.80	0.4	5.58	4.07	1.00	△		△				△		△				△
	WOMX 080408 – D 57	12.00	7.94	4.80	0.8	6.53	4.97	1.50	△		△				△		△				△
	WOMX 100508 – D 57	15.00	9.92	5.30	0.8	6.53	4.97	1.50	△		△				△		△				△
	WOMX 120608 – D 57	17.60	11.64	6.00	0.8	7.68	5.97	1.80	△		△				△		△				△
	WOEX 030204 – E 57	5.00	3.31	2.30	0.4	2.95	2.30	0.50	△		△				△		△				
	WOEX 040304 – E 57	6.35	4.20	3.18	0.4	3.43	2.60	0.75	△		△				△		△				
	WOEX 05T304 – E 57	8.00	5.29	3.80	0.4	3.82	2.87	1.00	△		△				△		△				
	WOEX 06T304 – E 57	10.00	6.62	3.80	0.4	5.58	4.07	1.00	△		△				△		△				
	WOEX 080408 – E 57	12.00	7.94	4.80	0.8	6.53	4.97	1.50	△		△				△		△				
	WOEX 100508 – E 57	15.00	9.92	5.30	0.8	6.53	4.97	1.50	△		△				△		△				
	WOEX 120608 – E 57	17.60	11.64	6.00	0.8	7.68	5.97	1.80	△		△				△		△				

Tiger·tec®

WALTER SELECT for boring inserts

WALTER SELECT –
Step by step to the optimal indexable insert

➔ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

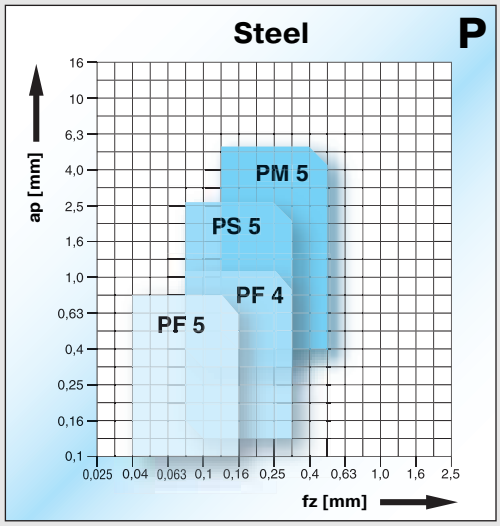
➔ Step 2

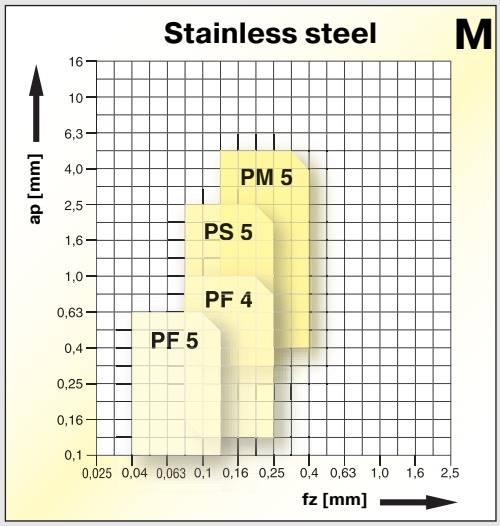
Select the **machining conditions:**

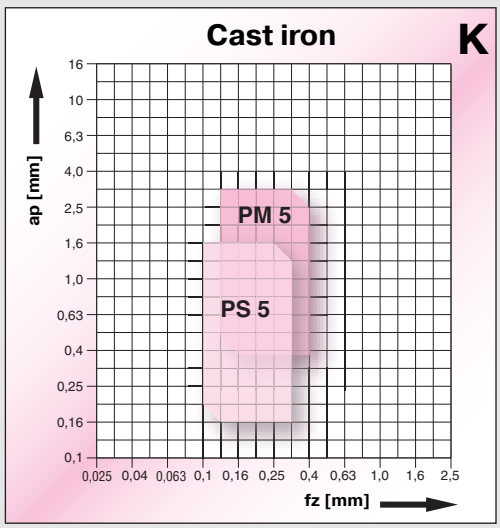
Type of workpiece	Machine stability, clamping system and workpiece		
	very good	good	moderate
Smooth cut, premachined surface			
Casting or forging skin changing cutting depths minimal interrupted cuts			
Medium interrupted cuts			
Heavily interrupted cuts			

➔ Step 3

Define the **indexable insert geometry** from the cut depth (ap) and feed rate (fz).



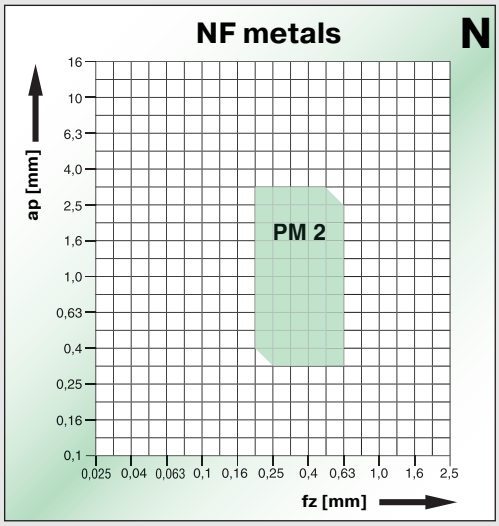


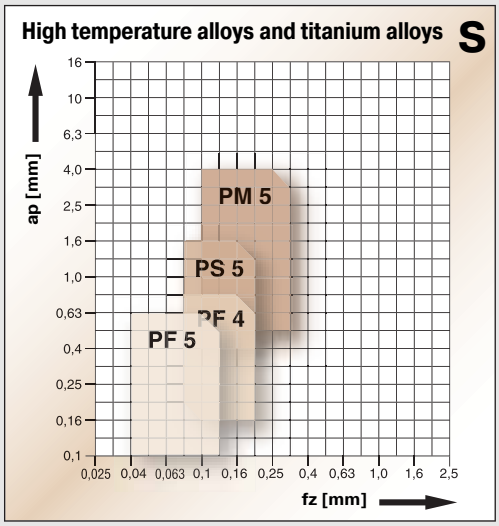




→ Step 4

Define the **cutting tool material** by means of the insert geometry and the machining conditions:





Workpiece material group	WALTER insert geometry	Machining conditions		
				
P (1–13)	PF 4 / PF 5	WPP 01	WPP 10	WPP 20
	PS 5	WPP 10	WPP 20	WPP 20
	PM 5	WPP 10	WPP 20	WPP 30
M (14)	PF 4 / PF 5	WAM 20	WAM 20	WSM 30
	PS 5	WAM 20	WAM 20	WSM 30
	PM 5	WAM 20	WAM 20	WSM 30
K (15–20)	PS 5	WAK 10	WAK 20	WAK 20
	PM 5	WAK 10	WAK 20	WAK 30
N (21–30)	PM 2	WK 1 / WXN 10	WK 1 / WXN 10	WK 1 / WXN 10
S (31–37)	PF 4 / PF 5	WAM 20	WAM 20	WSM 30
	PS 5	WAM 20	WAM 20	WSM 30
	PM 5	WAM 20	WAM 20	WSM 30

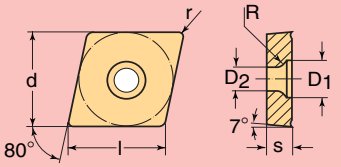
→ Step 5

Select the **cutting data** in the Technical information, see page 376 onwards.

Material group	Workpiece material	Classification of the main material groups and code letters		Brinell hardness HB	Machining group*	Cutting speed v_c [m/min] WPP 10 f [mm] 0.1	0.2	0.4	WPP 20 f [mm] 0.1	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	530	480	410	450	410	330
		approx. 0.45 % C	annealed	190	2	450	410	320	380	340	270
		approx. 0.45 % C	tempered	250	3	320	290	250	270	240	210
		approx. 0.75 % C	annealed	270	4	360	320	290	290	270	240
		approx. 0.75 % C	tempered	300	5	270	240	210	230	210	160
	Low-alloyed steel[1]	annealed		180	6	400	360	290	330	300	240
		tempered		275	7	310	280	230	250	230	190
		tempered		300	8	270	240	210	230	210	160
		tempered		350	9	250	230	170	190	170	15
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	420	380	290	340	310	24
		hardened and tempered		325	11	210	190	120	150	130	100
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	320	290	260	270	240	220
		martensitic, tempered		240	13	240	220	170	190	170	130
M	Stainless steel[1]	austenitic[2], quenched		180	14						
K		perlitic/ferritic		180			400	260	400	360	

Boring inserts

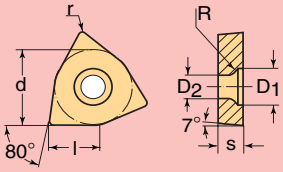
CCGT
CCMT



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	CCMT 060202 – PF 4	6.35	6.45	2.38	0.2	3.75	2.8	1.8	△	△	△		△	△						△		
	CCMT 060204 – PF 4	6.35	6.45	2.38	0.4	3.75	2.8	1.8	△	△	△		△	△						△		
	CCMT 060208 – PF 4	6.35	6.45	2.38	0.8	3.75	2.8	1.8	△	△	△		△	△						△		
	CCMT 09T302 – PF 4	9.525	9.67	3.97	0.2	6.0	4.4	1.5	△	△	△		△	△						△		
	CCMT 09T304 – PF 4	9.525	9.67	3.97	0.4	6.0	4.4	1.5	△	△	△		△	△						△		
	CCMT 09T308 – PF 4	9.525	9.67	3.97	0.8	6.0	4.4	1.5	△	△	△		△	△						△		
	CCMT 09T312 – PF 4	9.525	9.67	3.97	1.2	6.0	4.4	1.5	△	△	△		△	△						△		
	CCMT 120404 – PF 4	12.7	12.9	4.76	0.4	7.5	5.5	2.5	△	△	△		△	△						△		
	CCMT 120408 – PF 4	12.7	12.9	4.76	0.8	7.5	5.5	2.5	△	△	△		△	△						△		
	CCGT 060202 – PF 5	6.35	6.45	2.38	0.2	3.75	2.8	1.8			△	△		△						△		
	CCGT 060204 – PF 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8			△	△		△						△		
	CCGT 09T302 – PF 5	9.525	9.67	3.97	0.2	6.0	4.4	1.5			△	△		△						△		
	CCGT 09T304 – PF 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5			△	△		△						△		
	CCMT 060204 – PS 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8		△	△		△	△	△	△				△		
	CCMT 060208 – PS 5	6.35	6.45	2.38	0.8	3.75	2.8	1.8		△	△		△	△	△	△				△		
	CCMT 09T304 – PS 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△		△	△	△	△				△		
	CCMT 09T308 – PS 5	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△		△	△	△	△				△		
	CCMT 120404 – PS 5	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△		△	△	△	△				△		
	CCMT 120408 – PS 5	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△		△	△	△	△				△		
	CCGT 060201 – PM 2	6.35	6.45	2.38	0.1	3.75	2.8	1.8										△	△			
	CCGT 060202 – PM 2	6.35	6.45	2.38	0.2	3.75	2.8	1.8										△	△			
	CCGT 060204 – PM 2	6.35	6.45	2.38	0.4	3.75	2.8	1.8										△	△			
	CCGT 09T301 – PM 2	9.525	9.67	3.97	0.1	6.0	4.4	1.5										△	△			
	CCGT 09T302 – PM 2	9.525	9.67	3.97	0.2	6.0	4.4	1.5										△	△			
	CCGT 09T304 – PM 2	9.525	9.67	3.97	0.4	6.0	4.4	1.5										△	△			
	CCGT 09T308 – PM 2	9.525	9.67	3.97	0.8	6.0	4.4	1.5										△	△			
	CCGT 120401 – PM 2	12.7	12.9	4.76	0.1	7.5	5.5	2.5										△	△			
	CCGT 120402 – PM 2	12.7	12.9	4.76	0.2	7.5	5.5	2.5										△	△			
	CCGT 120404 – PM 2	12.7	12.9	4.76	0.4	7.5	5.5	2.5										△	△			
	CCGT 120408 – PM 2	12.7	12.9	4.76	0.8	7.5	5.5	2.5										△	△			
	CCMT 060204 – PM 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8		△	△	△	△	△	△	△	△			△		
	CCMT 060208 – PM 5	6.35	6.45	2.38	0.8	3.75	2.8	1.8		△	△	△	△	△	△	△	△			△		
	CCMT 09T304 – PM 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△	△	△	△	△	△	△			△		
	CCMT 09T308 – PM 5	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△	△	△	△	△	△	△			△		
	CCMT 120404 – PM 5	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△	△	△	△	△	△	△			△		
	CCMT 120408 – PM 5	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△	△	△	△	△	△	△			△		
	CCMT 120412 – PM 5	12.7	12.9	4.76	1.2	7.5	5.5	2.5		△	△	△	△	△	△	△	△			△		

WCGT
WCMT
WCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	P HC WPP 01	P HC WPP 10	P HC WPP 20	P HC WPP 30	M HC WAM 20	M HC WSM 30	K HC WAK 10	K HC WAK 20	K HC WAK 30	N HC WXN 10	N HW WK 1	S HC WSM 30	H BL WCB 30	H BH WCB 50
	WCMT 040202 – PF 4	6.35	4.3	2.38	0.2	3.75	2.8	1.8	△	△	△		△	△						△		
	WCMT 040204 – PF 4	6.35	4.3	2.38	0.4	3.75	2.8	1.8	△	△	△		△	△						△		
	WCMT 040208 – PF 4	6.35	4.3	2.38	0.8	3.75	2.8	1.8	△	△	△		△	△						△		
	WCMT 06T302 – PF 4	9.525	6.5	3.97	0.2	6.0	4.4	1.5	△	△	△		△	△						△		
	WCMT 06T304 – PF 4	9.525	6.5	3.97	0.4	6.0	4.4	1.5	△	△	△		△	△						△		
	WCMT 06T308 – PF 4	9.525	6.5	3.97	0.8	6.0	4.4	1.5	△	△	△		△	△						△		
	WCMT 080404 – PF 4	12.7	8.72	4.76	0.4	7.5	5.5	2.5	△	△	△		△	△						△		
	WCMT 080408 – PF 4	12.7	8.72	4.76	0.8	7.5	5.5	2.5	△	△	△		△	△						△		
	WCMT 040204 – PS 5	6.35	4.3	2.38	0.4	3.75	2.8	1.8			△				△	△						
	WCMT 040208 – PS 5	6.35	4.3	2.38	0.8	3.75	2.8	1.8			△				△	△						
	WCMT 06T304 – PS 5	9.525	6.5	3.97	0.4	6.0	4.4	1.5			△				△	△						
	WCMT 06T308 – PS 5	9.525	6.5	3.97	0.8	6.0	4.4	1.5			△				△	△						
	WCMT 080404 – PS 5	12.7	8.72	4.76	0.4	7.5	5.5	2.5			△				△	△						
	WCMT 080408 – PS 5	12.7	8.72	4.76	0.8	7.5	5.5	2.5			△				△	△						
	WCGT 030202 – PM 2	5.56	3.8	2.38	0.2	3.3	2.5	2.3										△	△			
	WCGT 030204 – PM 2	5.56	3.8	2.38	0.4	3.3	2.5	2.3										△	△			
	WCGT 040201 – PM 2	6.35	4.3	2.38	0.1	3.75	2.8	1.8										△	△			
	WCGT 040202 – PM 2	6.35	4.3	2.38	0.2	3.75	2.8	1.8										△	△			
	WCGT 040204 – PM 2	6.35	4.3	2.38	0.4	3.75	2.8	1.8										△	△			
	WCGT 06T301 – PM 2	9.525	6.5	3.97	0.1	6.0	4.4	1.5										△	△			
	WCGT 06T302 – PM 2	9.525	6.5	3.97	0.2	6.0	4.4	1.5										△	△			
	WCGT 06T304 – PM 2	9.525	6.5	3.97	0.4	6.0	4.4	1.5										△	△			
	WCGT 080404 – PM 2	12.7	8.72	4.76	0.4	7.5	5.5	2.5										△	△			
	WCGT 080408 – PM 2	12.7	8.72	4.76	0.8	7.5	5.5	2.5										△	△			
	WCMT 030202 – PM 5	5.56	3.8	2.38	0.2	3.3	2.5	2.3		△	△	△	△	△	△	△				△		
	WCMT 040202 – PM 5	6.35	4.3	2.38	0.2	3.75	2.8	1.8		△	△	△	△	△	△	△				△		
	WCMT 040204 – PM 5	6.35	4.3	2.38	0.4	3.75	2.8	1.8		△	△	△	△	△	△	△				△		
	WCMT 06T304 – PM 5	9.525	6.5	3.97	0.4	6.0	4.4	1.5		△	△	△	△	△	△	△				△		
	WCMT 06T308 – PM 5	9.525	6.5	3.97	0.8	6.0	4.4	1.5		△	△	△	△	△	△	△				△		
	WCMT 080404 – PM 5	12.7	8.72	4.76	0.4	7.5	5.5	2.5		△	△	△	△	△	△	△				△		
	WCMT 080408 – PM 5	12.7	8.72	4.76	0.8	7.5	5.5	2.5		△	△	△	△	△	△	△				△		
	WCMT 080412 – PM 5	12.7	8.72	4.76	1.2	7.5	5.5	2.5		△	△	△	△	△	△	△				△		
	WCMW 080404	12.7	8.72	4.76	0.4	7.5	5.5	2.5							△	△						
	WCMW 080408	12.7	8.72	4.76	0.8	7.5	5.5	2.5							△	△						
	WCMW 080412	12.7	8.72	4.76	1.2	7.5	5.5	2.5							△	△						



WALTER SELECT for precision boring inserts

WALTER SELECT –
Step by step to the optimal indexable insert

→ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see 798.

→ Step 2

Select the **machining conditions:**

Type of workpiece	Machining conditions
Smooth cut, Level entry or exit surfaces	
Laminate bores' inclined cast and forged skins < 5°	
Bores with interrupted cuts inclined cast and forged skins > 5°	

WALTER SELECT for precision boring inserts

→ Step 3

Define the **indexable insert geometry** by means of the material and the projection length.

Work-piece material group	Machining group	Projection length		
		< 3 x D_C	< 5 x D_C	< 6 x D_C
P	1–13	PF 4 / PF 5	X 5 / X 15	—
M	14	PF 4 / PF 5	X 5 / X 15	—
K	15–20	PF 4 / CCMW / WCMW	X 5 / CCMW / WCMW	X 15
N	21–25	PM 2 / WCMW	X 25 / WCMW	X 25
	26–28	PM 2 / PF 4	X 15 / X 25	X 15 / X 25
	29–30	PM 2 / WCMW	X 25 / WCMW	X 25 / WCMW
S	31–37	PM 2 / PF 4 / PF 5	X 5 / X 15	X 5 / X 15
H	38–41	CCMW / WCMW	CCMW / WCMW	—

→ Step 4

Define the **cutting tool material** by means of the insert geometry and the machining conditions:

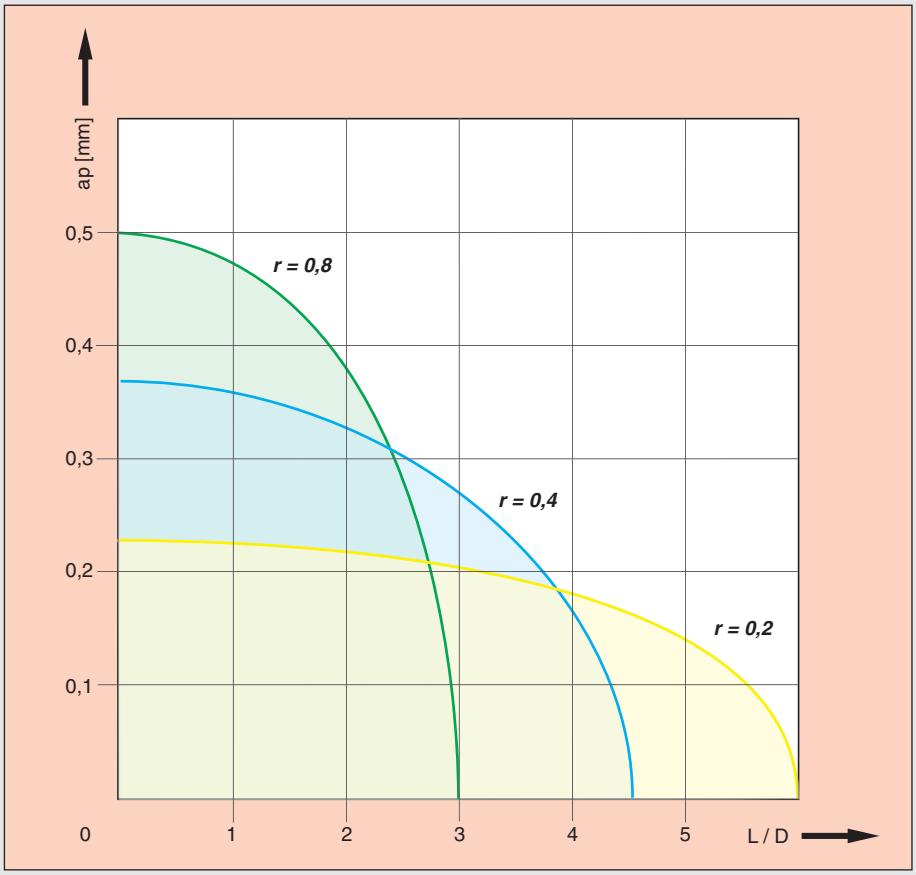


Work-piece material group	Machining group	WALTER insert geometry	good	moderate	unfavour-able
P	1–13	PF 4 / PF 5	WPP 10	WPP 20	WPP 20
		X 5 / X15	WAK15	WXM 15	WTP 35
M	14	PF 4 / PF 5	WAM 20	WAM 20	WSM 30
		X 5 / X15	WAK 15	WTP35 / WXM 15	WTP35 / WXM 15
K	15–20	PF 4	WPP 10	WPP 20	WPP 20
		X 5 / X15	WXM 15	WTP 35	WTP 35
		CCMW	WCB 50	WCB 50	WCB 50
		WCMW	WCB 80	WCB 80	WCB 50
N	21–25	PM 2	WXN 10 / WK 1	WXN 10 / WK 1	WXN 10
	26–28	PF 4	WPP 10	WAM 20	WPP 20
		X 15	WTP 35	WTP 35	WTP 35
		PM 2	WK 1	WK 1	WK 1
		WCMW	WCD 10	WCD 10	—
	29–30	X 25	WK 1	WK 1	WK 1
		PM 2	WK 1	WK 1	WK 1
		WCMW	WCD 10	WCD 10	WCD 10
S	31–37	PM 2 / PF 4 / PF 5	WXN 10	WAM 20	WSM 30
		X5 / X 15	WK 1	WK 1	WK 1
H	38–41	CCMW	WCB 30	WCB 50	WCB 50
		WCMW	WCB 50	WCB 50	WCB 50

➔ Step 5

Select the **corner radius r and the cut depth ap.** by means of these graphs.

Choose the maximum possible corner radius with reference to the relevant length-to-diameter ratio (L/D).
The optimal cut depths ap are around 2/3 of the defined maximum ap value.



➔ Step 6

Now select the maximum **feed rate** with reference to the specified surface finish of the workpiece and the corner radius of the insert selected in step 5.

Corner radius of insert r [mm]	Roughness [µm] max. feed rate f [mm/rev.]									
	0.03		0.06		0.09		0.12		0.15	
	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a	R_{max}	R_a
0.2	0.56	0.14	2.26	0.58	5.13	1.32	9.21	3.38	14.60	3.79
0.4	0.28	0.07	1.13	0.29	2.54	0.65	4.53	1.16	7.09	1.83
0.8	0.14	0.04	0.56	0.14	1.27	0.33	2.25	0.58	3.52	0.90

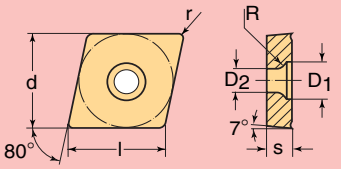
➔ Step 7

Select the **cutting data** in the Technical information, from page 378.

Material group	Workpiece material	Classification of the main material groups and code letters	Brinell hardness HB	Machining group*	Cutting speed v_c [m/min] WPP 20 f [mm] 0.1	0.2	0.4	WTP 35 f [mm] 0.1	0.2	0.4
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	530	480	410	450	410	330
		approx. 0.45 % C annealed	190	2	450	410	320	380	340	270
		approx. 0.45 % C tempered	250	3	320	290	250	270	240	210
		approx. 0.75 % C annealed	270	4	360	320	290	290	270	240
		approx. 0.75 % C tempered	300	5	270	240	210	230	210	160
	Low-alloyed steel[1]	annealed	180	6	400	360	290	330	300	240
		tempered	275	7	310	280	230	250	230	190
		tempered	300	8	270	240	210	230	210	160
		tempered	350	9	250	230	170	190	170	15
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	420	380	290	340	310	24
		hardened and tempered	325	11	210	190	120	150	130	100
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	320	290	260	270	240	220
		martensitic, tempered	240	13	240	220	170	190	170	130
M	Stainless steel[1]	austenitic[2], quenched	180	14						
K		perlitic/ferritic				400	260	400	360	

Precision boring inserts

CCGT
CCMT
CCMW



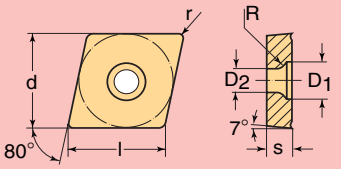
HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content
DP = polycrystalline diamond

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	Groove	HC WPP 01	HC WPP 10	HC WPP 20	HC WPP 30	HC WTP 35	HC WAM 20	HC WSM 30	HC WAK 10	HC WAK 15	HC WXN 10	HC WXM 15	HW WK 1	BL WCB 30	BH WCB 50	DP WCD 10
	CCGT 060202 – X 5	6.35	6.45	2.38	0.2	3.75	2.8	1.8	5°					△				△		△				
	CCGT 060204 – X 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8	5°					△				△		△				
	CCGT 060202 – X 15	6.35	6.45	2.38	0.2	3.75	2.8	1.8	15°					△				△		△				
	CCGT 060204 – X 15	6.35	6.45	2.38	0.4	3.75	2.8	1.8	15°					△				△		△				
	CCGT 060202 – PF 5	6.35	6.45	2.38	0.2	3.75	2.8	1.8				△	△			△								
	CCGT 060204 – PF 5	6.35	6.45	2.38	0.4	3.75	2.8	1.8				△	△			△								
	CCGT 09T302 – PF 5	9.525	9.67	3.97	0.2	6.0	4.4	1.5				△	△			△								
	CCGT 09T304 – PF 5	9.525	9.67	3.97	0.4	6.0	4.4	1.5				△	△			△								
	CCMT 060202 – PF 4	6.35	6.45	2.38	0.2	3.75	2.8	1.8		△	△	△			△	△								
	CCMT 060204 – PF 4	6.35	6.45	2.38	0.4	3.75	2.8	1.8		△	△	△			△	△								
	CCMT 060208 – PF 4	6.35	6.45	2.38	0.8	3.75	2.8	1.8		△	△	△			△	△								
	CCMT 09T302 – PF 4	9.525	9.67	3.97	0.2	6.0	4.4	1.5		△	△	△			△	△								
	CCMT 09T304 – PF 4	9.525	9.67	3.97	0.4	6.0	4.4	1.5		△	△	△			△	△								
	CCMT 09T308 – PF 4	9.525	9.67	3.97	0.8	6.0	4.4	1.5		△	△	△			△	△								
	CCMT 120404 – PF 4	12.7	12.9	4.76	0.4	7.5	5.5	2.5		△	△	△			△	△								
	CCMT 120408 – PF 4	12.7	12.9	4.76	0.8	7.5	5.5	2.5		△	△	△			△	△								
	CCGT 060201 – PM 2	6.35	6.45	2.38	0.1	3.75	2.8	1.8											△		△			
	CCGT 060202 – PM 2	6.35	6.45	2.38	0.2	3.75	2.8	1.8											△		△			
	CCGT 060204 – PM 2	6.35	6.45	2.38	0.4	3.75	2.8	1.8											△		△			
	CCGT 09T301 – PM 2	9.525	9.67	3.97	0.1	6.0	4.4	1.5											△		△			
	CCGT 09T302 – PM 2	9.525	9.67	3.97	0.2	6.0	4.4	1.5											△		△			
	CCGT 09T304 – PM 2	9.525	9.67	3.97	0.4	6.0	4.4	1.5											△		△			
	CCGT 09T308 – PM 2	9.525	9.67	3.97	0.8	6.0	4.4	1.5											△		△			
	CCGT 120401 – PM 2	12.7	12.9	4.76	0.1	7.5	5.5	2.5											△		△			
	CCGT 120402 – PM 2	12.7	12.9	4.76	0.2	7.5	5.5	2.5											△		△			
	CCGT 120404 – PM 2	12.7	12.9	4.76	0.4	7.5	5.5	2.5											△		△			
	CCGT 120408 – PM 2	12.7	12.9	4.76	0.8	7.5	5.5	2.5											△		△			
	CCMT 060204 – PF	6.35	6.45	2.38	0.4	3.75	2.8	1.8				△	△	△			△	△						
	CCMT 060208 – PF	6.35	6.45	2.38	0.8	3.75	2.8	1.8				△	△	△			△	△						

Wiper

See the Technical information, page 218 for the achievable surface finishes and possible applications.

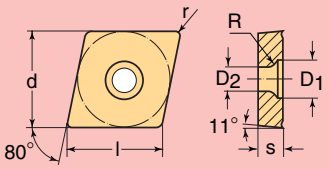
CCMW



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content
DP = polycrystalline diamond

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	HC WPP 20	HC WPP 30	HC WTP 35	HC WAM 20	HC WSM 30	HC WAK 10	HC WAK 15	HC WXN 10	HC WXM 15	HW WK 1	BL WCB 30	BH WCB 50	DP WCD 10
	CCMW 060204	6.35	6.45	2.38	0.4	3.75	2.8	1.8											△		
	CCMW 060208	6.35	6.45	2.38	0.8	3.75	2.8	1.8											△		
	CCMW 09T304	9.525	9.67	3.97	0.4	6.0	4.4	1.5											△		
	CCMW 09T308	9.525	9.67	3.97	0.8	6.0	4.4	1.5											△		
	CCMW 120404	12.7	12.9	4.76	0.4	7.5	5.5	2.5											△		
	CCMW 120408	12.7	12.9	4.76	0.8	7.5	5.5	2.5											△		
	CCMW 060204–2	6.35	6.45	2.38	0.4	3.75	2.8	1.8											△	△	
	CCMW 060208–2	6.35	6.45	2.38	0.8	3.75	2.8	1.8											△	△	
	CCMW 09T304–2	9.525	9.67	3.97	0.4	6.0	4.4	1.5											△	△	
	CCMW 09T308–2	9.525	9.67	3.97	0.8	6.0	4.4	1.5											△	△	

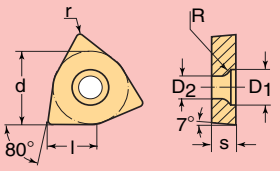
CPGT



HC = coated carbide
HW = uncoated carbide
BL = CBN with low CBN content
BH = CBN with high CBN content
DP = polycrystalline diamond

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	Groove	HC WPP 20	HC WPP 30	HC WTP 35	HC WAM 20	HC WSM 30	HC WAK 10	HC WAK 15	HC WXN 10	HC WXM 15	HW WK 1	BL WCB 30	BH WCB 50	DP WCD 10
	CPGT 050202 – PF 5	5.56	5.65	2.38	0.2	3.3	2.5	2.3							△							
	CPGT 050202 – X 5	5.56	5.65	2.38	0.2	3.3	2.5	2.3	5°			△				△		△				
	CPGT 050204 – X 5	5.56	5.65	2.38	0.4	3.3	2.5	2.3	5°			△				△		△				
	CPGT 050202 – X 15	5.56	5.65	2.38	0.2	3.3	2.5	2.3	15°			△				△		△				
	CPGT 050204 – X 15	5.56	5.65	2.38	0.4	3.3	2.5	2.3	15°			△				△		△	△			
	CPGT 050204 – X 25	5.56	5.65	2.38	0.4	3.3	2.5	2.3	25°										△			

WCGT
WCMT
WCMW

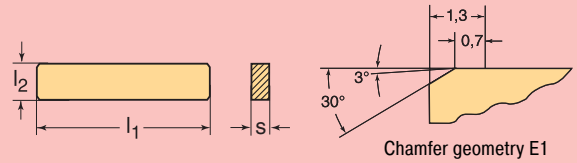


HC = coated carbide
HW = uncoated carbide
BH = CBN with high CBN content
DP = polycrystalline diamond

	Designation	d mm	l mm	s mm	r mm	D_1 mm	D_2 mm	R mm	Groove	HC WPP 01	HC WPP 10	HC WPP 20	HC WTP 35	HC WAM 20	HC WSM 30	HC WAK 15	HC WXN 10	HC WXM 15	HW WK 1	BH WCB 50	BH WCB 80	DP WCD 10
	WCGT 020102 – X 5	3.97	2.70	1.59	0.2	2.7	2.2	1.6	5°				△			△		△	△			
	WCGT 020104 – X 5	3.97	2.70	1.59	0.4	2.7	2.2	1.6	5°				△			△		△				
	WCGT 030202 – X 5	5.56	3.80	2.38	0.2	3.30	2.5	2.3	5°				△			△		△				
	WCGT 030204 – X 5	5.56	3.80	2.38	0.4	3.30	2.5	2.3	5°				△			△		△				
	WCGT 040202 – X 5	6.35	4.30	2.38	0.2	3.75	2.8	1.8	5°				△			△		△	△			
	WCGT 040204 – X 5	6.35	4.30	2.38	0.4	3.75	2.8	1.8	5°				△			△		△				
	WCGT 050304 – X 5	7.94	5.43	3.18	0.4	4.5	3.4	1.6	5°				△			△		△	△			
	WCGT 020102 – X 15	3.97	2.70	1.59	0.2	2.7	2.2	1.6	15°				△			△		△	△			
	WCGT 020104 – X 15	3.97	2.70	1.59	0.4	2.7	2.2	1.6	15°				△			△		△				
	WCGT 030202 – X 15	5.56	3.80	2.38	0.2	3.30	2.5	2.3	15°				△			△		△	△			
	WCGT 030204 – X 15	5.56	3.80	2.38	0.4	3.30	2.5	2.3	15°				△			△		△				
	WCGT 040202 – X 15	6.35	4.30	2.38	0.2	3.75	2.8	1.8	15°				△			△		△				
	WCGT 040204 – X 15	6.35	4.30	2.38	0.4	3.75	2.8	1.8	15°				△			△		△				
	WCGT 050304 – X 15	7.94	5.43	3.18	0.4	4.5	3.4	1.6	15°				△			△		△				
	WCGT 020102 – X 25	3.97	2.70	1.59	0.2	2.7	2.2	1.6	25°										△			
	WCGT 030202 – X 25	5.56	3.80	2.38	0.2	3.30	2.5	2.3	25°										△			
	WCGT 030204 – X 25	5.56	3.80	2.38	0.4	3.30	2.5	2.3	25°										△			
	WCGT 040204 – X 25	6.35	4.30	2.38	0.4	3.75	2.8	1.8	25°										△			
	WCGT 050304 – X 25	7.94	5.43	3.18	0.4	4.5	3.4	1.6	25°										△			
	WCMT 040202 – PF 4	6.35	4.3	2.38	0.2	3.75	2.8	1.8		△	△	△		△	△							
	WCMT 040204 – PF 4	6.35	4.3	2.38	0.4	3.75	2.8	1.8		△	△	△		△	△							
	WCMT 040208 – PF 4	6.35	4.3	2.38	0.8	3.75	2.8	1.8		△	△	△		△	△							
	WCMT 06T302 – PF 4	9.525	6.5	3.97	0.2	6.0	4.4	1.5		△	△	△		△	△							
	WCMT 06T304 – PF 4	9.525	6.5	3.97	0.4	6.0	4.4	1.5		△	△	△		△	△							
	WCMT 06T308 – PF 4	9.525	6.5	3.97	0.8	6.0	4.4	1.5		△	△	△		△	△							
	WCMT 080404 – PF 4	12.7	8.72	4.76	0.4	7.5	5.5	2.5		△	△	△		△	△							
	WCMT 080408 – PF 4	12.7	8.72	4.76	0.8	7.5	5.5	2.5		△	△	△		△	△							
	WCGT 030202 – PM 2	5.56	3.8	2.38	0.2	3.3	2.5	2.3									△		△			
	WCGT 030204 – PM 2	5.56	3.8	2.38	0.4	3.3	2.5	2.3									△		△			
	WCGT 040201 – PM 2	6.35	4.3	2.38	0.1	3.75	2.8	1.8									△		△			
	WCGT 040202 – PM 2	6.35	4.3	2.38	0.2	3.75	2.8	1.8									△		△			
	WCGT 040204 – PM 2	6.35	4.3	2.38	0.4	3.75	2.8	1.8									△		△			
	WCGT 06T301 – PM 2	9.525	6.5	3.97	0.1	6.0	4.4	1.5									△		△			
	WCGT 06T302 – PM 2	9.525	6.5	3.97	0.2	6.0	4.4	1.5									△		△			
	WCGT 06T304 – PM 2	9.525	6.5	3.97	0.4	6.0	4.4	1.5									△		△			
	WCGT 080404 – PM 2	12.7	8.72	4.76	0.4	7.5	5.5	2.5									△		△			
	WCGT 080408 – PM 2	12.7	8.72	4.76	0.8	7.5	5.5	2.5									△		△			
	WCMW 020102	3.97	2.70	1.59	0.2	2.7	2.2	1.6												△	△	△
	WCMW 020104	3.97	2.70	1.59	0.4	2.7	2.2	1.6												△	△	△
	WCMW 030202	5.56	3.80	2.38	0.2	3.30	2.5	2.3												△	△	△
	WCMW 030204	5.56	3.80	2.38	0.4	3.30	2.5	2.3												△	△	△
	WCMW 030208	5.56	3.80	2.38	0.8	3.30	2.5	2.3														△
	WCMW 040202	6.35	4.3	2.38	0.2	3.75	2.8	1.8												△	△	△
	WCMW 040204	6.35	4.3	2.38	0.4	3.75	2.8	1.8												△	△	△
	WCMW 050304	7.94	5.43	3.18	0.4	4.5	3.4	1.6												△	△	△

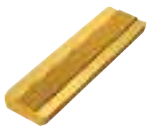
Reaming inserts

P 6500



Chamfer geometry E1

HC = coated carbide
HW = uncoated carbide
HT = Cermet
BH = CBN with high CBN content
DP = polycrystalline diamond

	Designation	Cutting edges	l_1 x l_2 mm	s mm	Rake angle	Chamfer	HC WXP 15	HW WK 10	HT WCE 10	BH WCB 50	DP WCD 10
	P 6500 – 00R – A88 – E1	1	11 x 1.5	1.0	0°	E1	△				
	P 6500 – 0R – A88 – E1	2	20 x 2.5	1.2	0°	E1	△				
	P 6500 – 1R – A88 – E1	2	20 x 3.0	1.5	0°	E1	△				
	P 6500 – 2R – A88 – E1	2	20 x 4.5	2.0	0°	E1	△				
	P 6500 – 4R – A88 – E1	2	25 x 7.0	2.3	0°	E1	△				
	P 6500 – 00R – B88 – E1	1	11 x 1.5	1.0	6°	E1	△	△	△		
	P 6500 – 0R – B88 – E1	2	20 x 2.5	1.2	6°	E1	△	△	△		
	P 6500 – 1R – B88 – E1	2	20 x 3.0	1.5	6°	E1	△	△	△		
	P 6500 – 2R – B88 – E1	2	20 x 4.5	2.0	6°	E1	△	△	△		
	P 6500 – 4R – B88 – E1	2	25 x 7.0	2.3	6°	E1	△	△	△		

Cutting tool material application tables – Boring

1. Grades for drilling

WALTER grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating structure
WAP 20	HC – P 20	●●							CVD	TiCN + Al_2O_3 +TiN
	HC – K 30			●						
WKP 25	HC – P 25	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 25			●●						
WKP 35	HC – P 35	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 35			●●						
WTP 35	HC – P 35	●●							CVD	TiCN + TiN
	HC – M 35		●							
	HC – S 35					●				
WXP 45	HC – P 45	●●							PVD	Multilayer TiAlN / TiN
	HC – K 40			●						
WAK 15	HC – K 15			●●					CVD	TiCN + Al_2O_3 (+TiN)
WXK 25	HC – K 25			●●					PVD	Multilayer TiAlN / TiN
	HC – P 15	●								
WK 40	HW – S 35					●●			—	—
	HW – N 30				●●					
WXP 40	HC – P 40	●●							PVD	TiCN
	HC – M 30		●●							
	HC – S 30					●				

HC = coated carbide
HW = uncoated carbide

●● Main application
● Additional application

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Cutting tool material application tables – Boring

2. Grades for boring and precision boring

WALTER grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating structure
WPP 01	HC – P 01	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 10			●						
WPP 10	HC – P 10	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 20			●						
WPP 20	HC – P 20	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 30			●						
WPP 30	HC – P 30	●●							CVD	TiCN + Al_2O_3 (+TiN)
WTP 35	HC – P 35	●●							CVD	TiCN + TiN
	HC – M 35		●							
	HC – S 35					●				
WAM 20	HC – M 20		●●						CVD	TiCN + Al_2O_3 + HfN
	HC – S 20					●				
WSM 30	HC – M 30		●●						PVD	TiAlN + Al_2O_3 (ZrCN)
	HC – S 30					●●				
WAK 10	HC – K 10			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – H 30						●			
WAK 15	HC – K 15			●●					CVD	TiCN + Al_2O_3 (+TiN)
WAK 20	HC – K 20			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – P 10	●								
WAK 30	HC – K 30			●●					CVD	TiCN + Al_2O_3 (+TiN)
	HC – P 40	●								
WXN 10	HC – N 10				●●				PVD	TiCN*plus*
	HC – M 01		●							
WXM 15	HC – P 15	●●							PVD	Multilayer TiAlN / TiN
	HC – M 15		●							
	HC – K 15			●						

HC = coated carbide
●● Main application
● Additional application

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Cutting tool material application tables – Boring

Grades for boring and precision boring (continued)

WALTER grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range 01 05 10 15 20 25 30 35 40 45		
WK 1	HW – N 10				●●				—	—
WCB 30	BL – H 05						●●		—	—
WCB 50	BH – H 10						●●		—	—
	BH – K 10			●						
WCB 80	BH – K 05			●●					—	—
	BH – H 15						●			
WCD 10	DP – N 10				●●				—	—

BL = CBN with low CBN content

BH = CBN with high CBN content

DP = polycrystalline diamond

HC = coated carbide

HW = uncoated carbide

●● Main application

● Additional application

Cutting tool material application tables – Boring

3. Grades for solid carbide drills

WALTER grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range	Coating procedure	Coating structure
WXK 35	HC – P 35	●●							PVD	Multilayer
	HC – M 35		●●							
	HC – K 25			●●						
	HC – N 25				●					
	HC – S 25					●				
WK 10	HW – N 10				●●				—	—

4. Grades for reaming

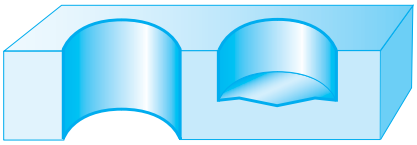
WALTER grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range	Coating procedure	Coating structure
WXP 15	HC – P 15	●●							PVD	TiN
	HC – M 15		●●							
	HC – K 15			●●						
WK 10	HW – N 10	●		●	●●				—	—
WCE 10	HT – P 15	●●							—	—

HC = coated carbide
HW = uncoated carbide
HT = Cermet

●● Main application
● Additional application

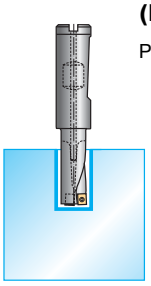
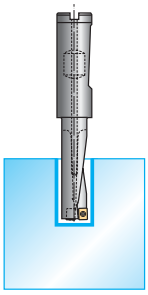
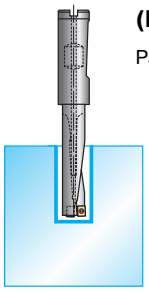
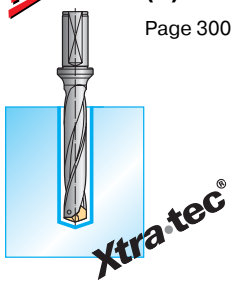
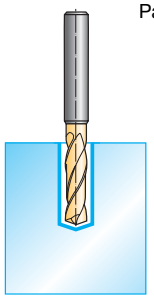
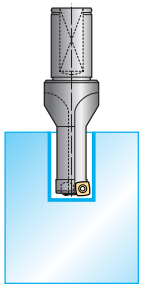
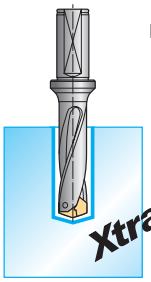
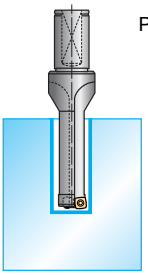
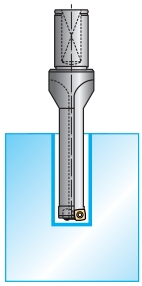
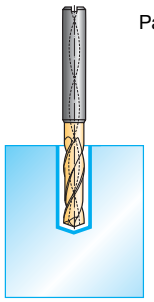
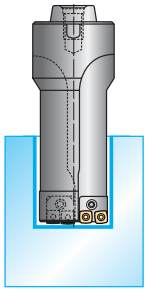
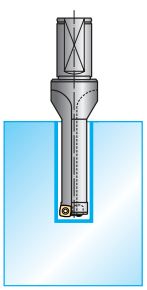
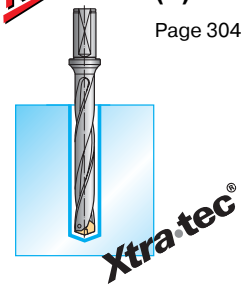
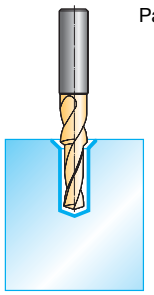
Product range overview

Drilling

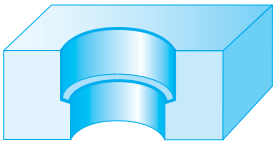
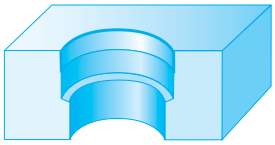
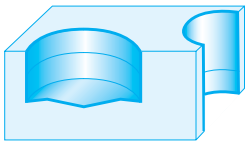
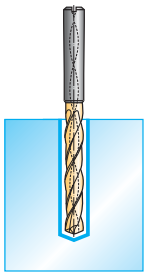
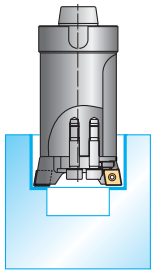
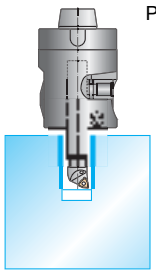
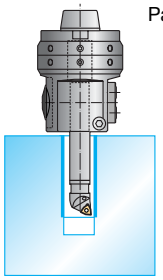
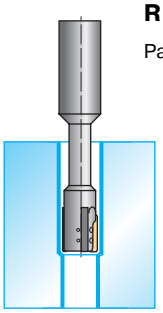
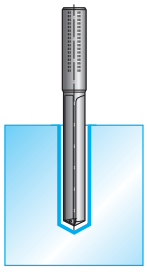
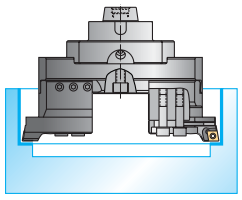
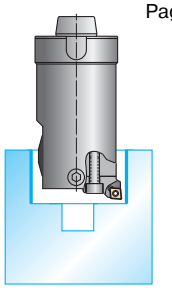
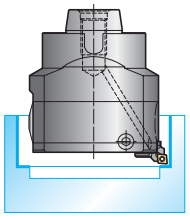
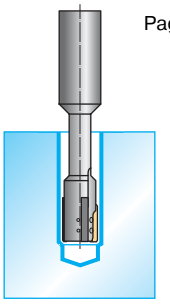
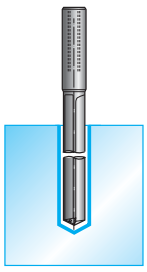
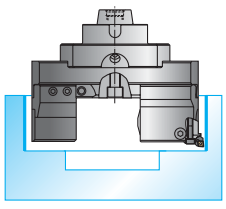


WALTER drills

WALTER SELECT see page 278

$L_C = 2 \times D_C$	$L_C = 3 \times D_C$	L_C approx. $4 \times D_C$	L_C approx. $5 \times D_C$ / $7 \times D_C$	WALTER MINI-STARDRILL solid carbide drills L_C approx. $3 \times D_C$
D_C [mm] 10–18 **B 3212 (R)** Page 280 	D_C [mm] 10–18 **B 3213 (R)** Page 284 	D_C [mm] 10–18 **B 3214 (R)** Page 292 	L_C approx. $5 \times D_C$ NEW D_C [mm] 12–31 **B 4015 (R)** Page 300 	D_C [mm] 3–16 **B 1420** Page 314 
D_C [mm] 16–58 **B 3212 (R)** Page 282 	D_C [mm] 12–31 **B 4013 (R)** Page 290 	D_C [mm] 16–58 **B 3214 (R)** Page 294 	L_C approx. $5 \times D_C$ D_C [mm] 16–58 **B 3215 (R)** Page 298 	D_C [mm] 3–16 **B 1421** Page 316 
D_C [mm] 59.5–120 **B 3011 M (R)** Page 308 	D_C [mm] 16–58 **B 3213 (R)** Page 286 		L_C approx. $7 \times D_C$ NEW D_C [mm] 12–31 **B 4017 (R)** Page 304 	D_C [mm] 3–16 **B 1520** Page 320 

WALTER drilling and boring tools

Drilling	Boring	Precision Boring		Reaming
				
WALTER SELECT see page 311 **L_C approx. 5 x D_C / 12 x D_C**	**WALTER two flute boring tools** WALTER SELECT see page 322	**WALTER Precision boring tools** For a system overview, see page 276 WALTER SELECT, see page 322–323		**WALTER reamers** WALTER SELECT see page 323
L_C approx. 5 x D_C **D_C [mm] 3–16** **B 1422** Page 318 	**D_C [mm] 20–153** **B 3220** **B 3221** Page 324 	**D_C [mm] 2–45** **B 3230** Page 330 	**D_C [mm] 2–45** **B 4030** Page 330 	**D_C [mm] 6–25** **R 4060** Page 344 
L_C approx. 5 x D_C **D_C [mm] 5–16** **B 1332** Page 312 	**D_C [mm] 150–640** **B 3220** Page 328 	**D_C [mm] 20–153** **B 3230** Page 338 	**D_C [mm] 33–153** **B 4030** Page 340 	**D_C [mm] 8–25** **R 4061** Page 346 
L_C approx. 12 x D_C **D_C [mm] 5–16** **B 1333** Page 313 		**D_C [mm] 150–640** **B 3230** Page 342 		

ScrewFit system overview for boring and circular interpolation milling

AK 530
Page 750 + 751

AK 531
Page 752

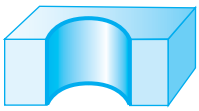
AK 540
Page 753–756

AK 541
Page 757–760

AK 580
Page 761



Drilling / circular interpolation milling



NEW

F 2231
Page 582

F 2234
Page 586

F 2280
Page 500

F 2330
Page 502

F 2334
Page 590

F 3040
Page 518

F 4042
Page 522–529

AK 300 T
Page 740

Boring



B 322 .
Page 324–327

F 3040
Page 518

F 4042
Page 522–529

WALTER Boring^{MEDIUM}

Precision boring



B 4030*
Page 330–333

B 3230*
Page 338

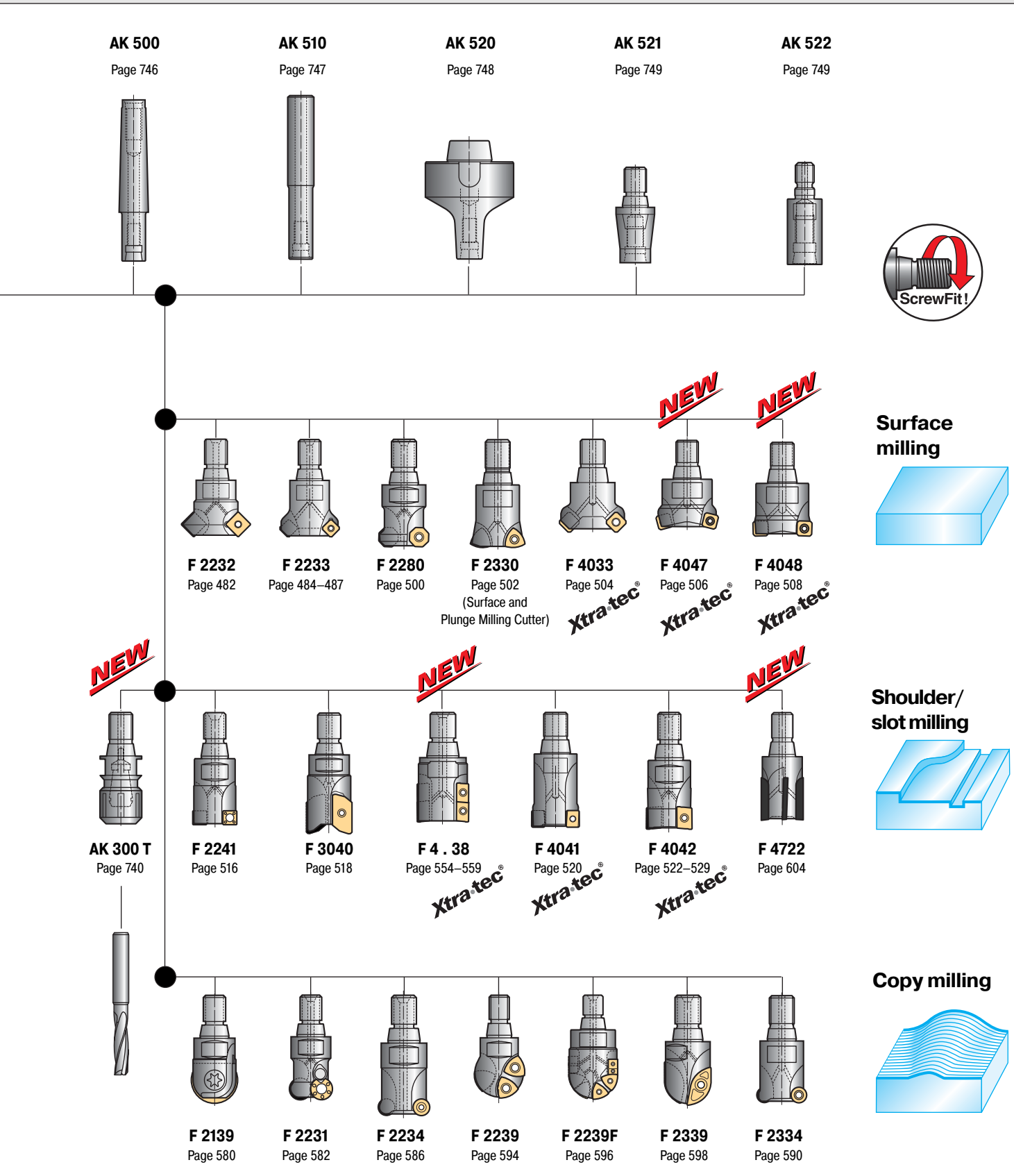
B 4030*
Page 340

WALTER Precision^{MINI}

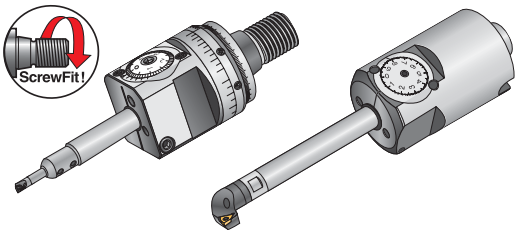
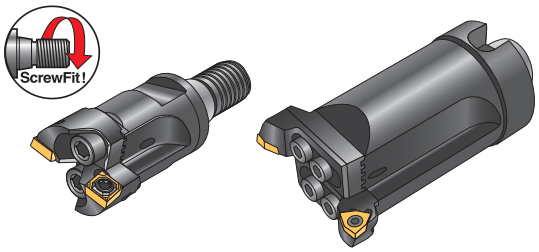
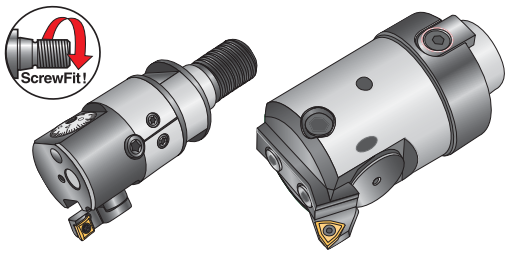
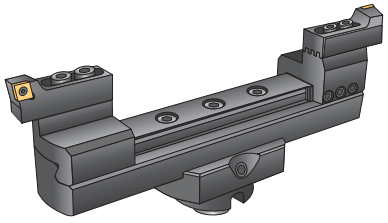
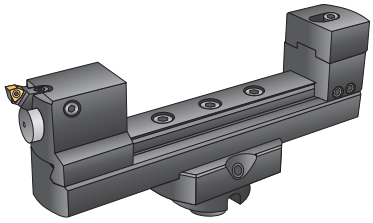
WALTER Precision^{MEDIUM}

* only in combination with AK 53 . CO and AK 54 . CO .
Cutting orientation for ScrewFit precision boring tools
Page 388.

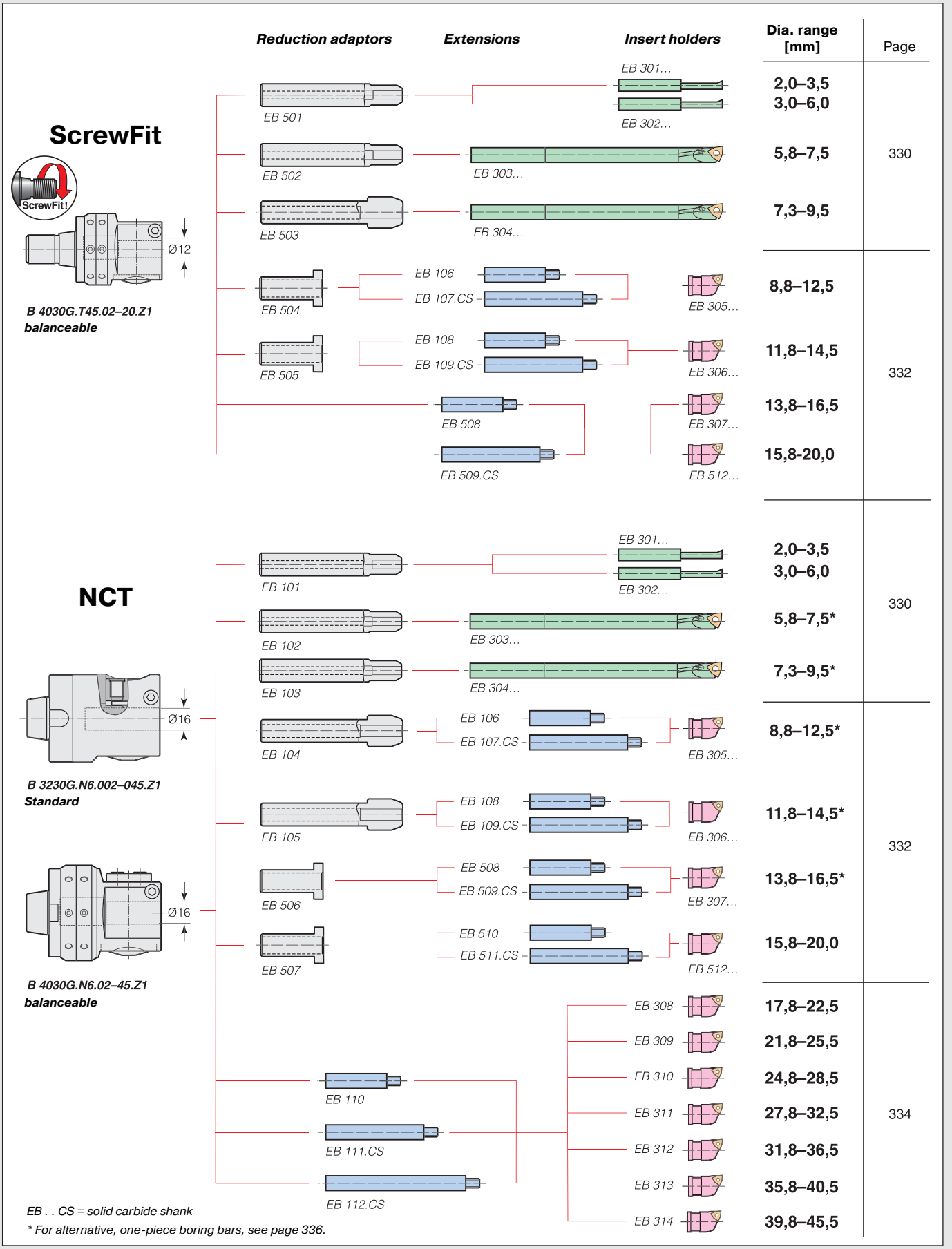
ScrewFit system overview for milling



Overview of WALTER boring and precision boring tools

Dia. range	Boring	Precision Boring
2–45 mm		**WALTER Precision *MINI***  ● 2 designs: standard and balanceable ● v_c possible up to 2000 m/min ● Proven NCT modular system and new ScrewFit screw head system ● Modular design, see right-hand side ● Insert holder for W . . inserts
20–153 mm	**WALTER Boring *MEDIUM***  ● Proven NCT modular system and new ScrewFit screw head system ● Cartridges for W . . and C . . inserts ● Steel tool body ● Tool lengths correspond to **WALTER Precision *MEDIUM***	**WALTER Precision *MEDIUM***  ● 2 versions: standard and self-balancing ● v_c possible up to 2000 m/min ● Proven NCT modular system and new ScrewFit screw head system ● Cartridges for W . . and C . . inserts ● Light steel body
150–640 mm	**WALTER Boring *MAXI***  ● Modular design with bridges ● Coupling: NCT 80 ● Cartridges for C . . inserts ● Tool lengths correspond to **WALTER Precision *MAXI***	**WALTER Precision *MAXI***  ● Modular design with bridges ● Coupling: NCT 80 ● Cartridges for C . . and W. . inserts

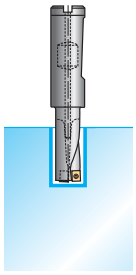
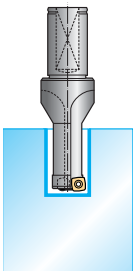
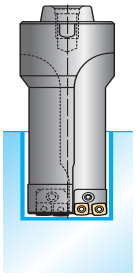
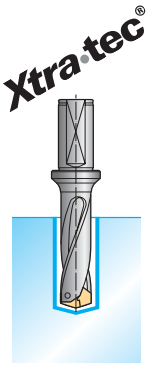
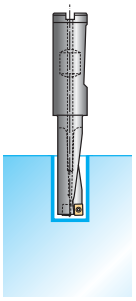
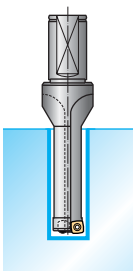
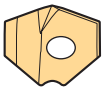
Modularity of the WALTER Precision *MINI* system B 3230 and B 4030

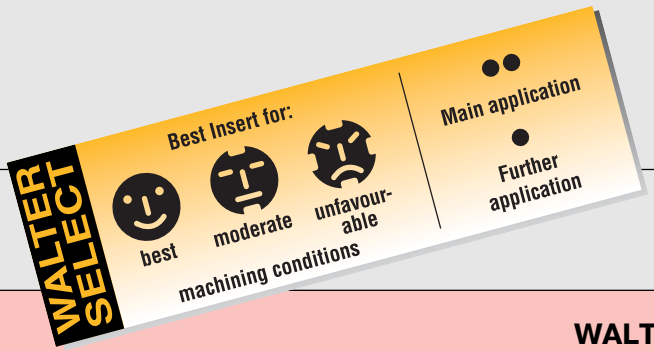


EB . . CS = solid carbide shank

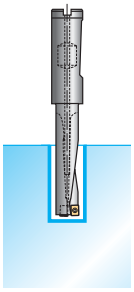
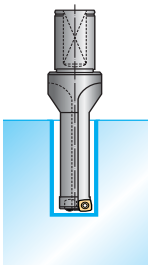
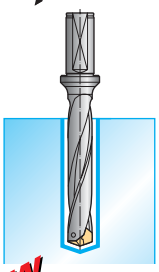
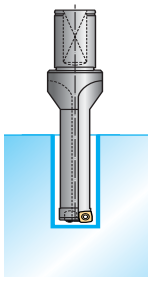
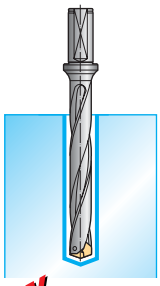
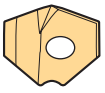
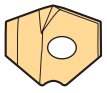
** For alternative, one-piece boring bars, see page 336.*

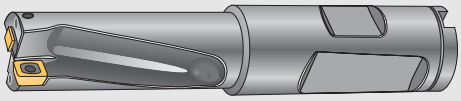
WALTER SELECT

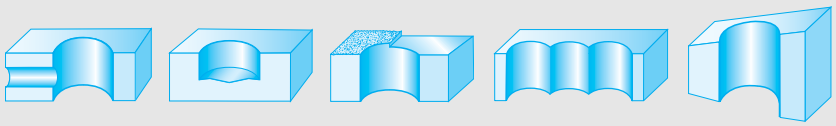
Tool type		WALTER drills						
L_c approx.		2 x D_C			3 x D_C			
Drills (R) = r.h. cutting		B 3212 (R)	B 3212 (R)	B 3011.M (R)	B 4013 (R)	B 3213 (R)	B 3213 (R)	
								
Dia. range [mm]		10–18	16–58	59.5–120	12–31	10–18	16–58	
Page		280	282	308	290	284	286	
P	Steel	●●	●●	●●	●●	●●	●●	
M	Stainless steel	●	●	●	●	●	●	
K	Cast iron	●●	●●	●●	●●	●●	●●	
N	NF metals	●	●	●	●	●	●	
S	Difficult-to-machine materials	●	●	●	●	●	●	
H	Hard materials							
Basic shape of indexable insert								
Indexable insert types		LCMX . .	P 284 . .	P 284 . .	P 600 . . .	LCMX . .	P 284 . .	
Drilling depth [mm]		≤ 2 x D_C	≤ 2 x D_C	≤ 2 x D_C	≤ 3 x D_C	≤ 3 x D_C	≤ 3 x D_C	



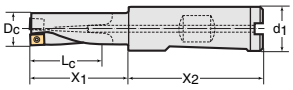
WALTER drills

	4 x D_C		5 x D_C		7 x D_C
	B 3214 (R)	**B 3214 (R)**	**B 4015 (R)**	**B 3215 (R)**	**B 4017 (R)**
			Xtra·tec® NEW 		NEW 
	10–18	16–58	12–31	16–58	12–31
	292	294	300	298	304
		●●	●●		●●
		●	●		●
	●●	●●	●●	●●	●●
	●	●	●	●	●
		●	●		●
					
	LCMX . .	P 284 . .	P 600 . . .	P 284 . .	P 600 . . .
	≤ 4 x D_C	≤ 4 x D_C	≤ 5 x D_C	≤ 5 x D_C	≤ 7 x D_C





Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Shank ISO 3338/2 and DIN 1835 version B and turned through 90° for this purpose DIN 6535 version HE.	B 3212.DF.10.0.Z01.20R	10.0	16	31	49	20	0.1	2	LCMX 0502 . .
	B 3212.DF.10.2.Z01.20R	10.2	16	31	49	20.5	0.1	2	
	B 3212.DF.10.5.Z01.21R	10.5	16	32	49	21	0.1	2	
	B 3212.DF.11.0.Z01.22R	11.0	16	34	49	22	0.1	2	
	B 3212.DF.11.5.Z01.23R	11.5	16	35	49	23	0.1	2	
	B 3212.DF.11.7.Z01.23R	11.7	16	35	49	23.5	0.1	2	
	B 3212.DF.12.0.Z01.24R	12.0	16	36	49	24	0.1	2	
	B 3212.DF.12.5.Z01.25R	12.5	16	38	49	25	0.1	2	
	B 3212.DF.13.0.Z01.26R	13.0	16	39	49	26	0.1	2	
	B 3212.DF.13.5.Z01.27R	13.5	16	40	49	27	0.1	2	
	B 3212.DF.13.7.Z01.27R	13.7	16	41	49	27.5	0.1	2	
	B 3212.DF.14.0.Z01.28R	14.0	16	42	49	28	0.1	2	LCMX 06T2 . .
	B 3212.DF.14.5.Z01.29R	14.5	16	43	49	29	0.1	2	
	B 3212.DF.15.0.Z01.30R	15.0	16	44	49	30	0.1	2	
	B 3212.DF.15.5.Z01.31R	15.5	16	45	49	31	0.1	2	
	B 3212.DF.15.7.Z01.31R	15.7	16	46	49	31.5	0.1	2	
	B 3212.DF.16.0.Z01.32R	16.0	16	47	49	32	0.1	2	
	B 3212.DF.16.5.Z01.33R	16.5	16	48	49	33	0.1	2	
	B 3212.DF.17.0.Z01.34R	17.0	16	49	49	34	0.1	2	
	B 3212.DF.17.5.Z01.35R	17.5	16	51	49	35	0.1	2	
	B 3212.DF.18.0.Z01.36R	18.0	16	52	49	36	0.1	2	



Bodies and assembly parts are included in the scope of delivery.

Possible X adjustment for boring into solid material greater than the nominal diameter:
X = +0.2 mm / –0.1 mm ➔ ΔD = +0.4 mm / –0.2 mm.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

WALTER STARDRILL

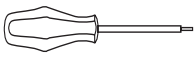
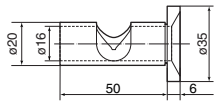
B 3212

Diameter range 10–18 mm
right-hand cutting, drilling depth 2 x D_C

Assembly parts

		D_C = 10–13.7 mm	D_C = 14–15.7 mm	D_C =16–18 mm
	Clamping screw for insert	FS 1012 (Torx 6)	FS 1004 (Torx 7)	FS 1020 (Torx 7)
	Tightening torque	0.4 Nm	0.6 Nm	0.6 Nm

Accessories

		D_C = 10–13.7 mm	D_C = 14–18 mm
	Screwdriver	FS 1063 (Torx 6)	FS 309 (Torx 7)
	Eccentric sleeve*	FS 1207	
	Clamping screw for chuck	FS 1209	

*The clamping screw FS 1209 should be used for the application of eccentric sleeves in adaptors according to DIN 1835/6359.
Range of diameter adjustment: from –0.08 to +0.24 mm.

Indexable inserts

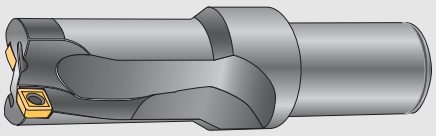


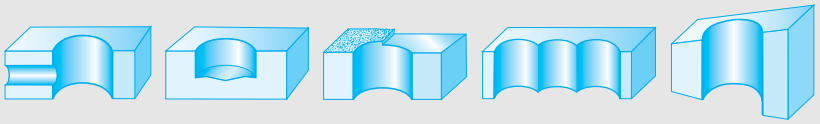
Designation	Length mm	Width mm	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M HC	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
LCMX 050203 – B 57	5.2	4.0			☺	😐					☺				☹
LCMX 050203 – D 57	5.2	4.0	☺	☺	😐	😐				☺	😐				☹
LCMX 050203 – E 57	5.2	4.0	☺												😐
LCMX 06T204 – B 57	6.6	5.2			☺	😐					☺				☹
LCMX 06T204 – D 57	6.6	5.2	☺	☺	😐	😐				☺	😐				☹
LCMX 06T204 – E 57	6.6	5.2	☺												😐



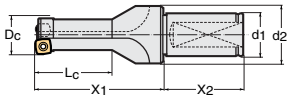


→ 248 → 684 → 386 → 368





Tool	Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766	B 3212.F.016.Z01.032R	16	25	35	57	56	32	0.3	2	P 284 . . – 1
	B 3212.F.016.5.Z01.033R	16.5	25	35	58	56	33	0.3	2	
	B 3212.F.017.Z01.034R	17	25	35	59	56	34	0.3	2	
	B 3212.F.017.5.Z01.035R	17.5	25	35	60	56	35	0.3	2	
	B 3212.F.018.Z01.036R	18	25	35	61	56	36	0.3	2	
	B 3212.F.018.5.Z01.037R	18.5	25	35	62	56	37	0.3	2	
	B 3212.F.019.Z01.038R	19	25	35	63	56	38	0.3	2	
	B 3212.F.019.5.Z01.039R	19.5	25	35	64	56	39	0.3	2	
	B 3212.F.020.Z01.040R	20	25	35	65	56	40	0.3	2	
	B 3212.F.020.5.Z01.041R	20.5	25	35	66	56	41	0.4	2	P 284 . . – 2
	B 3212.F.021.Z01.042R	21	25	35	67	56	42	0.4	2	
	B 3212.F.021.5.Z01.043R	21.5	25	35	68	56	43	0.4	2	
	B 3212.F.022.Z01.044R	22	25	35	69	56	44	0.4	2	
	B 3212.F.022.5.Z01.045R	22.5	25	35	70	56	45	0.4	2	
	B 3212.F.023.Z01.046R	23	25	35	71	56	46	0.4	2	
	B 3212.F.023.5.Z01.047R	23.5	25	35	72	56	47	0.4	2	
	B 3212.F.024.Z01.048R	24	25	35	73	56	48	0.4	2	
	B 3212.F.024.5.Z01.049R	24.5	25	35	74	56	49	0.4	2	
	B 3212.F.025.Z01.050R	25	25	35	75	56	50	0.4	2	
	B 3212.F.025.5.Z01.051R	25.5	32	42	83	60	51	0.7	2	P 284 . . – 3
	B 3212.F.026.Z01.052R	26	32	42	84	60	52	0.7	2	
	B 3212.F.026.5.Z01.053R	26.5	32	42	85	60	53	0.7	2	
	B 3212.F.027.Z01.054R	27	32	42	86	60	54	0.7	2	
	B 3212.F.027.5.Z01.055R	27.5	32	42	87	60	55	0.7	2	
	B 3212.F.028.Z01.056R	28	32	42	88	60	56	0.7	2	
	B 3212.F.028.5.Z01.057R	28.5	32	42	89	60	57	0.7	2	
	B 3212.F.029.Z01.058R	29	32	42	90	60	58	0.7	2	
	B 3212.F.029.5.Z01.059R	29.5	32	42	91	60	59	0.8	2	
	B 3212.F.030.Z01.060R	30	32	42	92	60	60	0.8	2	
	B 3212.F.031.Z01.062R	31	32	42	94	60	62	0.8	2	P 284 . . – 4
	B 3212.F.032.Z01.064R	32	32	42	96	60	64	0.8	2	
	B 3212.F.033.Z01.066R	33	32	42	98	60	66	0.8	2	
	B 3212.F.034.Z01.068R	34	32	42	100	60	68	0.8	2	
	B 3212.F.035.Z01.070R	35	32	42	102	60	70	0.8	2	
	B 3212.F.036.Z01.072R	36	32	42	104	60	72	0.9	2	
	B 3212.F.037.Z01.074R	37	40	50	114	70	74	1.3	2	P 284 . . – 5
	B 3212.F.038.Z01.076R	38	40	50	116	70	76	1.4	2	
	B 3212.F.039.Z01.078R	39	40	50	118	70	78	1.4	2	
	B 3212.F.040.Z01.080R	40	40	50	120	70	80	1.4	2	
	B 3212.F.041.Z01.082R	41	40	50	122	70	82	1.4	2	
	B 3212.F.042.Z01.084R	42	40	50	124	70	84	1.5	2	
	B 3212.F.043.Z01.086R	43	40	50	126	70	86	1.5	2	P 284 . . – 6
	B 3212.F.044.Z01.088R	44	40	50	128	70	88	1.5	2	
	B 3212.F.045.Z01.090R	45	40	50	130	70	90	1.5	2	
	B 3212.F.046.Z01.092R	46	40	50	132	70	92	1.86	2	



For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.
For diameter adjustment for a rotating application via eccentric adjustment, see page 385.
Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

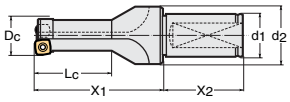
WALTER STARDRILL

B 3212

Diameter range 16–58 mm
right-hand cutting, drilling depth 2 x D_C

Tool

Parallel shank with flat
i.a.w. ISO 9766



Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
B 3212.F.047.Z01.094R	47	40	50	134	70	94	1.7	2	P 284 . . – 6
B 3212.F.048.Z01.096R	48	40	50	136	70	96	1.7	2	
B 3212.F.049.Z01.098R	49	40	50	138	70	98	1.8	2	
B 3212.F.050.Z01.100R	50	40	50	140	70	100	1.8	2	
B 3212.F.051.Z01.102R	51	40	50	142	70	102	1.9	2	P 284 . . – 7
B 3212.F.052.Z01.104R	52	40	50	144	70	104	1.9	2	
B 3212.F.053.Z01.106R	53	40	50	146	70	106	1.9	2	
B 3212.F.054.Z01.108R	54	40	50	148	70	108	2.0	2	
B 3212.F.055.Z01.110R	55	40	50	150	70	110	2.0	2	
B 3212.F.056.Z01.112R	56	40	50	152	70	112	2.1	2	
B 3212.F.057.Z01.114R	57	40	50	154	70	114	2.2	2	
B 3212.F.058.Z01.116R	58	40	50	156	70	116	2.3	2	

Assembly parts

	D_C = 16–20 mm	D_C = 20.5–25 mm	D_C = 25.5–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
Threaded plug	FS 974 (M 6 x 6 DIN 913)			FS 960 (M 8 x 8 DIN 913)		

Accessories

	D_C = 16–20 mm	D_C = 20.5–25 mm	D_C = 25.5–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Indexable inserts

Designation	Size		P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	S HC WXP 40
P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
P 28469	1–7				😐	☹					☹		😐	☹	
P 28475	1–7		☺		😐	☹					☹				☹
P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	1–7				😐	☹					☹				☹



Tiger·tec®



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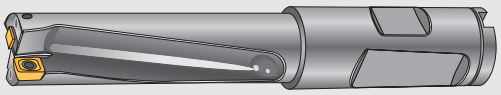
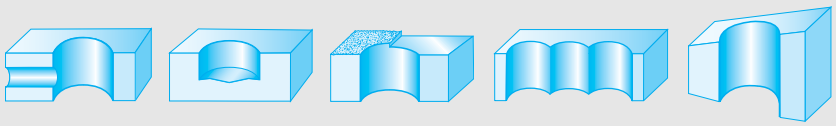
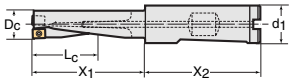




Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Shank ISO 3338/2 and DIN 1835 version B and turned through 90° for this purpose DIN 6535 version HE. 	B 3213.DF.10.0.Z01.30R	10.0	16	41	49	30	0.1	2	
	B 3213.DF.10.2.Z01.30R	10.2	16	41	49	30.5	0.1	2	
	B 3213.DF.10.5.Z01.31R	10.5	16	43	49	31.5	0.1	2	
	B 3213.DF.11.0.Z01.33R	11.0	16	45	49	33	0.1	2	
	B 3213.DF.11.5.Z01.34R	11.5	16	47	49	34.5	0.1	2	
	B 3213.DF.11.7.Z01.35R	11.7	16	48	49	35	0.1	2	LCMX 0502 . .
	B 3213.DF.12.0.Z01.36R	12.0	16	48	49	36	0.1	2	
	B 3213.DF.12.5.Z01.37R	12.5	16	50	49	37.5	0.1	2	
	B 3213.DF.13.0.Z01.39R	13.0	16	52	49	39	0.1	2	
	B 3213.DF.13.5.Z01.40R	13.5	16	54	49	40.5	0.1	2	
	B 3213.DF.13.7.Z01.41R	13.7	16	55	49	41	0.1	2	
	B 3213.DF.14.0.Z01.42R	14.0	16	56	49	42	0.1	2	
	B 3213.DF.14.5.Z01.43R	14.5	16	57	49	43.5	0.1	2	
	B 3213.DF.15.0.Z01.45R	15.0	16	59	49	45	0.1	2	
	B 3213.DF.15.5.Z01.46R	15.5	16	61	49	46.5	0.1	2	
	B 3213.DF.15.7.Z01.47R	15.7	16	62	49	47	0.1	2	LCMX 06T2 . .
	B 3213.DF.16.0.Z01.48R	16.0	16	63	49	48	0.1	2	
	B 3213.DF.16.5.Z01.49R	16.5	16	65	49	49.5	0.1	2	
	B 3213.DF.17.0.Z01.51R	17.0	16	66	49	51	0.1	2	
	B 3213.DF.17.5.Z01.52 R	17.5	16	68	49	52.5	0.1	2	
	B 3213.DF.18.0.Z01.54R	18.0	16	70	49	54	0.1	2	

Bodies and assembly parts are included in the scope of delivery.

Possible X adjustment for boring into solid material greater than the nominal diameter:
X = +0.2 mm / –0.1 mm ➔ ΔD = +0.4 mm / –0.2 mm.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

WALTER STARDRILL

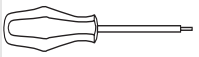
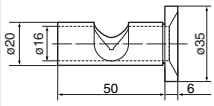
B 3213

Diameter range 10–18 mm
right-hand cutting, drilling depth 3 x D_C

Assembly parts

		D_C = 10–13.7 mm	D_C = 14–15.7 mm	D_C =16–18 mm
	Clamping screw for insert	FS 1012 (Torx 6)	FS 1004 (Torx 7)	FS 1020 (Torx 7)
	Tightening torque	0.4 Nm	0.6 Nm	0.6 Nm

Accessories

		D_C = 10–13.7 mm	D_C = 14–18 mm
	Screwdriver	FS 1063 (Torx 6)	FS 309 (Torx 7)
	Eccentric sleeve*	FS 1207	
	Clamping screw for chuck	FS 1209	

*The clamping screw FS 1209 should be used for the application of eccentric sleeves in adaptors according to DIN 1835/6359.
Range of diameter adjustment: from –0.08 to +0.24 mm.

Indexable inserts

Designation	Length mm	Width mm	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
LCMX 050203 – B 57	5.2	4.0			☺	😐					☺				☹
LCMX 050203 – D 57	5.2	4.0	☺	☺	😐	😐				☺	😐				☹
LCMX 050203 – E 57	5.2	4.0	☺												😐
LCMX 06T204 – B 57	6.6	5.2			☺	😐					☺				☹
LCMX 06T204 – D 57	6.6	5.2	☺	☺	😐	😐				☺	😐				☹
LCMX 06T204 – E 57	6.6	5.2	☺												😐





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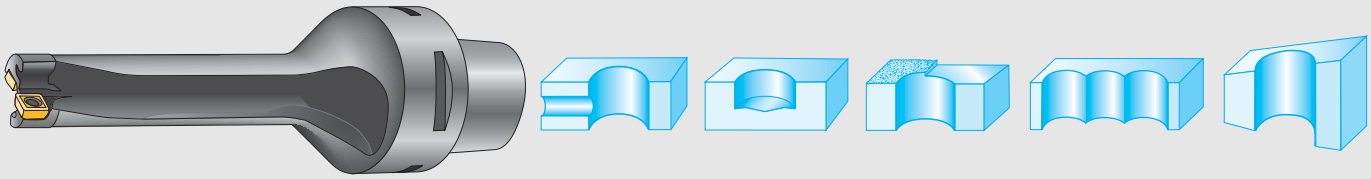
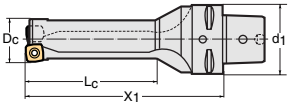


Tool



Designation	D_C mm	d_1 mm	X_1 mm	L_C mm	kg	No. of inserts	Type
B 3213.C3.016.Z01.48R	16	32	83	48	0.3	2	P 284 . . – 1
B 3213.C3.021.Z01.63R	21	32	98	63	0.4	2	P 284 . . – 2
B 3213.C3.026.Z01.78R	26	32	114	78	0.7	2	P 284 . . – 3
B 3213.C4.021.Z01.63R	21	40	108	63	0.35	2	P 284 . . – 2
B 3213.C4.026.Z01.78R	26	40	118	78	0.75	2	P 284 . . – 3
B 3213.C4.031.Z01.93R	31	40	137	93	0.85	2	P 284 . . – 4
B 3213.C5.021.Z01.63R	21	50	110	63	0.5	2	P 284 . . – 2
B 3213.C5.026.Z01.78R	26	50	123	78	0.8	2	P 284 . . – 3
B 3213.C5.031.Z01.93R	31	50	138	93	0.9	2	P 284 . . – 4
B 3213.C5.037.Z01.111R	37	50	161	111	1.7	2	P 284 . . – 5

For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.

Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

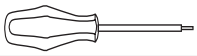
WALTER CAPTO STARDRILL B 3213.C

Diameter range 16–37 mm
right-hand cutting, drilling depth 3 x D_C

Assembly parts

		D_C = 16 mm	D_C = 21 mm	D_C = 26 mm	D_C = 31 mm	D_C = 37 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)
	Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm

Accessories

		D_C = 16 mm	D_C = 21 mm	D_C = 26 mm	D_C = 31 mm	D_C = 37 mm
	Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)

Indexable inserts

				P					M	K				N	S	
				HC						HC				HW	HW	HC
	Designation	Size		WAP 20	WKP 25	WKP 35	WTP 35	WXP 45		WAK 15	WKP 25	WKP 35	WXK 25	WK 40	WK 40	WXP 40
	P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
	P 28469	1–7				😐	☹					☹		😐	☹	
	P 28475	1–7		☺		😐	☹					☹				☹
	P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
	P 28479	1–7				😐	☹					☹				☹





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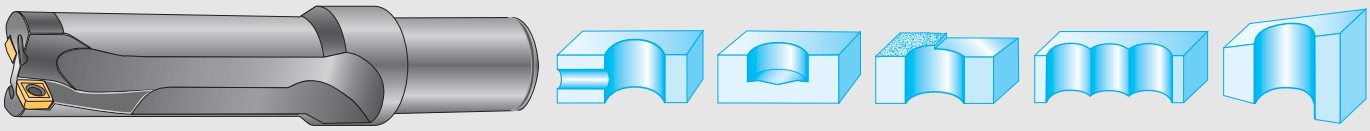
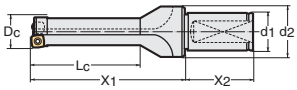


Tool	Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766	B 3213.F.016.Z01.048R	16	25	35	73	56	48	0.3	2	P 284 . . – 1
	B 3213.F.016.5.Z01.049R	16.5	25	35	75	56	49	0.3	2	
	B 3213.F.017.Z01.051R	17	25	35	76	56	51	0.3	2	
	B 3213.F.017.5.Z01.052R	17.5	25	35	77.5	56	52	0.3	2	
	B 3213.F.018.Z01.054R	18	25	35	79	56	54	0.3	2	
	B 3213.F.018.5.Z01.055R	18.5	25	35	80.5	56	55	0.3	2	
	B 3213.F.019.Z01.057R	19	25	35	82	56	57	0.4	2	
	B 3213.F.019.5.Z01.058R	19.5	25	35	84	56	58	0.4	2	
	B 3213.F.020.Z01.060R	20	25	35	85	56	60	0.4	2	
	B 3213.F.020.5.Z01.061R	20.5	25	35	87	56	61	0.4	2	P 284 . . – 2
	B 3213.F.021.Z01.063R	21	25	35	88	56	63	0.4	2	
	B 3213.F.021.5.Z01.064R	21.5	25	35	90	56	64	0.4	2	
	B 3213.F.022.Z01.066R	22	25	35	91	56	66	0.4	2	
	B 3213.F.022.5.Z01.067R	22.5	25	35	93	56	67	0.4	2	
	B 3213.F.023.Z01.069R	23	25	35	94	56	69	0.4	2	
	B 3213.F.023.5.Z01.070R	23.5	25	35	96	56	70	0.4	2	
	B 3213.F.024.Z01.072R	24	25	35	97	56	72	0.4	2	
	B 3213.F.024.5.Z01.073R	24.5	25	35	99	56	73	0.5	2	
	B 3213.F.025.Z01.075R	25	25	35	100	56	75	0.5	2	
	B 3213.F.025.5.Z01.076R	25.5	32	42	109	60	76	0.7	2	P 284 . . – 3
	B 3213.F.026.Z01.078R	26	32	42	110	60	78	0.7	2	
	B 3213.F.026.5.Z01.079R	26.5	32	42	112	60	79	0.8	2	
	B 3213.F.027.Z01.081R	27	32	42	113	60	81	0.8	2	
	B 3213.F.027.5.Z01.082R	27.5	32	42	115	60	82	0.8	2	
	B 3213.F.028.Z01.084R	28	32	42	116	60	84	0.8	2	
	B 3213.F.028.5.Z01.085R	28.5	32	42	118	60	85	0.8	2	
	B 3213.F.029.Z01.087R	29	32	42	119	60	87	0.8	2	
	B 3213.F.029.5.Z01.088R	29.5	32	42	121	60	88	0.8	2	
	B 3213.F.030.Z01.090R	30	32	42	122	60	90	0.8	2	
	B 3213.F.031.Z01.093R	31	32	42	125	60	93	0.8	2	P 284 . . – 4
	B 3213.F.032.Z01.096R	32	32	42	128	60	96	0.9	2	
	B 3213.F.033.Z01.099R	33	32	42	131	60	99	0.9	2	
	B 3213.F.034.Z01.102R	34	32	42	134	60	102	0.9	2	
	B 3213.F.035.Z01.105R	35	32	42	137	60	105	1.0	2	
	B 3213.F.036.Z01.108R	36	32	42	140	60	108	1.0	2	
	B 3213.F.037.Z01.111R	37	40	50	151	70	111	1.6	2	P 284 . . – 5
	B 3213.F.038.Z01.114R	38	40	50	154	70	114	1.6	2	
	B 3213.F.039.Z01.117R	39	40	50	157	70	117	1.6	2	
	B 3213.F.040.Z01.120R	40	40	50	160	70	120	1.7	2	
	B 3213.F.041.Z01.123R	41	40	50	163	70	123	1.7	2	
	B 3213.F.042.Z01.126R	42	40	50	166	70	126	1.7	2	
	B 3213.F.043.Z01.129R	43	40	50	169	70	129	1.7	2	P 284 . . – 6
	B 3213.F.044.Z01.132R	44	40	50	172	70	132	1.8	2	
	B 3213.F.045.Z01.135R	45	40	50	175	70	135	1.8	2	
	B 3213.F.046.Z01.138R	46	40	50	178	70	138	1.9	2	



For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.
For diameter adjustment for a rotating application via eccentric adjustment, see page 385.
Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

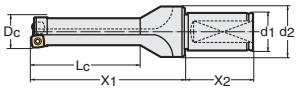
WALTER STARDRILL

B 3213

Diameter range 16–58 mm
right-hand cutting, drilling depth 3 x D_C

Tool

Parallel shank with flat
i.a.w. ISO 9766



Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
B 3213.F.047.Z01.141R	47	40	50	181	70	141	2.0	2	P 284 . . – 6
B 3213.F.048.Z01.144R	48	40	50	184	70	144	2.1	2	
B 3213.F.049.Z01.147R	49	40	50	187	70	147	2.1	2	
B 3213.F.050.Z01.150R	50	40	50	190	70	150	2.2	2	
B 3213.F.051.Z01.153R	51	40	50	193	70	153	2.2	2	P 284 . . – 7
B 3213.F.052.Z01.156R	52	40	50	196	70	156	2.2	2	
B 3213.F.053.Z01.159R	53	40	50	199	70	159	2.3	2	
B 3213.F.054.Z01.162R	54	40	50	202	70	162	2.4	2	
B 3213.F.055.Z01.165R	55	40	50	205	70	165	2.5	2	
B 3213.F.056.Z01.168R	56	40	50	208	70	168	2.6	2	
B 3213.F.057.Z01.171R	57	40	50	211	70	171	2.7	2	
B 3213.F.058.Z01.174R	58	40	50	214	70	174	2.8	2	

Assembly parts

	D_C = 16–20 mm	D_C = 20.5–25 mm	D_C = 25.5–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
Threaded plug	FS 974 (M 6 x 6 DIN 913)			FS 960 (M 8 x 8 DIN 913)		

Accessories

	D_C = 16–20 mm	D_C = 20.5–25 mm	D_C = 25.5–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Indexable inserts

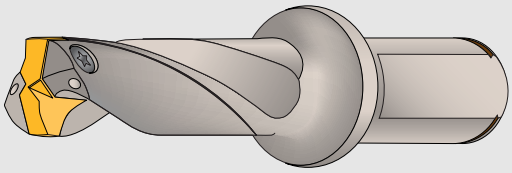


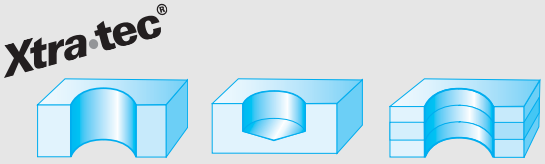
Designation	Size		P					M	K				N	S	
			HC						HC				HW	HW	HC
			WAP 20	WKP 25	WKP 35	WTP 35	WXP 45		WAK 15	WKP 25	WKP 35	WXK 25	WK 40	WK 40	WXP 40
P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
P 28469	1–7				😐	☹					☹		☺	☹	
P 28475	1–7		☺		😐	☹					☹				☹
P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	1–7				😐	☹					☹				☹



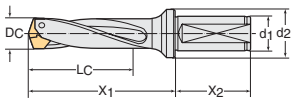


→ 249 | → 684 | → 386 | → 370





Tool	Designation	$D_{C\,min}$ mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766	B 4013.F20.12.0.Z02.36R	12*	20	30	68	50	36	2	0.2	1	P 600 . – D12 . . R*
	B 4013.F20.13.0.Z02.39R	13	20	30	72	50	39	2	0.2	1	P 600 . – D13 . . R
	B 4013.F20.14.0.Z02.42R	14	20	30	76	50	42	2	0.2	1	P 600 . – D14 . . R
	B 4013.F20.15.0.Z02.45R	15	20	30	80	50	45	2	0.2	1	P 600 . – D15 . . R
	B 4013.F20.16.0.Z02.48R	16	20	30	84	50	48	2	0.2	1	P 600 . – D16 . . R
	B 4013.F20.17.0.Z02.51R	17	20	30	88	50	51	2	0.2	1	P 600 . – D17 . . R
	B 4013.F20.18.0.Z02.54R	18	20	30	92	50	54	2	0.3	1	P 600 . – D18 . . R
	B 4013.F20.19.0.Z02.57R	19	20	30	96	50	57	2	0.3	1	P 600 . – D19 . . R
	B 4013.F20.20.0.Z02.60R	20	20	30	100	50	60	2	0.3	1	P 600 . – D20 . . R
	B 4013.F20.21.0.Z02.63R	21	20	30	104	50	63	2	0.3	1	P 600 . – D21 . . R
	B 4013.F25.22.0.Z02.66R	22	25	35	109	56	66	2	0.4	1	P 600 . – D22 . . R
	B 4013.F25.23.0.Z02.69R	23	25	35	113	56	69	2	0.5	1	P 600 . – D23 . . R
	B 4013.F25.24.0.Z02.72R	24	25	35	117	56	72	2	0.5	1	P 600 . – D24 . . R
	B 4013.F25.25.0.Z02.75R	25	25	35	121	56	75	2	0.5	1	P 600 . – D25 . . R
	B 4013.F25.26.0.Z02.78R	26	25	35	125	56	78	2	0.6	1	P 600 . – D26 . . R
	B 4013.F25.27.0.Z02.81R	27	25	35	129	56	81	2	0.6	1	P 600 . – D27 . . R
	B 4013.F32.28.0.Z02.84R	28	32	42	134	60	84	2	0.8	1	P 600 . – D28 . . R
	B 4013.F32.29.0.Z02.87R	29	32	42	138	60	87	2	0.9	1	P 600 . – D29 . . R
	B 4013.F32.30.0.Z02.90R	30	32	42	142	60	90	2	0.9	1	P 600 . – D30 . . R
	B 4013.F32.31.0.Z02.93R	31	32	42	146	60	93	2	1.0	1	P 600 . – D31 . . R



* Example: inserts with D_C = 12.00 mm up to incl. 12.99 mm can be attached to this tool.

Bodies and assembly parts are included in the scope of delivery.

WALTER Drills

B 4013

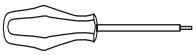
Diameter range 12–31.75 mm
right-hand cutting, drilling depth 3 x D_C

Assembly parts

		for $D_{C\ min}$ = 12–13 mm	14–15 mm	16–17 mm	18–19 mm	20–21 mm	22–23 mm	24–25 mm	26–27 mm	28–31 mm
	Clamping screw for insert	FS 1396 (IP 7)	FS 1397 (IP 8)	FS 1398 (IP 8)	FS 1399 (IP 15)	FS 1400 (IP 20)	FS 1401 (IP 20)	FS 1402 (IP 20)	FS 1403 (IP 25)	FS 1404 (IP 25)
	Tightening torque	1.2 Nm	2 Nm	2 Nm	4 Nm	5 Nm	5 Nm	5 Nm	5.5 Nm	5.5 Nm

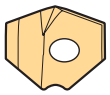
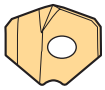
IP = Torx Plus

Accessories

		for $D_{C\ min}$ = 12–13 mm	14–17 mm	18–19 mm	20–25 mm	26–31 mm
	Torque Screwdriver	FS 2001	FS 2003			
	Interchangeable blade	FS 2011 (Torx 7 IP)	FS 2012 (Torx 8 IP)	FS 2014 (Torx 15 IP)	FS 2015 (Torx 20 IP)	FS 2016 (Torx 25 IP)
	Screwdriver	FS 1490 (Torx 7 IP)	FS 1483 (Torx 8 IP)	FS 1485 (Torx 15 IP)	FS 1486 (Torx 20 IP)	FS 1487 (Torx 25 IP)

IP = Torx Plus

Indexable inserts

	Designation	Diameter range D_C mm	P			M	K		N	S			
			HC				HC						
			WXP 45				WXK 25						
	P 6001 – D . . .	12.00 – 31.75	●										
	P 6002 – D . . .	12.00 – 31.75					●						



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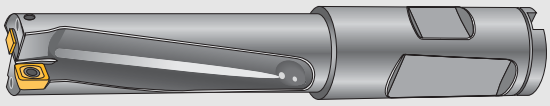
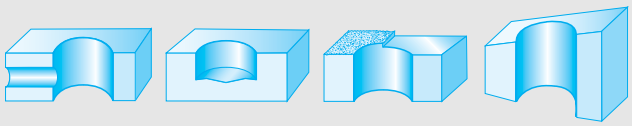
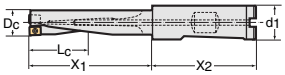




Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Shank ISO 3338/2 and DIN 1835 version B and turned through 90° for this purpose DIN 6535 version HE. 	B 3214.DF.10.0.Z01.40R	10.0	16	51	49	40	0.1	2	LCMX 0502 . .
	B 3214.DF.10.5.Z01.42R	10.5	16	53	49	42	0.1	2	
	B 3214.DF.11.0.Z01.44R	11.0	16	56	49	44	0.1	2	
	B 3214.DF.11.5.Z01.46R	11.5	16	58	49	46	0.1	2	
	B 3214.DF.12.0.Z01.48R	12.0	16	60	49	48	0.1	2	
	B 3214.DF.12.5.Z01.50R	12.5	16	62	49	50	0.1	2	
	B 3214.DF.13.0.Z01.52R	13.0	16	65	49	52	0.1	2	
	B 3214.DF.13.5.Z01.54R	13.5	16	67	49	54	0.1	2	
	B 3214.DF.14.0.Z01.56R	14.0	16	70	49	56	0.1	2	LCMX 06T2 . .
	B 3214.DF.14.5.Z01.58R	14.5	16	72	49	58	0.1	2	
	B 3214.DF.15.0.Z01.60R	15.0	16	74	49	60	0.1	2	
	B 3214.DF.15.5.Z01.62R	15.5	16	77	49	62	0.1	2	
	B 3214.DF.16.0.Z01.64R	16.0	16	78	49	64	0.1	2	
	B 3214.DF.16.5.Z01.66R	16.5	16	82	49	66	0.1	2	
	B 3214.DF.17.0.Z01.68R	17.0	16	83	49	68	0.1	2	
	B 3214.DF.17.5.Z01.70R	17.5	16	85	49	70	0.1	2	
	B 3214.DF.18.0.Z01.72R	18.0	16	88	49	72	0.1	2	

Bodies and assembly parts are included in the scope of delivery.

Possible X adjustment for boring into solid material greater than the nominal diameter:
X = +0.2 mm / –0.1 mm ➔ ΔD = +0.4 mm / –0.2 mm.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

WALTER STARDRILL

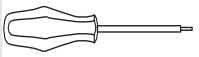
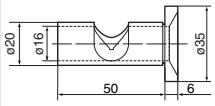
B 3214

for cast iron machining
Diameter range 10–18 mm
right-hand cutting, drilling depth 4 x D_C

Assembly parts

		D_C = 10–13.5 mm	D_C = 14–15.5 mm	D_C =16–18 mm
	Clamping screw for insert	FS 1012 (Torx 6)	FS 1004 (Torx 7)	FS 1020 (Torx 7)
	Tightening torque	0.4 Nm	0.6 Nm	0.6 Nm

Accessories

		D_C = 10–13.5 mm	D_C = 14–18 mm
	Screwdriver	FS 1063 (Torx 6)	FS 309 (Torx 7)
	Eccentric sleeve*	FS 1207	
	Clamping screw for chuck	FS 1209	

*The clamping screw FS 1209 should be used for the application of eccentric sleeves in adaptors according to DIN 1835/6359.
Range of diameter adjustment: from –0.08 to +0.24 mm.

Indexable inserts

	Designation	Length mm	Width mm	P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M HC	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	HC WXP 40
	LCMX 050203 – B 57	5.2	4.0			☺	😐					☺				☹
	LCMX 050203 – D 57	5.2	4.0	☺	☺	😐	😐				☺	😐				☹
	LCMX 050203 – E 57	5.2	4.0	☺												😐
	LCMX 06T204 – B 57	6.6	5.2			☺	😐					☺				☹
	LCMX 06T204 – D 57	6.6	5.2	☺	☺	😐	😐				☺	😐				☹
	LCMX 06T204 – E 57	6.6	5.2	☺												😐





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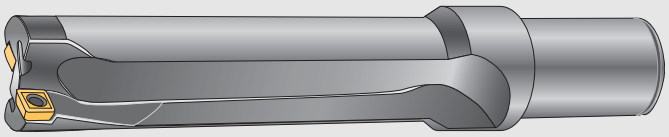
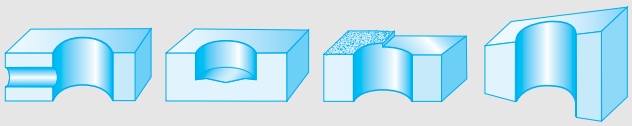
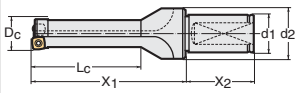




Tool	Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766 	B 3214.F.016.Z01.064R*	16	25	35	89	56	64	0.4	2	P 284 . . – 1
	B 3214.F.017.Z01.068R*	17	25	35	93	56	68	0.4	2	
	B 3214.F.018.Z01.072R*	18	25	35	97	56	72	0.4	2	
	B 3214.F.019.Z01.076R*	19	25	35	101	56	76	0.4	2	
	B 3214.F.020.Z01.080R*	20	25	35	105	56	80	0.4	2	
	B 3214.F.021.Z01.084R*	21	25	35	109	56	84	0.4	2	P 284 . . – 2
	B 3214.F.022.Z01.088R*	22	25	35	113	56	88	0.4	2	
	B 3214.F.023.Z01.092R	23	25	35	117	56	92	0.5	2	
	B 3214.F.024.Z01.096R	24	25	35	121	56	96	0.5	2	
	B 3214.F.025.Z01.100R	25	25	35	125	56	100	0.5	2	
	B 3214.F.026.Z01.104R	26	32	42	136	60	104	0.8	2	P 284 . . – 3
	B 3214.F.027.Z01.108R	27	32	42	140	60	108	0.8	2	
	B 3214.F.028.Z01.112R	28	32	42	144	60	112	0.9	2	
	B 3214.F.029.Z01.116R	29	32	42	148	60	116	0.9	2	
	B 3214.F.030.Z01.120R	30	32	42	152	60	120	0.9	2	
	B 3214.F.031.Z01.124R	31	32	42	156	60	124	0.9	2	P 284 . . – 4
	B 3214.F.032.Z01.128R	32	32	42	160	60	128	1.0	2	
	B 3214.F.033.Z01.132R	33	32	42	164	60	132	1.0	2	
	B 3214.F.034.Z01.136R	34	32	42	168	60	136	1.0	2	
	B 3214.F.035.Z01.140R	35	32	42	172	60	140	1.1	2	
	B 3214.F.036.Z01.144R	36	32	42	176	60	144	1.1	2	
	B 3214.F.037.Z01.148R	37	40	50	188	70	148	1.6	2	P 284 . . – 5
	B 3214.F.038.Z01.152R	38	40	50	192	70	152	1.7	2	
	B 3214.F.039.Z01.156R	39	40	50	196	70	156	1.7	2	
	B 3214.F.040.Z01.160R	40	40	50	200	70	160	1.8	2	
	B 3214.F.041.Z01.164R	41	40	50	204	70	164	1.9	2	
	B 3214.F.042.Z01.168R	42	40	50	208	70	168	1.9	2	
	B 3214.F.043.Z01.172R	43	40	50	212	70	172	1.9	2	P 284 . . – 6
	B 3214.F.044.Z01.176R	44	40	50	216	70	176	2.0	2	
	B 3214.F.045.Z01.180R	45	40	50	220	70	180	2.1	2	
	B 3214.F.046.Z01.184R	46	40	50	224	70	184	2.2	2	
	B 3214.F.047.Z01.188R	47	40	50	228	70	188	2.3	2	
	B 3214.F.048.Z01.192R	48	40	50	232	70	192	2.4	2	
	B 3214.F.049.Z01.196R	49	40	50	236	70	196	2.4	2	
	B 3214.F.050.Z01.200R	50	40	50	240	70	200	2.5	2	
	B 3214.F.051.Z01.204R	51	40	50	244	70	204	2.6	2	P 284 . . – 7
	B 3214.F.052.Z01.208R	52	40	50	248	70	208	2.7	2	
	B 3214.F.053.Z01.212R	53	40	50	252	70	212	2.8	2	
	B 3214.F.054.Z01.216R	54	40	50	256	70	216	2.9	2	
	B 3214.F.055.Z01.220R	55	40	50	260	70	220	3.0	2	
	B 3214.F.056.Z01.224R	56	40	50	264	70	224	3.1	2	
	B 3214.F.057.Z01.228R	57	40	50	268	70	228	3.2	2	
	B 3214.F.058.Z01.232R	58	40	50	272	70	232	3.3	2	

***only for cast iron machining!**
For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.
For diameter adjustment for a rotating application via eccentric adjustment, see page 385.
Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

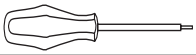
WALTER STARDRILL B 3214

Diameter range 16–58 mm
right-hand cutting, drilling depth 4 × D_C

Assembly parts

		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
	Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
	Threaded plug	FS 974 (M 6 x 6 DIN 913)			FS 960 (M 8 x 8 DIN 913)		

Accessories

		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Indexable inserts



Designation	Size		P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	S HC WXP 40
P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
P 28469	1–7				😐	☹					☹		😐	☹	
P 28475	1–7		☺		😐	☹					☹				☹
P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	1–7				😐	☹					☹				☹





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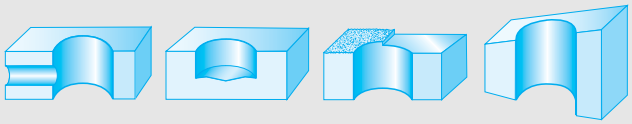
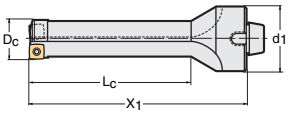


Tool	Designation	D_C mm	d_1 mm	X_1 mm	L_C mm	kg	No. of inserts	Type
modular adaptor 	B 3214.N4.016.Z01.064R*	16	40	100	64	0.4	2	P 284 . . – 1
	B 3214.N4.017.Z01.068R*	17	40	104	68	0.4	2	
	B 3214.N4.018.Z01.072R*	18	40	108	72	0.4	2	
	B 3214.N4.019.Z01.076R*	19	40	112	76	0.5	2	
	B 3214.N4.020.Z01.080R*	20	40	116	80	0.5	2	
	B 3214.N5.021.Z01.084R*	21	50	124	84	0.6	2	P 284 . . – 2
	B 3214.N5.022.Z01.088R*	22	50	128	88	0.6	2	
	B 3214.N5.023.Z01.092R	23	50	132	92	0.7	2	
	B 3214.N5.024.Z01.096R	24	50	136	96	0.7	2	
	B 3214.N5.025.Z01.100R	25	50	140	100	0.8	2	
	B 3214.N5.026.Z01.104R	26	50	149	104	0.9	2	P 284 . . – 3
	B 3214.N5.027.Z01.108R	27	50	153	108	0.9	2	
	B 3214.N5.028.Z01.112R	28	50	157	112	1.0	2	
	B 3214.N5.029.Z01.116R	29	50	161	116	1.0	2	
	B 3214.N5.030.Z01.120R	30	50	165	120	1.1	2	
	B 3214.N5.031.Z01.124R	31	50	169	124	1.1	2	P 284 . . – 4
	B 3214.N5.032.Z01.128R	32	50	173	128	1.1	2	
	B 3214.N5.033.Z01.132R	33	50	177	132	1.1	2	
	B 3214.N5.034.Z01.136R	34	50	181	136	1.2	2	
	B 3214.N5.035.Z01.140R	35	50	185	140	1.3	2	
	B 3214.N5.036.Z01.144R	36	50	189	144	1.3	2	
	B 3214.N6.037.Z01.148R	37	63	193	148	1.6	2	P 284 . . – 5
	B 3214.N6.038.Z01.152R	38	63	197	152	1.7	2	
	B 3214.N6.039.Z01.156R	39	63	201	156	1.8	2	
	B 3214.N6.040.Z01.160R	40	63	205	160	1.9	2	
	B 3214.N6.041.Z01.164R	41	63	209	164	2.0	2	
	B 3214.N6.042.Z01.168R	42	63	213	168	2.1	2	
	B 3214.N6.043.Z01.172R	43	63	217	172	2.2	2	P 284 . . – 6
	B 3214.N6.044.Z01.176R	44	63	221	176	2.3	2	
	B 3214.N6.045.Z01.180R	45	63	225	180	2.3	2	
	B 3214.N6.046.Z01.184R	46	63	229	184	2.4	2	
	B 3214.N6.047.Z01.188R	47	63	233	188	2.5	2	
	B 3214.N6.048.Z01.192R	48	63	237	192	2.6	2	
	B 3214.N6.049.Z01.196R	49	63	241	196	2.7	2	
	B 3214.N6.050.Z01.200R	50	63	245	200	2.8	2	
	B 3214.N8.051.Z01.204R	51	80	254	204	3.7	2	P 284 . . – 7
	B 3214.N8.052.Z01.208R	52	80	258	208	3.8	2	
	B 3214.N8.053.Z01.212R	53	80	262	212	3.9	2	
	B 3214.N8.054.Z01.216R	54	80	266	216	4.0	2	
	B 3214.N8.055.Z01.220R	55	80	270	220	4.1	2	
	B 3214.N8.056.Z01.224R	56	80	274	224	4.3	2	
	B 3214.N8.057.Z01.228R	57	80	278	228	4.4	2	
	B 3214.N8.058.Z01.232R	58	80	282	232	4.5	2	

***only for cast iron machining!**
From D_C > 59.4 mm the WALTER STARDRILL is available in cartridge design, see page 308.
For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.
For assembly aids, see page 782. Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

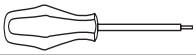
WALTER STARDRILL B 3214.N

Diameter range 16–58 mm
right-hand cutting, drilling depth 4 × D_C

Assembly parts

		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
	Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
	Threaded plug	FS 974 (M 6 x 6 DIN 913)			FS 960 (M 8 x 8 DIN 913)		

Accessories

		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Indexable inserts

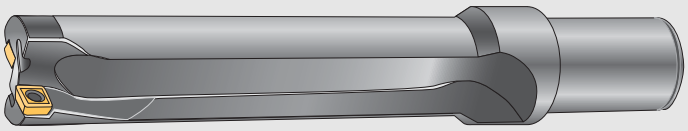


Designation	Size		P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	S HC WXP 40
P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
P 28469	1–7				😐	☹					☹		😐	☹	
P 28475	1–7		☺		😐	☹					☹				☹
P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	1–7				😐	☹					☹				☹





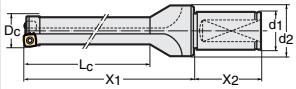
→ 249 → 684 → 791 → 370





Tool

Parallel shank with flat
i.a.w. ISO 9766



Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	kg	No. of inserts	Type
B 3215.F.016.Z01.080R	16	25	35	105	56	80	0.4	2	P 284 . . – 1
B 3215.F.017.Z01.085R	17	25	35	110	56	85	0.4	2	
B 3215.F.018.Z01.090R	18	25	35	115	56	90	0.4	2	
B 3215.F.019.Z01.095R	19	25	35	120	56	95	0.4	2	
B 3215.F.020.Z01.100R	20	25	35	125	56	100	0.4	2	
B 3215.F.021.Z01.105R	21	25	35	130	56	105	0.4	2	P 284 . . – 2
B 3215.F.022.Z01.110R	22	25	35	135	56	110	0.4	2	
B 3215.F.023.Z01.115R	23	25	35	140	56	115	0.5	2	
B 3215.F.024.Z01.120R	24	25	35	145	56	120	0.6	2	
B 3215.F.025.Z01.125R	25	25	35	150	56	125	0.6	2	
B 3215.F.026.Z01.130R	26	32	42	162	60	130	0.8	2	P 284 . . – 3
B 3215.F.027.Z01.135R	27	32	42	167	60	135	1.0	2	
B 3215.F.028.Z01.140R	28	32	42	172	60	140	1.1	2	
B 3215.F.029.Z01.145R	29	32	42	177	60	145	1.2	2	
B 3215.F.030.Z01.150R	30	32	42	182	60	150	1.2	2	
B 3215.F.031.Z01.155R	31	32	42	187	60	155	1.3	2	P 284 . . – 4
B 3215.F.032.Z01.160R	32	32	42	192	60	160	1.4	2	
B 3215.F.033.Z01.165R	33	32	42	197	60	165	1.5	2	
B 3215.F.034.Z01.170R	34	32	42	202	60	170	1.6	2	
B 3215.F.035.Z01.175R	35	32	42	207	60	175	1.7	2	
B 3215.F.036.Z01.180R	36	32	42	212	60	180	1.8	2	
B 3215.F.037.Z01.185R	37	40	50	225	70	185	1.9	2	P 284 . . – 5
B 3215.F.038.Z01.190R	38	40	50	230	70	190	2.0	2	
B 3215.F.039.Z01.195R	39	40	50	235	70	195	2.1	2	
B 3215.F.040.Z01.200R	40	40	50	240	70	200	2.2	2	
B 3215.F.041.Z01.205R	41	40	50	245	70	205	2.3	2	
B 3215.F.042.Z01.210R	42	40	50	250	70	210	2.3	2	
B 3215.F.043.Z01.215R	43	40	50	255	70	215	2.4	2	P 284 . . – 6
B 3215.F.044.Z01.220R	44	40	50	260	70	220	2.5	2	
B 3215.F.045.Z01.225R	45	40	50	265	70	225	2.6	2	
B 3215.F.046.Z01.230R	46	40	50	270	70	230	2.7	2	
B 3215.F.047.Z01.235R	47	40	50	275	70	235	2.8	2	
B 3215.F.048.Z01.240R	48	40	50	280	70	240	2.9	2	
B 3215.F.049.Z01.245R	49	40	50	285	70	245	2.9	2	
B 3215.F.050.Z01.250R	50	40	50	290	70	250	3.0	2	
B 3215.F.051.Z01.255R	51	40	50	295	70	255	3.1	2	P 284 . . – 7
B 3215.F.052.Z01.260R	52	40	50	300	70	260	3.2	2	
B 3215.F.053.Z01.265R	53	40	50	305	70	265	3.3	2	
B 3215.F.054.Z01.270R	54	40	50	310	70	270	3.4	2	
B 3215.F.055.Z01.275R	55	40	50	315	70	275	3.5	2	
B 3215.F.056.Z01.280R	56	40	50	320	70	280	3.6	2	
B 3215.F.057.Z01.285R	57	40	50	325	70	285	3.7	2	
B 3215.F.058.Z01.290R	58	40	50	330	70	290	3.8	2	

For possible X adjustment for boring into solid material of larger nominal diameters, see page 386.
For diameter adjustment for a rotating application via eccentric adjustment, see page 385.

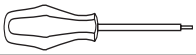
Bodies and assembly parts are included in the scope of delivery.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

WALTER STARDRILL B 3215

for cast iron machining
Diameter range 16–58 mm
right-hand cutting, drilling depth 5 × D_C

Assembly parts		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
	Tightening torque	1.0 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
	Threaded plug	FS 974 (M 6 x 6 DIN 913)			FS 960 (M 8 x 8 DIN 913)		

Accessories		D_C = 16–20 mm	D_C = 21–25 mm	D_C = 26–30 mm	D_C = 31–36 mm	D_C = 37–42 mm	D_C = 43–58 mm
	Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Indexable inserts

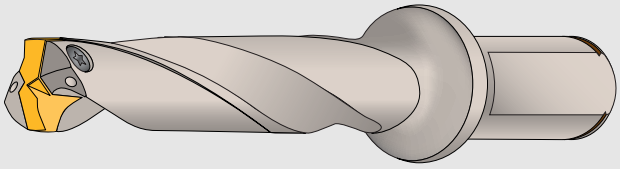


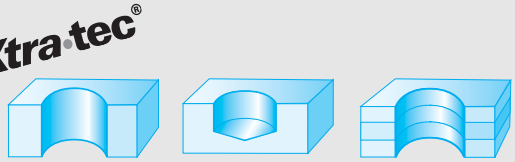
Designation	Size		P					M	K				N	S	
			HC						HC				HW	HW	HC
			WAP 20	WKP 25	WKP 35	WTP 35	WXP 45		WAK 15	WKP 25	WKP 35	WXK 25	WK 40	WK 40	WXP 40
P 28467	1–7		☺	☺	😐	☹			☺	😐	☹				
P 28469	1–7				😐	☹					☹		😐	☹	
P 28475	1–7		☺		😐	☹					☹				☹
P 28477	1–7		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	1–7				😐	☹					☹				☹

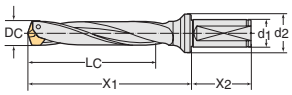




→ 249 | → 684 | → 386 | → 370





Tool	Designation	$D_{C\,min}$ mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766 	B 4015.F20.12.0.Z02.60R	12*	20	30	92	50	60	2	0.2	1	P 600 . – D12 . . R*
	B 4015.F20.13.0.Z02.65R	13	20	30	98	50	65	2	0.2	1	P 600 . – D13 . . R
	B 4015.F20.14.0.Z02.70R	14	20	30	104	50	70	2	0.2	1	P 600 . – D14 . . R
	B 4015.F20.15.0.Z02.75R	15	20	30	110	50	75	2	0.2	1	P 600 . – D15 . . R
	B 4015.F20.16.0.Z02.80R	16	20	30	116	50	80	2	0.3	1	P 600 . – D16 . . R
	B 4015.F20.17.0.Z02.85R	17	20	30	122	50	85	2	0.3	1	P 600 . – D17 . . R
	B 4015.F20.18.0.Z02.90R	18	20	30	128	50	90	2	0.3	1	P 600 . – D18 . . R
	B 4015.F20.19.0.Z02.95R	19	20	30	134	50	95	2	0.3	1	P 600 . – D19 . . R
	B 4015.F20.20.0.Z02.100R	20	20	30	140	50	100	2	0.3	1	P 600 . – D20 . . R
	B 4015.F20.21.0.Z02.105R	21	20	30	146	50	105	2	0.4	1	P 600 . – D21 . . R
	B 4015.F25.22.0.Z02.110R	22	25	35	153	56	110	2	0.5	1	P 600 . – D22 . . R
	B 4015.F25.23.0.Z02.115R	23	25	35	159	56	115	2	0.6	1	P 600 . – D23 . . R
	B 4015.F25.24.0.Z02.120R	24	25	35	165	56	120	2	0.6	1	P 600 . – D24 . . R
	B 4015.F25.25.0.Z02.125R	25	25	35	171	56	125	2	0.6	1	P 600 . – D25 . . R
	B 4015.F25.26.0.Z02.130R	26	25	35	177	56	130	2	0.7	1	P 600 . – D26 . . R
	B 4015.F25.27.0.Z02.135R	27	25	35	183	56	135	2	0.7	1	P 600 . – D27 . . R
	B 4015.F32.28.0.Z02.140R	28	32	42	190	60	140	2	1.0	1	P 600 . – D28 . . R
	B 4015.F32.29.0.Z02.145R	29	32	42	196	60	145	2	1.0	1	P 600 . – D29 . . R
	B 4015.F32.30.0.Z02.150R	30	32	42	202	60	150	2	1.1	1	P 600 . – D30 . . R
	B 4015.F32.31.0.Z02.155R	31	32	42	208	60	155	2	1.2	1	P 600 . – D31 . . R

* Example: inserts with D_C = 12.00 mm up to incl. 12.99 mm can be attached to this tool.

Bodies and assembly parts are included in the scope of delivery.

WALTER Drills

B 4015

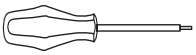
Diameter range 12–31.75 mm
right-hand cutting, drilling depth 5 x D_C

Assembly parts

		for $D_{C\ min}$ = 12–13 mm	14–15 mm	16–17 mm	18–19 mm	20–21 mm	22–23 mm	24–25 mm	26–27 mm	28–31 mm
	Clamping screw for insert	FS 1396 (IP 7)	FS 1397 (IP 8)	FS 1398 (IP 8)	FS 1399 (IP 15)	FS 1400 (IP 20)	FS 1401 (IP 20)	FS 1402 (IP 20)	FS 1403 (IP 25)	FS 1404 (IP 25)
	Tightening torque	1.2 Nm	2 Nm	2 Nm	4 Nm	5 Nm	5 Nm	5 Nm	5.5 Nm	5.5 Nm

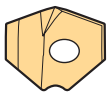
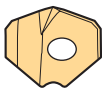
IP = Torx Plus

Accessories

		for $D_{C\ min}$ = 12–13 mm	14–17 mm	18–19 mm	20–25 mm	26–31 mm
	Torque Screwdriver	FS 2001	FS 2003			
	Interchangeable blade	FS 2011 (Torx 7 IP)	FS 2012 (Torx 8 IP)	FS 2014 (Torx 15 IP)	FS 2015 (Torx 20 IP)	FS 2016 (Torx 25 IP)
	Screwdriver	FS 1490 (Torx 7 IP)	FS 1483 (Torx 8 IP)	FS 1485 (Torx 15 IP)	FS 1486 (Torx 20 IP)	FS 1487 (Torx 25 IP)

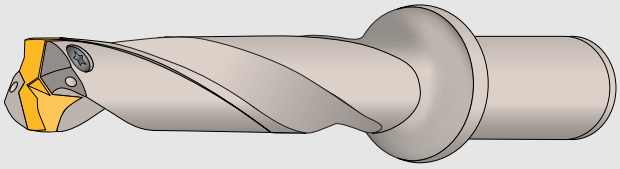
IP = Torx Plus

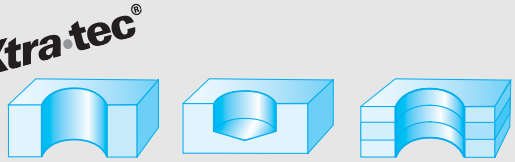
Indexable inserts

	Designation	Diameter range D_C mm	P			M	K		N	S			
			HC				HC						
			WXP 45				WXK 25						
	P 6001 – D . . .	12.00 – 31.75	✱										
	P 6002 – D . . .	12.00 – 31.75					✱						

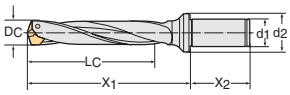


→ 250 | → 684 | → 366





Tool	Designation	$D_{C\,min}$ mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Parallel shank with collar	B 4015.ZB20.12.0.Z02.60R	12*	20	30	92	50	60	2	0.2	1	P 600 . – D12 . . R*
	B 4015.ZB20.13.0.Z02.65R	13	20	30	98	50	65	2	0.2	1	P 600 . – D13 . . R
	B 4015.ZB20.14.0.Z02.70R	14	20	30	104	50	70	2	0.2	1	P 600 . – D14 . . R
	B 4015.ZB20.15.0.Z02.75R	15	20	30	110	50	75	2	0.2	1	P 600 . – D15 . . R
	B 4015.ZB20.16.0.Z02.80R	16	20	30	116	50	80	2	0.3	1	P 600 . – D16 . . R
	B 4015.ZB20.17.0.Z02.85R	17	20	30	122	50	85	2	0.3	1	P 600 . – D17 . . R
	B 4015.ZB20.18.0.Z02.90R	18	20	30	128	50	90	2	0.3	1	P 600 . – D18 . . R
	B 4015.ZB20.19.0.Z02.95R	19	20	30	134	50	95	2	0.3	1	P 600 . – D19 . . R
	B 4015.ZB20.20.0.Z02.100R	20	20	30	140	50	100	2	0.3	1	P 600 . – D20 . . R
	B 4015.ZB20.21.0.Z02.105R	21	20	30	146	50	105	2	0.4	1	P 600 . – D21 . . R
	B 4015.ZB25.22.0.Z02.110R	22	25	35	153	56	110	2	0.5	1	P 600 . – D22 . . R
	B 4015.ZB25.23.0.Z02.115R	23	25	35	159	56	115	2	0.6	1	P 600 . – D23 . . R
	B 4015.ZB25.24.0.Z02.120R	24	25	35	165	56	120	2	0.6	1	P 600 . – D24 . . R
	B 4015.ZB25.25.0.Z02.125R	25	25	35	171	56	125	2	0.6	1	P 600 . – D25 . . R
	B 4015.ZB25.26.0.Z02.130R	26	25	35	177	56	130	2	0.7	1	P 600 . – D26 . . R
	B 4015.ZB25.27.0.Z02.135R	27	25	35	183	56	135	2	0.7	1	P 600 . – D27 . . R
	B 4015.ZB32.28.0.Z02.140R	28	32	42	190	60	140	2	1.0	1	P 600 . – D28 . . R
	B 4015.ZB32.29.0.Z02.145R	29	32	42	196	60	145	2	1.0	1	P 600 . – D29 . . R
	B 4015.ZB32.30.0.Z02.150R	30	32	42	202	60	150	2	1.1	1	P 600 . – D30 . . R
	B 4015.ZB32.31.0.Z02.155R	31	32	42	208	60	155	2	1.2	1	P 600 . – D31 . . R



* Example: inserts with D_C = 12.00 mm up to incl. 12.99 mm can be attached to this tool.

Bodies and assembly parts are included in the scope of delivery.

WALTER Drills

B 4015.ZB

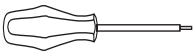
Diameter range 12–31.75 mm
right-hand cutting, drilling depth 5 x D_C

Assembly parts

		for $D_{C\ min}$ = 12–13 mm	14–15 mm	16–17 mm	18–19 mm	20–21 mm	22–23 mm	24–25 mm	26–27 mm	28–31 mm
	Clamping screw for insert	FS 1396 (IP 7)	FS 1397 (IP 8)	FS 1398 (IP 8)	FS 1399 (IP 15)	FS 1400 (IP 20)	FS 1401 (IP 20)	FS 1402 (IP 20)	FS 1403 (IP 25)	FS 1404 (IP 25)
	Tightening torque	1.2 Nm	2 Nm	2 Nm	4 Nm	5 Nm	5 Nm	5 Nm	5.5 Nm	5.5 Nm

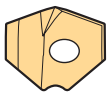
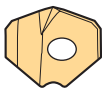
IP = Torx Plus

Accessories

		for $D_{C\ min}$ = 12–13 mm	14–17 mm	18–19 mm	20–25 mm	26–31 mm
	Torque Screwdriver	FS 2001	FS 2003			
	Interchangeable blade	FS 2011 (Torx 7 IP)	FS 2012 (Torx 8 IP)	FS 2014 (Torx 15 IP)	FS 2015 (Torx 20 IP)	FS 2016 (Torx 25 IP)
	Screwdriver	FS 1490 (Torx 7 IP)	FS 1483 (Torx 8 IP)	FS 1485 (Torx 15 IP)	FS 1486 (Torx 20 IP)	FS 1487 (Torx 25 IP)

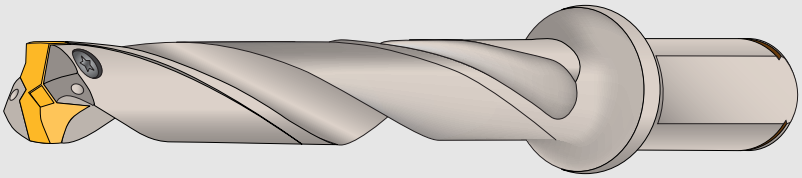
IP = Torx Plus

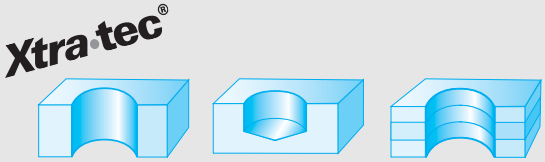
Indexable inserts

	Designation	Diameter range D_C mm	P			M	K		N	S			
				HC				HC					
			WXP 45				WXK 25						
	P 6001 – D . . .	12.00 – 31.75	✱										
	P 6002 – D . . .	12.00 – 31.75					✱						

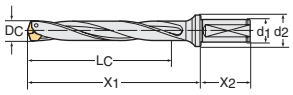


→ 250 | → 684 | → 366





Tool	Designation	$D_{C\,min}$ mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Parallel shank with flat i.a.w. ISO 9766	B 4017.F20.12.0.Z02.84R	12	20	30	116	50	84	2	0.2	1	P 600 . – D12 . . R*
	B 4017.F20.13.0.Z02.91R	13	20	30	124	50	91	2	0.2	1	P 600 . – D13 . . R
	B 4017.F20.14.0.Z02.98R	14	20	30	132	50	98	2	0.2	1	P 600 . – D14 . . R
	B 4017.F20.15.0.Z02.105R	15	20	30	140	50	105	2	0.3	1	P 600 . – D15 . . R
	B 4017.F20.16.0.Z02.112R	16	20	30	148	50	112	2	0.3	1	P 600 . – D16 . . R
	B 4017.F20.17.0.Z02.119R	17	20	30	156	50	119	2	0.3	1	P 600 . – D17 . . R
	B 4017.F20.18.0.Z02.126R	18	20	30	164	50	126	2	0.3	1	P 600 . – D18 . . R
	B 4017.F20.19.0.Z02.133R	19	20	30	172	50	133	2	0.4	1	P 600 . – D19 . . R
	B 4017.F20.20.0.Z02.140R	20	20	30	180	50	140	2	0.4	1	P 600 . – D20 . . R
	B 4017.F20.21.0.Z02.147R	21	20	30	188	50	147	2	0.4	1	P 600 . – D21 . . R
	B 4017.F25.22.0.Z02.154R	22	25	35	197	56	154	2	0.6	1	P 600 . – D22 . . R
	B 4017.F25.23.0.Z02.161R	23	25	35	205	56	161	2	0.7	1	P 600 . – D23 . . R
	B 4017.F25.24.0.Z02.168R	24	25	35	213	56	168	2	0.7	1	P 600 . – D24 . . R
	B 4017.F25.25.0.Z02.175R	25	25	35	221	56	175	2	0.7	1	P 600 . – D25 . . R
	B 4017.F25.26.0.Z02.182R	26	25	35	229	56	182	2	0.8	1	P 600 . – D26 . . R
	B 4017.F25.27.0.Z02.189R	27	25	35	237	56	189	2	0.9	1	P 600 . – D27 . . R
	B 4017.F32.28.0.Z02.196R	28	32	42	246	60	196	2	1.1	1	P 600 . – D28 . . R
	B 4017.F32.29.0.Z02.203R	29	32	42	254	60	203	2	1.2	1	P 600 . – D29 . . R
	B 4017.F32.30.0.Z02.210R	30	32	42	262	60	210	2	1.3	1	P 600 . – D30 . . R
	B 4017.F32.31.0.Z02.217R	31	32	42	270	60	217	2	1.4	1	P 600 . – D31 . . R



* Example: inserts with D_C = 12.00 mm up to incl. 12.99 mm can be attached to this tool.
When using this drill, a centre hole produced by a B 4013 or NC centring drill is recommended.

Bodies and assembly parts are included in the scope of delivery.

WALTER Drills

B 4017

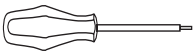
Diameter range 12–31.75 mm
right-hand cutting, drilling depth 7 x D_C

Assembly parts

		for $D_{C\ min}$ = 12–13 mm	14–15 mm	16–17 mm	18–19 mm	20–21 mm	22–23 mm	24–25 mm	26–27 mm	28–31 mm
	Clamping screw for insert	FS 1396 (IP 7)	FS 1397 (IP 8)	FS 1398 (IP 8)	FS 1399 (IP 15)	FS 1400 (IP 20)	FS 1401 (IP 20)	FS 1402 (IP 20)	FS 1403 (IP 25)	FS 1404 (IP 25)
	Tightening torque	1.2 Nm	2 Nm	2 Nm	4 Nm	5 Nm	5 Nm	5 Nm	5.5 Nm	5.5 Nm

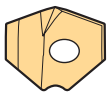
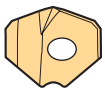
IP = Torx Plus

Accessories

		for $D_{C\ min}$ = 12–13 mm	14–17 mm	18–19 mm	20–25 mm	26–31 mm
	Torque Screwdriver	FS 2001	FS 2003			
	Interchangeable blade	FS 2011 (Torx 7 IP)	FS 2012 (Torx 8 IP)	FS 2014 (Torx 15 IP)	FS 2015 (Torx 20 IP)	FS 2016 (Torx 25 IP)
	Screwdriver	FS 1490 (Torx 7 IP)	FS 1483 (Torx 8 IP)	FS 1485 (Torx 15 IP)	FS 1486 (Torx 20 IP)	FS 1487 (Torx 25 IP)

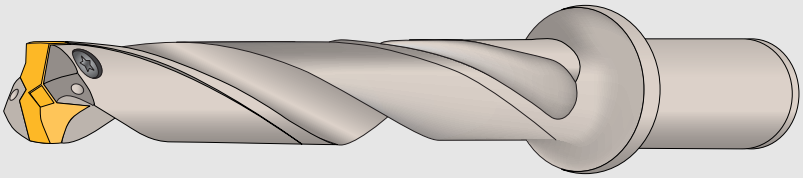
IP = Torx Plus

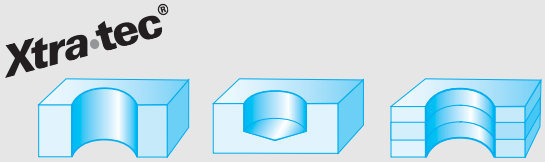
Indexable inserts

	Designation	Diameter range D_C mm	P			M	K		N	S			
			HC				HC						
			WXP 45				WXK 25						
	P 6001 – D . . .	12.00 – 31.75	✱										
	P 6002 – D . . .	12.00 – 31.75					✱						

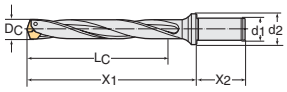


→ 250 → 684 → 366





Tool	Designation	$D_{C\,min}$ mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Parallel shank with collar	B 4017.ZB20.12.0.Z02.84R	12	20	30	116	50	84	2	0.2	1	P 600 . – D12 . . R*
	B 4017.ZB20.13.0.Z02.91R	13	20	30	124	50	91	2	0.2	1	P 600 . – D13 . . R
	B 4017.ZB20.14.0.Z02.98R	14	20	30	132	50	98	2	0.2	1	P 600 . – D14 . . R
	B 4017.ZB20.15.0.Z02.105R	15	20	30	140	50	105	2	0.3	1	P 600 . – D15 . . R
	B 4017.ZB20.16.0.Z02.112R	16	20	30	148	50	112	2	0.3	1	P 600 . – D16 . . R
	B 4017.ZB20.17.0.Z02.119R	17	20	30	156	50	119	2	0.3	1	P 600 . – D17 . . R
	B 4017.ZB20.18.0.Z02.126R	18	20	30	164	50	126	2	0.3	1	P 600 . – D18 . . R
	B 4017.ZB20.19.0.Z02.133R	19	20	30	172	50	133	2	0.4	1	P 600 . – D19 . . R
	B 4017.ZB20.20.0.Z02.140R	20	20	30	180	50	140	2	0.4	1	P 600 . – D20 . . R
	B 4017.ZB20.21.0.Z02.147R	21	20	30	188	50	147	2	0.4	1	P 600 . – D21 . . R
	B 4017.ZB25.22.0.Z02.154R	22	25	35	197	56	154	2	0.6	1	P 600 . – D22 . . R
	B 4017.ZB25.23.0.Z02.161R	23	25	35	205	56	161	2	0.7	1	P 600 . – D23 . . R
	B 4017.ZB25.24.0.Z02.168R	24	25	35	213	56	168	2	0.7	1	P 600 . – D24 . . R
	B 4017.ZB25.25.0.Z02.175R	25	25	35	221	56	175	2	0.7	1	P 600 . – D25 . . R
	B 4017.ZB25.26.0.Z02.182R	26	25	35	229	56	182	2	0.8	1	P 600 . – D26 . . R
	B 4017.ZB25.27.0.Z02.189R	27	25	35	237	56	189	2	0.9	1	P 600 . – D27 . . R
	B 4017.ZB32.28.0.Z02.196R	28	32	42	246	60	196	2	1.1	1	P 600 . – D28 . . R
	B 4017.ZB32.29.0.Z02.203R	29	32	42	254	60	203	2	1.2	1	P 600 . – D29 . . R
	B 4017.ZB32.30.0.Z02.210R	30	32	42	262	60	210	2	1.3	1	P 600 . – D30 . . R
	B 4017.ZB32.31.0.Z02.217R	31	32	42	270	60	217	2	1.4	1	P 600 . – D31 . . R



* Example: inserts with D_C = 12.00 mm up to incl. 12.99 mm can be attached to this tool.
When using this drill, a centre hole produced by a B 4013 or NC centring drill is recommended.

Bodies and assembly parts are included in the scope of delivery.

WALTER Drills

B 4017.ZB

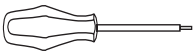
Diameter range 12–31.75 mm
right-hand cutting, drilling depth 7 x D_C

Assembly parts

		for $D_{C\ min}$ = 12–13 mm	14–15 mm	16–17 mm	18–19 mm	20–21 mm	22–23 mm	24–25 mm	26–27 mm	28–31 mm
	Clamping screw for insert	FS 1396 (IP 7)	FS 1397 (IP 8)	FS 1398 (IP 8)	FS 1399 (IP 15)	FS 1400 (IP 20)	FS 1401 (IP 20)	FS 1402 (IP 20)	FS 1403 (IP 25)	FS 1404 (IP 25)
	Tightening torque	1.2 Nm	2 Nm	2 Nm	4 Nm	5 Nm	5 Nm	5 Nm	5.5 Nm	5.5 Nm

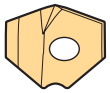
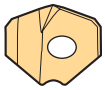
IP = Torx Plus

Accessories

		for $D_{C\ min}$ = 12–13 mm	14–17 mm	18–19 mm	20–25 mm	26–31 mm
	Torque Screwdriver	FS 2001	FS 2003			
	Interchangeable blade	FS 2011 (Torx 7 IP)	FS 2012 (Torx 8 IP)	FS 2014 (Torx 15 IP)	FS 2015 (Torx 20 IP)	FS 2016 (Torx 25 IP)
	Screwdriver	FS 1490 (Torx 7 IP)	FS 1483 (Torx 8 IP)	FS 1485 (Torx 15 IP)	FS 1486 (Torx 20 IP)	FS 1487 (Torx 25 IP)

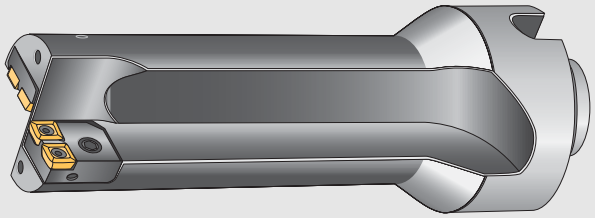
IP = Torx Plus

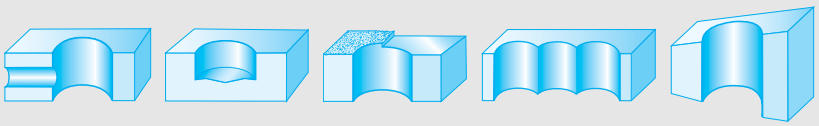
Indexable inserts

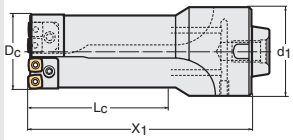
	Designation	Diameter range D_C mm	P			M	K		N	S			
			HC				HC						
			WXP 45				WXK 25						
	P 6001 – D . . .	12.00 – 31.75	✱										
	P 6002 – D . . .	12.00 – 31.75					✱						



→ 250 → 684 → 366





Tool	Designation	D_C mm	d_1 mm	X_1 mm	L_C mm	No. of cartridges	kg	No. of inserts	Type
modular adaptor 	B 3011 M.0.80.205.68	68	80	205	135	1 x FR 666 1 x FR 668	4.80	4	P 284 . . – 5
	B 3011 M.0.80.225.78	78	80	225	155	1 x FR 665 3 x FR 667	5.60	4	

Bodies and assembly parts are included in the scope of delivery.
Via the radially adjustable external cartridge, the drilling diameter can be adjusted +0.6 mm.
For assembly aids, see page 782.

Attention: where through bores are created by a rotating tool, a disc forms which is ejected. Please implement safety measures.

NOVEXPRESS Special Tools

For other diameters between 59.5 mm and 120 mm, appropriate tool designs and additional cartridges are available. If necessary, please contact your WALTER consultant.

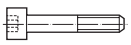
NOVEX EXPRESS	D_C mm	No. of cartridge								No. of inserts	
		FR 661	FR 662	FR 663	FR 664	FR 665	FR 666	FR 667	FR 668	Size 4	Size 5
	59.5 – 63.4	1			1					4	
	63.5 – 64.4	1	2							4	
	64.5 – 65.4	1	1	1						4	
	65.5 – 73.4						1		1		4
	73.5 – 75.4						1	2			4
	75.5 – 81.4					1		3			4
	81.5 – 86.4	1		2	1					6	
	86.5 – 89.4	1	1	1	1					6	
	89.5 – 92.4	1	1	1	1					6	
	92.5 – 93.4	1	3	1						6	
	93.5 – 95.4	1	2	2						6	
	95.5 – 97.4	1	3	1						6	
	97.5 – 99.4	1	2	2						6	
	99.5 – 105.4						1	2	1		6
	105.5 – 114.4						1	4			6
	114.5 – 120.0					1		5			6

WALTER STARDRILL

B 3011 M

in cartridge-type design, drilling depth 2 × D_C

Assembly parts

		Size 5		NOVEX EXPRESS Size 4
	Clamping screw for insert	FS 1029 (Torx 20)		FS 378 (Torx 15)
	Tightening torque	5.0 Nm		2.5 Nm
	Clamping screw for cartridge	M 5 x 16 DIN 912 for FR 665	M 6 x 16 DIN 912 for FR 666, FR 667, FR 668	
	Tightening torque	5.0 Nm	8.0 Nm	
	External cartridge	FR 665		
	External cartridge	FR 666		
	Internal cartridge	FR 667		
	Internal cartridge	FR 668		

Accessories

		Size 5		NOVEX EXPRESS Size 4
	Screwdriver	FS 228 (Torx 20)		FS 229 (Torx 15)
	Wrench DIN 911	SW 4	SW 5	

Indexable inserts



Designation	Size		P HC WAP 20	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	M	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HC WXK 25	N HW WK 40	S HW WK 40	S HC WXP 40
P 28467	4+5		☺	☺	😐	☹			☺	😐	☹				
P 28469	4+5				😐	☹					☹		😐	☹	
P 28475	4+5		☺		😐	☹					☹				☹
P 28477	4+5		☺	☺	😐	☹			☺	😐	☹				☹
P 28479	4+5				😐	☹					☹				☹

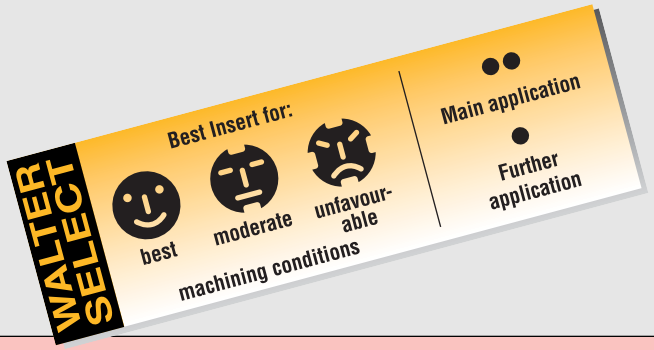




→ 249 | → 684 | → 791 | → 370



WALTER SELECT
for solid carbide drills



Tool type		WALTER MINI-STARDRILL solid carbide drills				
L_c approx.		3 x D_C		5 x D_C		12 x D_C
Solid carbide drills		B 1420 / B 1520	B 1421	B 1422	B 1332	B 1333
Dia. range [mm]		3–16	3–14	3–16	5–16	5–16
Page		314–315, 320	316	318	312	313
Solid carbide drill coating		WXK 35	WXK 35	WXK 35	WK 10	WK 10
P	Steel	●●	●●	●●		
M	Stainless steel	●	●●	●●		
K	Cast iron	●●	●●	●●	●●	●●
N	NF metals	●●	●●	●●	●●	●●
S	Difficult-to-machine materials	●	●	●		
H	Hard materials					
Drilling depth [mm]		2.8–4.6 x D_C	2.8–4.6 x D_C	4–7.6 x D_C	5 x D_C	12 x D_C



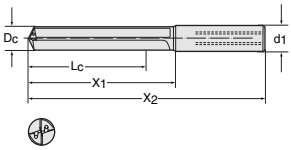
WALTER MINI-STARDRILL B 1332

Solid carbide drills, 3.7–6 x D_C

Tool

HW = uncoated carbide

	Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXM 35	HC WXK 35	HW WK 10		
Parallel shank DIN 6535 HAK	B 1332.W.05.0.Z2.25	5.0	6.0	46	82	29	2	0.02			△		
	B 1332.W.05.5.Z2.27	5.5	6.0	46	82	27	2	0.02			△		
	B 1332.W.06.0.Z2.30	6.0	6.0	46	82	26	2	0.02			△		
	B 1332.W.06.5.Z2.33	6.5	8.0	55	91	32	2	0.03			△		
	B 1332.W.06.8.Z2.34	6.8	8.0	55	91	32	2	0.03			△		
	B 1332.W.07.0.Z2.35	7.0	8.0	55	91	32	2	0.03			△		
	B 1332.W.07.5.Z2.37	7.5	8.0	55	91	30	2	0.03			△		
	B 1332.W.08.0.Z2.40	8.0	8.0	55	91	33	2	0.04			△		
	B 1332.W.08.5.Z2.42	8.5	10.0	63	103	40	2	0.06			△		
	B 1332.W.09.0.Z2.45	9.0	10.0	63	103	38	2	0.06			△		
	B 1332.W.10.0.Z2.50	10.0	10.0	63	103	41	2	0.07			△		
	B 1332.W.10.2.Z2.51	10.2	12.0	73	118	50	2	0.10			△		
	B 1332.W.10.5.Z2.52	10.5	12.0	73	118	50	2	0.10			△		
	B 1332.W.11.0.Z2.55	11.0	12.0	73	118	49	2	0.11			△		
	B 1332.W.11.5.Z2.57	11.5	12.0	73	118	48	2	0.11			△		
	B 1332.W.12.0.Z2.60	12.0	12.0	73	118	47	2	0.11			△		
	B 1332.W.12.5.Z2.62	12.5	14.0	79	124	52	2	0.15			△		
	B 1332.W.13.0.Z2.65	13.0	14.0	79	124	51	2	0.17			△		
	B 1332.W.14.0.Z2.70	14.0	14.0	79	124	49	2	0.19			△		
	B 1332.W.15.0.Z2.75	15.0	16.0	85	133	60	2	0.23			△		
	B 1332.W.16.0.Z2.80	16.0	16.0	85	133	59	2	0.27			△		



→ 684 → 374

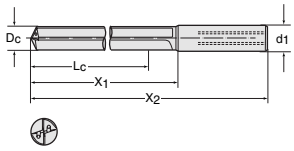


WALTER MINI-STARDRILL B 1333

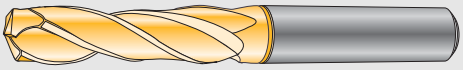
Solid carbide drills, 11.7–13.8 x D_C

Tool

HW = uncoated carbide

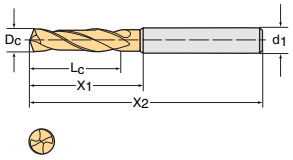
	Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXM 35	HC WXK 35	HW WK 10		
Parallel shank DIN 6535 HAK 	B 1333.W.05.0.Z2.78	5.0	6.0	96	132	79	2	0.02			△		
	B 1333.W.05.5.Z2.78	5.5	6.0	96	139	84	2	0.02			△		
	B 1333.W.06.0.Z2.83	6.0	6.0	103	139	83	2	0.03			△		
	B 1333.W.06.5.Z2.83	6.5	8.0	103	165	107	2	0.06			△		
	B 1333.W.06.8.Z2.83	6.8	8.0	103	165	106	2	0.06			△		
	B 1333.W.07.0.Z2.107	7.0	8.0	129	165	106	2	0.06			△		
	B 1333.W.07.5.Z2.107	7.5	8.0	129	165	104	2	0.07			△		
	B 1333.W.08.0.Z2.107	8.0	8.0	129	165	107	2	0.07			△		
	B 1333.W.08.5.Z2.120	8.5	10.0	144	184	120	2	0.10			△		
	B 1333.W.09.0.Z2.120	9.0	10.0	144	184	119	2	0.11			△		
	B 1333.W.10.0.Z2.121	10.0	10.0	144	184	122	2	0.13			△		
	B 1333.W.10.2.Z2.135	10.2	12.0	160	205	137	2	0.19			△		
	B 1333.W.10.5.Z2.135	10.5	12.0	160	205	137	2	0.20			△		
	B 1333.W.11.0.Z2.135	11.0	12.0	160	205	136	2	0.21			△		
	B 1333.W.11.5.Z2.134	11.5	12.0	160	205	135	2	0.22			△		
	B 1333.W.12.0.Z2.134	12.0	12.0	160	205	134	2	0.23			△		
	B 1333.W.12.5.Z2.141	12.5	14.0	169	214	142	2	0.34			△		
	B 1333.W.13.0.Z2.141	13.0	14.0	169	214	141	2	0.36			△		
	B 1333.W.14.0.Z2.141	14.0	14.0	169	214	139	2	0.38			△		
	B 1333.W.15.0.Z2.150	15.0	16.0	179	227	154	2	0.51			△		
	B 1333.W.16.0.Z2.150	16.0	16.0	179	227	153	2	0.59			△		

→ 684 → 374



Tool

HC = coated carbide

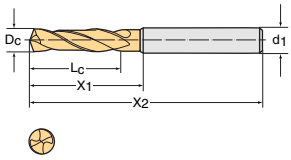
	Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35		HW WK 10		
Parallel shank DIN 6535 HA	B 1420.Z.03.0.Z2.14	3.0	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.1.Z2.14	3.1	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.2.Z2.14	3.2	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.3.Z2.14	3.3	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.4.Z2.14	3.4	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.5.Z2.14	3.5	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.6.Z2.14	3.6	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.7.Z2.14	3.7	6.0	26	62	14	2	0.01	△				
	B 1420.Z.03.8.Z2.17	3.8	6.0	30	66	17	2	0.01	△				
	B 1420.Z.04.0.Z2.17	4.0	6.0	30	66	17	2	0.02	△				
	B 1420.Z.04.1.Z2.17	4.1	6.0	30	66	17	2	0.02	△				
	B 1420.Z.04.2.Z2.17	4.2	6.0	30	66	17	2	0.02	△				
	B 1420.Z.04.3.Z2.17	4.3	6.0	30	66	17	2	0.02	△				
	B 1420.Z.04.5.Z2.17	4.5	6.0	30	66	17	2	0.02	△				
	B 1420.Z.04.8.Z2.20	4.8	6.0	30	66	20	2	0.02	△				
	B 1420.Z.05.0.Z2.20	5.0	6.0	30	66	20	2	0.02	△				
	B 1420.Z.05.1.Z2.20	5.1	6.0	30	66	20	2	0.02	△				
	B 1420.Z.05.2.Z2.20	5.2	6.0	30	66	20	2	0.02	△				
	B 1420.Z.05.5.Z2.20	5.5	6.0	30	66	20	2	0.02	△				
	B 1420.Z.05.8.Z2.20	5.8	6.0	30	66	20	2	0.02	△				
	B 1420.Z.06.0.Z2.20	6.0	6.0	30	66	20	2	0.02	△				
	B 1420.Z.06.1.Z2.24	6.1	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.2.Z2.24	6.2	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.3.Z2.24	6.3	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.4.Z2.24	6.4	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.5.Z2.24	6.5	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.6.Z2.24	6.6	8.0	43	79	24	2	0.03	△				
	B 1420.Z.06.8.Z2.24	6.8	8.0	43	79	24	2	0.04	△				
	B 1420.Z.06.9.Z2.24	6.9	8.0	43	79	24	2	0.04	△				
	B 1420.Z.07.0.Z2.24	7.0	8.0	43	79	24	2	0.04	△				
	B 1420.Z.07.1.Z2.29	7.1	8.0	43	79	29	2	0.04	△				
	B 1420.Z.07.4.Z2.29	7.4	8.0	43	79	29	2	0.04	△				
	B 1420.Z.07.5.Z2.29	7.5	8.0	43	79	29	2	0.04	△				
	B 1420.Z.07.8.Z2.29	7.8	8.0	43	79	29	2	0.04	△				
	B 1420.Z.07.9.Z2.29	7.9	8.0	43	79	29	2	0.04	△				
	B 1420.Z.08.0.Z2.29	8.0	8.0	43	79	29	2	0.04	△				
	B 1420.Z.08.1.Z2.35	8.1	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.2.Z2.35	8.2	10.0	49	89	35	2	0.06	△				

WALTER MINI-STARDRILL B 1420

Solid carbide drills, 2.8–4.6 x D_C
right-hand cutting, DIN 6537, short

Tool

HC = coated carbide

	Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35		HW WK 10		
Parallel shank DIN 6535 HA	B 1420.Z.08.4.Z2.35	8.4	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.5.Z2.35	8.5	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.6.Z2.35	8.6	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.7.Z2.35	8.7	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.8.Z2.35	8.8	10.0	49	89	35	2	0.06	△				
	B 1420.Z.08.9.Z2.35	8.9	10.0	49	89	35	2	0.06	△				
	B 1420.Z.09.0.Z2.35	9.0	10.0	49	89	35	2	0.06	△				
	B 1420.Z.09.2.Z2.35	9.2	10.0	49	89	35	2	0.07	△				
	B 1420.Z.09.3.Z2.35	9.3	10.0	49	89	35	2	0.07	△				
	B 1420.Z.09.5.Z2.35	9.5	10.0	49	89	35	2	0.07	△				
	B 1420.Z.09.6.Z2.35	9.6	10.0	49	89	35	2	0.07	△				
	B 1420.Z.09.7.Z2.35	9.7	10.0	49	89	35	2	0.07	△				
	B 1420.Z.09.8.Z2.35	9.8	10.0	49	89	35	2	0.07	△				
	B 1420.Z.10.0.Z2.35	10.0	10.0	49	89	35	2	0.07	△				
	B 1420.Z.10.1.Z2.40	10.1	12.0	57	102	40	2	0.10	△				
	B 1420.Z.10.2.Z2.40	10.2	12.0	57	102	40	2	0.10	△				
	B 1420.Z.10.3.Z2.40	10.3	12.0	57	102	40	2	0.10	△				
	B 1420.Z.10.4.Z2.40	10.4	12.0	57	102	40	2	0.10	△				
	B 1420.Z.10.5.Z2.40	10.5	12.0	57	102	40	2	0.11	△				
	B 1420.Z.10.6.Z2.40	10.6	12.0	57	102	40	2	0.11	△				
	B 1420.Z.10.8.Z2.40	10.8	12.0	57	102	40	2	0.11	△				
	B 1420.Z.11.0.Z2.40	11.0	12.0	57	102	40	2	0.11	△				
	B 1420.Z.11.2.Z2.40	11.2	12.0	57	102	40	2	0.11	△				
	B 1420.Z.11.5.Z2.40	11.5	12.0	57	102	40	2	0.11	△				
	B 1420.Z.11.8.Z2.40	11.8	12.0	57	102	40	2	0.11	△				
	B 1420.Z.12.0.Z2.40	12.0	12.0	57	102	40	2	0.12	△				
	B 1420.Z.12.5.Z2.43	12.5	14.0	63	107	43	2	0.15	△				
	B 1420.Z.13.0.Z2.43	13.0	14.0	63	107	43	2	0.16	△				
	B 1420.Z.13.5.Z2.43	13.5	14.0	63	107	43	2	0.16	△				
	B 1420.Z.14.0.Z2.43	14.0	14.0	63	107	43	2	0.17	△				
	B 1420.Z.14.5.Z2.45	14.5	16.0	67	115	45	2	0.21	△				
	B 1420.Z.15.0.Z2.45	15.0	16.0	67	115	45	2	0.22	△				
	B 1420.Z.15.5.Z2.45	15.5	16.0	67	115	45	2	0.23	△				
	B 1420.Z.16.0.Z2.45	16.0	16.0	67	115	45	2	0.23	△				

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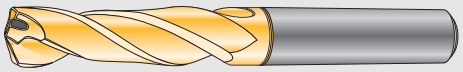
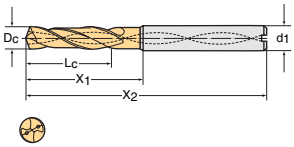


Tool

HC = coated carbide

Parallel shank DIN 6535 HAK



Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35		HW WK 10		
B 1421.Z.03.0.Z2.14	3.0	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.1.Z2.14	3.1	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.2.Z2.14	3.2	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.3.Z2.14	3.3	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.4.Z2.14	3.4	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.5.Z2.14	3.5	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.7.Z2.14	3.7	6.0	26	62	14	2	0.01	△				
B 1421.Z.03.8.Z2.17	3.8	6.0	30	66	17	2	0.01	△				
B 1421.Z.03.9.Z2.17	3.9	6.0	30	66	17	2	0.01	△				
B 1421.Z.04.1.Z2.17	4.1	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.2.Z2.17	4.2	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.3.Z2.17	4.3	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.4.Z2.17	4.4	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.5.Z2.17	4.5	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.6.Z2.17	4.6	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.7.Z2.17	4.7	6.0	30	66	17	2	0.02	△				
B 1421.Z.04.8.Z2.20	4.8	6.0	30	66	20	2	0.02	△				
B 1421.Z.04.9.Z2.20	4.9	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.0.Z2.20	5.0	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.1.Z2.20	5.1	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.2.Z2.20	5.2	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.3.Z2.20	5.3	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.4.Z2.20	5.4	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.5.Z2.20	5.5	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.6.Z2.20	5.6	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.7.Z2.20	5.7	6.0	30	66	20	2	0.02	△				
B 1421.Z.05.8.Z2.20	5.8	6.0	30	66	20	2	0.02	△				
B 1421.Z.06.0.Z2.20	6.0	6.0	30	66	20	2	0.02	△				
B 1421.Z.06.1.Z2.24	6.1	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.2.Z2.24	6.2	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.3.Z2.24	6.3	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.4.Z2.24	6.4	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.5.Z2.24	6.5	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.6.Z2.24	6.6	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.8.Z2.24	6.8	8.0	43	79	24	2	0.03	△				
B 1421.Z.06.9.Z2.24	6.9	8.0	43	79	24	2	0.03	△				
B 1421.Z.07.0.Z2.24	7.0	8.0	43	79	24	2	0.04	△				
B 1421.Z.07.1.Z2.29	7.1	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.2.Z2.29	7.2	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.3.Z2.29	7.3	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.4.Z2.29	7.4	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.5.Z2.29	7.5	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.6.Z2.29	7.6	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.8.Z2.29	7.8	8.0	43	79	29	2	0.04	△				
B 1421.Z.07.9.Z2.29	7.9	8.0	43	79	29	2	0.04	△				
B 1421.Z.08.0.Z2.29	8.0	8.0	43	79	29	2	0.04	△				

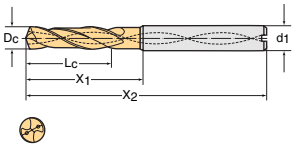
WALTER MINI-STARDRILL B 1421

Solid carbide drills, 2.8–4.6 x D_C
right-hand cutting, DIN 6537, short

Tool

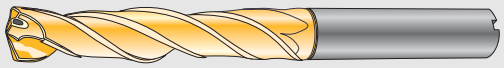
HC = coated carbide

Parallel shank DIN 6535 HAK



Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35		HW WK 10	
B 1421.Z.08.1.Z2.35	8.1	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.2.Z2.35	8.2	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.3.Z2.35	8.3	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.4.Z2.35	8.4	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.5.Z2.35	8.5	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.6.Z2.35	8.6	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.7.Z2.35	8.7	10.0	49	89	35	2	0.06	△			
B 1421.Z.08.8.Z2.35	8.8	10.0	49	89	35	2	0.06	△			
B 1421.Z.09.0.Z2.35	9.0	10.0	49	89	35	2	0.06	△			
B 1421.Z.09.1.Z2.35	9.1	10.0	49	89	35	2	0.06	△			
B 1421.Z.09.3.Z2.35	9.3	10.0	49	89	35	2	0.06	△			
B 1421.Z.09.5.Z2.35	9.5	10.0	49	89	35	2	0.07	△			
B 1421.Z.09.6.Z2.35	9.6	10.0	49	89	35	2	0.07	△			
B 1421.Z.09.7.Z2.35	9.7	10.0	49	89	35	2	0.07	△			
B 1421.Z.09.8.Z2.35	9.8	10.0	49	89	35	2	0.07	△			
B 1421.Z.09.9.Z2.35	9.9	10.0	49	89	35	2	0.07	△			
B 1421.Z.10.0.Z2.35	10.0	10.0	49	89	35	2	0.07	△			
B 1421.Z.10.1.Z2.40	10.1	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.2.Z2.40	10.2	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.3.Z2.40	10.3	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.4.Z2.40	10.4	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.5.Z2.40	10.5	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.6.Z2.40	10.6	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.7.Z2.40	10.7	12.0	57	102	40	2	0.10	△			
B 1421.Z.10.8.Z2.40	10.8	12.0	57	102	40	2	0.10	△			
B 1421.Z.11.0.Z2.40	11.0	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.1.Z2.40	11.1	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.2.Z2.40	11.2	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.3.Z2.40	11.3	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.5.Z2.40	11.5	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.7.Z2.40	11.7	12.0	57	102	40	2	0.11	△			
B 1421.Z.11.8.Z2.40	11.8	12.0	57	102	40	2	0.11	△			
B 1421.Z.12.0.Z2.40	12.0	12.0	57	102	40	2	0.11	△			
B 1421.Z.12.5.Z2.43	12.5	14.0	62	107	43	2	0.15	△			
B 1421.Z.12.8.Z2.43	12.8	14.0	62	107	43	2	0.15	△			
B 1421.Z.13.0.Z2.43	13.0	14.0	62	107	43	2	0.15	△			
B 1421.Z.13.5.Z2.43	13.5	14.0	62	107	43	2	0.16	△			
B 1421.Z.13.8.Z2.43	13.8	14.0	62	107	43	2	0.16	△			
B 1421.Z.14.5.Z2.45	14.5	16.0	67	115	45	2	0.21	△			
B 1421.Z.15.0.Z2.45	15.0	16.0	67	115	45	2	0.21	△			
B 1421.Z.15.5.Z2.45	15.5	16.0	67	115	45	2	0.22	△			
B 1421.Z.15.8.Z2.45	15.8	16.0	67	115	45	2	0.22	△			
B 1421.Z.16.0.Z2.45	16.0	16.0	67	115	45	2	0.23	△			

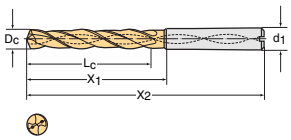
→ 684 → 374



Tool

HC = coated carbide

Parallel shank DIN 6535 HAK



Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35		HW WK 10		
B 1422.Z.03.0.Z2.22	3.0	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.1.Z2.22	3.1	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.2.Z2.22	3.2	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.3.Z2.23	3.3	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.4.Z2.23	3.4	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.5.Z2.23	3.5	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.6.Z2.23	3.6	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.7.Z2.23	3.7	6.0	30	66	23	2	0.02	△				
B 1422.Z.03.8.Z2.29	3.8	6.0	38	74	29	2	0.02	△				
B 1422.Z.03.9.Z2.29	3.9	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.0.Z2.29	4.0	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.1.Z2.29	4.1	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.2.Z2.29	4.2	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.3.Z2.29	4.3	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.4.Z2.29	4.4	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.5.Z2.29	4.5	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.6.Z2.29	4.6	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.7.Z2.29	4.7	6.0	38	74	29	2	0.02	△				
B 1422.Z.04.8.Z2.35	4.8	6.0	46	82	35	2	0.02	△				
B 1422.Z.04.9.Z2.35	4.9	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.0.Z2.35	5.0	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.1.Z2.35	5.1	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.2.Z2.35	5.2	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.3.Z2.35	5.3	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.4.Z2.35	5.4	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.5.Z2.35	5.5	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.6.Z2.35	5.6	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.7.Z2.35	5.7	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.8.Z2.35	5.8	6.0	46	82	35	2	0.02	△				
B 1422.Z.05.9.Z2.35	5.9	6.0	46	82	35	2	0.02	△				
B 1422.Z.06.0.Z2.35	6.0	6.0	46	82	35	2	0.02	△				
B 1422.Z.06.1.Z2.43	6.1	8.0	55	91	43	2	0.03	△				
B 1422.Z.06.2.Z2.43	6.2	8.0	55	91	43	2	0.03	△				
B 1422.Z.06.3.Z2.43	6.3	8.0	55	91	43	2	0.03	△				
B 1422.Z.06.4.Z2.43	6.4	8.0	55	91	43	2	0.03	△				
B 1422.Z.06.5.Z2.43	6.5	8.0	55	91	43	2	0.04	△				
B 1422.Z.06.6.Z2.43	6.6	8.0	55	91	43	2	0.04	△				
B 1422.Z.06.7.Z2.43	6.7	8.0	55	91	43	2	0.04	△				
B 1422.Z.06.8.Z2.43	6.8	8.0	55	91	43	2	0.04	△				
B 1422.Z.06.9.Z2.43	6.9	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.0.Z2.43	7.0	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.1.Z2.43	7.1	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.2.Z2.43	7.2	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.3.Z2.43	7.3	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.4.Z2.43	7.4	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.5.Z2.43	7.5	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.6.Z2.43	7.6	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.7.Z2.43	7.7	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.8.Z2.43	7.8	8.0	55	91	43	2	0.04	△				
B 1422.Z.07.9.Z2.43	7.9	8.0	55	91	43	2	0.04	△				
B 1422.Z.08.0.Z2.43	8.0	8.0	55	91	43	2	0.04	△				

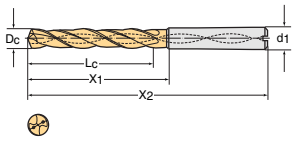
WALTER MINI-STARDRILL B 1422

Solid carbide drills, 4–7.6 x D_C
right-hand cutting, DIN 6537, long

Tool

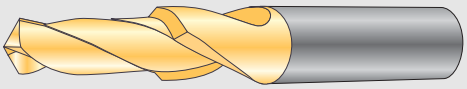
HC = coated carbide

Parallel shank DIN 6535 HAK



Designation	$D_{C\ m7}$ mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	z	kg	HC WXK 35		HW WK 10		
B 1422.Z.08.1.Z2.49	8.1	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.2.Z2.49	8.2	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.3.Z2.49	8.3	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.4.Z2.49	8.4	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.5.Z2.49	8.5	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.6.Z2.49	8.6	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.7.Z2.49	8.7	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.8.Z2.49	8.8	10.0	63	103	49	2	0.07	△				
B 1422.Z.08.9.Z2.49	8.9	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.0.Z2.49	9.0	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.1.Z2.49	9.1	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.2.Z2.49	9.2	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.3.Z2.49	9.3	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.4.Z2.49	9.4	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.5.Z2.49	9.5	10.0	63	103	49	2	0.07	△				
B 1422.Z.09.6.Z2.49	9.6	10.0	63	103	49	2	0.08	△				
B 1422.Z.09.7.Z2.49	9.7	10.0	63	103	49	2	0.08	△				
B 1422.Z.09.8.Z2.49	9.8	10.0	63	103	49	2	0.08	△				
B 1422.Z.09.9.Z2.49	9.9	10.0	63	103	49	2	0.08	△				
B 1422.Z.10.0.Z2.49	10.0	10.0	63	103	49	2	0.08	△				
B 1422.Z.10.1.Z2.56	10.1	12.0	73	118	56	2	0.11	△				
B 1422.Z.10.2.Z2.56	10.2	12.0	73	118	56	2	0.11	△				
B 1422.Z.10.3.Z2.56	10.3	12.0	73	118	56	2	0.11	△				
B 1422.Z.10.4.Z2.56	10.4	12.0	73	118	56	2	0.11	△				
B 1422.Z.10.5.Z2.56	10.5	12.0	73	118	56	2	0.11	△				
B 1422.Z.10.6.Z2.56	10.6	12.0	73	118	56	2	0.12	△				
B 1422.Z.10.7.Z2.56	10.7	12.0	73	118	56	2	0.12	△				
B 1422.Z.10.8.Z2.56	10.8	12.0	73	118	56	2	0.12	△				
B 1422.Z.10.9.Z2.56	10.9	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.0.Z2.56	11.0	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.1.Z2.56	11.1	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.2.Z2.56	11.2	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.3.Z2.56	11.3	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.4.Z2.56	11.4	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.5.Z2.56	11.5	12.0	73	118	56	2	0.12	△				
B 1422.Z.11.6.Z2.56	11.6	12.0	73	118	56	2	0.13	△				
B 1422.Z.11.7.Z2.56	11.7	12.0	73	118	56	2	0.13	△				
B 1422.Z.11.8.Z2.56	11.8	12.0	73	118	56	2	0.13	△				
B 1422.Z.11.9.Z2.56	11.9	12.0	73	118	56	2	0.13	△				
B 1422.Z.12.0.Z2.56	12.0	12.0	73	118	56	2	0.13	△				
B 1422.Z.12.5.Z2.60	12.5	14.0	79	124	60	2	0.16	△				
B 1422.Z.12.8.Z2.60	12.8	14.0	79	124	60	2	0.17	△				
B 1422.Z.13.0.Z2.60	13.0	14.0	79	124	60	2	0.17	△				
B 1422.Z.13.5.Z2.60	13.5	14.0	79	124	60	2	0.18	△				
B 1422.Z.13.8.Z2.60	13.8	14.0	79	124	60	2	0.18	△				
B 1422.Z.14.0.Z2.60	14.0	14.0	79	124	60	2	0.18	△				
B 1422.Z.14.5.Z2.63	14.5	16.0	85	133	63	2	0.23	△				
B 1422.Z.14.8.Z2.63	14.8	16.0	85	133	63	2	0.23	△				
B 1422.Z.15.0.Z2.63	15.0	16.0	85	133	63	2	0.24	△				
B 1422.Z.15.5.Z2.63	15.5	16.0	85	133	63	2	0.25	△				
B 1422.Z.15.8.Z2.63	15.8	16.0	85	133	63	2	0.25	△				
B 1422.Z.16.0.Z2.63	16.0	16.0	85	133	63	2	0.26	△				

→ 684 → 374

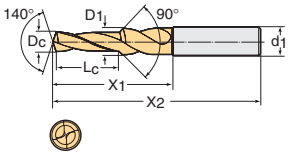


WALTER MINI-STARDRILL B 1520

Solid carbide step drills for tap drill holes
Dimensions i.a.w. DIN 6537, short, right-hand cutting
Step length i.a.w. DIN 8378/8379

Tool

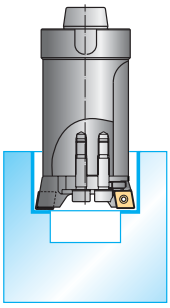
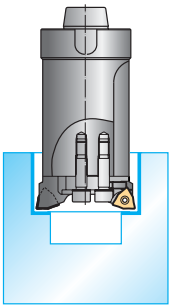
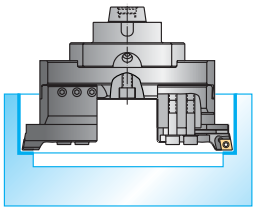
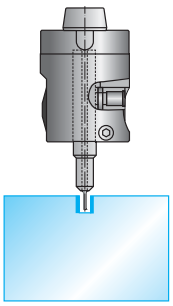
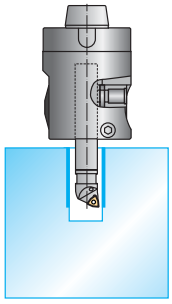
HC = coated carbide

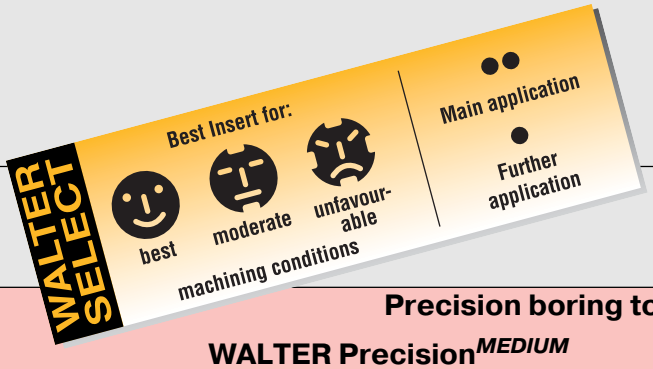
	Designation	for Thread	$D_{C\ m7}$ mm	D_1 mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	L_C mm	Z	kg	HC WXK 35	
Parallel shank DIN 6535 HA	B 1520.Z.03.3.Z2.11	M 4	3.3	4.5	6	30	66	11.4	2	0.02	△	
	B 1520.Z.04.2.Z2.13	M 5	4.2	6.0	6	30	66	13.6	2	0.02	△	
	B 1520.Z.05.0.Z2.16	M 6	5.0	8.0	8	43	79	16.5	2	0.03	△	
	B 1520.Z.06.8.Z2.21	M 8	6.8	10.0	10	49	89	21.0	2	0.06	△	
	B 1520.Z.08.5.Z2.25	M 10	8.5	12.0	12	57	102	25.5	2	0.11	△	
	B 1520.Z.10.2.Z2.30	M 12	10.2	14.0	14	62	107	30.0	2	0.16	△	
	B 1520.Z.12.0.Z2.34	M 14	12.0	16.0	16	67	115	34.5	2	0.22	△	
	B 1520.Z.14.0.Z2.38	M 16	14.0	18.0	18	75	123	38.5	2	0.36	△	

→ 684 → 374

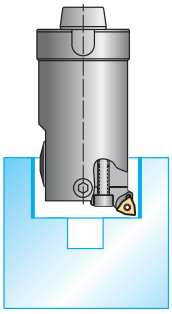
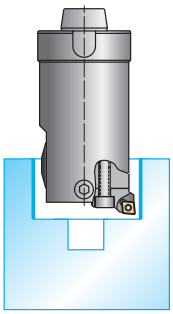
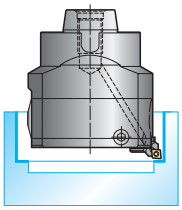
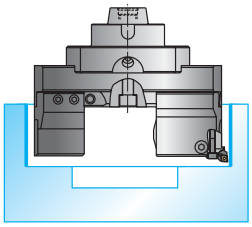
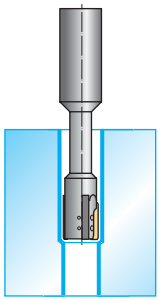
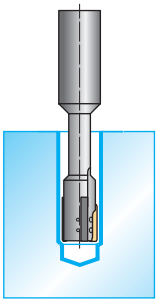


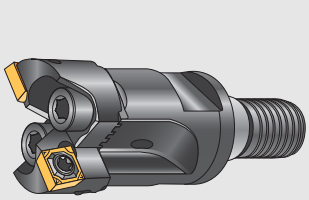
WALTER SELECT

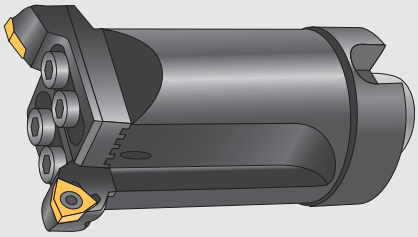
Tool type		Boring tools			Precision boring tools		
		WALTER Boring *MEDIUM*		WALTER Boring *MAXI*	WALTER Precision *MINI*		
		B 3220 B 3221	B 3220 B 3221	B 3220	B 3230	B 3230 B 4030	
							
Dia. range [mm]		20–153	20–153	150–640	2–6	5.8–45.5	
Page		324–327	324–327	328	330	330–335	
P	Steel	●●	●●	●●	●●	●●	
M	Stainless steel	●●	●●	●●	●●	●●	
K	Cast iron	●●	●●	●●	●●	●●	
N	NF metals	●	●	●	●	●●	
S	Difficult-to-machine materials	●●	●●	●●	●	●●	
H	Hard materials					●	
Indexable insert basic shape					–		
Indexable insert types		CC . . 0602 . . CC . . 09T3 . . CC . . 1204 . .	WC . . 0302 . . WC . . 0402 . . WC . . 06T3 . . WC . . 0804 . .	CC . . 1204 . .	—	WC . . 0201 . . WC . . 0302 . . WC . . 0402 . .	
Cut depths [mm]		max. 12	max. 8	max. 12	max. 0.5	max. 0.5	



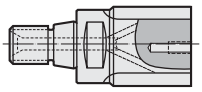
Boring / precision boring tools and reamers

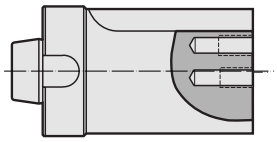
	Precision boring tools				WALTER reamers	
	WALTER Precision*MEDIUM*			WALTER Precision*MAXI*		
	B 3230	**B 3230**	**B 4030**	**B 3230**	**R 4060**	**R 4061**
						
	20–153	20–153	33–153	150–640	6–25	8–25
	338	338	340	342	344	346
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
	●●	●●	●●	●●		
	●●	●●	●●	●●		
	●	●		●		
						
	CP . . 0502 . . CC . . 0602 . .	WC . . 0302 . . WC . . 0402 . . WC . . 0503 . .	WC . . 0302 . . WC . . 0402 . . CP . . 0502 . . CC . . 0602 . .	CC . . 0602 . . / WC . . 0503 . .	P 6500 . .	P 6500 . .
	max. 1	max. 1	max. 1	max. 1		

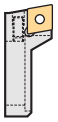


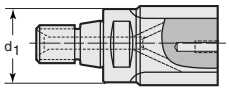
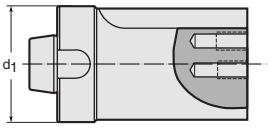










Tool	Basic body Designation	d_1 mm	D_C mm	Cartridge with C-insert Designation	Type	
NCT ScrewFit   	B 3221G.T18.20–27.Z2	T 18	20–24	EB 401.CC06	CC . . 0602 . .	
			23–27	EB 402.CC06		
	B 3221G.T22.26–33.Z2	T 22	26–33	EB 403.CC06		
	B 3220G.T28.33–41.Z2	T 28	33–41	EB 205–206.CC06		
modular adaptor  	B 3221G.N2.020-027.Z2	NCT 25	20–24	EB 401.CC06	CC . . 0602 . .	
			23–27	EB 402.CC06		
	B 3221G.N2.026-035.Z2	NCT 25	26–33	EB 403.CC06		
	B 3220G.N3.033-044.Z2	NCT 32	33–41	EB 205–206.CC06		

For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

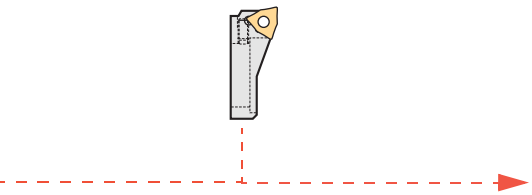
Assembly parts		for $D_{C\ min.–max.}$ 20–27 mm	26–33 mm	33–41 mm
	Adjusting screw	FS 1103 (SW 1.3)	FS 1104 (SW 1.3)	FS 1105 (SW 1.5)
	Spring washer	FS 1098		FS 1099
	Clamping screw for cartridge	FS 1093 (SW 3)		FS 1094 (SW 4)
	Tightening torque	4 Nm		7 Nm
	Driving lug	FK 311		FK 312
	Screw for driving lug	FS 502		FS 503
	Clamping screw for insert CC . . 0602 + WC . . 0402	FS 923 (Torx 8)		
	Tightening torque	0.8 Nm		
	Clamping screw for insert WC . . 0302	FS 1020 (Torx 7)		
	Tightening torque	0.6 Nm		

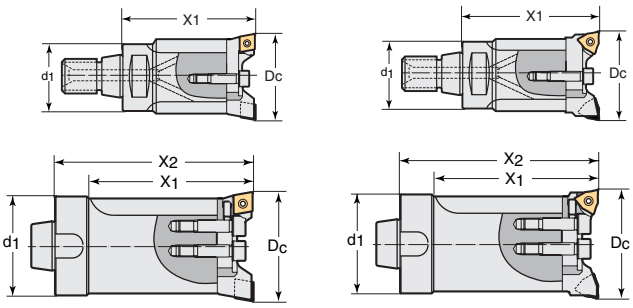
WALTER Boring*MEDIUM*

Two flute boring tool
κ = 90°, Z = 2

B 3220 / B 3221

dia. 20–41 mm

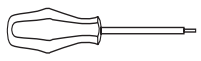




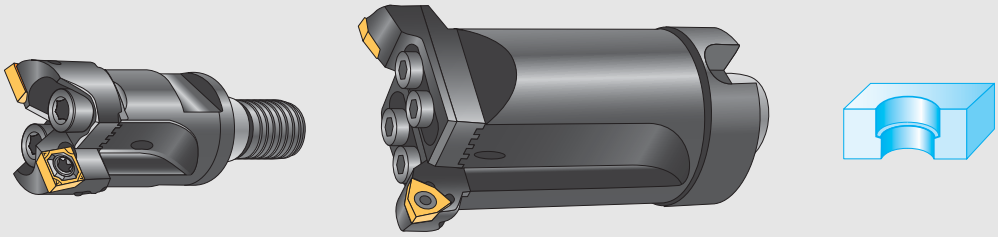
	Cartridge with W-insert		Complete tool					
	Designation	Type	d_1 mm	X_1 mm	X_2 mm	kg	Designation with C-insert	Designation with W-insert
	EB 421.WC03	WC . . 0302 . .	19	35	—	0.1	B 3221.T18.20-24.Z2.CC06	B 3221.T18.20-24.Z2.WC03*
	EB 422.WC03		19	35	—	0.1	B 3221.T18.23-27.Z2.CC06	B 3221.T18.23-27.Z2.WC03*
	EB 423.WC03		22	40	—	0.1	B 3221.T22.26-33.Z2.CC06	B 3221.T22.26-33.Z2.WC03*
	EB 225–226.WC04	WC . . 0402 . .	28	55	—	0.3	B 3220.T28.33-41.Z2.CC06	B 3220.T28.33-41.Z2.WC04*
	EB 421.WC03	WC . . 0302 . .	25	80	65	0.2	B 3221.N2.020-024.Z2.CC06	B 3221.N2.020-024.Z2.WC03
	EB 422.WC03		25	80	65	0.2	B 3221.N2.023-027.Z2.CC06	B 3221.N2.023-027.Z2.WC03
	EB 423.WC03		25	80	—	0.3	B 3221.N2.026-033.Z2.CC06	B 3221.N2.026-033.Z2.WC03
	EB 225–226.WC04	WC . . 0402 . .	32	80	—	0.5	B 3220.N3.033-041.Z2.CC06	B 3220.N3.033-041.Z2.WC04

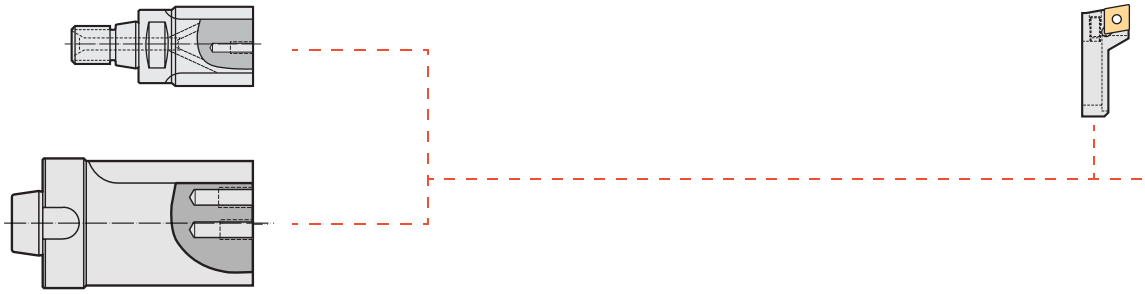
* Attention: the projection of the cartridges must be sufficient for dechipping where used with extension in blind bores.

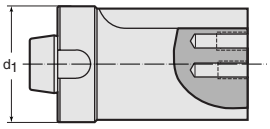
Accessories

		for $D_{C\ min.–max.}$ 20–33 mm	33–41 mm
	Screwdriver for clamping screw FS 923	FS 230 (Torx 8)	
	Screwdriver for clamping screw FS 1020	FS 309 (Torx 7)	
	Wrench DIN 911	SW 1.3 / SW 3	SW 1.5 / SW 4

→ 258 | → 684 | → 388 | → 376





Tool	Basic body Designation	d_1 mm	D_C mm	Cartridge with C-insert Designation	Type
NCT ScrewFit 	B 3220G.T36.41–55.Z2	T 36	41–55	EB 207–208.CC09	CC . . 09T3 . .
	B 3220G.T45.55–70.Z2	T 45	55–70	EB 209–210.CC09	
modular adaptor 	B 3220G.N4.041-056.Z2	NCT 40	41–55	EB 207–208.CC09	CC . . 09T3 . .
	B 3220G.N5.055-073.Z2	NCT 50	55–70	EB 209–210.CC09	
	B 3220G.N6.070-93.Z2	NCT 63	70–90	EB 211–212.CC12	CC . . 1204 . .
	B 3220G.N8.090-113.Z2	NCT 80	90–110	EB 213–214.CC12	
	B 3220G.N8.110-153.Z2	NCT 80	110–133	EB 215.CC12	
			130–153	EB 216.CC12	

For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

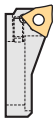
Assembly parts		for $D_{C\ min.-max.}$ 41–70 mm	70–90 mm	90–110 mm	110–153 mm
	Adjusting screw	FS 1106 (SW 2)	FS 1107 (SW 2.5)		FS 1108 (SW 2.5)
	Spring washer	FS 1100	FS 1101	FS 1102	
	Clamping screw for cartridge	FS 1095 (SW 5)	FS 1096 (SW 6)	FS 1097 (SW 8)	
	Tightening torque	12 Nm	30 Nm	50 Nm	
	Driving lug (only with NCT 40)	FK 313			
	Screw for driving lug (only with NCT 40)	FS 504			
	Clamping screw for insert	FS 359 (Torx 15)	FS 1030 (Torx 20)		
	Tightening torque	2.5 Nm	5.0 Nm		

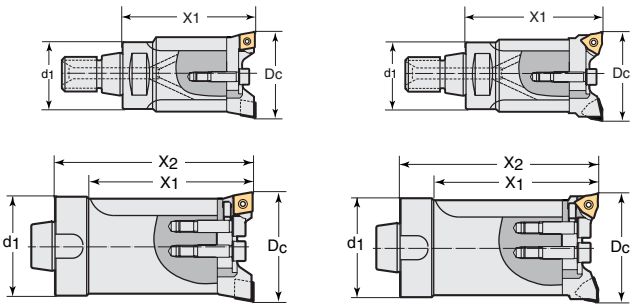
WALTER Boring*MEDIUM*

Two flute boring tool
κ = 90°, Z = 2

B 3220 / B 3221

dia. 41–153 mm

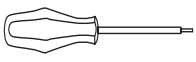
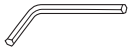




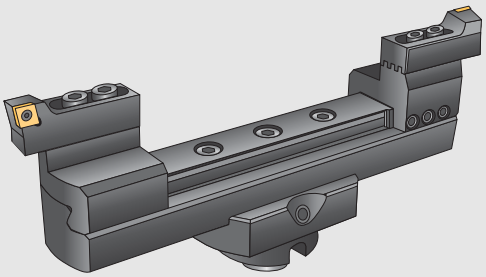
	Cartridge with W-insert		Complete tool					
	Designation	Type	d_1 mm	X_1 mm	X_2 mm	kg	Designation with C-insert	Designation with W-insert
	EB 227–228.WC06	WC . . 06T3 . .	36	65	—	0.5	B 3220.T36.41-55.Z2.CC09	B 3220.T36.41-55.Z2.WC06*
	EB 229–230.WC06		45	80	—	0.9	B 3220.T45.55-70.Z2.CC09	B 3220.T45.55-70.Z2.WC06*
	EB 227–228.WC06	WC . . 06T3 . .	40	80	—	0.8	B 3220.N4.041-055.Z2.CC09	B 3220.N4.041-055.Z2.WC06
	EB 229–230.WC06		50	100	—	1.6	B 3220.N5.055-070.Z2.CC09	B 3220.N5.055-070.Z2.WC06
	EB 231–232.WC08	WC . . 0804 . .	63	100	—	2.5	B 3220.N6.070-090.Z2.CC12	B 3220.N6.070-090.Z2.WC08
	EB 233–234.WC08		80	100	—	4.0	B 3220.N8.090-110.Z2.CC12	B 3220.N8.090-110.Z2.WC08
	EB 235.WC08		80	100	—	5.0	B 3220.N8.110-133.Z2.CC12	B 3220.N8.110-133.Z2.WC08
	EB 236.WC08		80	100	—	5.0	B 3220.N8.130-153.Z2.CC12	B 3220.N8.130-153.Z2.WC08

* Attention: the projection of the cartridges must be sufficient for dechipping where used with extension in blind bores.

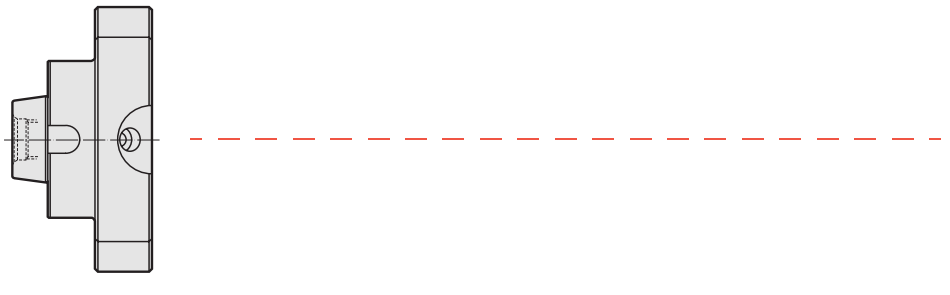
Accessories

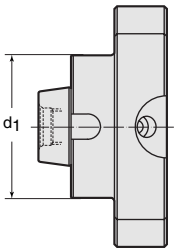
		for $D_{C\ min.-max.}$ 41–70 mm	70–153 mm
	Screwdriver for clamping screw	FS 229 (Torx 15)	FS 228 (Torx 20)
	Wrench DIN 911	SW 2 / SW 5	SW 2.5 / SW 6 / SW 8

→ 258 | → 684 | → 388 | → 376







Tool	Basic body Designation	d_1 mm	D_C mm	Bridge	Cartridge holder	
modular adaptor 	B 3223G.N8.150–640	NCT 80	150–220	EB 124	EB 122	
			220–290	EB 125		
			290–360	EB 126		
			360–430	EB 127		
			430–500	EB 128		
			500–570	EB 129		
			570–640	EB 130		

For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

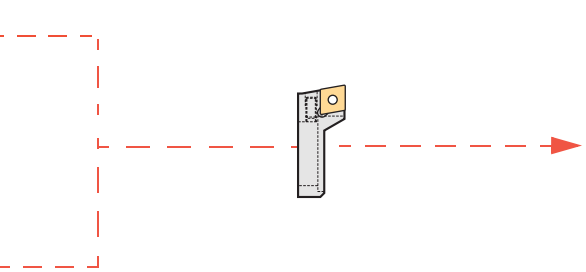
Assembly parts		Designation	Tightening torque
	Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
	Clamping screw for cartridge holder	FS 1113 (SW 6)	25 Nm
	Fitting screw	FS 1097 (SW 8)	50 Nm
	Spring washer	FS 1102	
	Adjusting screw	FS 1109 (SW 2.5)	
	Clamping screw for insert	FS 1030 (Torx 20)	5 Nm

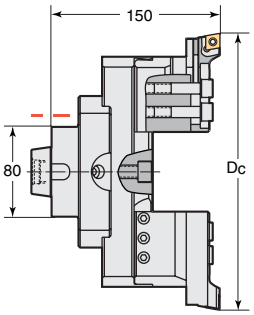
WALTER Boring*MAXI*

Two flute boring tool bridge design
κ = 90° / Z = 2

B 3220

dia. 150–640 mm



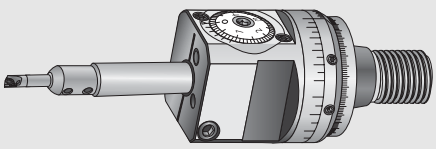


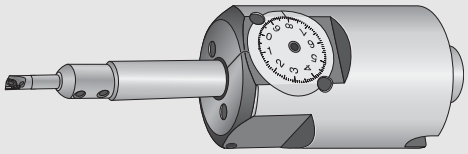
Cartridge with C-insert		Complete tool		
Designation	Type	kg	Designation with C-insert	
EB 217.CC12	CCMT 12 . .	7.9	B 3220.N8.150-220.Z2.CC12	
		9.2	B 3220.N8.220-290.Z2.CC12	
		10.5	B 3220.N8.290-360.Z2.CC12	
		11.7	B 3220.N8.360-430.Z2.CC12	
		13.0	B 3220.N8.430-500.Z2.CC12	
		14.3	B 3220.N8.500-570.Z2.CC12	
		15.5	B 3220.N8.570-640.Z2.CC12	

Accessories

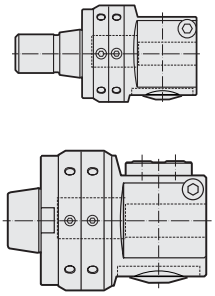
	Screwdriver for clamping screw	FS 228 (Torx 20)
	Wrench DIN 911	SW 2.5 / SW 6 / SW 8 / SW 10

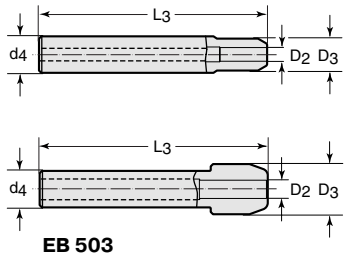
→ 258 | → 684 | → 391 | → 376



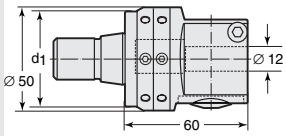
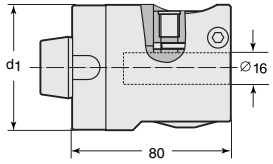
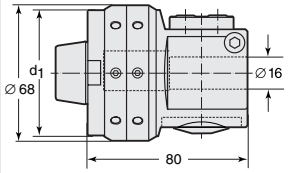








EB 503

Tool	Basic body Designation	d_1 mm	D_C mm	Reduction adaptor Designation	D_2 mm	D_3 mm	d_4 mm	l_3 mm
NCT ScrewFit   	B 4030G.T45.02-20.Z1 **Balanceable**	T 45	2.0–3.5	EB 501	4	12	12	85
			3.0–6.0					
		T 45	5.8–7.5	EB 502	5	12	12	85
			7.3–9.5	EB 503	6	22	12	85
modular adaptor  	B 3230G.N6.002-045.Z1 **Standard**	NCT 63	2.0–3.5	EB 101	4	12	16	100
			3.0–6.0					
 	B 4030G. N6.02-45.Z1 **Balanceable**	NCT 63	5.8–7.5	EB 102	5	13	16	100
			7.3–9.5	EB 103	6	14	16	100

For assembly aids, see page 782. Bodies and assembly parts are included in the scope of delivery.

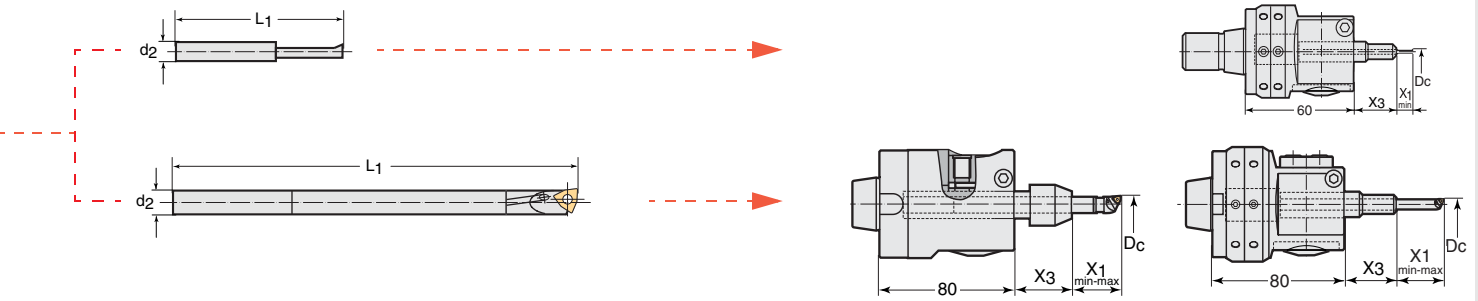
Assembly parts		for d_1 = T 45		for d_1 = NCT 63	
		Designation	Tightening torque	Designation	Tightening torque
	Locking screw	FS 1084 (SW 4)	4.0 Nm	FS 1085 (SW 5)	10 Nm
	Clamping screw for reduction adaptor	FS 2039 (SW 4)	7.0 Nm	FS 1112 (SW 5)	14 Nm
	Clamping screw for insert holder	FS 1110 (SW 2)	1.9 Nm	FS 1110 (SW 2)	1.9 Nm
	Clamping screw for insert with D_C = 5.8–9.5 mm	FS 1151 (Torx 6)	0.4 Nm	FS 1151 (Torx 6)	0.4 Nm
	Locking screw for balancing rings	FS 2037 (SW 2)		FS 2038 (SW 2)	

WALTER Precision*MINI*

Precision boring tool
κ = 93° / Z = 1

B 3230 / B 4030

dia. 2.0–9.5 mm

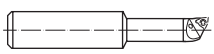


Insert holder				Complete tool					
Designation	d_2 mm	L_1 mm	Type	$X_{1\,min}$ mm	$X_{1\,max}$ mm	X_3 mm	kg	**Standard** designation	**Balanceable** designation
EB 301 WK10*	4	30	—	9	—	30–53	0.8		B 4030.T45.02-03.Z1.WK10
EB 302 WK10*	4	35	—	14	—	30–53	0.8		B 4030.T45.03-06.Z1.WK10
EB 303.WC02.CS	5	85	WC . . 0201 . .	20	60	30–53	0.8		B 4030.T45.06-07.Z1.WC02
EB 304.WC02.CS	6	95	WC . . 0201 . .	20	65	30–53	0.8		B 4030.T45.07-09.Z1.WC02
EB 301 WK10*	4	30	—	9	—	28–60	1.8	B 3230.N6.02-03.Z1.WK10	B 4030.N6.02-03.Z1.WK10
EB 302 WK10*	4	35	—	14	—	28–60	1.8	B 3230.N6.03-06.Z1.WK10	B 4030.N6.03-06.Z1.WK10
EB 303.WC02.CS	5	85	WC . . 0201 . .	20	60	28–60	1.8	B 3230.N6.06-07.Z1.WC02	B 4030.N6.06-07.Z1.WC02
EB 304.WC02.CS	6	95	WC . . 0201 . .	20	65	28–60	1.8	B 3230.N6.07-09.Z1.WC02	B 4030.N6.07-09.Z1.WC02

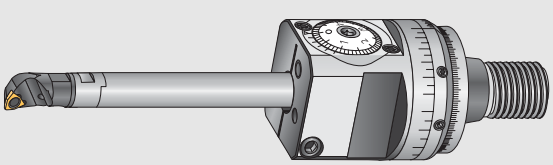
* Solid carbide boring bar

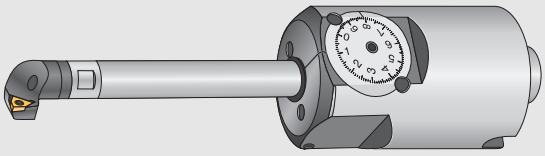
EB . . . CS = solid carbide shank → Advantages: Increased rigidity; deflection reduction; vibration neutralisation

Accessories

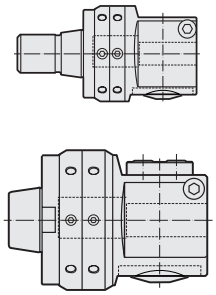
	Screwdriver for clamping screw	FS 1063 (Torx 6)
	Wrench DIN 911	SW 2 / SW 4 / SW 5
	One-piece boring bar	D_C 5.8 – 9.5 see page 336

→ 266 | → 684 | → 388 | → 378

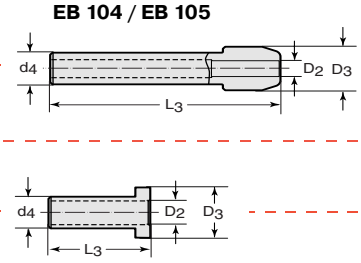


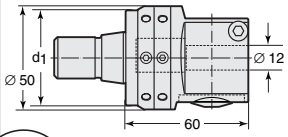
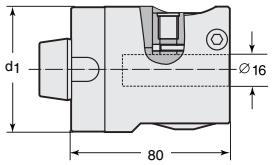
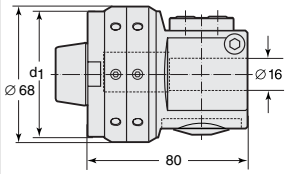






EB 104 / EB 105



Tool	Basic body Designation	d_1 mm	D_C mm	Reduction adaptor Designation	D_2 mm	D_3 mm	d_4 mm	l_3 mm	Extension Designation	d_2 mm	l_2 mm
NCT ScrewFit		T 45	8.8–12.5	EB 504	8	14	12	30	EB 106	8	47
	B 4030G.T45.02-20.Z1 **Balanceable**								EB 107.CS	8	87
			11.8–14.5	EB 505	10	14	12	30	EB 108	10	52
									EB 109.CS	10	77
			13.8–16.5	—					EB 508	12	77
									EB 509.CS	12	97
			15.8–20.0	—					EB 508	12	77
									EB 509.CS	12	97
modular adaptor		NCT 63	8.8–12.5	EB 104	8	22	16	100	EB 106	8	47
	B 3230G.N6.002-045.Z1 **Standard**								EB 107.CS	8	87
			11.8–14.5	EB 105	10	24	16	100	EB 108	10	52
									EB 109.CS	10	77
	B 4030G.N6.02-45.Z1 **Balanceable**		13.8–16.5	EB 506	12	17	16	36	EB 508	12	77
									EB 509.CS	12	97
			15.8–20.0	EB 507	14	17	16	36	EB 510	14	87
									EB 511.CS	14	117

EB . . . CS = solid carbide shank → Advantages:
– Increased rigidity
– Deflection reduction
– Vibration neutralisation

Assembly parts		for d_1 = T 45 Designation	Tightening torque	for d_1 = NCT 63 Designation	Tightening torque
	Locking screw	FS 1084 (SW 4)	4.0 Nm	FS 1085 (SW 5)	10 Nm
	Clamping screw for reduction adaptor	FS 2039 (SW 4)	7.0 Nm	FS 1112 (SW 5)	14 Nm
	Clamping screw for extension	FS 1110 (SW 2)	1.9 Nm	FS 1111 (SW 3)	5.5 Nm
	Clamping screw for insert	FS 1004 (Torx 7)	0.6 Nm	FS 1004 (Torx 7)	0.6 Nm
	Locking screw for balancing rings	FS 2037 (SW 2)		FS 2038 (SW 2)	

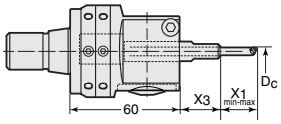
WALTER Precision^{MINI}

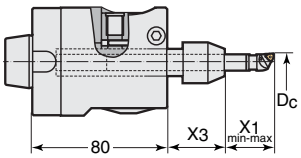
Precision boring tool
κ = 93° / Z = 1

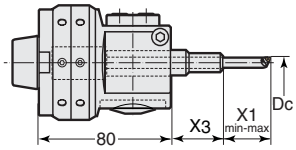
B 3230 / B 4030

dia. 8.8–20 mm





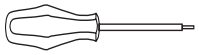
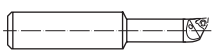




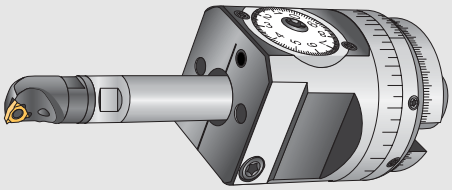
Insert holder			Complete tool					
Designation	L_1 mm	Type	$X_{1\,min}$ mm	$X_{1\,max}$ mm	X_3 mm	kg	**Standard** designation	**Balanceable** designation
EB 305.WC03	18	WC . . 0302 . .	18	33	2	0.8		B 4030.T45.09-12.Z1.WC03.S
			35	73	2	0.8		B 4030.T45.09-12.Z1.WC03.L
EB 306.WC03	23	WC . . 0302 . .	23	43	2	0.8		B 4030.T45.12-14.Z1.WC03.S
			45	68	2	0.8		B 4030.T45.12-14.Z1.WC03.L
EB 307.WC03	23	WC . . 0302 . .	45	68	—	0.8		B 4030.T45.14-16.Z1.WC03.S
			65	88	—	0.9		B 4030.T45.14-16.Z1.WC03.L
EB 512.WC03	23	WC . . 0302 . .	45	68	—	0.8		B 4030.T45.16-20.Z1.WC03.S
			65	88	—	0.9		B 4030.T45.16-20.Z1.WC03.L
EB 305.WC03	18	WC . . 0302 . .	20	35	34–60	1.9	B 3230.N6.09-12.Z1.WC03.S	B 4030.N6.09-12.Z1.WC03.S
			20	73	34–60	1.9	B 3230.N6.09-12.Z1.WC03.L	B 4030.N6.09-12.Z1.WC03.L
EB 306.WC03	23	WC . . 0302 . .	25	45	34–60	1.9	B 3230.N6.12-14.Z1.WC03.S	B 4030.N6.12-14.Z1.WC03.S
			25	70	34–60	1.9	B 3230.N6.12-14.Z1.WC03.L	B 4030.N6.12-14.Z1.WC03.L
EB 307.WC03	23	WC . . 0302 . .	34	60	2	1.9	B 3230.N6.14-16.Z1.WC03.S	B 4030.N6.14-16.Z1.WC03.S
			54	80	2	1.9	B 3230.N6.14-16.Z1.WC03.L	B 4030.N6.14-16.Z1.WC03.L
EB 512.WC03	23	WC . . 0302 . .	44	70	2	1.9	B 3230.N6.16-20.Z1.WC03.S	B 4030.N6.16-20.Z1.WC03.S
			74	100	2	1.9	B 3230.N6.16-20.Z1.WC03.L	B 4030.N6.16-20.Z1.WC03.L

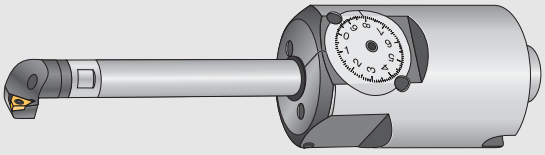
For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

Accessories

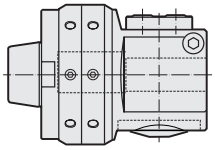
	Screwdriver for clamping screw	FS 309 (Torx 7)
	Wrench DIN 911	SW 2 / SW 4 / SW 5
	One-piece boring bar	D_C 8.8 – 15.8 see page 336

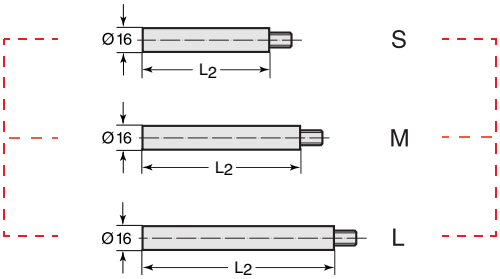
→ 266 | → 684 | → 388 | → 378

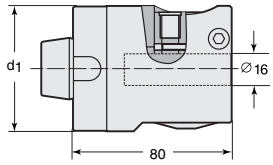
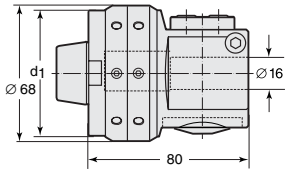










Tool	Basic body Designation	d_1 mm	D_C mm	Extension Designation	l_2 mm	
modular adaptor		NCT 63	17.8–22.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
	B 3230G.N6.002-045.Z1 **Standard**		21.8–25.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
			24.8–28.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
	B 4030G.N6.02-45.Z1 **Balanceable**		27.8–32.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
			31.8–36.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
			35.8–40.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)
			39.8–45.5	EB 110	88	(S)
				EB 111.CS	108	(M)
				EB 112.CS	168	(L)

EB . . . CS = solid carbide shank → Advantages: Increased rigidity; deflection reduction; vibration neutralisation

Assembly parts	Designation	Tightening torque
 Locking screw	FS 1085 (SW 5)	10 Nm
 Clamping screw for extension	FS 1112 (SW 5)	14 Nm
 Clamping screw for insert	FS 923 (Torx 8)	0.8 Nm
 Locking screw for balancing rings	FS 2038 (SW 2)	

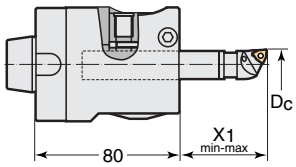
WALTER Precision^{MINI}

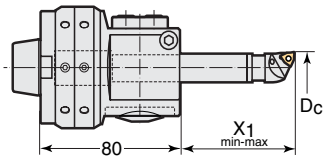
Precision boring tool
κ = 93° / Z = 1

B 3230 / B 4030

dia. 17.8–45.5 mm



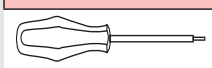




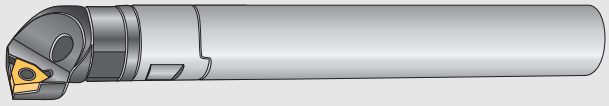
Insert holder			Complete tool				
Designation	L_1 mm	Type	$X_{1\,min}$ mm	$X_{1\,max}$ mm	kg	**Standard** designation	**Balanceable** designation
EB 308	27	WC . . 0402 . .	55	80	1.8	B 3230.N6.18-22.Z1.WC04.S	B 4030.N6.18-22.Z1.WC04.S
			75	100	2.0	B 3230.N6.18-22.Z1.WC04.M	B 4030.N6.18-22.Z1.WC04.M
			135	160	2.2	B 3230.N6.18-22.Z1.WC04.L	B 4030.N6.18-22.Z1.WC04.L
EB 309	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.22-25.Z1.WC04.S	B 4030.N6.22-25.Z1.WC04.S
			75	100	2.5	B 3230.N6.22-25.Z1.WC04.M	B 4030.N6.22-25.Z1.WC04.M
			135	160	2.7	B 3230.N6.22-25.Z1.WC04.L	B 4030.N6.22-25.Z1.WC04.L
EB 310	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.25-28.Z1.WC04.S	B 4030.N6.25-28.Z1.WC04.S
			75	100	2.5	B 3230.N6.25-28.Z1.WC04.M	B 4030.N6.25-28.Z1.WC04.M
			135	160	2.7	B 3230.N6.25-28.Z1.WC04.L	B 4030.N6.25-28.Z1.WC04.L
EB 311	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.28-32.Z1.WC 04.S	B 4030.N6.28-32.Z1.WC04.S
			75	100	2.5	B 3230.N6.28-32.Z1.WC04.M	B 4030.N6.28-32.Z1.WC04.M
			135	160	2.7	B 3230.N6.28-32.Z1.WC04.L	B 4030.N6.28-32.Z1.WC04.L
EB 312	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.32-36.Z1.WC04.S	B 4030.N6.32-36.Z1.WC04.S
			75	100	2.5	B 3230.N6.32-36.Z1.WC04.M	B 4030.N6.32-36.Z1.WC04.M
			135	160	2.7	B 3230.N6.32-36.Z1.WC04.L	B 4030.N6.32-36.Z1.WC04.L
EB 313	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.36-40.Z1.WC04.S	B 4030.N6.36-40.Z1.WC04.S
			75	100	2.5	B 3230.N6.36-40.Z1.WC04.M	B 4030.N6.36-40.Z1.WC04.M
			135	160	2.7	B 3230.N6.36-40.Z1.WC04.L	B 4030.N6.36-40.Z1.WC04.L
EB 314	27	WC . . 0402 . .	55	80	2.3	B 3230.N6.40-45.Z1.WC04.S	B 4030.N6.40-45.Z1.WC04.S
			75	100	2.5	B 3230.N6.40-45.Z1.WC04.M	B 4030.N6.40-45.Z1.WC04.M
			135	160	2.7	B 3230.N6.40-45.Z1.WC04.L	B 4030.N6.40-45.Z1.WC04.L

For assembly aids, see page 782. Bodies and assembly parts are included in the scope of delivery.

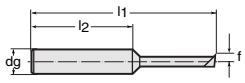
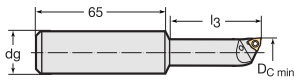
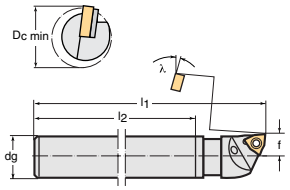
Accessories

	Screwdriver	FS 230 (Torx 8)
	Wrench DIN 911	SW 5

→ 266 | → 684 | → 388 | → 378





Tool	Designation	$D_{C\ min.}$ mm	dg mm	f mm	l_1 mm	l_2 mm	l_3 mm	λ	Type
one-piece 	EB 301 WK10	2.0	4	1.0	30	21			VHM WK 10
	EB 302 WK10	3.0	4	1.5	35	21			
one-piece 	EB 513	5.8	16				17		WC . . 0201 . .
	EB 514.CS	5.8	16				30		
	EB 515	7.3	16				21		
	EB 516.CS	7.3	16				36		
	EB 517	8.8	16				28		WC . . 0302 . .
	EB 518.CS	8.8	16				47		
	EB 519	11.8	16				35		
	EB 520.CS	11.8	16				60		
	EB 521	13.8	16				42		
	EB 522.CS	13.8	16				72		
with insert holder 	EB 303.WC02.CS	5.8	5	2.9	85	70			WC . . 0201 . .
	EB 304.WC02.CS	7.3	6	3.65	95	75			
	EB 353.WC03	8.8	8	4.5	65	47		−10°	WC . . 0302 . .
	EB 354.WC03.CS	8.8	8	4.5	105	87		−10°	
	EB 355.WC03	11.8	10	6.0	75	52		−7°	
	EB 356.WC03.CS	11.8	10	6.0	120	97		−7°	
	EB 357.WC03	13.8	10	6.9	75	52		−5°	
	EB 358.WC03.CS	13.8	10	6.9	120	97		−5°	
	EB 359.WC04	17.8	16	8.9	115	88		−3°	WC . . 0402 . .
	EB 360.WC04.CS	17.8	16	8.9	135	108		−3°	
	EB 361.WC04.CS	17.8	16	8.9	195	168		−3°	
	EB 362.WC04	21.8	16	10.9	115	88		−2.5°	
	EB 363.WC04.CS	21.8	16	10.9	135	108		−2.5°	
	EB 364.WC04.CS	21.8	16	10.9	195	168		−2.5°	
	EB 365.WC04	24.8	16	12.4	115	88		0°	
	EB 366.WC04.CS	24.8	16	12.4	135	108		0°	
	EB 367.WC04.CS	24.8	16	12.4	195	168		0°	
	EB 368.WC04	27.8	16	13.9	115	88		0°	
	EB 369.WC04.CS	27.8	16	13.9	135	108		0°	
	EB 370.WC04.CS	27.8	16	13.9	195	168		0°	
	EB 371.WC04	31.8	16	15.9	115	88		0°	
	EB 372.WC04.CS	31.8	16	15.9	135	108		0°	
	EB 373.WC04.CS	31.8	16	15.9	195	168		0°	
	EB 374.WC04	35.8	16	17.9	115	88		0°	
	EB 375.WC04.CS	35.8	16	17.9	135	108		0°	
	EB 376.WC04.CS	35.8	16	17.9	195	168		0°	
	EB 377.WC04	39.8	16	19.9	115	88		0°	
	EB 378.WC04.CS	39.8	16	19.9	135	108		0°	
	EB 379.WC04.CS	39.8	16	19.9	195	168		0°	

Bodies and assembly parts are included in the scope of delivery.

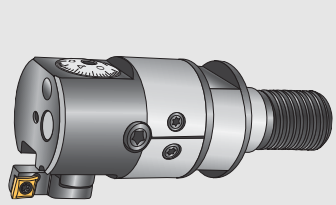
Boring Bar EB . . .

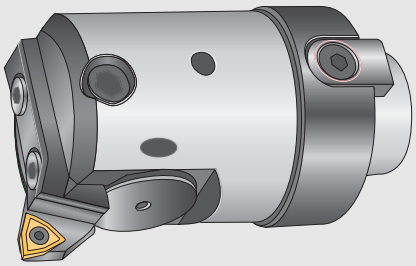
$\kappa = 93°$

	Assembly parts				Accessories	
	 Toolholder	 Insert holder	 Clamping screw for insert	Tightening torque	 Screwdriver	
			FS 1151 (Torx 6)	0.4 Nm	FS 1063 (Torx 6)	
			FS 1004 (Torx 7)	0.6 Nm	FS 309 (Torx 7)	
	—	EB 303.WC02.CS	FS 1151 (Torx 6)	0.4 Nm	FS 1063 (Torx 6)	
	—	EB 304.WC02.CS				
	EB 106	EB 305.WC03	FS 1004 (Torx 7)	0.6 Nm	FS 309 (Torx 7)	
	EB 107.CS	EB 305.WC03				
	EB 108	EB 306.WC03				
	EB 109.CS	EB 306.WC03				
	EB 108	EB 307.WC03				
	EB 109.CS	EB 307.WC03				
	EB 110	EB 308.WC04	FS 923 (Torx 8)	0.8 Nm	FS 230 (Torx 8)	
	EB 111.CS	EB 308.WC04				
	EB 112.CS	EB 308.WC04				
	EB 110	EB 309.WC04				
	EB 111.CS	EB 309.WC04				
	EB 112.CS	EB 309.WC04				
	EB 110	EB 310.WC04				
	EB 111.CS	EB 310.WC04				
	EB 112.CS	EB 310.WC04				
	EB 110	EB 311.WC04				
	EB 111.CS	EB 311.WC04				
	EB 112.CS	EB 311.WC04				
	EB 110	EB 312.WC04				
	EB 111.CS	EB 312.WC04				
	EB 112.CS	EB 312.WC04				
	EB 110	EB 313.WC04				
	EB 111.CS	EB 313.WC04				
	EB 112.CS	EB 313.WC04				
	EB 110	EB 314.WC04				
	EB 111.CS	EB 314.WC04				
	EB 112.CS	EB 314.WC04				

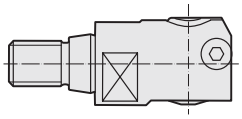
EB . . . CS = **solid carbide shank**
Advantages: Increased rigidity, deflection reduction; vibration neutralisation

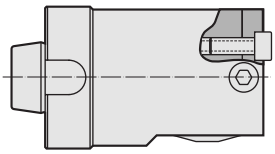
→ 266 | → 684 | → 378





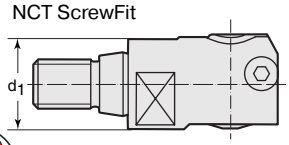
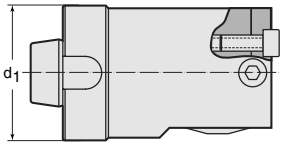




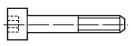




κ = 95°

Tool	Basic body Designation	d_1 mm	D_C mm	Cartridge with C-insert Designation	Type
NCT ScrewFit 	B 3230G.T18.20–026.Z1	T 18	20–26	EB 321.CP05	CP . . 0502 . .
	B 3230G.T22.26–033.Z1	T 22	26–33	EB 323.CP05	CP . . 0502 . .
modular adaptor 	B 3230G.N2.020–026.Z1	NCT 25	20–26	EB 321.CP05	CP . . 0502 . .
	B 3230G.N2.026–033.Z1	NCT 25	26–33	EB 323.CP05	CP . . 0502 . .
	B 3230G.N3.033–041.Z1	NCT 32	33–41	EB 325.CP05	CP . . 0502 . .
	B 3230G.N4.041–055.Z1	NCT 40	41–55	EB 327.CC06	CC . . 0602 . .
	B 3230G.N5.055–070.Z1	NCT 50	55–70	EB 329.CC06	CC . . 0602 . .
	B 3230G.N6.070–090.Z1	NCT 63	70–90		
	B 3230G.N8.090–110.Z1	NCT 80	90–110		
	B 3230G.N8.110–153.Z1	NCT 80	110–153		

For assembly aids, see page 782. Bodies and assembly parts are included in the scope of delivery.

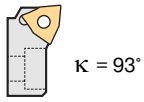
Assembly parts		for $D_{C\ min.–max.}$ [mm]						
		20–26	26–33	33–41	41-55	55–70	70-90	90–153
	Locking screw	FS 1383 (Torx 10)	FS 1082 (SW 2.5)	FS 1083 (SW 3)	FS 1084 (SW 4)	FS 1085 (SW 5)	FS 1086 (SW 6)	FS 1087 (SW 6)
	Tightening torque	1.2 Nm	2.0 Nm	2.5 Nm	4.0 Nm	10.0 Nm	25.0 Nm	25.0 Nm
	Clamping screw for cartridge	FS 1088 (Torx 9)	FS 378 (Torx 15)	FS 1090 (Torx 20)	FS 1091 (SW 3)	FS 1092 (SW 5)		
	Tightening torque	1.2 Nm	2.0 Nm	2.5 Nm	2.5 Nm	12.0 Nm		
	Driving lug (only with NCT 25)	FK 311		FK 312	FK 313			
	Screw for driving lug (only with NCT 25)	FS 502		FS 503	FS 504			
	Clamping screw for insert	FS 1004 (Torx 7)			FS 923 (Torx 8)	for CC . . 06: FS 923 (Torx 8) for WC . . 05: FS 379 (Torx 8)		
	Tightening torque	0.6 Nm			0.8 Nm	FS 923: 0.8 Nm / FS 379: 1.0 Nm		

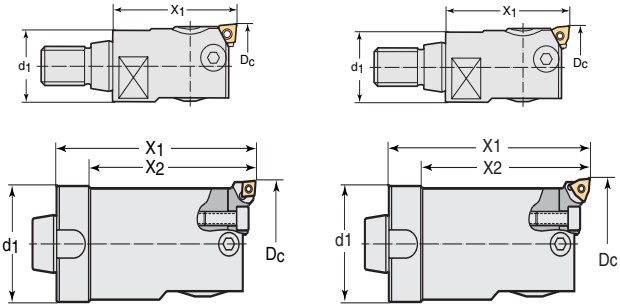
WALTER Precision*MEDIUM*

Precision boring tool
κ = 95° / κ = 93°, Z = 1

B 3230

dia. 20–153 mm

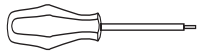
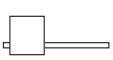




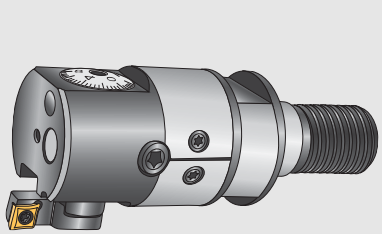
Cartridge with W-insert			Complete tool					
	Designation	Type	d_1 mm	X_1 mm	X_2 mm	kg	**Standard** Designation with C-insert	**Standard** Designation with W-insert
	EB 341.WC03	WC . . 0302 . .	18	35	—	0.1	B 3230.T18.20-26.Z1.CP05	B 3230.T18.20-26.Z1.WC03
	EB 343.WC03	WC . . 0302 . .	22	40	—	0.15	B 3230.T22.26-33.Z1.CP05	B 3230.T22.26-33.Z1.WC03
	EB 341.WC03	WC . . 0302 . .	25*	80	65	0.2	B 3230.N2.020-026.Z1.CP05	B 3230.N2.020-026.Z1.WC03
	EB 343.WC03	WC . . 0302 . .	25	80	—	0.3	B 3230.N2.026-033.Z1.CP05	B 3230.N2.026-033.Z1.WC03
	EB 345.WC03	WC . . 0302 . .	32	80		0.5	B 3230.N3.033-041.Z1.CP05	B 3230.N3.033-041.Z1.WC03
	EB 347.WC04	WC . . 0402 . .	40	80		0.8	B 3230.N4.041-055.Z1.CC06	B 3230.N4.041-055.Z1.WC04
	EB 349.WC05	WC . . 0503 . .	50	100		1.6	B 3230.N5.055-070.Z1.CC06	B 3230.N5.055-070.Z1.WC05
			63	100		2.5	B 3230.N6.070-090.Z1.CC06	B 3230.N6.070-090.Z1.WC05
			80	100		4.0	B 3230.N8.090-110.Z1.CC06	B 3230.N8.090-110.Z1.WC05
			80	100		5.0	B 3230.N8.110-153.Z1.CC06	B 3230.N8.110-153.Z1.WC05

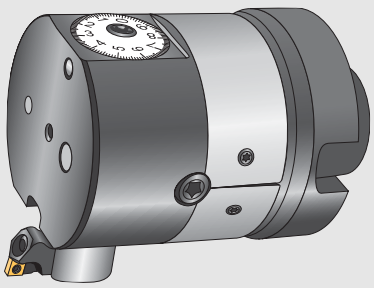
* maximum drilling depth = 65 mm

Accessories

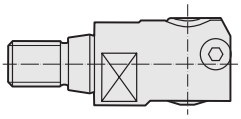
		for $D_{C\ min.-max.}$ [mm]					
		20–26 mm	26–33 mm	33–41	41–55	55–70	70–153
	Screwdriver for clamping screw	FS 309 (Torx 7)			FS 230 (Torx 8)		
	Torx key for clamping screw	FS 1050 (Torx 10)					
	Wrench DIN 911 for clamping screw		SW 2.5	SW 3	SW 4	SW 5	SW 6
	Wrench for cartridge clamping	FS 1128 (Torx 9)	FS 1047 (Torx 15)	FS 1048 (Torx 20)			
	Wrench DIN 911 for cartridge clamping				SW 3	SW 5	SW 5

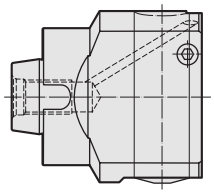
→ 264 | → 684 | → 388 | → 378

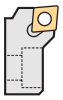




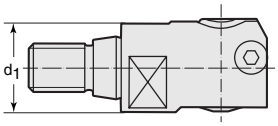
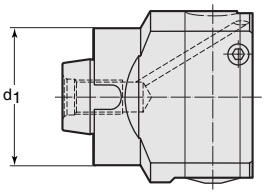








$\kappa = 95^{\circ}$

Tool	Basic body Designation	d_1 mm	D_C mm	Cartridge with C-insert Designation	Type	
NCT ScrewFit   	B 4030G.T28.33–41.Z1	T 28	33–41	EB 323.CP 05	CP . . 0502 . .	
	B 4030G.T36.41–55.Z1	T 36	41–55	EB 325.CP05	CP . . 0502 . .	
	B 4030G.T45.55–70.Z1	T 45	55–70	EB 327.CC06	CC . . 0602 . .	
modular adaptor  	B 4030G.N6.070–090.Z1	NCT 63	70–90	EB 327.CC06	CC . . 0602 . .	
	B 4030G.N8.090–110.Z1*	NCT 80	90–110			
	B 4030G.N8.110–153.Z1*	NCT 80	110–153			

* aluminium design

For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

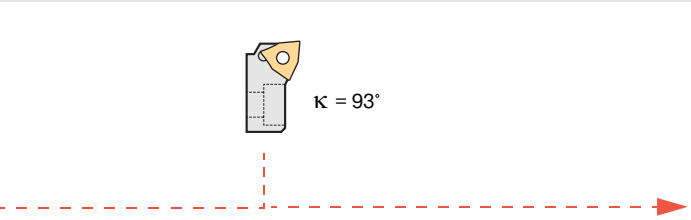
Assembly parts		for $D_{C\ min.-max.}$ [mm]					
		33–41	41–55	55–70	70–90	90–110	110–153
	Locking screw	FS 2031 (SW 2,5)	FS 2032 (SW 3)	FS 2033 (SW 4)	FS 2034 (SW 5)	FS 2035 (SW 6)	FS 2036 (SW 6)
	Tightening torque	2.5 Nm	3.0 Nm	6.0 Nm	12 Nm	15 Nm	15 Nm
	Clamping screw for cartridge	FS 1089 (Torx 15)	FS 1090 (Torx 20)	FS 1091 (SW 3)			
	Tightening torque	2.0 Nm	2.5 Nm	2.5 Nm			
	Clamping screw for insert	FS 1004 (Torx 7)		FS 923 (Torx 8)			
	Tightening torque	0.6 Nm		0.8 Nm			

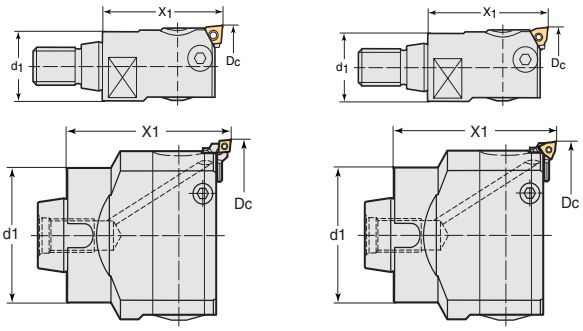
WALTER Precision*MEDIUM*

self-balancing precision boring tool
κ = 95° / κ = 93°, Z = 1

B 4030

dia. 33–153 mm



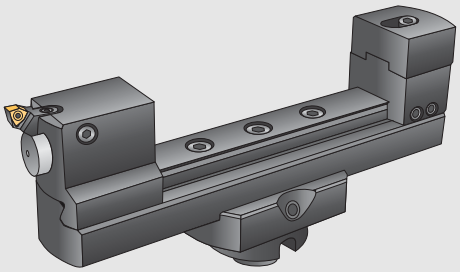


Cartridge with W-insert			Complete tool Self-balancing				
Designation	Type		d_1 mm	X_1 mm	kg	Designation with C-insert	Designation with W-insert
EB 343.WC03	WC . . 0302 . .		28	55	0.3	B 4030.T28.33-41.Z1.CP05	B 4030.T28.33-41.Z1.WC03
EB 345.WC03	WC . . 0302 . .		36	65	0.6	B 4030.T36.41-55.Z1.CP05	B 4030.T36.41-55.Z1.WC03
EB 347.WC04	WC . . 0402 . .		45	80	1.0	B 4030.T45.55-70.Z1.CC06	B 4030.T45.55-70.Z1.WC04
EB 347.WC04	WC . . 0402 . .		63	100	2.5	B 4030.N6.070-090.Z1.CC06	B 4030.N6.070-090.Z1.WC04
			80	100	1.6	B 4030.N8.090-110.Z1.CC06	B 4030.N8.090-110.Z1.WC04
			80	100	2.0	B 4030.N8.110-153.Z1.CC06	B 4030.N8.110-153.Z1.WC04

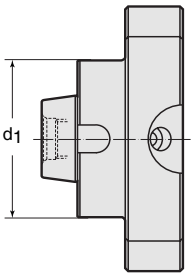
Accessories

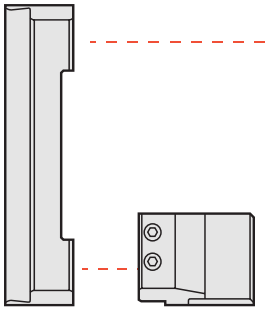
		for $D_{C\ min.-max.}$ 33–41 mm	41–55 mm	55–70 mm	70–90 mm	90–153 mm
	Screwdriver for clamping screw	FS 309 (Torx 7)		FS 230 (Torx 8)		
	Wrench DIN 911 for clamping screw	SW 2.5	SW 3	SW 4	SW 5	SW 6
	Wrench for cartridge clamping	FS 1047 (Torx 15)	FS 1048 (Torx 20)			
	Wrench DIN 911 for cartridge clamping			SW 3		

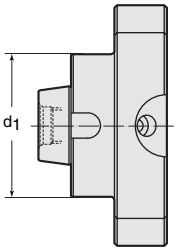
→ 264 | → 684 | → 388 | → 378









Tool	Basic body Designation	d_1 mm	D_C mm	Bridge	Balance compensation	Cartridge holder	
modular adaptor 	B 3223G.N8.150–640	NCT 80	150–220	EB 124	—	EB 123	
			220–290	EB 125	EB 121		
			290–360	EB 126			
			360–430	EB 127			
			430–500	EB 128			
			500–570	EB 129			
			570–640	EB 130			

For assembly aids, see page 782.
Bodies and assembly parts are included in the scope of delivery.

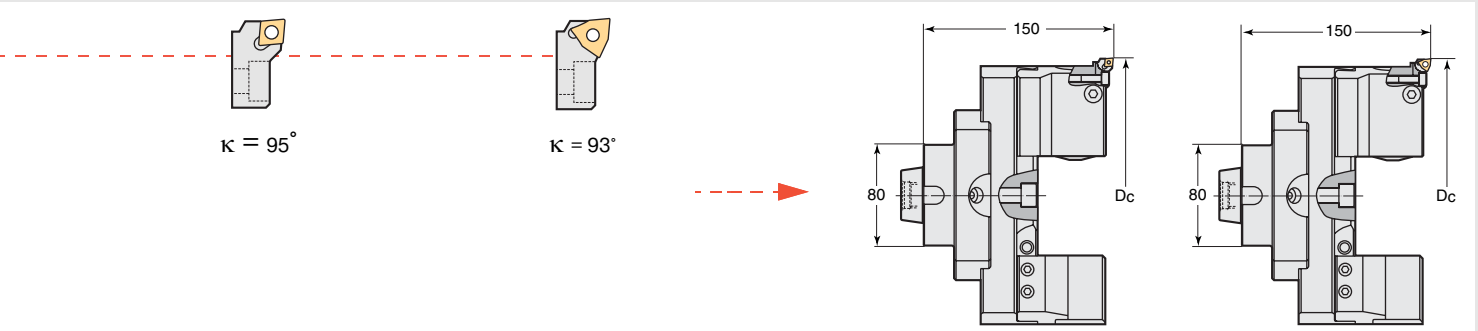
Assembly parts		Designation	Tightening torque
	Clamping screw for bridge	FS 1114 (SW 10)	120 Nm
	Locking screw for balance compensation	FS 1086 (SW 6)	25 Nm
	Clamping screw for cartridge holder and balance compensation	FS 1113 (SW 6)	25 Nm
	Clamping screw for cartridge	FS 1092 (SW 5)	12 Nm
	Clamping screw for insert	FS 379 (Torx 8)	2.5 Nm

WALTER Precision*MAXI*

Precision boring tool bridge design
κ = 95° / κ = 93°, Z = 1

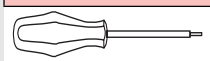
B 3230

dia. 150–640 mm



Cartridge with C-insert		Cartridge with W-insert		Complete tool		
Designation	Type	Designation	Type	kg	**Standard** Designation with C-insert	**Standard** Designation with W-insert
EB 329.CC06	CCGT 06 . .	EB 349.WC05	WCGT 05 . .	7.9	B 3230.N8.150-220.Z1.CC06	B 3230.N8.150-220.Z1.WC05
				9.2	B 3230.N8.220-290.Z1.CC06	B 3230.N8.220-290.Z1.WC05
				10.5	B 3230.N8.290-360.Z1.CC06	B 3230.N8.290-360.Z1.WC05
				11.7	B 3230.N8.360-430.Z1.CC06	B 3230.N8.360-430.Z1.WC05
				13.0	B 3230.N8.430-500.Z1.CC06	B 3230.N8.430-500.Z1.WC05
				14.3	B 3230.N8.500-570.Z1.CC06	B 3230.N8.500-570.Z1.WC05
				15.5	B 3230.N8.570-640.Z1.CC06	B 3230.N8.570-640.Z1.WC05

Accessories

	Screwdriver for clamping screw	FS 230 (Torx 8)
	Wrench DIN 911	SW 5 / SW 6 / SW 10

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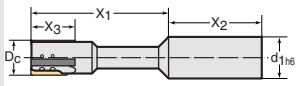
Tool	Designation	D_C^{H6} mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	X_3 mm	kg	No. of inserts	Type
	R 4060.Z10.06H6.00.C–E1	6	10	62	43	15	0.10	1	P 65 . . – 00R – . .
	R 4060.Z10.07H6.0.C–E1	7	10	63	42	25	0.10	1	P 65 . . – 0R – . .
	R 4060.Z10.08H6.0.C–E1	8	10	73	42	25	0.10	1	
	R 4060.Z10.09H6.1.C–E1	9	10	73	42	25	0.10	1	P 65 . . – 1R – . .
	R 4060.Z10.10H6.1.C–E1	10	10	74	41	25	0.10	1	
	R 4060.Z16.11H6.1.C–E1	11	16	81	52	25	0.15	1	
	R 4060.Z16.12H6.1.C–E1	12	16	81	52	25	0.15	1	
	R 4060.Z16.13H6.2.C–E1	13	16	81	52	25	0.15	1	P 65 . . – 2R – . .
	R 4060.Z16.14H6.2.C–E1	14	16	81	52	25	0.15	1	
	R 4060.Z16.15H6.2.C–E1	15	16	82	51	25	0.15	1	
	R 4060.Z16.16H6.2.C–E1	16	16	82	51	25	0.25	1	
	R 4060.Z20.17H6.2.C–E1	17	20	100	55	25	0.25	1	
	R 4060.Z20.18H6.2.C–E1	18	20	100	55	25	0.25	1	
	R 4060.Z20.19H6.2.C–E1	19	20	100	55	25	0.25	1	
	R 4060.Z20.20H6.4.C–E1	20	20	100	55	30	0.25	1	P 65 . . – 4R – . .
	R 4060.Z25.21H6.4.C–E1	21	25	128	63	30	0.30	1	
	R 4060.Z25.22H6.4.C–E1	22	25	129	62	30	0.30	1	
	R 4060.Z25.23H6.4.C–E1	23	25	129	62	30	0.30	1	
	R 4060.Z25.24H6.4.C–E1	24	25	129	62	30	0.40	1	
	R 4060.Z25.25H6.4.C–E1	25	25	129	62	30	0.40	1	

Bodies, assembly parts and wrenches are included in the scope of delivery.

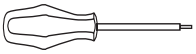
R 4060 . .C: guide rail made from cermet, suitable for ISO workpiece material groups P, M, K.

WALTER reamers

R 4060

Diameter range 6–25 mm
Tolerance H6 for through bores

Assembly parts		D_C = 6 mm	D_C = 7–8 mm	D_C = 9 mm	D_C = 10–12 mm	D_C = 13–19 mm	D_C = 20–25 mm
	Clamp	PK 247	PK 249	PK 250	PK 251	PK 252	PK 253
	Locking screw	FS 2022 (Torx 6)	FS 2023 (SW 0.9)	FS 2024 (SW 1.3)	FS 2024 (SW 1.3)	FS 2025 (SW 1.5)	FS 2026 (SW 2.0)
	Ball	FS 2018	FS 2018	FS 2019	FS 2019	FS 2020	FS 2021
	Adjusting screw	FS 2027 (SW 0.9)	FS 2027 (SW 0.9)	FS 2028 (SW 1.3)	FS 2028 (SW 1.3)	FS 2029 (SW 1.5)	FS 2030 (SW 2.0)

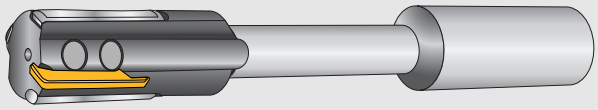
Accessories		D_C = 6 mm	D_C = 7–8 mm	D_C = 9 mm	D_C = 10–12 mm	D_C = 13–19 mm	D_C = 20–25 mm
	Wrench DIN 911	SW 0.9	SW 0.9	SW 1.3	SW 1.3	SW 1.5	SW 2.0
	Screwdriver for clamping screw	FS 1063 (Torx 6)					

Indexable inserts

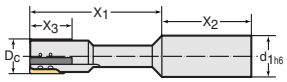
Designation			HC WXP 15		HW WK 10	HT WCE 10	BH WCB 50	DP WCD 10		
P 6500 – 00R – A88 – E1			☺							
P 6500 – 0R – A88 – E1			☺							
P 6500 – 1R – A88 – E1			☺							
P 6500 – 2R – A88 – E1			☺							
P 6500 – 4R – A88 – E1			☺							
P 6500 – 00R – B88 – E1			☺		☺	☺				
P 6500 – 0R – B88 – E1			☺		☺	☺				
P 6500 – 1R – B88 – E1			☺		☺	☺				
P 6500 – 2R – B88 – E1			☺		☺	☺				
P 6500 – 4R – B88 – E1			☺		☺	☺				



→ 267 → 684 → 394 → 380





Tool	Designation	D_C H6 mm	$d_{1\ h6}$ mm	X_1 mm	X_2 mm	X_3 mm	kg	No. of inserts	Type
	R 4061.Z10.08H6.0.C–E1	8	10	73	42	25	0.10	1	P 65 . . – 0R – . .
	R 4061.Z10.09H6.1.C–E1	9	10	73	41	25	0.10	1	P 65 . . – 1R – . .
	R 4061.Z10.10H6.1.C–E1	10	10	74	41	25	0.10	1	
	R 4061.Z16.11H6.1.C–E1	11	16	81	52	25	0.15	1	
	R 4061.Z16.12H6.1.C–E1	12	16	81	52	25	0.15	1	
	R 4061.Z16.13H6.2.C–E1	13	16	81	52	25	0.15	1	P 65 . . – 2R – . .
	R 4061.Z16.14H6.2.C–E1	14	16	81	52	25	0.15	1	
	R 4061.Z16.15H6.2.C–E1	15	16	82	51	25	0.15	1	
	R 4061.Z16.16H6.2.C–E1	16	16	82	51	25	0.25	1	
	R 4061.Z20.17H6.2.C–E1	17	20	100	55	25	0.25	1	
	R 4061.Z20.18H6.2.C–E1	18	20	100	55	25	0.25	1	
	R 4061.Z20.19H6.2.C–E1	19	20	100	55	25	0.25	1	
	R 4061.Z20.20H6.4.C–E1	20	20	100	55	30	0.25	1	P 65 . . – 4R – . .
	R 4061.Z25.21H6.4.C–E1	21	25	128	63	30	0.30	1	
	R 4061.Z25.22H6.4.C–E1	22	25	129	62	30	0.30	1	
	R 4061.Z25.23H6.4.C–E1	23	25	129	62	30	0.30	1	
	R 4061.Z25.24H6.4.C–E1	24	25	129	62	30	0.40	1	
	R 4061.Z25.25H6.4.C–E1	25	25	129	62	30	0.40	1	

Bodies, assembly parts and wrenches are included in the scope of delivery.

R 4060 . .C: guide rail made of cermet, suitable for ISO workpiece material groups P, M, K.

WALTER reamers

R 4061

Diameter range 8–25 mm
Tolerance H6 for blind bores

Assembly parts		D_C = 8 mm	D_C = 9 mm	D_C = 10–12 mm	D_C = 13–19 mm	D_C = 20–25 mm
	Clamp	PK 249	PK 250	PK 251	PK 252	PK 253
	Locking screw	FS 2023 (SW 0.9)	FS 2024 (SW 1.3)	FS 2024 (SW 1.3)	FS 2025 (SW 1.5)	FS 2026 (SW 2.0)
	Ball	FS 2018	FS 2019	FS 2019	FS 2020	FS 2021
	Adjusting screw	FS 2027 (SW 0.9)	FS 2028 (SW 1.3)	FS 2028 (SW 1.3)	FS 2029 (SW 1.5)	FS 2030 (SW 2.0)

Accessories		D_C = 8 mm	D_C = 9 mm	D_C = 10–12 mm	D_C = 13–19 mm	D_C = 20–25 mm
	Wrench DIN 911	SW 0.9	SW 1.3	SW 1.3	SW 1.5	SW 2.0

Indexable inserts

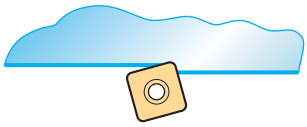
				HC		HW	HT	BH	DP		
	Designation			WXP 15		WK 10	WCE 10	WCB 50	WCD 10		
	P 6500 – 0R – A88 – E1			☺							
	P 6500 – 1R – A88 – E1			☺							
	P 6500 – 2R – A88 – E1			☺							
	P 6500 – 4R – A88 – E1			☺							
	P 6500 – 0R – B88 – E1			☺		☺	☺				
	P 6500 – 1R – B88 – E1			☺		☺	☺				
	P 6500 – 2R – B88 – E1			☺		☺	☺				
	P 6500 – 4R – B88 – E1			☺		☺	☺				

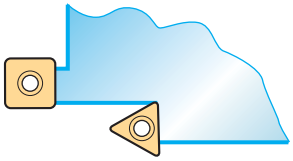


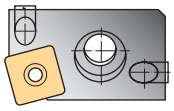
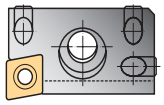
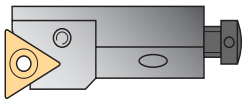
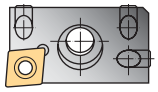
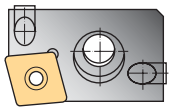
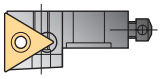
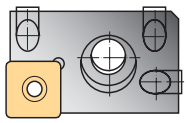
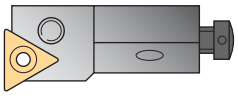
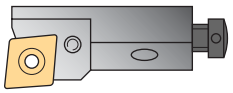
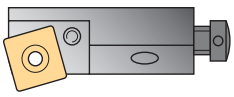
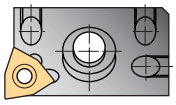
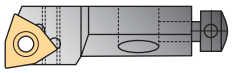
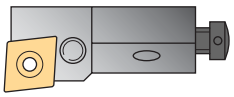
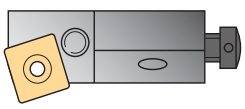
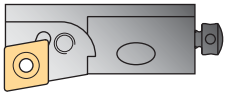
→ 267 | → 684 | → 394 | → 380

Product range overview

Boring and Counterboring

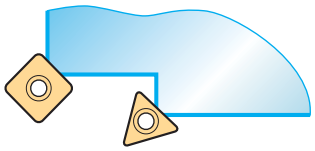




κ = 75°	κ = 90°	κ = 90°	κ = 90°	κ = 95°
				
$D_{C\ min}$ 40 mm **FR/FL 644** 48 mm **FR/FL 648** Page 358	$D_{C\ min}$ 14.5 mm **FR/FL 670** 20 mm **FR/FL 671** Page 360	$D_{C\ min}$ 32 mm **FR/FL 657** 40 mm **FR/FL 658** 48 mm **FR/FL 659** Page 357	$D_{C\ min}$ 50 mm **PTFN R/L** Page 352	$D_{C\ min}$ 32 mm **FR/FL 651** 40 mm **FR/FL 653** Page 357
κ = 75°	κ = 90°	κ = 90°	κ = 90°	κ = 95°
				
$D_{C\ min}$ 32 mm **FR/FL 652** 40 mm **FR/FL 654** 48 mm **FR/FL 656** Page 357	$D_{C\ min}$ 20 mm **FR/FL 672** Page 362	$D_{C\ min}$ 40 mm **FR/FL 643** 48 mm **FR/FL 647** Page 358	$D_{C\ min}$ 40 mm **STFC R/L** 50 mm **PTFC R/L** Page 355	$D_{C\ min}$ 50 mm **PCLN R/L** Page 350
κ = 75°	κ = 90°	κ = 90°	κ = 90°	κ = 95°
				
$D_{C\ min}$ 50 mm **PSKN R/L** Page 351	$D_{C\ min}$ 14.5 mm **FR/FL 679** 20 mm **FR/FL 680** Page 360	$D_{C\ min}$ 32 mm **FR/FL 676** 40 mm **FR/FL 677** 48 mm **FR/FL 678** Page 359	$D_{C\ min}$ 40 mm **SWFC R/L** Page 356	$D_{C\ min}$ 40 mm **SCLC R/L** Page 353
κ = 75°		κ = 90°		
				
$D_{C\ min}$ 40 mm **SSKC R/L** Page 354		$D_{C\ min}$ 40 mm **SCFC R/L** Page 353		

Standard assembly parts for WALTER special boring tools

Chamfering and Boring



κ = 15°

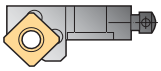


$D_{C\ min}$

20 mm **FR/FL 701**
25 mm **FR/FL 702**

Page 364

κ = 45°

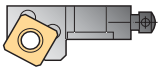


$D_{C\ min}$

20 mm **FR/FL 699**
25 mm **FR/FL 704**

Page 364

κ = 60°

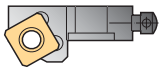


$D_{C\ min}$

20 mm **FR/FL 698**
25 mm **FR/FL 705**

Page 365

κ = 30°

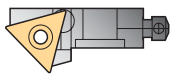


$D_{C\ min}$

20 mm **FR/FL 700**
25 mm **FR/FL 703**

Page 364

κ = 45°

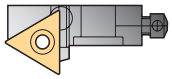


$D_{C\ min}$

20 mm **FR/FL 673**

Page 361

κ = 60°

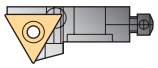


$D_{C\ min}$

20 mm **FR/FL 674**

Page 361

κ = 30°

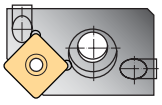


$D_{C\ min}$

20 mm **FR/FL 675**

Page 361

κ = 45°

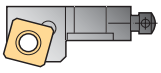


$D_{C\ min}$

40 mm **FR/FL 646**
48 mm **FR/FL 650**

Page 358

κ = 75°

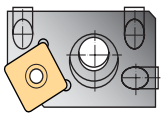


$D_{C\ min}$

20 mm **FR/FL 697**
25 mm **FR/FL 706**

Page 365

κ = 30°

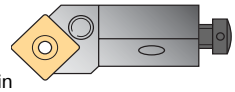


$D_{C\ min}$

40 mm **FR/FL 645**
48 mm **FR/FL 649**

Page 358

κ = 45°

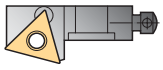


$D_{C\ min}$

40 mm **SSSC R/L**
60 mm **PSSC R/L**

Page 354

κ = 75°

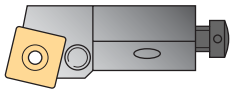


$D_{C\ min}$

20 mm **FR/FL 707**

Page 362

κ = 75°

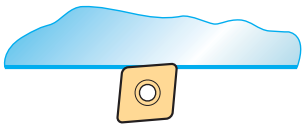


$D_{C\ min}$

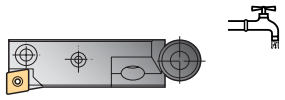
40 mm **SSRC R/L**

Page 354

Precision Boring



κ = 90°



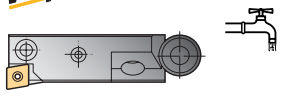
$D_{C\ min}$

28 mm **FR/FL 710**

Page 363

κ = 95°

Wiper

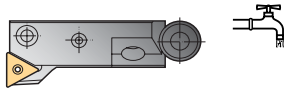


$D_{C\ min}$

28 mm **FR/FL 717**

Page 363

κ = 90°



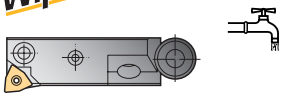
$D_{C\ min}$

36 mm **FR/FL 709**

Page 363

κ = 95°

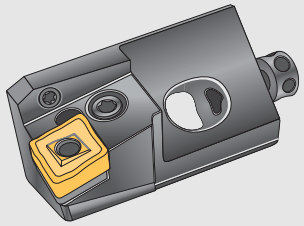
Wiper



$D_{C\ min}$

28 mm **FR/FL 711**

Page 363



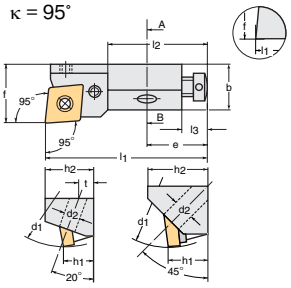
ISO cartridges

PCLN

Measured with master inserts CNM . 120408 / CNM . 160612

Tool

Designation	h_1 mm	Size	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
PCLN R/L	12CA	12	16	50	7	20	20	20	55	28	8	6	CNM . 1204 . .
PCLN R/L	16CA	12	20	60	9	25	25	25	63	35	8		
PCLN R/L	20CA	16	20	70	9	30	25	30	70	40	10		CNM . 1606 . .



Cut A–B where h_1 = 12 mm

Cut A–B where h_1 = 16. 20 mm

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

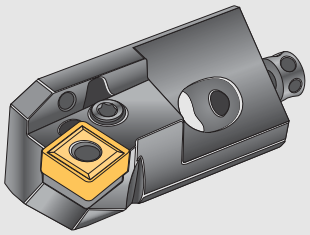
Assembly parts

	for 12CA Size 12	for 16 CA Size 12	Size 16
Shim		AP 134–CN1216	AP 135–CN1924
Lever	KN 109	KN 102	KN 104
Clamping screw	FS 332	FS 352	FS 354
Pipe pin		RS 102	RS 103
Assembly plug		MD 101	MD 102
Adjusting screw Axial	FS 335	FS 338	FS 339
Adjusting screw Radial	FS 334	FS 337	FS 337

Accessories

	for 12CA Size 12	for 16CA Size 12	Size 16
Screw ISO 7380	FS 977 M 6 x 25	FS 975 M 8 x 30	FS 975 M 8 x 30

→ 28 → 206

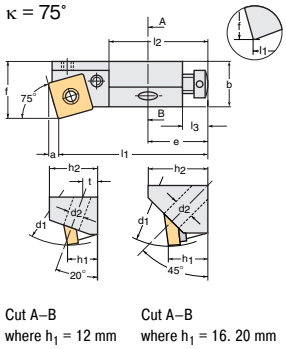


ISO cartridges

PSKN

Measured with master inserts SNM . 120408 / SNM . 150612

Tool



Designation	h_1 mm	Size	a mm	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
PSKN R/L	12CA	12	3.1	15	50	7	20	20	20	55	32	8	6	SNM . 1204 . .
PSKN R/L	16CA	12	3.1	20	60	9	25	25	25	63	37	8		
PSKN R/L	20CA	15	3.8	20	70	9	30	25	30	70	40	10		SNM . 1506 . .

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

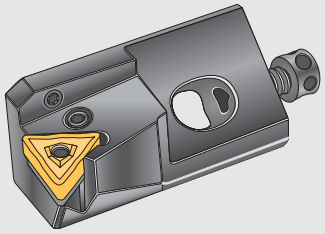
Assembly parts

	for 12CA Size 12	for 16 CA Size 12	Size 15
Shim		AP 141–SN1216	AP 142–SN1524
Lever	KN 109	KN 102	KN 104
Clamping screw	FS 332	FS 352	FS 354
Pipe pin		RS 102	RS 103
Assembly plug		MD 101	MD 102
Adjusting screw Axial	FS 335	FS 338	FS 339
Adjusting screw Radial	FS 333	FS 337	FS 337

Accessories

	for 12CA Size 12	for 16CA Size 12	Size 15
Screw ISO 7380	FS 977 M 6 x 25	FS 975 M 8 x 30	FS 975 M 8 x 30

→ 33 → 206



ISO cartridges

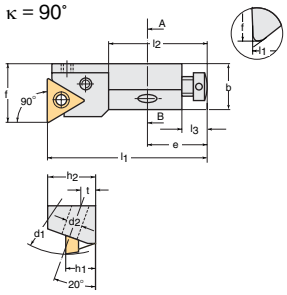
PTFN

Measured with master insert TNM . 160408

Tool

Designation	h_1 mm	Size	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
PTFN R/L	12CA	16	15	50	7	20	20	20	55	32.5	8	6	TNM . 1604 . .

κ = 90°



Cut A–B
where h_1 = 12 mm

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

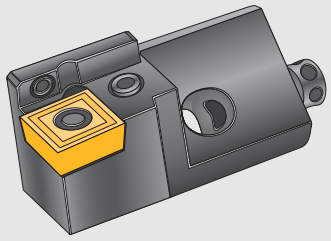
Assembly parts

	Lever	KN 108
	Clamping screw	FS 331
	Adjusting screw Axial	FS 335
	Adjusting screw Radial	FS 333

Accessories

	Screw ISO 7380	FS 977 M 6 x 25

→ 36 → 206



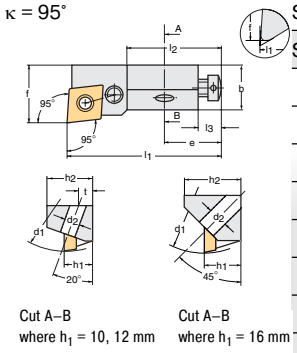
ISO cartridges

SCLC
SCFC

Measured with master inserts CC . . 09T308 / CC . . 120408

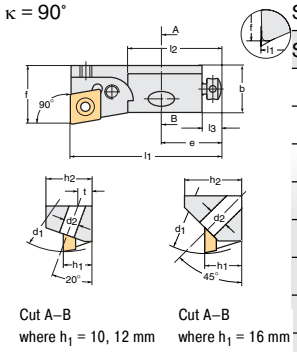
Tool

Designation	h_1 mm	Size	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
κ = 95°													
SCLC R/L	10CA	09	11	40	7	20	14	15	50	33	8	5	CC . . 09T3 . .
SCLC R/L	12CA	12	16	50	7	20	20	20	55	32	8	6	CC . . 1204 . .
κ = 90°													
SCFC R/L	10CA	09	11	40	7	20	14	15	50	33	8	5	CC . . 09T3 . .
SCFC R/L	12CA	12	16	50	7	20	20	20	55	32	8	6	CC . . 1204 . .



Cut A–B where h_1 = 10, 12 mm

Cut A–B where h_1 = 16 mm



Cut A–B where h_1 = 10, 12 mm

Cut A–B where h_1 = 16 mm

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

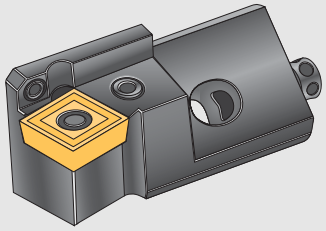
Assembly parts

	Size 09	Size 12	
Screw	FS 359	FS 1029	
Adjusting screw Axial	FS 335	FS 335	
Adjusting screw Radial	FS 369	FS 334	

Accessories

	Size 09	Size 12	
Screw ISO 7380	FS 976 M 6 x 20	FS 977 M 6 x 25	

→ 268 → 376

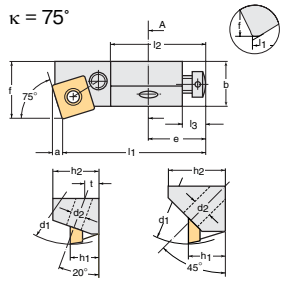
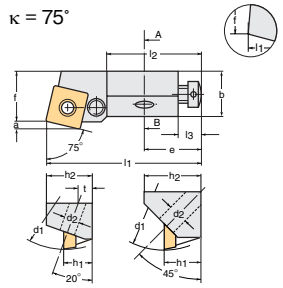
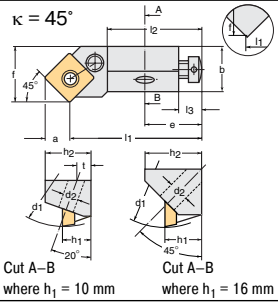


ISO cartridges

Measured with master inserts SC . . 09T308 / SC . . 120408

SSKC
SSRC
SSSC / PSSC

Tool

	Designation	h_1 mm	Size	a mm	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
κ = 75°  Cut A–B where h_1 = 10 mm; Cut A–B where h_1 = 16 mm	SSKC R/L	10CA	09	2.2	11	40	7	20	14	15	50	33	8	5	SC . . 09T3 . .
															SC . . 1204 . .
κ = 75°  Cut A–B where h_1 = 10 mm; Cut A–B where h_1 = 16 mm	SSRC R/L	10CA	09		11	40	7	20	14	15	50	33	8	5	SC . . 09T3 . .
															SC . . 1204 . .
κ = 45°  Cut A–B where h_1 = 10 mm; Cut A–B where h_1 = 16 mm	SSSC R/L	10CA	09	6.1	11	40	7	20	14	15	44	33	8	5	SC . . 09T3 . .
	PSSC R/L	16CA	12	8.3	20	60	9	25	25	25	53	39	8		SC . . 1204 . .

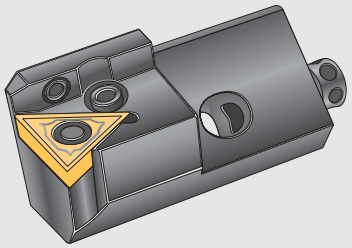
For radial/axial adjustment range, see page 388. Bodies and assembly parts are included in the scope of delivery.

Assembly parts

		Size 09	Size 12	
	Screw	FS 359		
	Wrench	FS 255		
	Lever		KN 116	
	Clamping screw		FS 376	
	Adjusting screw Axial	FS 335	FS 335	
	Adjusting screw Radial	FS 369	FS 337	

Accessories

		Size 09	Size 12	
	Screw ISO 7380	FS 976 M 6 x 20	FS 975 M 8 x 30	



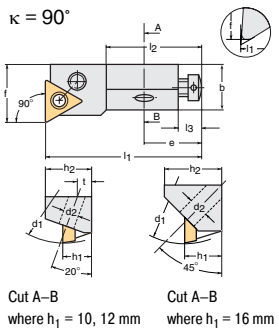
ISO cartridges

STFC / PTFC

Measured with master inserts TC . . 110204 / TC . . 16T308

Tool

Designation	h_1 mm	Size	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
STFC R/L	10CA	11	11	40	7	20	14	15	50	33	8	5	TC . . 1102 . .
PTFC R/L	12CA	16	16	50	7	20	20	20	55	34	8	6	TC . . 16T3 . .



Cut A–B where h_1 = 10, 12 mm

Cut A–B where h_1 = 16 mm

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

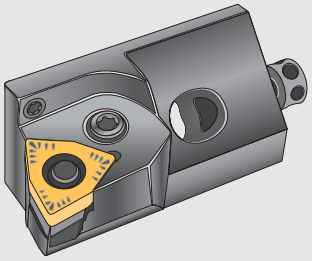
Assembly parts

	Size 11	Size 16	
Screw	FS 375		
Wrench	FS 325		
Lever		KN 115	
Clamping screw		FS 346	
Adjusting screw Axial	FS 335	FS 335	
Adjusting screw Radial	FS 369	FS 333	

Accessories

	Size 11	Size 16	
Screw ISO 7380	FS 976 M 6 x 20	FS 977 M 6 x 25	

→ 46 → 376



ISO cartridges

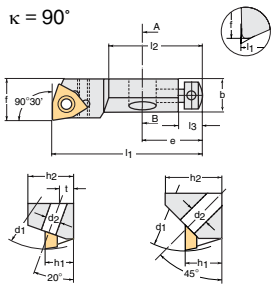
SWFC

Measured with master insert WC . . 06T308

Tool

Designation	h_1 mm	Size	b mm	d_1 mm	d_2 mm	e mm	f mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	t mm	Type
SWFC R/L	10CA	06	11	40	7	20	14	15	50	33	8	5	WC . . 06T3 . .

κ = 90°



Cut A–B where h_1 = 10 mm

Cut A–B where h_1 = 16 mm

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

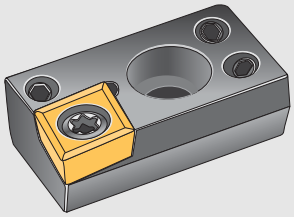
Assembly parts

Screw	FS 359
Adjusting screw Axial	FS 335
Adjusting screw Radial	FS 369

Accessories

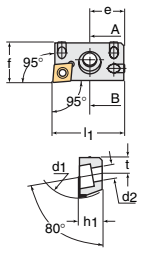
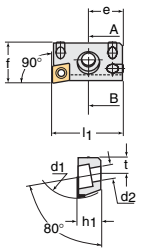
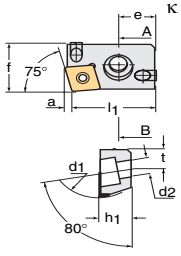
Screw ISO 7380	FS 976

→ 258 → 376



WALTER Mini toolholders

Measured with master inserts CC . . 060204 / CC . . 09T308 / CC . . 120408

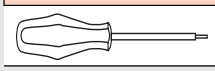
Tool	Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 95°	FR 651 / FL 651		32	5	12.3	14.3	8	25.3	5.9	CC . . 0602 . .
	FR 653 / FL 653		40	6	12.3	18.3	10	30.3	7.5	CC . . 09T3 . .
Cut A–B										
 κ = 90°	FR 657 / FL 657		32	5	12.3	14.3	8	25.3	5.9	CC . . 0602 . .
	FR 658 / FL 658		40	6	12.3	18.3	10	30.3	7.5	CC . . 09T3 . .
	FR 659 / FL 659		48	7	12.3	22.3	12	36.3	9.2	CC . . 1204 . .
Cut A–B										
 κ = 75°	FR 652 / FL 652	1.2	32	5	12.3	14.3	8	24.1	5.9	CC . . 0602 . .
	FR 654 / FL 654	2.0	40	6	12.3	18.3	10	28.3	7.5	CC . . 09T3 . .
	FR 656 / FL 656	2.8	48	7	12.3	22.3	12	33.5	9.2	CC . . 1204 . .
Cut A–B										

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

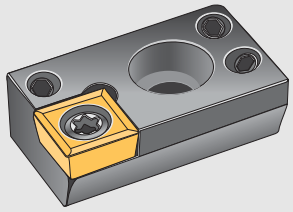
Assembly parts

		CC . . 0602	CC . . 09T3	CC . . 1204
	Clamping screw	FS 322 (Torx 7)	FS 319 (Torx 15)	FS 243 (Torx 20)
	Clamping screw for cartridge DIN 912	FS 970 (M 4 x 8)	FS 965 (M 5 x 10)	FS 964 (M 6 x 12)
	Adjusting screw Axial/Radial	FS 383	FS 384	FS 384

Accessories

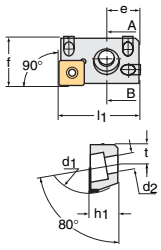
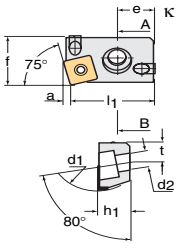
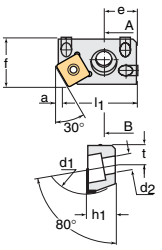
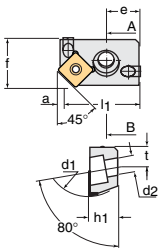
		CC . . 0602	CC . . 09T3	CC . . 1204
	Screwdriver	FS 309 (Torx 7)	FS 229 (Torx 15)	FS 228 (Torx 20)

→ 258 → 376



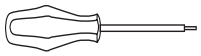
WALTER Mini toolholders

Measured with master inserts SC . . 09T308 / SC . . 120408

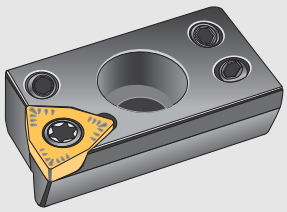
Tool	Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 90°	FR 643 / FL 643		40	6	12.3	18.3	10	30.3	7.5	SC . . 09T3 . .
	FR 647 / FL 647		48	7	12.3	22.3	12	36.3	9.2	SC . . 1204 . .
 κ = 75°	FR 644 / FL 644	2.0	40	6	12.3	18.3	10	28.3	7.5	SC . . 09T3 . .
	FR 648 / FL 648	2.8	48	7	12.3	22.3	12	33.5	9.2	SC . . 1204 . .
 κ = 30°	FR 645 / FL 645	4.0	40	6	12.3	18.3	10	26.3	7.5	SC . . 09T3 . .
	FR 649 / FL 649	5.7	48	7	12.3	22.3	12	30.6	9.2	SC . . 1204 . .
 κ = 45°	FR 646 / FL 646	6.1	40	6	12.3	18.3	10	24.2	7.5	SC . . 09T3 . .
	FR 650 / FL 650	8.3	48	7	12.3	22.3	12	28.0	9.2	SC . . 1204 . .

For radial/axial adjustment range, see page 388. Bodies and assembly parts are included in the scope of delivery.

Assembly parts		SC . . 09T3	SC . . 1204	
	Clamping screw	FS 319 (Torx 15)	FS 243 (Torx 20)	
	Clamping screw for cartridge DIN 912	FS 965 (M 5 x 10)	FS 964 (M 6 x 12)	
	Adjusting screw Axial/Radial	FS 384	FS 384	

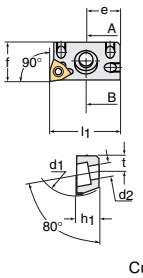
Accessories		SC . . 09T3	SC . . 1204	
	Screwdriver	FS 229 (Torx 15)	FS 228 (Torx 20)	

→ 45 → 376



WALTER Mini toolholders

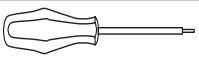
Measured with master inserts WCG . 040202 / WCG . 06T304 / WCG . 080404

Tool	Designation	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 90°	FR 676 / FL 676	32	5	12.3	14.3	8	25.3	5.9	WC . . 0402 . .
	FR 677 / FL 677	40	6	12.3	18.3	10	30.3	7.5	WC . . 06T3 . .
	FR 678 / FL 678	48	7	12.3	22.3	12	36.3	9.2	WC . . 0804 . .

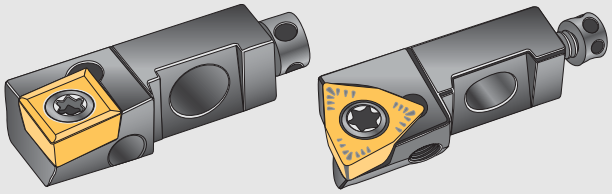
Cut A–B

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		WC . . 0402	WC . . 06T3	WC . . 0804
	Clamping screw	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1029 (Torx 20)
	Clamping screw for cartridgeDIN 912	FS 970 (M 4 x 8)	FS 965 (M 5 x 10)	FS 964 (M 6 x 12)
	Adjusting screw Axial/Radial	FS 383	FS 384	FS 384

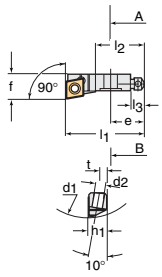
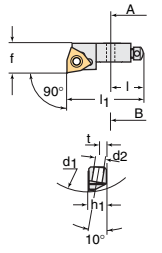
Accessories		WC . . 0402	WC . . 06T3	WC . . 0804
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

→ 258 → 376



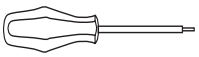
WALTER Mini cartridges

Measured with master inserts CP . . 050202 / CC . . 060202 / WCG . 030202 / WCG . 040202

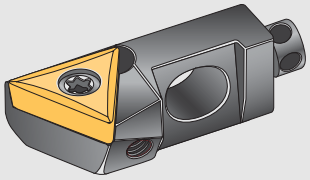
Tool	Designation	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 90° Cut A–B	FR 670 / FL 670	14.5	3.4	10.5	8	6	25	2.3	CP . . 0502 . .
	FR 671 / FL 671	20	3.4	10.5	9.7	6	25	2.3	CC . . 0602 . .
 κ = 90° Cut A–B	FR 679 / FL 679	14.5	3.4	10.5	8	6	25	2.3	WC . . 0302 . .
	FR 680 / FL 680	20	3.4	10.5	9.7	6	25	2.3	WC . . 0402 . .

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts		CP . . 0502 WC . . 0302	CC . . 0602 WC . . 0402
	Clamping screw	FS 1020 (Torx 7)	FS 924 (Torx 8)
	Clamping screw for cartridge	FS 1024	
	Adjusting screw Axial	FS 1023	
	Adjusting screw Radial	FS 493	

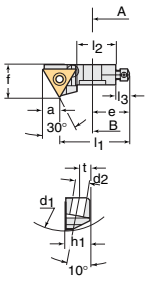
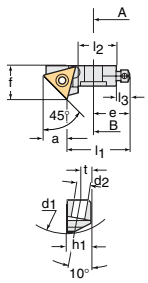
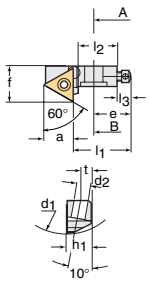
Accessories		CP . . 0502 WC . . 0302	CC . . 0602 WC . . 0402
	Screwdriver	FS 309 (Torx 7)	FS 230 (Torx 8)

→ 258 → 376



WALTER Mini cartridges

Measured with master insert TC . . 110202

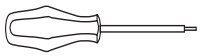
Tool		Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
	κ = 30°	FR 675 / FL 675	5.2	20	4.5	12	10.8	8	22.8	3.2	TC . . 1102 . .
	κ = 45°	FR 673 / FL 673	7.4	20	4.5	12	10.8	8	20.6	3.2	TC . . 1102 . .
	κ = 60°	FR 674 / FL 674	9.1	20	4.5	12	11	8	18.9	3.2	TC . . 1102 . .

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

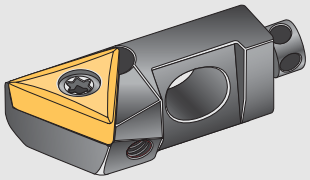
Assembly parts

	Clamping screw	FS 375 (Torx 7)
	Clamping screw for cartridge	FS 1025
	Adjusting screw Axial	FS 1023
	Adjusting screw Radial	FS 494

Accessories

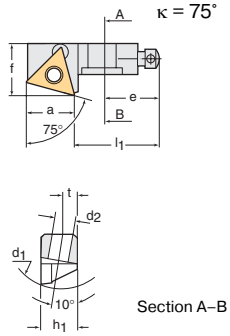
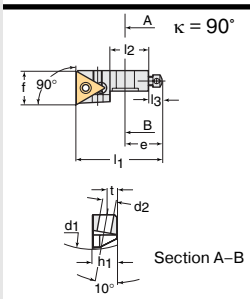
	Screwdriver	FS 309 (Torx 7)

→ 46 → 376



WALTER Mini cartridges

Measured with master insert TC . . 110202

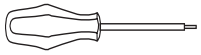
Tool	Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 75°	FR 707 / FL 707	10.1	20	4.5	12	11	8	17.9	3.2	TC . . 1102 . .
Section A–B										
 κ = 90°	FR 672 / FL 672		20	4.5	12	11	8	28	3.2	TC . . 1102 . .
Section A–B										

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

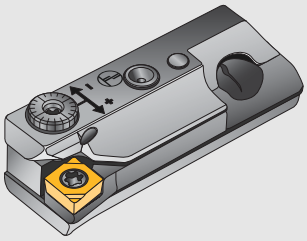
Assembly parts

	Clamping screw	FS 375 (Torx 7)
	Clamping screw for cartridge	FS 1025
	Adjusting screw Axial	FS 1023
	Adjusting screw Radial	FS 494

Accessories

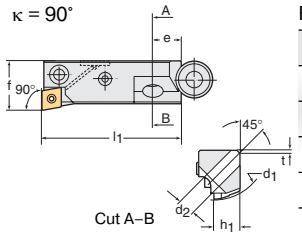
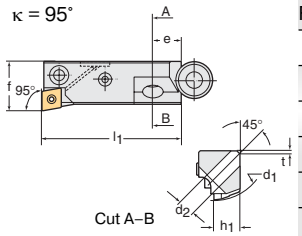
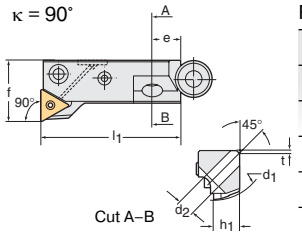
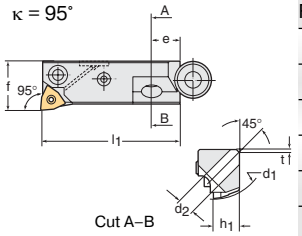
	Screwdriver	FS 309 (Torx 7)

→ 46 → 376



WALTER precision boring cartridges

Measured with master inserts CC . . 060204 / TC . . 110204 / WC . . 040204

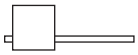
Tool	Designation	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
κ = 90° 	FR 710 / FL 710	28	4.5	9.25	16	8.5	45.8	1	CC . . 0602 . .
κ = 95° 	FR 717 / FL 717	28	4.5	9.25	16	8.5	45.8	1	CC . . 0602 . . Wiper
κ = 90° 	FR 709 / FL 709	36	4.5	9.25	20	8.5	45.8	1	TC . . 1102 . .
κ = 95° 	FR 711 / FL 711	28	4.5	9.25	16	8.5	45.8	1	WC . . 0402 . . Wiper

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Clamping screw	FS 1129 (Torx 8)
	Clamping screw for cartridge	FS 1354
	Compression piece	FK 369
	Adjusting screw Axial	FS 1355
	Adjusting screw Radial	FS 1356 (Torx 8)

Accessories

	Screwdriver	FS 257 (Torx 8)

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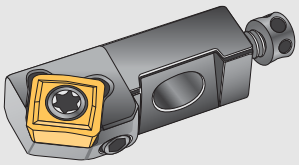
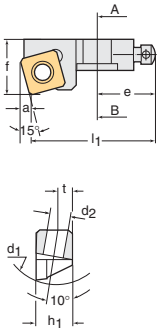
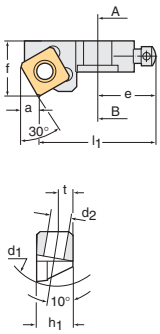
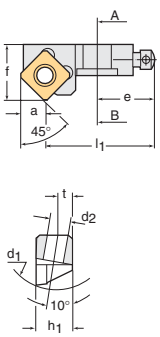


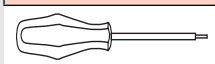
WALTER Mini cartridges

Measured with master inserts P 284 . . – 1 / P 284 . . – 2

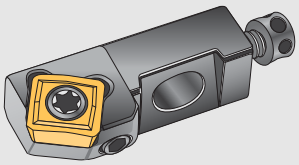
Tool	Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 15°	FR 701 / FL 701	1.4	20	3.4	10.5	9.7	6	23.6	2.3	P 284 . . – 1
	FR 702 / FL 702	1.7	25	4.5	12	11.5	8	26.3	3.2	P 284 . . – 2
Cut A–B										
 κ = 30°	FR 700 / FL 700	2.7	20	3.4	10.5	9.7	6	22.3	2.3	P 284 . . – 1
	FR 703 / FL 703	3.3	25	4.5	12	11.5	8	24.7	3.2	P 284 . . – 2
Cut A–B										
 κ = 45°	FR 699 / FL 699		20	3.4	10.5	9.7	6	22.2	2.3	P 284 . . – 1
	FR 704 / FL 704		25	4.5	12	11.5	8	23.4	3.2	P 284 . . – 2
Cut A–B										

For radial/axial adjustment range, see page 388. Bodies and assembly parts are included in the scope of delivery.

Assembly parts		P 284 . . – 1	P 284 . . – 2
	Clamping screw	FS 924 (Torx 8)	FS 1005 (Torx 8)
	Clamping screw for cartridge	FS 1024	FS 1025
	Adjusting screw Axial	FS 1023	FS 1023
	Adjusting screw Radial	FS 493	FS 494

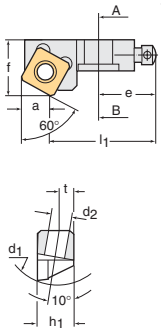
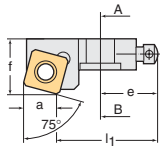
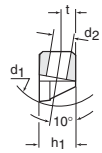
Accessories		
	Screwdriver	FS 230 (Torx 8)

→ 249 → 376



WALTER Mini cartridges

Measured with master inserts P 284 . . – 1 / P 284 . . – 2

Tool	Designation	a mm	d_1 mm	d_2 mm	e mm	f mm	h_1 mm	l_1 mm	t mm	Type
 κ = 60°	FR 698 / FL 698	4.8	20	3.4	10.5	9.7	6	20.2	2.3	P 284 . . – 1
	FR 705 / FL 705	5.9	25	4.5	12	11.5	8	22.1	3.2	P 284 . . – 2
Cut A–B										
κ = 75°	FR 697 / FL 697	5.5	20	3.4	10.5	9.7	6	19.5	2.3	P 284 . . – 1
	FR 706 / FL 706	6.8	25	4.5	12	11.5	8	21.2	3.2	P 284 . . – 2
 Cut A–B										

For radial/axial adjustment range, see page 388.
Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	P 284 . . – 1	P 284 . . – 2
Clamping screw	FS 924 (Torx 8)	FS 1005 (Torx 8)
Clamping screw for cartridge	FS 1024	FS 1025
Adjusting screw Axial	FS 1023	FS 1023
Adjusting screw Radial	FS 493	FS 494

Accessories

Screwdriver	FS 230 (Torx 8)

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Cutting data for drilling with Xtra·tec® drills

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Drill bit – Starting value for feed rate f [mm/rev]: D_C [mm] 12.0–15.9	D_C [mm] 16.0–21.9	D_C [mm] 22.0–31.75
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	0.20	0.25	0.30
		approx. 0.45 % C	annealed	190	2	0.20	0.25	0.30
		approx. 0.45 % C	tempered	250	3	0.20	0.22	0.30
		approx. 0.75 % C	annealed	270	4	0.18	0.22	0.25
		approx. 0.75 % C	tempered	300	5	0.18	0.22	0.25
	Low-alloyed steel[1]	annealed		180	6	0.20	0.25	0.30
		tempered		275	7	0.20	0.25	0.30
		tempered		300	8	0.20	0.25	0.30
		tempered		350	9	0.18	0.22	0.25
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	0.18	0.22	0.25
		hardened and tempered		325	11	0.18	0.22	0.25
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	0.15	0.20	0.22
		martensitic, tempered		240	13	0.15	0.20	0.22
M	Stainless steel[1]	austenitic[2], quenched		180	14			
K	Grey cast iron	perlitic/ferritic		180	15	0.20	0.25	0.40
		perlitic (martensitic)		260	16	0.20	0.25	0.40
	Cast iron with spheroidal graphite	ferritic		160	17	0.20	0.25	0.35
		perlitic		250	18	0.20	0.25	0.35
	Malleable cast iron	ferritic		130	19	0.20	0.25	0.30
		perlitic		230	20	0.20	0.25	0.30
N	Aluminium wrought alloys	can not be hardened		60	21			
		can be hardened, hardened		100	22			
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23			
		≤ 12 % Si, can be hardened, hardened		90	24			
		> 12 % Si, can not be hardened		130	25			
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26			
		Brass, red brass		90	27			
		Bronze, lead-free copper and electrolytic copper		100	28			
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29			
		Hard rubber			30			
S	Heat-resistant alloys	Fe basis	annealed	200	31			
			hardened	280	32			
		Ni or Co basis	annealed	250	33			
			hardened	350	34			
			cast	320	35			
	Titanium alloys	Pure titanium		400[3]	36			
		Alpha + Beta alloys, hardened		1050[3]	37			

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	Cutting tool material grades											
	Starting value for cutting speed v_C [m/min]											
	HC = coated grades											
	WXP 45			WXK 25								
	v_C [m/min]			v_C [m/min]								
	3 x D	5 x D	7 x D	3 x D	5 x D	7 x D						
	120	100	90									
	120	100	90									
	110	90	80									
	110	90	80									
	90	80	70	90	80	80						
	120	100	90									
	120	100	90									
	110	100	80	110	110	100						
	90	80	80	80	80	70						
	80	70	60									
	80	70	60	80	80	70						
	70	60	50									
	70	60	50									
	140	130	120	180	170	160						
	130	120	110	170	160	150						
	120	110	100	130	120	110						
	120	100	100	130	120	110						
	110	100	90	120	110	100						
	110	100	90	120	110	100						

Cutting data for drilling with insert drilling, dia. 10–18 mm

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Indexable inserts: Starting value for feed rate f [mm/rev] LCMX – B 57 D_C [mm] 10–12	LCMX – B 57 D_C [mm] 12.5–18	LCMX – D 57 D_C [mm] 10–12	LCMX – D 57 D_C [mm] 12.5–18	LCMX – E 57 D_C [mm] 10–12	LCMX – E 57 D_C [mm] 12.5–18
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	0.05	0.06	0.06	0.07		
		approx. 0.45 % C	annealed	190	2	0.06	0.08	0.06	0.08	0.08	0.12
		approx. 0.45 % C	tempered	250	3			0.05	0.07	0.07	0.10
		approx. 0.75 % C	annealed	270	4			0.05	0.06	0.07	0.10
		approx. 0.75 % C	tempered	300	5			0.05	0.06	0.07	0.10
	Low-alloyed steel[1]	annealed		180	6	0.06	0.07	0.07	0.08	0.08	0.12
		tempered		275	7			0.07	0.08		
		tempered		300	8			0.07	0.08	0.08	0.10
		tempered		350	9			0.06	0.07	0.07	0.08
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10			0.06	0.08	0.07	0.10
		hardened and tempered		325	11			0.05	0.07	0.06	0.08
	Stainless steel[1]	ferritic / martensitic, annealed		200	12			0.06	0.08	0.07	0.10
		martensitic, tempered		240	13			0.05	0.07	0.06	0.08
M	Stainless steel[1]	austenitic[2], quenched		180	14	0.05	0.06	0.06	0.07		
K	Grey cast iron	perlitic/ferritic		180	15	0.09	0.10	0.10	0.12	0.10	0.14
		perlitic (martensitic)		260	16	0.07	0.08	0.08	0.10	0.08	0.12
	Cast iron with spheroidal graphite	ferritic		160	17	0.07	0.09	0.08	0.10	0.10	0.12
		perlitic		250	18	0.06	0.08	0.07	0.08	0.08	0.10
	Malleable cast iron	ferritic		130	19	0.09	0.10	0.10	0.12	0.10	0.14
		perlitic		230	20	0.07	0.08	0.08	0.10	0.08	0.12
N	Aluminium wrought alloys	can not be hardened		60	21			0.08	0.10		
		can be hardened, hardened		100	22			0.08	0.10		
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23			0.08	0.10		
		≤ 12 % Si, can be hardened, hardened		90	24			0.08	0.10		
		> 12 % Si, can not be hardened		130	25			0.08	0.10		
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26			0.10	0.12	0.10	0.14
		Brass, red brass		90	27			0.08	0.10	0.08	0.10
		Bronze, lead-free copper and electrolytic copper		100	28			0.08	0.10	0.08	0.10
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29						
		Hard rubber			30						
S	Heat-resistant alloys	Fe basis	annealed	200	31	0.05	0.06	0.05	0.06	0.05	0.06
			hardened	280	32			0.04	0.05	0.04	0.05
		Ni or Co basis	annealed	250	33			0.04	0.05	0.04	0.05
			hardened	350	34			0.04	0.05	0.04	0.05
			cast	320	35			0.04	0.05	0.04	0.05
	Titanium alloys	Pure titanium		400[3]	36						
		Alpha + Beta alloys, hardened		1050[3]	37	0.06	0.08	0.06	0.08		

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	Cutting tool material grades														
	Starting value for cutting speed v_C [m/min]														
	HC = coated grades														
	WAP 20			WKP 25			WKP 35			WTP 35			WXP 40		
	f [mm/rev]			f [mm/rev]			f [mm/rev]			f [mm/rev]			f [mm/rev]		
	0.06	0.10		0.06	0.10		0.06	0.10		0.06	0.10		0.06	0.10	
	260	240		290	260		260	240		220	200		200	180	
	240	220		260	240		220	200		160	150		150	140	
	220	200		240	220		200	180		150	140		140	130	
	200	180		220	200		180	140		140	130		130	120	
	180	160		200	180		150	130		130	120		120	110	
	240	220		260	240		220	200		180	170		150	140	
	220	200		240	220		200	180		160	150		140	130	
	200	180		220	200		190	170		150	130		140	120	
	180	160		200	180		180	150		150	130		140	120	
	200	180		220	200		180	170		140	130		130	120	
	160	150		180	170		150	140		130	120		120	110	
	200	180					180	170		140	130		130	120	
	160	150					150	140		130	120		120	110	
							220	200		180	160		160	150	
	220	200		240	220		220	200		180	160		160	140	
	160	150		180	170		180	150		140	130		130	120	
	150	140		170	150		150	140		130	120		130	120	
	130	120		140	130		140	130		120	110		110	100	
	220	200		240	220		220	200		180	160		160	140	
	160	150		180	170		180	150		140	130		130	120	
										300	300				
										250	250				
										350	300				
										300	250				
										300	250				
							100	100		80	80		80	80	
							80	80		60	60		60	60	
							60	60		50	50		50	50	
							50	50		40	40		40	40	
							50	50		40	40		40	40	
										50	45				

The specified cutting values are recommended values. Adjustment to the specific application conditions is recommended.

When using drills with a drilling depth of more than 3 × D the following reductions are recommended:

Drilling depth	Reduction of cutting speed	Reduction of feed rate when spot drilling
> 3 × D	20 %	30 %

Cutting data for drilling with WALTER STARDRILLs, dia. 16–58 mm

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Indexable inserts: Starting value for feed rate f [mm/rev]								
						P 28467 / P 28477 D_C [mm]			P 28469 / P 28479 D_C [mm]			P 28475 D_C [mm]		
						15.8–20.4	20.5–30.4	≥30.5	15.8–20.4	20.5–30.4	≥30.5	15.8–20.4	20.5–30.4	≥30.5
P	Non-alloyed steel[1]	approx. 0.15 % C annealed		125	1	0.07	0.10	0.10	0.08	0.10	0.10	0.08	0.10	0.10
		approx. 0.45 % C annealed		190	2	0.08	0.10	0.16	0.08	0.10	0.16	0.08	0.10	0.20
		approx. 0.45 % C tempered		250	3	0.08	0.09	0.12	0.08	0.10	0.16	0.08	0.10	0.16
		approx. 0.75 % C annealed		270	4	0.07	0.08	0.12	0.08	0.08	0.14	0.07	0.08	0.14
		approx. 0.75 % C tempered		300	5	0.06	0.07	0.10				0.07	0.07	0.12
	Low-alloyed steel[1]	annealed		180	6	0.08	0.10	0.16	0.08	0.10	0.16	0.08	0.10	0.16
		tempered		275	7	0.07	0.08	0.12	0.07	0.08	0.12	0.08	0.10	0.16
		tempered		300	8	0.07	0.08	0.10				0.07	0.08	0.14
		tempered		350	9	0.06	0.08	0.10						
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	0.07	0.09	0.16	0.08	0.10	0.16	0.08	0.09	0.12
		hardened and tempered		325	11	0.05	0.07	1.10				0.06	0.08	0.10
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	0.07	0.09	0.12	0.07	0.09	0.12	0.08	0.09	0.12
		martensitic, tempered		240	13	0.06	0.08	0.10	0.06	0.08	0.10	0.07	0.08	0.10
M	Stainless steel[1]	austenitic[2], quenched		180	14	0.06	0.08	0.10	0.07	0.09	0.10			
K	Grey cast iron	perlitic/ferritic		180	15	0.10	0.12	0.20	0.10	0.12	0.20	0.10	0.12	0.25
		perlitic (martensitic)		260	16	0.08	0.10	0.16	0.08	0.10	0.16	0.08	0.10	0.20
	Cast iron with spheroidal graphite	ferritic		160	17	0.10	0.12	0.20	0.10	0.12	0.20	0.10	0.12	0.20
		perlitic		250	18	0.08	0.10	0.16	0.08	0.10	0.16	0.08	0.10	0.20
	Malleable cast iron	ferritic		130	19	0.10	0.12	0.20	0.10	0.12	0.20	0.10	0.12	0.25
		perlitic		230	20	0.08	0.10	0.16	0.08	0.10	0.16	0.08	0.10	0.20
N	Aluminium wrought alloys	can not be hardened		60	21				0.08	0.10	0.12			
		can be hardened, hardened		100	22				0.08	0.10	0.20			
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23				0.08	0.10	0.12			
		≤ 12 % Si, can be hardened, hardened		90	24				0.08	0.10	0.12			
		> 12 % Si, can not be hardened		130	25				0.08	0.10	0.16	0.08	0.10	0.16
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26	0.10	0.12	0.20	0.10	0.12	0.20			
		Brass, red brass		90	27	0.10	0.12	0.16	0.10	0.12	0.20			
		Bronze, lead-free copper and electrolytic copper		100	28	0.10	0.12	0.10	0.10	0.12	0.20			
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29				0.10	0.14	0.20			
		Hard rubber			30									
S	Heat-resistant alloys	Fe basis	annealed	200	31	0.05	0.08	0.12	0.06	0.08	0.12			
			hardened	280	32	0.05	0.06	0.08	0.05	0.06	0.08			
		Ni or Co basis	annealed	250	33	0.05	0.08	0.10	0.05	0.06	0.08			
			hardened	350	34	0.05	0.06	0.08						
			cast	320	35	0.05	0.06	0.08						
	Titanium alloys	Pure titanium		400[3]	36									
		Alpha + Beta alloys, hardened		1050[3]	37	0.07	0.08	0.10	0.06	0.08	0.10			

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	Cutting tool material grades																										
	Starting value for cutting speed v_C [m/min]																										
	HC = coated grades																								HW		
	WAP 20				WKP 25				WKP 35				WTP 35				WAK 15				WXP 40				WK 40		
	f [mm/rev]				f [mm/rev]				f [mm/rev]				f [mm/rev]				f [mm/rev]				f [mm/rev]				f [mm/rev]		
	0.06	0.10	0.16	0.20	0.06	0.10	0.16	0.20	0.06	0.10	0.16	0.20	0.06	0.10	0.16	0.20	0.06	0.10	0.16	0.20	0.06	0.10	0.16	0.20	0.06	0.10	0.16
	260	240	220		290	260	240		260	240	220		220	200	180						200	180	160				
	240	220	200	180	260	240	220	200	220	200	180	150	160	150	130	120					150	140	130	120			
	220	200	180	160	240	220	200	180	200	180	150	140	150	140	130						140	130	120				
	200	180	160		220	200	180		180	150	140		140	130	120						130	120	110				
	170	150	140		190	170	150		150	130	120		130	120	110						120	110	100				
	240	220	200	180	260	240	220	200	220	200	180	150	180	170	150	130					150	140	130	120			
	220	200	180	160	240	220	200	180	200	180	150	130	160	150	140	120					140	130	120	110			
	200	180	160		220	200	180		190	170	140		150	130	120						140	120	110				
	180	160	150		200	180	170		180	150	140		150	130	120						140	120	110				
	200	180	160		220	200	180		22	170	150		140	130	120						130	120	110				
	160	150	140		180	170	150		200	140	130		130	120	110						120	110	100				
	200	180	160						190	170	150		140	130	100						130	120	110				
	160	150	140						180	140	130		130	120	110						120	110	100				
									220	200			180	160							160	150					
	220	200	180	160	200	190	170	150	220	200	180	150	180	160	140	130	240	220	200	180	160	140	120	100			
	160	150	140	130	150	130	110	90	180	150	130	120	140	130	120	110	170	150	130	110	130	120	100	80			
	150	140	130	120	140	120	110	100	150	140	130	120	130	120	110	100	160	140	130	120	130	120	110	100			
	130	120	110	100	120	110	100	30	140	130	120	110	120	110	100	90	140	130	120	110	110	100	100	90			
	220	200	180	160	200	190	170	150	220	200	180	150	180	160	140	130	240	220	200	180	160	140	120	100			
	160	150	140	130	140	130	120	110	200	150	130	120	140	130	120	110	160	150	140	130	130	120	100	80			
																										500	500
																										450	400
													300	300	300	300										400	400
													250	250	250	250										300	300
																	250	250	250	250						200	200
													350	300	250											400	350
													300	250	200			450	420							300	260
													300	250	200											300	260
																										300	300
					100	100			100	100			80	80							80	80			70	70	
					80	80			80	80			60	60							60	60			50	50	
					60	60			60	60			50	50							50	50			40	40	
					50	50			50	50			40	40							40	40			30	30	
					50	50			50	50			40	40							40	40			30	30	
													50	45											50	45	

The specified cutting values are recommended values. Adjustment to the specific application conditions is recommended.

When using drills with a drilling depth of more than 3 × D up to 4 × D the following reductions are recommended:

Drilling depth	Reduction of cutting speed	Reduction of feed rate when spot drilling	Reduction of feed rate when spot drilling on inclined surfaces
> 3 × D	20%	30%	50%
> 4 × D	30 %	40 %	—

Cutting data for drilling with WOMX-/WOEX inserts

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Indexable inserts: Starting value for feed rate f [mm/rev]								
						WOMX – B 57 D_C [mm]				WOMX – D 57 D_C [mm]				
						14–19.9	20–24.9	25–44.9	> 45	12–13.9	14–19.9	20–24.9	25–44.9	> 45
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	0.05	0.07	0.08	0.1	0.05	0.06	0.08	0.1	0.12
		approx. 0.45 % C	annealed	190	2	0.05	0.07	0.08	0.1	0.05	0.06	0.08	0.1	0.12
		approx. 0.45 % C	tempered	250	3	0.05	0.07	0.08	0.1	0.05	0.06	0.08	0.1	0.12
		approx. 0.75 % C	annealed	270	4	0.05	0.07	0.08	0.1	0.05	0.06	0.08	0.1	0.12
		approx. 0.75 % C	tempered	300	5	0.05	0.07	0.08	0.1	0.05	0.06	0.08	0.1	0.12
	Low-alloyed steel[1]	annealed		180	6	0.06	0.07	0.08	0.1	0.06	0.07	0.08	0.1	0.14
		tempered		275	7	0.06	0.07	0.08	0.1	0.06	0.07	0.08	0.1	0.14
		tempered		300	8	0.06	0.07	0.08	0.1	0.06	0.07	0.08	0.1	0.14
		tempered		350	9	0.06	0.07	0.08	0.1	0.06	0.07	0.08	0.1	0.14
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10	0.04	0.05	0.06	0.09	0.05	0.05	0.06	0.07	0.1
		hardened and tempered		325	11	0.04	0.05	0.06	0.09	0.05	0.05	0.06	0.07	0.1
	Stainless steel[1]	ferritic / martensitic, annealed		200	12	0.04	0.05	0.08	0.1	0.05	0.06	0.08	0.09	0.12
		martensitic, tempered		240	13	0.04	0.05	0.08	0.1	0.05	0.06	0.08	0.09	0.12
M	Stainless steel[1]	austenitic[2], quenched		180	14	0.04	0.06	0.07	0.1	0.05	0.06	0.08	0.09	0.12
K	Grey cast iron	perlitic/ferritic		180	15	0.05	0.07	0.09	0.12	0.07	0.1	0.12	0.14	0.16
		perlitic (martensitic)		260	16	0.05	0.07	0.09	0.12	0.07	0.1	0.12	0.14	0.16
	Cast iron with spheroidal graphite	ferritic		160	17	0.04	0.05	0.09	0.12	0.06	0.08	0.12	0.14	0.16
		perlitic		250	18	0.04	0.05	0.09	0.12	0.06	0.08	0.12	0.14	0.16
	Malleable cast iron	ferritic		130	19	0.05	0.07	0.09	0.12	0.07	0.09	0.1	0.12	0.16
		perlitic		230	20	0.05	0.07	0.09	0.12	0.07	0.09	0.1	0.12	0.16
N	Aluminium wrought alloys	can not be hardened		60	21									
		can be hardened, hardened		100	22									
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23									
		≤ 12 % Si, can be hardened, hardened		90	24									
		> 12 % Si, can not be hardened		130	25									
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26									
		Brass, red brass		90	27									
		Bronze, lead-free copper and electrolytic copper		100	28									
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29									
		Hard rubber			30									
S	Heat-resistant alloys	Fe basis	annealed	200	31	0.04	0.05	0.06	0.06	0.05	0.06	0.06	0.06	0.08
			hardened	280	32	0.04	0.05	0.06	0.06	0.05	0.06	0.06	0.06	0.08
		Ni or Co basis	annealed	250	33							0.06	0.06	0.08
			hardened	350	34							0.06	0.06	0.08
			cast	320	35							0.06	0.06	0.08
	Titanium alloys	Pure titanium		400[3]	36									
		Alpha + Beta alloys, hardened		1050[3]	37									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Indexable inserts					Cutting tool material grades												
	f [mm/rev]				Starting value for cutting speed v_C [m/min]												
					HC = coated grades												
	WOEX – E 57 D_C [mm]				WAP 20 f [mm/rev]			WKP 35 f [mm/rev]			WAK 15 f [mm/rev]			WXP 40 f [mm/rev]		
	14–19.9	20–24.9	25–44.9	> 45	to 0.04	to 0.08	to 0.16	to 0.04	to 0.08	to 0.16	to 0.04	to 0.08	to 0.16	to 0.04	to 0.08	to 0.16
	0.06	0.08	0.1	0.12	240	230	200	220	200	180				140	130	120
	0.06	0.08	0.1	0.12	240	230	200	220	200	180				140	130	120
	0.06	0.08	0.1	0.12	240	230	200	220	200	180				140	130	120
	0.06	0.08	0.1	0.12	240	230	200	220	200	180				140	130	120
	0.06	0.08	0.1	0.12	240	230	200	220	200	180				140	130	120
	0.07	0.08	0.1	0.14	230	220	190	210	200	170				130	120	110
	0.07	0.08	0.1	0.14	230	220	190	210	200	170				130	120	110
	0.07	0.08	0.1	0.14	230	220	190	210	200	170				130	120	110
	0.07	0.08	0.1	0.14	230	220	190	210	200	170				130	120	110
	0.05	0.06	0.07	0.1	200	180	170	190	170	150				130	120	110
	0.05	0.06	0.07	0.1	200	180	170	190	170	150				130	120	110
	0.06	0.08	0.09	0.12	180	160	150	160	140	120				130	120	110
	0.06	0.08	0.09	0.12	180	160	150	160	140	120				130	120	110
	0.06	0.08	0.09	0.12				200	180	160				160	150	140
	0.1	0.12	0.14	0.16	150	140	130	140	130	120	200	180	160	120	120	110
	0.1	0.12	0.14	0.16	150	140	130	140	130	120	200	180	160	120	120	110
	0.08	0.12	0.14	0.16	130	120	120	120	120	110	160	150	140	110	110	100
	0.08	0.12	0.14	0.16	130	120	120	120	120	110	160	150	140	110	110	100
	0.09	0.1	0.12	0.16	150	140	130	140	130	120	180	160	150	120	120	110
	0.09	0.1	0.12	0.16	150	140	130	140	130	120	180	160	150	120	120	110
	0.06	0.06	0.06	0.08				80	70	70				60	60	60
	0.06	0.06	0.06	0.08				80	70	70				60	60	60
		0.06	0.06	0.08				50	40	40				40	40	40
		0.06	0.06	0.08				50	40	40				40	40	40
		0.06	0.06	0.08				50	40	40				40	40	40

Cutting data for drilling with solid carbide drills

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Cutting tool material grades: Starting value for cutting speed v_C [m/min] B 1420 B 1520 WXK 35	B 1421 B 1422 WXK 35	B 1332 B 1333 WK 10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	100	105	
		approx. 0.45 % C	annealed	190	2	90	95	
		approx. 0.45 % C	tempered	250	3	100	105	
		approx. 0.75 % C	annealed	270	4	100	105	
		approx. 0.75 % C	tempered	300	5	95	100	
	Low-alloyed steel[1]		annealed	180	6	85	95	
			tempered	275	7	80	85	
			tempered	300	8	75	80	
			tempered	350	9	70	75	
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	60	65	
			hardened and tempered	325	11	50	55	
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	45	35	
			martensitic, tempered	240	13	35	30	
M	Stainless steel[1]		austenitic[2], quenched	180	14		25	
K	Grey cast iron		perlitic/ferritic	180	15	135	140	125
			perlitic (martensitic)	260	16	115	120	115
	Cast iron with spheroidal graphite		ferritic	160	17	105	110	
			perlitic	250	18	95	100	
	Malleable cast iron		ferritic	130	19	115	125	
			perlitic	230	20	95	105	
N	Aluminium wrought alloys		can not be hardened	60	21	210	250	200
			can be hardened, hardened	100	22	205	240	180
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23	200	210	190
			≤ 12 % Si, can be hardened, hardened	90	24	190	200	170
			> 12 % Si, can not be hardened	130	25	180	190	160
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26	175	180	170
			Brass, red brass	90	27	185	190	180
			Bronze, lead-free copper and electrolytic copper	100	28	185	190	180
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29	90	100	
			Hard rubber		30	80	85	
S	Heat-resistant alloys	Fe basis	annealed	200	31		30	
			hardened	280	32		25	
		Ni or Co basis	annealed	250	33		25	
			hardened	350	34		20	
			cast	320	35		20	
	Titanium alloys		Pure titanium	400[3]	36	35	45	
			Alpha + Beta alloys, hardened	1050[3]	37	30	35	

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	Drill diameter [mm]						
	Starting value for feed rate f [mm/rev]						
	dia. to 3.5 mm	dia. 3.5–5.5 mm	dia. 5.6–7.5 mm	dia. 7.6–9.5 mm	dia. 9.6–11.5 mm	dia. 11.6–13.5 mm	dia. 13.6–16 mm
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.08	0.12	0.18	0.22	0.25	0.28	0.29
	0.05	0.1	0.14	0.18	0.2	0.24	0.25
	0.05	0.1	0.14	0.18	0.2	0.24	0.25
	0.05	0.1	0.14	0.18	0.2	0.24	0.25
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.12	0.18	0.27	0.3	0.35	0.38	0.42
	0.12	0.18	0.27	0.3	0.35	0.38	0.42
	0.12	0.18	0.27	0.3	0.35	0.38	0.42
	0.12	0.18	0.27	0.3	0.35	0.38	0.42
	0.12	0.18	0.27	0.3	0.35	0.38	0.42
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.1	0.15	0.25	0.28	0.3	0.32	0.34
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.04	0.06	0.1	0.12	0.15	0.18	0.19
	0.05	0.1	0.14	0.18	0.2	0.24	0.25
	0.04	0.06	0.1	0.12	0.15	0.18	0.19

Correction factor for feed rate f:	**I/D-ratio**	**Factor**
B 1332, B 1333	from 5 x D	0.8

Cutting data for boring

Material group	Classification of the main material groups and code letters: Workpiece material		Brinell hardness HB	Machining group[5]	Geometry: Starting value for feed rate f [mm/rev] – PM 5 D_C [mm] < 44	– PM 5 D_C [mm] > 44-73	– PM 5 D_C [mm] > 73	– PM 2 D_C [mm] < 44	– PM 2 D_C [mm] > 44-73	– PM 2 D_C [mm] > 73	– PF 4/– PS 5 D_C [mm] < 44	– PF 4/– PS 5 D_C [mm] > 44-73	– PF 4/– PS 5 D_C [mm] > 73
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	0.2	0.3	0.4				0.16	0.24	0.32
		approx. 0.45 % C annealed	190	2	0.16	0.24	0.4				0.13	0.19	0.32
		approx. 0.45 % C tempered	250	3	0.15	0.22	0.35				0.12	0.18	0.28
		approx. 0.75 % C annealed	270	4	0.14	0.2	0.3				0.11	0.16	0.24
		approx. 0.75 % C tempered	300	5	0.12	0.18	0.25				0.10	0.14	0.20
	Low-alloyed steel[1]	annealed	180	6	0.2	0.3	0.4				0.16	0.24	0.32
		tempered	275	7	0.16	0.24	0.4				0.13	0.19	0.32
		tempered	300	8	0.14	0.2	0.3				0.11	0.16	0.24
		tempered	350	9	0.12	0.18	0.25				0.10	0.14	0.20
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	0.14	0.2	0.3				0.11	0.16	0.24
		hardened and tempered	325	11	0.14	0.2	0.3				0.11	0.16	0.24
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	0.12	0.16	0.24				0.10	0.13	0.19
		martensitic, tempered	240	13	0.12	0.16	0.24				0.10	0.13	0.19
M	Stainless steel[1]	austenitic[2], quenched	180	14	0.12	0.16	0.24				0.10	0.13	0.19
K	Grey cast iron	perlitic/ferritic	180	15	0.2	0.3	0.4				0.16	0.24	0.32
		perlitic (martensitic)	260	16	0.16	0.24	0.3				0.13	0.19	0.24
	Cast iron with spheroidal graphite	ferritic	160	17	0.2	0.3	0.4				0.16	0.24	0.32
		perlitic	250	18	0.16	0.24	0.3				0.13	0.19	0.24
	Malleable cast iron	ferritic	130	19	0.2	0.3	0.4				0.16	0.24	0.32
		perlitic	230	20	0.16	0.24	0.3				0.13	0.19	0.24
N	Aluminium wrought alloys	can not be hardened	60	21				0.24	0.3	0.3			
		can be hardened, hardened	100	22				0.24	0.3	0.4			
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened	75	23				0.24	0.3	0.4			
		≤ 12 % Si, can be hardened, hardened	90	24				0.24	0.3	0.4			
		> 12 % Si, can not be hardened	130	25				0.24	0.3	0.4			
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %	110	26	0.16	0.24	0.4	0.24	0.3	0.4	0.13	0.19	0.32
		Brass, red brass	90	27	0.16	0.24	0.4	0.24	0.3	0.4	0.13	0.19	0.32
		Bronze, lead-free copper and electrolytic copper	100	28	0.16	0.24	0.4	0.24	0.3	0.4	0.13	0.19	0.32
	Non-metallic materials	Curable plastics, fibre-reinforced plastics		29				0.3	0.4	0.5			
		Hard rubber		30				0.2	0.3	0.4			
S	Heat-resistant alloys	Fe basis annealed	200	31	0.1	0.15	0.2				0.08	0.12	0.16
		Fe basis hardened	280	32	0.1	0.15	0.2				0.08	0.12	0.16
		Ni or Co basis annealed	250	33	0.1	0.15	0.2				0.08	0.12	0.16
		Ni or Co basis hardened	350	34	0.1	0.15	0.2				0.08	0.12	0.16
		Ni or Co basis cast	320	35	0.1	0.15	0.2				0.08	0.12	0.16
	Titanium alloys	Pure titanium	400[3]	36									
		Alpha + Beta alloys, hardened	1050[3]	37	0.14	0.16	0.24	0.14	0.16	0.24	0.11	0.13	0.19
H	Hardened steel	hardened and tempered	55[4]	38									
		hardened and tempered	60[4]	39									
	Chilled cast iron	cast	400	40									
	Hardened cast iron	hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Starting value for cutting speed v_C [m/min]																				
	HC = coated grades												HW = uncoated grades			CBN WCB 30 (for ISO H) WCB 50 (for ISO H) WCB 80 (for ISO K)			DP = PCD		
	WAM 20/ WSM 30			WAK 10/ WAK 15			WXN 10			WXM 15			WK 1						WCD 10		
	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C
				310	280	170				260	210	130									
				290	230	140				220	180	110									
				260	210	130				200	160	100									
				240	190	120				180	140	90									
				220	180	110				140	110	70									
				290	230	140				220	170	110									
				260	210	130				200	160	100									
				240	190	120				180	150	90									
				220	180	110				160	130	80									
				240	180	120				180	150	90									
				200	170	100				160	130	80									
				240	190	120				160	130	80									
				200	150	100				130	100	70									
	220	170	110	240	190					200	160	100									
				260	220	130				200	160	100	210	170	120	2000*	1800*				
				190	160	100				160	130	80	150	120	90	900*	800*				
				240	190	120				180	140	90	170	140	100	800*	700*				
				220	170	110				160	130	80	140	110	70	700*	600*				
				260	220	130				200	160	100	180	140	100	800*	700*				
				190	160	100				160	130	80	150	120	90	700*	600*				
							940	750	500	600	480	330	750	600	400				2000*	1800*	1600*
							750	600	410	500	400	280	600	480	330				2000*	1800*	1600*
							750	600	410	500	400	280	600	480	330				1000*	900*	800*
							560	450	310	400	320	220	450	360	250				800*	700*	600*
							440	440	250	300	250	200	350	350	200				700*	600*	500*
	300	240		300	240		380	180	210				300	240	170				800*	700*	600*
	250	200		250	200		310	230	160				250	180	130				700*	600*	500*
							380	300	210	350	280	180	300	240	170				800*	700*	600*
							630	500	350				500	400	280				600*	500*	400*
							500	380	250				400	300	200				700*	600*	500*
	80	60	40	80	60	40							60	40	25						
	70	50	35	70	50	35							50	30	20						
	70	50	35	70	50	35							50	30	20						
	50	40	25	50	40	25							40	25	20						
	50	40	25	50	40	25							40	25	20						
	50	40	30										40	30	20						
																300	250				
																200	150				
																100	60				
																250	200				

* take into account limit speeds!

Cutting data for precision boring

Material group	Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for cutting speed v_c [m/min] HC = coated grades								
						WPP 01/ WPP 10			WPP 20/ WPP 30			WTP 35		
						3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	355	320	195	310	280	170	260	210	130
		approx. 0.45 % C	annealed	190	2	335	265	160	290	230	140	220	180	110
		approx. 0.45 % C	tempered	250	3	300	240	150	260	210	130	200	160	100
		approx. 0.75 % C	annealed	270	4	275	220	140	240	190	120	180	140	90
		approx. 0.75 % C	tempered	300	5	255	205	125	220	180	110	140	110	70
	Low-alloyed steel[1]		annealed	180	6	330	265	160	290	230	140	220	170	110
			tempered	275	7	300	240	150	260	210	130	200	160	100
			tempered	300	8	275	220	140	240	190	120	180	150	90
			tempered	350	9	255	205	125	220	180	110	160	130	80
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	275	220	140	240	180	120	180	150	90
			hardened and tempered	325	11	230	195	115	200	170	100	160	130	80
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	275	205	140	240	190	120	160	130	80
			martensitic, tempered	240	13	230	195	115	200	150	100	130	100	70
M	Stainless steel[1]		austenitic[2], quenched	180	14							200	160	100
K	Grey cast iron		perlitic/ferritic	180	15	300	255	150	260	220	130	220	160	100
			perlitic (martensitic)	260	16	220	185	115	190	160	100	160	130	80
	Cast iron with spheroidal graphite		ferritic	160	17	275	220	140	240	190	120	180	140	90
			perlitic	250	18	255	195	125	220	170	110	160	130	80
	Malleable cast iron		ferritic	130	19	300	255	150	260	220	130	200	160	100
			perlitic	230	20	220	184	115	190	160	100	160	130	80
N	Aluminium wrought alloys		can not be hardened	60	21							600	480	330
			can be hardened, hardened	100	22							500	400	280
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23							500	400	280
			≤ 12 % Si, can be hardened, hardened	90	24							400	320	220
			> 12 % Si, can not be hardened	130	25							300	250	200
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26				300	240				
			Brass, red brass	90	27	345	275		250	200				
			Bronze, lead-free copper and electrolytic copper	100	28	285	230					350	280	180
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29									
			Hard rubber		30									
S	Heat-resistant alloys	Fe basis	annealed	200	31				80	60	40			
			hardened	280	32				70	50	35			
		Ni or Co basis	annealed	250	33				70	50	35			
			hardened	350	34				50	40	25			
			cast	320	35				50	40	25			
	Titanium alloys		Pure titanium	400[3]	36									
			Alpha + Beta alloys, hardened	1050[3]	37									
H	Hardened steel		hardened and tempered	55[4]	38									
			hardened and tempered	60[4]	39									
	Chilled cast iron		cast	400	40									
	Hardened cast iron		hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Starting value for cutting speed v_C [m/min]																				
	HC = coated grades												HW = uncoated grades			CBN WCB 30 (for ISO H) WCB 50 (for ISO H) WCB 80 (for ISO K)			DP = PCD		
	WAM 20/ WSM 30			WAK 10/ WAK 15			WXN 10			WXM 15			WK 1						WCD 10		
	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C	3 x D_C	4 x D_C	6 x D_C
				310	280	170				260	210	130									
				290	230	140				220	180	110									
				260	210	130				200	160	100									
				240	190	120				180	140	90									
				220	180	110				140	110	70									
				290	230	140				220	170	110									
				260	210	130				200	160	100									
				240	190	120				180	150	90									
				220	180	110				160	130	80									
				240	180	120				180	150	90									
				200	170	100				160	130	80									
				240	190	120				160	130	80									
				200	150	100				130	100	70									
	220	170	110	240	190					200	160	100									
				260	220	130				200	160	100	210	170	120	2000*	1800*				
				190	160	100				160	130	80	150	120	90	900*	800*				
				240	190	120				180	140	90	170	140	100	800*	700*				
				220	170	110				160	130	80	140	110	70	700*	600*				
				260	220	130				200	160	100	180	140	100	800*	700*				
				190	160	100				160	130	80	150	120	90	700*	600*				
							940	750	500	600	480	330	750	600	400				2000*	1800*	1600*
							750	600	410	500	400	280	600	480	330				2000*	1800*	1600*
							750	600	410	500	400	280	600	480	330				1000*	900*	800*
							560	450	310	400	320	220	450	360	250				800*	700*	600*
							440	440	250	300	250	200	350	350	200				700*	600*	500*
	300	240		300	240		380	180	210				300	240	170				800*	700*	600*
	250	200		250	200		310	230	160				250	180	130				700*	600*	500*
							380	300	210	350	280	180	300	240	170				800*	700*	600*
							630	500	350				500	400	280				600*	500*	400*
							500	380	250				400	300	200				700*	600*	500*
	80	60	40	80	60	40							60	40	25						
	70	50	35	70	50	35							50	30	20						
	70	50	35	70	50	35							50	30	20						
	50	40	25	50	40	25							40	25	20						
	50	40	25	50	40	25							40	25	20						
	50	40	30										40	30	20						
																300	250				
																200	150				
																100	60				
																250	200				

* take into account limit speeds!

Cutting data for reaming

Material group	Classification of the main material groups and code letters Workpiece material		Brinell hardness HB	Machining group[5]	Geometry recommendation	Reaming oversize in dia. [mm] D_C < 9 mm	 D_C > 9 mm
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	B 88	0.1	0.2
		approx. 0.45 % C annealed	190	2			
		approx. 0.45 % C tempered	250	3			
		approx. 0.75 % C annealed	270	4			
		approx. 0.75 % C tempered	300	5			
	Low-alloyed steel[1]	annealed	180	6	B 88	0.1	0.2
		tempered	275	7			
		tempered	300	8			
		tempered	350	9			
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	B 88	0.1	0.2
		hardened and tempered	325	11			
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	B 88	0.1	0.2
		martensitic, tempered	240	13			
M	Stainless steel[1]	austenitic[2], quenched	180	14	B 88	0.08	0.1
K	Grey cast iron	perlitic/ferritic	180	15	A 88 / B 88	0.2–0.3	0.3–0.5
		perlitic (martensitic)	260	16			
	Cast iron with spheroidal graphite	ferritic	160	17	A 88 / B 88	0.2–0.3	0.3–0.5
		perlitic	250	18			
	Malleable cast iron	ferritic	130	19	A 88 / B 88	0.2–0.3	0.3–0.5
		perlitic	230	20			
N	Aluminium wrought alloys	can not be hardened	60	21	B 88	0.2–0.3	0.3–0.5
		can be hardened, hardened	100	22			
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened	75	23			
		≤ 12 % Si, can be hardened, hardened	90	24			
		> 12 % Si, can not be hardened	130	25			
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %	110	26	B 88	0.2–0.3	0.3–0.5
		Brass, red brass	90	27			
		Bronze, lead-free copper and electrolytic copper	100	28			
	Non-metallic materials	Curable plastics, fibre-reinforced plastics		29			
		Hard rubber		30			
S	Heat-resistant alloys	Fe basis annealed	200	31			
		Fe basis hardened	280	32			
		Ni or Co basis annealed	250	33			
		Ni or Co basis hardened	350	34			
		Ni or Co basis cast	320	35			
	Titanium alloys	Pure titanium	400[3]	36			
		Alpha + Beta alloys, hardened	1050[3]	37			
H	Hardened steel	hardened and tempered	55[4]	38			
		hardened and tempered	60[4]	39			
	Chilled cast iron	cast	400	40			
	Hardened cast iron	hardened and tempered	55[4]	41			

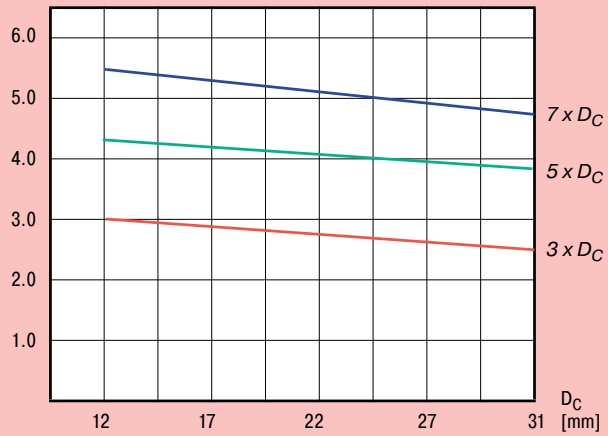
[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

	Feed rate fz [mm/rev]	Starting value for cutting speed v_C [m/min]					
		HC WXP 15	HW WK 10	HT WCE 10			
	0.15	60	40	120			
	0.15	60	40	120			
	0.15	40	25	80			
	0.15	40		70			
	0.1	40					
	0.2	100	50				
	0.15	100	50	150			
	0.15	80	40				
	0.1		150				
	0.15		120				

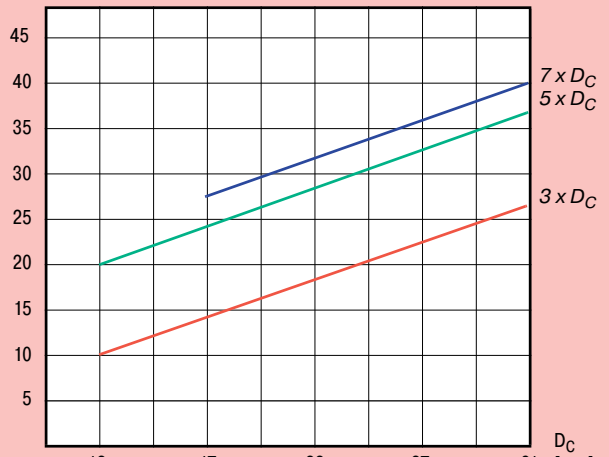
Recommended values for drilling

1. Recommended values for the *Xtra·tec*® drill

Coolant pressure for horizontal machining direction



Recommended values for coolant supply quantity for horizontal machining direction

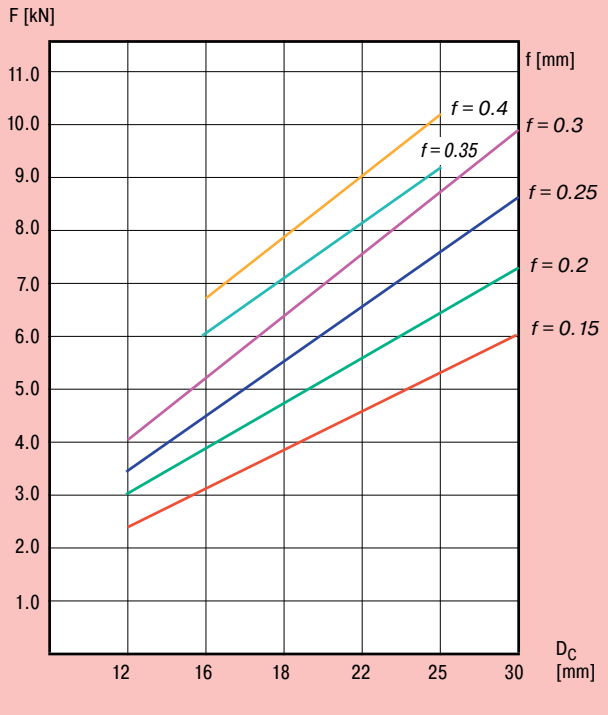


Increase or reduction of coolant flow rate Q and coolant pressure P compared with minimum values:

Very good chip breaking:	reduction of 30–40 %
Bad chip breaking:	increase of up to +50 %
Vertical machining direction:	increase of 30–40 %

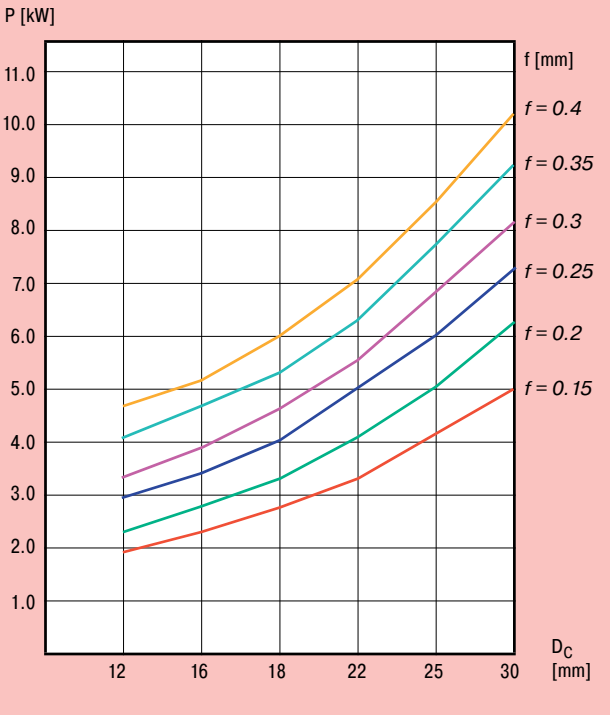
Feed forces

Material: C 45 (1.0503)
Tensile strength: R_m = 650 N/mm^2



Power requirement

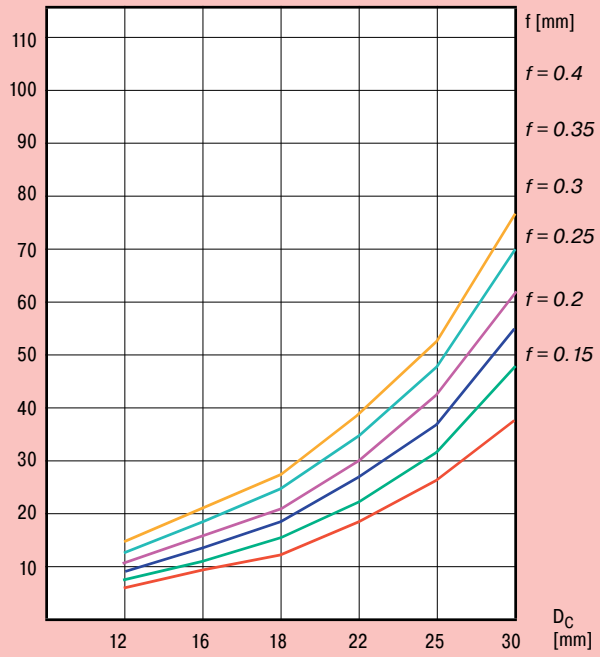
Material: C 45 (1.0503)
Tensile strength: R_m = 650 N/mm^2



*Recommended values for **Xtra·tec**® drill (continued)*

Torque

Material: C 45 (1.0503)
Tensile strength: R_m = 650 N/mm^2

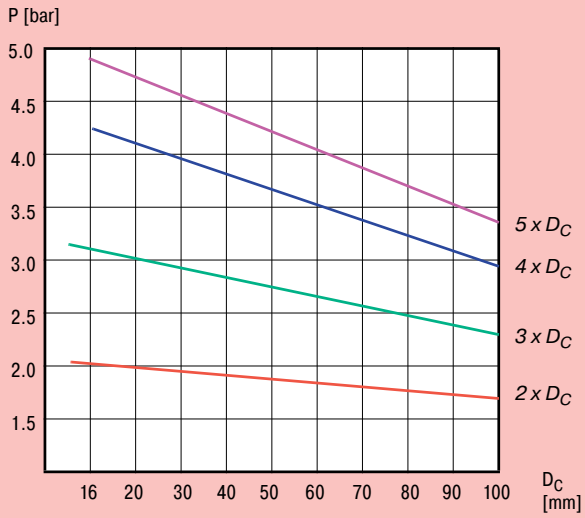


If the cutting speed is doubled then the power requirement also doubles, i.e. the power requirement is directly proportional to the cutting speed.

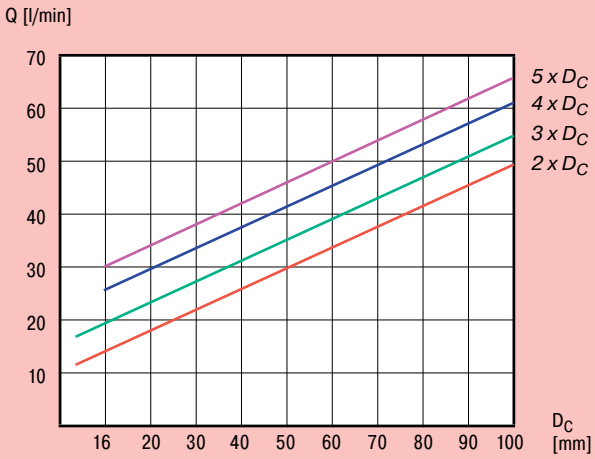
For steels with a higher resistance, e.g. 1000 N/mm^2 the power and torque requirement increases by about 15 % and the feed force by about 25 %.

2. Recommended values for WALTER STARDRILL

Coolant pressure for horizontal machining direction



Recommended values for coolant supply quantity for horizontal machining direction



Increase or reduction of coolant flow rate Q and coolant pressure P compared with minimum values:

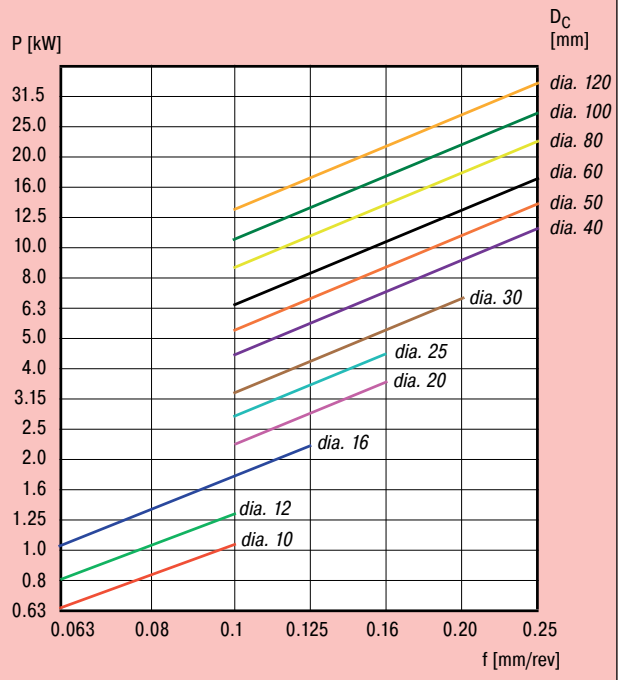
Very good chip breaking:	reduction of 30–40 %
Bad chip breaking:	increase of up to +50 %
Vertical machining direction:	increase of 30–40 %
Application of modular tools with internal coolant supply:	pressure increase by 6 bar
Use of WALTER STARDRILL dia. 10–18 mm with LCMX insert:	pressure increase by 6 bar compared with the values of D_C = 16 mm

Recommended values for drilling

Recommended values for WALTER STARDRILL (continued)

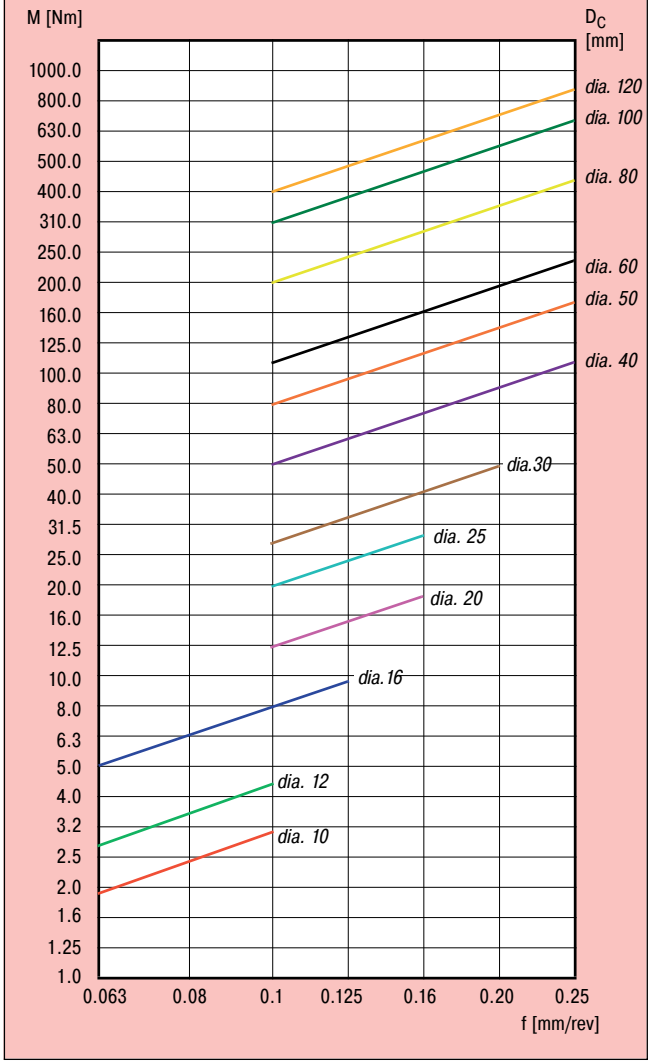
Performance diagram

Material: steel Ck 60
Strength: R_m = 600–700 N/mm^2
Cutting speed: v_c = 100 m/min



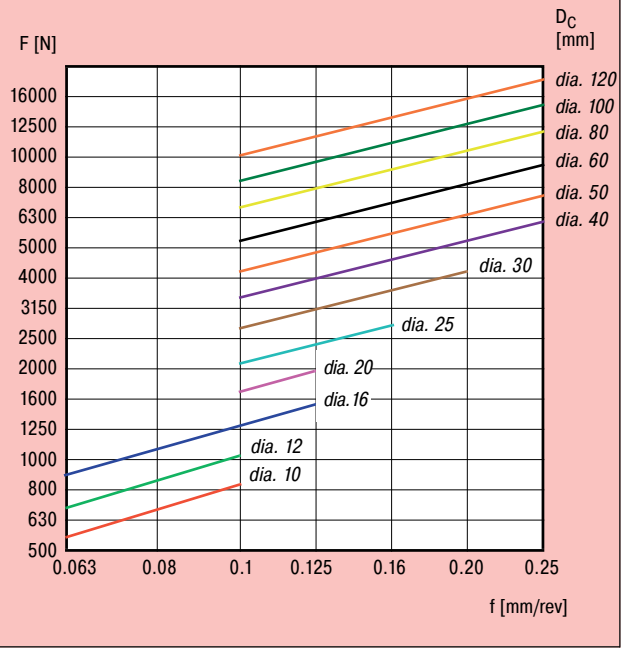
Torque diagram

Material: steel Ck 60
Strength: R_m = 600–700 N/mm^2



Feed force diagram

Material: steel Ck 60
Strength: R_m = 600–700 N/mm^2



If the cutting speed is doubled then the power requirement also doubles, i.e. the power requirement is directly proportional to the cutting speed.

For steels with a higher resistance, e.g. 1000 N/mm^2 the power and torque requirement increases by about 15 % and the feed force by about 25 %.

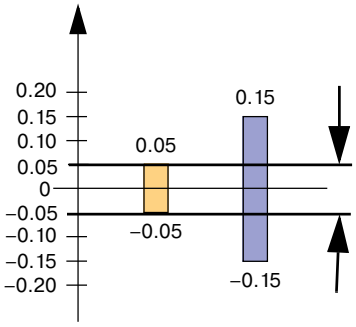
Tool diameter tolerance range for WALTER STARDRILL

Drill type	Tolerance range **without** eccentric sleeve	Tolerance range **with** eccentric sleeve

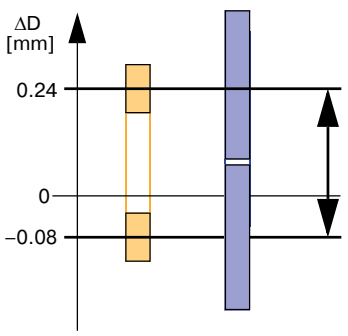
WALTER STARDRILL
dia. 10–18 mm
(LCMX)

Master insert

Sintered insert



Body tolerance



Eccentric sleeve FS 1207

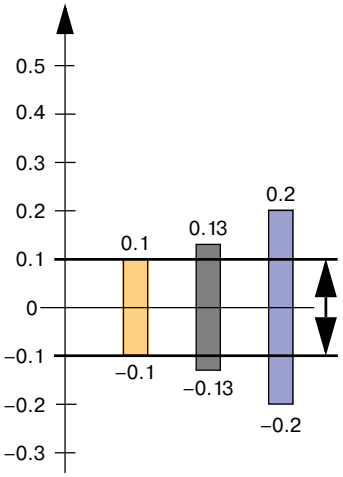
Nominal adjustment range

WALTER STARDRILL
dia. 16–25 mm
(P 284 . .)

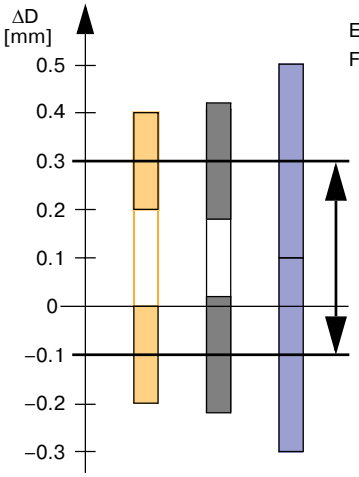
Master insert

Ground insert

Sintered insert



Body tolerance



Eccentric sleeve FS 1208

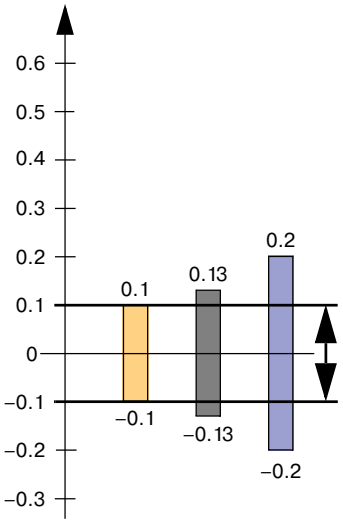
Nominal adjustment range

WALTER STARDRILL
dia. 25–58 mm
(P 284 . .)

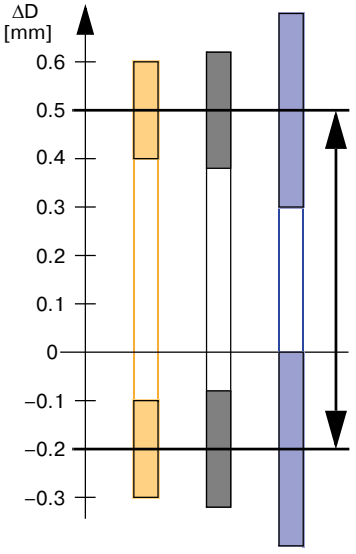
Master insert

Ground insert

Sintered insert



Body tolerance



Eccentric sleeve FS 723 FS 724

Nominal adjustment range

The resulting workpiece diameter may differ due to the drilling depth, workpiece material, feed rate and chip removal conditions.

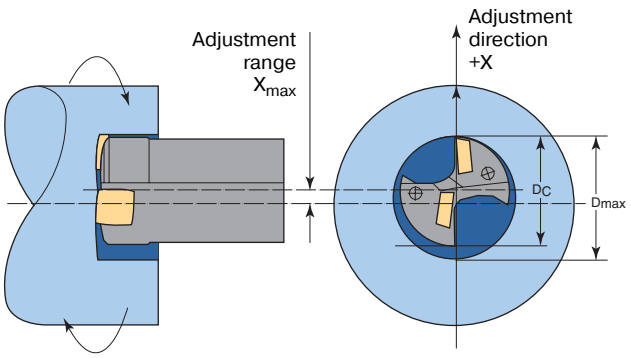
WALTER STARDRILL maximum out of centre positioning

1. Adjustment range for WALTER STARDRILL D_C = 16–58 mm with indexable inserts P 284 . .

Drilling with X offset:

Drill: **stationary**
Workpiece: **rotating**

$$D = D_C + 2 \cdot X$$



Insert size	D_C mm	Range 1 X_{max} mm	Range 1 D_{max} mm	Range 2 X_{max} mm	Range 2 D_{max} mm
1	16	1.0	18.0	1.8	19.6
	17	0.8	18.6	1.5	20.0
	18	0.7	19.4	1.3	20.6
	19	0.5	20.0	1.0	21.0
	20	0.3	20.6	0.8	21.6
2	21	1.1	23.2	2.0	25.0
	22	0.9	23.8	1.7	25.4
	23	0.8	24.6	1.5	26.0
	24	0.6	25.2	1.2	26.4
	25	0.4	25.8	1.0	27.0
3	26	1.0	28.0	1.7	29.4
	27	0.8	28.6	1.4	29.8
	28	0.6	29.2	1.2	30.4
	29	0.4	29.8	0.9	30.8
	30	0.3	30.6	0.7	31.4
4	31	1.1	33.2	1.9	34.8
	32	0.9	33.8	1.6	35.2
	33	0.7	34.4	1.4	35.8
	34	0.5	35.0	1.1	36.2
	35	0.3	35.6	0.8	36.6
	36	0.2	36.4	0.6	37.2

Insert size	D_C mm	Range 1 X_{max} mm	Range 1 D_{max} mm	Range 2 X_{max} mm	Range 2 D_{max} mm
5	37	0.9	38.8	1.8	40.6
	38	0.7	39.4	1.5	41.0
	39	0.5	40.0	1.2	41.4
	40	0.5	41.0	1.2	42.4
	41	0.4	41.8	0.9	42.8
	42	0.2	42.4	0.6	43.2
6	43	1.1	45.2	2.2	47.4
	44	0.9	45.8	1.9	47.8
	45	0.7	46.4	1.6	48.2
	46	0.9	47.8	1.6	49.2
	47	0.7	48.4	1.3	49.6
	48	0.5	49.0	1.0	50.2
	49	0.3	49.6	0.8	50.6
	50	0.2	50.4	0.6	51.2
7	51	1.1	53.2	2.3	55.6
	52	0.9	53.8	2.0	56.0
	53	0.8	54.6	1.7	56.4
	54	1.1	56.2	2.0	58.0
	55	0.9	56.8	1.7	58.4
	56	0.7	57.4	1.5	59.0
	57	0.6	58.2	1.2	59.4
	58	0.4	58.8	0.9	59.8
	59	0.2	59.4	0.5	60.0

Range 1: Possible adjustment under normal conditions
Range 2: Adjustment only achievable under optimum conditions

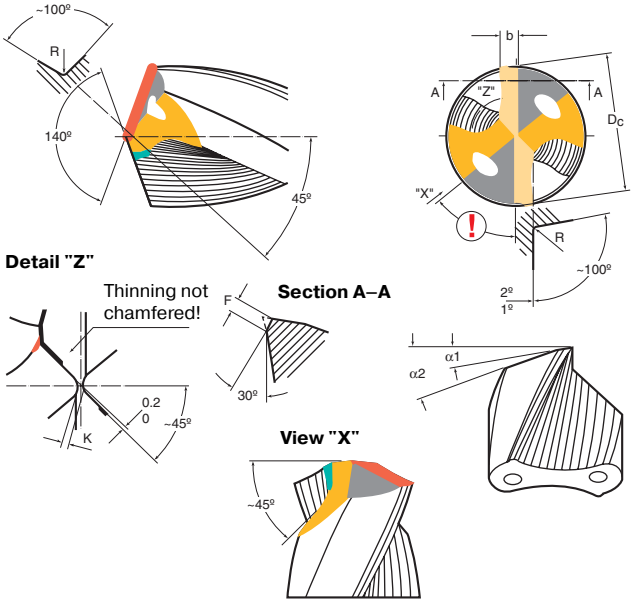
2. Adjustment range for WALTER STARDRILL D_C = 10–18 mm with indexable inserts LCMX . .

X = +0.2 mm/–0.1 mm ➔ ΔD = +0.4 mm/–0.2 mm

Regrinding Instructions for WALTER MINI-STARDRILL solid carbide drills

For B 1421 / B 1422
(with internal coolant supply)

B 1420 / B 1520
(without internal coolant supply)

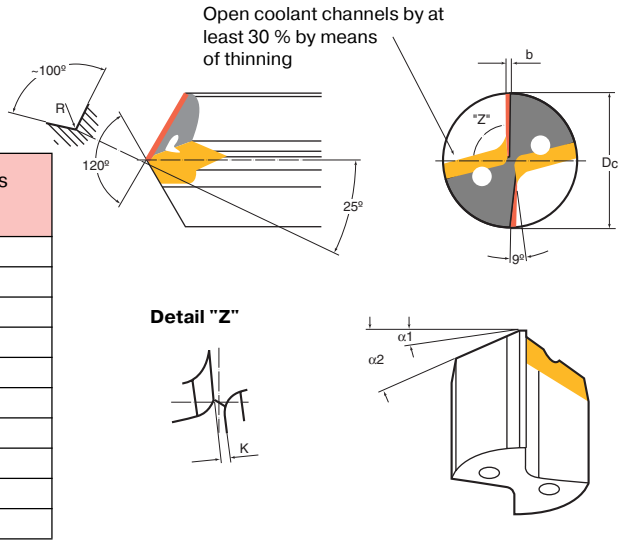


Tools <u>with</u> internal coolant supply:
open coolant channels by a min. of 30 % by means of thinning
Tools <u>without</u> internal coolant supply: 62°

Note:
The initial performance can only be obtained via recoating!

D_C	Clearance angle α1	Clearance angle α2	Width 1st clearance b	Chisel edge K	Radius R	Chamfer F
3.0	13°	20°	0.54	0.065	0.230	0.035
4.0	12°	20°	0.67	0.085	0.260	0.045
5.0	12°	20°	0.79	0.085	0.285	0.055
6.0	11°	20°	0.90	0.115	0.310	0.060
8.0	10°	20°	1.12	0.155	0.365	0.080
10.0	9°	20°	1.32	0.195	0.420	0.095
12.0	9°	20°	1.51	0.235	0.475	0.110
14.0	9°	20°	1.69	0.275	0.530	0.120
16.0	8°	20°	1.87	0.310	0.580	0.135
18.0	8°	20°	2.04	0.350	0.635	0.145
20.0	8°	20°	2.20	0.390	0.690	0.160
22.0	8°	20°	2.36	0.430	0.745	0.170
25.0	7°	20°	2.60	0.495	0.825	0.190

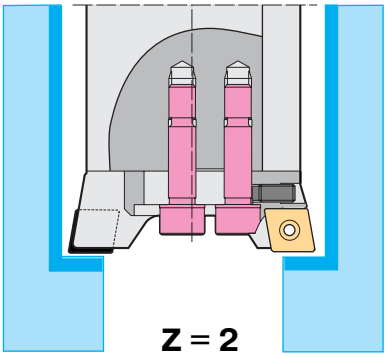
For B 1332 / B 1333

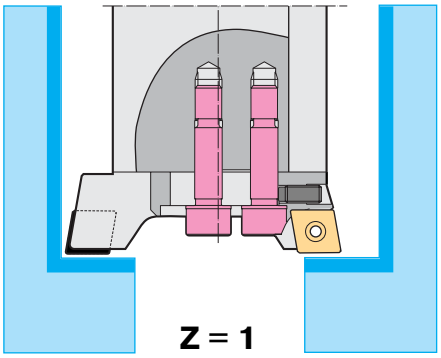


D_C	Clearance angle α1	Clearance angle α2	Width 1st clearance b	Chisel edge K	Radius R
4.0	14°	25°	to centre line	0.24	0.45
5.0	13°	25°	to centre line	0.30	0.55
6.0	12°	25°	to centre line	0.36	0.65
8.0	11°	25°	to centre line	0.48	0.85
10.0	10°	25°	to centre line	0.60	1.05
12.0	9°	25°	to centre line	0.72	1.25
14.0	8°	25°	to centre line	0.84	1.45
16.0	7°	25°	to centre line	0.96	1.65
18.0	7°	25°	to centre line	1.08	1.85
20.0	6°	25°	to centre line	1.20	2.05

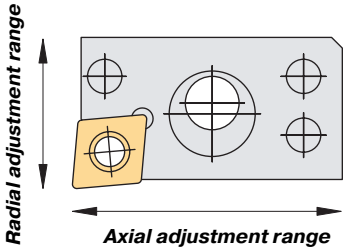
Technical information

Adjustment range of WALTER two flute boring tools B 3220





Adjustment range of standard assembly parts for WALTER special boring tools

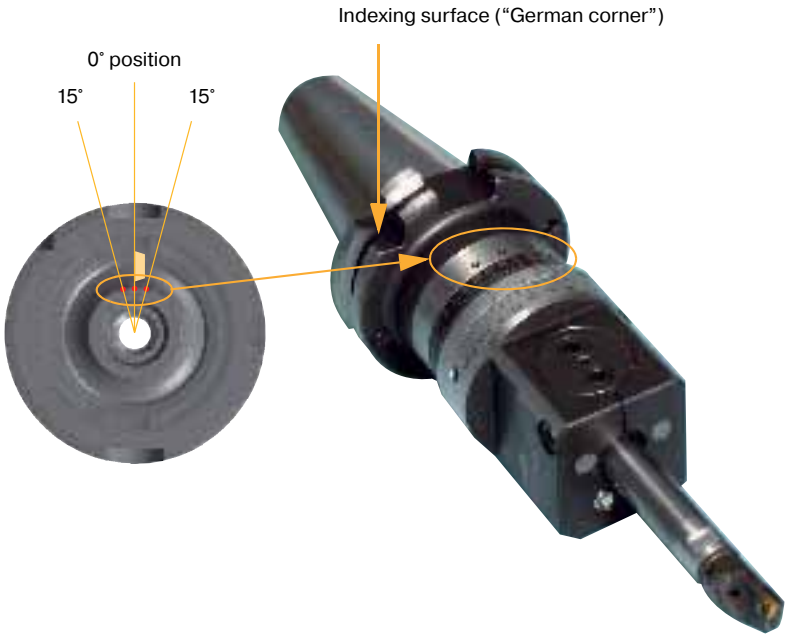


Group	Page	Axial	Radial
ISO cartridges	350	2 mm	0.5 mm
WALTER Mini toolholders	357	0.6 mm	0.6 mm
WALTER Mini cartridges	360/364	1.0 mm	0.5 mm
WALTER precision boring cartridges	363	1.0 mm	0.3 mm

Cutting orientation for ScrewFit precision boring tools

The cutting orientation ensures that the position of the cut is suitably aligned with the adaptor groove or indexing surface (“German corner”).

If the ScrewFit coupling is tightened with a defined torque, it is ensured that the cutting edge lies at 0° ±15°.



Setting instructions for imbalance compensation WALTER Precision*MINI* boring tools B 4030

① Angle scale

② Setting ring gauge A

③ Setting ring gauge B

④ Clamping screw

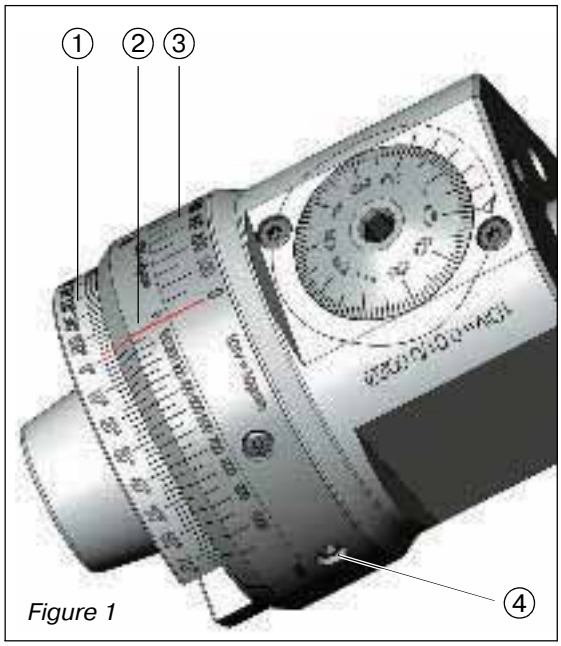


Figure 1

1. Setting the desired diameter
(see page 390).
2. Turn setting ring gauges ② + ③ to the neutral position and secure.
Scale values 0 gmm to 0° of the angle scale ①
(Figure 1).
3. Take imbalance values from the settings table (included in delivery).
Please take into account the corner radius R.
4. Example:
drilling diameter 28.5 mm
Imbalance U **350 gmm at Φ 160°.**
5. Set imbalance value 350 gmm of setting ring gauge A ② to 160° of angle scale ① and secure ring (Figure 2).
6. Set imbalance 350 gmm of setting ring gauge B ③ to the 0 value of setting gauge ring A ② and secure ring (Figure 3).

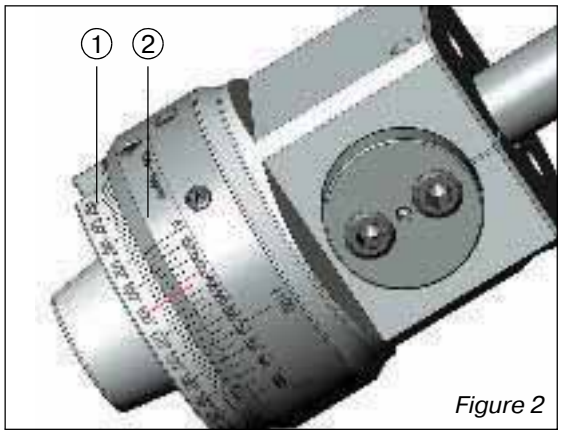


Figure 2

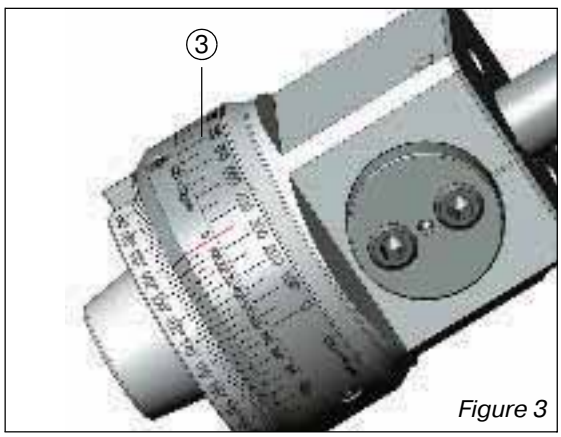


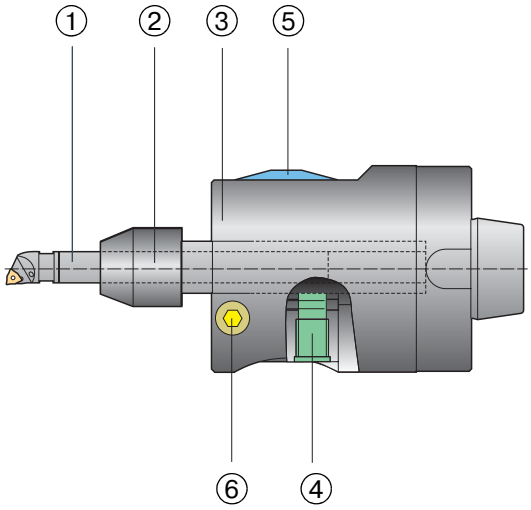
Figure 3

Setting instructions for WALTER Precision boring tools B 3230 / B 4030

These tools have a highly precise adjustment mechanism.
The scale graduation permits trouble-free adjustment of the cutting edges in the µ range.

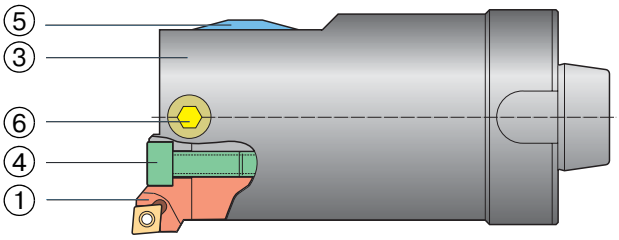
WALTER Precision*MINI*

1. Push the boring bar or indexable insert holder ①, if applicable using a reducing adapter ②, into the locating bore of the base body ③ at least far enough so that the two clamping screws ④ are able to engage.
2. Align the cutting edge with the marking provided on the face side of the boring head and tighten the two screws ④.
3. Move the base body ③ into the required position by turning the feed screw ⑤ where the locking screw ⑥ is released.
   The scale slide with vernier scale allows for a precise reading of the diameter change (1 DIV = 0.01 mm in dia., with vernier scale 1 DIV = 0.002 mm in dia.).
4. Tighten clamping screw ⑥.



WALTER Precision*MEDIUM*

1. Position the cartridge ① in the cartridge guide of the base body ③ and fasten using clamping screws ④.
2. Release clamping screw ⑥.
3. Move the cartridge holder to the required position by turning the feed screw ⑤ where clamping screw ⑥ is released.
   The scale slide with vernier scale allows for a precise reading of the diameter change (1 DIV = 0.01 mm in dia., with vernier scale 1 DIV = 0.002 mm in dia.).
4. Tighten clamping screw ⑥.



General information:
Observe the path restriction of the base body. When adjusting, never use force. Periodical lubrication (approx. every 20 operating hours) via the lubricating nipple (face side of base body) guarantees extremely high precision coupled with a long service life.
We recommend using a light machine oil such as Mobil Vactra Oil No. 2, BP Energol HLP-32, Klueber Isoflex PDP 94.

Assembly instructions for WALTER bridge-type boring tools

WALTER Boring^{MAXI} Boring tool B 3220

① Basic body

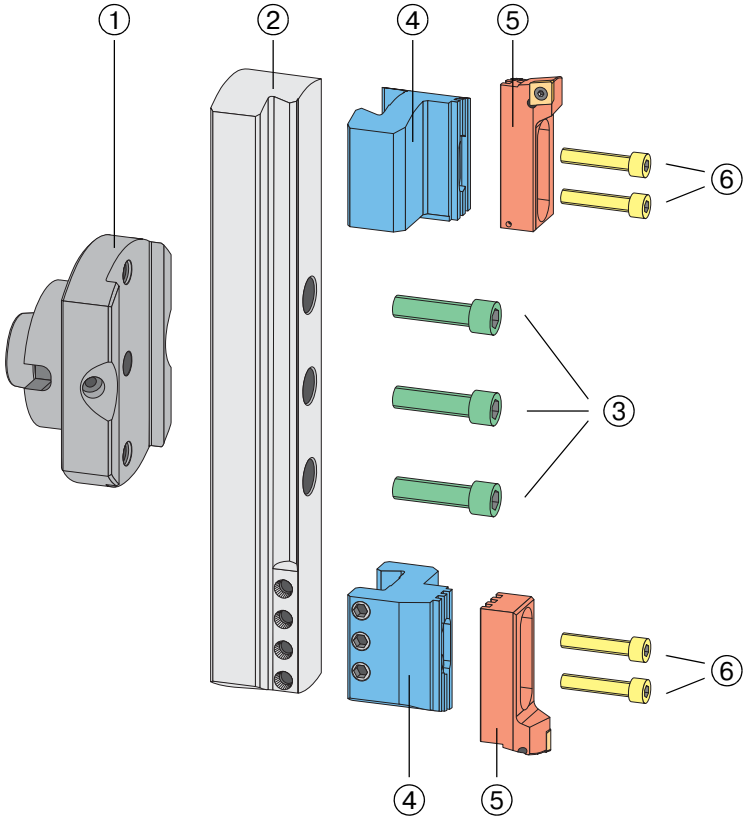
② Bridge

③ Clamping screws for bridge

④ Cartridge holder

⑤ Cartridge

⑥ Clamping screws for cartridge



WALTER Precision^{MAXI} Precision boring tool B 3230

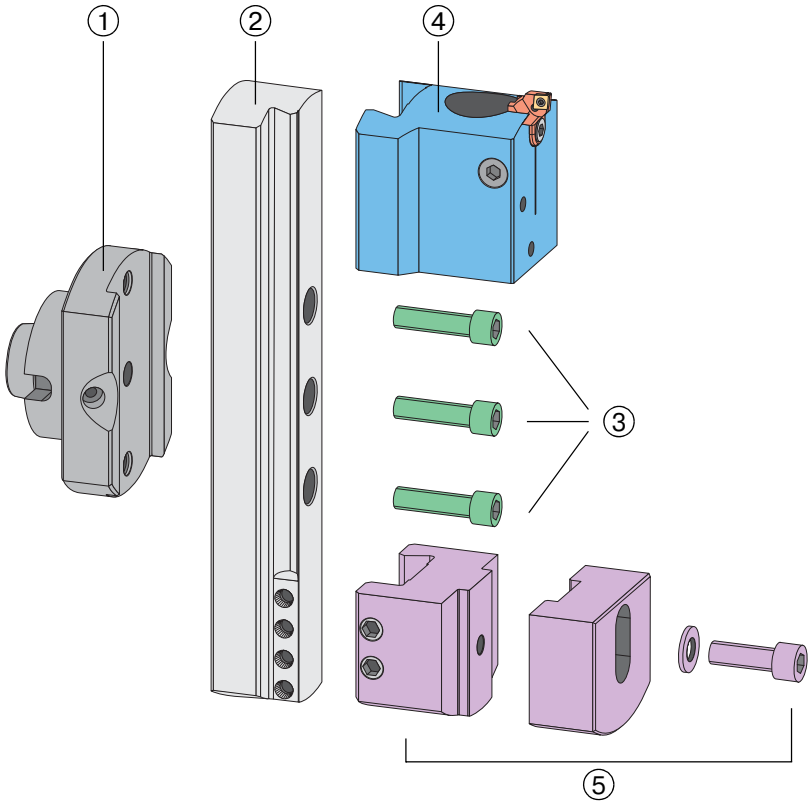
① Basic body

② Bridge

③ Clamping screws for bridge

④ Cartridge holder with cartridge

⑤ Balance compensation



Information on High Speed Cutting

1. Maximum permissible speed: the limiting values shown in the tables should not be exceeded. Otherwise the function and reliability is not guaranteed.
2. Only use original WALTER inserts and assembly parts (screws etc.). Recommendation: After having changed the inserts at least five times, new screws should be fitted.
3. Adhere to the torques specified in the catalogue.
4. Balancing
   Balancing in two steps is required when milling in the upper speed range (> 6.000):
   a. Basic balancing of tool body including inserts (carried out by WALTER upon request). The tool adaptor should also be balanced.
   b. Fine balancing of the cutter when fully mounted on the adaptor. The fine balancing operation is strongly recommended as even the smallest eccentricity can seriously affect the balance status.
5. Short projection lengths reduce concentricity faults or an imbalance as well as increase spindle life. The specified speeds apply to the use of tools without additional extensions.
6. Safety guards
   Appropriate safety guards or machine encapsulations must be used to securely collect particles which spin off such as chips or cutting elements broken as a result of collisions.
7. Damaged tools
   The operating speed must be specified for the repair of HSC Tools.
   Only WALTER must carry out repairs on WALTER tools for HSC machining operations.
8. Technical progress
   As research and standardisation on HSC machining operations is ongoing, we reserve the right to make technical changes. The discussion on balancing specifications is still in progress. The results of the "Balancing" study group of the Technical University in Darmstadt show that the quality category G16 is usually sufficient.

1. WALTER Boring tools B 3220 / B 3221

Diameter range D_C [mm]	n_{max} [1/min]
20–24	16.000
26–33	12.000
33–41	10.000
41–55	7.800
55–70	5.800
70–90	4.600
90–110	3.700
110–153	2.900
150–220	2.100
220–290	1.450
290–360	1.100
360–430	900
430–500	750
500–570	650
570–640	550

The specified limiting speeds refer to symmetrically set tools (Z=2).
For non-symmetrically set tools (Z = 1), the values are reduced by 50 %.

2. WALTER Precision boring tools B 3230

Diameter range D_C [mm]	n_{max} [1/min]
2–45.5*	6.000
20–26	12.000
26–33	10.000
33–41	8.100
41–55	6.450
55–70	4.850
70–90	3.835
90–110	3.090
110–153	2.390
150–220	1.440
220–290	1.090
290–360	880
360–430	740
430–500	630
500–570	550
570–640	490

* The boring bar should be positioned as centrally as possible. Use the largest boring bar size possible.

3. WALTER Precision boring tools B 4030

Diameter range D_C [mm]	n_{max} [1/min]
2–10*	14.000
10–20*	12.000
20–45*	8.000
33–41	15.000
41–55	11.500
55–70	9.000
70–90	7.000
90–110	5.500
110–153	4.000

* The boring bar should be positioned as centrally as possible. Use the largest boring bar size possible.

Boring calculation formulas

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed rate per turn

$$f = f_z \times Z \quad [mm]$$

Feed rate

$$v_f = f \times n \quad [mm/min]$$

Metal removal rate (drilling)

$$Q = \frac{v_f \times \pi \times D_c^{\,2}}{4 \times 1000} \quad [cm^3/min]$$

Power requirement

$$P_{mot} = \frac{Q \times k_c}{60000 \times \eta} \quad [kW]$$

Torque

$$M_c = \frac{D_c^{\,2} \times k_c \times f}{8000} = \frac{P_{mot} \times 9500}{n} \quad [Nm]$$

Feed force

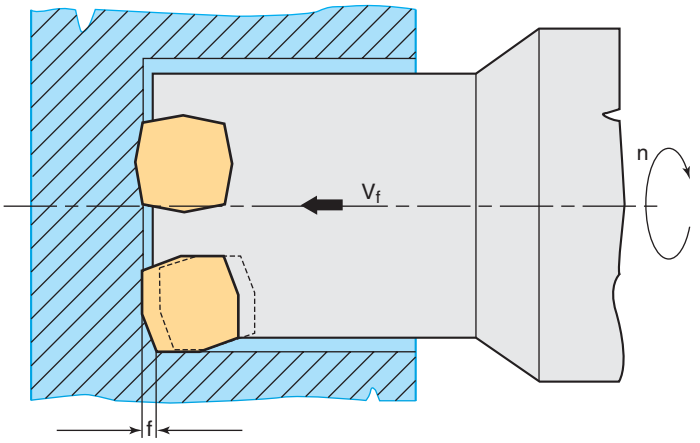
$$F_f = 0{,}63 \times \frac{f \times D_c \times k_c}{2} \quad [N]$$

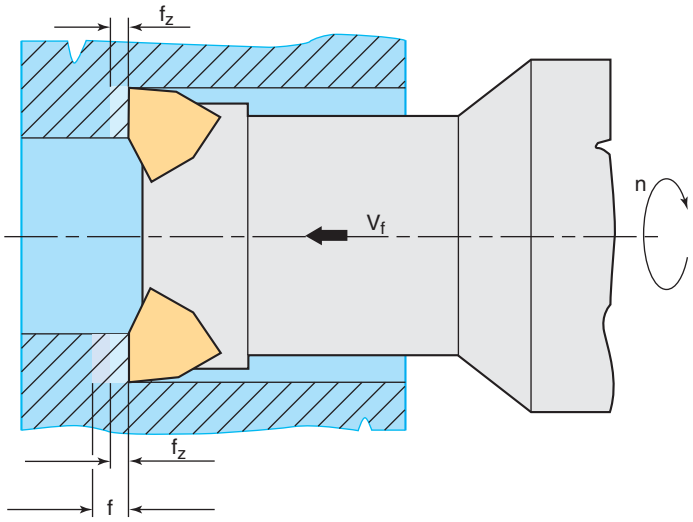
Specific cutting force

$$k_c = \frac{k_c 1.1}{h^{m_c}}$$

Chip thickness

$$h = f_z \times \sin\kappa \quad [mm]$$





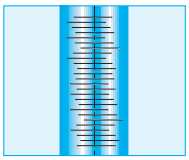
n	Speed	min^{-1}
D_C	Cutting diameter	mm
Z	No. of teeth	
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f_z	Feed per tooth	mm
f	Feed rate	mm
A	Chip section	mm^2
Q	Metal removal rate	cm^3/min
P_{mot}	Power requirement	kW
M_c	Torque	Nm
F_f	Feed force	N
h	Chip thickness	mm
k_c	Specific cutting force	N/mm^2
η	Machine efficiency (0.7–0.95)	
κ	Approach setting angle	°
$k_c 1.1$*	Specific cutting force for 1 mm^2 chip section where h = 1 mm	N/mm^2
m_c*	k_c curve rise	

*m_c and k_c 1.1 see table on page 797.

Technical information on reaming

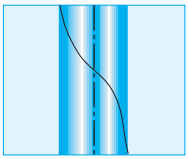
Troubleshooting

Bad surface



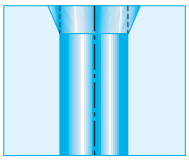
- Check stock removal
- Improve cooling (connection, pressure, quality)
- Lower feed rate, increase rake angle
- Select different chamfer geometry (insert/reamer)
- Check axial position of indexable insert

Retraction marks



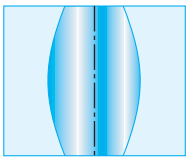
- Improve cooling (connection, pressure, quality)
- Check concentricity (workpiece/tool)
- Enlarge taper

Conical entry



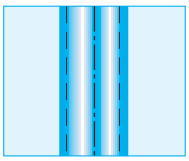
- Lower feed rate
- Check concentricity (workpiece/tool)
- Check taper
- Check concentricity of tool

Deformed bore



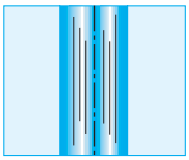
- Check clamping of workpiece

Diameter too large



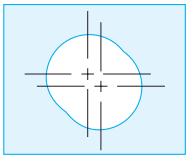
- Check concentricity (workpiece/tool)
- Reset reamer

Chattermarks



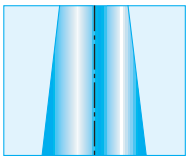
- Check concentricity (workpiece/tool)
- Enlarge taper

Eccentric bore



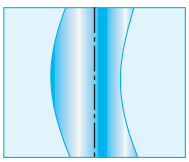
- Check clamping of workpiece
- Check dimension
- Check concentricity (workpiece/tool)
- Check axial position of indexable insert

Conical bore



- Check concentricity (workpiece/tool)
- Check taper

Off-centre bore



- Select different chamfer geometry (insert/reamer)
- Check axial position of indexable insert

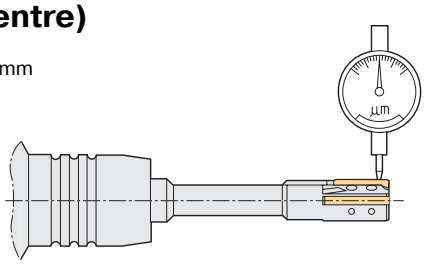
Coolants

To achieve maximum service life and the best bore quality, please adhere to the following guidelines:

- An internal coolant supply should preferably always be used.
  An external coolant supply should only be used with reamer R 4060
  up to dia. 20 = reaming depth 1 x D
  over dia. 20 = reaming depth < dimension l_4 (= length of guide rail)
  Reduce cutting data.
- With steel, aluminium, cast iron:
  use water-soluble oils with min. 40 % mineral oil.
  Oil solution with min. 6–8 % concentration.
- Concentration: min. 6–8 %
- Filtration: 30–50 µm
- Quantity: min. 0.5 l/min/mm tool dia.
  (e.g. reamer ∅ 10, minimum quantity 5 l/min.)

Concentricity – Rotating application (machining centre)

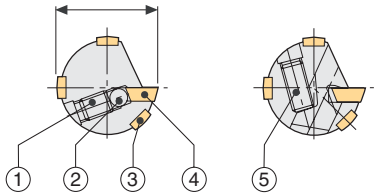
- Max. deviation 0.02 mm
- Recommendation: hydraulic chuck or precision collet



Setting device

On request, we will be delighted to draw up a quotation on a suitable setting device with 1 or 2 gauges.

Insert replacement and diameter setting with WALTER reamers



① Adjusting screw
② Positioning balls
③ Guide rail
④ Insert
⑤ Clamping screw



1. Release the 2 adjusting screws ① by turning them anticlockwise 1/4 of a revolution.



2. Release the 2 clamping screws ⑤.



3. Thoroughly clean the insert seat and the insert. Turn the insert ④ or insert a new one.



4. Press the insert firmly against the axial limit stop and the positioning balls ②.



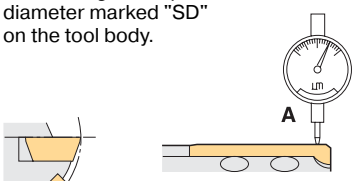
5. Tighten the clamping screws, to do this hold the wrench at the short end.

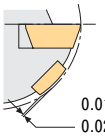


6. Set the gauge on the guide rail lying behind the cutting edge ③ to 0.



7. Measuring point A:
Set the insert using adjusting screw ① so that the cutting edge lies 0.02/0.015 mm before the guide rail (see section below). This setting corresponds with the diameter marked "SD" on the tool body.

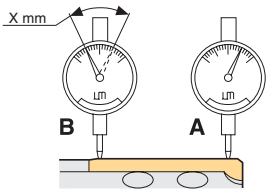




0.015 mm (dia. ≤ 10 mm)
0.020 mm (dia. > 10 mm)



8. Measuring point B:
set gauge on guide rail to 0 (similar to 6.). Then set the insert to a diameter where a taper of 1 µm per mm of cutting length is achieved.



Insert size	00	0	1	2	4
Value X [mm]	0.01	0.02			0.025

Taper 1/1000 (0.01 mm/10 mm)

Attention: if the required diameter is exceeded during the setting, repeat the procedure again from the start, so that the adjusting screw has no play.



Milling

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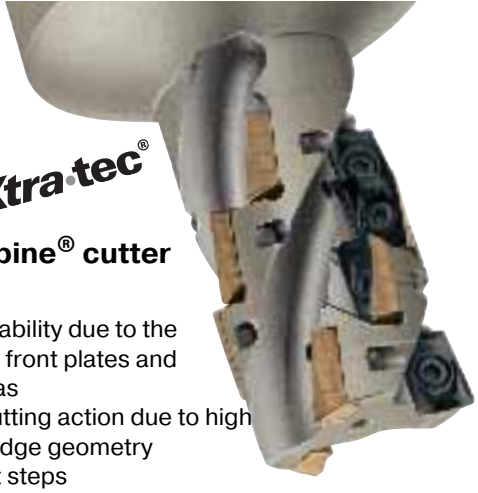
WALTER milling cutters



WALTER Porcupine® cutter F 4238

- High process reliability due to the firmly embedded front plates and large cutting areas
- Extremely soft cutting action due to high positive cutting edge geometry
- Minimum without steps

For the complete range of slot milling cutters, see page 530.



WALTER surface milling cutter F 4033

- Extremely stable indexable inserts thanks to the negative basic shape
- Soft cutting action due to the extremely positive insert geometry for maximum productivity
- 8 cutting edges per insert

For the complete range of surface milling cutters, see page 446.



WALTER milling cutter with round inserts F 2334

- Round inserts with location flats ensure high stability insert clamping
- Ideal for maximum feed rates and cutting performances
- Ideal for roughing operations and difficult-to-machine materials

For the complete range of copy milling cutters, see page 578.



WALTER copy finishing milling cutter F 2139

- High-precision tool with indexable inserts
- Finishing cutter, ideal for HSC operations
- Also available in a carbide shank version for finishing deep pockets

For the complete range of copy milling cutters, see page 578.



WALTER PCD milling cutters

- High-quality surface finishes and an outstanding service life when machining aluminium
- Spindle friendly application due to constructively balanced tools
- In the standard product range as surface, shoulder and Porcupine® cutters

For the complete range of PCD milling cutters, see page 603.



WALTER octagon cutter F 4080 Xtra·tec®

- Best tool for surface milling, plunge milling, chamfering, bore milling and circular interpolation milling
- Maximum productivity due to 8 cutting edges per insert
- Complete range of geometries and grades for machining all kinds of materials

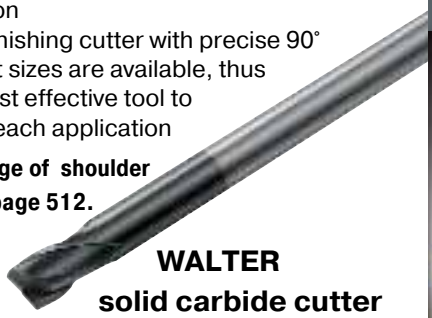
For complete range of surface milling cutters, see page 448.



WALTER shoulder milling cutter F 4042

- High positive tool for extremely soft cutting action
- Roughing and finishing cutter with precise 90°
- 4 different insert sizes are available, thus enabling the most effective tool to be selected for each application

For the complete range of shoulder milling cutters, see page 512.



WALTER solid carbide cutter

- Comprehensive range covering all workpiece materials
- PVD coatings for hard machining of up to 65 HRC
- Shoulder and radius milling cutters for finishing and roughing

For the complete range of solid carbide cutters, see page 607.

WALTER shoulder milling cutter F 4041

- Unique, spiral-shaped indexable insert for precisely 90° with 4 cutting edges per insert
- Maximum process reliability due to the negative insert seat
- Ideal operational smoothness due to the positive rake angle

For the complete range of shoulder milling cutters,see page 512.



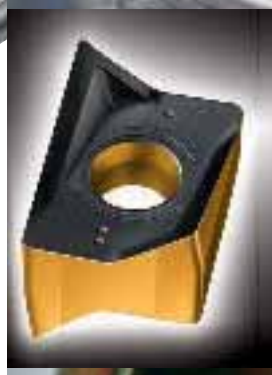
WALTER high-performance milling cutter F 2330

- For feed rates of up to 3.5 mm per tooth
- High tool stability is ensured even when operating on long projection lengths due to minimal radial forces
- Maximum cutting efficiencies when surface milling, plunge milling, copy milling, bore milling and circular interpolation milling

For complete range of surface milling cutters, see page 448.













Indexable inserts for milling operations



Indexable inserts for the *Xtra*·tec® milling cutters

- Optimal application of the ***Xtra*·tec®** milling cutter for machining operations due to a broad geometry spectrum and innovative ***Tiger*·tec®** coatings
- High positive insert geometries ensure soft cutting action and reduce power consumption
- Stable inserts together with extremely wear resistant cutting tool materials ensure maximum process reliability

Indexable inserts for general milling

- ***WORLD FIRST***: the PVD-Al_2O_3 coated inserts are ideal for the reliable machining of materials with difficult cutting properties and stainless steels
- WALTER inserts cover every application due to a broad geometry and grade spectrum.
- Sharp polished geometries with sophisticated PVD coatings ensure soft cutting action when machining NF metals.
- For the machining of steel and cast iron, indexable inserts with optimal geometries and innovative ***Tiger*·tec®** coatings are available.





Indexable inserts for special applications, for example:

- For the profile milling of aircraft landing gear
- For machining turbine blades
- Profile milling inserts for the mould and die making industry – also in CBN design for hard machining
- Special trigon inserts for high-performance machining
- PCD indexable inserts for aluminium machining
- CBN indexable inserts for the machining of cast iron at maximum cutting speeds

For the complete indexable insert range for milling cutters, see page 402 onwards.





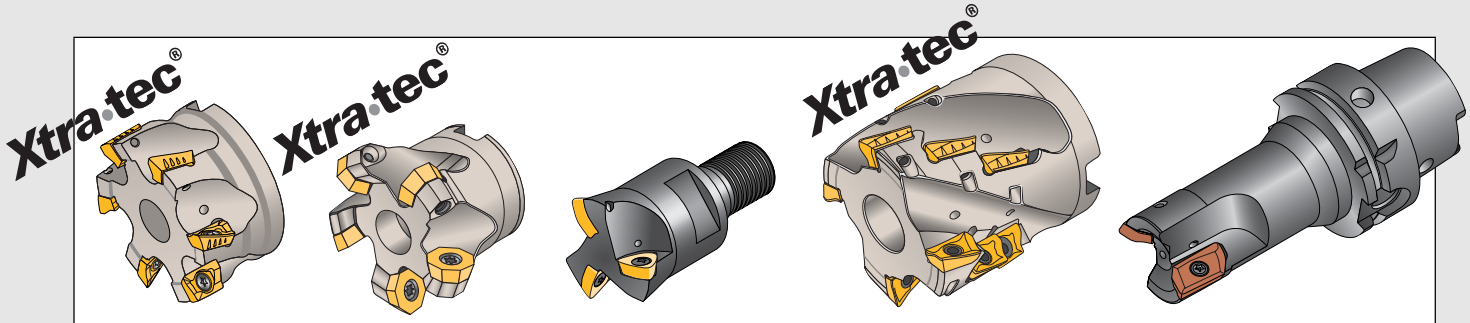








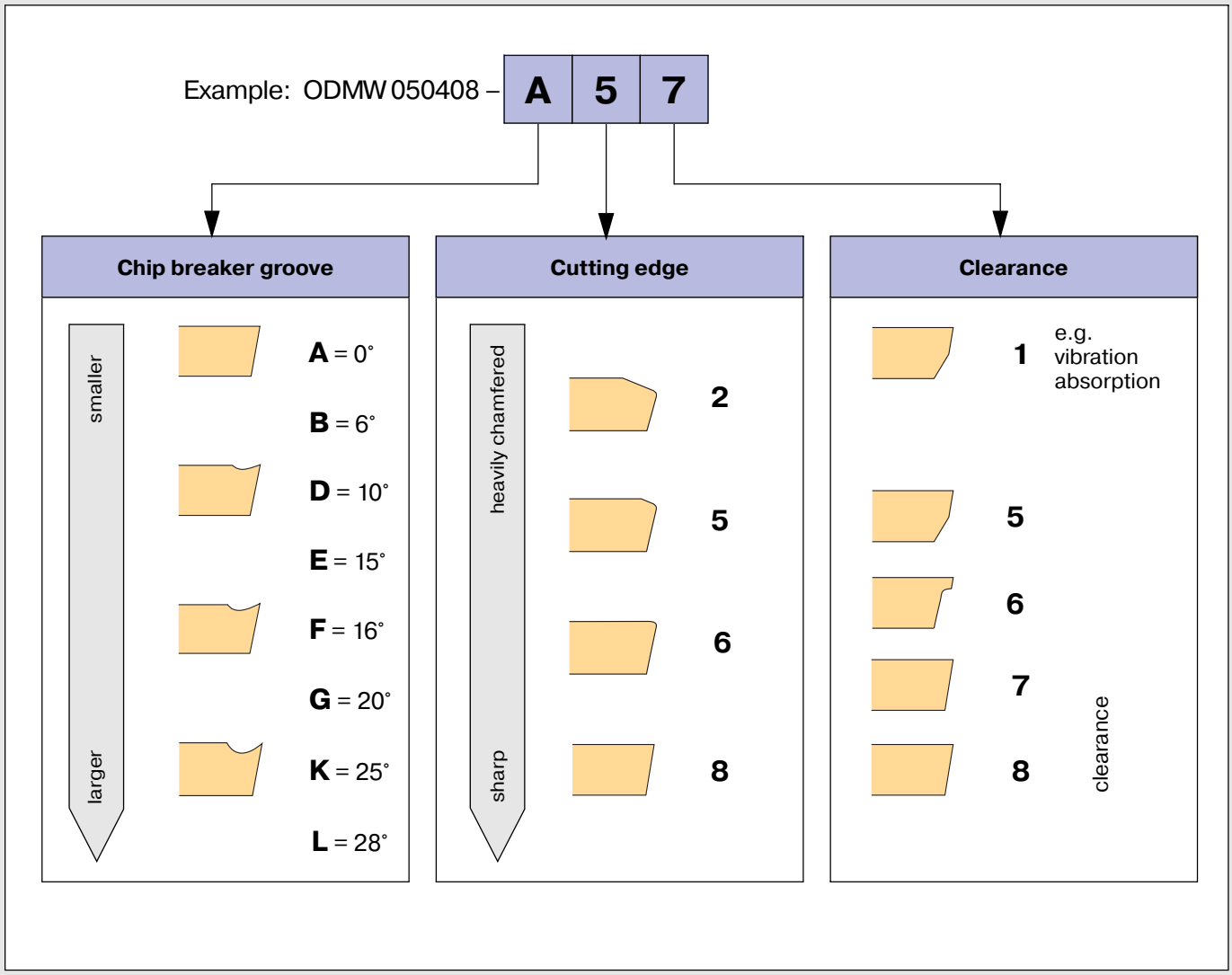
Product range of milling inserts



Insert shape	Description	Page
NEW A	Positive rhombic for *Xtra*·tec®	416
C	Tangential rhombic	426
NEW L	Positive rhombic	422
	Tangential rhombic	426
	Rhombic negative *Xtra*·tec®	419
M	Positive rhombic	423
NEW O	Octagonal positive for *Xtra*·tec®	415
	Finishing inserts	433
NEW R	Positive round	419
NEW S	Positive square	408
	Negative square F 2254	413
	Square negative *Xtra*·tec®	413
T	Positive triangular	429
	Negative triangular	431
NEW X	Positive form inserts for copy milling cutters	430
Z	Positive rhombic	425

Insert shape	Description	Page
NSM . .	Inserts for slitting cutters	432
P 20200	Positive rhombic	424
P 23 . .	WENDELNOVEX inserts	432
NEW P 263 . .	Positive triangular	
	for high performance cutters	428
	for copy milling cutters	429
P 2792	Positive rhombic	423
NEW P 32 . .	Inserts for copy milling cutters	431
P 44 . .	Tangential rhombic	427
	Finishing inserts	434

WALTER geometry designation key
for milling inserts



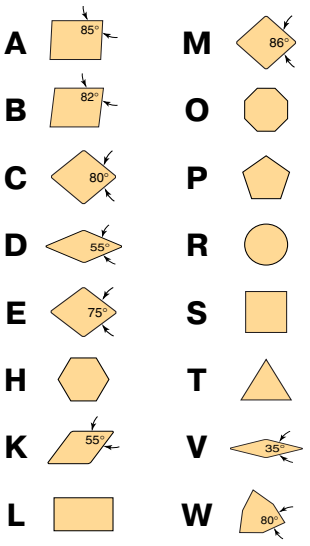
For a detailed geometry description of the Xtra-tec tools, F 2330 and F 2334, see Technical information page 668.

Designation key in accordance with ISO 1832

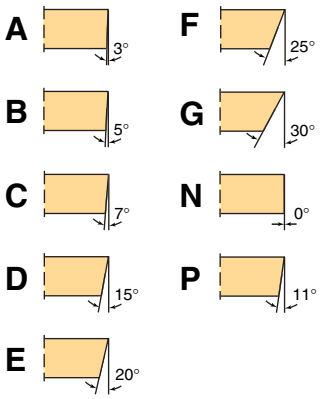
Example for milling inserts:

R	D	H	W	16	05	MO	T		– A 27
1	2	3	4	5	6	7	8	9	12

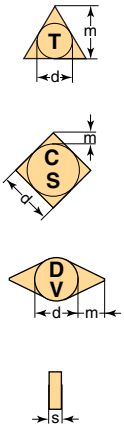
1 Insert shape



2 Clearance angle



3 Tolerances

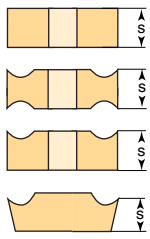


Permissible deviation in mm for

	d	m	s
A	± 0.025	± 0.005	± 0.025
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
F	± 0.013	± 0.005	± 0.025
G	± 0.025	± 0.025	± 0.130
H	± 0.013	± 0.013	± 0.025
J[1]	± 0.05–0.15[2]	± 0.005	± 0.025
K[1]	± 0.05–0.15[2]	± 0.013	± 0.025
L[1]	± 0.05–0.15[2]	± 0.025	± 0.025
M	± 0.05–0.15[2]	± 0.08–0.20[2]	± 0.130
N	± 0.05–0.15[2]	± 0.08–0.20[2]	±0.025
U	± 0.08–0.25[2]	± 0.13–0.38[2]	± 0.130

[1] inserts with ground secondary cutting edges
[2] depending on the insert size (see ISO standard 1832)

6 Insert thickness



01 s = 1.59
T1 s = 1.98
02 s = 2.38
T2 s = 2.78
03 s = 3.18
T3 s = 3.97
04 s = 4.76
05 s = 5.56
06 s = 6.35
07 s = 7.94
09 s = 9.52

7 Corner radius

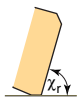


02 r = 0.2
04 r = 0.4
08 r = 0.8
12 r = 1.2
16 r = 1.6
24 r = 2.4

R

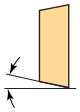
00 for diameters with inch dimensions converted to mm.
M0 for diameters in metric measurements.

Approach angle χ_r



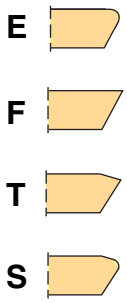
A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = other approach angle

Clearance angle to the secondary cutting edge

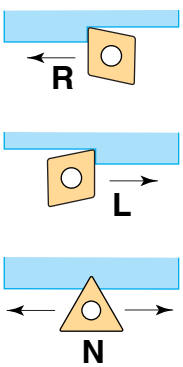


A = 3°
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = other clearance angle

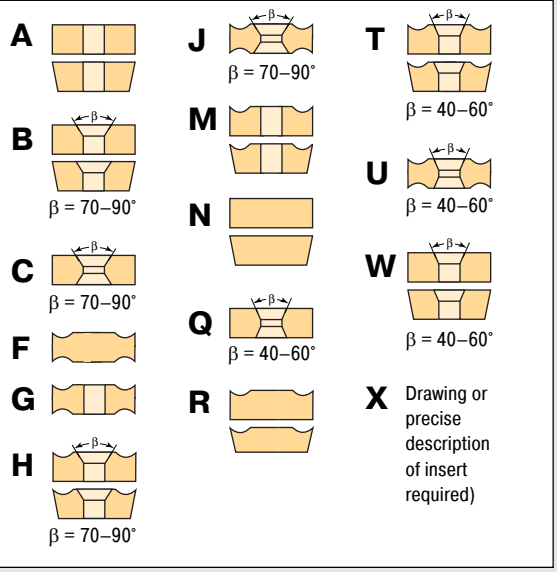
8 Cutting edge formation



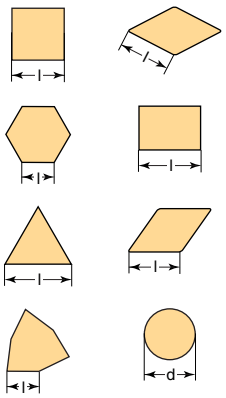
9 Cutting edge direction



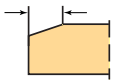
4 Machining and fastening features



5 Cutting edge length

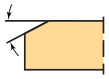


10 Chamfer width



010 = 0.10 mm
025 = 0.25 mm
070 = 0.70 mm
150 = 1.50 mm
200 = 2.00 mm

11 Chamfer angle



15 = 15°
20 = 20°

12 Manufacturer's specifications

The ISO code includes 9 symbols. The symbols 8 and/or 9 should be only used when required.
The manufacturer can add other symbols which can be combined with the ISO code by means of a hyphen (e.g. for the chip breaker shape).

Milling	
A 25	F 57
A 27	F 67
A 51	G 56
A 57	G 85
A 88	G 88
D 51	K 85
D 55	K 88
D 56	L 55
D 57	
F 27	
F 55	
F 56	

WALTER SELECT for milling inserts

WALTER SELECT –
Step by step to the optimal indexable insert

➔ Step 1

Define the **material** to be machined:

Groups of the materials to be machined		Code letters	Machining group*
Steel	All types of steel and cast steel, with the exception of steel with an austenitic structure	**P**	**1–13**
Stainless steel	Stainless austenitic steel and austenitic-ferritic steel and cast steel	**M**	**14**
Cast iron	Grey cast iron, cast iron with spheroidal graphite, malleable cast iron, compacted graphite iron	**K**	**15–20**
NF metals	Aluminium and other non-ferrous metals, non-ferrous materials	**N**	**21–30**
High temperature alloys and titanium alloys	Heat-resistant special alloys based on iron, nickel and cobalt, titanium and titanium alloys	**S**	**31–37**
Hard materials	Hardened steel, hardened cast iron materials, chilled cast iron	**H**	**38–41**

* for assignment of the groups, see page 798.

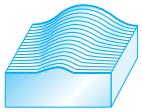
➔ Step 2

Select the **machining conditions:**

Tool projection	Machine stability, clamping system and workpiece		
	very good	good	moderate
short			
extended			

➔ Step 3

Select the suitable **tool** in accordance with your application and individual requirements.
Then select your milling cutter from the corresponding tool page.

Machining method			
			
Surface Milling	**Shoulder Milling**	**Slot Milling**	**Copy Milling**
see page 446	see page 512	see page 530	see page 578

➔ Step 4

Define your optimal **indexable insert grades and geometries** on the appropriate tool page.
Here please take into consideration the machining conditions (step 2) and the material to be machined.
For a detailed geometry description of the Xtra-tec tools, F 2330 and F 2334, see technical information page 668.

Indexable inserts

Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H
			HC				HC			HC			HC	HW	HC		HC
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15
ADGT 1204 PER – D 51	0.8	1.2	☺	😐	☹			☹			😐	☹				☹	
ADGT 1204 PER – D 56	0.8	1.2	☺	😐							😐	☹					
ADGT 1204 PER – F 56	0.8	1.2			☹		😐	☹							😐	☹	
ADGT 120404 R – F 56	0.4	1.2			☹		😐	☹							😐	☹	
ADGT 120412 R – F 56	1.2	1.2			☹		😐	☹							😐	☹	
ADGT 120416 R – F 56	1.6	1.0			☹		😐	☹							😐	☹	
ADGT 120420 R – F 56	2.0	1.0			☹		😐	☹							😐	☹	
120425 R – F 56	2.5	0.8			☹		😐	☹							😐	☹	
20430 R – F 56	3.0	0.8			☹		😐	☹							😐	☹	
0432 R – F 56	3.2	0.8			☹		😐	☹							😐	☹	

WALTER SELECT
Best Insert for:
good
moderate
unfavour-able
machining conditions

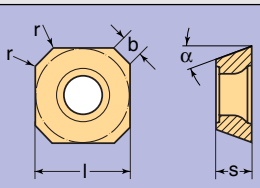
➔ Step 5

Select the **cutting data**
in the technical information, from page 620.

Material group	Workpiece material		Brinell hardness HB	Machining group*	Cutting speed v_c [m/min] WKP 25 a_e/D_c 1/1	WKP 25 1/5	WKP 25 1/10	WKP 35 a_e/D_c 1/1	WKP 35 1/5	WKP 35 1/10
P	Non-alloyed steel[1]	approx. 0.15 % C annealed	125	1	285	375	365	240	300	300
		approx. 0.45 % C annealed	190	2	240	310	330	200	255	275
		approx. 0.45 % C tempered	250	3	230	285	285	185	240	240
		approx. 0.75 % C annealed	270	4	200	255	255	155	195	210
		approx. 0.75 % C tempered	300	5	185	230	230	145	180	185
	Low-alloyed steel[1]	annealed	180	6	210	265	300	165	210	230
		tempered	275	7	200	255	275	155	195	215
		tempered	300	8	185	230	255	145	180	200
		tempered	350	9	155	200	220	120	155	170
	High-alloyed steel and high-alloyed tool steel[1]	annealed	200	10	145	185	200	110	145	160
		hardened and tempered	325	11	100	120	120	75	100	100
	Stainless steel[1]	ferritic / martensitic, annealed	200	12	155	200	220	120	155	170
		martensitic, tempered	240	13	130	165	165	110	145	155
M	Stainless steel[1]	austenitic[2], quenched	180	14						
K		perlitic/ferritic				350	370	240	280	

Milling inserts

Positive square

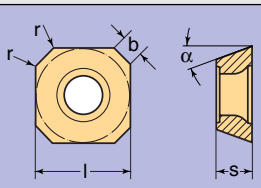


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P					M	K					N		H	
									HC				HW	HC	HC			HW	CN	HC	HW	HC	HF
									WKP 25	**WKP 35**	WTP 35	WXP 45	WPM	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WKM	WSN 10	WXN 15	WK 10	WXH 15	WMG 40
	SDGT 09T3 AEN – F 57	G	4	9.52	3.97	15	0.3	1.2		△	△	△		△			△						
	SDGT 09T3 AEN – G 88	G	4	9.52	3.97	15	0.3	1.2			△	△								△	△		
	SDHW 09T3 AEN – A 57	H	4	9.52	3.97	15	0.3	1.2	△	△					△	△	△						
	SDMT 09T3 AEN – D 57	M	4	9.52	3.97	15	0.5	1.2		△	△	△					△						
	SDMW 09T3 AEN – A 57	M	4	9.52	3.97	15	0.5	1.2	△	△					△	△	△						
	SDMW 09T3 AETN – A 27	M	4	9.52	3.97	15	0.5	1.2	△	△						△	△						
	SEHT 1204 AFN	H	4	12.7	4.76	20	0.8	2.0		△	△	△		△			△				△		
	SEHT 1204 AFN – K 88	H	4	12.7	4.76	20	0.8	1.8													△		
	SEHW 1204 AFN SEHW 1504 AFN	H H	4 4	12.7 15.88	4.76 4.76	20 20	0.8 0.8	2.0 2.1	△ △	△ △	△ △		△ △	△	△ △	△ △	△ △	△ △					



Positive square



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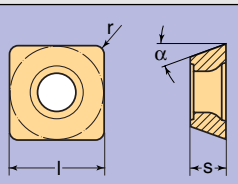
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	SPGT 1204 AEN – K 88	G	4	12.7	4.76	11		1.5			△	△								△	△		
	SPKT 1204 AZN	K	4	12.7	4.76	11		1.4	△	△	△	△		△	△	△	△						
	SPKT 1504 AZN	K	4	15.88	4.76	11		1.7	△	△	△			△	△	△	△						
	SPMT 1204 AEN	M	4	12.7	4.76	11		1.4	△	△	△				△	△	△						
	SPMW 1204 AEN – A 57	M	4	12.7	4.76	11	0.5	1.4	△	△					△	△	△						
	SPMW 1204 AETN – A 27	M	4	12.7	4.76	11	0.5	1.4	△	△						△	△						



Positive square



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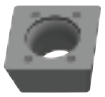
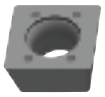
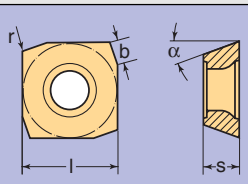
	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm		P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	SDHW 09T312 – A 57	H	4	9.52	3.97	15	1.2												△				
	SPGT 120606 – F 57	G	4	12.7	6.35	11	0.6			△				△			△						
	SPHT 060304 – G 88	H	4	6.35	3.18	11	0.4													△	△		
	SPHT 09T308 – G 88	H	4	9.52	3.97	11	0.8													△	△		
	SPHT 120408 – G 88	H	4	12.7	4.76	11	0.8													△	△		
	SPHW 120606 – A 51	H	4	12.7	6.35	11	0.6			△				△			△						
	SPMT 120606 – D 57	M	4	12.7	6.35	11	0.6		△	△				△	△	△	△						
	SPHW 120606 – A 57	H	4	12.7	6.35	11	0.6			△				△	△		△						
	SPHW 120412 – A 57	H	4	12.7	4.76	11	1.2												△				
	SPHW 120416 – A 57	H	4	12.7	4.76	11	1.6												△				
	SPMT 060304 – D 51	M	4	6.35	3.18	11	0.4		△	△	△	△				△	△						
	SPMT 09T308 – D 51	M	4	9.52	3.97	11	0.8		△	△	△	△				△	△						
	SPMT 120408 – D 51	M	4	12.7	4.76	11	0.8		△	△	△	△				△	△						
	SPMT 120606 – D 51	M	4	12.7	6.35	11	0.6			△				△			△						
	SPMT 060304 – F 55	M	4	6.35	3.18	11	0.4			△	△	△		△	△		△	△					
	SPMT 09T308 – F 55	M	4	9.52	3.97	11	0.8			△	△	△		△	△		△	△					
	SPMT 120408 – F 55	M	4	12.7	4.76	11	0.8			△	△	△		△	△		△	△					
	SPMW 060304 T – A 27	M	4	6.35	3.18	11	0.4		△	△			△			△	△						
	SPMW 09T308 T – A 27	M	4	9.52	3.97	11	0.8		△	△						△	△						
	SPMW 120408 T – A 27	M	4	12.7	4.76	11	0.8		△	△			△			△	△						
	SPMW 120606 T – A 27	M	4	12.7	6.35	11	0.6			△							△						
	SPMW 060304 – A 57	M	4	6.35	3.18	11	0.4		△	△					△	△	△	△					
	SPMW 09T308 – A 57	M	4	9.52	3.97	11	0.8		△	△			△		△	△	△	△					
	SPMW 120408 – A 57	M	4	12.7	4.76	11	0.8		△	△			△		△	△	△	△					

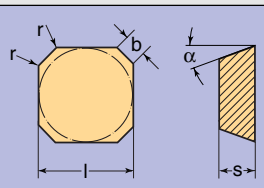
Positive square



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	SPGT 1204 EDR – F 55	G	4	12.7	4.76	11	0.5	1.25	△	△	△	△			△	△	△						
	SPJW 1204 EDR	J	4	12.7	4.76	11		1.4	△	△	△		△	△	△	△	△	△						
	SPJW 1504 EDR	J	4	15.88	4.76	11		1.5	△	△	△		△	△	△	△	△	△						

Positive square



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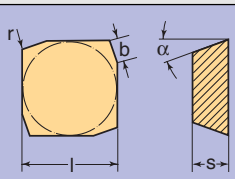
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	SEKN 1203 AFN	K	4	12.7	3.18	20	0.625	1.9	△	△	△		△		△	△	△						
	SEKN 1504 AFN	K	4	15.88	4.76	20	0.35	2.0	△	△	△				△	△	△						
	SEKR 1203 AFTN	K	4	12.7	3.18	20	0.425	1.9		△	△						△						
	SEKR 1204 AFN	K	4	12.7	4.76	20	0.34	1.9		△	△						△						
	SEMN 1203 AFN	M	4	12.7	3.18	20	0.5	1.9	△	△					△	△	△						
	SEMR 1203 AFTN	M	4	12.7	3.18	20	0.5	1.9		△							△						

Positive square



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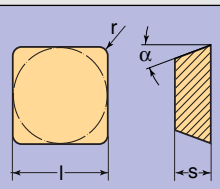
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	SPKN 1203 EDR	K	4	12.7	3.18	11		1.4	△	△	△		△		△	△	△	△					
	SPKN 1203 EDL	K	4	12.7	3.18	11		1.5			△												
	SPKN 1204 EDR	K	4	12.7	4.76	11		1.4	△	△					△	△	△						
	SPKN 1504 EDR	K	4	15.88	4.76	11		1.5		△	△		△				△	△					
	SPFN 1203 EDR	F	4	12.7	3.18	11		1.4		△							△	△					
	SPFN 1204 EDN	F	4	12.7	4.76	11	0.5	1.7	△	△					△	△	△						
	SPFN 1204 ZPN	F	4	12.7	4.76	11	0.8	1.7	△	△					△	△	△						
	SPFR 1204 EDR	F	4	12.7	4.76	11	0.5	2.0		△	△				△		△						
	SPMN 1203 EDR	M	4	12.7	3.18	11		1.4		△					△		△						
	SPMN 1204 EDR	M	4	12.7	4.76	11		1.4		△					△		△						
	SPFR 1204 ZPR	F	4	12.7	4.76	11	0.8	1.7	△	△					△	△	△						
	SPFR 1204 ZPN	F	4	12.7	4.76	11	0.8	1.7	△	△					△	△	△						

Positive square



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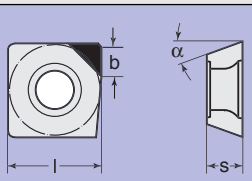
	Designation	Tolerance class	Cutting edges	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	SPNN 120308	N	4	12.7	3.18	11	0.8						△										
	SPNN 150412	N	4	15.88	4.76	11	1.2						△					△					
	SPNR 120412	N	4	12.7	4.76	11	1.2		△	△					△	△	△						



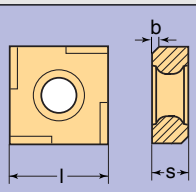
Positive square with PCD insert



DP = polycrystalline diamond

	Designation	Tolerance class	Cutting edges	l mm	s mm	α°		b mm	P HC				HW	M HC	K HC			HW	CN	N DP		H HC	HF
									WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WCD 10		WXH 15	WMG 40
	SPHW 1204 PDR – A 88	H	1	12.7	4.76	11		1.5												△			
	SPHW 1204 EDR – A 88	H	1	12.7	4.76	11		1.5												△			

Negative square



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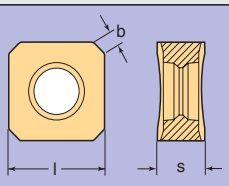
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm			b mm	P HC				HW	M HC	K HC			HW	CN	N HC	HW	H HC	HF
									WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WMG 40
	SNHQ 1205 ZZR – A 57 T	H	8	12.0	5.0			0.8	△	△					△	△	△						

Negative square for *Xtra·tec*® milling cutter



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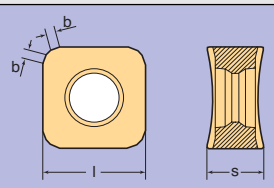
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm			b mm	P HC				M HC			K HC			N HC	HW	S HC		H HC	HF
									WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	SNGX 1205 ANN – F 27	G	8	12.7	6.5			1.5	△	△							△	△						
	SNGX 1205 ANN – F 57	G	8	12.7	6.5			1.5	△	△	△		△	△			△	△			△	△		
	SNGX 1205 ANN – F 67	G	8	12.7	6.5			1.5	△	△	△		△	△		△	△	△			△	△		
	SNMX 1205 ANN – F 27	M	8	12.7	6.5			1.5	△	△							△	△						
	SNMX 1205 ANN – F 57	M	8	12.7	6.5			1.5	△	△							△	△						
	SNMX 1205 ANN – F 67	M	8	12.7	6.5			1.5	△	△						△	△	△						

Negative square for Xtra·tec® milling cutter



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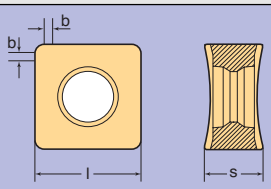
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm			b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	SNGX 1205 ENN – F 27	G	8	12.7	6.5			1.2	△	△						△	△						
	SNGX 1205 ENN – F 57	G	8	12.7	6.5			1.2	△	△						△	△						
	SNGX 1205 ENN – F 67	G	8	12.7	6.5			1.2	△	△					△	△	△						

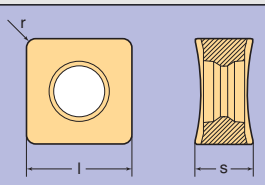
Negative square for Xtra·tec® milling cutter



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	l mm	s mm			b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	SNGX 1205 ZNN – F 27	G	8	12.7	6.5			1.2	△	△						△	△						
	SNGX 1205 ZNN – F 57	G	8	12.7	6.5			1.2	△	△						△	△						
	SNGX 1205 ZNN – F 67	G	8	12.7	6.5			1.2	△	△					△	△	△						

Negative square for Xtra·tec® milling cutter

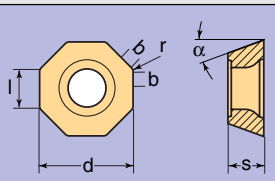


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

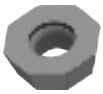
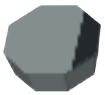
	Designation	Tolerance class	Cutting edges	l mm	s mm		r mm		P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	N HC WXN 15	N HW WK 10	H HC WXH 15	H HC WXM 15	H HF WMG 40
	SNGX 120512 – F 57	G	8	12.7	6.5		1.2		△	△						△	△						
	SNMX 120512 – F 27	M	8	12.7	6.5		1.2		△	△						△	△						
	SNMX 120512 – F 57	M	8	12.7	6.5		1.2		△	△						△	△						
	SNMX 120520 – F 57	M	8	12.7	6.5		2.0		△	△						△	△						
	SNMX 120512 – F 67	M	8	12.7	6.5		1.2		△	△					△	△	△						



Positive octagon



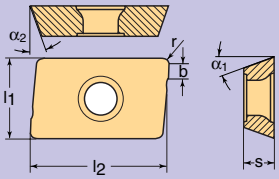
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	l mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WTP 35	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K BH WCB 80	K CN WSN 10	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	HF WMG 40
	ODHT 0504 ZZN – F 57	H	8	12.7	5	4.76	15	0.8	1.2		△		△	△			△			△							△
	ODHT 0605 ZZN – F 57	H	8	15.88	6	5.56	15	0.8	1.6		△	△	△	△	△	△	△			△					△	△	△
	ODHT 0504 ZZN – G 88	H	8	12.7	5	4.76	15	0.8	1.2				△	△									△	△			△
	ODHT 0605 ZZN – G 88	H	8	15.88	6	5.56	15	0.8	1.6				△	△									△	△			△
	ODHW 050412 – A 57	H	8	12.7	5	4.76	15	1.2														△					
	ODHW 060516 – A 57	H	8	15.88	6	5.56	15	1.6														△					
	ODHW 0504 ZZN – A 57	H	8	12.7	5	4.76	15	0.8	1.2	△	△						△	△	△	△							
	ODHW 0605 ZZN – A 57	H	8	15.88	6	5.56	15	0.8	1.6	△	△						△	△	△	△							
	ODMT 0504 ZZN – D 57	M	8	12.7	5	4.76	15	0.8	1.2	△	△		△				△		△	△							
	ODMT 0605 ZZN – D 57	M	8	15.88	6	5.56	15	0.8	1.6	△	△	△	△		△	△	△		△	△					△	△	
	ODMW 050408 T – A 27	M	8	12.7	5	4.76	15	0.8		△	△						△		△	△							
	ODMW 060508 T – A 27	M	8	15.88	6	5.56	15	0.8		△	△						△		△	△							
	ODMW 050408 – A 57	M	8	12.7	5	4.76	15	0.8		△	△						△	△	△	△							
	ODMW 060508 – A 57	M	8	15.88	6	5.56	15	0.8		△	△						△	△	△	△							
	OPHN 0504 ZZN – A 27	H	2	12.7	5	4.76	11	0.4	1.2												△						
	OPHN 050412 – A 57	H	8	12.7	5	4.76	11	1.2														△					
	OPHN 0504 ZZN – A 57	H	8	12.7	5	4.76	11	0.4	1.2	△	△							△	△	△		△					
	OPHR 0504 ZZN – F 57	H	8	12.7	5	4.76	11	0.4	1.2		△									△							

OD . . 0605 . . for *Xtra*·tec® milling cutter



Positive rhombic for *Xtra·tec*® milling cutter

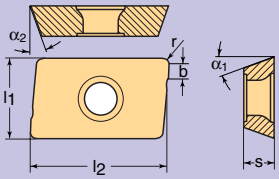


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α_1°	α_2°	r mm	b mm	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
										WKP 25	**WKP 35**	**WSP 45**	WXP 45	**WSM 35**	**WSP 45**	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WXN 15	WK 10	**WSM 35**	**WSP 45**	WXH 15	WMG 40
	ADGT 0803 PER – D 51	G	2	6.26 x 8	3.35	15	20	0.4	1.2	△	△	△			△			△	△				△		
	ADGT 1204 PER – D 51	G	2	7.64 x 12	4.76	15	20	0.8	1.2	△	△	△			△			△	△				△		
	ADGT 1606 PER – D 51	G	2	9.85 x 16	6.15	15	20	0.8	1.6	△	△	△			△			△	△				△		
	ADGT 0803 PER – D 56	G	2	6.26 x 8	3.35	15	20	0.4	1.2	△	△							△	△						
	ADGT 1204 PER – D 56	G	2	7.64 x 12	4.76	15	20	0.8	1.2	△	△							△	△						
	ADGT 1606 PER – D 56	G	2	9.85 x 16	6.15	15	20	0.8	1.6	△	△							△	△						
	ADGT 0803 PER – F 56	G	2	6.26 x 8	3.35	15	20	0.4	1.2			△		△	△							△	△		
	ADGT 1204 PER – F 56	G	2	7.64 x 12	4.76	15	20	0.8	1.2			△		△	△							△	△		
	ADGT 1606 PER – F 56	G	2	9.85 x 16	6.15	15	20	0.8	1.6			△		△	△							△	△		
	ADGT 080302 R – F 56	G	2	6.26 x 8	3.35	15	20	0.2	1.2			△		△	△							△	△		
	ADGT 080308 R – F 56	G	2	6.26 x 8	3.35	15	20	0.8	1.2			△		△	△							△	△		
	ADGT 080312 R – F 56	G	2	6.26 x 8	3.35	15	20	1.2	1.0			△		△	△							△	△		
	ADGT 080316 R – F 56	G	2	6.26 x 8	3.35	15	20	1.6	1.0			△		△	△							△	△		
	ADGT 080320 R – F 56	G	2	6.26 x 8	3.35	15	20	2.0	1.0			△		△	△							△	△		
	ADGT 120404 R – F 56	G	2	7.64 x 12	4.76	15	20	0.4	1.2			△		△	△							△	△		
	ADGT 120412 R – F 56	G	2	7.64 x 12	4.76	15	20	1.2	1.2			△		△	△							△	△		
	ADGT 120416 R – F 56	G	2	7.64 x 12	4.76	15	20	1.6	1.0			△		△	△							△	△		
	ADGT 120420 R – F 56	G	2	7.64 x 12	4.76	15	20	2.0	1.0			△		△	△							△	△		
	ADGT 120425 R – F 56	G	2	7.64 x 12	4.76	15	20	2.5	0.8			△		△	△							△	△		
	ADGT 120430 R – F 56	G	2	7.64 x 12	4.76	15	20	3.0	0.8			△		△	△							△	△		
	ADGT 120432 R – F 56	G	2	7.64 x 12	4.76	15	20	3.2	0.8			△		△	△							△	△		
	ADGT 120440 R – F 56	G	2	7.64 x 12	4.76	15	20	4.0	–			△		△	△							△	△		
	ADGT 160612 R – F 56	G	2	9.85 x 16	6.15	15	20	1.2	1.6			△		△	△							△	△		
	ADGT 160616 R – F 56	G	2	9.85 x 16	6.15	15	20	1.6	1.4			△		△	△							△	△		
	ADGT 160620 R – F 56	G	2	9.85 x 16	6.15	15	20	2.0	1.4			△		△	△							△	△		
	ADGT 160625 R – F 56	G	2	9.85 x 16	6.15	15	20	2.5	1.2			△		△	△							△	△		
	ADGT 160630 R – F 56	G	2	9.85 x 16	6.15	15	20	3.0	1.2			△		△	△							△	△		
	ADGT 160632 R – F 56	G	2	9.85 x 16	6.15	15	20	3.2	1.2			△		△	△							△	△		
	ADGT 160640 R – F 56	G	2	9.85 x 16	6.15	15	20	4.0	1.0			△		△	△							△	△		
	ADGT 160650 R – F 56	G	2	9.85 x 16	6.15	15	20	5.0	–			△		△	△							△	△		
	ADGT 160660 R – F 56	G	2	9.85 x 16	6.15	15	20	6.0	–			△		△	△							△	△		



Positive rhombic for *Xtra·tec*® milling cutter

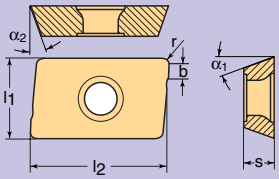


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α_1°	α_2°	r mm	b mm	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
										WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ADHT 120416 R – G 88	H	2	7.64 x 12	4.76	15	20	1.6	1.0											△	△				
	ADHT 120416 L – G 88	H	2	7.64 x 12	4.76	15	20	1.6	1.0											△	△				
	ADHT 120425 R – G 88	H	2	7.64 x 12	4.76	15	20	2.5	0.8											△	△				
	ADHT 120425 L – G 88	H	2	7.64 x 12	4.76	15	20	2.5	0.8											△	△				
	ADHT 120430 R – G 88	H	2	7.64 x 12	4.76	15	20	3.0	0.8											△	△				
	ADHT 120430 L – G 88	H	2	7.64 x 12	4.76	15	20	3.0	0.8											△	△				
	ADHT 120440 R – G 88	H	2	7.64 x 12	4.76	15	20	4.0	–											△	△				
	ADHT 120440 L – G 88	H	2	7.64 x 12	4.76	15	20	4.0	–											△	△				
	ADHT 160616 R – G 88	H	2	9.85 x 16	6.15	15	20	1.6	1.4											△	△				
	ADHT 160616 L – G 88	H	2	9.85 x 16	6.15	15	20	1.6	1.4											△	△				
	ADHT 160625 R – G 88	H	2	9.85 x 16	6.15	15	20	2.5	1.2											△	△				
	ADHT 160625 L – G 88	H	2	9.85 x 16	6.15	15	20	2.5	1.2											△	△				
	ADHT 160630 R – G 88	H	2	9.85 x 16	6.15	15	20	3.0	1.2											△	△				
	ADHT 160630 L – G 88	H	2	9.85 x 16	6.15	15	20	3.0	1.2											△	△				
	ADHT 160640 R – G 88	H	2	9.85 x 16	6.15	15	20	4.0	1.0											△	△				
	ADHT 160640 L – G 88	H	2	9.85 x 16	6.15	15	20	4.0	1.0											△	△				
	ADHT 0803 PER – G 88	H	2	6.26 x 8	3.35	15	20	0.4	1.2											△	△				
	ADHT 0803 PEL – G 88	H	2	6.26 x 8	3.35	15	20	0.4	1.2											△	△				
	ADHT 1204 PER – G 88	H	2	7.64 x 12	4.76	15	20	0.8	1.2											△	△				
	ADHT 1204 PEL – G 88	H	2	7.64 x 12	4.76	15	20	0.8	1.2											△	△				
	ADHT 1606 PER – G 88	H	2	9.85 x 16	6.15	15	20	0.8	1.6											△	△				
	ADHT 1606 PEL – G 88	H	2	9.85 x 16	6.15	15	20	0.8	1.6											△	△				
	ADKT 0803 PER – F 56	K	2	6.26 x 8	3.35	15	20	0.4	1.2	△	△	△			△		△	△	△				△		
	ADKT 0803 PEL – F 56	K	2	6.26 x 8	3.35	15	20	0.4	1.2		△	△			△				△				△		
	ADKT 1204 PER – F 56	K	2	7.64 x 12	4.76	15	20	0.8	1.2	△	△	△			△		△	△	△				△		
	ADKT 1204 PEL – F 56	K	2	7.64 x 12	4.76	15	20	0.8	1.2		△	△			△				△				△		
	ADKT 1606 PER – F 56	K	2	9.85 x 16	6.15	15	20	0.8	1.6	△	△	△			△		△	△	△				△		
	ADKT 1606 PEL – F 56	K	2	9.85 x 16	6.15	15	20	0.8	1.6		△	△			△				△				△		



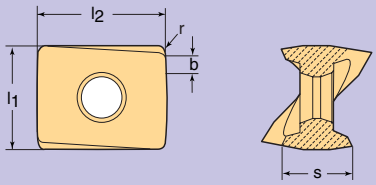
Positive rhombic for *Xtra·tec*® milling cutter



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α_1°	α_2°	r mm	b mm	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
										WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ADMT 080304 R – D 56	M	2	6.26 x 8	3.35	15	20	0.4	1.2	△	△						△	△	△						
	ADMT 120408 R – D 56	M	2	7.64 x 12	4.76	15	20	0.8	1.2	△	△						△	△	△						
	ADMT 160608 R – D 56	M	2	9.85 x 16	6.15	15	20	0.8	1.6	△	△						△	△	△						
	ADMT 180712 R – D 56	M	2	13.5 x 18	7	15	17	1.2	1.8	△	△	△			△			△	△				△		
	ADMT 080302 R – F 56	M	2	6.26 x 8	3.35	15	20	0.2	1.2		△	△	△	△	△				△			△	△		
	ADMT 080304 R – F 56	M	2	6.26 x 8	3.35	15	20	0.4	1.2	△	△	△	△	△	△	△	△	△	△			△	△		
	ADMT 080304 L – F 56	M	2	6.26 x 8	3.35	15	20	0.4	1.2		△	△			△				△				△		
	ADMT 080308 R – F 56	M	2	6.26 x 8	3.35	15	20	0.8	1.2		△	△	△	△	△				△			△	△		
	ADMT 080308 L – F 56	M	2	6.26 x 8	3.35	15	20	0.8	1.2		△	△			△				△				△		
	ADMT 080312 R – F 56	M	2	6.26 x 8	3.35	15	20	1.2	1.0		△	△		△	△				△			△	△		
	ADMT 080316 R – F 56	M	2	6.26 x 8	3.35	15	20	1.6	1.0		△	△		△	△				△			△	△		
	ADMT 080320 R – F 56	M	2	6.26 x 8	3.35	15	20	2.0	1.0		△	△		△	△				△			△	△		
	ADMT 120404 R – F 56	M	2	7.64 x 12	4.76	15	20	0.4	1.2		△	△	△	△	△				△			△	△		
	ADMT 120408 R – F 56	M	2	7.64 x 12	4.76	15	20	0.8	1.2	△	△	△	△	△	△	△	△	△	△			△	△		
	ADMT 120408 L – F 56	M	2	7.64 x 12	4.76	15	20	0.8	1.2		△	△			△				△				△		
	ADMT 120412 R – F 56	M	2	7.64 x 12	4.76	15	20	1.2	1.2		△	△	△	△	△				△			△	△		
	ADMT 120416 R – F 56	M	2	7.64 x 12	4.76	15	20	1.6	1.0		△	△	△	△	△				△			△	△		
	ADMT 120416 L – F 56	M	2	7.64 x 12	4.76	15	20	1.6	1.0		△	△			△				△				△		
	ADMT 120420 R – F 56	M	2	7.64 x 12	4.76	15	20	2.0	1.0		△	△	△	△	△				△			△	△		
	ADMT 120425 R – F 56	M	2	7.64 x 12	4.76	15	20	2.5	0.8		△	△	△	△	△				△			△	△		
	ADMT 120425 L – F 56	M	2	7.64 x 12	4.76	15	20	2.5	0.8		△	△			△				△				△		
	ADMT 120430 R – F 56	M	2	7.64 x 12	4.76	15	20	3.0	0.8		△	△	△	△	△				△			△	△		
	ADMT 120430 L – F 56	M	2	7.64 x 12	4.76	15	20	3.0	0.8		△	△			△				△				△		
	ADMT 120432 R – F 56	M	2	7.64 x 12	4.76	15	20	3.2	0.8		△	△	△	△	△				△			△	△		
	ADMT 120440 R – F 56	M	2	7.64 x 12	4.76	15	20	4.0	–		△	△	△	△	△				△			△	△		
	ADMT 120440 L – F 56	M	2	7.64 x 12	4.76	15	20	4.0	–		△	△			△				△				△		
	ADMT 160608 R – F 56	M	2	9.85 x 16	6.15	15	20	0.8	1.6	△	△	△	△	△	△	△	△	△	△			△	△		
	ADMT 160608 L – F 56	M	2	9.85 x 16	6.15	15	20	0.8	1.6		△	△			△				△				△		
	ADMT 160612 R – F 56	M	2	9.85 x 16	6.15	15	20	1.2	1.6		△	△	△	△	△				△			△	△		
	ADMT 160616 R – F 56	M	2	9.85 x 16	6.15	15	20	1.6	1.4		△	△	△	△	△				△			△	△		
	ADMT 160616 L – F 56	M	2	9.85 x 16	6.15	15	20	1.6	1.4		△	△			△				△				△		
	ADMT 160620 R – F 56	M	2	9.85 x 16	6.15	15	20	2.0	1.4		△	△	△	△	△				△			△	△		
	ADMT 160625 R – F 56	M	2	9.85 x 16	6.15	15	20	2.5	1.2		△	△	△	△	△				△			△	△		
	ADMT 160625 L – F 56	M	2	9.85 x 16	6.15	15	20	2.5	1.2		△	△			△				△				△		
	ADMT 160630 R – F 56	M	2	9.85 x 16	6.15	15	20	3.0	1.2		△	△	△	△	△				△			△	△		
	ADMT 160630 L – F 56	M	2	9.85 x 16	6.15	15	20	3.0	1.2		△	△			△				△				△		
	ADMT 160632 R – F 56	M	2	9.85 x 16	6.15	15	20	3.2	1.2		△	△	△	△	△				△			△	△		
	ADMT 160640 R – F 56	M	2	9.85 x 16	6.15	15	20	4.0	1.0		△	△	△	△	△				△			△	△		
	ADMT 160640 L – F 56	M	2	9.85 x 16	6.15	15	20	4.0	1.0		△	△			△				△				△		
	ADMT 160650 R – F 56	M	2	9.85 x 16	6.15	15	20	5.0	–		△	△	△	△	△				△			△	△		
	ADMT 160660 R – F 56	M	2	9.85 x 16	6.15	15	20	6.0	–		△	△	△	△	△				△			△	△		
	ADMT 180712 R – F 56	M	2	13.5 x 18	7.00	15	20	1.2	1.8	△	△	△			△			△	△				△		
	ADMT 080304 R – G 56	M	2	6.26 x 8	3.35	15	20	0.4	1.2		△	△	△	△	△	△			△			△	△		
	ADMT 120408 R – G 56	M	2	7.64 x 12	4.76	15	20	0.8	1.2		△	△	△	△	△	△			△			△	△		
	ADMT 160608 R – G 56	M	2	9.85 x 16	6.15	15	20	0.8	1.6		△	△	△	△	△	△			△			△	△		

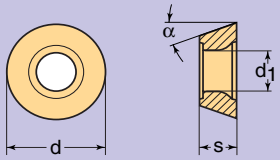
Negative rhombic for Xtra·tec® milling cutter



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide

	Designation	Tolerance class	Cutting edges	l_1 mm	l_2 mm	s mm	α_1°	r mm	b mm	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
										WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	LNGX 130708 R – L 55	G	4	11	13.6	7.5	0	0.8	1.2	△	△	△		△	△		△	△	△			△	△		
	LNGX 130712 R – L 55	G	4	11	13.6	7.5	0	1.2	1.0	△	△	△		△	△			△	△			△	△		
	LNGX 130716 R – L 55	G	4	11	13.6	7.5	0	1.6	0.9	△	△	△		△	△			△	△			△	△		
	LNGX 130720 R – L 55	G	4	11	13.6	7.5	0	2.0	0.7	△	△	△		△	△			△	△			△	△		
	LNGX 130725 R – L 55	G	4	11	13.6	7.5	0	2.5	0.6	△	△	△		△	△			△	△			△	△		

Positive round for F 2334



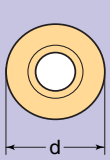
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide

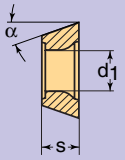
	Designation	Tolerance class	Cutting edges	d mm	d_1 mm	s mm	α°	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
								WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ROHX 0803M0T – A 27	H	4	8	3.4	3.18	20	△	△							△	△						
	ROHX 10T3M0T – A 27	H	4	10	4.4	3.97	20	△	△							△	△						
	ROHX 1204M0T – A 27	H	4	12	4.4	4.76	20	△	△							△	△						
	ROHX 1605M0T – A 27	H	6	16	5.5	5.56	20	△	△							△	△						
	ROHX 2006M0T – A 27	H	8	20	6.5	6.35	20	△	△							△	△						
	ROHX 0803M0 – D 57	H	4	8	3.4	3.18	20	△	△	△	△	△	△	△		△	△			△	△		
	ROHX 10T3M0 – D 57	H	4	10	4.4	3.97	20	△	△	△	△	△	△	△		△	△			△	△		
	ROHX 1204M0 – D 57	H	4	12	4.4	4.76	20	△	△	△	△	△	△	△		△	△			△	△		
	ROMX 0803M0 – D 57	M	4	8	3.4	3.18	20		△	△	△	△	△	△			△			△	△		
	ROMX 10T3M0 – D 57	M	4	10	4.4	3.97	20		△	△	△	△	△	△			△			△	△		
	ROMX 1204M0 – D 57	M	4	12	4.4	4.76	20		△	△	△	△	△	△			△			△	△		
	ROMX 1605M0 – D 57	M	6	16	5.5	5.56	20		△	△	△	△	△	△			△			△	△		
	ROMX 2006M0 – D 57	M	8	20	6.5	6.35	20		△	△	△	△	△	△			△			△	△		



Positive round

for WALTER tools





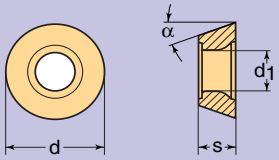
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
BH = CBN with high CBN content

	Designation	Tolerance class	Cutting edges	d mm	d_1 mm	s mm	α°	P					M	K				N		H		
								HC				HW	HC	HC			HW	BH	HC	HW	HW	BH	HF
								WKP 25	**WKP 35**	WTP 35	WXP 45	WPM	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WKM	WCB 80	WXN 15	WK 10	WXH 15	WCB 50	WMG 40
	RDGT 0803M0 – G 85	G		8	3.4	3.18	15																△
	RDGT 10T3M0 – G 85	G		10	4.4	3.97	15																△
	RDGT 1204M0 – G 85	G		12	4.4	4.76	15																△
	RDGT 1505M0 – G 85	G		15	5.5	5.56	15																△
	RDGT 1605M0 – G 85	G		16	5.5	5.56	15																△
	RDGT 2006M0 – G 85	G		20	6.5	6.35	15																△
	RDGT 0803M0 – G 88	G		8	3.4	3.18	15												△	△			
	RDGT 10T3M0 – G 88	G		10	4.4	3.97	15												△	△			
	RDGT 1204M0 – G 88	G		12	4.4	4.76	15												△	△			
	RDGT 1505M0 – G 88	G		15	5.5	5.56	15												△	△			
	RDGT 1605M0 – G 88	G		16	5.5	5.56	15												△	△			
	RDGT 2006M0 – G 88	G		20	6.5	6.35	15												△	△			
	RDHW 0803M0 T – A 27	H		8	3.4	3.18	15	△	△		△				△	△							
	RDHW 10T3M0 T – A 27	H		10	4.4	3.97	15	△	△		△				△	△							
	RDHW 1204M0 T – A 27	H		12	4.4	4.76	15	△	△		△				△	△							
	RDHW 1505M0 T – A 27	H		15	5.5	5.56	15		△		△					△							
	RDHW 1605M0 T – A 27	H		16	5.5	5.56	15	△	△		△				△	△							
	RDHW 2006M0 T – A 27	H		20	6.5	6.35	15	△	△		△				△	△							
	RDHW 0803M0 – A 57	H		8	3.4	3.18	15	△						△	△						△		
	RDHW 10T3M0 – A 57	H		10	4.4	3.97	15	△						△	△						△		
	RDHW 1204M0 – A 57	H		12	4.4	4.76	15	△						△	△						△		
	RDHW 1505M0 – A 57	H		15	5.5	5.56	15	△						△	△						△		
	RDHW 1605M0 – A 57	H		16	5.5	5.56	15	△						△	△						△		
	RDHW 2006M0 – A 57	H		20	6.5	6.35	15	△						△	△						△		
	RDHW 0803M0 T – A 25	H		8	3.4	3.18	15											△				△	
	RDHW 10T3M0 T – A 25	H		10	4.4	3.97	15											△				△	
	RDHW 1204M0 T – A 25	H		12	4.4	4.76	15											△				△	
	RDMT 0803M0 – D 57	M		8	3.4	3.18	15	△	△				△		△	△							
	RDMT 10T3M0 – D 57	M		10	4.4	3.97	15	△	△				△		△	△							
	RDMT 1204M0 – D 57	M		12	4.4	4.76	15	△	△				△		△	△							
	RDMT 1505M0 – D 57	M		15	5.5	5.56	15		△				△			△							
	RDMT 1605M0 – D 57	M		16	5.5	5.56	15	△	△				△		△	△							
	RDMT 2006M0 – D 57	M		20	6.5	6.35	15	△	△				△		△	△							
	RDMW 0803M0 T – A 27	M		8	3.4	3.18	15	△	△		△				△	△							
	RDMW 10T3M0 T – A 27	M		10	4.4	3.97	15	△	△		△				△	△							
	RDMW 1204M0 T – A 27	M		12	4.4	4.76	15	△	△		△				△	△							
	RDMW 1605M0 T – A 27	M		16	5.5	5.56	15	△	△		△				△	△							
	RDMW 2006M0 T – A 27	M		20	6.5	6.35	15	△	△		△				△	△							



Positive round

for WALTER tools and other tools

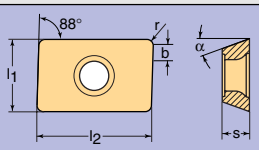


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
BH = CBN with high CBN content

	Designation	Tolerance class	d mm	d_1 mm	s mm	α°	P					M	K					N		H		
							HC				HW	HC	HC			HW	BH	HC	HW	HW	BH	HF
							WKP 25	**WKP 35**	WTP 35	WXP 45	WPM	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WKM	WCB 80	WXN 15	WK 10	WXH 15	WCB 50	WMG 40
	RDGX 0501M0 – G 85	G	5	2.15	1.50	15																△
	RDGX 07T1M0 – G 85	G	7	2.8	1.98	15																△
	RDGX 0702M0 – G 85	G	7	2.8	2.38	15																△
	RDGX 1003M0 – G 85	G	10	4.4	3.18	15																△
	RDGX 12T3M0 – G 85	G	12	4.4	3.97	15																△
	RDGX 1604M0 – G 85	G	16	5.5	4.76	15																△
	RDHX 07T1M0 T – A 27	H	7	2.8	1.98	15	△	△		△				△	△							
	RDHX 0702M0 T – A 27	H	7	2.8	2.38	15	△	△		△				△	△							
	RDHX 1003M0 T – A 27	H	10	4.4	3.18	15	△	△		△				△	△							
	RDHX 12T3M0 T – A 27	H	12	4.4	3.97	15	△	△		△				△	△							
	RDHX 1604M0 T – A 27	H	16	5.5	4.76	15	△	△		△				△	△							
	RDHX 2006M0 T – A 27	H	20	5.5	6.00	15	△	△		△				△	△							
	RDHX 0501M0 – A 57	H	5	2.15	1.50	15	△						△	△						△		
	RDHX 07T1M0 – A 57	H	7	2.8	1.98	15	△						△	△						△		
	RDHX 0702M0 – A 57	H	7	2.8	2.38	15	△						△	△						△		
	RDHX 1003M0 – A 57	H	10	4.4	3.18	15	△						△	△						△		
	RDHX 12T3M0 – A 57	H	12	4.4	3.97	15	△						△	△						△		
	RDHX 1604M0 – A 57	H	16	5.5	4.76	15	△						△	△						△		
	RDMX 0702M0 T – A 27	M	7	2.8	2.38	15	△	△		△				△	△							
	RDMX 1003M0 T – A 27	M	10	4.4	3.18	15	△	△		△				△	△							
	RDMX 12T3M0 T – A 27	M	12	4.4	3.97	15	△	△		△				△	△							
	RDMX 1604M0 T – A 27	M	16	5.5	4.76	15	△	△		△				△	△							
	RDMX 2006M0 T – A 27	M	20	5.5	6.00	15	△	△		△				△	△							



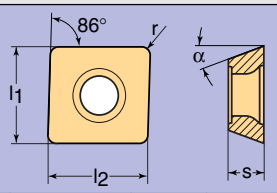
Positive rhombic



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	LPGT 070304 R – F 55	G	2	6.35 x 7.94	3.18	11	0.4	1.2		△	△	△		△	△		△						
	LPGT 15T308 R – F 55	G	2	9.52 x 15.0	3.97	11	0.8	1.4		△	△	△		△	△		△	△					
	LPGT 150412 R – F 55	G	2	12.7 x 15.88	4.76	11	1.2	1.6		△	△	△		△	△		△						
	LPGW 070304 R – A 57	G	2	6.35 x 7.94	3.18	11	0.4	1.2	△	△					△	△	△						
	LPGW 15T308 R – A 57	G	2	9.52 x 15.0	3.97	11	0.8	1.4	△	△			△		△	△	△	△					
	LPGW 150412 R – A 57	G	2	12.7 x 15.88	4.76	11	1.2	1.6	△	△					△	△	△						
	LPMT 070304 R – D 51	M	2	6.35 x 7.94	3.18	11	0.4	1.2	△	△	△	△				△	△						
	LPMT 15T308 R – D 51	M	2	9.52 x 15.0	3.97	11	0.8	1.4	△	△	△	△				△	△						
	LPMT 150412 R – D 51	M	2	12.7 x 15.88	4.76	11	1.2	1.6	△	△	△	△				△	△						
	LPMW 070304 TR – A 27	M	2	6.35 x 7.94	3.18	11	0.4		△	△						△	△						
	LPMW 15T308 TR – A 27	M	2	9.52 x 15.0	3.97	11	0.8		△	△			△			△	△						
	LPMW 150412 TR – A 27	M	2	12.7 x 15.88	4.76	11	1.2		△	△			△			△	△						
	LPGT 1506 PPR – F 57	G	2	12.7 x 15.88	6.35	11	1.2	1.6		△				△			△						
	LPHW 150612 R – A 51	H	2	12.7 x 15.88	6.35	11	1.2			△				△			△						
	LPHW 1506 PPR – A 57	H	2	12.7 x 15.88	6.35	11	1.2	1.6		△				△	△		△						
	LPMT 150612 R – D 51	M	2	12.7 x 15.88	6.35	11	1.2			△				△			△						
	LPMT 150612 R – D 57	M	2	12.7 x 15.88	6.35	11	1.2		△	△				△	△	△	△						
	LPMW 150612 TR – A 27	M	2	12.7 x 15.88	6.35	11	1.2			△							△						

Positive rhombic



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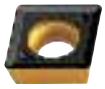
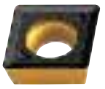
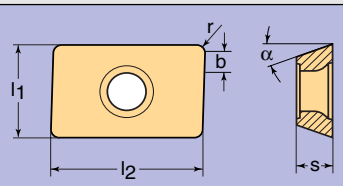
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

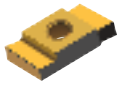
	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α°	r mm		P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WKM	H HC WXH 15	H HF WMG 40
	MPHT 120408 – G 88	H	2	12.7 x 12.7	4.76	11	0.8					△						△		△	△		
	MPHX 060304 – A 57	H	2	6.35 x 6.35	3.18	11	0.4		△	△					△	△	△						
	MPHX 080305 – A 57	H	2	8.3 x 8.3	3.18	11	0.5		△	△	△				△	△	△						
	MPHX 060304 – G 88	H	2	6.35 x 6.35	3.18	11	0.4					△						△		△	△		
	MPHX 080305 – G 88	H	2	8.3 x 8.3	3.18	11	0.5					△						△		△	△		
	MPHW 120408 – A 57	H	2	12.7 x 12.7	4.76	11	0.8		△	△					△	△	△						
	MPMT 120408 – F 57	M	2	12.7 x 12.7	4.76	11	0.8			△	△	△		△			△						
	MPMX 060304 – F 57	M	2	6.35 x 6.35	3.18	11	0.4			△	△	△		△			△						
	MPMX 080305 – F 57	M	2	8.3 x 8.3	3.18	11	0.5			△	△	△		△	△		△						
	P 2792 – 1	H	2	9.52 x 9.52	4.76	30	0.3x45°				△									△	△		



Positive rhombic



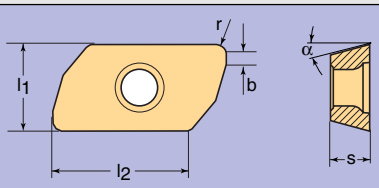
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	P 20200 – 1.1*	H	2	5.5 x 9.0	2.35		0.1x45°			△							△						
	P 20200 – 1.2*	H	2	5.5 x 9.0	2.35		0.15x45°			△							△						
	P 20200 – 1.3*	H	2	5.5 x 9.0	2.35		0.15x45°			△							△						
	P 20200 – 1.4*	H	2	5.5 x 9.0	2.35		0.15x45°			△							△						
	P 20200 – 1.5*	H	2	5.5 x 9.0	2.35		0.15x45°			△							△						
	P 20200 – 2.1*	H	2	7.0 x 12.0	3.4		0.15x45°			△							△						
	P 20200 – 2.2*	H	2	7.0 x 12.0	3.4		0.15x45°			△							△						
	P 20200 – 2.3*	H	2	7.0 x 12.0	3.4		0.15x45°			△							△						
	P 20200 – 3.1*	H	2	9.52 x 18.5	5.4		0.15x45°			△							△						
	P 20200 – 3.2*	H	2	9.52 x 18.5	5.4		0.15x45°			△							△						
	P 20200 – 3.3*	H	2	9.52 x 18.5	5.4		0.15x45°			△							△						

* For the tolerance of the assembled tool, see page 536.

Tiger·tec®

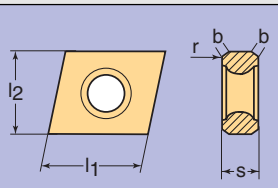
Positive rhombic for F 3040



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α°	r mm	b mm	P HC	P HC	P HC	P HC	P HW	M HC	K HC	K HC	K HC	K HW	K CN	N HC	N HW	H HC	H HF
									WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WMG 40
	ZDGT 150404 R – K 85	G	2	10.5x16.2	4.76	15	0.4	1.2												△	△		△
	ZDGT 150408 R – K 85	G	2	10.5x16.0	4.76	15	0.8	1.2												△	△		△
	ZDGT 150412 R – K 85	G	2	10.5x15.9	4.76	15	1.2	1.2												△	△		△
	ZDGT 150416 R – K 85	G	2	10.5x15.8	4.76	15	1.6	1.2												△	△		△
	ZDGT 150420 R – K 85	G	2	10.5x15.7	4.76	15	2.0	1.2												△	△		△
	ZDGT 150425 R – K 85	G	2	10.5x15.5	4.76	15	2.5	1.2												△	△		△
	ZDGT 150430 R – K 85	G	2	10.5x15.4	4.76	15	3.0	1.2												△	△		△
	ZDGT 150440 R – K 85	G	2	10.5x15.1	4.76	15	4.0	1.2												△	△		△
	ZDGT 200508 R – K 85	G	2	14x21.3	5.56	15	0.8	1.2													△		△
	ZDGT 200512 R – K 85	G	2	14x21.2	5.56	15	1.2	1.2													△		△
	ZDGT 200516 R – K 85	G	2	14x21.0	5.56	15	1.6	1.2													△		△
	ZDGT 200520 R – K 85	G	2	14x20.9	5.56	15	2.0	1.2													△		△
	ZDGT 200530 R – K 85	G	2	14x20.6	5.56	15	3.0	1.2													△		△
	ZDGT 200540 R – K 85	G	2	14x20.3	5.56	15	4.0	1.2													△		△
	ZDGT 200550 R – K 85	G	2	14x20.0	5.56	15	5.0	1.2													△		△
	ZDGT 200560 R – K 85	G	2	14x19.8	5.56	15	6.0	1.2													△		△
	ZDGT 200564 R – K 85	G	2	14x19.7	5.56	15	6.4	1.2													△		△

Tangential rhombic

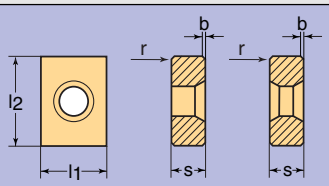


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	CNHQ 0805 PPN – A 57T	H	2+2	9 x 8	5	0.8	1.2	△	△					△	△	△						
	CNHQ 1206 PPN – A 57T	H	2+2	13 x 12	6.5	0.8	1.5	△	△					△	△	△						
	CNHQ 1608 PPN – A 57T	H	2+2	15 x 16	8	1.2	1.8	△	△					△	△	△						
	CNHU 0805 PPN – D 57T	H	2+2	9 x 8	5	0.8	1.2	△	△	△					△	△						
	CNHU 1206 PPN – D 57T	H	2+2	13 x 12	6.5	0.8	1.5	△	△	△					△	△						
	CNHU 1608 PPN – D 57T	H	2+2	15 x 16	8	1.2	1.8	△	△	△					△	△						
	CNMQ 080508 T – A 27T	M	2+2	9 x 8	5	0.8			△							△						
	CNMQ 120608 T – A 27T	M	2+2	13 x 12	6.5	0.8			△							△						
	CNMQ 160812 T – A 27T	M	2+2	15 x 16	8	1.2			△							△						
	CNMQ 080508 – A 57T	M	2+2	9 x 8	5	0.8		△	△					△	△	△						
	CNMQ 120608 – A 57T	M	2+2	13 x 12	6.5	0.8		△	△					△	△	△						
	CNMQ 160812 – A 57T	M	2+2	15 x 16	8	1.2		△	△					△	△	△						
	CNMU 080508 – D 57T	M	2+2	9 x 8	5	0.8		△	△	△					△	△						
	CNMU 120608 – D 57T	M	2+2	13 x 12	6.5	0.8		△	△	△					△	△						
	CNMU 160812 – D 57T	M	2+2	15 x 16	8	1.2		△	△	△					△	△						

Note: l_2 = cut width

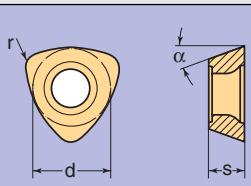
Tangential rhombic



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	LNKU 2010 DPTR – F 27T	K	4	15 x 20	10.5	0.6	1.2	△							△							
	LNKU 3010 DPTR – F 27T	K	4	15 x 30	10.5	0.6	1.2	△							△							
	LNKU 2010 DPR – F 57T	K	4	15 x 20	10.5	0.6	1.2	△	△						△	△						
	LNKU 3010 DPR – F 57T	K	4	15 x 30	10.5	0.6	1.2	△	△						△	△						
	LNMU 150812 T – F 27T	M	4	14 x 15	8	1.2		△	△						△	△						
	LNMU 201012 T – F 27T	M	4	16 x 20	10	1.2		△	△						△	△						
	LNMU 150812 – F 57T	M	4	14 x 15	8	1.2		△	△					△	△	△						
	LNMU 201012 – F 57T	M	4	16 x 20	10	1.2		△	△					△	△	△						
	P 4406 – 1	H	4	9.52 x 12.7	3.50		0.5 x 45°		△	△		△		△		△						
	P 4406 – 2	H	4	9.52 x 12.7	4.00		0.5 x 45°		△	△		△		△		△						
	P 4406 – 3	H	4	9.52 x 12.7	4.76		0.4 x 45°		△	△		△		△		△						
	P 4406 – 4	H	4	9.52 x 12.7	5.50		0.4 x 45°		△	△		△		△		△						
	P 4406 – 5	H	4	9.52 x 12.7	6.35		0.4 x 45°		△	△		△		△		△						
	P 44462 – 1	H	4	9.52 x 12.7	3.50		0.5 x 45°		△	△		△				△						
	P 44462 – 2	H	4	9.52 x 12.7	4.00		0.5 x 45°		△	△						△						
	P 44462 – 3	H	4	9.52 x 12.7	4.76		0.4 x 45°		△	△		△				△						
	P 44462 – 4	H	4	9.52 x 12.7	5.50		0.4 x 45°		△	△		△				△						
	P 44462 – 5	H	4	9.52 x 12.7	6.35		0.4 x 45°		△	△						△						

Positive triangular for high performance milling cutters

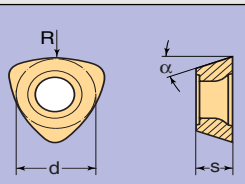


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm	α°	r mm	P HC				M HC			K HC			N HC	N HW	S HC		H HC	H HF
								WKP 25	**WKP 35**	**WSP 45**	WXP 45	**WSM 35**	**WSP 45**	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WXN 15	WK 10	**WSM 35**	**WSP 45**	WXH 15	WMG 40
	P 26335 – R 10	M	3	6.75	3.18	14	0.8	△	△	△	△	△	△			△	△			△	△		
	P 26335 – R 14	M	3	9.52	3.97	14	1.2	△	△	△	△	△	△			△	△			△	△		
	P 26335 – R 25	M	3	13.0	5.56	14	2.0	△	△	△	△	△	△			△	△			△	△		
	P 26337 – R 10	M	3	6.75	3.18	14	0.8	△	△		△					△	△						
	P 26337 – R 14	M	3	9.52	3.97	14	1.2	△	△		△					△	△						
	P 26337 – R 25	M	3	13.0	5.56	14	2.0	△	△		△					△	△						
	P 26339 – R 10	M	3	6.75	3.18	14	0.8	△	△	△	△	△	△			△	△			△	△		
	P 26339 – R 14	M	3	9.52	3.97	14	1.2	△	△	△	△	△	△			△	△			△	△		
	P 26339 – R 25	M	3	13.0	5.56	14	2.0	△	△	△	△	△	△			△	△			△	△		



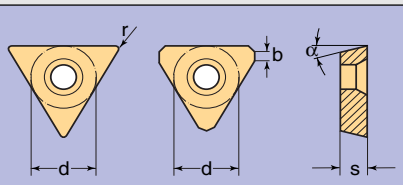
Positive triangular for profile milling cutters



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm	α°	R mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	P 26315 – R 10	M	3	6.75	2.78	14	10.0	△	△	△				△	△	△						
	P 26315 – R 12	M	3	8.50	3.18	14	12.5	△	△	△				△	△	△						
	P 26315 – R 15	M	3	10.5	3.97	14	15.0	△	△	△				△	△	△						
	P 26315 – R 16	M	3	10.5	3.97	14	16.0	△	△	△				△	△	△						
	P 26315 – R 20	M	3	12.7	4.76	11	20.0	△	△	△				△	△	△						
	P 26315 – R 25	M	3	12.7	4.76	11	25.0	△	△	△				△	△	△						
	P 26315 – R 31	M	3	12.7	4.76	11	31.5	△	△	△				△	△	△						
	P 26316 – R 10 – G 88	G	3	6.75	2.78	14	10.0				△								△	△		
	P 26316 – R 12 – G 88	G	3	8.50	3.18	14	12.5				△								△	△		
	P 26316 – R 15 – G 88	G	3	10.5	3.97	14	15.0				△								△	△		
	P 26316 – R 16 – G 88	G	3	10.5	3.97	14	16.0				△								△	△		
	P 26316 – R 20 – G 88	G	3	12.7	4.76	11	20.0				△								△	△		
	P 26316 – R 25 – G 88	G	3	12.7	4.76	11	25.0				△								△	△		
	P 26316 – R 31 – G 88	G	3	12.7	4.76	11	31.5				△								△	△		
	P 26325 – R 25	M	3	13.0	5.56	14	25.0	△	△		△		△	△	△	△						
	P 26325 – R 31	M	3	13.0	5.56	14	31.5	△	△				△	△	△	△						

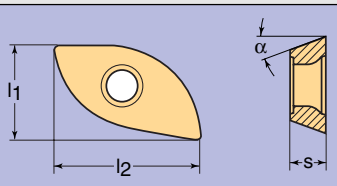
Positive triangular



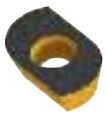
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm	α°	r mm	b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	TPAW 1604 PPN	A	3	9.52	4.76	11		1.2	△	△	△		△		△	△	△	△					
	TPAW 2204 PPN	A	3	12.7	4.76	11		1.2		△	△						△	△					
	TPET 160412 R	E	3	9.52	4.76	11	1.2											△					
	TPJW 1604 PPN	J	3	9.52	4.76	11		1.2	△	△	△		△		△	△	△	△					
	TPJW 2204 PPN	J	3	12.7	4.76	11		1.2		△	△		△		△		△	△					

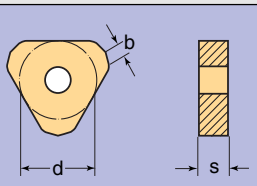
Positive form inserts for profile milling cutters



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	$l_1 \times l_2$ mm	s mm	α°	r mm		P HC	P HC	P HC	P HW	M HC	K HC	K HC	K HW	K CN	N HC	N HW	H HC	H HF
									WKP 25	**WKP 35**	WTP 35	WXP 45	WPM	WXM 35	**WAK 15**	**WKP 25**	**WKP 35**	WKM	WSN 10	WXN 15	WK 10	WXH 15	WMG 40
	XDGW 150460 TR – A 27	G	2	9.52 x 15.88	4.76	15	6			△							△						
	XDGW 200580 TR – A 27	G	2	12.7 x 20.5	5.56	15	8			△							△						
	XDGW 2506100 TR – A 27	G	2	15.88 x 25.4	6.35	15	10			△							△						
	XDGW 150460 R – A 57	G	2	9.52 x 15.88	4.76	15	6			△					△		△						
	XDGW 200575 R – A 57	G	2	12 x 20.5	5.56	15	7.5			△					△		△						
	XDGW 200580 R – A 57	G	2	12.7 x 20.5	5.56	15	8			△					△		△						
	XDGW 2506100 R – A 57	G	2	15.88 x 25.4	6.35	15	10			△					△		△						
	XDMT 16T3100 R – F 55	M	2	9 x 16	3.74	15	10		△	△		△				△	△						
	XDMT 2004125 R – F 55	M	2	11.3 x 20	4.68	15	12.5		△	△		△				△	△						
	XDMT 2405150 R – F 55	M	2	13.5 x 24	5.62	15	15		△	△		△				△	△						
	XDMT 2506160 R – F 55	M	2	14.4 x 25.5	6.0	15	16		△	△		△				△	△						
	XDMT 3207200 R – F 55	M	2	18 x 32	7.5	15	20		△	△		△				△	△						
	XDMT 4009250 R – F 55	M	2	22.5 x 39	9.39	15	25		△	△		△				△	△						

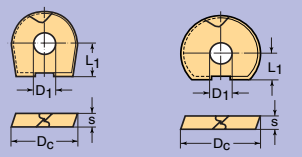
Negative triangular



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm		b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	TNEF 1204 AN – D 57	E	6	12.7	4.76		1.8	△	△					△	△	△						

Inserts for profile milling cutters

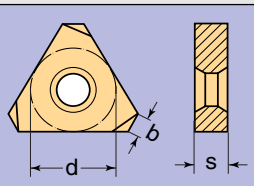


HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
BH = cubic Boron nitride

	Designation	Tolerance class	Cutting edges	D_C + 0.00 – 0.03 mm	D_1 mm	L_1 mm	s mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K BH WCB 80	S HC WSM 35	S HC WSP 45	H HW WXH 15	H BH WCB 50	HF WMG 40
	P 3201 – D 08	H	2	8	3	4	2.0	△	△					△	△	△	△				△		
	P 3201 – D 10	H	2	10	4	5	2.5	△	△					△	△	△	△				△		
	P 3201 – D 12	H	2	12	5	6	2.5	△	△					△	△	△	△				△		
	P 3201 – D 16	H	2	16	5	6	3.0	△	△					△	△	△	△				△		
	P 3201 – D 20	H	2	20	5	6	3.0	△	△					△	△	△	△				△		
	P 3201 – D 25	H	2	25	6	9	4.0	△	△					△	△	△	△				△		
	P 3201 – D 30	H	2	30	8	10	5.0	△	△					△	△	△	△				△		
	P 3201 – D 32	H	2	32	8	10	5.0	△	△					△	△	△	△				△		
	P 3201 – D 08	H	2	8	3	4	2.0											△				△	
	P 3201 – D 10	H	2	10	4	5	2.5											△				△	
	P 3201 – D 12	H	2	12	5	6	2.5											△				△	
	P 3201 – D 16	H	2	16	5	6	3.0											△				△	
	P 3201 – D 20	H	2	20	5	6	3.0											△				△	
	P 3204 – D 08	H	2	8	3	4	2.0	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 10	H	2	10	4	5	2.5	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 12	H	2	12	5	6	2.5	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 16	H	2	16	5	6	3.0	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 20	H	2	20	5	6	3.0	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 25	H	2	25	6	9	4.0	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 30	H	2	30	8	10	5.0	△		△		△	△	△		△			△	△	△		△
	P 3204 – D 32	H	2	32	8	10	5.0	△		△		△	△	△		△			△	△	△		△



WENDELNOVEX inserts



HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm		b mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HF WMG 40
	P 2352 – 1R	A	6	15	4.5		1.1	△	△	△		△		△	△	△	△					
	P 2352 – 2R	A	6	18	4.5		1.1		△	△		△				△	△					
	P 23522 – 1R	A	6	15	4.5		1.1		△	△	△	△		△		△	△					
	P 2372 – 1R	A	6	15	4.5		1.1		△							△						

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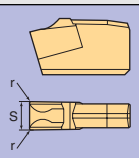
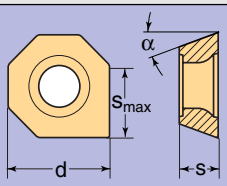
Inserts for slitting cutters



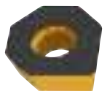
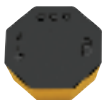
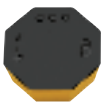
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
CN = Silicon nitride Si_3N_4

	Designation	s mm	r mm			P HC WAP 25	P HC WAP 35	P HC WTP 35	P HC WXP 35	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WAK 25	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 30
	NSM 3.90016EC–GDW	1.6	0.15																	△
	NSM 3.90022EC–GDW	2.2	0.2																	△
	NSM 3.90030EC–GDW	3.0	0.2																	△
	NSM 3.90040EC–GDW	4.0	0.2																	△
	NSM 3.90016SN–GBW	1.6	0.15					△	△				△							
	NSM 3.90022SN–GBW	2.2	0.2					△	△				△							
	NSM 3.90030SN–GBW	3.0	0.2					△	△				△							
	NSM 3.90040SN–GBW	4.0	0.2					△	△				△							
	NSM 3.90016SN–GDW	1.6	0.15					△	△				△							
	NSM 3.90022SN–GDW	2.2	0.2					△	△				△							
	NSM 3.90030SN–GDW	3.0	0.2					△	△				△							
	NSM 3.90040SN–GDW	4.0	0.2					△	△				△							

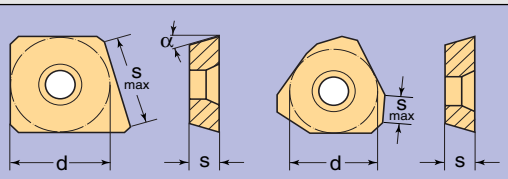
Finishing inserts



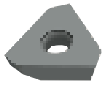
HC = coated carbide
HW = uncoated carbide
HF = uncoated fine-grained carbide
BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm	$s_{max.}$ mm	α°	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K BH WCB 80	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15
	ODHX 0504 ZZR – A 57	H	1	12.7	4.76	7.2	15		△					△		△						△
	ODHX 0605 ZZR – A 57	H	1	15.88	5.56	9.4	15		△					△		△						△
	ODHX 0605 ZZN – A 57	H	8	15.88	5.56	6	15							△								△
	ODHX 0605 ZZN – A 88	H	8	15.88	5.56	6	15							△								△
	OPHX 0504 ZZN – A 57	H	8	12.7	4.76	5	11							△								△
	OPHX 0504 ZZN – A 88	H	8	12.7	4.76	5	11							△								△
	OPHX 0504 ZZR – A 57	H	1	12.7	4.76	7.8	11							△								△
	OPHX 0504 ZZR – A 27	H	1	12.7	4.76	7.8	11										△					

Finishing inserts



HC = coated carbide
HW = uncoated carbide
DP = polycrystalline diamond
CN = Silicon nitride Si_3N_4

	Designation	Tolerance class	Cutting edges	d mm	s mm	$s_{max.}$ mm	α°	P					M	K				N			H	
								HC				HW	HC	HC			HW	HC	HW	DP	HC	HC
								WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WAK 25	WKM	WSN 10	WXN 15	WK 10	WCD 10	WXH 15	WXM 15
	SPHX 1204 PDR – A 88	H	1	12.7	4.76	3.5	11													△		
	P 2553 – 1R	A	3	15.0	4.5	4.0													△			
	P 2553 – 3R	A	3	18.0	4.5	7.5						△							△			
	P 2901 – 1R	H	1	12.7	4.76	11.0	11					△		△					△			△
	P 2901 – 1L	H	1	12.7	4.76	11.0	11					△										
	P 2903 – 2R	A	3	9.52	4.76	3.5	11							△		△			△			△
	P 2905 – 0	F	4	8.0	3.18	6.0	11					△							△			
	P 2905 – 1	F	4	12.7	4.76	10.0	11					△		△					△			△
	P 25531 – 1R	A	3	15.0	4.5	4.0													△			
	P 25531 – 3R	A	3	18.0	4.5	7.5													△			
	P 35441 – 1R	H	4	12.7	4.76	3													△			
	XPHN 1204 EDR	H	1	12.7	4.76	6	11							△								△
	XPHN 1204 ZPR	H	1	12.7	4.76	6	11							△								△

Cutting tool material application tables – Milling

1. Coated carbide

WALTER grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range	Coating procedure	Coating structure
WKP 25	HC – P 25	●●						01 05 10 15 20 25 30 35 40 45	CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 25			●●						
WKP 35	HC – P 35	●●							CVD	TiCN + Al_2O_3 (+TiN)
	HC – K 35			●●						
WTP 35	HC – P 35	●●							CVD	TiCN +TiN
	HC – M 35		●							
	HC – S 35					●				
WXP 45	HC – P 45	●●							PVD	Multilayer TiAlN / TiN
	HC – S 35					●				
WXM 35	HC – M 35		●●						PVD	Multilayer TiAlN / TiN + ZrCN
	HC – P 35	●								
	HC – S 25					●				
WAK 15	HC – K 15			●●					CVD	TiCN + Al_2O_3 (+TiN)
WXN 15	HC – N 15				●●				PVD	TiCN*plus*
WSM 35	HC – S 35					●●			PVD	TiAlN + Al_2O_3 (ZrCN)
	HC – M 35		●●							
	HC – S 45					●●			PVD	TiAlN + Al_2O_3 (ZrCN)
WSP 45	HC – P 45	●●								
	HC – M 45		●●							
WXH 15	HC – H 15						●●		PVD	TiAlN
	HC – P 15	●								
	HC – K 15			●						
WXM 15	HC – P 15	●●							PVD	Multilayer TiAlN / TiN
	HC – M 15		●							
	HC – K 15			●						

HC = Coated carbide

●● Main application

● Additional application

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Cutting tool material application tables – Milling

2. Uncoated carbide grades, ceramics, CBN and PCD

WALTER grade designation	Standard designation	Workpiece material group P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range 01 05 10 15 20 25 30 35 40 45
WPM	HW – P 25	●●						
WKM	HW – K 20			●●				
	HW – N 20				●			
WSN 10	CN – K 20			●●				
WCB 80	BH – K 05			●●				
	BH – H 15						●	
WK 10	HW – N 10				●●			
WCB 50	BH – H 10						●●	
	BH – K 10			●				
WMG 40	HF – N 35				●●			
WCD 10	DP – N 10				●●			

BH = CBN with high CBN content
CN = Silicon nitride Si_3N_4
DP = polycrystalline diamond
HF = uncoated fine-grained carbide
HW = uncoated carbide

●● Main application
● Additional application

Cutting tool material application tables – Milling

3. Grades for solid carbide milling cutters

WALTER grade designation	Standard designation	Workpiece material group: P Steel	M Stainless steel	K Cast iron	N NF metals	S Difficult-to-machine materials	H Hard materials	Application range: 01 05 10 15 20 25 30 35 40 45	Coating procedure	Coating structure
WXK 15	HC – H 15						●●		PVD	TiAlN
	HC – P 15	●●								
	HC – K 15			●						
	HC – N 15				●					
WXM 15	HC – P 15	●●							PVD	Multilayer
	HC – M 15		●							
	HC – K 15			●						
WMG 30	HF – N 30				●●					
	HF – S 30					●				

HC = coated carbide
HF = uncoated fine-grained carbide

●● Main application
● Additional application

Product range

Surface milling / shoulder milling

Milling cutter can be fitted with Wiper inserts



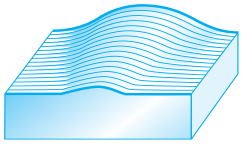
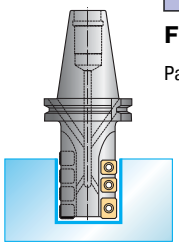
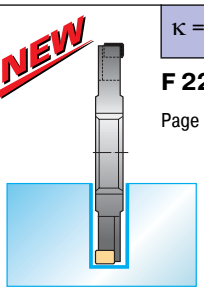
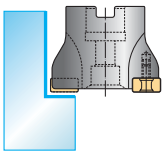
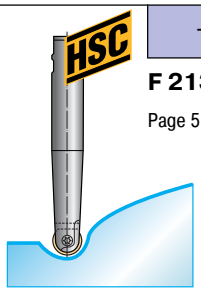
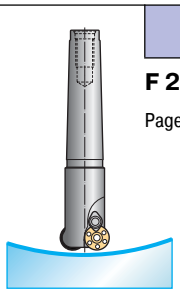
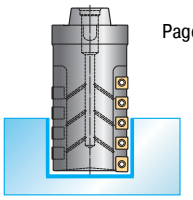
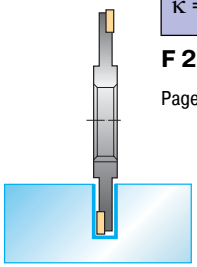
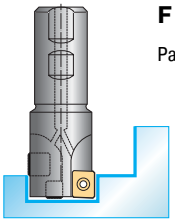
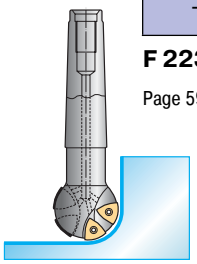
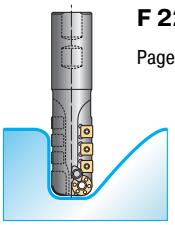
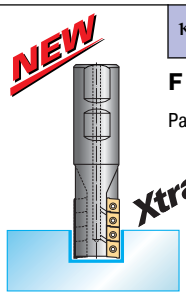
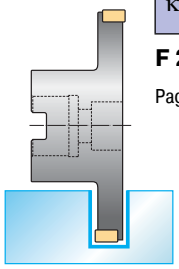
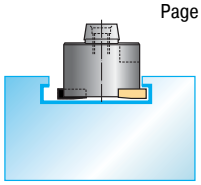
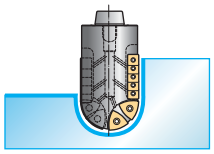
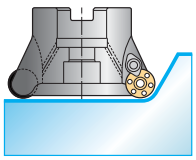
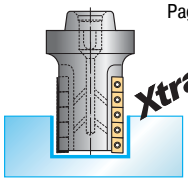
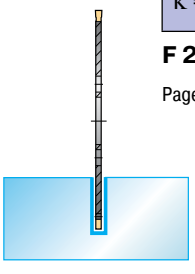
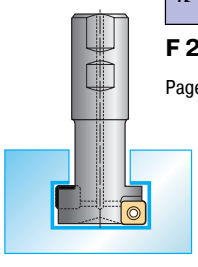
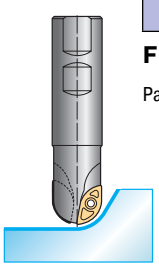
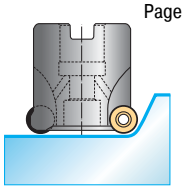
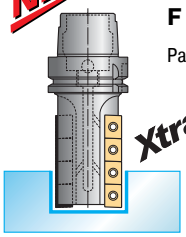
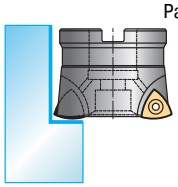
WALTER Select
see page 446



WALTER Select
see page 512

NEW κ = 0–15° **F 2330** Page 502	NEW κ = 0–90° **F 2010** Page 452	κ = 60° **F 2260** Page 496	NEW κ = 88° **F 4048** page 508 Xtra·tec®	HSC κ = 90° **F 3040** Page 518
κ = 42° **F 2244** **F 2044** Page 476	κ = 45° **F 4033** Page 504 Xtra·tec®	κ = 60° **F 2265** Page 498	κ = 89° **F 2254** Page 494	κ = 90° **F 4041** Page 520 Xtra·tec®
κ = 43° **F 2146** Page 480 HSC	κ = 45° **F 2233** Page 484	κ = 75° **F 2235** Page 488	κ = 89°45' **F 2241** Page 516	κ = 90° **F 4042** Page 522 Xtra·tec®
κ = 43° **F 2280** Page 500	κ = 45° **F 2232** Page 482	NEW κ = 75° **F 4047** Page 506 Xtra·tec®	κ = 90° **F 2140** Page 514	
NEW κ = 43° **F 4080** Page 510 Xtra·tec®	HSC κ = 75°+90° **F 2250** Page 490			

WALTER milling cutters
– Milling cutters with indexable inserts –

	Slot Milling			Copy Milling	
	 WALTER Select see page 530			 WALTER Select see page 578	
	κ = 90° **F 2238** Page 544 	NEW κ = 90° **F 2252** Page 560 	κ = 90° **F 2230** Page 538 	HSC – **F 2139** Page 580 	– **F 2231/A** Page 582 
	κ = 90° **F 2338** Page 550 	κ = 90° **F 2053** Page 576 	κ = 90° **F 2237** Page 540 	– **F 2239 B** Page 594 	– **F 2231/B** Page 584 
	NEW κ = 90° **F 4038** Page 554 Xtra·tec® 	κ = 90° **F 2253** Page 572 	κ = 90° **F 2036** Page 536 	– **F 2239 F** Page 596 	– **F 2234** Page 586 
	NEW κ = 90° **F 4138** Page 556 Xtra·tec® 	κ = 90° **F 2255** Page 574 	κ = 90° **F 2243** Page 542 	– **F 2339** Page 598 	– **F 2334** Page 590 
	NEW κ = 90° **F 4238** Page 558 Xtra·tec® 		NEW κ = 15° **F 2330** Page 502 		

ScrewFit system overview for boring and circular interpolation milling



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AK 580
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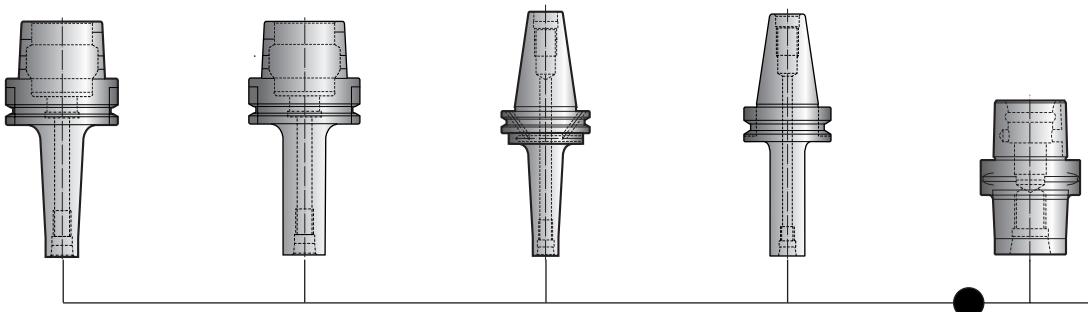
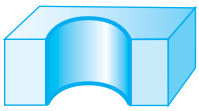
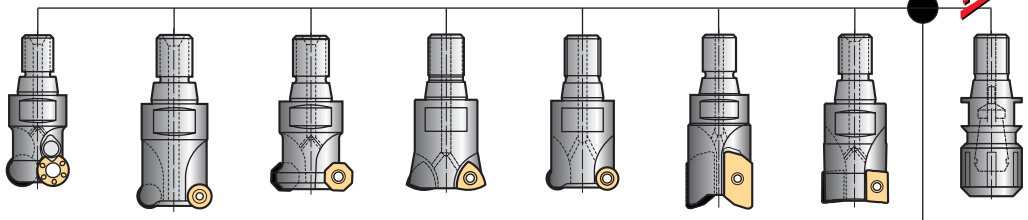


NEW

Drilling / Circular interpolation Milling





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Page 590

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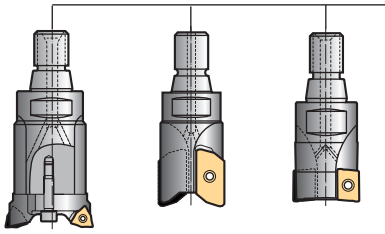
AK 300 T
Page 740

Boring





B 322 .
Page 324–327

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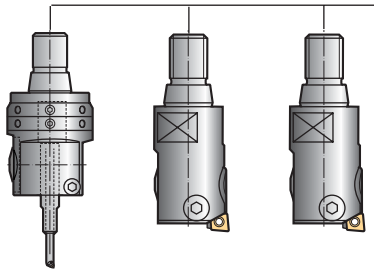
Page 522–529

WALTER Boring^{MEDIUM}

Precision Boring





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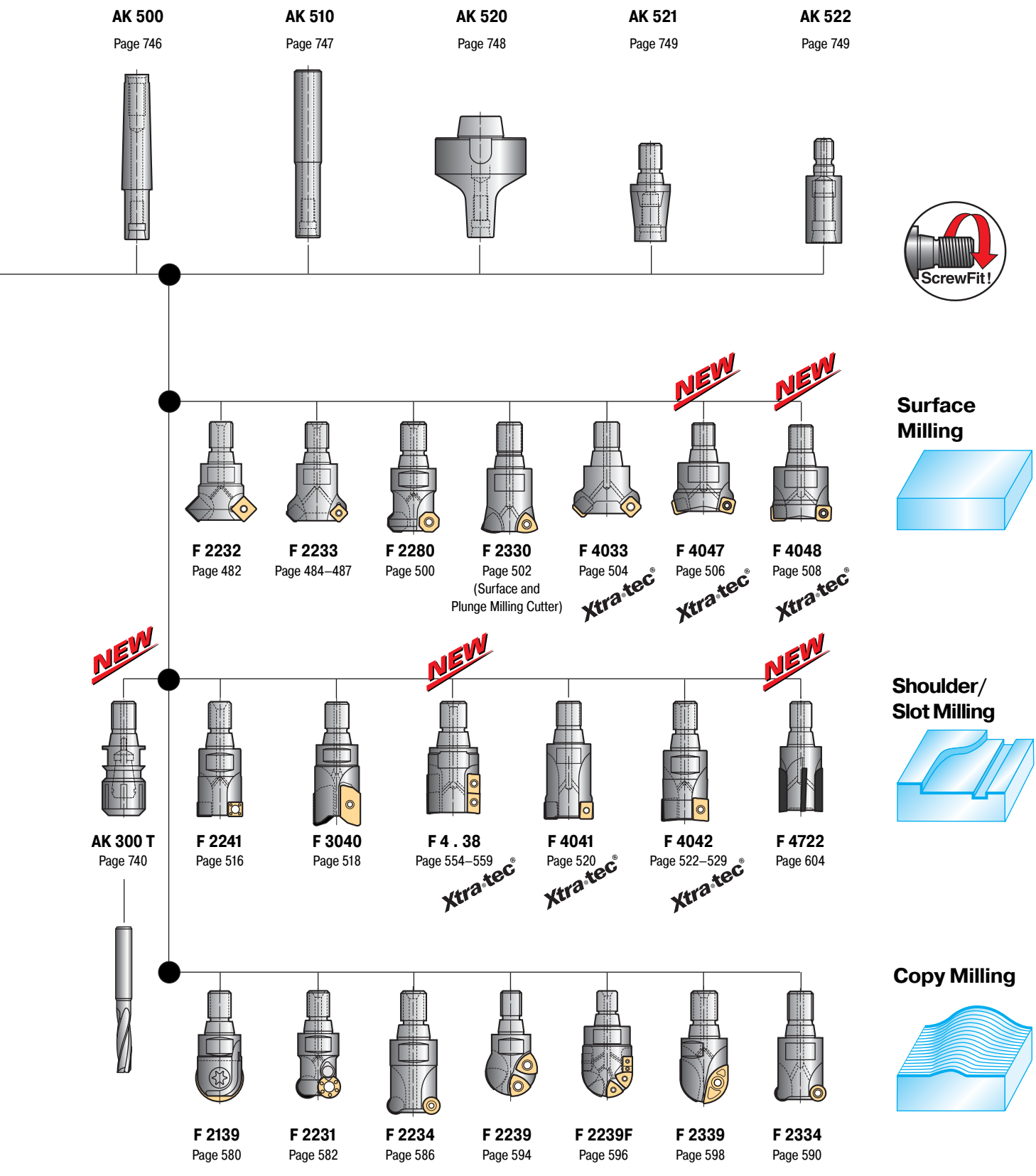
WALTER Precision^{MINI}

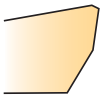
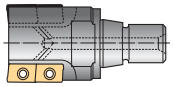
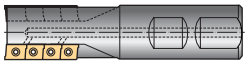
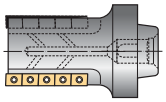
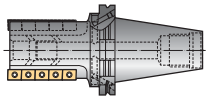
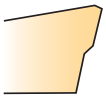
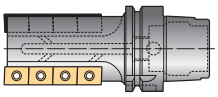
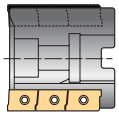
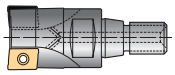
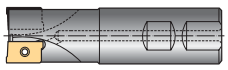
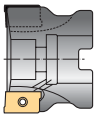
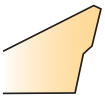
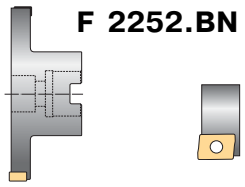
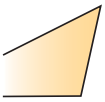
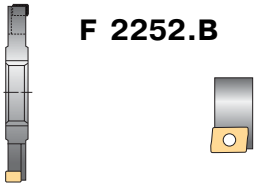
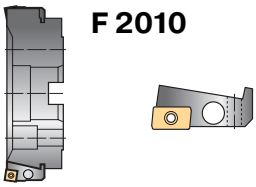
WALTER Precision^{MEDIUM}

* only in combination with AK 53 . CO and AK 54 . CO .
Cutting orientation for ScrewFit precision boring tools Page 388.

ScrewFit system overview for milling



Overview for AD . . system inserts

Geometry options	suitable for milling cutter type	AD . . 0803 . .	AD . . 1204 . .	AD . . 1606 . .	AD . . 1807 . .
 **D 51 – the quiet one** ➔Antivibration geometry ➔for tools with longer projection lengths ➔10° rake angle (D 51 not with AD . . 1807)		**F 4038.T** Page 554	**F 4138.T** Page 556	**F 4238.T** Page 558	–
		**F 4038.W** Page 554	**F 4138.W** Page 556	–	–
		–	**F 4138.N** Page 556	**F 4238.N** Page 558	–
		–	**F 4138.S** Page 556	–	–
 **D 56 – the stable one** ➔for unfavourable machining conditions ➔maximum cutting edge stability ➔high feed rates ➔10° rake angle		–	**F 4138.H** Page 556	**F 4238.H** Page 558	–
 **AD . .**		–	**F 4138.B** Page 556	**F 4238.B** Page 558	–
		**F 4042.T** Page 522	**F 4042.T** Page 524	**F 4042.T** Page 526	**F 4042.T** Page 528
 **F 56 – the universal one** ➔for medium machining conditions ➔universal application for the most materials ➔16° rake angle		**F 4042.W** Page 522	**F 4042.W** Page 524	–	–
		**F 4042.Z** Page 522	**F 4042.Z** Page 524	–	–
		**F 4042.B** Page 522	**F 4042.B** Page 524	**F 4042.B** Page 526	**F 4042.B** Page 528
 **G 56 – the easy-cutting one** ➔for good machining conditions ➔low cutting forces ➔medium feed rates ➔20° rake angle (G 56 not with AD . . 1807)	 **F 2252.BN**	**FR/L 724** Page 566	**FR/L 725** Page 566	**FR/L 726** Page 566	–
 **G 88 – the sharp one** for aluminium machining ➔low cutting forces ➔sharp cutting edges ➔20° rake angle (G 88 not with AD . . 1807)	 **F 2252.B**	**FR/L 724** Page 560	**FR/L 725** Page 560	**FR/L 726** Page 560	–
	 **F 2010**	–	**FR 718 M** Page 468	**FR 719 M** Page 468	–

Overview for SN . X system inserts

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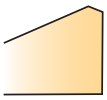
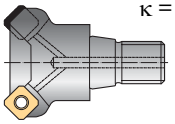
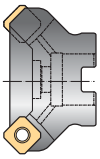
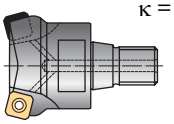
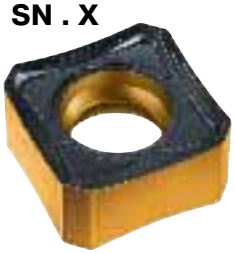
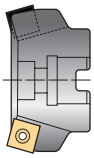
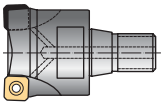
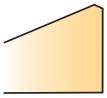
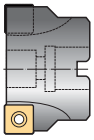
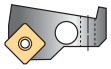
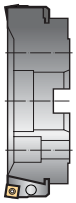
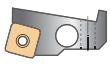
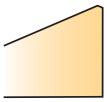
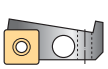
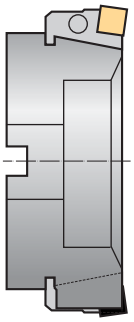
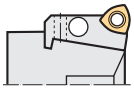
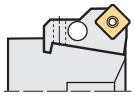
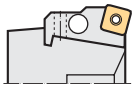
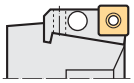
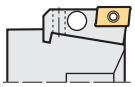
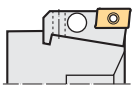
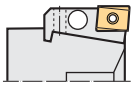
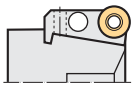
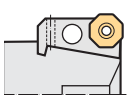
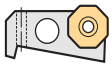
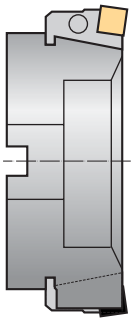
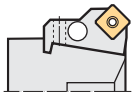
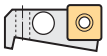
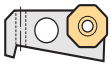
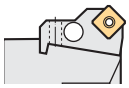
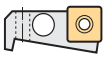
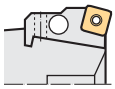
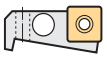
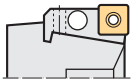
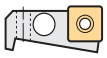
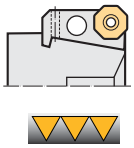
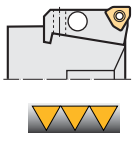
 **F 27 – the stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →16° rake angle	 κ = 45°	**F 4033.T** Page 504	**F 4033.T** Page 504	–	–
	 κ = 45°	**F 4033.B** Page 504	**F 4033.B** Page 504	–	–
	 κ = 75°	**F 4047.T** Page 506	–	**F 4047.T** Page 506	–
SN . X 	 κ = 75°	**F 4047.B** Page 506	–	**F 4047.B** Page 506	–
	 κ = 88°	**F 4048.T** page 508	–	–	**F 4048.T** page 508
 **F 57 – the universal one** →for medium machining conditions →universal application for most materials →16° rake angle	 κ = 88°	**F 4048.B** page 508	–	–	**F 4048.B** page 508
	F 2010 κ = 45° 	**FR 720 M** Page 456	**FR 720 M** Page 456	–	–
	 κ = 75° 	**FR 727 M** Page 460	–	**FR 727 M** Page 460	–
 **F 67 – the soft cutting** →for good machining conditions →low cutting forces →medium feed rates →16° rake angle	κ = 88° 	**FR 728 M** Page 464	–	–	**FR 728 M** Page 464

System overview of adjustable F 2010 microplan

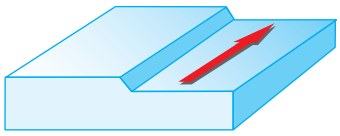
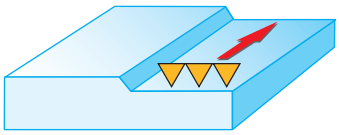
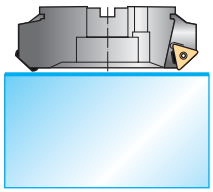
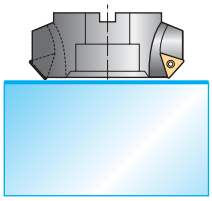
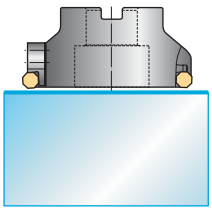
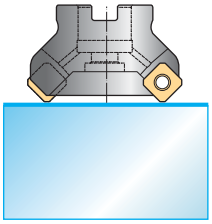
F 2010	Cartridge design	D_C [mm]	max. cut depth [mm]	Indexable Inserts	Finishing cartridges for roughing-finishing combination*	as a supplement to the tool
	 κ = 0–15° F 2010…**R729M** Page 452	70–240	2.0	 P 2633 . – R 25		**F 2330** D_C = 20–85 mm Page 502
	 κ = 45° F 2010…**R455M** Page 458	80–315	6.0	 SE . . 1204 . .		
	 κ = 75° F 2010…**R727M** Page 460	80–250	8.0	 SN . . 1205 ENN, SN . X 120512, SN . X 120520		**F 4047** D_C = 40–200 mm Page 506
	 κ = 88° F 2010…**R728M** Page 464	80–250	10.0	 SN . . 1205 ZNN, SN . X 120512, SN . X 120520		**F 4048** D_C = 40–200 mm page 508
	 κ = 90° F 2010…**R718M** Page 468	80–250	11.7	 AD . . 1204 . .		**F 4042…11** D_C = 25–80 mm Page 524
	 κ = 90° F 2010…**R719M** Page 468	80–250	15.0	 AD . . 1606 . .		**F 4042…15** D_C = 40–160 mm Page 526
	 κ = 90° F 2010…**R722M** Page 472	80–250	13.0	 LNGX . .		**F 4041** D_C = 40–160 mm Page 520
	 F 2010…**R723M** Page 474	74–244	8.0	 RO . X 1605 .		**F 2334…08** D_C = 52–141 mm Page 590
	 κ = 43° F 2010…**R592M** Page 454	80–315	4.0	 OD . . 0605 . .  Finishing insert ODHX 0605ZZR is installed in cartridge **FR 592M**	 Cartridge: FR 681M Insert: ODHX 0605ZZN	**F 4080** D_C = 50–160 mm Page 510



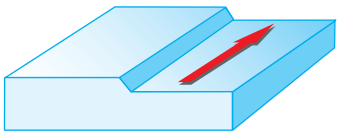
F 2010	Cartridge design	D_C [mm]	max. cut depth [mm]	Inserts	Finishing cartridges for roughing-finishing combination*	as a supplement to the tool
	 κ = 45° F 2010…**R720M** Page 456	80–250	6.5	 SN . X 1205 ANN SN . X 120512 SN . X 120520	 Cartridge: FR 448 M Insert: P 2905–1  Cartridge: FR 681M Insert: ODHX 0605 ZZN	**F 4033** D_C = 40–200 mm Page 504
	 κ = 45° F 2010…**R495M** Page 458	80–315	7.0	 SP . . 1204 . .	 Cartridge: FR 448M Insert P 2905–1	**F 2233…07** D_C = 25–160 mm Page 486
	 κ = 75° F 2010…**R441M** Page 462	80–315	10.0	 SP . . 1204 . .  Finishing insert P 2901–1 is installed in cartridge **FR 441M**	 Cartridge: FR 448 M Insert: P 2905–1	**F 2235** D_C = 32–100 mm Page 488
	 κ = 89°45' F 2010…**R445M** Page 466	80–315	11.0	 SP . . 1204 . .	 Cartridge: FR 448 M Insert: P 2905–1	**F 2241…12** D_C = 32–160 mm Page 516
	 κ = 45° F 2010…**R681M** Page 454	80–315	0.5–2.0 (4.0)	 ODHX 0605 ZZN		
	 κ = 90° F 2010…**R500M** Page 470	80–315	0.5–1.0 (9.0)	 P 2903 – 2R		

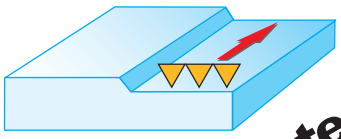
* where using this finishing method, one or several roughing cartridges must be replaced by a finishing cartridge.

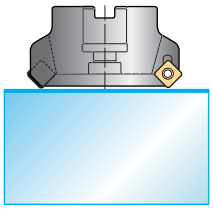
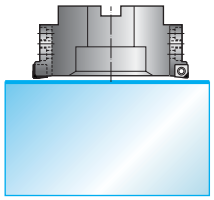
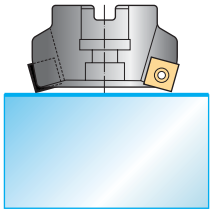
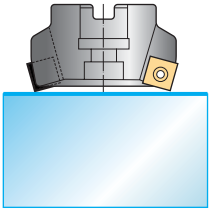
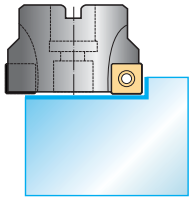
WALTER SELECT

Application					
Approach angle κ	42°	42°	43°	45°	
Surface milling cutters	**F 2044** 	**F 2244** 	**F 2146** HSC 	**F 4033** 	
Dia. range [mm]	160–315	50–160	80–250	40–200	
Page	476	478	480	504	
P Steel	●●	●●	●	●●	
M Stainless steel	●	●	●	●●	
K Cast iron	●●	●●	●●	●●	
N NF metals	●	●		●	
S Difficult-to-machine materials	●	●	●	●●	
H Hard materials	●	●	●	●	
Basic shape of indexable insert					
Indexable insert types	P 23 . . P 25 . .	P 23 . . P 25 . .	OP . . 0504 . .	SN . X 1205 . .	
max. cut depths [mm]	8 + 12	8	3 / 8	6.5	

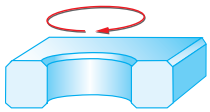
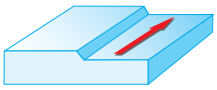
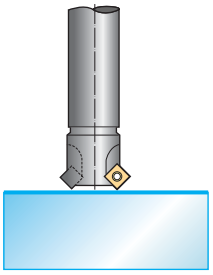
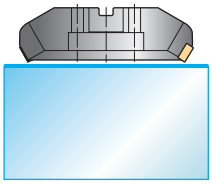
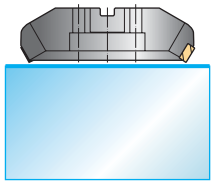
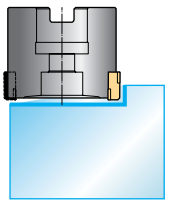
Surface milling cutters





	45°	75+90°	75°	75°	88°
	F 2233	**F 2250** HSC	**F 2235**	**F 4047** NEW	**F 4048** NEW
					
	20–160	63–200	32–100	40–200	40–200
	484 + 486	490 + 492	488	506	508
	●●		●●	●●	●●
	●●		●	●	●
	●●		●●	●●	●●
	●●	●●	●●	●	●
	●●		●	●	●
	●				
					
	SD . . 09T3 . . SP . . 1204 . .	SP . . 1204 . .	SP . . 1204 . .	SN . X 1205 . .	SN . X 1205 . .
	5 + 7	3 + 4	10	8	10

WALTER SELECT

Application				
Approach angle κ	45°	60°	60°	89°
Surface milling cutter	**F 2232** 	**F 2260** 	**F 2265** 	**F 2254** 
Dia. range [mm]	8–40	100–315	125–315	50–160
Page	482	496	498	494
P Steel	●●	●	●●	
M Stainless steel	●		●	
K Cast iron	●●	●●	●	●●
N NF metals	●			
S Difficult-to-machine materials	●		●	
H Hard materials	●			
Basic shape of indexable insert				
Indexable insert types	SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .	LNMU 1508 . . LNMU 2010 . .	LNKU 2010 . . LNKU 3010 . .	SNHQ 1205 . .
max. cut depths [mm]	3 + 5 + 7	11 + 15	12 + 20	7

Surface milling cutters

WALTER SELECT

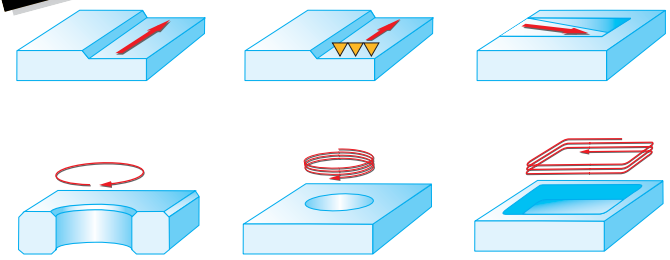
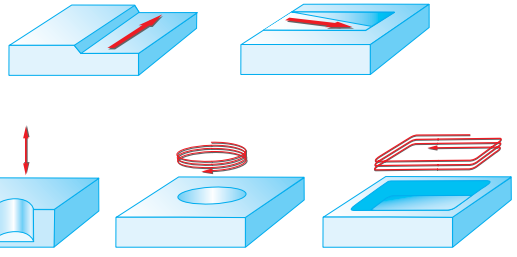
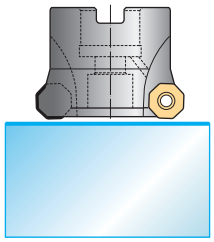
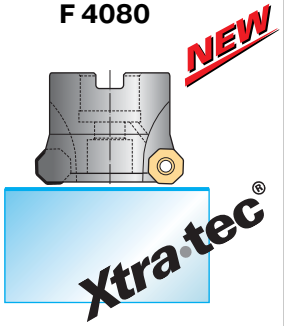
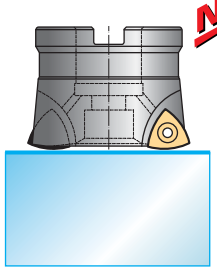
Best Insert for:

best | moderate | unfavour-able

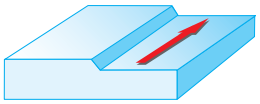
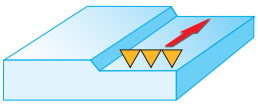
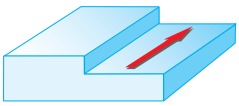
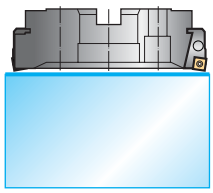
machining conditions

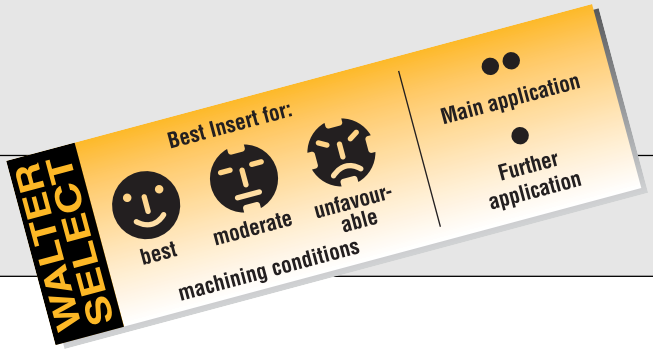
●● Main application

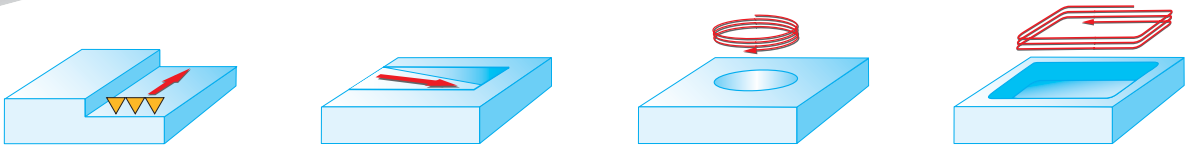
● Further application

			
	43°	43°	0–15°
	F 2280 	**F 4080** NEW 	**F 2330** NEW 
	32–125	40–160	20–85
	500	510	502
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●●	●●	
	●	●●	●●
			●
			
	OD . . 0504 . .	OD . . 0605 . .	P 2633 .
	3 / 8	4 / 10	1 + 1.5 + 2

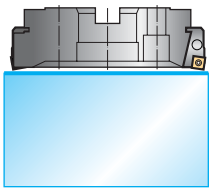
WALTER SELECT

Application					
Roughing	◆	◆	◆		
Finishing milling	◆	◆	◆		
Shoulder milling				◆	
Shoulder milling (finishing)				◆	
Plunging					
Circular interpolation					
Pocket milling					
Approach angle κ	45°	75°	45° / 75° / 88°	89°45'	
Surface milling cutter	 **F 2010** NEW				
Dia. range [mm]	80–315	80–315	80–250	80–315	
Page	458	462	456 + 460 + 464	466	
P Steel	●●	●●	●●	●●	
M Stainless steel	●●	●●	●●	●●	
K Cast iron	●●	●●	●●	●●	
N NF metals	●●	●●	●	●●	
S Difficult-to-machine materials	●	●	●●	●	
H Hard materials	●		●	●	
Basic shape of indexable insert					
Indexable insert types	SE . . 1204 . . SP . . 1204 . .	SP . . 1204 . .	SN . . 1205 . .	SP . . 1204 . .	
max. cut depths [mm]	6 + 7	10	6.5 + 8 + 10	11	



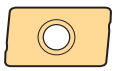


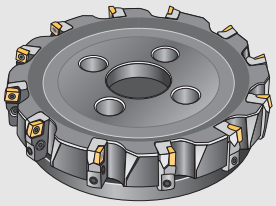
				◆	◆	◆
					◆	◆
	◆	◆				
	◆	◆	◆			
				◆	◆	◆
				◆	◆	◆
				◆	◆	◆
	90°	90°	90°	0–15°	43° / 45°	—

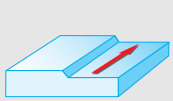


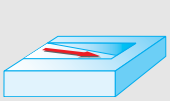
F 2010

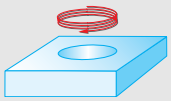
NEW

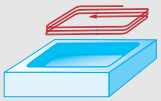
	80–250	80–250	80–315	70–240	80–315	74–244
	472	468	470	452	454	474
	●●	●●	●●	●●	●●	●●
	●●	●●	●	●●	●●	●●
	●●	●●	●●	●●	●●	●●
		●●			●●	●
	●●	●●		●●	●●	●●
	●	●		●		●
						
	LNGX 1307 . .	AD . . 1204 . . AD . . 1606 . .	P 2903 . .	P 2633 . –R25	OD . . 0605 . .	RO . X 1605 . .
	13	11.7 + 15	1 / 9	2	2 + 4 / 10	8



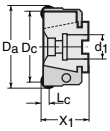


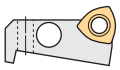




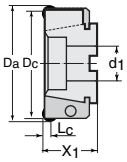


Tool

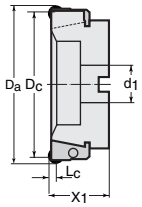




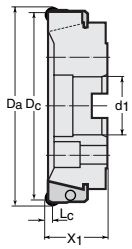
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.02.R729M	70	87	27	50	2	6	1.2	6	P 2633 . – R 25
F 2010.B.100.Z07.02.R729M	90	107	32	50	2	7	1.7	7	
F 2010.B.125.Z08.02.R729M	115	132	40	63	2	8	3.4	8	
F 2010.B.160.Z10.02.R729M	150	167	40/40 B	63	2	10	5.6	10	
F 2010.B.200.Z12.02.R729M	190	207	60/50 B	63	2	12	8.3	12	
F 2010.B.250.Z12.02.R729M	240	257	60/50 B	63	2	12	14.6	12	
F 2010.B.250.Z16.02.R729M	240	257	60/50 B	63	2	16	14.7	16	

Bodies and assembly parts are included in the scope of delivery.

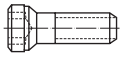
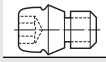
WALTER milling cutter

F 2010

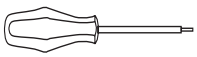
positive, κ = 0–15°

Microplan

Assembly parts

	Cartridge for tool body	FR 729 M
	Clamping screw for insert	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver for indexable insert	FS 228 (Torx 20)
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

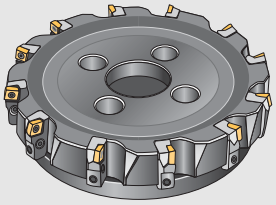
Indexable inserts

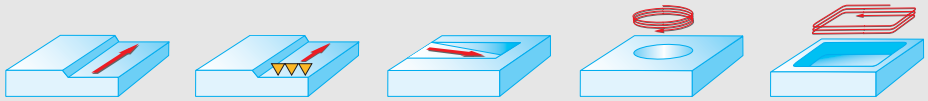
Designation	Radius mm		P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
 P 26335 – R 25	2.0		☺	😐	☹	☹	😐	☹			☺	😐			😐	☹		
P 26337 – R 25	2.0		😐	☹		☹					😐	☹						
P 26339 – R 25	2.0		☺	😐	☹	☹	😐	☹			☺	😐			😐	☹		





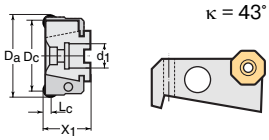
→ 428 → 684 → 671 → 620



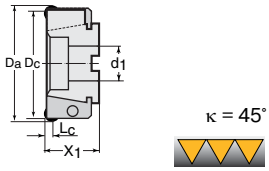


Tool

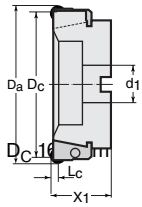
Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
κ = 43°									
F 2010.B.080.Z06.04.R592M	80	90	27	50	4	6	1.2	6	OD . . 0605 . .
F 2010.B.100.Z07.04.R592M	100	110	32	50	4	7	1.7	7	
F 2010.B.125.Z08.04.R592M	125	135	40	63	4	8	3.4	8	
F 2010.B.160.Z10.04.R592M	160	170	40/40 B	63	4	10	5.6	10	
F 2010.B.200.Z12.04.R592M	200	210	60/50 B	63	4	12	8.3	12	
F 2010.B.250.Z12.04.R592M	250	260	60/50 B	63	4	12	14.8	12	
F 2010.B.250.Z16.04.R592M	250	260	60/50 B	63	4	16	14.7	16	
F 2010.B.315.Z14.04.R592M	315	325	60/50-60 BB	80	4	14	26.2	14	
F 2010.B.315.Z18.04.R592M	315	325	60/50-60 BB	80	4	18	26.2	18	
κ = 45°									
F 2010.B.080.Z06.02.R681M	80	90	27	50	2	6	1.2	6	ODHX 0605 ZZN
F 2010.B.100.Z07.02.R681M	100	110	32	50	2	7	1.7	7	
F 2010.B.125.Z08.02.R681M	125	135	40	63	2	8	3.4	8	
F 2010.B.160.Z10.02.R681M	160	170	40/40 B	63	2	10	5.6	10	
F 2010.B.200.Z12.02.R681M	200	210	60/50 B	63	2	12	8.3	12	
F 2010.B.250.Z16.02.R681M	250	260	60/50 B	63	2	16	14.7	16	
F 2010.B.315.Z18.02.R681M	315	325	60/50-60 BB	80	2	18	26.2	18	



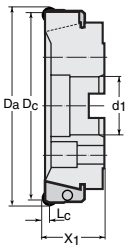
D_C 80 mm



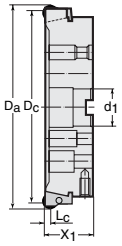
D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm



D_C 315 mm

Bodies and assembly parts are included in the scope of delivery.

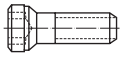
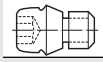
WALTER milling cutter

F 2010

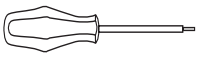
positive, κ = 43°+45°

Microplan

Assembly parts

		κ = 43°	κ = 45° ▼▼▼
	Cartridge for tool body	FR 592 M	FR 681 M
	Clamping screw for insert	FS 1030 (Torx 20)	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm	5.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)	FS 247 (SW 4)
	Tightening torque	8.0 Nm	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)	FS 303 (Torx 20)

Accessories

 ▼▼▼	Finishing cartridge for F 2010 . . . R592M	FR 681 M
 ▼▼▼	Insert for finishing cartridge	ODHX 0605 ZZN . .
	Screwdriver	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

Indexable inserts

	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WTP 35	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K CN WSN 10	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	HF WMG 40	HC WXM 15
	ODMW 060508T – A 27	0.8		☺	☹					☹			☺	☺							
	ODMW 060508 – A 57	0.8		☺	☹						☹	☻	☺	☺							
	ODHW 060516 – A 57	1.6													☻						
	ODHW 0605 ZZN – A 57	0.8	1.6	☺	☹						☹	☻	☺	☺							
	ODMT 0605 ZZN – D 57	0.8	1.6	☻	☺	☹	☺		☺	☹	☺		☺	☹				☺	☹		
	ODHT 0605 ZZN – F 57	0.8	1.6		☺	☹	☹	☹	☺	☹	☺			☹				☺	☹	☺	
	ODHT 0605 ZZN – G 88	0.8	1.6				☻	☺								☻	☻			☺	
 Finishing inserts ▼▼▼	ODHX 0605 ZZN – A 57	1.8	5.3									☻									☻
	ODHX 0605 ZZN – A 88	1.8	5.3									☻									☻
	ODHX 0605 ZZR – A 57	0.8			☺							☻		☹							☻

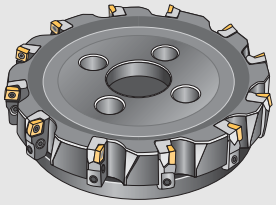
Installation of finishing inserts ODHX . . ZZR – A 57 in combination with ODH . . ZZN . . in FR 592 M

For roughing/finishing combinations see page 669.

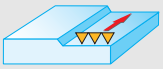




→ 415 | → 684 | → 671 | → 620

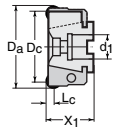


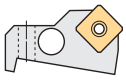




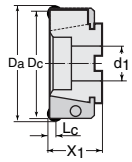
Tool

Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.06.R720M	80	94	27	50	6.5	6	1.2	6	SN . . 1205 . .
F 2010.B.100.Z07.06.R720M	100	114	32	50	6.5	7	1.7	7	
F 2010.B.125.Z08.06.R720M	125	139	40	63	6.5	8	3.4	8	
F 2010.B.160.Z10.06.R720M	160	174	40/40 B	63	6.5	10	5.6	10	
F 2010.B.200.Z12.06.R720M	200	214	60/50 B	63	6.5	12	8.3	12	
F 2010.B.250.Z12.06.R720M	250	264	60/50 B	63	6.5	12	14.8	12	
F 2010.B.250.Z16.06.R720M	250	264	60/50 B	63	6.5	16	14.7	16	

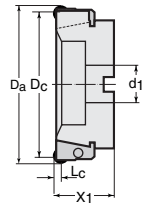




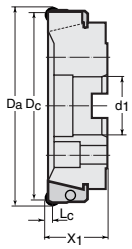
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

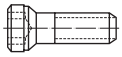
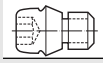
Bodies and assembly parts are included in the scope of delivery.

WALTER milling cutter F 2010

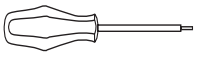
negative, $\kappa = 45°$

Microplan

Assembly parts

		SN . . 1205	
	Cartridge for tool body	FR 720 M	
	Clamping screw for insert	FS 1459 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	4.0 Nm	
	Clamping screw for cartridge	FS 247 (SW 4)	
	Tightening torque	8.0 Nm	
	Adjusting bolt	FS 303 (Torx 20)	

Accessories

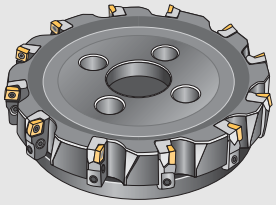
		SN . . 1205	P 2905 – 1	ODHX 0605 ZZN
	Finishing cartridge for tool body		FR 448 M	FR 681 M
	Insert for finishing cartridge		P 2905 – 1	ODHX 0605 ZZN . .
	Screwdriver for indexable insert	FS 1485 (Torx 15 IP) *IP = Torx Plus*	FS 228 (Torx 20)	FS 228 (Torx 20)
	Screwdriver for adjusting bolt	FS 228 (Torx 20)		
	Wrench DIN 911 for cartridge	SW 4		

Indexable inserts

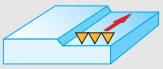
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WPM	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	HC WXM 15
	SNGX 1205 ANN – F 27		1.5	●	●							●	●						
	SNGX 1205 ANN – F 57		1.5	●	●	●		●	●			●	●			●	●		
	SNGX 1205 ANN – F 67		1.5	●	●	●		●	●		●	●	●			●	●		
	SNMX 1205 ANN – F 27		1.5	●	●							●	●						
	SNMX 1205 ANN – F 57		1.5	●	●							●	●						
	SNMX 1205 ANN – F 67		1.5	●	●						●	●	●						
	SNGX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120512 – F 27	1.2		●	●							●	●						
	SNMX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120520 – F 57	2.0		●	●							●	●						
	SNMX 120512 – F 67	1.2		●	●						●	●	●						
 Finishing inserts	P 2905 – 1		10				●				●				●				●
	ODHX 0605 ZZN – A 57	1.8	5.3								●								●
	ODHX 0605 ZZN – A 88	1.8	5.3								●								●

For roughing/finishing combinations see page 669.

→ 413 | → 684 | → 671 | → 620

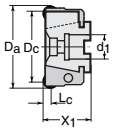


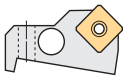




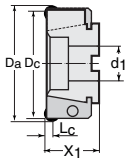
Tool

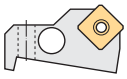
Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.06.R455M	80	92	27	50	6	6	1.2	6	SE . . 1204 . .
F 2010.B.100.Z07.06.R455M	100	112	32	50	6	7	1.7	7	
F 2010.B.125.Z08.06.R455M	125	137	40	63	6	8	3.4	8	
F 2010.B.160.Z10.06.R455M	160	172	40/40 B	63	6	10	5.6	10	
F 2010.B.200.Z12.06.R455M	200	212	60/50 B	63	6	12	8.3	12	
F 2010.B.250.Z12.06.R455M	250	262	60/50 B	63	6	12	14.8	12	
F 2010.B.250.Z16.06.R455M	250	262	60/50 B	63	6	16	14.7	16	
F 2010.B.315.Z14.06.R455M	315	327	60/50-60 BB	80	6	14	26.2	14	
F 2010.B.315.Z18.06.R455M	315	327	60/50-60 BB	80	6	18	26.2	18	
F 2010.B.080.Z06.07.R495M	80	94	27	50	7	6	1.2	6	SP . . 1204 . .
F 2010.B.100.Z07.07.R495M	100	114	32	50	7	7	1.7	7	
F 2010.B.125.Z08.07.R495M	125	139	40	63	7	8	3.4	8	
F 2010.B.160.Z10.07.R495M	160	174	40/40 B	63	7	10	5.6	10	
F 2010.B.200.Z12.07.R495M	200	214	60/50 B	63	7	12	8.3	12	
F 2010.B.250.Z12.07.R495M	250	264	60/50 B	63	7	12	14.8	12	
F 2010.B.250.Z16.07.R495M	250	264	60/50 B	63	7	16	14.7	16	
F 2010.B.315.Z14.07.R495M	315	329	60/50-60 BB	80	7	14	26.2	14	
F 2010.B.315.Z18.07.R495M	315	329	60/50-60 BB	80	7	18	26.2	18	



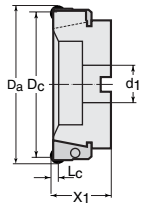


D_C 80 mm

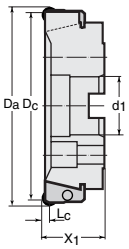




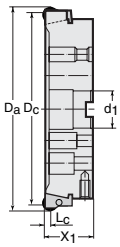
D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm



D_C 315 mm

Bodies and assembly parts are included in the scope of delivery.

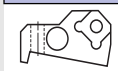
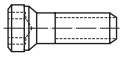
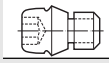
WALTER milling cutter

F 2010

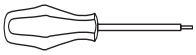
positive, κ = 45°

Microplan

Assembly parts

		SE . . 1204	SP . . 1204
	Cartridge for tool body	FR 455 M	FR 495 M
	Clamping screw for insert	FS 243 (Torx 20)	
	Tightening torque	5.0 Nm	
	Clamping screw for cartridge	FS 247 (SW 4)	
	Tightening torque	8.0 Nm	
	Adjusting bolt	FS 303 (Torx 20)	

Accessories

		SE . . 1204	SP . . 1204
	Finishing cartridge for tool body		FR 448 M
	Insert for finishing cartridge		P 2905 – 1
	Screwdriver	FS 228 (Torx 20)	
	Wrench DIN 911 for cartridge	SW 4	

Indexable inserts

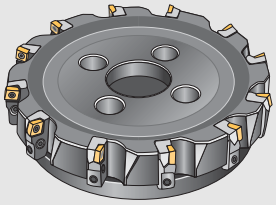
		Designation		Corner facet width mm	P					M	K					N		H		
					HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
					WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
		SEHT 1204 AFN		2.0		☺	😐	☹		☺			☹				😐			
		SEHT 1204 AFN – K 88		1.8													☺			
		SEHW 1204 AFN		2.0	☺	😐	😐		😐	☺	☺	😐	☹	😐						
		SPMW 1204 AETN – A 27		1.4	😐	☹						😐	☹							
		SPMW 1204 AEN – A 57		1.4	😐	☹					☺	😐	☹							
		SPGT 1204 AEN – K 88		1.4			☺	😐								☺	☺			
		SPKT 1204 AZN		1.4	☺	😐	😐	☹		😐	☺	😐	☹							
		SPMT 1204 AEN		1.4	☺	😐	😐				☺	😐	☹							
Finishing insert		P 2905 – 1		10					😐		☺						☺		☺	

For roughing/finishing combinations see page 669.

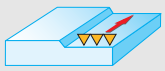




→ 408 → 684 → 671 → 620

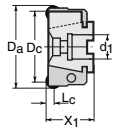


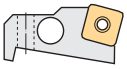




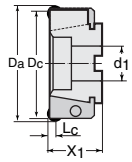
Tool

Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.08.R727M	80	86	27	50	8	6	1.2	6	SN . . 1205 . .
F 2010.B.100.Z07.08.R727M	100	106	32	50	8	7	1.7	7	
F 2010.B.125.Z08.08.R727M	125	131	40	63	8	8	3.4	8	
F 2010.B.160.Z10.08.R727M	160	166	40/40 B	63	8	10	5.6	10	
F 2010.B.200.Z12.08.R727M	200	206	60/50 B	63	8	12	8.3	12	
F 2010.B.250.Z12.08.R727M	250	256	60/50 B	63	8	12	14.8	12	
F 2010.B.250.Z16.08.R727M	250	256	60/50 B	63	8	16	14.7	16	

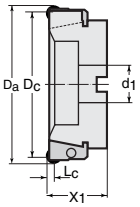




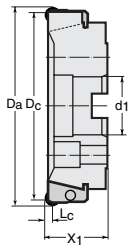
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

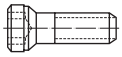
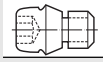
Bodies and assembly parts are included in the scope of delivery.

WALTER milling cutter F 2010

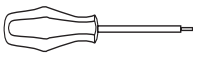
negative, κ = 75°

Microplan

Assembly parts

	Cartridge for tool body	FR 727 M
	Clamping screw for insert	FS 1459 (Torx 15 IP) *IP = Torx Plus*
	Tightening torque	4.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver for indexable insert	FS 1485 (Torx 15 IP) *IP = Torx Plus*
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

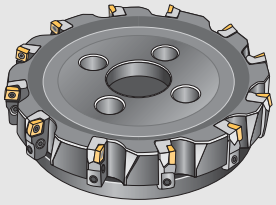
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WPM	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HC WXM 15
	SNGX 1205 ENN – F 27		1.2	●	●							●	●						
	SNGX 1205 ENN – F 57		1.2	●	●							●	●						
	SNGX 1205 ENN – F 67		1.2	●	●						●	●	●						
	SNGX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120512 – F 27	1.2		●	●							●	●						
	SNMX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120520 – F 57	2.0		●	●							●	●						
	SNMX 120512 – F 67	1.2		●	●						●	●	●						

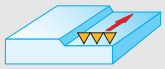




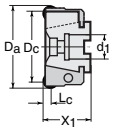
→ 414 → 684 → 671 → 620

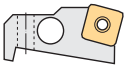




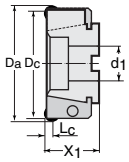


Tool

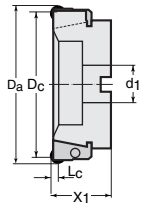




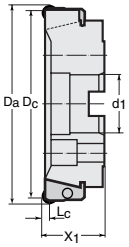
D_C 80 mm



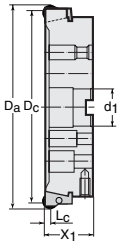
D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm



D_C 315 mm

Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.10.R441M	80	86	27	50	10	6	1.2	6	SP . . 1204 . .
F 2010.B.100.Z07.10.R441M	100	106	32	50	10	7	1.7	7	
F 2010.B.125.Z08.10.R441M	125	131	40	63	10	8	3.4	8	
F 2010.B.160.Z10.10.R441M	160	166	40/40 B	63	10	10	5.6	10	
F 2010.B.200.Z12.10.R441M	200	206	60/50 B	63	10	12	8.3	12	
F 2010.B.250.Z12.10.R441M	250	256	60/50 B	63	10	12	14.8	12	
F 2010.B.250.Z16.10.R441M	250	256	60/50 B	63	10	16	14.7	16	
F 2010.B.315.Z14.10.R441M	315	321	60/50-60 BB	80	10	14	26.2	14	
F 2010.B.315.Z18.10.R441M	315	321	60/50-60 BB	80	10	18	26.2	18	

Bodies and assembly parts are included in the scope of delivery.

WALTER milling cutter

F 2010

positive, κ = 75°

Microplan

Assembly parts

Cartridge for tool body	FR 441 M
Clamping screw for insert	FS 243 (Torx 20)
Tightening torque	5.0 Nm
Clamping screw for cartridge	FS 247 (SW 4)
Tightening torque	8.0 Nm
Adjusting bolt	FS 303 (Torx 20)

Accessories

Finishing cartridge for tool body	FR 448 M
Insert for finishing cartridge	P 2905 – 1
Screwdriver	FS 228 (Torx 20)
Wrench DIN 911 for cartridge	SW 4

Indexable inserts

Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
SPGT 1204 EDR – F 55		1.8	☺	😐	😐	☹			☺	😐	☹							
SPHT 120408 – G 88	0.8													☺	☺			
SPHW 120416 – A 57	1.6												☺					
SPJW 1204 EDR		1.4	😐	☹	☹		😐	☹	☺	😐	☹	😐						
SPMW 120408 T – A 27	0.8		😐	☹			😐			😐	☹							
SPMW 120408 – A 57	0.8		😐	☹			😐		☺	😐	☹	😐						
SPMT 120408 – D 51	0.8		😐	☹	☹	☹				😐	☹							
SPMT 120408 – F 55	0.8			😐	😐	☹		😐	☺		☹	😐						
Finishing inserts P 2905 – 1		10					😐		☺						☺		☺	
P 2901 – 1		11					😐		☺						☺		☺	

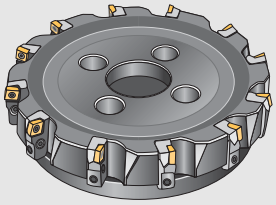
Installation of the finishing inserts in combination with SP . . 1204 EDR
For roughing/finishing combinations see page 669.



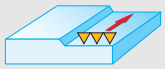
Tiger·tec®



→ 409 → 684 → 671 → 620

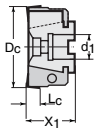


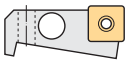




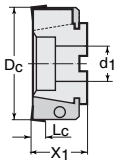
Tool

Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.10.R728M	80	27	50	10	6	1.2	6	SN . . 1205 . .
F 2010.B.100.Z07.10.R728M	100	32	50	10	7	1.7	7	
F 2010.B.125.Z08.10.R728M	125	40	63	10	8	3.4	8	
F 2010.B.160.Z10.10.R728M	160	40/40 B	63	10	10	5.6	10	
F 2010.B.200.Z12.10.R728M	200	60/50 B	63	10	12	8.3	12	
F 2010.B.250.Z12.10.R728M	250	60/50 B	63	10	12	14.8	12	
F 2010.B.250.Z16.10.R728M	250	60/50 B	63	10	16	14.7	16	

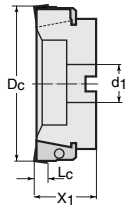




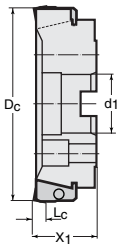
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

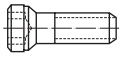
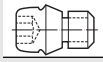
Bodies and assembly parts are included in the scope of delivery.

WALTER milling cutter F 2010

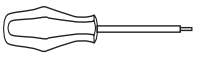
negative, κ = 88°

Microplan

Assembly parts

	Cartridge for tool body	FR 728 M
	Clamping screw for insert	FS 1459 (Torx 15 IP) *IP = Torx Plus*
	Tightening torque	4.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver for indexable insert	FS 1485 (Torx 15 IP) *IP = Torx Plus*
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

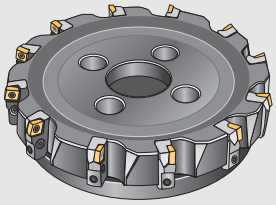
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WPM	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HC WXM 15
	SNGX 1205 ZNN – F 27		1.5	●	●							●	●						
	SNGX 1205 ZNN – F 57		1.5	●	●							●	●						
	SNGX 1205 ZNN – F 67		1.5	●	●						●	●	●						
	SNGX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120512 – F 27	1.2		●	●							●	●						
	SNMX 120512 – F 57	1.2		●	●							●	●						
	SNMX 120520 – F 57	2.0		●	●							●	●						
	SNMX 120512 – F 67	1.2		●	●						●	●	●						





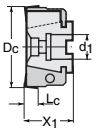
→ 414 → 684 → 671 → 620



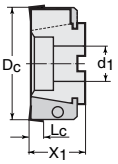




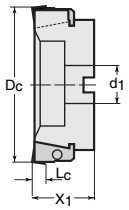
Tool



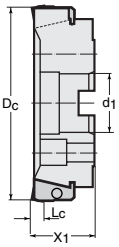
D_C 80 mm



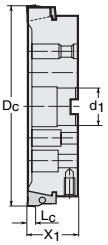
D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm



D_C 315 mm

Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.11.R445M	80	27	50	11	6	1.2	6	
F 2010.B.100.Z07.11.R445M	100	32	50	11	7	1.7	7	
F 2010.B.125.Z08.11.R445M	125	40	63	11	8	3.4	8	
F 2010.B.160.Z10.11.R445M	160	40/40 B	63	11	10	5.6	10	
F 2010.B.200.Z12.11.R445M	200	60/50 B	63	11	12	8.3	12	SP . . 1204 . .
F 2010.B.250.Z12.11.R445M	250	60/50 B	63	11	12	14.8	12	
F 2010.B.250.Z16.11.R445M	250	60/50 B	63	11	16	14.7	16	
F 2010.B.315.Z14.11.R445M	315	60/50-60 BB	80	11	14	26.2	14	
F 2010.B.315.Z18.11.R445M	315	60/50-60 BB	80	11	18	26.2	18	

Bodies and assembly parts are included in the scope of delivery.

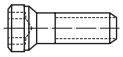
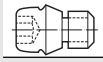
WALTER milling cutter

F 2010

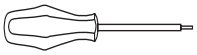
positive, κ = 89° 45'

Microplan

Assembly parts

 Cartridge for tool body	FR 445 M
 Clamping screw for insert	FS 243 (Torx 20)
Tightening torque	5.0 Nm
 Clamping screw for cartridge	FS 247 (SW 4)
Tightening torque	8.0 Nm
 Adjusting bolt	FS 303 (Torx 20)

Accessories

  Finishing cartridge for tool body	FR 448 M
  Insert for finishing cartridge	P 2905 – 1
 Screwdriver	FS 228 (Torx 20)
 Wrench DIN 911 for cartridge	SW 4

Indexable inserts

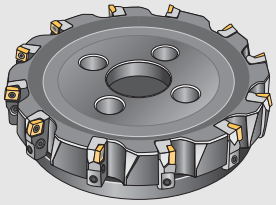
		Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
		SPHT 120408 – G 88	0.8													☺	☺			
		SPHW 120416 – A 57	0.8												😐					
		SPMW 120408 T – A 27	0.8		😐	☹			😐			😐	☹							
		SPMW 120408 – A 57	0.8		😐	☹			😐		☺	😐	☹	😐						
		SPMT 120408 – D 51	0.8		😐	☹	☹	☹				😐	☹							
		SPMT 120408 – F 55	0.8			☺	😐	☹		😐	☺		☹	😐						
Finishing insert		P 2905 – 1		10					😐		☺						☺		☺	

For roughing/finishing combinations see page 669.





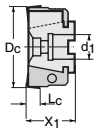
→ 410 | → 684 | → 671 | → 620

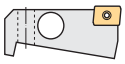




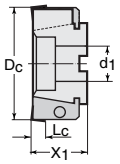


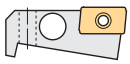
Tool



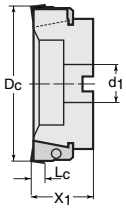


D_C 80 mm

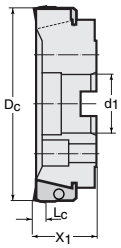




D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.11.R718M	80	27	50	11.7	6	1.2	6	AD . . 1204 . .
F 2010.B.100.Z07.11.R718M	100	32	50	11.7	7	1.7	7	
F 2010.B.125.Z08.11.R718M	125	40	63	11.7	8	3.4	8	
F 2010.B.160.Z10.11.R718M	160	40/40 B	63	11.7	10	5.6	10	
F 2010.B.200.Z12.11.R718M	200	60/50 B	63	11.7	12	8.3	12	
F 2010.B.250.Z12.11.R718M	250	60/50 B	63	11.7	12	14.8	12	
F 2010.B.250.Z16.11.R718M	250	60/50 B	63	11.7	16	14.7	16	
F 2010.B.080.Z06.15.R719M	80	27	50	15	6	1.2	6	AD . . 1606 . .
F 2010.B.100.Z07.15.R719M	100	32	50	15	7	1.7	7	
F 2010.B.125.Z08.15.R719M	125	40	63	15	8	3.4	8	
F 2010.B.160.Z10.15.R719M	160	40/40 B	63	15	10	5.6	10	
F 2010.B.200.Z12.15.R719M	200	60/50 B	63	15	12	8.3	12	
F 2010.B.250.Z12.15.R719M	250	60/50 B	63	15	12	14.6	12	
F 2010.B.250.Z16.15.R719M	250	60/50 B	63	15	16	14.7	16	

Bodies and assembly parts are included in the scope of delivery.

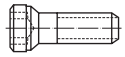
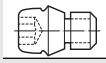
WALTER milling cutter

F 2010

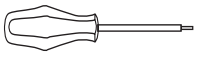
positive, κ = 90°

Microplan

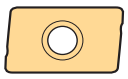
Assembly parts

		AD . . 1204	AD . . 1606	
	Cartridge for tool body	FR 718 M	FR 719 M	
	Clamping screw for insert	FS 1457 (Torx 9 IP)	FS 1453 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	2.0 Nm	3.5 Nm	
	Clamping screw for cartridge	FS 247 (SW 4)		
	Tightening torque	8.0 Nm		
	Adjusting bolt	FS 303 (Torx 20)		

Accessories

		AD . . 1204	AD . . 1606	
	Screwdriver for indexable insert	FS 1484 (Torx 9 IP)	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver for adjusting bolt	FS 228 (Torx 20)		
	Wrench DIN 911 for cartridge	SW 4		

Indexable inserts

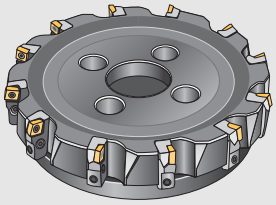


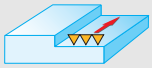
Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
ADGT 1204 PER – D 51	0.8	1.2	☺	😐	☹			☹			😐	☹				☹		
ADGT 1204 PER – D 56	0.8	1.2	☺	😐							😐	☹						
ADGT 1204 PER – F 56	0.8	1.2			☹		😐	☹							😐	☹		
ADGT 120404 R – F 56	0.4	1.2			☹		😐	☹							😐	☹		
ADHT 1204 PER – G 88	0.8	1.2											☺	☺				
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 120408 R – D 56	0.8	1.2	☺	😐						☺	😐	☹						
ADMT 120404 R – F 56	0.4	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 120408 R – G 56	0.8	1.2		☺	😐	😐	😐	😐	😐			☺			☺	😐		
ADGT 1606 PER – D 51	0.8	1.6	☺	😐	☹			☹			😐	☹				☹		
ADGT 1606 PER – D 56	0.8	1.6	☺	😐							😐	☹						
ADGT 1606 PER – F 56	0.8	1.6			☹		😐	☹							😐	☹		
ADHT 1606 PER – G 88	0.8	1.6											☺	☺				
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 160608 R – D 56	0.8	1.6	☺	😐						☺	😐	☹						
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 160608 R – G 56	0.8	1.6		☺	☹	😐	😐	☹	😐			☺			☺	😐		





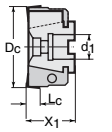
→ 416 → 684 → 671 → 620



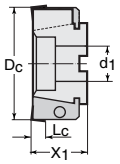


Tool

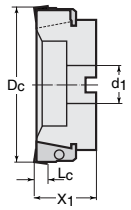
Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.09.R500M	80	27	50	9	6	1.2	6	P 2903 – 2R for for finishing
F 2010.B.100.Z07.09.R500M	100	32	50	9	7	1.7	7	
F 2010.B.125.Z08.09.R500M	125	40	63	9	8	3.4	8	
F 2010.B.160.Z10.09.R500M	160	40/40 B	63	9	10	5.6	10	
F 2010.B.200.Z12.09.R500M	200	60/50 B	63	9	12	8.3	12	
F 2010.B.250.Z12.09.R500M	250	60/50 B	63	9	12	14.8	12	
F 2010.B.250.Z16.09.R500M	250	60/50 B	63	9	16	14.7	16	
F 2010.B.315.Z14.09.R500M	315	60/50-60 BB	80	9	14	26.2	14	
F 2010.B.315.Z18.09.R500M	315	60/50-60 BB	80	9	18	26.2	18	



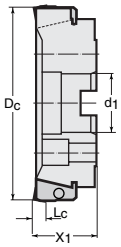
D_C 80 mm



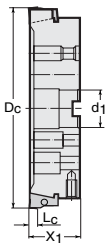
D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm



D_C 315 mm

Bodies and assembly parts are included in the scope of delivery.

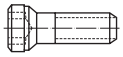
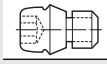
WALTER milling cutter

F 2010

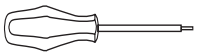
positive, κ = 90°

Microplan

Assembly parts

	Cartridge for tool body	FR 500 M
	Clamping screw for insert	FS 244 (Torx 15)
	Tightening torque	3.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver	FS 229 (Torx 15)
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

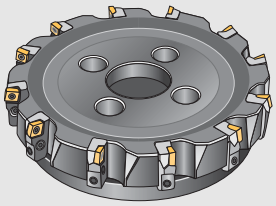
Indexable inserts

		Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
					HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
					WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	Finishing insert	P 2903 – 2R		3.5							☺			☺			☺		☺	
																				





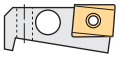
→ 434	→ 684	→ 671	→ 620

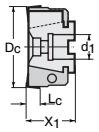




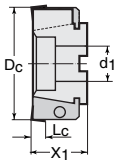


Tool

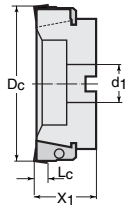




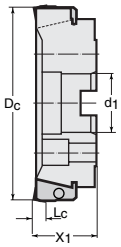
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.13.R722M	80	27	50	13	6	1.2	6	LN . .1307 . .
F 2010.B.100.Z07.13.R722M	100	32	50	13	7	1.7	7	
F 2010.B.125.Z08.13.R722M	125	40	63	13	8	3.4	8	
F 2010.B.160.Z10.13.R722M	160	40/40 B	63	13	10	5.6	10	
F 2010.B.200.Z12.13.R722M	200	60/50 B	63	13	12	8.3	12	
F 2010.B.250.Z12.13.R722M	250	60/50 B	63	13	12	14.8	12	
F 2010.B.250.Z16.13.R722M	250	60/50 B	63	13	16	14.7	16	

Bodies and assembly parts are included in the scope of delivery.

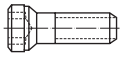
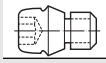
WALTER milling cutter

F 2010

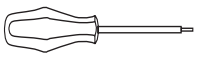
negative, κ = 90°

Microplan

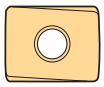
Assembly parts

	Cartridge for tool body	FR 722 M
	Clamping screw for insert	FS 1458 (Torx 15 IP) *IP = Torx Plus*
	Tightening torque	2.5 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver for indexable insert	FS 1485 (Torx 15 IP) *IP = Torx Plus*
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

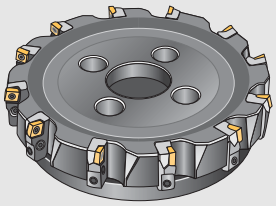
Indexable inserts

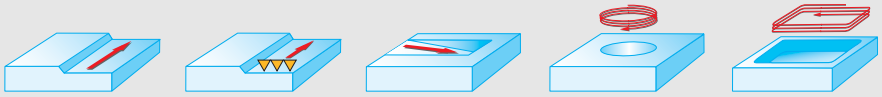
	Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
				HC				HC			HC			HC	HW	HC		HC	HF
				WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	LNGX 130708 R – L 55	0.8	1.6	☺	😐	☹		😐	☹		☺	😐	☹			😐	☹		





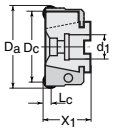
→ 419 → 684 → 671 → 620

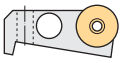




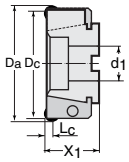
Tool

Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2010.B.080.Z06.08.R723M	74	90	27	50	8	6	1.2	6	RO . X 1605 . .
F 2010.B.100.Z07.08.R723M	94	110	32	50	8	7	1.7	7	
F 2010.B.125.Z08.08.R723M	119	135	40	63	8	8	3.4	8	
F 2010.B.160.Z10.08.R723M	154	170	40/40 B	63	8	10	5.6	10	
F 2010.B.200.Z12.08.R723M	194	210	60/50 B	63	8	12	8.3	12	
F 2010.B.250.Z12.08.R723M	244	260	60/50 B	63	8	12	14.8	12	
F 2010.B.250.Z16.08.R723M	244	260	60/50 B	63	8	16	14.7	16	

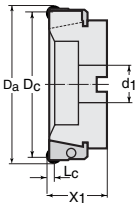




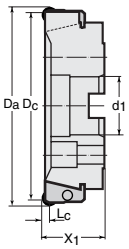
D_C 80 mm



D_C 100–125 mm



D_C 160 mm



D_C 200–250 mm

Bodies and assembly parts are included in the scope of delivery.

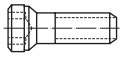
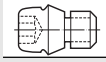
WALTER milling cutter

F 2010

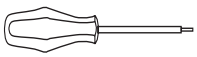
positive

Microplan

Assembly parts

	Cartridge for tool body	FR 723 M
	Clamping screw for insert	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm
	Clamping screw for cartridge	FS 247 (SW 4)
	Tightening torque	8.0 Nm
	Adjusting bolt	FS 303 (Torx 20)

Accessories

	Screwdriver for indexable insert	FS 228 (Torx 20)
	Screwdriver for adjusting bolt	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 4

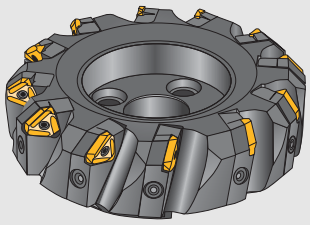
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
				HC				HC			HC			HC	HW	HC		HC	HF
				WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ROHX 1605M0T – A 27	8		●	◐							●	◐						
	ROMX 1605M0 – D 57	8			●	◐	◐	●	◐	●			◐			●	◐		

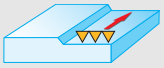


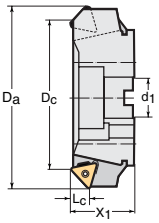
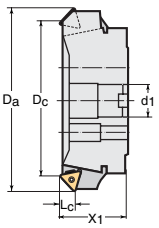
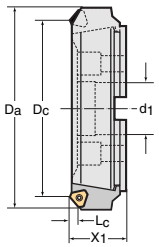


→ 419 | → 684 | → 671 | → 620







Tool	Designation	D_C mm	D_a mm	d_1/ISO	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2044.0.40.063.160.15	160	180	40/40 B	63	8	8	9.2	8	P 23 . . – 1
	F 2044.0.40.063.160.18	160	188	40/40 B	63	12	8	9.2	8	P 23 . . – 2
	F 2044.0.60.063.200.15	200	220	60/50 B	63	8	10	11.3	10	P 23 . . – 1
	F 2044.0.60.063.250.15	250	270	60/50 B	63	8	10	20.0	10	
	F 2044.0.60.063.200.18	200	228	60/50 B	63	12	10	11.3	10	P 23 . . – 2
	F 2044.0.60.063.250.18	250	278	60/50 B	63	12	10	20.0	10	
	F 2044.0.60.080.315.15	315	335	60/50-60 BB	80	8	12	32.0	12	P 23 . . – 1
	F 2044.0.60.080.315.18	315	343	60/50-60 BB	80	12	12	32.0	12	P 23 . . – 2

Bodies and assembly parts are included in the scope of delivery.

WENDELNOVEX®

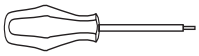
F 2044

negative, κ = 42°
cartridge version

Assembly parts

		D_C = 160–315 mm Size 1	D_C = 160–315 mm Size 2
	Cartridge for tool body	FR 436	FR 437
	Clamping screw for insert	FS 243 (Torx 20)	FS 243 (Torx 20)
	Tightening torque	5.0 Nm	5.0 Nm
	Clamping screw for cartridge	FS 306 (SW 5)	FS 306 (SW 5)
	Tightening torque	16.0 Nm	16.0 Nm

Accessories

	Cartridge for finishing	FR 438 M for P 2553–3 / P 25531–3
	Adjusting bolt for finishing cartridge	FS 303 (Torx 20)
	Screwdriver	FS 228 (Torx 20)
	Wrench DIN 911 for cartridge	SW 5

Indexable inserts

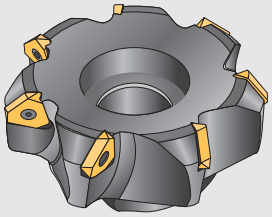
	Designation		Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
	P 2352 – 1R		1.1	☺	☹	☹		☺		☺	☹	☹	☺						
	P 2352 – 2R		1.1		☹	☹		☺				☹	☺						
	P 2372 – 1R		1.1		☹							☹							
	P 23522 – 1R		1.1		☻	☺	☹	☺		☻		☻	☺						
Finishing inserts	P 2553 – 1R		4													☻			
	P 2553 – 3R		7.5					☺								☻			
	P 25531 – 1R		4													☻			
	P 25531 – 3R		7.5													☻			

(Installation of finishing inserts
size 1 in standard cartridge FR 436,
size 3 only in finishing cartridges FR 438 M).
For roughing/finishing combinations
see page 669.

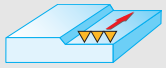




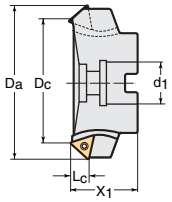
→ 432 → 684 → 620

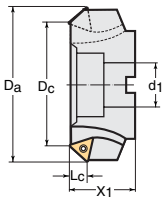


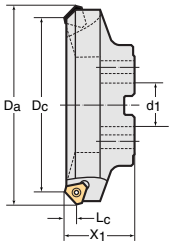




Tool	Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2244.B.050.Z04.08	50	70	22	40	8	4	0.3	4	P 23 . . – 1
	F 2244.B.063.Z05.08	63	83	22	40	8	5	0.5	5	
	F 2244.B.080.Z06.08	80	100	27	50	8	6	0.8	6	
	F 2244.B.100.Z07.08	100	120	32	50	8	7	1.7	7	P 23 . . – 1
	F 2244.B.125.Z08.08	125	145	40	50	8	8	2.9	8	
	F 2244.B.160.Z09.08	160	180	40/40 B	63	8	9	4.5	9	P 23 . . – 1







Bodies and assembly parts are included in the scope of delivery.

WENDELNOVEX®

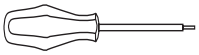
F 2244

negative, κ = 42°
with fixed insert seat

Assembly parts

	Clamping screw for insert	FS 243 (Torx 20)
	Tightening torque	5.0 Nm

Accessories

	Screwdriver	FS 228 (Torx 20)

Indexable inserts

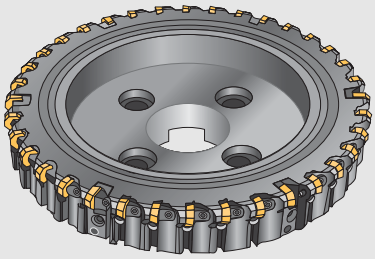
	Designation		Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	P 2352 – 1R		1.1	●	●	●		●		●	●	●	●						
	P 2372 – 1R		1.1		●							●							
	P 23522 – 1R		1.1		○	●	●	●		○		○	●						
Finishing inserts	P 2553 – 1R		4													○			
	P 25531 – 1R		4													○			

For roughing/finishing combinations see page 669.

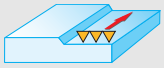


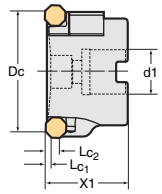
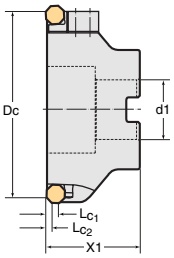
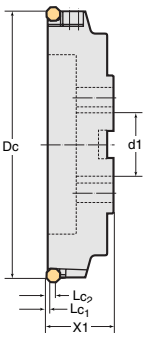


→ 432 | → 684 | → 673 | → 620







Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_{C1} mm	L_{C2} mm	Z*	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2146.B27.080.Z10.R599	80	27	50	3	8	8+2	1.3	10	OP . . 0504 . .
	F 2146.B27.080.Z10.R683[1]	80	27	50	3	8	8+2	1.3	10	OP . . 0504 . .
	F 2146.B32.100.Z12.R599	100	32	50	3	8	10+2	1.8	12	OP . . 0504 . .
	F 2146.B40.125.Z15.R599	125	40	63	3	8	12+3	3.2	15	
	F 2146.B32.100.Z12.R683[1]	100	32	50	3	8	10+2	1.8	12	OP . . 0504 . .
	F 2146.B40.125.Z15.R683[1]	125	40	63	3	8	12+3	3.2	15	
	F 2146.B40.160.Z22.R599	160	40/40 B	63	3	8	18+4	5.5	22	OP . . 0504 . .
	F 2146.B60.200.Z28.R599	200	60/50 B	63	3	8	24+4	8.1	28	
	F 2146.B60.250.Z36.R599	250	60/50 B	63	3	8	30+6	13.7	36	
	F 2146.B40.160.Z22.R683[1]	160	40/40 B	63	3	8	18+4	5.5	22	OP . . 0504 . .
	F 2146.B60.200.Z28.R683[1]	200	60/50 B	63	3	8	24+4	8.1	28	
	F 2146.B60.250.Z36.R683[1]	250	60/50 B	63	3	8	30+6	13.7	36	

Outside diameter $D_a = D_C + 10$ mm.
* Z = 8+2 ➔ 8 roughing inserts + 2 axially adjustable finishing inserts with stop-piece.
[1] These tools are equipped with a finishing stop-piece (FR 683).
Bodies and assembly parts are included in the scope of delivery.
For information on high-speed applications, see page 666.

WALTER octagon close pitch milling cutter

F 2146

HSC

positive, κ = 43°
finishing inserts can be adjusted

Assembly parts

	D_C = 80–100 mm	D_C = 125–250 mm	
Finishing stop-piece κ = 43°	FR 599	FR 599	
Clamping wedge for insert	FK 281	FK 281	
Clamping wedge for adjustable finishing insert	FR 600	FR 600	
Spring washer	FS 1099	FS 1099	
Clamping screw for clamping wedge	FS 746 (Torx 15 IP)	K 24-111 (Torx 15 IP)	*IP = Torx Plus*
Tightening torque	6.5 Nm	6.5 Nm	
Locking screw for stop-piece	FS 1149 (SW 4)	FS 1149 (SW 4)	
Tightening torque	8 Nm	8 Nm	
Eccentric pin for stop-piece	FS 1130 (SW 3)	FS 1130 (SW 3)	

Accessories

Finishing stop-piece κ = 45°	FR 683
Indexable insert for finishing stop-piece FR 683	OPHX 0504 ZZN . .
Torque t-handle	FS 2041
Interchangeable blade for clamping wedge	FS 2047 (Torx 15 IP) *IP = Torx Plus*
Wrench for eccentric bolt	FS 227 (SW 3)
Wrench DIN 911 for stop-piece	SW 4

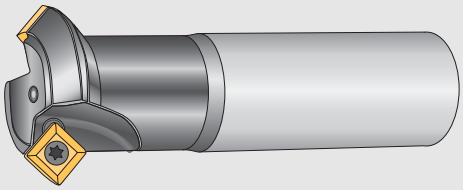
Indexable inserts

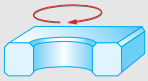
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K BH WCB 80	K CN WSN 10	S HC WSM 35	S HC WSP 45	HC WXM 15	HF WMG 40
	OPHN 0504 ZZN – A 27	0.4	1.2											☺					
	OPHN 050412 – A 57	1.2													😐				
	OPHN 0504 ZZN – A 57	0.4	1.2	😐	☹						☺	😐	☹		☺				
	OPHR 0504 ZZN – F 57	0.4	1.2		😐								😐						
Finishing inserts	OPHX 0504 ZZR – A 27	1.8	7.8											☺					
	OPHX 0504 ZZR – A 57	1.8	7.8								☺							☺	
	OPHX 0504 ZZN – A 57	1.0	4.4								☺							☺	
	OPHX 0504 ZZN – A 88	1.0	4.4								☺							☺	

For roughing/finishing combinations see page 669.

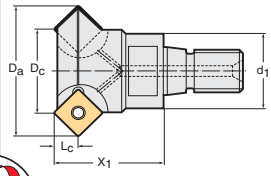
Tiger·tec®

→ 415 → 684 → 673 → 620

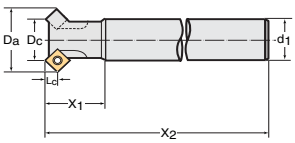




Tool	Designation	D_C mm	D_a mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2232.T09.012.Z02.03	12	20.3	9.7	20		3	2	0.1	2	SP . . 0603 . .
	F 2232.T14.016.Z03.03	16	24.3	14.5	25		3	3	0.1	3	
	F 2232.T18.020.Z02.05	20	32.2	18.5	30		5	2	0.1	2	SP . . 09T3 . .
	F 2232.T22.025.Z03.05	25	37.2	22	35		5	3	0.1	3	
	F 2232.T28.032.Z03.05	32	44.2	28	40		5	3	0.2	3	
	F 2232.T36.040.Z04.05	40	52.2	36	40		5	4	0.4	4	
	F 2232.T28.032.Z02.07	32	48.7	28	40		7	2	0.2	2	SP . . 1204 . .
	F 2232.T36.040.Z03.07	40	56.7	36	40		7	3	0.4	3	
Parallel shank without flat	F 2232.Z.008.Z01.03	8	16.3	12	30	120	3	1	0.1	1	SP . . 0603 . .
	F 2232.Z.010.Z01.03	10	18.3	12	30	120	3	1	0.1	1	
	F 2232.Z.012.Z02.03	12	20.3	16	40	160	3	2	0.2	2	
	F 2232.Z.016.Z03.03	16	24.3	16	40	160	3	3	0.3	3	
	F 2232.Z.012.Z01.05	12	24.2	16	40	160	5	1	0.2	1	SP . . 09T3 . .
	F 2232.Z.016.Z02.05	16	28.2	16	40	160	5	2	0.3	2	
	F 2232.Z.020.Z02.05	20	32.2	20	40	200	5	2	0.5	2	
	F 2232.Z.025.Z03.05	25	37.2	25	40	200	5	3	0.8	3	
	F 2232.Z.032.Z03.05	32	44.2	32	40	250	5	3	1.6	3	
	F 2232.Z.040.Z04.05	40	52.2	32	40	250	5	4	1.7	4	
	F 2232.Z.020.Z01.07	20	36.7	20	40	200	7	1	0.5	1	SP . . 1204 . .
	F 2232.Z.025.Z02.07	25	41.7	25	40	200	7	2	0.8	2	
	F 2232.Z.032.Z02.07	32	48.7	32	40	250	7	2	1.6	2	
	F 2232.Z.040.Z03.07	40	56.7	32	40	250	7	3	1.7	3	







You can shorten the tools with cylindrical shank in accordance with your individual requirements.

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

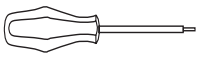
WALTER chamfering cutter F 2232

positive, κ = 45°

Assembly parts

		SP . . 0603	SP . . 09T3	SP . . 1204
	Clamping screw for insert	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	5.0 Nm

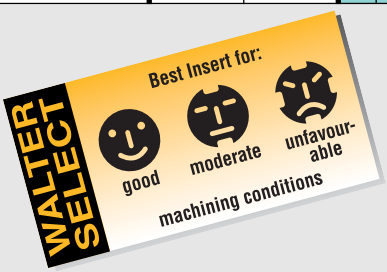
Accessories

		SP . . 0603	SP . . 09T3	SP . . 1204
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

Indexable inserts

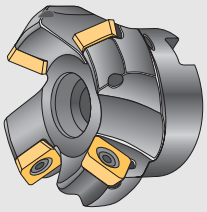


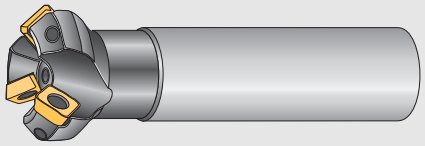
Designation	Radius mm		P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
SPMW 060304 T – A 27	0.4		☺	☹			☺			☺	☹							
SPMW 060304 – A 57	0.4		☺	☹					☺	☹	☹	☺						
SPMT 060304 – D 51	0.4		☺	☹	☹	☹				☺	☹							
SPMT 060304 – F 55	0.4			☻	☺	☹		☺	☻		☻	☺						
SPHT 060304 – G 88	0.4													☻	☻			
SPMW 09T308 T – A 27	0.8		☺	☹						☺	☹							
SPMW 09T308 – A 57	0.8		☺	☹			☺		☺	☹	☹	☺						
SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹							
SPMT 09T308 – F 55	0.8			☻	☺	☹		☺	☻		☻	☺						
SPHT 09T308 – G 88	0.4													☻	☻			
SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹							
SPMW 120408 – A 57	0.8		☺	☹			☺		☺	☹	☹	☺						
SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹							
SPMT 120408 – F 55	0.8			☻	☺	☹		☺	☻		☻	☺						
SPHT 120408 – G 88	0.8													☻	☻			
SPHW 120412 – A 57	1.2												☺					
SPHW 120416 – A 57	1.6												☺					



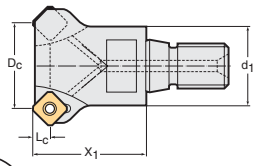
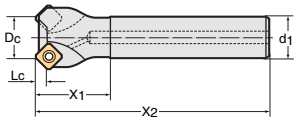
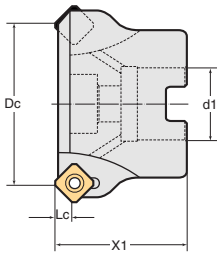


→ 410 → 684 → 620







Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2233.T18.020.Z02.05	20	18.5	30		5	2	0.15	2	
	F 2233.T22.025.Z03.05	25	22	35		5	3	0.2	3	
	F 2233.T28.032.Z03.05	32	28	40		5	3	0.3	3	SD . . 09T3 . .
	F 2233.T28.032.Z04.05	32	28	40		5	4	0.3	4	
	F 2233.T36.040.Z03.05	40	36	40		5	3	0.5	3	
	F 2233.T36.040.Z04.05	40	36	40		5	4	0.5	4	
Parallel shank without flat	F 2233.Z20.020.Z02.05	20	20	35	110	5	2	0.2	2	
	F 2233.Z20.025.Z03.05	25	20	35	110	5	3	0.3	3	SD . . 09T3 . .
	F 2233.Z20.032.Z04.05	32	20	35	110	5	4	0.5	4	
cyl. bore cross drive DIN 138	F 2233.B.032.Z03.05	32	16	40		5	3	0.2	3	
	F 2233.B.032.Z04.05	32	16	40		5	4	0.2	4	
	F 2233.B.032.Z05.05	32	16	40		5	5	0.2	5	
	F 2233.B.040.Z03.05	40	22	40		5	3	0.3	3	
	F 2233.B.040.Z04.05	40	22	40		5	4	0.3	4	
	F 2233.B.040.Z06.05	40	22	40		5	6	0.3	6	
	F 2233.B.050.Z04.05	50	22	40		5	4	0.5	4	
	F 2233.B.050.Z05.05	50	22	40		5	5	0.5	5	
	F 2233.B.050.Z08.05	50	22	40		5	8	0.5	8	SD . . 09T3 . .
	F 2233.B.063.Z05.05	63	22	40		5	5	0.7	5	
	F 2233.B.063.Z06.05	63	22	40		5	6	0.7	6	
	F 2233.B.063.Z10.05	63	22	40		5	10	0.7	10	
	F 2233.B.080.Z06.05	80	27	50		5	6	0.9	6	
	F 2233.B.080.Z07.05	80	27	50		5	7	0.9	7	
	F 2233.B.080.Z12.05	80	27	50		5	12	0.9	12	
	F 2233.B.100.Z07.05	100	32	50		5	7	1.9	7	
	F 2233.B.100.Z08.05	100	32	50		5	8	1.9	8	
	F 2233.B.100.Z14.05	100	32	50		5	14	1.8	14	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

WALTER MINI-KW surface milling cutter F 2233

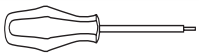
positive, κ = 45°

SD . . 09T3

Assembly parts

	Clamping screw for insert	FS 359 (Torx 15)
	Tightening torque	2.5 Nm

Accessories

	Screwdriver	FS 229 (Torx 15)

Indexable inserts



Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
SDMW 09T3 AETN – A 27	0.5	1.2	●	●						●	●							
SDHW 09T312 – A 57	1.2												●					
SDHW 09T3 AEN – A 57	0.3	1.2	●	●					☺	●	●							
SDMW 09T3 AEN – A 57	0.5	1.2	●	●					☺	●	●							
SDMT 09T3 AEN – D 57	0.5	1.2		●	●	●					●							
SDGT 09T3 AEN – F 57	0.3	1.2		☺	●	●		●			☺							
SDGT 09T3 AEN – G 88	0.3	1.2			☺	●								☺	☺			





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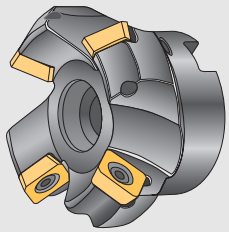
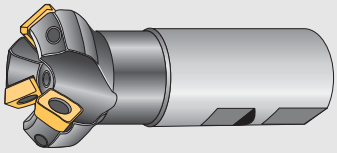
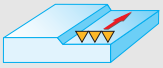
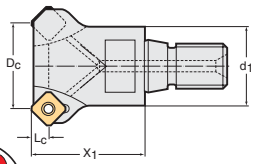
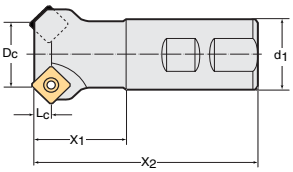
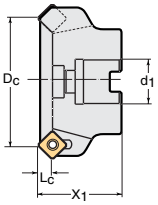
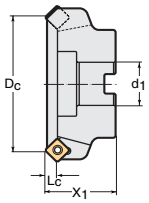
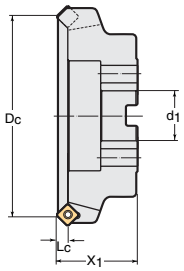








Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2233.T22.025.Z02.07	25	22	35		7	2	0.25	2	SP . . 1204 . .
	F 2233.T28.032.Z03.07	32	28	40		7	3	0.35	3	
	F 2233.T36.040.Z03.07	40	36	40		7	3	0.55	3	
	F 2233.T36.040.Z04.07	40	36	40		7	4	0.55	4	
Shank type DIN 1835, version B	F 2233.W.025.Z02.07	25	25	38	95	7	2	0.4	2	SP . . 1204 . .
	F 2233.W.032.Z03.07	32	32	44	105	7	3	0.6	3	
	F 2233.W.040.Z04.07	40	32	44	105	7	4	0.8	4	
cyl. bore cross drive DIN 138	F 2233.B.040.Z03.07	40	16	40		7	3	0.3	3	SP . . 1204 . .
	F 2233.B.050.Z04.07	50	22	40		7	4	0.4	4	
	F 2233.B.063.Z05.07	63	22	40		7	5	0.6	5	
	F 2233.B.080.Z06.07	80	27	50		7	6	1.5	6	
	F 2233.B.100.Z07.07	100	32	50		7	7	2.0	7	SP . . 1204 . .
	F 2233.B.125.Z08.07	125	40	63		7	8	3.8	8	
	F 2233.B.160.Z09.07	160	40/40 B	63		7	9	5.9	9	SP . . 1204 . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

WALTER MINI-KW
Surface Milling Cutter

F 2233

positive, κ = 45°

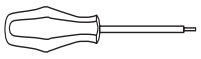
SP . . 1204

Assembly parts



Clamping screw for insert	FS 1030 (Torx 20)
Tightening torque	5.0 Nm

Accessories



Screwdriver	FS 228 (Torx 20)

Indexable inserts



Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
SPMW 1204 AETN – A 27		1.4	☺	☹						☺	☹							
SPHW 120416 – A 57	1.6												☺					
SPMW 1204 AEN – A 57		1.4	☺	☹					☺	☹	☹							
SPGT 1204 AEN – K 88		1.4			☻	☺								☻	☻			
SPMT 1204 AEN		1.4	☻	☺	☺				☻	☺	☺							
SPKT 1204 AZN		1.4	☻	☺	☺	☹		☺	☻	☺	☺							





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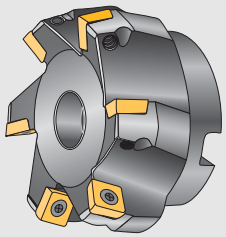
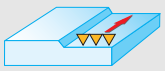
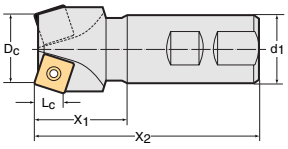
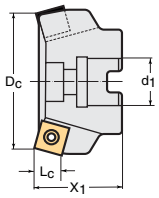
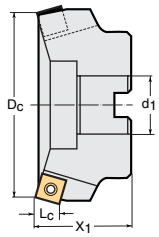






Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Shank type DIN 1835, version B	F 2235.W.032.Z02.10	32	32	49	110	10	2	0.6	2	SP . . 1204 . .
	F 2235.W.040.Z03.10	40	32	49	110	10	3	0.7	3	
cyl. bore cross drive DIN 138	F 2235.B.050.Z04.10	50	22	40		10	4	0.3	4	SP . . 1204 . .
	F 2235.B.063.Z05.10	63	22	40		10	5	0.5	5	
	F 2235.B.080.Z06.10	80	27	50		10	6	0.8	6	
	F 2235.B.100.Z07.10	100	32	50		10	7	1.7	7	SP . . 1204 . .

Bodies and assembly parts are included in the scope of delivery.

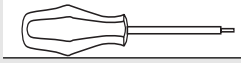
WALTER surface milling cutter F 2235

positive, κ = 75°

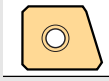
Assembly parts

	Clamping screw for insert	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm

Accessories

	Screwdriver	FS 228 (Torx 20)

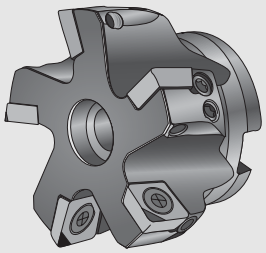
Indexable inserts

		Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
					HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
					WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
		SPGT 1204 EDR – F 55		1.2	☺	😐	😐	☹			☺	😐	😐							
		SPJW 1204 EDR		1.4	😐	☹	☹		😐	☹	☺	😐	☹	😐						
		SPMW 120408 T – A 27	0.8		😐	☹			😐			😐	☹							
		SPHW 120416 – A 57	1.6												😐					
		SPMW 120408 – A 57	0.8		😐	☹			😐		☺	😐	☹	😐						
		SPMT 120408 – D 51	0.8		😐	☹	☹	☹				😐	☹							
		SPMT 120408 – F 55	0.8			😐	😐	☹		😐	☺		☹	😐						
		SPHT 120408 – G 88														☺	☺			
Finishing insert		P 2901 – 1		11					😐		☺						☺		☺	
		Installation in combination with SP . . 1204 EDR																		

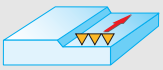




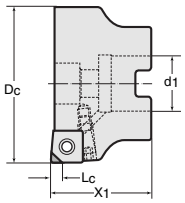
→ 409 | → 684 | → 620







Tool



κ = 90°

κ = 75°

(with SP . . EDR)

Designation	D_C mm	d_1 mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2250.B22.063.Z05.03	63	22	40	3 / 4	5	0.5	5	SP . . 1204 . . **WCD 10**
F 2250.B27.080.Z06.03	80	27	50	3 / 4	6	0.8	6	
F 2250.B32.100.Z07.03	100	32	50	3 / 4	7	1.7	7	

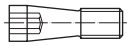
Bodies and assembly parts are included in the scope of delivery.

Pre-balanced to G 16 for n = 10000 min $^{-1}$
For information on high-speed applications, see page 666.

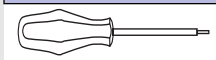
WALTER light alloy milling cutter F 2250

positive, κ = 75° + 90°
with axial adjustment

Assembly parts

	Clamping screw for insert	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm
	Countersunk head bolt	FS 1148 (SW 2.5)
	Balancing screw	FS 1145 (SW 2.5)

Accessories

	Screwdriver	FS 228 (Torx 20)
	Wrench DIN 911 for taper and balancing screws	SW 2.5

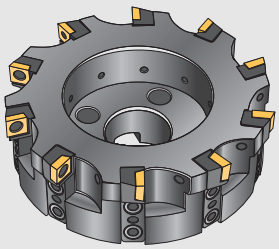
Indexable inserts

		Designation	ap max mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N DP WCD 10	N	H HC WXH 15	H HC WXM 15
		SPHW 1204 PDR – A 88	4	1.5												☺			
		SPHW 1204 EDR – A 88	3	1.5												☺			
Finishing insert		SPHX 1204 PDR – A 88	0.5	3.5												☺			

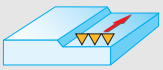
Installation of finishing insert in combination with SPHW 1204 PDR – A 88
For roughing/finishing combinations
see page 669.



→ 413 | → 684 | → 674 | → 620

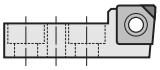






Tool

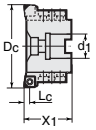
Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
F 2250.B.080.Z06.03.R594	80	27	63	3 / 4	6	1.2	6	SP . . 1204 . . **PCD**
F 2250.B.100.Z07.03.R594	100	32	63	3 / 4	7	2.3	7	
F 2250.B.125.Z08.03.R594	125	40	63	3 / 4	8	1.2	8	
F 2250.B.160.Z10.03.R594	160	40/40 B	63	3 / 4	10	2.3	10	
F 2250.B.200.Z12.03.R594	200	60/50 B	63	3 / 4	12	3.7	12	



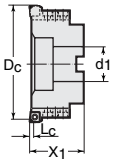
κ = 90°

κ = 75°

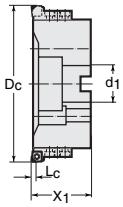
(with SP . . EDR)



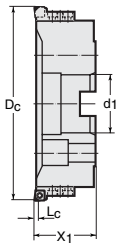
D_C 80–100 mm



D_C 125 mm



D_C 160 mm



D_C 200 mm

Bodies and assembly parts are included in the scope of delivery.

Pre-balanced to G 16 for n = 10000 min $^{-1}$
For information on high-speed applications, see page 666.

D_C 80–100 mm = steel basic body
D_C 125–200 mm = basic body made of high tensile aluminium

WALTER light alloy milling cutter F 2250

positive, κ = 75° + 90° approach, with axial adjustment

HSC

Assembly parts

Cartridge for tool body	FR 594
Clamping screw for insert	FS 1030 (Torx 20)
Tightening torque	5.0 Nm
Clamping screw for cartridge	FS 1146 (SW 5) for ∅ 80–100 mm FS 1147 (SW 5) from ∅ 125 mm
Tightening torque	14.0 Nm
Spring washer	FS 1100
Balancing screw	FS 1145 (SW 2.5)
Eccentric bolt for cartridge	FS 1131

Accessories

Finishing cartridge for tool body	FR 595
Insert for finishing cartridge	SPHX 1204 PDR - A88
Screwdriver	FS 228 (Torx 20)
Wrench DIN 911 for cartridge	SW 5
Wrench DIN 911 for balancing screw	SW 2.5

Indexable inserts

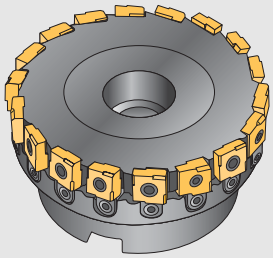
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N DP WCD 10	N	H HC WXH 15	H HC WXM 15
	SPHW 1204 PDR – A 88		1.5												☺			
	SPHW 1204 EDR – A 88		1.5												☺			
Finishing insert	SPHX 1204 PDR – A 88		3.5												☺			

Installation of finishing insert in combination with SPHW 1204 PDR – A 88

For roughing/finishing combinations see page 669.



→ 413 | → 684 | → 674 | → 620





Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2254.B.050.Z09.07	50	22	40	7	9	0.6	9	SNH . . 1205 . .
	F 2254.B.063.Z12.07	63	22	40	7	12	0.8	12	
	F 2254.B.080.Z15.07	80	27	50	7	15	1.1	15	
Adjustable	F 2254.B.100.Z19.07	100	32	50	7	19	1.6	19	SNH . . 1205 . .
	F 2254.B.125.Z23.07	125	40	63	7	23	3.0	23	
	F 2254.B.160.Z30.07	160	40/40 B	63	7	30	5.3	30	SNH . . 1205 . .

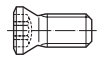
Bodies and assembly parts are included in the scope of delivery.

WALTER surface/shoulder milling cutter, tangential

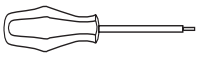
F 2254

negative, κ = 89°

Assembly parts

		D_C = 50–80 mm	D_C = 100–160 mm
	Clamping screw for insert	FS 1007 (Torx 15)	FS 1007 (Torx 15)
	Tightening torque	2.5 Nm	2.5 Nm
	Setting wedge		FK 324
	Clamping screw for setting wedge		FS 1160 (SW 3)

Accessories

	Screwdriver	FS 229 (Torx 15)
	Wrench for setting wedge	FS 227 (SW 3)

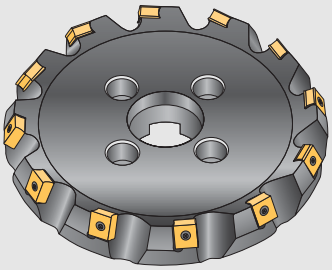
Indexable inserts

	Designation	Corner chamfer mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	SNHQ 1205 ZZR – A 57 T	0.8x45°	☺	😐					☺	😐	😐							

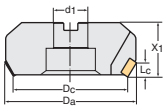
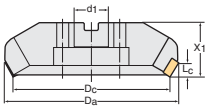
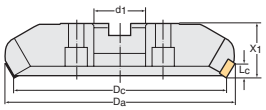
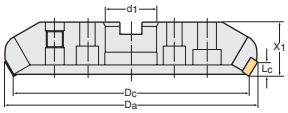




→ 413 | → 684 | → 676 | → 620





Tool	Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
 D_C 100–125 mm	F 2260.B.100.Z06.11	100	113	32	50	11	6	3.0	6	LN . . 1508 . .
	F 2260.B.125.Z08.11	125	138	40	63	11	8	4.2	8	
	F 2260.B.160.Z10.11	160	173	40/40 B	63	11	10	6.9	10	
	F 2260.B.200.Z12.11	200	213	60/50 B	63	11	12	10.0	12	
	F 2260.B.250.Z14.11	250	263	60/50 B	63	11	14	16.0	14	
	F 2260.B.315.Z16.11	315	328	60/50-60 BB	80	11	16	31.0	16	
 D_C 160 mm	F 2260.B.125.Z06.15	125	143	40	63	15	6	4.2	6	LN . . 2010 . .
	F 2260.B.160.Z08.15	160	178	40/40 B	63	15	8	6.9	8	
	F 2260.B.200.Z10.15	200	218	60/50 B	63	15	10	10.0	10	
	F 2260.B.250.Z12.15	250	268	60/50 B	63	15	12	16.0	12	
	F 2260.B.315.Z14.15	315	333	60/50-60 BB	80	15	14	31.0	14	
 D_C 200–250 mm										
 D_C 315 mm										

Bodies and assembly parts are included in the scope of delivery.

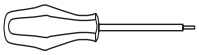
WALTER heavy-duty milling cutter F 2260

negative, κ = 60°
with tangentially mounted inserts

Assembly parts

	Clamping screw for insert	FS 1009 (Torx 20)
	Tightening torque	5.0 Nm

Accessories

	Screwdriver	FS 228 (Torx 20)

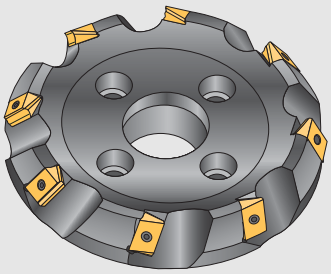
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	LNMU 150812 T – F 27T	1.2		☺	😐						😐	☹							
	LNMU 150812 – F 57T	1.2		☺	😐					☺	😐	☹							
	LNMU 201012 T – F 27T	1.2		☺	😐						😐	☹							
	LNMU 201012 – F 57T	1.2		☺	😐					☺	😐	☹							

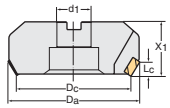
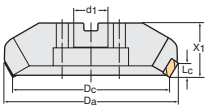
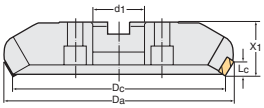
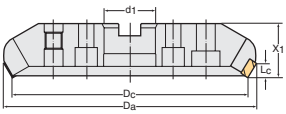




→ 427 | → 684 | → 620





Tool	Designation	D_C mm	D_a mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
 D_C 125 mm	F 2265.B.125.Z06.12	125	140	40	63	12	6	4.2	6	LN . . 2010 . .
	F 2265.B.160.Z08.12	160	175	40/40 B	63	12	8	6.9	8	
	F 2265.B.200.Z10.12	200	215	60/50B	63	12	10	11.3	10	
	F 2265.B.250.Z12.12	250	265	60/50B	63	12	12	16.0	12	
	F 2265.B.315.Z14.12	315	330	60/50-60 BB	80	12	14	31.0	14	
 D_C 160 mm	F 2265.B.200.Z08.20	200	225	60/50 B	63	20	8	11.3	8	LN . . 3010 . .
	F 2265.B.250.Z10.20	250	275	60/50 B	63	20	10	16.0	10	
	F 2265.B.315.Z12.20	315	340	60/50-60 BB	80	20	12	31.0	12	
 D_C 200–250 mm										
 D_C 315 mm										

Bodies and assembly parts are included in the scope of delivery.

WENDELNOVEX®
Heavy-duty milling cutter

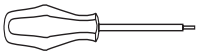
F 2265

negative, κ = 60°, with tangentially mounted inserts

Assembly parts

	Clamping screw for insert	FS 1009 (Torx 20)
	Tightening torque	5.0 Nm

Accessories

	Screwdriver	FS 228 (Torx 20)

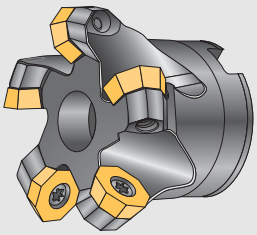
Indexable inserts

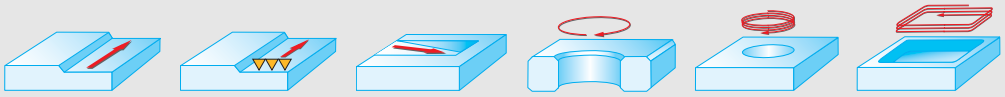
	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	LNKU 2010 DPTR – F 27T		1.3	☹							☺								
	LNKU 2010 DPR – F 57T		1.3	☺	☹						☺	☹							
	LNKU 3010 DPTR – F 27T		1.3	☹							☺								
	LNKU 3010 DPR – F 57T		1.3	☺	☹						☺	☹							

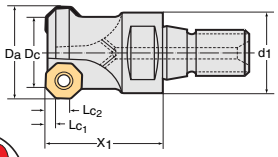
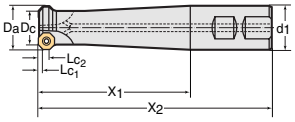
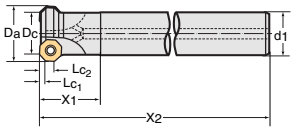
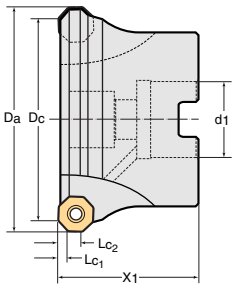




→ 427 | → 684 | | → 620





Tool	Designation	D_a mm	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_{C1} mm	L_{C2} mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2280.T28.032.Z02.03	32	24	28	40		3	8	2	0.1	2	OD . . 0504 . .
	F 2280.T36.040.Z03.03	40	32	36	40		3	8	3	0.2	3	
												
Shank DIN 1835, version B	F 2280.W32.032.Z02.03	32	24	32	114	175	3	8	2	0.9	2	OD . . 0504 . .
	F 2280.W32.040.Z03.03	40	32	32	114	175	3	8	3	1.0	3	
Parallel shank without flat	F 2280.Z20.032.Z02.03	32	24	20	35	110	3	8	2	0.2	2	OD . . 0504 . .
	F 2280.Z20.040.Z03.03	40	32	20	35	110	3	8	3	0.3	3	
	F 2280.Z25.032.Z02.03	32	24	25	35	150	3	8	2	0.5	2	
	F 2280.Z25.040.Z03.03	40	32	25	35	150	3	8	3	0.6	3	
cyl. bore cross drive DIN 138	F 2280.B.050.Z04.03	50	42	16	40		3	8	4	0.4	4	OD . . 0504 . .
	F 2280.B.050DC.Z04.03	58	50	16	40		3	8	4	0.3	4	
	F 2280.B.052.Z04.03	52	44	22	45		3	8	4	0.4	4	
	F 2280.B.063.Z05.03	63	55	22	40		3	8	5	0.5	5	
	F 2280.B.063.Z06.03	63	55	22	40		3	8	6	0.5	6	
	F 2280.B.063DC.Z06.03	71	63	22	40		3	8	6	0.5	6	
	F 2280.B.066.Z05.03	66	58	27	50		3	8	5	0.5	5	
	F 2280.B.080.Z06.03	80	72	27	50		3	8	6	0.9	6	
	F 2280.B.080.Z07.03	80	72	27	50		3	8	7	0.9	7	
	F 2280.B.080DC.Z07.03	88	80	27	50		3	8	7	0.8	7	
	F 2280.B.100.Z06.03	100	92	32	50		3	8	6	1.7	6	
	F 2280.B.100.Z08.03	100	92	32	50		3	8	8	1.6	8	
	F 2280.B.100DC.Z08.03	108	100	32	50		3	8	8	1.5	8	
	F 2280.B.125.Z07.03	125	117	40	63		3	8	7	3.1	7	
	F 2280.B.125.Z10.03	125	117	40	63		3	8	10	2.0	10	
	F 2280.B.125DC.Z10.03	133	125	40	63		3	8	10	2.5	10	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

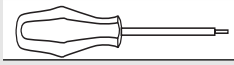
WALTER octagon cutter F 2280

positive, κ = 43°

Assembly parts

		D_a = 32–63 mm	D_a = 66–125 mm
	Clamping screw for insert	FS 359 (Torx 15)	FS 1006 (Torx 15)
	Tightening torque	2.5 Nm	2.5 Nm

Accessories

	Screwdriver	FS 229 (Torx 15)

Indexable inserts

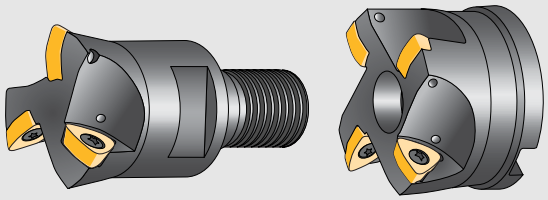
	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	ODMW 050408 T – A 27	0.8		●	●				●		●	●							
	ODMW 050408 – A 57	0.8		●	●				●	●	●	●							
	ODHW 050412 – A 57	1.2												●					
	ODHW 0504 ZZN – A 57	0.8	1.2	●	●				●	●	●	●							
	ODMT 0504 ZZN – D 57	0.8	1.2	●	●	●			●		●	●							
	ODHT 0504 ZZN – F 57	0.8	1.2		●	●	●		●			●							●
	ODHT 0504 ZZN – G 88	0.8	1.2			●	●								●	●			●
 Finishing insert	ODHX 0504 ZZR – A 57	0.8	7.2		●					●		●						●	

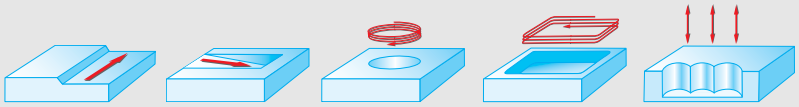
Installation of finishing inserts ODHX . . ZZR – A 57 in combination with ODH . . . ZZN . .
For roughing/finishing combinations see page 669.

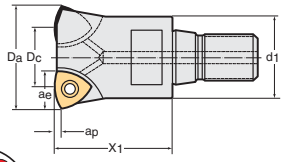
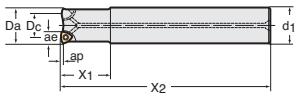
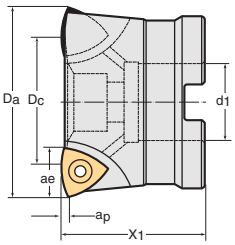




→ 415 | → 684 | → 620





Tool	Designation	D_a mm	D_C mm	d_1 mm	X_1 mm	X_2 mm	a_p mm	a_e mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2330.T18.020.Z02.01	20	10	18.5	30		1	7	2	0.1	2	P 2633 . – R 10
	F 2330.T22.025.Z03.01	25	15	22	35		1	7	3	0.1	3	
	F 2330.T28.032.Z03.01.5	32	18	28	40		1.5	10	3	0.2	3	P 2633 . – R 14
	F 2330.T28.035.Z03.01.5	35	21	28	40		1.5	10	3	0.2	3	
	F 2330.T36.040.Z03.01.5	40	26	36	40		1.5	10	3	0.3	3	
	F 2330.T36.042.Z03.01.5	42	28	36	40		1.5	10	3	0.4	3	
												
Parallel shank without flat	F 2330.Z20.020.Z02.01	20	10	20		200	1	7	2	0.5	2	P 2633 . – R 10
	F 2330.Z25.025.Z03.01	25	15	25		200	1	7	3	0.7	3	
	F 2330.Z32.032.Z03.01.5	32	18	32		250	1.5	10	3	0.5	3	P 2633 . – R 14
cyl. bore cross drive DIN 138	F 2330.B.052.Z05.01.5	52	38	22	40		1.5	10	5	0.3	5	P 2633 . – R 14
	F 2330.B.066.Z06.01.5	66	52	27	50		1.5	10	6	0.7	6	
	F 2330.B.085.Z07.01.5	85	71	27	50		1.5	10	7	1.0	7	
	F 2330.B.052.Z03.02*	52	32	22	40		2	15	3	0.3	3	P 2633 . – R 25
	F 2330.B.066.Z04.02*	66	46	27	50		2	15	4	0.7	4	
	F 2330.B.085.Z05.02*	85	65	27	50		2	15	5	1.0	5	

* D_a measured via master insert P 26325 – R 25 with R 0.8.
Actual cut diameter at D_a 52=51.3 mm, D_a 66=65.3mm, D_a 85=84.3 mm.

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
Programming information, see page 654.

WALTER high-performance milling cutter

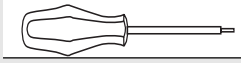
F 2330

positive, κ = 0 – 15°

Assembly parts

		P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25
	Clamping screw for insert	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	5.0 Nm

Accessories

		P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

Indexable inserts

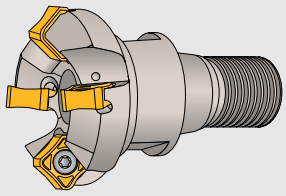


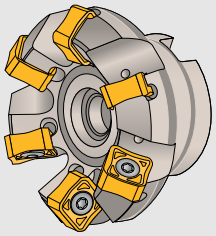
Designation	Radius mm		P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
P 26335 – R 10	0.8		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		
P 26335 – R 14	1.2		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		
P 26335 – R 25	2.0		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		
P 26337 – R 10	0.8		☺	😐		☹					😐	☹						
P 26337 – R 14	1.2		☺	😐		☹					😐	☹						
P 26337 – R 25	2.0		☺	😐		☹					😐	☹						
P 26339 – R 10	0.8		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		
P 26339 – R 14	1.2		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		
P 26339 – R 25	2.0		☺	😐	☹	☹	😐	☹			😐	☹			😐	☹		





→ 428 | → 684 | → 620





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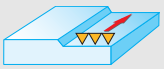
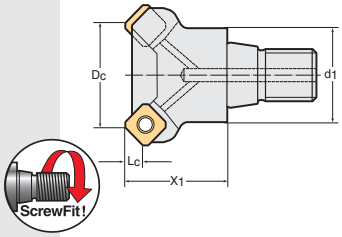
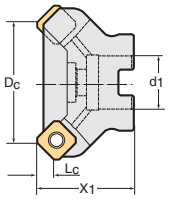
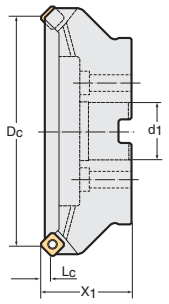


Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4033.T36.040.Z03.06	40	36	40	6.5	3	0.4	3	SN . X 1205 . .
	F 4033.T36.040.Z04.06	40	36	40	6.5	4	0.4	4	
	F 4033.T45.050.Z04.06	50	45	45	6.5	4	0.6	4	
	F 4033.T45.050.Z06.06	50	45	45	6.5	6	0.6	6	
cyl. bore cross drive DIN 138	F 4033.B.050.Z04.06	50	22	40	6.5	4	0.3	4	SN . X 1205 . .
	F 4033.B.050.Z06.06	50	22	40	6.5	6	0.3	6	
	F 4033.B.063.Z06.06	63	22	40	6.5	6	0.5	6	
	F 4033.B.063.Z08.06	63	22	40	6.5	8	0.5	8	
	F 4033.B27.063.Z06.06	63	27	40	6.5	6	0.5	6	
	F 4033.B27.063.Z08.06	63	27	40	6.5	8	0.5	8	
	F 4033.B.080.Z07.06	80	27	50	6.5	7	1.2	7	
	F 4033.B.080.Z10.06	80	27	50	6.5	10	1.2	10	
	F 4033.B.100.Z08.06	100	32	50	6.5	8	1.8	8	
	F 4033.B.100.Z12.06	100	32	50	6.5	12	1.7	12	
	F 4033.B.125.Z10.06	125	40	63	6.5	10	3.1	10	
	F 4033.B.125.Z16.06	125	40	63	6.5	16	3.0	16	
	F 4033.B.160.Z12.06	160	40/40 B	63	6.5	12	5.5	12	SN . X 1205 . .
	F 4033.B.160.Z20.06	160	40/40 B	63	6.5	20	5.4	20	
	F 4033.B60.200.Z18.06*	200	60/50 B	63	6.5	18	8.6	18	
	F 4033.B60.200.Z26.06*	200	60/50 B	63	6.5	26	8.5	26	







Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
* without internal coolant supply.

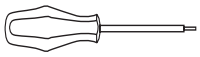
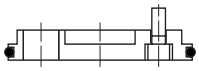
WALTER surface milling cutter F 4033

negative, κ = 45°

Assembly parts

	Clamping screw for insert	FS 1459 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	4.0 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2014 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

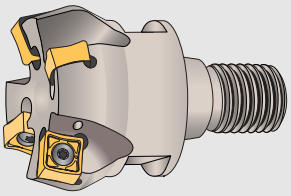
Indexable inserts

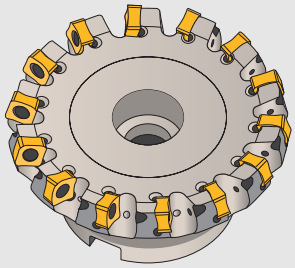
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HF WMG 40
	SNGX 1205 ANN – F 27		1.5	☺	☹							☺	☹						
	SNGX 1205 ANN – F 57		1.5	☺	☹	☹		☺	☹			☺	☹			☺	☹		
	SNGX 1205 ANN – F 67		1.5	☺	☹	☹		☺	☹		☻	☺	☹			☺	☹		
	SNMX 1205 ANN – F 27		1.5	☺	☹							☺	☹						
	SNMX 1205 ANN – F 57		1.5	☺	☹							☺	☹						
	SNMX 1205 ANN – F 67		1.5	☺	☹						☻	☺	☹						
	SNGX 120512 – F 57	1.2		☺	☹							☺	☹						
	SNMX 120512 – F 27	1.2		☺	☹							☺	☹						
	SNMX 120512 – F 57	1.2		☺	☹							☺	☹						
	SNMX 120520 – F 57	2.0		☺	☹							☺	☹						
	SNMX 120512 – F 67	1.2		☺	☹						☻	☺	☹						





→ 413 → 684 → 620





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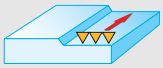
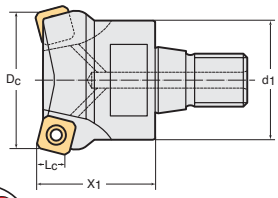
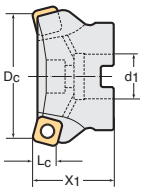
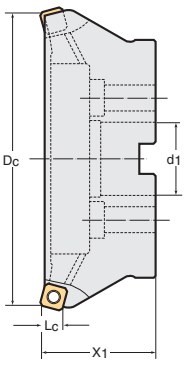


Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4047.T36.040.Z03.08	40	36	40	8	3	0.4	3	SN . X 1205 . .
	F 4047.T45.050.Z04.08	50	45	45	8	4	0.6	4	
									
cyl. bore cross drive DIN 138	F 4047.B22.050.Z04.08	50	22	40	8	4	0.6	4	SN . X 1205 . .
	F 4047.B22.063.Z06.08	63	22	40	8	6	0.9	6	
	F 4047.B27.063.Z06.08	63	27	50	8	6	0.9	6	
	F 4047.B27.080.Z07.08	80	27	50	8	7	1.0	7	
	F 4047.B27.080.Z09.08	80	27	50	8	9	1.0	9	
	F 4047.B32.100.Z08.08	100	32	50	8	8	1.7	8	
	F 4047.B32.100.Z11.08	100	32	50	8	11	1.7	11	
	F 4047.B40.125.Z10.08	125	40	63	8	10	2.9	10	
	F 4047.B40.125.Z14.08	125	40	63	8	14	2.9	14	
	F 4047.B40.160.Z12.08	160	40/40 B	63	8	12	4.9	12	SN . X 1205 . .
	F 4047.B40.160.Z18.08	160	40/40 B	63	8	18	4.9	18	
	F 4047.B50.200.Z14.08*	200	60/50 B	63	8	14	7.9	14	
	F 4047.B60.200.Z22.08*	200	60/50 B	63	8	22	7.9	22	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
* without internal coolant supply.

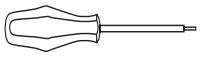
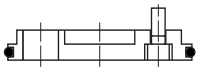
WALTER milling cutter F 4047

negative, κ = 75°

Assembly parts

	Clamping screw for insert	FS 1459 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	4.0 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2014 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

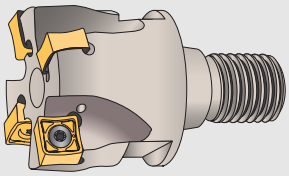
Indexable inserts

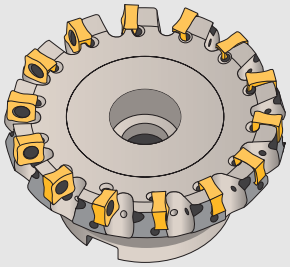
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC	P HC WXP 45	M HC WXM 35	K HC WAK 15	K HC	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
	SNGX 1205 ENN – F 27		1.2	☺	☹						☺	☹					
	SNGX 1205 ENN – F 57		1.2	☺	☹						☺	☹					
	SNGX 1205 ENN – F 67		1.2	☺	☹				☺		☺	☹					
	SNGX 120512 – F 57	1.2		☺	☹						☺	☹					
	SNMX 120512 – F 27	1.2		☺	☹						☺	☹					
	SNMX 120512 – F 57	1.2		☺	☹						☺	☹					
	SNMX 120520 – F 57	2.0		☺	☹						☺	☹					
	SNMX 120512 – F 67	1.2		☺	☹				☺		☺	☹					





→ 414 → 684 → 620





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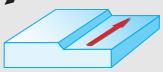
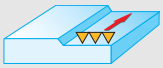
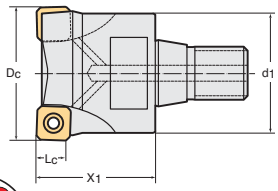
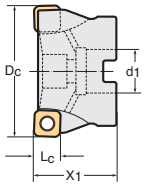
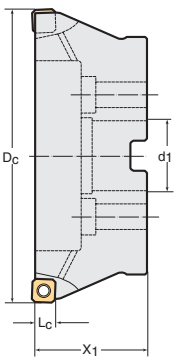




Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4048.T36.040.Z03.10	40	36	40	10	3	0.4	3	SN . X 1205 . .
	F 4048.T45.050.Z04.10	50	45	45	10	4	0.6	4	
									
cyl. bore cross drive DIN 138	F 4048.B22.050.Z04.10	50	22	40	10	4	0.4	4	SN . X 1205 . .
	F 4048.B22.063.Z06.10	63	22	40	10	6	0.5	6	
	F 4048.B27.063.Z06.10	63	27	50	10	6	0.5	6	
	F 4048.B27.080.Z07.10	80	27	50	10	7	0.9	7	
	F 4048.B27.080.Z09.10	80	27	50	10	9	0.9	9	
	F 4048.B32.100.Z08.10	100	32	50	10	8	1.5	8	
	F 4048.B32.100.Z11.10	100	32	50	10	11	1.5	11	
	F 4048.B40.125.Z10.10	125	40	63	10	10	2.8	10	
	F 4048.B40.125.Z14.10	125	40	63	10	14	2.8	14	
	F 4048.B40.160.Z12.10	160	40/40 B	63	10	12	4.7	12	SN . X 1205 . .
	F 4048.B40.160.Z18.10	160	40/40 B	63	10	18	4.7	18	
	F 4048.B60.200.Z14.10*	200	60/50 B	63	10	14	7.7	14	
	F 4048.B60.200.Z22.10*	200	60/50 B	63	10	22	7.7	22	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
* without internal coolant supply.

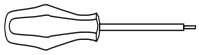
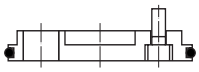
WALTER Milling Cutter F 4048

negative, κ = 88°

Assembly parts

	Clamping screw for insert	FS 1459 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	4.0 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2014 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

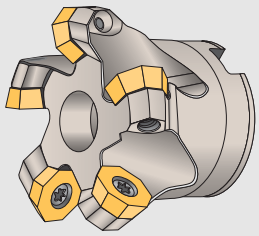
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC	P HC WXP 45	M HC WXM 35	K HC WAK 15	K HC	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
	SNGX 1205 ZNN – F 27		1.2	☺	☹						☺	☹					
	SNGX 1205 ZNN – F 57		1.2	☺	☹						☺	☹					
	SNGX 1205 ZNN – F 67		1.2	☺	☹				☻		☺	☹					
	SNGX 120512 – F 57	1.2		☺	☹						☺	☹					
	SNMX 120512 – F 27	1.2		☺	☹						☺	☹					
	SNMX 120512 – F 57	1.2		☺	☹						☺	☹					
	SNMX 120520 – F 57	2.0		☺	☹						☺	☹					
	SNMX 120512 – F 67	1.2		☺	☹				☻		☺	☹					

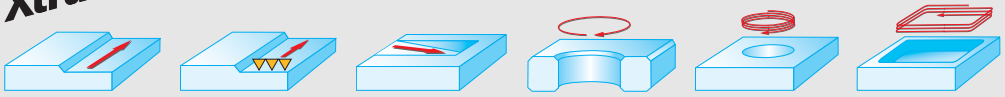




→ 414 → 684 → 620



Xtra·tec®



Tool	Designation	D_a mm	D_C mm	d_1/ISO mm	X_1 mm	L_{C1} mm	L_{C2} mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 4080.B16.050.Z03.04*	50	40	16	40	4	10	3	0.3	3	
	F 4080.B16.050DC.Z03.04*	60	50	16	40	4	10	3	0.3	3	
	F 4080.B22.052.Z03.04*	52	42	22	40	4	10	3	0.3	3	
	F 4080.B22.063.Z04.04*	63	53	22	40	4	10	4	0.5	4	
	F 4080.B22.063.Z05.04*	63	53	22	40	4	10	5	0.5	5	
	F 4080.B22.063DC.Z05.04*	73	63	22	40	4	10	5	0.5	5	
	F 4080.B27.066.Z05.04*	66	56	27	50	4	10	5	0.5	5	OD . . 0605 . .
	F 4080.B27.080.Z05.04*	80	70	27	50	4	10	5	0.8	5	
	F 4080.B27.080.Z06.04*	80	70	27	50	4	10	6	0.8	6	
	F 4080.B27.080DC.Z06.04*	90	80	27	50	4	10	6	0.8	6	
	F 4080.B32.100.Z05.04*	100	90	32	50	4	10	5	1.5	5	
	F 4080.B32.100.Z07.04*	100	90	32	50	4	10	7	1.5	7	
	F 4080.B32.100DC.Z07.04*	110	100	32	50	4	10	7	1.5	7	
	F 4080.B40.125.Z06.04*	125	115	40	63	4	10	6	2.5	6	
	F 4080.B40.125.Z08.04*	125	115	40	63	4	10	8	2.5	8	
	F 4080.B40.125DC.Z08.04*	135	125	40	63	4	10	8	2.5	8	
	F 4080.B40.160.Z07.04*	160	150	40/40 B	63	4	10	7	4.0	7	
	F 4080.B40.160.Z09.04*	160	150	40/40 B	63	4	10	9	4.0	9	OD . . 0605 . .
	F 4080.B40.160DC.Z09.04*	170	160	40/40 B	63	4	10	9	4.0	9	

Bodies and assembly parts are included in the scope of delivery.
*** constructively balanced to G 6.3 where n = 10000 min^{-1}**

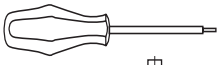
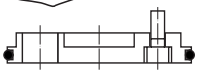
WALTER octagon cutter F 4080

positive, κ = 43°

Assembly parts

	Clamping screw for insert	FS 1495 (Torx 20 IP)	*IP = Torx Plus*
	Tightening torque	5.0 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2015 (Torx 20 IP)	*IP = Torx Plus*
	Screwdriver	FS 1486 (Torx 20 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

Indexable inserts

	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WTP 35	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K CN WSN 10	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	HC WXM 15	HF WMG 40
	ODMW 060508 T – A 27	0.8		☺	☹						☺		☺	☺							
	ODMW 060508 – A 57	0.8		☺	☹						☹	☺	☺	☺							
	ODHW 060516 – A 57	1.6													☺						
	ODHW 0605 ZZN – A 57	0.8	1.6	☺	☹						☹	☺	☺	☹							
	ODMT 0605 ZZN – D 57	0.8	1.6	☺	☺	☹	☺		☺	☹	☺		☺	☹				☺	☹		
	ODHT 0605 ZZN – F 57	0.8	1.6		☺	☹	☺	☹	☺	☹	☺			☹				☺	☹		☺
	ODHT 0605 ZZN – G 88	0.8	1.6				☺	☺								☺	☺				☺
 Finishing insert	ODHX 0605 ZZR – A 57	0.8			☺							☺		☹						☺	

Installation of finishing inserts ODHX . . ZZR – A 57 in combination with ODH . . ZZN . .
For roughing/finishing combinations see page 669.





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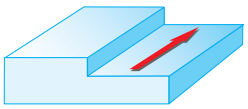
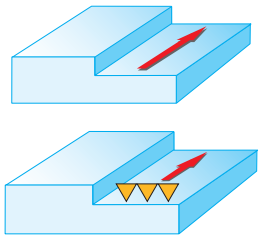
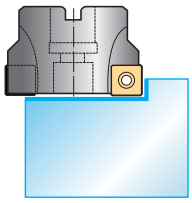
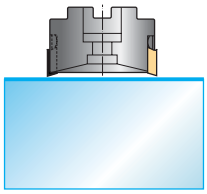
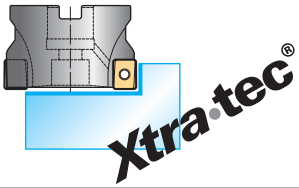
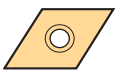
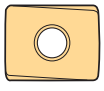
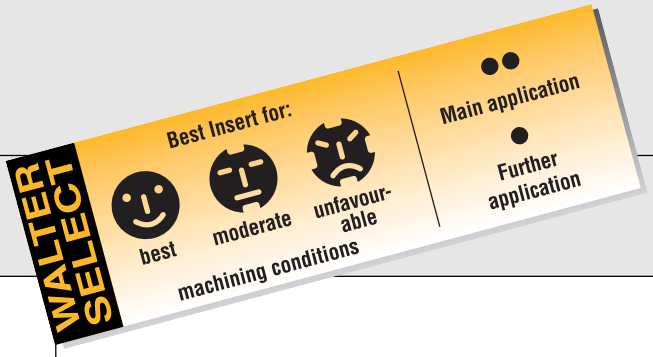
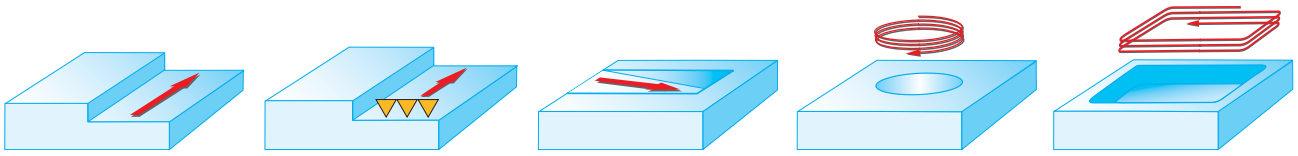
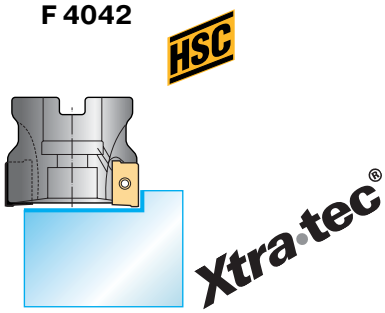
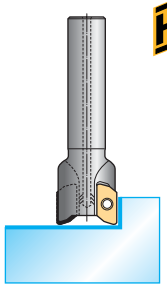
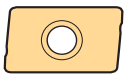
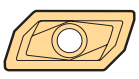
WALTER SELECT

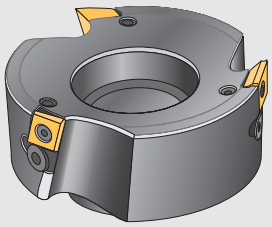
Application				
Approach angle κ	89°45'	90°	90°	
Shoulder milling cutters	**F 2241** 	**F 2140** 	**F 4041** HSC  Xtra.tec®	
Dia. range [mm]	16–160	63–160	40–160	
Page	516	514	520	
P Steel	●●	●	●●	
M Stainless steel	●	●	●●	
K Cast iron	●●	●	●●	
N NF metals	●●	●●	●	
S Difficult-to-machine materials	●	●	●●	
H Hard materials	●			
Basic shape of indexable insert				
Indexable insert types	SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .	P 2792 – 1	LNGX 1307 . .	
max. cut depths [mm]	6 + 9 + 12	10	13	



Shoulder milling cutters

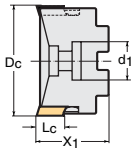


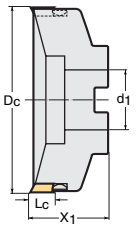
	90°	90°
	F 4042 	**F 3040** 
	10–160	25–63
	522 – 529	518
	●●	
	●●	
	●●	●
	●●	●●
	●●	●
	●	
		
	AD . T . . 0803 . . AD . T . . 1204 . . AD . T . . 1606 . . AD . T . . 1807 . .	ZDGT 1504 . . ZDGT 2005 . .
	8 + 11.7 + 15 + 16	15 + 20

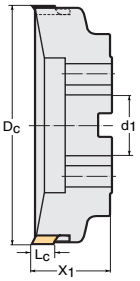




Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2140.0.22.040.063	63	22	40	10	3	0.5	3	P 2792 – 1
	F 2140.0.27.040.080	80	27	40	10	3	0.8	3	P 2792 – 1
	F 2140.0.32.050.100	100	32	50	10	4	1.6	4	
	F 2140.0.40.050.125	125	40	50	10	5	2.4	5	
	F 2140.0.40.050.160	160	40/40 B	50	10	6	4.0	6	P 2792 – 1







Bodies and assembly parts are included in the scope of delivery.

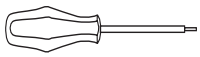
WALTER shoulder milling cutters F 2140

positive, κ = 90°, with axial adjustment
for machining aluminium and soft steels

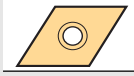
Assembly parts

	Clamping screw for insert	FS 326 (Torx 15)
	Tightening torque	3.0 Nm
	Adjusting screw	FS 747 (Torx 15)
	Threaded plug DIN 915	FS 963 (SW 3)
	Tightening torque	0.5 Nm
	Compression piece	FS 748

Accessories

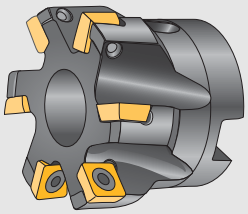
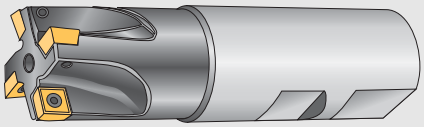
	Screwdriver	FS 229 (Torx 15)
	DIN 911 Allen key	SW 3

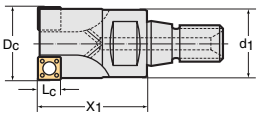
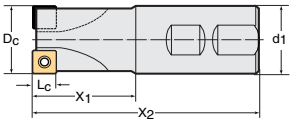
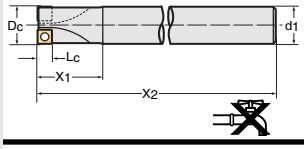
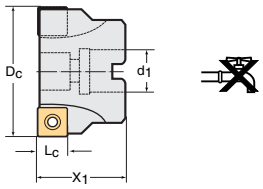
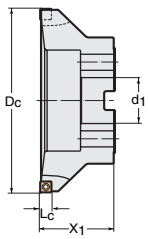
Indexable inserts

	Designation	Corner chamfer mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WKM	WXH 15	WXM 15	WMG 40
	P 2792 – 1	0.3 x 45°			☹									☺	😐			



→ 423 | → 684 | → 672 | → 620


Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2241.T14.016.Z02.06	16	14.5	25		6	2	0.1	2	SP . . 0603 . .
	F 2241.T18.020.Z03.06	20	18.5	30		6	3	0.1	3	
	F 2241.T36.040.Z06.06	40	36	40		6	6	0.4	6	
	F 2241.T22.025.Z02.09	25	22	35		9	2	0.1	2	SP . . 09T3 . .
	F 2241.T28.032.Z03.09	32	28	40		9	3	0.2	3	
	F 2241.T36.040.Z04.09	40	36	40		9	4	0.4	4	
	F 2241.T45.050.Z06.09	50	45	40		9	6	0.6	6	
	F 2241.T36.040.Z03.12	40	36	40		12	3	0.4	3	SP . . 1204 . .
	F 2241.T45.050.Z04.12	50	45	40		12	4	0.6	4	
Shank type DIN 1835, version B	F 2241.W.016.Z02.06	16	16	31	80	6	2	0.1	2	SP . . 0603 . .
	F 2241.W.020.Z03.06	20	20	39	90	6	3	0.2	3	
	F 2241.W20.025.Z04.06	25	20	43	94	6	4	0.3	4	
	F 2241.W.025.Z04.06	25	25	43	100	6	4	0.3	4	
	F 2241.W20.032.Z05.06	32	20	49	100	6	5	0.4	5	
	F 2241.W.032.Z05.06	32	32	49	110	6	5	0.6	5	
	F 2241.W.040.Z06.06	40	32	49	110	6	6	0.7	6	
	F 2241.W20.025.Z02.09	25	20	43	94	9	2	0.3	2	SP . . 09T3 . .
	F 2241.W.025.Z02.09	25	25	43	100	9	2	0.3	2	
	F 2241.W20.032.Z03.09	32	20	49	100	9	3	0.5	3	
	F 2241.W.032.Z03.09	32	32	49	110	9	3	0.6	3	
	F 2241.W.040.Z04.09	40	32	49	110	9	4	0.7	4	
	F 2241.W.032.Z02.12	32	32	49	110	12	2	0.6	2	SP . . 1204 . .
	F 2241.W.040.Z03.12	40	32	49	110	12	3	0.7	3	
Parallel shank without flat	F 2241.Z.025.Z02.09	25	25	43	200	9	2	0.7	2	SP . . 09T3 . .
	F 2241.Z.032.Z03.09	32	32	49	250	9	3	1.5	3	
	F 2241.Z.040.Z04.09	40	32	49	250	9	4	1.6	4	
cyl. bore cross drive DIN 138	F 2241.B.040.Z05.09	40	16	40		9	5	0.2	5	SP . . 09T3 . .
	F 2241.B.050.Z06.09	50	22	40		9	6	0.3	6	
	F 2241.B.063.Z07.09	63	22	40		9	7	0.5	7	
	F 2241.B.080.Z08.09	80	27	50		9	8	0.8	8	
	F 2241.B.100.Z09.09	100	32	50		9	9	1.7	9	
	F 2241.B.125.Z11.09	125	40	63		9	11	3.6	11	
	F 2241.B.050.Z04.12	50	22	40		12	4	0.3	4	SP . . 1204 . .
	F 2241.B.063.Z05.12	63	22	40		12	5	0.5	5	
	F 2241.B.080.Z06.12	80	27	50		12	6	0.8	6	
	F 2241.B.100.Z07.12	100	32	50		12	7	1.7	7	
	F 2241.B.125.Z08.12	125	40	63		12	8	3.6	8	
	F 2241.B.160.Z13.09	160	40/40 B	63		9	13	4.5	13	SP . . 09T3 . .
	F 2241.B.160.Z10.12	160	40/40 B	63		12	10	4.5	10	SP . . 1204 . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

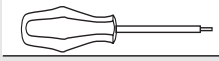
WALTER shoulder milling cutters F 2241

positive, κ = 89°45'

Assembly parts

		L_C = 6 mm	L_C = 9 mm	L_C = 12 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	5.0 Nm

Accessories

		L_C = 6 mm	L_C = 9 mm	L_C = 12 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

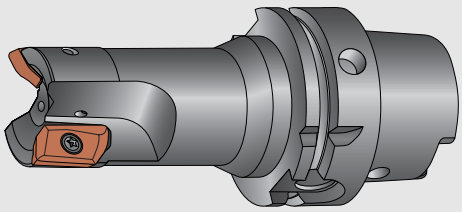
Indexable inserts

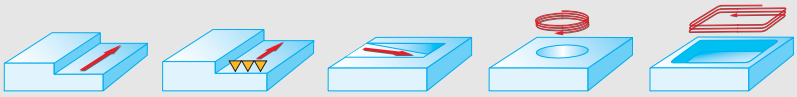
	Designation	Radius mm		P					M	K					N		H			
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF	
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40	
	SPMW 060304 T – A 27	0.4		☺	☹			☺			☺	☹								
	SPMW 060304 – A 57	0.4		☺	☹					☻	☺	☹	☺							
	SPMT 060304 – D 51	0.4		☺	☹	☹	☹				☺	☹								
	SPMT 060304 – F 55	0.4			☻	☺	☹		☺	☻		☹	☺							
	SPHT 060304 – G 88	0.4													☻	☻				
	SPMW 09T308 T – A 27	0.8		☺	☹						☺	☹								
	SPMW 09T308 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺							
	SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹								
	SPMT 09T308 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺							
	SPHT 09T308 – G 88	0.8													☻	☻				
	SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹								
	SPMW 120408 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺							
	SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹								
	SPMT 120408 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺							
	SPHT 120408 – G 88	0.8													☻	☻				
	SPHW 120412 – A 57	1.2												☺						
	SPHW 120416 – A 57	1.6												☺						





→ 410 → 684 → 620





Tool	Designation	$D_{C-0.2}$ mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 3040.T22.025.Z02.15	25	22	45		15	2	0.15	2	ZD . . 1504 . .
	F 3040.T28.032.Z02.15	32	28	45		15	2	0.25	2	
	F 3040.T36.040.Z03.15	40	36	45		15	3	0.45	3	
	F 3040.T28.032.Z02.20	32	28	55		20	2	0.3	2	ZD . . 2005 . .
	F 3040.T36.040.Z02.20	40	36	50		20	2	0.5	2	
Parallel shank without flat	F 3040.Z20.025.Z02.15.S	25	20	40	110	15	2	0.4	2	ZD . . 1504 . .
	F 3040.Z20.032.Z02.15.S	32	20	40	110	15	2	0.45	2	
	F 3040.Z20.032.Z02.20.S	32	20	50	120	20	2	0.5	2	ZD . . 2005 . .
Parallel shank without flat	F 3040.Z25.025.Z02.15.L	25	25	40	150	15	2	0.5	2	ZD . . 1504 . .
	F 3040.Z25.032.Z02.15.L	32	25	40	175	15	2	0.6	2	
	F 3040.Z32.032.Z02.15.L	32	32	40	175	15	2	0.7	2	
	F 3040.Z32.040.Z03.15.L	40	32	55	175	15	3	1.0	3	
	F 3040.Z25.032.Z02.20.L	32	25	50	175	20	2	0.6	2	ZD . . 2005 . .
	F 3040.Z32.032.Z02.20.L	32	32	50	175	20	2	0.7	2	
	F 3040.Z32.040.Z02.20.L	40	32	50	175	20	2	1.0	2	
cyl. bore cross drive DIN 138	F 3040.B.040.Z03.15	40	16	50		15	3	0.4	3	ZD . . 1504 . .
	F 3040.B.050.Z04.15	50	22	50		15	4	0.5	4	
	F 3040.B.063.Z05.15	63	22	50		15	5	0.6	5	
	F 3040.B.050.Z03.20	50	22	60		20	3	0.5	3	ZD . . 2005 . .
	F 3040.B.063.Z04.20	63	22	50		20	4	0.6	4	
HSK DIN 69893/1, version A	F 3040.H63A.025.Z02.15	25	HSK-A63	55	110	15	2	0.8	2	ZD . . 1504 . .
	F 3040.H63A.032.Z02.15	32	HSK-A63	60	110	15	2	1.0	2	
	F 3040.H63A.040.Z03.15	40	HSK-A63	65	110	15	3	1.2	3	
	F 3040.H63A.032.Z02.20	32	HSK-A63	60	110	20	2	1.0	2	ZD . . 2005 . .
	F 3040.H63A.040.Z02.20	40	HSK-A63	65	110	20	2	1.2	2	

Bodies and assembly parts are included in the scope of delivery.
The HSK (hollow tool shank) tools are pre-balanced to G 6.3 with n = 20000 min^{-1}, with chip location but without chip, all other versions are pre-balanced to G 6.3 with n = 10000 min^{-1}.
For information on high-speed applications, see page 666.
For open-ended wrenches for screw heads, see page 783.

WALTER ramping cutter

F 3040

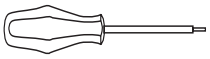
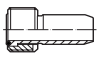
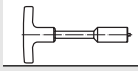
positive, κ = 90°

HSC

Assembly parts

		D_c 25+32 mm ZD . . 1504	D_c 40–63 mm ZD . . 1504	D_c 32 mm ZD . . 2005	D_c 40–63 mm ZD . . 2005
	Clamping screw for insert	FS 1011 (Torx 15)	FS 378 (Torx 15)	FS 1029 (Torx 20)	FS 1030 (Torx 20)
	Tightening torque	3.0 Nm	3.0 Nm	5.0 Nm	5.0 Nm

Accessories

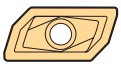
		ZD . . 1504	ZD . . 2005
	Screwdriver	FS 229 (Torx 15)	FS 228 (Torx 20)
	Transfer unit for HSK	FS 1064	
	Socket key forHSK	FS 952	

Clamping screw for adaptor*

		ZD . . 1504 D_C = 40 mm	ZD . . 1504 D_C = 50+63 mm	ZD . . 2005 D_C = 50 mm	ZD . . 2005 D_C = 63 mm
	Clamping screw ISO 4762 (12.9)	M 8 x 40 (SW 6)	M 10 x 35 (SW 8)	M 10 x 40 (SW 8)	M 10 x 35 (SW 8)

* for arbor mounted tools F 3040.B and adaptors types A 150 . . , A 155 . . and AK 155 . .

Indexable inserts

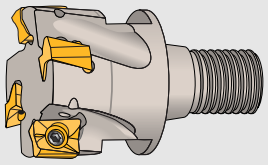


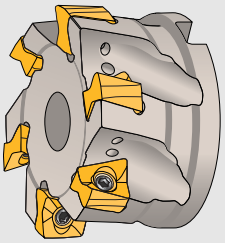
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
ZDGT 150404 R – K 85	0.4	1.2												☺	😐			☹
ZDGT 150408 R – K 85	0.8	1.2												☺	😐			☹
ZDGT 150412 R – K 85	1.2	1.2												☺	😐			☹
ZDGT 150416 R – K 85	1.6	1.2												☺	😐			☹
ZDGT 150420 R – K 85	2.0	1.2												☺	😐			☹
ZDGT 150425 R – K 85	2.5	1.2												☺	😐			☹
ZDGT 150430 R – K 85	3.0	1.2												☺	😐			☹
ZDGT 200508 R – K 85	0.8	1.2													😐			☹
ZDGT 200512 R – K 85	1.2	1.2													😐			☹
ZDGT 200516 R – K 85	1.6	1.2													😐			☹
ZDGT 200520 R – K 85	2.0	1.2													😐			☹
ZDGT 200530 R – K 85	3.0	1.2													😐			☹
ZDGT 200540 R – K 85	4.0	1.2													😐			☹
ZDGT 200550 R – K 85	5.0	1.2													😐			☹
ZDGT 200560 R – K 85	6.0	1.0													😐			☹
ZDGT 200564 R – K 85	6.4	1.0													😐			☹

The body must be reworked in the radiused section if the corner radius is R = 2.0 mm or above: $R_{(body)} = R_{(insert)} - 1$ mm



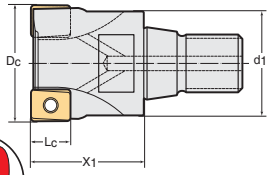
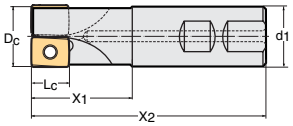
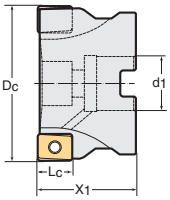
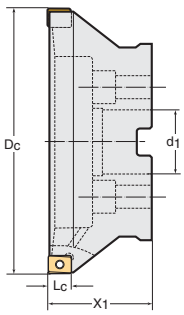
→ 425 → 684 → 679 → 620





Xtra·tec®



Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit  	F 4041.T36.040.Z03.13	40	36	40		13	3	0.35	3	LN . .1307 . .
	F 4041.T45.050.Z03.13	50	45	40		13	3	0.55	3	
	F 4041.T45.050.Z04.13	50	45	40		13	4	0.55	4	
Shank type DIN 1835, version B 	F 4041.W32.040.Z03.13	40	32	49	110	13	3	0.7	3	LN . .1307 . .
cyl. bore cross drive DIN 138 	F 4041.B.040.Z03.13	40	16	40		13	3	0.2	3	LN . . 1307 . .
	F 4041.B.050.Z03.13	50	22	40		13	3	0.3	3	
	F 4041.B.050.Z04.13	50	22	40		13	4	0.3	4	
	F 4041.B.063.Z04.13	63	22	40		13	4	0.5	4	
	F 4041.B.063.Z06.13	63	22	40		13	6	0.5	6	
	F 4041.B27.063.Z04.13	63	27	50		13	4	0.7	4	
	F 4041.B27.063.Z06.13	63	27	50		13	6	0.7	6	
	F 4041.B.080.Z05.13	80	27	50		13	5	0.8	5	
	F 4041.B.080.Z07.13	80	27	50		13	7	0.7	7	
	F 4041.B.100.Z05.13	100	32	50		13	5	1.7	5	
	F 4041.B.100.Z08.13	100	32	50		13	8	1.6	8	
	F 4041.B.125.Z07.13	125	40	63		13	7	3.5	7	
	F 4041.B.125.Z10.13	125	40	63		13	10	3.4	10	
	F 4041.B.160.Z08.13	160	40/40 B	63		13	8	4.6	8	LN . . 1307 . .
	F 4041.B.160.Z12.13	160	40/40 B	63		13	12	4.5	12	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

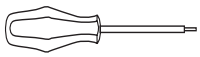
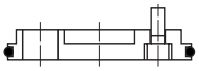
WALTER shoulder milling cutter F 4041

negative, κ = 90°

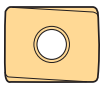
Assembly parts

	Clamping screw for insert	FS 1458 (Torx 15 IP)	*IP = Torx Plus*
	Tightening torque	2.5 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2014 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

Indexable inserts



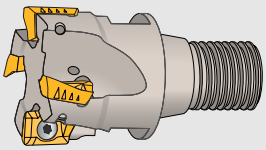
The body must be reworked in the radiused section if the corner radius is R = 1.2 mm or above: $R_{(body)} = R_{(insert)}$

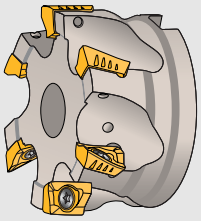
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HF WMG 40
LNGX 130708 R – L 55	0.8	1.2	☺	😐	☹		😐	☹		☺	😐	☹			😐	☹		
LNGX 130712 R – L 55	1.2	1.0	☺	😐	☹		😐	☹			😐	☹			😐	☹		
LNGX 130716 R – L 55	1.6	0.9	☺	😐	☹		😐	☹			😐	☹			😐	☹		
LNGX 130720 R – L 55	2.0	0.7	☺	😐	☹		😐	☹			😐	☹			😐	☹		
LNGX 130725 R – L 55	2.5	0.6	☺	😐	☹		😐	☹			😐	☹			😐	☹		

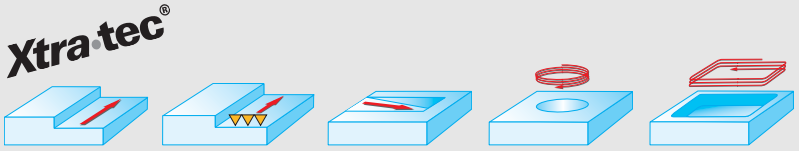


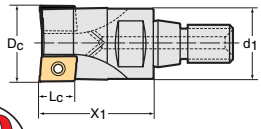
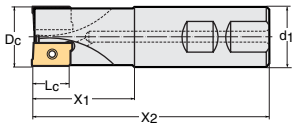
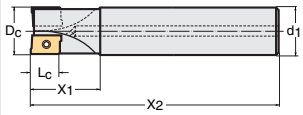
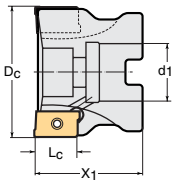


→ 419 | → 684 | → 620







Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit   	F 4042.T09.010.Z01.08*	10	9.7	20		8	1	0.1	1	AD . . 0803 . .
	F 4042.T09.012.Z01.08*	12	9.7	20		8	1	0.1	1	
	F 4042.T14.016.Z02.08*	16	14.5	25		8	2	0.1	2	
	F 4042.T18.020.Z02.08*	20	18.5	30		8	2	0.1	2	
	F 4042.T18.020.Z03.08*	20	18.5	30		8	3	0.1	3	
	F 4042.T22.025.Z03.08*	25	22	35		8	3	0.1	3	
	F 4042.T22.025.Z04.08*	25	22	35		8	4	0.1	4	
	F 4042.T28.032.Z04.08*	32	28	40		8	4	0.2	4	
	F 4042.T28.032.Z05.08*	32	28	40		8	5	0.2	5	
	F 4042.T36.040.Z04.08*	40	36	40		8	4	0.35	4	
	F 4042.T36.040.Z06.08*	40	36	40		8	6	0.35	6	
	F 4042.T45.050.Z05.08*	50	45	40		8	5	0.5	5	
	F 4042.T45.050.Z07.08*	50	45	40		8	7	0.5	7	
Shank type DIN 1835, version B  	F 4042.W16.010.Z01.08	10	16	31	80	8	1	0.1	1	AD . . 0803 . .
	F 4042.W16.012.Z01.08	12	16	31	80	8	1	0.1	1	
	F 4042.W16.016.Z02.08	16	16	41	90	8	2	0.1	2	
	F 4042.W20.020.Z03.08	20	20	39	90	8	3	0.2	3	
	F 4042.W25.025.Z04.08	25	25	43	100	8	4	0.3	4	
	F 4042.W32.032.Z05.08	32	32	49	110	8	5	0.6	5	
	F 4042.W32.040.Z06.08	40	32	49	110	8	6	0.7	6	
Parallel shank without flat  	F 4042.Z16.010.Z01.08	10	16	31	160	8	1	0.2	1	AD . . 0803 . .
	F 4042.Z16.012.Z01.08	12	16	31	160	8	1	0.2	1	
	F 4042.Z16.016.Z02.08	16	16	41	180	8	2	0.3	2	
	F 4042.Z20.020.Z02.08	20	20	39	200	8	2	0.5	2	
	F 4042.Z25.025.Z03.08	25	25	43	200	8	3	0.7	3	
cyl. bore cross drive DIN 138  	F 4042.B.040.Z06.08	40	16	40		8	6	0.2	6	AD . . 0803 . .
	F 4042.B.050.Z07.08	50	22	40		8	7	0.35	7	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
*** constructively balanced to G 6.3 where n = 10000 min^{-1}**

WALTER shoulder milling cutter

positive, κ = 90°

HSC

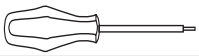
F 4042

AD . . 0803

Assembly parts

		D_C = 10–20 mm	D_C = 25–50 mm	
	Clamping screw for insert	FS 1455 (Torx 8 IP)	FS 1454 (Torx 8 IP)	*IP = Torx Plus*
	Tightening torque	1.2 Nm	1.2 Nm	

Accessories

	Torque screwdriver	FS 2001	
	Interchangeable blade	FS 2012 (Torx 8 IP)	*IP = Torx Plus*
	Screwdriver	FS 1483 (Torx 8 IP)	*IP = Torx Plus*

Indexable inserts

Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
ADGT 0803 PER – D 51	0.4	1.2	☺	😐	☹			☹			😐	☹				☹		
ADGT 0803 PER – D 56	0.4	1.2	☺	😐							😐	☹						
ADGT 0803 PER – F 56	0.4	1.2			☹		😐	☹							😐	☹		
ADGT 080302 R – F 56	0.2	1.2			☹		😐	☹							😐	☹		
ADGT 080308 R – F 56	0.8	1.2			☹		😐	☹							😐	☹		
ADGT 080312 R – F 56	1.2	1.0			☹		😐	☹							😐	☹		
ADGT 080316 R – F 56	1.6	1.0			☹		😐	☹							😐	☹		
ADGT 080320 R – F 56	2.0	1.0			☹		😐	☹							😐	☹		
ADHT 0803 PER – G 88	0.4	1.2											☺	☺				
ADKT 0803 PER – F 56	0.4	1.2	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 080304 R – D 56	0.4	1.2	☺	😐						☺	😐	☹						
ADMT 080302 R – F 56	0.2	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 080304 R – F 56	0.4	1.2	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 080308 R – F 56	0.8	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 080312 R – F 56	1.2	1.0		😐	☹		😐	☹				☹			😐	☹		
ADMT 080316 R – F 56	1.6	1.0		😐	☹		😐	☹				☹			😐	☹		
ADMT 080320 R – F 56	2.0	1.0		😐	☹		😐	☹				☹			😐	☹		
ADMT 080304 R – G 56	0.4	1.2		☺	😐	😐	☺	😐	☺			☺			☺	😐		

The body must be reworked in the radiused section if the corner radius is R = 1.6 mm or above: $R_{(body)} = R_{(insert)} - 1$ mm

WALTER SELECT

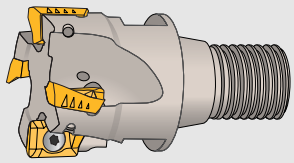
Best Insert for:

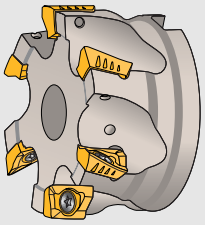
good | moderate | unfavour-able

machining conditions

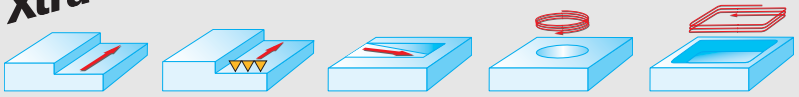
Tiger·tec®

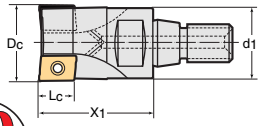
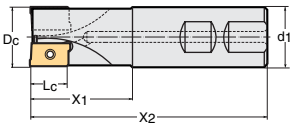
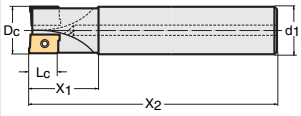
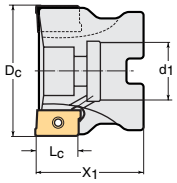
→ 416 | → 684 | → 620





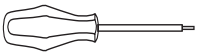
Xtra·tec®



Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit   	F 4042.T22.025.Z03.11*	25	22	35		11.7	3	0.1	3	AD . . 1204 . .
	F 4042.T28.032.Z03.11*	32	28	40		11.7	3	0.2	3	
	F 4042.T28.032.Z04.11*	32	28	40		11.7	4	0.2	4	
	F 4042.T36.040.Z03.11*	40	36	40		11.7	3	0.35	3	
	F 4042.T36.040.Z05.11*	40	36	40		11.7	5	0.35	5	
	F 4042.T45.050.Z04.11*	50	45	40		11.7	4	0.5	4	
	F 4042.T45.050.Z06.11*	50	45	40		11.7	6	0.5	6	
Shank type DIN 1835, version B  	F 4042.W25.025.Z03.11	25	25	43	100	11.7	3	0.35	3	AD . . 1204 . .
	F 4042.W32.032.Z04.11	32	32	49	110	11.7	4	0.6	4	
	F 4042.W32.040.Z05.11	40	32	49	110	11.7	5	0.7	5	
Parallel shank without flat  	F 4042.Z25.025.Z03.11	25	25	38	200	11.7	3	0.7	3	AD . . 1204 . .
	F 4042.Z32.032.Z04.11	32	32	39	250	11.7	4	1.5	4	
	F 4042.Z32.040.Z05.11	40	32	44	250	11.7	5	1.6	5	
cyl. bore cross drive DIN 138  	F 4042.B.040.Z03.11*	40	16	40		11.7	3	0.2	3	AD . . 1204 . .
	F 4042.B.040.Z05.11	40	16	40		11.7	5	0.2	5	
	F 4042.B.050.Z04.11*	50	22	40		11.7	4	0.3	4	
	F 4042.B.050.Z06.11	50	22	40		11.7	6	0.3	6	
	F 4042.B.063.Z05.11*	63	22	40		11.7	5	0.6	5	
	F 4042.B.063.Z07.11	63	22	40		11.7	7	0.6	7	
	F 4042.B27.063.Z05.11*	63	27	50		11.7	5	0.7	5	
	F 4042.B27.063.Z07.11	63	27	50		11.7	7	0.7	7	
	F 4042.B.080.Z06.11*	80	27	50		11.7	6	1.1	6	
	F 4042.B.080.Z08.11	80	27	50		11.7	8	1.1	8	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
*** constructively balanced to G 6.3 where n = 10000 min^{-1}**

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2013 (Torx 9 IP)	*IP = Torx Plus*
	Screwdriver	FS 1484 (Torx 9 IP)	*IP = Torx Plus*

WALTER shoulder milling cutter

positive, κ = 90°

HSC

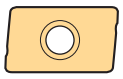
F 4042

AD . . 1204

Assembly parts

		D_C = 25 mm	D_C = 32–80 mm	
	Clamping screw for insert	FS 1456 (Torx 9 IP)	FS 1457 (Torx 9 IP)	*IP = Torx Plus*
	Tightening torque	2.0 Nm	2.0 Nm	

Indexable inserts



The body must be reworked in the radiused section if the corner radius is R = 2.0 mm or above: $R_{(body)} = R_{(insert)} - 1$ mm

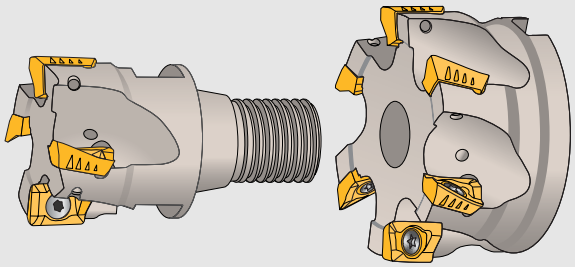
Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	HF
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
ADGT 1204 PER – D 51	0.8	1.2	☺	😐	☹			☹			😐	☹				☹		
ADGT 1204 PER – D 56	0.8	1.2	☺	😐							😐	☹						
ADGT 1204 PER – F 56	0.8	1.2			☹		😐	☹							😐	☹		
ADGT 120404 R – F 56	0.4	1.2			☹		😐	☹							😐	☹		
ADGT 120412 R – F 56	1.2	1.2			☹		😐	☹							😐	☹		
ADGT 120416 R – F 56	1.6	1.0			☹		😐	☹							😐	☹		
ADGT 120420 R – F 56	2.0	1.0			☹		😐	☹							😐	☹		
ADGT 120425 R – F 56	2.5	0.8			☹		😐	☹							😐	☹		
ADGT 120430 R – F 56	3.0	0.8			☹		😐	☹							😐	☹		
ADGT 120432 R – F 56	3.2	0.8			☹		😐	☹							😐	☹		
ADGT 120440 R – F 56	4.0	—			☹		😐	☹							😐	☹		
ADHT 1204 PER – G 88	0.8	1.2											☺	☺				
ADHT 120416 R – G 88	1.6	1.0											☺	☺				
ADHT 120425 R – G 88	2.5	0.8											☺	☺				
ADHT 120430 R – G 88	3.0	0.8											☺	☺				
ADHT 120440 R – G 88	4.0	—											☺	☺				
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 120408 R – D 56	0.8	1.2	☺	😐						☺	😐	☹						
ADMT 120404 R – F 56	0.4	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 120412 R – F 56	1.2	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120416 R – F 56	1.6	1.0		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120420 R – F 56	2.0	1.0		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120425 R – F 56	2.5	0.8		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120430 R – F 56	3.0	0.8		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120432 R – F 56	3.2	0.8		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120440 R – F 56	4.0	—		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 120408 R – G 56	0.8	1.2		☺	😐	😐	☺	😐	☺			☺			☺	😐		

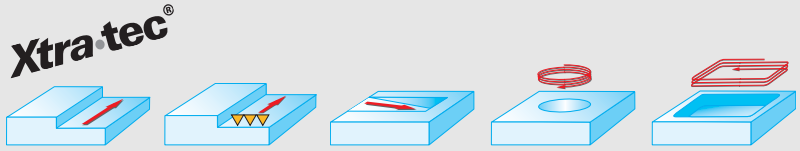


Tiger·tec®



→ 416 → 684 → 620

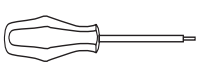
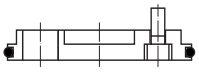




Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm		L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4042.T36.040.Z03.15*	40	36	40		15	3	0.35	3	AD . . 1606 . .
	F 4042.T36.040.Z04.15*	40	36	40		15	4	0.35	4	
	F 4042.T45.050.Z03.15*	50	45	40		15	3	0.5	3	
	F 4042.T45.050.Z05.15*	50	45	40		15	5	0.5	5	
cyl. bore cross drive DIN 138	F 4042.B.040.Z03.15*	40	16	40		15	3	0.2	3	AD . . 1606 . .
	F 4042.B.040.Z04.15	40	16	40		15	4	0.2	4	
	F 4042.B.050.Z03.15*	50	22	40		15	3	0.3	3	
	F 4042.B.050.Z05.15	50	22	40		15	5	0.3	5	
	F 4042.B.063.Z04.15*	63	22	40		15	4	0.6	4	
	F 4042.B.063.Z06.15	63	22	40		15	6	0.6	6	
	F 4042.B27.063.Z04.15*	63	27	50		15	4	0.7	4	
	F 4042.B27.063.Z06.15	63	27	50		15	6	0.7	6	
	F 4042.B.080.Z05.15*	80	27	50		15	5	1.0	5	
	F 4042.B.080.Z07.15	80	27	50		15	7	1.1	7	
	F 4042.B.100.Z05.15*	100	32	50		15	5	1.6	5	
	F 4042.B.100.Z08.15	100	32	50		15	8	1.7	8	
	F 4042.B.125.Z07.15*	125	40	63		15	7	3.2	7	
	F 4042.B.125.Z10.15	125	40	63		15	10	3.4	10	
	F 4042.B.160.Z08.15*	160	40/40 B	63		15	8	4.0	8	AD . . 1606 . .
	F 4042.B.160.Z12.15	160	40/40 B	63		15	12	4.3	12	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
*** constructively balanced to G 6.3 where n = 10000 min^{-1}**

Accessories

	Torque screwdriver	FS 2003
	Interchangeable blade	FS 2014 (Torx 15 IP) *IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP) *IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)
	Gasket	O–R 96 x 4

WALTER shoulder milling cutter

positive, κ = 90°

HSC

F 4042

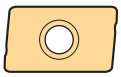
AD . . 1606

Assembly parts



Clamping screw for insert	FS 1453 (Torx 15 IP)	*IP = Torx Plus*
Tightening torque	3.5 Nm	

Indexable inserts



Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
ADGT 1606 PER – D 51	0.8	1.6	☺	😐	☹			☹			😐	☹				☹		
ADGT 1606 PER – D 56	0.8	1.6	☺	😐							😐	☹						
ADGT 1606 PER – F 56	0.8	1.6			☹		😐	☹							😐	☹		
ADGT 160612 R – F 56	1.2	1.6			☹		😐	☹							😐	☹		
ADGT 160616 R – F 56	1.6	1.4			☹		😐	☹							😐	☹		
ADGT 160620 R – F 56	2.0	1.4			☹		😐	☹							😐	☹		
ADGT 160625 R – F 56	2.5	1.2			☹		😐	☹							😐	☹		
ADGT 160630 R – F 56	3.0	1.2			☹		😐	☹							😐	☹		
ADGT 160632 R – F 56	3.2	1.2			☹		😐	☹							😐	☹		
ADGT 160640 R – F 56	4.0	1.0			☹		😐	☹							😐	☹		
ADGT 160650 R – F 56	5.0	—			☹		😐	☹							😐	☹		
ADGT 160660 R – F 56	6.0	—			☹		😐	☹							😐	☹		
ADHT 1606 PER – G 88	0.8	1.6											☺	☺				
ADHT 160616 R – G 88	1.6	1.4											☺	☺				
ADHT 160625 R – G 88	2.5	1.2											☺	☺				
ADHT 160630 R – G 88	3.0	1.2											☺	☺				
ADHT 160640 R – G 88	4.0	1.0											☺	☺				
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 160608 R – D 56	0.8	1.6	☺	😐						☺	😐	☹						
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 160612 R – F 56	1.2	1.6		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160616 R – F 56	1.6	1.4		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160620 R – F 56	2.0	1.4		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160625 R – F 56	2.5	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160630 R – F 56	3.0	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160632 R – F 56	3.2	1.2		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160640 R – F 56	4.0	1.0		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160650 R – F 56	5.0	—		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160660 R – F 56	6.0	—		😐	☹	☹	😐	☹				☹			😐	☹		
ADMT 160608 R – G 56	0.8	1.6		☺	😐	😐	☺	😐	☺			☺			☺	😐		

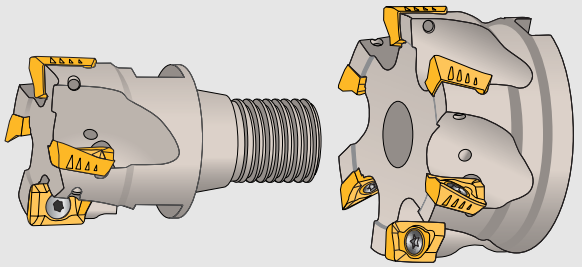
The body must be reworked in the radiused section if the corner radius is R = 2.0 mm or above:
$R_{(body)} = R_{(insert)} - 1$ mm

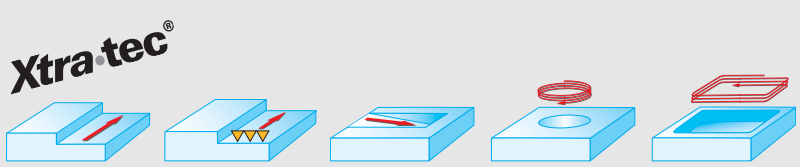


Tiger·tec®



→ 416 → 684 → 620





Tool	Designation	D_C mm	d_1/ISO mm	X_1 mm		L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4042.T45.050.Z04.16*	50	45	40		16.7	4	0.4	4	AD . . 1807 . .
cyl. bore cross drive DIN 138	F 4042.B27.063.Z05.16*	63	27	50		16.7	5	0.5	5	
	F 4042.B27.080.Z06.16*	80	27	50		16.7	6	0.9	6	AD . . 1807 . .
	F 4042.B32.100.Z07.16*	100	32	50		16.7	7	1.6	7	
	F 4042.B40.125.Z08.16*	125	40	63		16.7	8	3.2	8	
	F 4042.B40.160.Z10.16*	160	40/40 B	63		16.7	10	4.0	10	AD . . 1807 . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.
*** constructively balanced to G 6.3 where n = 10000 min^{-1}**

WALTER shoulder milling cutter

positive, κ = 90°

HSC

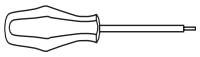
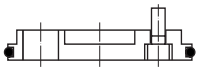
F 4042

AD . . 1807

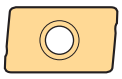
Assembly parts

	Clamping screw for insert	FS 1495 (Torx 20 IP)	*IP = Torx Plus*
	Tightening torque	5.0 Nm	

Accessories

	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2015 (Torx 20 IP)	*IP = Torx Plus*
	Screwdriver	FS 1486 (Torx 20 IP)	*IP = Torx Plus*
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)	
	Gasket	O–R 96 x 4	

Indexable inserts

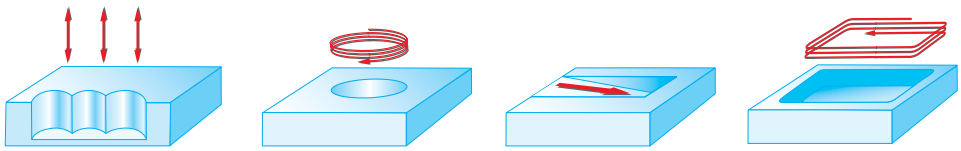
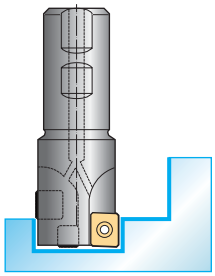
	Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
				HC				HC			HC			HC	HW	HC		HC	HF
				WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ADMT 180712 R – D 56	1.2	1.8	☺	😐	☹			☹			😐	☹				☹		
	ADMT 180712 R – F 56	1.2	1.8	☺	😐	☹			☹			😐	☹				☹		



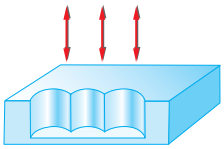
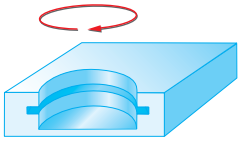
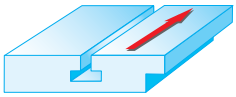
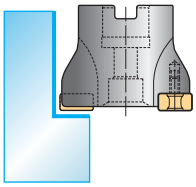
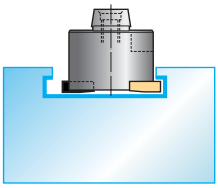
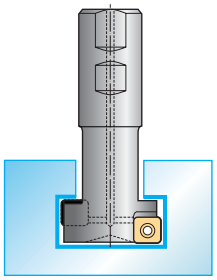


→ 418 | → 684 | → 620

WALTER SELECT

Application		
Approach angle κ	90°	
Slot milling cutters	**F 2237** 	
Dia. range [mm]	18–40	
Page	540	
P Steel	● ●	
M Stainless steel	● ●	
K Cast iron	● ●	
N NF metals	●	
S Difficult-to-machine materials	●	
H Hard materials		
Indexable insert basic shape		
Indexable insert types	LP . . 07 . . / SP . .06 . . LP . . 15 . . / SP . .09 . . SP . . 12. .	
max. cut depths [mm]	25	

Slot milling cutters

			
	90°	90°	90°
	F 2230 	**F 2036** 	**F 2243** 
	50–80	16–63	21–50
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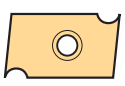
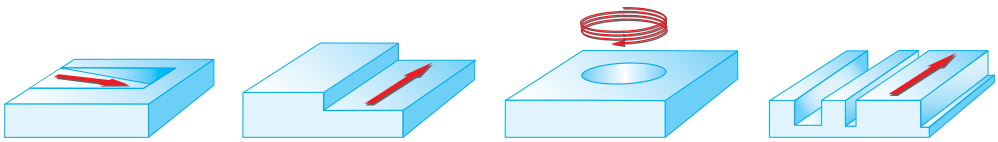
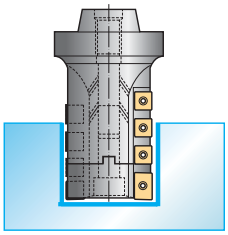
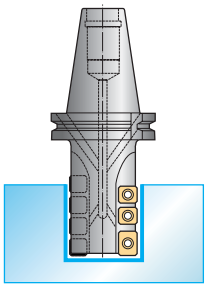
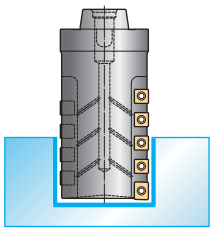
			
	CN . . 1206 . . CN . . 1608 . .	P 20200 – 1 P 20200 – 2 P 20200 – 3	SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .
	11 / 14.5	4	9–21

WALTER SELECT

Application				
Approach angle κ		90°	90°	90°
Slot milling cutters		**F 2238CE / CK** 	**F 2238** 	**F 2338** 
Dia. range [mm]		50–80	20–125	63–100
Page		546 + 548	544	550 + 552
P	Steel	●●	●●	●●
M	Stainless steel	●	●	●
K	Cast iron	●●	●●	●●
N	NF metals	●	●	●
S	Difficult-to-machine materials	●	●	●
H	Hard materials			
Indexable insert basic shape				
Indexable insert types		LP . . 1504 . . SP . . 1204 . .	LP . . 0703 . . / LP . . 1504 . . LP . . 15T3 . . SP . . 0603 . . / SP . . 09T3 . . SP . . 1204 . .	LP . . 1506 . . SP . . 1206 . .
max. cut depths [mm]		117	87	103

Slot milling cutters
– Porcupine cutter –

WALTER SELECT

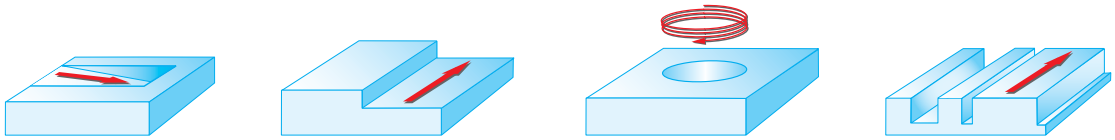
Best Insert for:

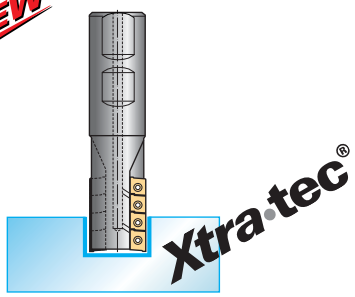
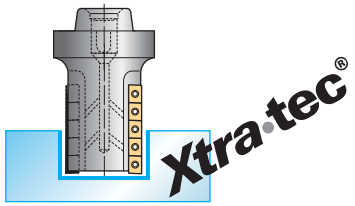
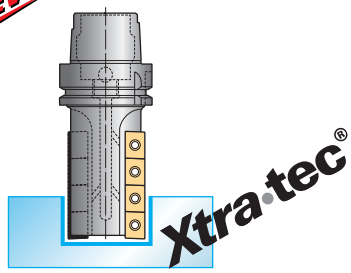
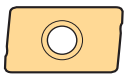
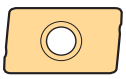
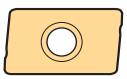
best | moderate | unfavour-able

machining conditions

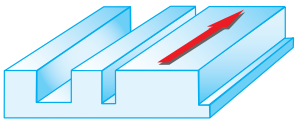
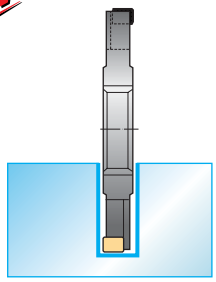
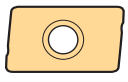
●● Main application

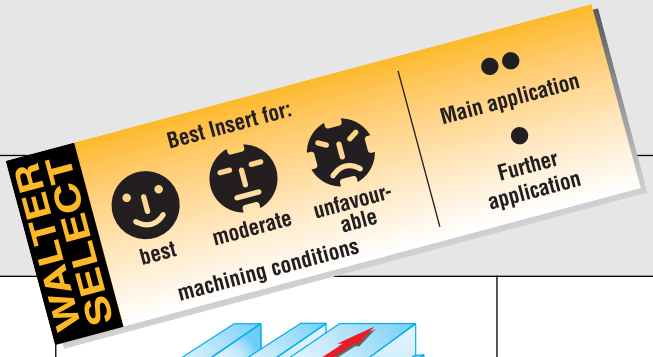
● Further application



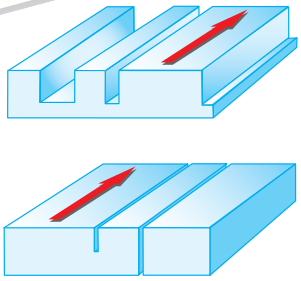
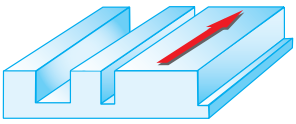
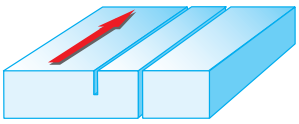
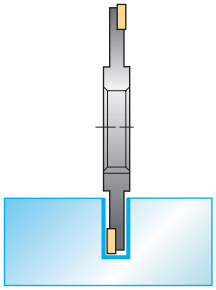
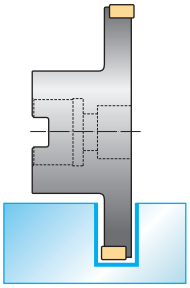
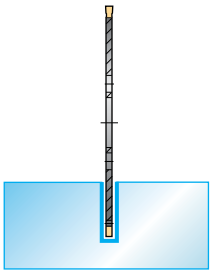
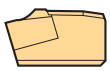
	90°	90°	90°
	NEW **F 4038** 	NEW **F 4138** 	NEW **F 4238** 
	20–32	32–80	40–80
	554	556	558
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
	●●	●●	●●
			
	AD . . 0803 . .	AD . . 1204 . .	AD . . 1606 . .
	37	65	85

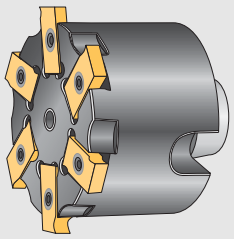
WALTER SELECT

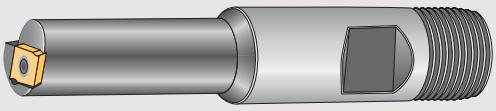
Application				
Approach angle κ		90°		
Slot milling cutters		NEW **F 2252** 		
Dia. range [mm]		100–315	80–315	
Page		560 + 564 + 566	562 + 568 + 570	
P	Steel	●●	●●	
M	Stainless steel	●●	●●	
K	Cast iron	●●	●●	
N	NF metals	●●	●●	
S	Difficult-to-machine materials	●●	●	
H	Hard materials		●	
Indexable insert basic shape				
Indexable insert types		AD . . 0803 . . AD . . 1204 . . AD . . 1606 . .	MP . . 0603 . . MP . . 0803 . . MP . . 1204 . .	
Helical milling: max. cut depths [mm]		8 + 11.7 + 15	6 + 8 + 12	
Full side and face milling: max. cut widths [mm]		12–25	8–23.5	

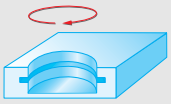


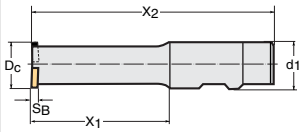
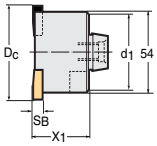
Slot milling cutters
– Side and face milling cutter –

			
	90°	90°	90°
	F 2053 	**F 2253** 	**F 2255** 
	100–200	80–315	63–250
	576	572	574
	●●	●●	●●
	●	●	●
	●●	●●	●●
	●	●	●●
	●	●	●
			
	P 44 . .	CN . . 0805 . . CN . . 1206 . . CN . . 1608 . .	NSM 3.900 . .
	—	—	—
	6 + 8	10–25	1.6 + 2.2 + 3 + 4







Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	a_e max. mm	Z	kg	SB_{H13} mm	for ∅ mm	No. of inserts	Type
Combi-shank DIN 1835, version B+D 	F 2036.5.16.090.016	16	16	42	90	1.75	1	0.12	1.1*	18–22	1	P 20200 – 1.1
									1.3*	22–32	1	P 20200 – 1.2
									1.6*	34–38	1	P 20200 – 1.3
	F 2036.5.25.130.025	25	25	74	130	2.00	2	0.20	1.3*	28–32	2	P 20200 – 1.2
									1.6*	34–38	2	P 20200 – 1.3
									1.85*	40–48	2	P 20200 – 1.4
									2.15*	50–63	2	P 20200 – 1.5
	F 2036.5.32.140.040	40	32	80	140	2.75	4	0.40	2.15*	50–63	4	P 20200 – 2.1
									2.65*	65–82	4	P 20200 – 2.2
									3.15*	85–100	4	P 20200 – 2.3
modular adaptor 	F 2036 M.0.50.040.063	63	50	40		4	6	0.40	3.15*	85–100	6	P 20200 – 3.1
									4.15*	102–200	6	P 20200 – 3.2
									5.15*	210–300	6	P 20200 – 3.3

* Nominal size of slot width in accordance with DIN 472 in relation to the bore diameter.

Bodies and assembly parts are included in the scope of delivery.

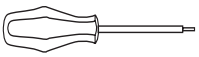
WALTER circular slot milling cutter F 2036

positive, κ = 90°

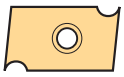
Assembly parts

		D_C = 16–25 mm	D_C = 40 mm	D_C = 63 mm
	Clamping screw for insert	FS 322 (Torx 7)	FS 246 (Torx 8)	FS 326 (Torx 15)
	Tightening torque	0.8 Nm	1.5 Nm	3.0 Nm

Accessories

		D_C = 16–25 mm	D_C = 40 mm	D_C = 63 mm
	Screwdriver	FS 309 (Torx 7)	FS 230 (Torx 8)	FS 229 (Torx 15)

Indexable inserts

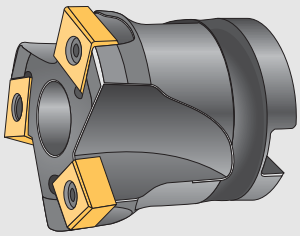


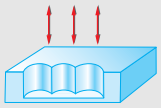
Designation	Corner chamfer mm	P					M	K					N		H		
		HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
		WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
P 20200 – 1.1	0.1 x 45°		☺							☺							
P 20200 – 1.2	0.15 x 45°		☺							☺							
P 20200 – 1.3	0.15 x 45°		☺							☺							
P 20200 – 1.4	0.15 x 45°		☺							☺							
P 20200 – 1.5	0.15 x 45°		☺							☺							
P 20200 – 2.1	0.15 x 45°		☺							☺							
P 20200 – 2.2	0.15 x 45°		☺							☺							
P 20200 – 2.3	0.15 x 45°		☺							☺							
P 20200 – 3.1	0.15 x 45°		☺							☺							
P 20200 – 3.2	0.15 x 45°		☺							☺							
P 20200 – 3.3	0.15 x 45°		☺							☺							



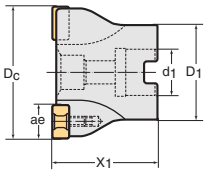


→ 424 | → 684 | → 622





Tool	Designation	D_C mm	D_1 mm	d_1 mm	X_1 mm	a_e mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2230.B.050.Z03.11	50	45	22	50	11	3	0.3	3	CN . . 1206 . .
	F 2230.B.063.Z03.14	63	45	22	50	14.5	3	0.5	3	CN . . 1608 . .
	F 2230.B.080.Z04.14	80	55	27	50	14.5	4	0.8	4	



Bodies and assembly parts are included in the scope of delivery.

Note:
The tool can only be used in the axial feed direction.
Please consider the cut width a_e when plunge milling!

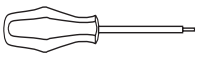
WALTER plunge milling cutter F 2230

negative, κ = 90°

Assembly parts

		CN . . 1206	CN . . 1608
	Clamping screw for insert	FS 1007 (Torx 15)	FS 1009 (Torx 20)
	Tightening torque	2.5 Nm	5.0 Nm

Accessories

		CN . . 1206	CN . . 1608
	Screwdriver	FS 229 (Torx 15)	FS 228 (Torx 20)

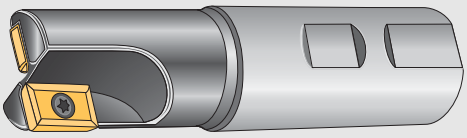
Indexable inserts

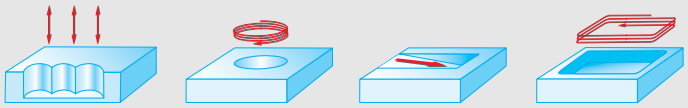
	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	CNMQ 120608 T – A 27T	0.8			☹							☹							
	CNMQ 120608 – A 57T	0.8		😐	☹					☺	😐	☹							
	CNHQ 1206 PPN – A 57T	0.8	1.5	😐	☹					☺	😐	☹							
	CNMU 120608 – D 57T	0.8		😐	😐	😐					😐	☹							
	CNHU 1206 PPN – D 57T	0.8	1.5	😐	😐	😐					😐	☹							
	CNMQ 160812 T – A 27T	1.2			☹							☹							
	CNMQ 160812 – A 57T	1.2		😐	☹					☺	😐	☹							
	CNHQ 1608 PPN – A 57T	1.2	1.8	😐	☹					☺	😐	☹							
	CNMU 160812 – D 57T	1.2		😐	😐	😐					😐	☹							
	CNHU 1608 PPN – D 57T	1.2	1.8	😐	😐	😐					😐	☹							

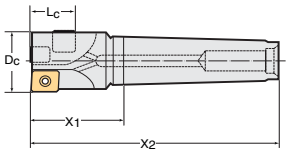
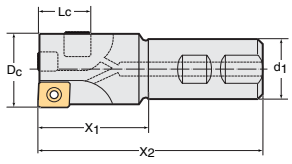




→ 426 → 684 → 622





Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Shank type DIN 228, version A 	F 2237.M.018.Z01.07	18	MK 2	30	94	7	1	0.2	1 1	LP . . 0703 . . SP . . 0603 . .
	F 2237.M.020.Z01.13	20	MK 2	30	94	13	1	0.2	1 2	LP . . 0703 . . SP . . 0603 . .
	F 2237.M.025.Z01.14	25	MK 2	40	104	14	1	0.3	1 1	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.M.030.Z01.22	30	MK 3	45	126	22	1	0.6	1 2	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.M.032.Z01.22	32	MK 3	45	126	22	1	0.6	1 2	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.M.040.Z01.25	40	MK 4	60	162	25	1	1.3	1 1 1	LP . . 1504 . . SP . . 09T3 . . SP . . 1204 . .
Shank type DIN 1835, version B 	F 2237.W.018.Z01.07	18	16	31	80	7	1	0.2	1 1	LP . . 0703 . . SP . . 0603 . .
	F 2237.W.020.Z01.13	20	20	34	85	13	1	0.2	1 2	LP . . 0703 . . SP . . 0603 . .
	F 2237.W.025.Z01.14	25	25	43	100	14	1	0.4	1 1	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.W.030.Z01.22	30	32	54	115	22	1	0.6	1 2	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.W.032.Z01.22	32	32	54	115	22	1	0.6	1 2	LP . . 15T3 . . SP . . 09T3 . .
	F 2237.W.040.Z01.25	40	32	69	130	25	1	0.8	1 1 1	LP . . 1504 . . SP . . 09T3 . . SP . . 1204 . .

Bodies and assembly parts are included in the scope of delivery.

WALTER routing cutter

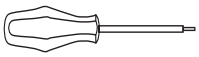
F 2237

positive, κ = 90°

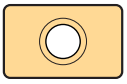
Assembly parts

		D_C = 18–20 mm	D_C = 25 mm	D_C = 32 mm	D_C = 40 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 359 (Torx 15) + FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	2.5 Nm	2.5 Nm 5.0 Nm

Accessories

		D_C = 18–20 mm	D_C = 25 mm	D_C = 32 mm	D_C = 40 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 229 (Torx 15) + FS 228 (Torx 20)

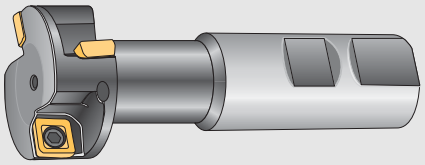
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	LPMT 070304 R – D 51	0.4	1.2	☹	☹	☹	☹				☹	☹							
	LPGT 070304 R – F 55	0.4	1.2		☹	☹	☹		☹	☺		☹							
	LPMT 15T308 R – D 51	0.8	1.4	☹	☹	☹	☹				☹	☹							
	LPGT 15T308 R – F 55	0.8	1.4		☹	☹	☹		☹	☺		☹	☹						
	LPMT 150412 R – D 51	1.2	1.6	☹	☹	☹	☹				☹	☹							
	LPGT 150412 R – F 55	1.2	1.6		☺	☹	☹		☹	☺		☹							
	SPMT 060304 – D 51	0.4		☹	☹	☹	☹				☹	☹							
	SPMT 060304 – F 55	0.4			☺	☹	☹		☹	☺		☹	☹						
	SPMT 09T308 – D 51	0.8		☹	☹	☹	☹				☹	☹							
	SPMT 09T308 – F 55	0.8			☺	☹	☹		☹	☺		☹	☹						
	SPMT 120408 – D 51	0.8		☹	☹	☹	☹				☹	☹							
	SPMT 120408 – F 55	0.8			☺	☹	☹		☹	☺		☹	☹						

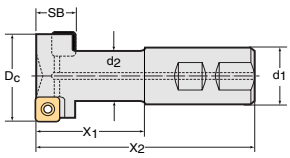




→ 410 → 684 → 622





Tool	Designation	D_C mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	SB mm	Z	kg	No. of inserts	Type
Shank type DIN 1835, version B	F 2243.W.021.Z01.09	21	12	11	27	73	9	1	0.1	2	SP . . 060304
	F 2243.W.025.Z02.11	25	16	12	31	80	11	2	0.1	4	
	F 2243.W.032.Z02.14	32	20	17	39	90	14	2	0.2	4	SP . . 09T308
	F 2243.W.040.Z02.17	40	25	21	49	106	17	2	0.4	4	
	F 2243.W.050.Z02.21	50	32	27	61	122	21	2	0.7	4	SP . . 120408

Bodies and assembly parts are included in the scope of delivery.

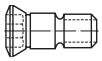
WALTER T slot cutter

F 2243

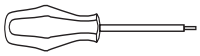
for slotting operations in accordance with DIN 650

positive, κ = 90°

Assembly parts

		D_C = 21–25 mm	D_C = 32–40 mm	D_C = 50 mm
	Clamping screw for insert	FS 923 (Torx 8)		
	Tightening torque	0.8 Nm		
	Clamping screw for insert		FS 922 (Torx 15)	FS 1028 (Torx 20)
	Tightening torque		2.5 Nm	4.0 Nm

Accessories

		D_C = 21–25 mm	D_C = 32–40 mm	D_C = 50 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

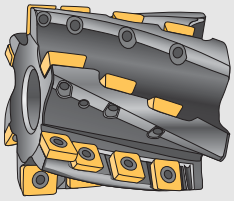
Indexable inserts

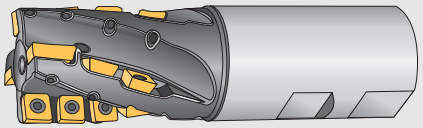
	Designation	Radius mm		P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	SPMW 060304 T – A 27	0.4		☺	☹			☺			☺	☹							
	SPMW 060304 – A 57	0.4		☺	☹					☻	☺	☹	☺						
	SPMT 060304 – D 51	0.4		☺	☹	☹	☹				☺	☹							
	SPMT 060304 – F 55	0.4			☻	☺	☹		☺	☻		☹	☺						
	SPMW 09T308 T – A 27	0.8		☺	☹						☺	☹							
	SPMW 09T308 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺						
	SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹							
	SPMT 09T308 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺						
	SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹							
	SPMW 120408 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺						
	SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹							
	SPMT 120408 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺						
	SPHW 120412 – A 57	1.2												☻					
	SPHW 120416 – A 57	1.6												☻					

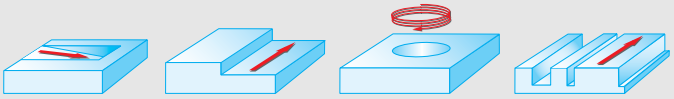


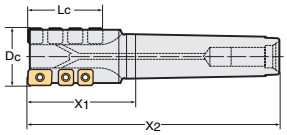
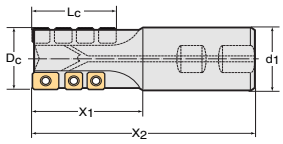
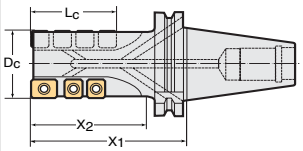
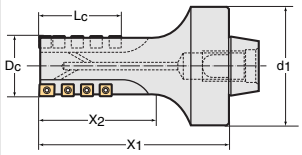
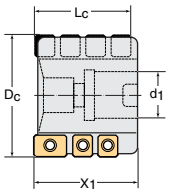


→ 410 → 684 → 622

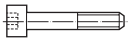






Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Shank type DIN 228, version A	F 2238.M.020.Z01.22	20	MK 2	40	104	22	1	0.2	1 4	LP . . 0703 . . SP . . 0603 . .
	F 2238.M.025.Z02.27	25	MK 2	45	109	27	2	0.4	2 10	LP . . 0703 . . SP . . 0603 . .
	F 2238.M.032.Z02.37	32	MK 3	55	136	37	2	0.9	2 14	LP . . 0703 . . SP . . 0603 . .
	F 2238.M.040.Z02.50	40	MK 4	75	178	50	2	1.2	2 12	LP . . 15T3 . . SP . . 09T3 . .
Shank type DIN 1835, version B	F 2238.W.020.Z01.22	20	20	34	85	22	1	0.2	1 4	LP . . 0703 . . SP . . 0603 . .
	F 2238.W.025.Z02.27	25	25	43	100	27	2	0.3	2 10	LP . . 0703 . . SP . . 0603 . .
	F 2238.W.032.Z02.37	32	32	54	115	37	2	0.6	2 14	LP . . 0703 . . SP . . 0603 . .
	F 2238.W.040.Z02.50	40	40	69	140	50	2	1.2	2 12	LP . . 15T3 . . SP . . 09T3 . .
Combi-shank DIN 69871 + 2080	F 2238.S4.032.Z02.42	32	SK 40	90	63	42	2	1.2	2 16	LP . . 0703 . . SP . . 0603 . .
	F 2238.S4.040.Z02.50	40	SK 40	95	75	50	2	1.4	2 12	LP . . 15T3 . . SP . . 09T3 . .
modular adaptor	F 2238.N6.032.Z02.42	32	63	100	63	42	2	0.9	2 16	LP . . 0703 . . SP . . 0603 . .
	F 2238.N6.040.Z02.50	40	63	105	73	50	2	1.1	2 12	LP . . 15T3 . . SP . . 09T3 . .
cyl. bore cross drive DIN 138 without internal coolant supply	F 2238.B.050.Z02.42	50	22	53		42	2	0.5	2 10	LP . . 15T3 . . SP . . 09T3 . .
	F 2238.B.063.Z03.50	63	27	54		50	3	0.8	3 18	LP . . 15T3 . . SP . . 09T3 . .
	F 2238.B.065.Z03.50	65	27	54		50	3	0.9	3 18	LP . . 15T3 . . SP . . 09T3 . .
	F 2238.B.080.Z03.67	80	32	80		67	3	1.7	3 18	LP . . 1504 . . SP . . 1204 . .
	F 2238.B.082.Z03.67	82	32	80		67	3	1.8	3 18	LP . . 1504 . . SP . . 1204 . .
	F 2238.B.100.Z04.77	100	40	90		77	4	3.4	4 28	LP . . 1504 . . SP . . 1204 . .
	F 2238.B.125.Z05.87	125	50	100		87	5	6.2	5 40	LP . . 1504 . . SP . . 1204 . .

Bodies and assembly parts are included in the scope of delivery.
For assembly aids, see page 782.

Clamping screw for adaptor*		d_1 = 22 mm	d_1 = 27 mm	d_1 = 32 mm	d_1 = 40 mm	d_1 = 50 mm
	Clamping screw ISO 4762 (12.9)	M 10 x 40 (SW 8)	M 12 x 35 (SW 10)	M 16 x 60 (SW 14)	M 20 x 70 (SW 17)	M 24 x 80 (SW 19)

* for arbor mounted tools F 2238.B and adaptors types A 150 . . , A 155 . . and AK 155 . .

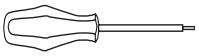
WALTER Porcupine cutter F 2238

positive, κ = 90°

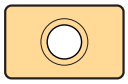
Assembly parts

		D_C = 20–32 mm	D_C = 40–65 mm	D_C = 80–125 mm
	Clamping screw for insert	FS 925 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	5 Nm

Accessories

		D_C = 20–32 mm	D_C = 40–65 mm	D_C = 80–125 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)
	Pull stud	C 100.40.600 for DIN 2080		
	Pull stud	C 100.40.615 A for DIN 69871 version AD		
	Pull stud	C 100.40.615 B for DIN 69871 version B		

Indexable inserts

	Designation	Radius mm	Corner facet width mm	P					M	K				N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	LPMW 070304 TR – A 27	0.4		●	●						●	●							
	LPGW 070304 R – A 57	0.4	1.2	●	●					●	●	●							
	LPMT 070304 R – D 51	0.4	1.2	●	●	●	●				●	●							
	LPGT 070304 R – F 55	0.4	1.2		●	●	●		●	●		●							
	LPMW 15T308 TR – A 27	0.8		●	●			●			●	●							
	LPMW 150412 TR – A 27	1.2		●	●			●			●	●							
	LPGW 15T308 R – A 57	0.8	1.4	●	●			●		●	●	●	●						
	LPGW 150412 R – A 57	1.2	1.6	●	●					●	●	●							
	LPMT 15T308 R – D 51	0.8	1.4	●	●	●	●				●	●							
	LPMT 150412 R – D 51	1.2	1.6	●	●	●	●				●	●							
	LPGT 15T308 R – F 55	0.8	1.4		●	●	●		●	●		●	●						
	LPGT 150412 R – F 55	1.2	1.6		●	●	●		●	●		●							
	SPMW 060304 T – A 27	0.4		●	●			●			●	●							
	SPMW 060304 – A 57	0.4		●	●					●	●	●	●						
	SPMT 060304 – D 51	0.4		●	●	●	●				●	●							
	SPMT 060304 – F 55	0.4			●	●	●		●	●		●	●						
	SPMW 09T308 T – A 27	0.8		●	●						●	●							
	SPMW 09T308 – A 57	0.8		●	●			●		●	●	●	●						
	SPMT 09T308 – D 51	0.8		●	●	●	●				●	●							
	SPMT 09T308 – F 55	0.8			●	●	●		●	●		●	●						
	SPMW 120408 T – A 27	0.8		●	●			●			●	●							
	SPMW 120408 – A 57	0.8		●	●			●		●	●	●	●						
	SPMT 120408 – D 51	0.8		●	●	●	●				●	●							
	SPMT 120408 – F 55	0.8			●	●	●		●	●		●	●						

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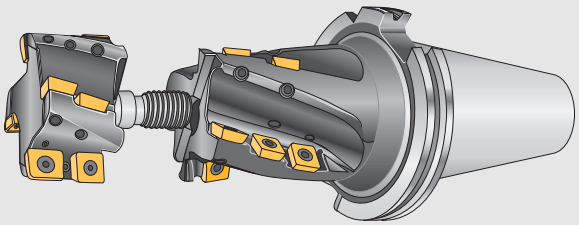
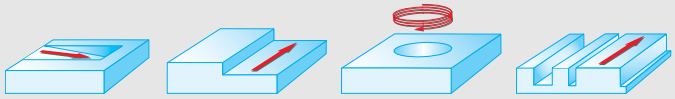




Tool

Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Combi-shank DIN 69871+2080									
F 2238CE.S5.050.Z02.056	50	SK 50	120	84	56	2	3.8	2 10	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.063.Z02.077	63	SK 50	135	102	77	2	5.3	2 14	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.063.Z02.087	63	SK 50	145	112	87	2	5.4	2 16	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.080.Z03.097	80	SK 50	150	130	97	3	6.8	3 27	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.080.Z03.107	80	SK 50	160	140	107	3	7.0	3 30	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.063.Z02.097	63	SK 50	155	122	97	2	5.5	2 18	LP . . 1504 . . SP . . 1204 . .
F 2238CE.S5.080.Z03.117	80	SK 50	170	150	117	3	7.1	3 33	LP . . 1504 . . SP . . 1204 . .
modular adaptor									
F 2238CE.N8.050.Z02.056	50	80	115	81	56	2	2.2	2 10	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.050.Z02.077	50	80	135	101	77	2	2.4	2 14	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.063.Z02.077	63	80	125	95	77	2	2.7	2 14	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.063.Z02.087	63	80	135	105	87	2	2.8	2 16	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.080.Z03.097	80	80	145	126	97	3	4.3	3 27	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.080.Z03.107	80	80	155	136	107	3	4.5	3 30	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.063.Z02.097	63	80	145	115	97	2	2.9	2 18	LP . . 1504 . . SP . . 1204 . .
F 2238CE.N8.080.Z03.117	80	80	165	146	117	3	4.6	3 33	LP . . 1504 . . SP . . 1204 . .

Bodies, front pieces and assembly parts are included in the scope of delivery.
The pull stud to be ordered depends on the required DIN standard.
When using with DIN 2080 adaptors, one of the drive lugs must be removed.
The socket key FS 1043 is needed for fitting the tightening screws for the front pieces FS 1032+FS 1033.
For assembly aids, see page 782.

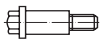
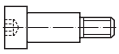
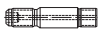
Front piece

Designation	D_C mm	L_C mm	Z	kg	No. of inserts	Type
F 2238CE.C.050.Z02.024	50	24	2	0.3	2 4	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.063.Z02.024	63	24	2	0.4	2 4	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.080.Z03.024	80	24	3	0.6	3 6	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.063.Z02.034	63	34	2	0.5	2 6	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.080.Z03.034	80	34	3	0.8	3 9	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.063.Z02.044	63	44	2	0.6	2 8	LP . . 1504 . . SP . . 1204 . .
F 2238CE.C.080.Z03.044	80	44	3	0.9	3 12	LP . . 1504 . . SP . . 1204 . .

WALTER Porcupine cutter F 2238 CE

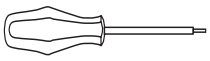
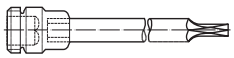
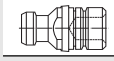
positive, κ = 90°
Slot milling cutter with square corner front piece

Assembly parts

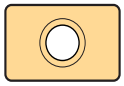
		D_C = 50 mm	D_C = 63 mm	D_C = 80 mm
	Clamping screw for insert	FS 1030 (Torx 20)		
	Tightening torque	5.0 Nm		
 FS 370	Clamping screw for front piece			
 FS 371–374	L_C = 24 mm	FS 370 (SW 10)	FS 371 (SW 10)	FS 373 (SW 12)
	L_C = 34 mm	FS 370 (SW 10)	FS 372 (SW 10)	FS 374 (SW 12)
 FS 1032+1033	L_C = 44 mm		FS 1032 (SW 8)	FS 1033 (SW 8)
	Tightening torque	40.0 Nm	120.0 Nm	120.0 Nm

The front pieces L_C = 24+34 mm are fitted from the front, front piece L_C = 44 mm is fitted from the rear.

Accessories

	D_C = 50 mm	D_C = 63–80 mm
 Screwdriver	FS 228 (Torx 20)	
 Socket key for FS 1032 + FS 1033		FS 1043 (SW 8)
 Pull stud	C 100.50.600 for DIN 2080	
 Pull stud	C 100.50.615 A for DIN 69871 version AD	
 Pull stud	C 100.50.615 B for DIN 69871 version B	

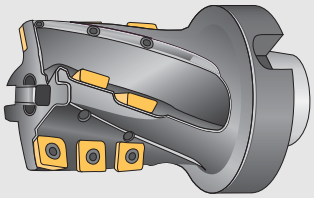
Indexable inserts

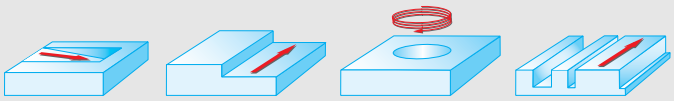
	Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
	LPMW 150412 TR – A 27	1.2		☹	☒			☹			☹	☒							
	LPGW 150412 R – A 57	1.2	1.6	☹	☒					☺	☹	☒							
	LPMT 150412 R – D 51	1.2	1.6	☹	☒	☒	☒				☹	☒							
	LPGT 150412 R – F 55	1.2	1.6		☺	☹	☒		☹	☺		☒							
	SPMW 120408 T – A 27	0.8		☹	☒			☹			☹	☒							
	SPMW 120408 – A 57	0.8		☹	☒			☹		☺	☹	☒	☹						
	SPMT 120408 – D 51	0.8		☹	☒	☒	☒				☹	☒							
	SPMT 120408 – F 55	0.8			☺	☹	☒		☹	☺		☒	☹						

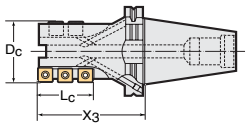
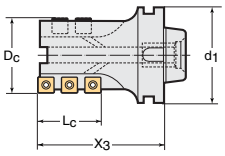




→ 410 → 684 → 678 → 622





Tool	Designation	D_C mm	d_1 mm	X_3 mm	L_C mm	Z	kg	No. of inserts	Type
Combi-shank DIN 69871+2080	F 2238CK.S5.050.Z02.032	50	SK 50	96	32	2	3.5	6	SP . . 1204 . .
	F 2238CK.S5.063.Z02.053	63	SK 50	111	53	2	4.9	10	
	F 2238CK.S5.080.Z03.073	80	SK 50	126	73	3	6.2	21	
modular adaptor	F 2238CK.N8.050.Z02.032	50	80	91	32	2	1.9	6	SP . . 1204 . .
	F 2238CK.N8.050.Z02.053	50	80	111	53	2	2.1	10	
	F 2238CK.N8.063.Z02.053	63	80	101	53	2	2.3	10	
	F 2238CK.N8.080.Z03.073	80	80	121	73	3	3.7	21	

Bodies and assembly parts are included in the scope of delivery.
The pull stud to be ordered depends on the required DIN standard.
When using with DIN 2080 adaptors, one of the drive lugs must be removed.
For assembly aids, see page 782.

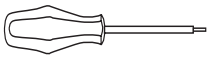
WALTER Porcupine basic body F 2238 CK

positive, κ = 90°

Assembly parts

	Clamping screw for insert	FS 1030 (Torx 20)
	Tightening torque	5.0 Nm

Accessories

	Screwdriver	FS 228 (Torx 20)
	Pull stud	C 100.50.600 for DIN 2080
	Pull stud	C 100.50.615 A for DIN 69871 version AD
	Pull stud	C 100.50.615 B for DIN 69871 version B

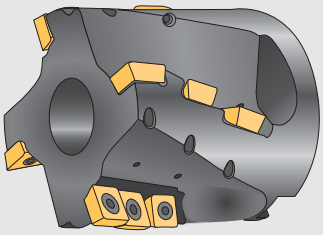
Indexable inserts

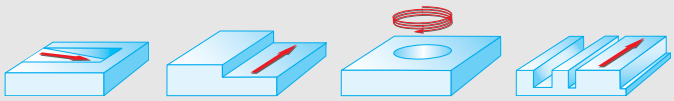
	Designation	Radius mm		P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹							
	SPMW 120408 – A 57	0.8		☺	☹			☺		☺	☺	☹	☺						
	SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹							
	SPMT 120408 – F 55	0.8			☺	☺	☹		☺	☺		☹	☺						





→ 410 → 684 → 678 → 622





Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138	F 2338.B.063.Z02.46	63	27	70		46	2	1.1	2 8	LP . . 1506 . . SP . . 1206 . .
	F 2338.B.066.Z02.46	66	27	70		46	2	1.2	2 8	LP . . 1506 . . SP . . 1206 . .
	F 2338.B.080.Z02.57	80	32	85		57	2	1.7	2 10	LP . . 1506 . . SP . . 1206 . .
	F 2338.B.085.Z02.67	85	32	100		67	2	1.9	2 12	LP . . 1506 . . SP . . 1206 . .
	F 2338.B.100.Z03.67	100	40	100		67	3	3.7	3 18	LP . . 1506 . . SP . . 1206 . .
modular adaptor	F 2338.N8.063.Z02.78	63	80	135	108	78	2	2.7	2 14	LP . . 1506 . . SP . . 1206 . .
	F 2338.N8.080.Z02.100	80	80	155	132	100	2	4.1	2 18	LP . . 1506 . . SP . . 1206 . .

Bodies and assembly parts are included in the scope of delivery.
For assembly aids, see page 782.

WALTER Porcupine cutter

F 2338

positive, κ = 90°

half effective teeth

Assembly parts



Clamping screw for insert	FS 1031 (Torx 20)
Tightening torque	5.0 Nm

Accessories



Screwdriver	FS 228 (Torx 20)

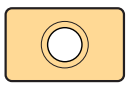
Clamping screw for adaptor*



	D_C = 63–66 mm d_1 = 27 mm	D_C = 80 mm d_1 = 32 mm	D_C = 85 mm d_1 = 32 mm	D_C = 100 mm d_1 = 40 mm
Clamping screw ISO 4762 (12.9)	M 12 x 50 (SW 10)	M 16 x 60 (SW 14)	M 16 x 75 (SW 14)	M 20 x 70 (SW 17)

* for arbor mounted tools F 2338.B and adaptors types A 155 . . and AK 155 . .

Indexable inserts



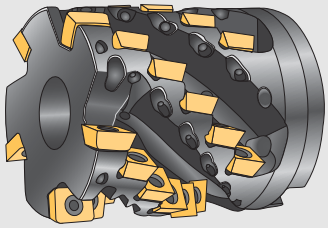


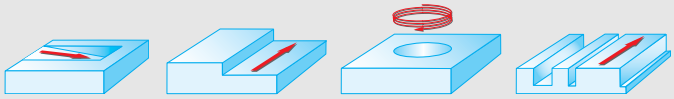
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K CN WSN 10	N HC WXN 15	N HW WK 10	H HC WXH 15	HC WXM 15	HF WMG 40
LPMW 150612 TR – A 27	1.2			☹							☹							
LPHW 150612 R – A 51	1.2			☹				☹			☹							
LPHW 1506 PPR – A 57	1.2	1.6		☹				☹	😐		☹							
LPMT 150612 R – D 51	1.2			☹				☹			☹							
LPMT 150612 R – D 57	1.2		☺	😐				😐	☺	😐	☹							
LPGT 1506 PPR – F 57	1.2	1.6		☺				😐			☹							
SPMW 120606 T – A 27	0.6			☹							☹							
SPHW 120606 – A 51	0.6			☹				☹			☹							
SPHW 120606 – A 57	0.6			☹				☹	😐		☹							
SPMT 120606 – D 51	0.6			☹				☹			☹							
SPMT 120606 – D 57	0.6		☺	😐				😐	☺	😐	☹							
SPGT 120606 – F 57	0.6			☺				😐			☹							

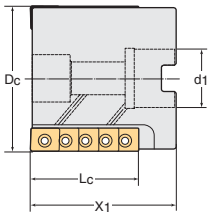
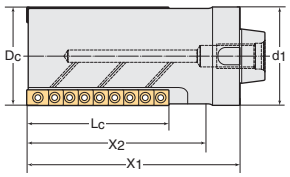




→ 410 → 684 → 622





Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
cyl. bore cross drive DIN 138 	F 2338F.B.063.Z03.48	63	27	70		48	3	1.0	3 9	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.066.Z03.48	66	27	70		48	3	1.2	3 9	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.066.Z04.48	66	27	70		48	4	1.1	4 12	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.080.Z04.59	80	32	80		59	4	1.5	4 16	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.080.Z05.70	80	32	95		70	5	1.6	5 25	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.085.Z04.59	85	32	85		59	4	1.8	4 16	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.085.Z05.70	85	32	95		70	5	1.7	5 25	LP . . 1506 . . SP . . 1206 . .
	F 2338F.B.100.Z06.81	100	40	105		81	6	3.4	6 36	LP . . 1506 . . SP . . 1206 . .
modular adaptor 	F 2338F.N8.063.Z03.81	63	80	135	106	81	3	2.5	3 18	LP . . 1506 . . SP . . 1206 . .
	F 2338F.N8.080.Z05.103	80	80	155	132	103	5	3.8	5 40	LP . . 1506 . . SP . . 1206 . .

Bodies and assembly parts are included in the scope of delivery.
For assembly aids, see page 782.

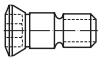
WALTER Porcupine cutter

F 2338 F

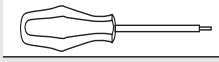
positive, κ = 90°

full effective teeth

Assembly parts

		LP . . 1506	SP . . 1206
	Clamping screw for insert	FS 1153 (Torx 20)	
	Tightening torque	5.0 Nm	
	Clamping screw for insert		FS 1031 (Torx 20)
	Tightening torque		5.0 Nm

Accessories

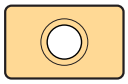
	Screwdriver	FS 228 (Torx 20)

Clamping screw for adaptor*

		D_C = 63–66 mm X_1 = 70 mm	D_C = 80–85 mm X_1 = 80 / 85 mm	D_C = 80–85 mm X_1 = 95 mm	D_C = 100 mm X_1 = 105 mm
	Clamping screw ISO 4762 (12.9)	M 12 x 50 (SW 10)	M 16 x 60 (SW 14)	M 16 x 70 (SW 14)	M 20 x 75 (SW 17)

* for arbor mounted tools F 2338F.B and adaptors types A 155 . . and AK 155 . .

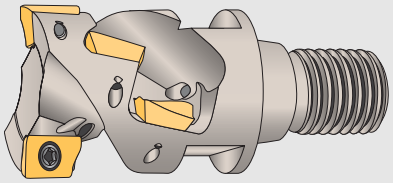
Indexable inserts

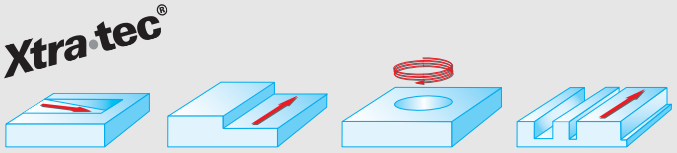
	Designation	Radius mm	Corner facet width mm	P					M	K					N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	LPMW 150612 TR – A 27	1.2			☹							☹							
	LPHW 150612 R – A 51	1.2			☹				☹			☹							
	LPHW 1506 PPR – A 57	1.2	1.6		☹				☹	😐		☹							
	LPMT 150612 R – D 51	1.2			☹				☹			☹							
	LPMT 150612 R – D 57	1.2		☺	😐				😐	☺	😐	☹							
	LPGT 1506 PPR – F 57	1.2	1.6		☺				😐			☹							
	SPMW 120606 T – A 27	0.6			☹							☹							
	SPHW 120606 – A 51	0.6			☹				☹			☹							
	SPHW 120606 – A 57	0.6			☹				☹	😐		☹							
	SPMT 120606 – D 51	0.6			☹				☹			☹							
	SPMT 120606 – D 57	0.6		☺	😐				😐	☺	😐	☹							
	SPGT 120606 – F 57	0.6			☺				😐			☹							

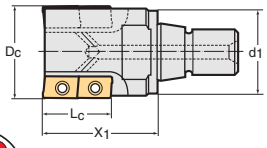
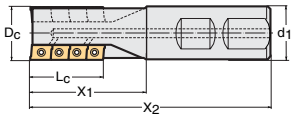




→ 410 → 684 → 622





Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4038.T18.020.Z01.15	20	18.5	30		15	1	0.1	3	AD . . 0803 . .
	F 4038.T22.025.Z02.22	25	22	40		22	2	0.1	6	
	F 4038.T28.032.Z03.30	32	28	50		30	3	0.2	12	
Shank type DIN 1835, version B	F 4038.W20.020.Z01.30	20	20	45	96	30	1	0.2	5	AD . . 0803 . .
	F 4038.W25.025.Z02.37	25	25	50	107	37	2	0.3	10	
	F 4038.W32.032.Z03.37	32	32	50	111	37	3	0.6	15	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

WALTER Porcupine cutter

positive, κ = 90°

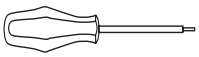
HSC **F 4038**

AD . . 0803

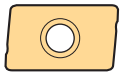
Assembly parts

		D_C = 20 mm	D_C = 25+32 mm	
	Clamping screw for insert	FS 1455 (Torx 8 IP)	FS 1454 (Torx 8 IP)	*IP = Torx Plus*
	Tightening torque	1.2 Nm	1.2 Nm	

Accessories

	Torque screwdriver	FS 2001	
	Interchangeable blade	FS 2012 (Torx 8 IP)	*IP = Torx Plus*
	Screwdriver	FS 1483 (Torx 8 IP)	*IP = Torx Plus*

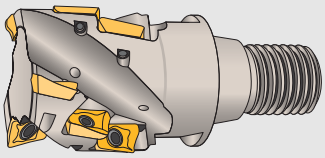
Indexable inserts

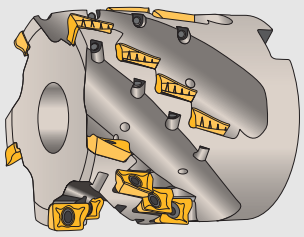
	Designation	Radius mm	Corner facet width mm	P				M			K			N		S		H	
				HC				HC			HC			HC	HW	HC		HC	HF
				WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
	ADGT 0803 PER – D 51	0.4	1.2	☺	😐	☹			☹			😐	☹				☹		
	ADGT 0803 PER – D 56	0.4	1.2	☺	😐							😐	☹						
	ADGT 0803 PER – F 56	0.4	1.2			☹		😐	☹							😐	☹		
	ADHT 0803 PER – G 88	0.4	1.2											☺	☺				
	ADKT 0803 PER – F 56	0.4	1.2	☺	😐	☹			☹		☺	😐	☹				☹		
	ADMT 080304 R – D 56	0.4	1.2	☺	😐						☺	😐	☹						
	ADMT 080304 R – F 56	0.4	1.2	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
	ADMT 080304 R – G 56	0.4	1.2		☺	☹	😐	☺	😐	☺			☹			☺	😐		
These indexable inserts can only be used as front inserts.	ADGT 080308 R – F 56	1.2	1.0			☹		😐	☹							😐	☹		
	ADGT 080312 R – F 56	1.2	1.0			☹		😐	☹							😐	☹		
	ADGT 080316 R – F 56	1.6	1.0			☹		😐	☹							😐	☹		
	ADGT 080320 R – F 56	2.0	1.0			☹		😐	☹							😐	☹		
The body must be reworked in the radiused section if the corner radius is R = 1.6 mm or above: $R_{(body)} = R_{(insert)} - 1$ mm	ADMT 080308 R – F 56	1.2	1.0		😐	☹	☹	😐	☹				☹			😐	☹		
	ADMT 080312 R – F 56	1.2	1.0		😐	☹		😐	☹				☹			😐	☹		
	ADMT 080316 R – F 56	1.6	1.0		😐	☹		😐	☹				☹			😐	☹		
	ADMT 080320 R – F 56	2.0	1.0		😐	☹		😐	☹				☹			😐	☹		

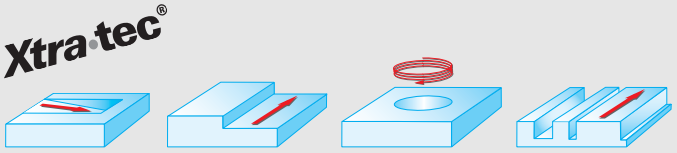


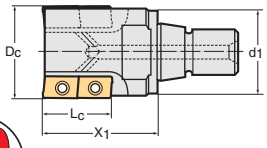
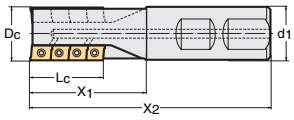
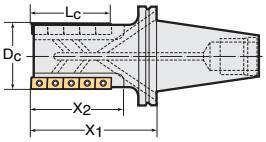
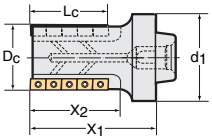
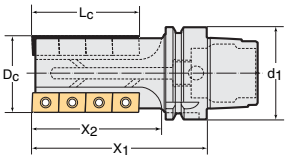
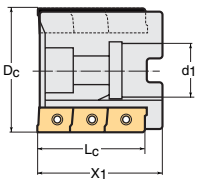


→ 416 → 684 → 622







Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit  	F 4138.T28.032.Z02.33	32	28	50		33	2	0.5	6	AD . . 1204 . .
	F 4138.T36.040.Z03.33	40	36	55		33	3	0.9	9	
Shank type DIN 1835, version B 	F 4138.W32.032.Z02.43	32	32	64	125	43	2	1.3	8	AD . . 1204 . .
	F 4138.W40.040.Z03.54	40	40	79	150	54	3	3.5	15	
[1]Shank type DIN 69871, version AD/B [2]Combi-shank DIN 69871+2080 	F 4138.S4.040.Z03.54[1]	40	SK 40	100	64	54	3	2.8	15	AD . . 1204 . .
	F 4138.S5.040.Z03.65[2]	40	SK 50	120	75	65	3	7.0	18	
modular adaptor 	F 4138.N6.040.Z03.54	40	63	105	69	54	3	2.3	15	AD . . 1204 . .
HSK DIN 69893/1, version A 	F 4138.H63A.040.Z03.54	40	HSK-A63	101	64	54	3	2.3	15	AD . . 1204 . .
	F 4138.H63A.050.Z04.43	50	HSK-A63	90	53	43	4	2.7	16	
	F 4138.H100A.050.Z04.43	50	HSK-A100	100	53	43	4	5.5	16	
cyl. bore cross drive DIN 138 	F 4138.B16.040.Z03.33	40	16	55		33	3	0.7	9	AD . . 1204 . .
	F 4138.B22.050.Z04.43	50	22	65		43	4	1.3	16	
	F 4138.B27.063.Z05.43	63	27	70		43	5	2.3	20	
	F 4138.B32.080.Z06.54	80	32	85		54	6	4.8	30	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

Assembly parts

	Clamping screw for insert	FS 1457 (Torx 9 IP)	*IP = Torx Plus*
	Tightening torque	2.0 Nm	

WALTER Porcupine cutter

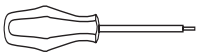
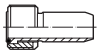
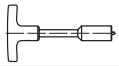
positive, κ = 90°

HSC

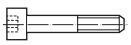
F 4138

AD . . 1204

Accessories

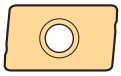
	Torque screwdriver	FS 2003
	Interchangeable blade	FS 2013 (Torx 9 IP) *IP = Torx Plus*
	Screwdriver	FS 1484 (Torx 9 IP) *IP = Torx Plus*
	Pull stud for DIN 2080	for SK 50: C 100.50.600
	Pull stud for DIN 69871 version AD	for SK 40: C 100.40.115 for SK 50: C 100.50.615 A
	Pull stud for DIN 69871 version B	for SK 40: C 100.40.215 for SK 50: C 100.50.615 B
	Transfer unit for HSK	for A63: FS 1064 for A100: FS 1065
	Socket key for HSK	for A63: FS 952 for A100: FS 953

Clamping screw for adaptor*

		D_C = 40 mm	D_C = 50 mm	D_C = 63 mm	D_C = 80 mm
	Clamping screw ISO 4762 (12.9)	M 8 x 40 (SW 6)	M 10 x 35 (SW 8)	M 12 x 45 (SW 10)	M 16 x 60 (SW 14)

* for arbor mounted tools F 4138.B and adaptors types A 150 . . , A 155 . . and AK 155 . .

Indexable inserts

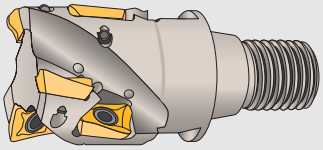


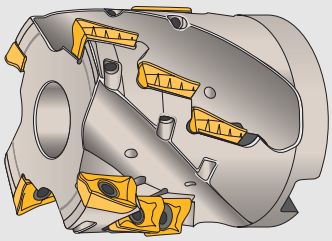
These indexable inserts can only be used as front inserts.

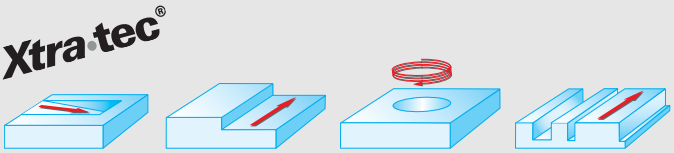
The body must be reworked in the radiused section if the corner radius is R = 2.0 mm or above: $R_{(body)} = R_{(insert)} - 1$ mm

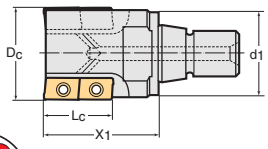
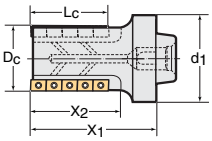
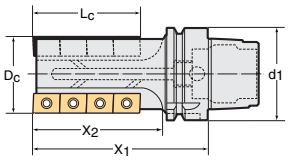
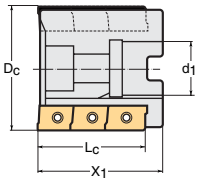
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HF WMG 40
ADGT 1204 PER – D 51	0.8	1.2	☺	😐	☹			☹			😐	☹				☹		
ADGT 1204 PER – D 56	0.8	1.2	☺	😐							😐	☹						
ADGT 1204 PER – F 56	0.8	1.2			☹		😐	☹							😐	☹		
ADGT 120404 R – F 56	0.4	1.2			☹		😐	☹							😐	☹		
ADHT 1204 PER – G 88	0.8	1.2											☺	☺				
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 120408 R – D 56	0.8	1.2	☺	😐						☺	😐	☹						
ADMT 120404 R – F 56	0.4	1.2		😐	☹	☹	😐	☹				😐			😐	☹		
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 120408 R – G 56	0.8	1.2		☺	☹	😐	☺	😐	☺			☺			☺	😐		
ADHT 120416 R - G 88 – ADHT 120440 R - G 88 see page 417													☺	☺				
ADGT 120412 R - F 56 – ADGT 120440 R - F 56 see page 416					☹		😐	☹							😐	☹		
ADMT 120412 R - F 56 – ADMT 120440 R - F 56 see page 418				😐	☹	☹	😐	☹				☹			😐	☹		

→ 416 | → 684 | → 622







Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 4238.T36.040.Z03.29	40	36	55		29	3	0.4	6	AD . . 1606 . .
	F 4238.T45.050.Z03.43	50	45	70		43	3	0.7	9	
										
modular adaptor	F 4238.N8.040.Z03.57	40	80	105	68	57	3	1.5	12	AD . . 1606 . .
										
HSK DIN 69893/1, version A	F 4238.H100A.063.Z03.71	63	HSK-A100	125	82	71	3	3.4	15	AD . . 1606 . .
	F 4238.H100A.080.Z04.85	80	HSK-A100	140	96	85	4	4.8	24	
cyl. bore cross drive DIN 138	F 4238.B22.050.Z03.43	50	22	60		43	3	0.5	9	AD . . 1606 . .
	F 4238.B27.063.Z04.43	63	27	70		43	4	0.9	12	
	F 4238.B32.080.Z05.57	80	32	85		57	5	2.0	20	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

Assembly parts

	Clamping screw for insert	FS 1453 (Torx 15 IP) *IP = Torx Plus*
	Tightening torque	3.5 Nm

WALTER Porcupine cutter

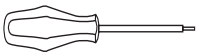
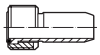
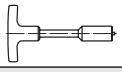
positive, κ = 90°

HSC

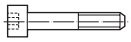
F 4238

AD . . 1606

Accessories

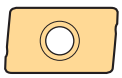
	Torque screwdriver	FS 2003	
	Interchangeable blade	FS 2014 (Torx 15 IP)	*IP = Torx Plus*
	Screwdriver	FS 1485 (Torx 15 IP)	*IP = Torx Plus*
	Transfer unit for HSK	FS 1065	
	Socket key for HSK	FS 953	

Clamping screw for adaptor*

		D_C = 50 mm	D_C = 63 mm	D_C = 80 mm
	Clamping screw ISO 4762 (12.9)	M 10 x 45 (SW 8)	M 12 x 55 (SW 10)	M 16 x 70 (SW 14)

* for arbor mounted tools F 4238.B and adaptors types A 150 . . , A 155 . . and AK 155 . .

Indexable inserts



These indexable inserts can only be used as front inserts.

The body must be reworked in the radiused section if the corner radius is R = 2.0 mm or above:
$R_{(body)} = R_{(insert)} - 1$ mm

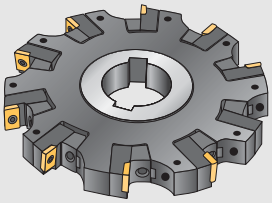
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	H HF WMG 40
ADGT 1606 PER – D 51	0.8	1.6	☺	😐	☹			☹			😐	☹				☹		
ADGT 1606 PER – D 56	0.8	1.6	☺	😐							😐	☹						
ADGT 1606 PER – F 56	0.8	1.6					😐	☹							😐	☹		
ADHT 1606 PER – G 88	0.8	1.6											☺	☺				
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹			☹		☺	😐	☹				☹		
ADMT 160608 R – D 56	0.8	1.6	☺	😐						☺	😐	☹						
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹	😐	☹	😐	☺	😐	☹			😐	☹		
ADMT 160608 R – G 56	0.8	1.6		☺	😐	😐	☺	😐	☺			☹			☺	😐		
ADHT 160616 R - G 88 – ADHT 160640 R - G 88 see page 417													☺	☺				
ADGT 160612 R - F 56 – ADGT 160660 R - F 56 see page 416					☹		😐	☹							😐	☹		
ADMT 160612 R - F 56 – ADMT 160660 R - F 56 see page 418				😐	☹	☹	😐	☹				☹			😐	☹		

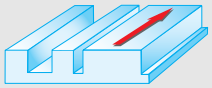


Tiger·tec®



→ 416 | → 684 | → 622





Tool

	Designation	D_C mm	d_1 mm	d_3 mm	Z	L_C mm	NB mm	kg	No. of inserts	Type
cyl. bore longitudinal keyway DIN 138	F 2252.B.100.Z08.08.R724	100	32	50	8	8	12	0.5	8	AD . . 0803 . . R
	F 2252.B.125.Z10.08.R724	125	40	65	10	8	12	0.7	10	
	F 2252.B.160.Z12.08.R724	160	40	65	12	8	12	1.4	12	
	F 2252.B.125.Z08.11.R725	125	40	65	8	11.7	19	1.0	8	AD . . 1204 . . R
	F 2252.B.160.Z10.11.R725	160	40	65	10	11.7	19	2.0	10	
	F 2252.B.200.Z12.11.R725	200	50	75	12	11.7	19	3.3	12	
	F 2252.B.250.Z16.11.R725	250	60	90	16	11.7	19	5.3	16	
	F 2252.B.315.Z20.11.R725	315	60	90	20	11.7	19	8.9	20	
	F 2252.B.125.Z08.15.R726	125	40	65	8	15	19	1.0	8	AD . . 1606 . . R
	F 2252.B.160.Z10.15.R726	160	40	65	10	15	19	2.0	10	
	F 2252.B.200.Z12.15.R726	200	50	75	12	15	19	3.3	12	
	F 2252.B.250.Z16.15.R726	250	60	90	16	15	19	5.3	16	
	F 2252.B.315.Z20.15.R726	315	60	90	20	15	19	8.9	20	
cyl. bore longitudinal keyway DIN 138	F 2252.B.100.Z08.08.L724	100	32	50	8	8	12	0.5	8	AD . . 1606 . . L
	F 2252.B.125.Z10.08.L724	125	40	65	10	8	12	0.7	10	
	F 2252.B.160.Z12.08.L724	160	40	65	12	8	12	1.4	12	
	F 2252.B.125.Z08.11.L725	125	40	65	8	11.7	19	1.0	8	AD . . 1204 . . L
	F 2252.B.160.Z10.11.L725	160	40	65	10	11.7	19	2.0	10	
	F 2252.B.200.Z12.11.L725	200	50	75	12	11.7	19	3.3	12	
	F 2252.B.250.Z16.11.L725	250	60	90	16	11.7	19	5.3	16	
	F 2252.B.315.Z20.11.L725	315	60	90	20	11.7	19	8.9	20	
	F 2252.B.125.Z08.15.L726	125	40	65	8	15	19	1.0	8	AD . . 1606 . . L
	F 2252.B.160.Z10.15.L726	160	40	65	10	15	19	2.0	10	
	F 2252.B.200.Z12.15.L726	200	50	75	12	15	19	3.3	12	
	F 2252.B.250.Z16.15.L726	250	60	90	16	15	19	5.3	16	
	F 2252.B.315.Z20.15.L726	315	60	90	20	15	19	8.9	20	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

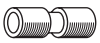
	AD . . 0803	AD . . 1204	AD . . 1606
Finishing cartridge for tool body, right-hand	FR 695	FR 696	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.B

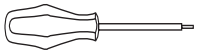
positive, κ = 90°

helical milling – cutting on two sides

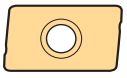
Assembly parts

	AD . . 0803	AD . . 1204	AD . . 1606
 Cartridge for tool body, right-hand	FR 724	FR 725	FR 726
 Cartridge for tool body, left-hand	FL 724	FL 725	FL 726
 Clamping wedge	FK 360	FK 359	FK 359
 Clamping sleeve	FS 1167	FS 1168	FS 1168
 Eccentric pin	FS 1170 (SW 3)	FS 1171 (SW 4)	FS 1171 (SW 4)
 Spring washer	FS 1220	FS 1221	FS 1221
 Clamping screw for clamping wedge	FS 239 (SW 3)	FS 1162 (SW 4)	FS 1162 (SW 4)
Tightening torque	6.5 Nm	9.0 Nm	9.0 Nm
 Clamping screw for insert	FS 1454 (Torx 8 IP) *IP = Torx Plus*	FS 1457 (Torx 9 IP) *IP = Torx Plus*	FS 1453 (Torx 15 IP) *IP = Torx Plus*
Tightening torque	0.8 Nm	2.5 Nm	2.5 Nm

Accessories

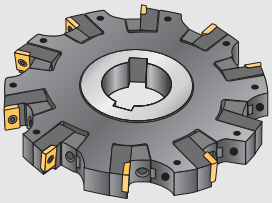
	AD . . 0803	AD . . 1204	AD . . 1606
 Screwdriver	FS 1483 (Torx 8 IP) *IP = Torx Plus*	FS 1484 (Torx 9 IP) *IP = Torx Plus*	FS 1485 (Torx 15 IP) *IP = Torx Plus*
 Wrench DIN 911	SW 3	SW 4	SW 4

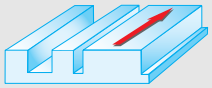
Indexable inserts



Designation	Radius mm	Corner facet width mm	P					M			K			N		S		
			HC				HW	HC			HC			HC	HW	HC		HC
			WKP 25	WKP 35	WSP 45	WXP 45	WPM	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXM 15
ADHT 0803 PER – G 88	0.4	1.2												☺	☺			
ADHT 0803 PEL – G 88	0.4	1.2												☺	☺			
ADKT 0803 PER – F 56	0.4	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 0803 PEL – F 56	0.4	1.2		😐	☹				☹				☹				☹	
ADMT 080304 R – F 56	0.4	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 080304 L – F 56	0.4	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1204 PER – G 88	0.8	1.2												☺	☺			
ADHT 1204 PEL – G 88	0.8	1.2												☺	☺			
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1204 PEL – F 56	0.8	1.2		😐	☹				☹				☹				☹	
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 120408 L – F 56	0.8	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1606 PER – G 88	0.8	1.6												☺	☺			
ADHT 1606 PEL – G 88	0.8	1.6												☺	☺			
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1606 PEL – F 56	0.8	1.6		😐	☹				☹				☹				☹	
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 160608 L – F 56	0.8	1.6		😐	☹			😐	☹				☹			😐	☹	
Finishing inserts  P 2905 – 0							😐								☺			
P 2905 – 1							😐				☺				☺			☺

→ 416 | → 684 | → 675 | → 624





Tool

	Designation	D_C mm	d_1 mm	d_3 mm	Z	L_C mm	NB mm	kg	No. of inserts	Type
cyl. bore longitudinal keyway DIN 138	F 2252.B.080.Z06.06.R684	80	22	37	6	6	8	0.2	6	MP . . 0603 . .
	F 2252.B.100.Z08.06.R684	100	32	50	8	6	8	0.4	8	
	F 2252.B.125.Z10.06.R684	125	40	65	10	6	8	0.6	10	
	F 2252.B.100.Z08.08.R685	100	32	50	8	8	12	0.5	8	MP . . 0803 . .
	F 2252.B.125.Z10.08.R685	125	40	65	10	8	12	0.7	10	
	F 2252.B.160.Z12.08.R685	160	40	65	12	8	12	1.4	12	
	F 2252.B.125.Z08.12.R686	125	40	65	8	12	19	1.0	8	MP . . 1204 . .
	F 2252.B.160.Z10.12.R686	160	40	65	10	12	19	2.0	10	
	F 2252.B.200.Z12.12.R686	200	50	75	12	12	19	3.3	12	
	F 2252.B.250.Z16.12.R686	250	60	90	16	12	19	5.3	16	
	F 2252.B.315.Z20.12.R686	315	60	90	20	12	19	8.9	20	
cyl. bore longitudinal keyway DIN 138	F 2252.B.080.Z06.06.L684	80	22	37	6	6	8	0.2	6	MP . . 0603 . .
	F 2252.B.100.Z08.06.L684	100	32	50	8	6	8	0.4	8	
	F 2252.B.125.Z10.06.L684	125	40	65	10	6	8	0.6	10	
	F 2252.B.100.Z08.08.L685	100	32	50	8	8	12	0.5	8	MP . . 0803 . .
	F 2252.B.125.Z10.08.L685	125	40	65	10	8	12	0.7	10	
	F 2252.B.160.Z12.08.L685	160	40	65	12	8	12	1.4	12	
	F 2252.B.125.Z08.12.L686	125	40	65	8	12	19	1.0	8	MP . . 1204 . .
	F 2252.B.160.Z10.12.L686	160	40	65	10	12	19	2.0	10	
	F 2252.B.200.Z12.12.L686	200	50	75	12	12	19	3.3	12	
	F 2252.B.250.Z16.12.L686	250	60	90	16	12	19	5.3	16	
	F 2252.B.315.Z20.12.L686	315	60	90	20	12	19	8.9	20	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

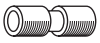
	MP . . 0803	MP . . 1204
Finishing cartridge for tool body, right-hand	FR 695	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.B

positive, κ = 90°

helical milling – cutting on two sides

Assembly parts

	MP . . 0603	MP . . 0803	MP . . 1204
 Cartridge for tool body, right-hand	FR 684	FR 685	FR 686
 Cartridge for tool body, left-hand	FL 684	FL 685	FL 686
 Clamping wedge	FK 358	FK 360	FK 359
 Clamping sleeve	FS 1166	FS 1167	FS 1168
 Eccentric pin	FS 1169 (SW 2.5)	FS 1170 (SW 3)	FS 1171 (SW 4)
 Spring washer	FS 1220	FS 1220	FS 1221
 Clamping screw for clamping wedge	FS 1161 (SW 2.5)	FS 239 (SW 3)	FS 1162 (SW 4)
Tightening torque	3.5 Nm	6.5 Nm	9.0 Nm
 Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 1029 (Torx 20)
Tightening torque	0.8 Nm	1.5 Nm	5.0 Nm

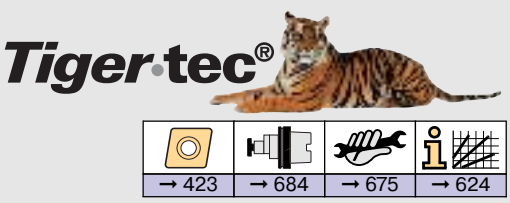
Accessories

	MP . . 0603	MP . . 0803	MP . . 1204
 Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 228 (Torx 20)
 Wrench DIN 911	SW 2.5	SW 3	SW 4

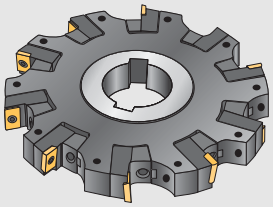
Indexable inserts

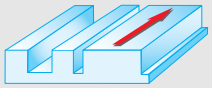
	Designation	Radius mm	Corner facet width mm	P					M	K				N			H	
				HC				HW	HC	HC			HW	HC	HW		HC	HC
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WXN 15	WKM	WK 10	WXH 15	WXM 15
	MPHX 060304 – A 57	0.4		☹	☹					☺	☹	☹						
	MPMX 060304 – F 57	0.4			☺	☹	☹		☹			☹						
	MPHX 060304 – G 88	0.4					☹						☹	☺	☺			
	MPHX 080305 – A 57	0.5		☹	☹	☹				☺	☹	☹						
	MPMX 080305 – F 57	0.5			☺	☹	☹		☹	☺		☹						
	MPHX 080305 – G 88	0.5					☹						☹	☺	☺			
	MPHW 120408 – A 57	0.8		☹	☹					☺	☹	☹						
	MPMT 120408 – F 57	0.8			☺	☹	☹		☹			☹						
	MPHT 120408 – G 88	0.8					☹						☹	☺	☺			
Finishing inserts 	P 2905 – 0							☹								☺		
	P 2905 – 1							☹		☺						☺		☺





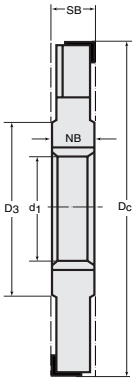
→ 423 → 684 → 675 → 624

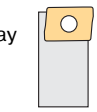


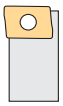


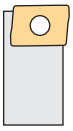
Tool

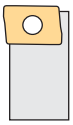
cyl. bore
longitudinal keyway
DIN 138

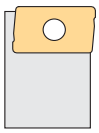


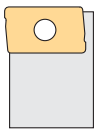












Designation	D_C mm	d_1 mm	D_3 mm	Z	SB mm	NB mm	kg	No. of inserts	Type
F 2252.B.100.Z04.12.S724	100	32	50	2 x 4	12–14	12	0.5	2 x 4	AD . . 0803 . .
F 2252.B.100.Z04.14.S724	100	32	50	2 x 4	14–16	14	0.6	2 x 4	
F 2252.B.125.Z05.12.S724	125	40	65	2 x 5	12–14	12	0.7	2 x 5	
F 2252.B.125.Z05.14.S724	125	40	65	2 x 5	14–16	14	0.8	2 x 5	
F 2252.B.160.Z06.12.S724	160	40	65	2 x 6	12–14	12	1.4	2 x 6	
F 2252.B.160.Z06.14.S724	160	40	65	2 x 6	14–16	14	1.6	2 x 6	
F 2252.B.125.Z04.16.S725	125	40	65	2 x 4	16–19	16	0.9	2 x 4	AD . . 1204 . .
F 2252.B.125.Z04.19.S725	125	40	65	2 x 4	19–22	19	1.0	2 x 4	
F 2252.B.160.Z05.16.S725	160	40	65	2 x 5	16–19	16	1.6	2 x 5	
F 2252.B.160.Z05.19.S725	160	40	65	2 x 5	19–22	19	2.0	2 x 5	
F 2252.B.200.Z06.16.S725	200	50	75	2 x 6	16–19	16	2.7	2 x 6	
F 2252.B.200.Z06.19.S725	200	50	75	2 x 6	19–22	19	3.3	2 x 6	
F 2252.B.250.Z08.16.S725	250	60	90	2 x 8	16–19	16	4.4	2 x 8	
F 2252.B.250.Z08.19.S725	250	60	90	2 x 8	19–22	19	5.3	2 x 8	
F 2252.B.315.Z10.16.S725	315	60	90	2 x 10	16–19	16	7.3	2 x 10	
F 2252.B.315.Z10.19.S725	315	60	90	2 x 10	19–22	19	8.9	2 x 10	
F 2252.B.125.Z04.22.S726	125	40	65	2 x 4	22–25	22	1.2	2 x 4	AD . . 1606 . .
F 2252.B.160.Z05.22.S726	160	40	65	2 x 5	22–25	22	2.3	2 x 5	
F 2252.B.200.Z06.22.S726	200	50	75	2 x 6	22–25	22	3.8	2 x 6	
F 2252.B.250.Z08.22.S726	250	60	90	2 x 8	22–25	22	6.2	2 x 8	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

	AD . . 0803	AD . . 1204	AD . . 1606
Finishing cartridge for tool body, right-hand	FR 695	FR 696	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.B

positive, κ = 90°

full side and face milling – cutting on three sides

Assembly parts

	AD . . 0803	AD . . 1204	AD . . 1606
Cartridge for tool body, right-hand	FR 724	FR 725	FR 726
Cartridge for tool body, left-hand	FL 724	FL 725	FL 726
Clamping wedge	FK 360	FK 359	FK 359
Clamping sleeve	FS 1167	FS 1168	FS 1168
Eccentric pin	FS 1170 (SW 3)	FS 1171 (SW 4)	FS 1171 (SW 4)
Spring washer	FS 1220	FS 1221	FS 1221
Clamping screw for clamping wedge	FS 239 (SW 3)	FS 1162 (SW 4)	FS 1162 (SW 4)
Tightening torque	6.5 Nm	9.0 Nm	9.0 Nm
Clamping screw for insert	FS 1454 (Torx 8 IP) *IP = Torx Plus*	FS 1457 (Torx 9 IP) *IP = Torx Plus*	FS 1453 (Torx 15 IP) *IP = Torx Plus*
Tightening torque	0.8 Nm	2.5 Nm	2.5 Nm

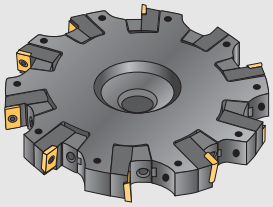
Accessories

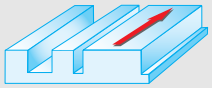
	AD . . 0803	AD . . 1204	AD . . 1606
Screwdriver	FS 1483 (Torx 8 IP) *IP = Torx Plus*	FS 1484 (Torx 9 IP) *IP = Torx Plus*	FS 1485 (Torx 15 IP) *IP = Torx Plus*
Wrench DIN 911	SW 3	SW 4	SW 4

Indexable inserts

Designation	Radius mm	Corner facet width mm	P					M			K			N		S		
				HC			HW	HC			HC			HC	HW	HC		HC
			WKP 25	WKP 35	WSP 45	WXP 45	WPM	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXM 15
ADHT 0803 PER – G 88	0.4	1.2												☺	☺			
ADHT 0803 PEL – G 88	0.4	1.2												☺	☺			
ADKT 0803 PER – F 56	0.4	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 0803 PEL – F 56	0.4	1.2		😐	☹				☹				☹				☹	
ADMT 080304 R – F 56	0.4	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 080304 L – F 56	0.4	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1204 PER – G 88	0.8	1.2												☺	☺			
ADHT 1204 PEL – G 88	0.8	1.2												☺	☺			
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1204 PEL – F 56	0.8	1.2		😐	☹				☹				☹				☹	
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 120408 L – F 56	0.8	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1606 PER – G 88	0.8	1.6												☺	☺			
ADHT 1606 PEL – G 88	0.8	1.6												☺	☺			
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1606 PEL – F 56	0.8	1.6		😐	☹				☹				☹				☹	
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 160608 L – F 56	0.8	1.6		😐	☹			😐	☹				☹			😐	☹	
Finishing inserts P 2905 – 0							😐								☺			
Finishing inserts P 2905 – 1							😐				☺				☺			☺

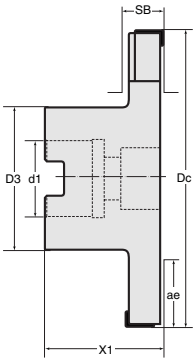
→ 416 → 684 → 675 → 624

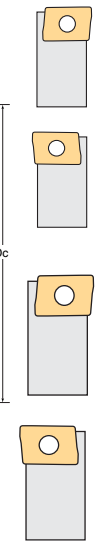


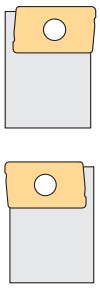


Tool

cyl. bore
cross drive
DIN 138









Designation	D_C mm	d_1/ISO mm	D_3 mm	Z	SB mm	X_1 mm	a_e max	kg	No. of inserts	Type
F 2252.BN.100.Z04.12.S724	100	27	48	2 x 4	12–14	50	24	0.9	2 x 4	
F 2252.BN.100.Z04.14.S724	100	27	48	2 x 4	14–16	50	24	0.9	2 x 4	
F 2252.BN.125.Z05.12.S724	125	32	60	2 x 5	12–14	50	30	1.1	2 x 5	AD . . 0803 . .
F 2252.BN.125.Z05.14.S724	125	32	60	2 x 5	14–16	50	30	1.2	2 x 5	
F 2252.BN.160.Z06.12.S724	160	40	75	2 x 6	12–14	50	40	1.8	2 x 6	
F 2252.BN.160.Z06.14.S724	160	40	75	2 x 6	14–16	50	40	2.0	2 x 6	
F 2252.BN.125.Z04.16.S725	125	32	60	2 x 4	16–19	50	30	1.5	2 x 4	
F 2252.BN.125.Z04.19.S725	125	32	60	2 x 4	19–22	50	30	1.7	2 x 4	
F 2252.BN.160.Z05.16.S725	160	40	75	2 x 5	16–19	50	40	2.3	2 x 5	
F 2252.BN.160.Z05.19.S725	160	40	75	2 x 5	19–22	50	40	2.6	2 x 5	
F 2252.BN.200.Z06.16.S725	200	40	90	2 x 6	16–19	50	50	3.5	2 x 6	AD . . 1204 . .
F 2252.BN.200.Z06.19.S725	200	40	90	2 x 6	19–22	50	50	4.1	2 x 6	
F 2252.BN.250.Z08.16.S725	250	60/50 B	135	2 x 8	16–19	50	55	5.8	2 x 8	
F 2252.BN.250.Z08.19.S725	250	60/50 B	135	2 x 8	19–22	50	55	6.6	2 x 8	
F 2252.BN.315.Z10.16.S725	315	60/50 B	135	2 x 10	16–19	50	85	11.4	2 x 10	
F 2252.BN.315.Z10.19.S725	315	60/50 B	135	2 x 10	19–22	50	85	12.1	2 x 10	
F 2252.BN.125.Z04.22.S726	125	32	60	2 x 4	22–25	50	30	1.9	2 x 4	
F 2252.BN.160.Z05.22.S726	160	40	75	2 x 5	22–25	50	40	3.0	2 x 5	AD . . 1606 . .
F 2252.BN.200.Z06.22.S726	200	40	90	2 x 6	22–25	50	50	4.6	2 x 6	
F 2252.BN.250.Z08.22.S726	250	60/50 B	135	2 x 8	22–25	50	55	7.4	2 x 8	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

	AD . . 0803	AD . . 1204	AD . . 1606
Finishing cartridge for tool body, right-hand	FR 695	FR 696	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.BN

positive, κ = 90°

full side and face milling – cutting on three sides

Assembly parts

	AD . . 0803	AD . . 1204	AD . . 1606
Cartridge for tool body, right-hand	FR 724	FR 725	FR 726
Cartridge for tool body, left-hand	FL 724	FL 725	FL 726
Clamping wedge	FK 360	FK 359	FK 359
Clamping sleeve	FS 1167	FS 1168	FS 1168
Eccentric pin	FS 1170 (SW 3)	FS 1171 (SW 4)	FS 1171 (SW 4)
Spring washer	FS 1220	FS 1221	FS 1221
Clamping screw for clamping wedge	FS 239 (SW 3)	FS 1162 (SW 4)	FS 1162 (SW 4)
Tightening torque	6.5 Nm	9.0 Nm	9.0 Nm
Clamping screw for insert	FS 1454 (Torx 8 IP) *IP = Torx Plus*	FS 1457 (Torx 9 IP) *IP = Torx Plus*	FS 1453 (Torx 15 IP) *IP = Torx Plus*
Tightening torque	0.8 Nm	2.5 Nm	2.5 Nm

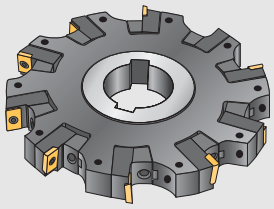
Accessories

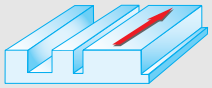
	AD . . 0803	AD . . 1204	AD . . 1606
Screwdriver	FS 1483 (Torx 8 IP) *IP = Torx Plus*	FS 1484 (Torx 9 IP) *IP = Torx Plus*	FS 1485 (Torx 15 IP) *IP = Torx Plus*
Wrench DIN 911	SW 3	SW 4	SW 4

Indexable inserts

Designation	Radius mm	Corner facet width mm	P					M			K			N		S		
				HC			HW	HC			HC			HC	HW	HC		HC
			WKP 25	WKP 35	WSP 45	WXP 45	WPM	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXM 15
ADHT 0803 PER – G 88	0.4	1.2												☺	☺			
ADHT 0803 PEL – G 88	0.4	1.2												☺	☺			
ADKT 0803 PER – F 56	0.4	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 0803 PEL – F 56	0.4	1.2		😐	☹				☹				☹				☹	
ADMT 080304 R – F 56	0.4	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 080304 L – F 56	0.4	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1204 PER – G 88	0.8	1.2												☺	☺			
ADHT 1204 PEL – G 88	0.8	1.2												☺	☺			
ADKT 1204 PER – F 56	0.8	1.2	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1204 PEL – F 56	0.8	1.2		😐	☹				☹				☹				☹	
ADMT 120408 R – F 56	0.8	1.2	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 120408 L – F 56	0.8	1.2		😐	☹			😐	☹				☹			😐	☹	
ADHT 1606 PER – G 88	0.8	1.6												☺	☺			
ADHT 1606 PEL – G 88	0.8	1.6												☺	☺			
ADKT 1606 PER – F 56	0.8	1.6	☺	😐	☹				☹		☺	😐	☹				☹	
ADKT 1606 PEL – F 56	0.8	1.6		😐	☹				☹				☹				☹	
ADMT 160608 R – F 56	0.8	1.6	☺	😐	☹	☹		😐	☹	😐	☺	😐	☹			😐	☹	
ADMT 160608 L – F 56	0.8	1.6		😐	☹			😐	☹				☹			😐	☹	
Finishing inserts																		
P 2905 – 0							😐								☺			
P 2905 – 1							😐				☺				☺			☺

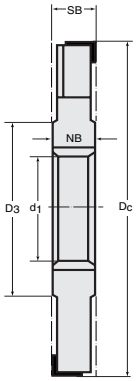
→ 416 → 684 → 675 → 624

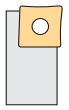


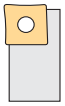


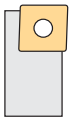
Tool

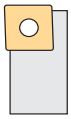
cyl. bore
longitudinal keyway
DIN 138

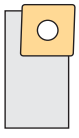


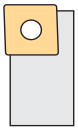












Designation	D_C mm	d_1 mm	D_3 mm	Z	SB mm	NB mm	kg	No. of inserts	Type
F 2252.B.080.Z03.08.S684	80	22	37	2 x 3	8–9	8	0.2	6	
F 2252.B.080.Z03.09.S684	80	22	37	2 x 3	9–10	9	0.2	6	
F 2252.B.100.Z04.08.S684	100	32	50	2 x 4	8–9	8	0.4	8	
F 2252.B.100.Z04.09.S684	100	32	50	2 x 4	9–10	9	0.4	8	MP . . 0603 . .
F 2252.B.125.Z05.08.S684	125	40	65	2 x 5	8–9	8	0.6	10	
F 2252.B.125.Z05.09.S684	125	40	65	2 x 5	9–10	9	0.7	10	
F 2252.B.160.Z06.08.S684	160	40	65	2 x 6	8–9	8	1.0	12	
F 2252.B.160.Z06.09.S684	160	40	65	2 x 6	9–10	9	1.1	12	
F 2252.B.100.Z04.10.S685	100	32	50	2 x 4	10–12	10	0.4	8	
F 2252.B.100.Z04.12.S685	100	32	50	2 x 4	12–14	12	0.5	8	
F 2252.B.100.Z04.14.S685	100	32	50	2 x 4	14–16	14	0.6	8	
F 2252.B.125.Z05.10.S685	125	40	65	2 x 5	10–12	10	0.6	10	
F 2252.B.125.Z05.12.S685	125	40	65	2 x 5	12–14	12	0.7	10	MP . . 0803 . .
F 2252.B.125.Z05.14.S685	125	40	65	2 x 5	14–16	14	0.8	10	
F 2252.B.160.Z06.10.S685	160	40	65	2 x 6	10–12	10	1.2	12	
F 2252.B.160.Z06.12.S685	160	40	65	2 x 6	12–14	12	1.4	12	
F 2252.B.160.Z06.14.S685	160	40	65	2 x 6	14–16	14	1.6	12	
F 2252.B.125.Z04.16.S686	125	40	65	2 x 4	16–19	16	0.9	8	
F 2252.B.125.Z04.19.S686	125	40	65	2 x 4	19–22	19	1.1	8	
F 2252.B.125.Z04.22.S686	125	40	65	2 x 4	22–	22	1.3	8	
F 2252.B.160.Z05.16.S686	160	40	65	2 x 5	16–19	16	1.7	10	
F 2252.B.160.Z05.19.S686	160	40	65	2 x 5	19–22	19	2.0	10	
F 2252.B.160.Z05.22.S686	160	40	65	2 x 5	22–	22	2.3	10	
F 2252.B.200.Z06.16.S686	200	50	75	2 x 6	16–19	16	2.8	12	MP . . 1204 . .
F 2252.B.200.Z06.19.S686	200	50	75	2 x 6	19–22	19	3.3	12	
F 2252.B.200.Z06.22.S686	200	50	75	2 x 6	22–	22	3.8	12	
F 2252.B.250.Z08.16.S686	250	60	90	2 x 8	16–19	16	4.5	16	
F 2252.B.250.Z08.19.S686	250	60	90	2 x 8	19–22	19	5.3	16	
F 2252.B.250.Z08.22.S686	250	60	90	2 x 8	22–	22	6.2	16	
F 2252.B.315.Z10.16.S686	315	60	90	2 x 10	16–19	16	7.4	20	
F 2252.B.315.Z10.19.S686	315	60	90	2 x 10	19–22	19	8.9	20	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

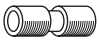
	MP . . 0803	MP . . 1204
Finishing cartridge for tool body, right-hand	FR 695	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.B

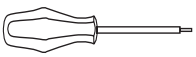
positive, $\chi = 90°$

full side and face milling – cutting on three sides

Assembly parts

	MP . . 0603	MP . . 0803	MP . . 1204
 Cartridge for tool body, right-hand	FR 684	FR 685	FR 686
 Cartridge for tool body, left-hand	FL 684	FL 685	FL 686
 Clamping wedge	FK 358	FK 360	FK 359
 Clamping sleeve	FS 1166	FS 1167	FS 1168
 Eccentric pin	FS 1169 (SW 2.5)	FS 1170 (SW 3)	FS 1171 (SW 4)
 Spring washer	FS 1220	FS 1220	FS 1221
 Clamping screw for clamping wedge	FS 1161 (SW 2.5)	FS 239 (SW 3)	FS 1162 (SW 4)
Tightening torque	3.5 Nm	6.5 Nm	9.0 Nm
 Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 1029 (Torx 20)
Tightening torque	0.8 Nm	1.5 Nm	5.0 Nm

Accessories

	MP . . 0603	MP . . 0803	MP . . 1204
 Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 228 (Torx 20)
 Wrench DIN 911	SW 2.5	SW 3	SW 4

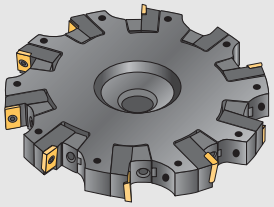
Indexable inserts

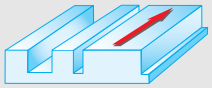
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	N HC WXN 15	N HW WKM	N HW WK 10	H HC WXH 15	H HC WXM 15
 MPHX 060304 – A 57	0.4		☺	☹					☺	☺	☹						
MPMX 060304 – F 57	0.4			☺	☺	☹		☺			☹						
MPHX 060304 – G 88	0.4					☺						☺	☺	☺			
MPHX 080305 – A 57	0.5		☺	☹	☹				☺	☺	☹						
MPMX 080305 – F 57	0.5			☺	☺	☹		☺	☺		☹						
MPHX 080305 – G 88	0.5					☺						☺	☺	☺			
MPHW 120408 – A 57	0.8		☺	☹					☺	☺	☹						
MPMT 120408 – F 57	0.8			☺	☺	☹		☺			☹						
MPHT 120408 – G 88	0.8					☺						☺	☺	☺			
Finishing inserts  P 2905 – 0							☺								☺		
P 2905 – 1							☺		☺						☺		☺





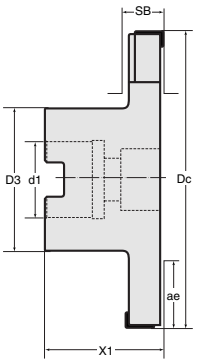
→ 423 → 684 → 675 → 624

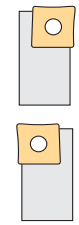


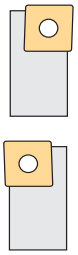


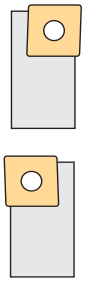
Tool

cyl. bore
cross drive
DIN 138









Designation	D_C mm	d_1/ISO mm	D_3 mm	Z	SB mm	X_1 mm	a_e max	kg	No. of inserts	Type
F 2252.BN.080.Z03.08.S684	80	22	35	2 x 3	8–9	40	20	0.4	6	
F 2252.BN.080.Z03.09.S684	80	22	35	2 x 3	9–10	40	20	0.5	6	
F 2252.BN.100.Z04.08.S684	100	27	48	2 x 4	8–9	50	24	0.6	8	
F 2252.BN.100.Z04.09.S684	100	27	48	2 x 4	9–10	50	24	0.7	8	MP . . 0603 . .
F 2252.BN.125.Z05.08.S684	125	32	60	2 x 5	8–9	50	30	0.9	10	
F 2252.BN.125.Z05.09.S684	125	32	60	2 x 5	9–10	50	30	1.0	10	
F 2252.BN.160.Z06.08.S684	160	40	75	2 x 6	8–9	50	40	1.3	12	
F 2252.BN.160.Z06.09.S684	160	40	75	2 x 6	9–10	50	40	1.4	12	
F 2252.BN.100.Z04.10.S685	100	27	48	2 x 4	10–12	50	24	0.7	8	
F 2252.BN.100.Z04.12.S685	100	27	48	2 x 4	12–14	50	24	0.8	8	
F 2252.BN.100.Z04.14.S685	100	27	48	2 x 4	14–16	50	24	0.9	8	
F 2252.BN.125.Z05.10.S685	125	32	60	2 x 5	10–12	50	30	1.0	10	
F 2252.BN.125.Z05.12.S685	125	32	60	2 x 5	12–14	50	30	1.1	10	MP . . 0803 . .
F 2252.BN.125.Z05.14.S685	125	32	60	2 x 5	14–16	50	30	1.2	10	
F 2252.BN.160.Z06.10.S685	160	40	75	2 x 6	10–12	50	40	1.6	12	
F 2252.BN.160.Z06.12.S685	160	40	75	2 x 6	12–14	50	40	1.8	12	
F 2252.BN.160.Z06.14.S685	160	40	75	2 x 6	14–16	50	40	2.0	12	
F 2252.BN.125.Z04.16.S686	125	32	60	2 x 4	16–19	50	30	1.5	8	
F 2252.BN.125.Z04.19.S686	125	32	60	2 x 4	19–22	50	30	1.7	8	
F 2252.BN.125.Z04.22.S686	125	32	60	2 x 4	22–23.5	50	30	1.9	8	
F 2252.BN.160.Z05.16.S686	160	40	75	2 x 5	16–19	50	40	2.3	10	
F 2252.BN.160.Z05.19.S686	160	40	75	2 x 5	19–22	50	40	2.6	10	
F 2252.BN.160.Z05.22.S686	160	40	75	2 x 5	22–23.5	50	40	3.0	10	
F 2252.BN.200.Z06.16.S686	200	40	90	2 x 6	16–19	50	50	3.5	12	MP . . 1204 . .
F 2252.BN.200.Z06.19.S686	200	40	90	2 x 6	19–22	50	50	4.1	12	
F 2252.BN.200.Z06.22.S686	200	40	90	2 x 6	22–23.5	50	50	4.6	12	
F 2252.BN.250.Z08.16.S686	250	60/50 B	135	2 x 8	16–19	50	55	5.8	16	
F 2252.BN.250.Z08.19.S686	250	60/50 B	135	2 x 8	19–22	50	55	6.6	16	
F 2252.BN.250.Z08.22.S686	250	60/50 B	135	2 x 8	22–23.5	50	55	7.4	16	
F 2252.BN.315.Z10.16.S686	315	60/50 B	135	2 x 10	16–19	50	85	11.4	20	
F 2252.BN.315.Z10.19.S686	315	60/50 B	135	2 x 10	19–22	50	85	12.1	20	

Bodies and assembly parts are included in the scope of delivery.
Cutting width can be adjusted.

Accessories for finishing

	MP . . 0803	MP . . 1204
Finishing cartridge for tool body, right-hand	FR 695	FR 696
Finishing cartridge for tool body, left-hand	FL 695	FL 696
Insert for finishing cartridge	P 2905 – 0	P 2905 – 1
Clamping screw for finishing insert	FS 246 (Torx 8)	FS 260 (Torx 20)
Tightening torque	1.5 Nm	5.0 Nm
Screwdriver	FS 230 (Torx 8)	FS 228 (Torx 20)

WALTER side and face milling cutter F 2252.BN

positive, κ = 90°

full side and face milling – cutting on three sides

Assembly parts

	MP . . 0603	MP . . 0803	MP . . 1204
Cartridge for tool body, right-hand	FR 684	FR 685	FR 686
Cartridge for tool body, left-hand	FL 684	FL 685	FL 686
Clamping wedge	FK 358	FK 360	FK 359
Clamping sleeve	FS 1166	FS 1167	FS 1168
Eccentric pin	FS 1169 (SW 2.5)	FS 1170 (SW 3)	FS 1171 (SW 4)
Spring washer	FS 1220	FS 1220	FS 1221
Clamping screw for clamping wedge	FS 1161 (SW 2.5)	FS 239 (SW 3)	FS 1162 (SW 4)
Tightening torque	3.5 Nm	6.5 Nm	9.0 Nm
Clamping screw for insert	FS 923 (Torx 8)	FS 1005 (Torx 8)	FS 1029 (Torx 20)
Tightening torque	0.8 Nm	1.5 Nm	5.0 Nm

Accessories

	MP . . 0603	MP . . 0803	MP . . 1204
Screwdriver	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 228 (Torx 20)
Wrench DIN 911	SW 2.5	SW 3	SW 4

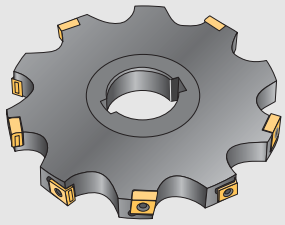
Indexable inserts

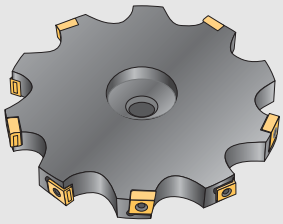
Designation	Radius mm	Corner facet width mm	P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	N HC WXN 15	N HW WKM	N HW WK 10	H HC WXH 15	HC WXM 15
MPHX 060304 – A 57	0.4		☺	☹					☻	☺	☹						
MPMX 060304 – F 57	0.4			☻	☺	☹		☺			☹						
MPHX 060304 – G 88	0.4					☺						☺	☻	☻			
MPHX 080305 – A 57	0.5		☺	☹	☹				☻	☺	☹						
MPMX 080305 – F 57	0.5			☻	☺	☹		☺	☻		☹						
MPHX 080305 – G 88	0.5					☺						☺	☻	☻			
MPHW 120408 – A 57	0.8		☺	☹					☻	☺	☹						
MPMT 120408 – F 57	0.8			☻	☺	☹		☺			☹						
MPHT 120408 – G 88	0.8					☺						☺	☻	☻			
Finishing inserts P 2905 – 0							☺								☻		
P 2905 – 1							☺		☻						☻		☻

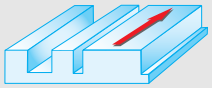




→ 423 → 684 → 675 → 624







Tool	Designation	D_C mm	d_1/ISO mm	d_3 mm	Z	SB mm	X_1 mm	a_e max	kg	No. of inserts	Type
cyl. bore longitudinal keyway DIN 138	F 2253.B.080.Z04.10	80	27	42	2 x 4	10	10	18	0.3	8	CN . 0805 . .
	F 2253.B.100.Z05.10	100	32	50	2 x 5	10	10	24	0.5	10	
	F 2253.B.125.Z06.10	125	40	65	2 x 6	10	10	29	0.8	12	
	F 2253.B.125.Z05.16	125	40	65	2 x 5	16	16	29	1.3	10	CN . . 1206 . .
	F 2253.B.160.Z06.16	160	40	65	2 x 6	16	16	46	2.1	12	
	F 2253.B.200.Z07.16	200	50	75	2 x 7	16	16	61	3.3	14	
cyl. bore cross drive DIN 138	F 2253.BN.080.Z04.10R	80	22	45	2 x 4	10	40	13	0.5	8	CN . 0805 . .
	F 2253.BN.100.Z05.10R	100	27	48	2 x 5	10	50	24	0.7	10	
	F 2253.BN.125.Z06.10R	125	32	60	2 x 6	10	50	30	1.0	12	
	F 2253.BN.100.Z05.12R	100	27	48	2 x 5	12	50	24	0.8	10	CN . . 0805 . .
	F 2253.BN.125.Z06.12R	125	32	60	2 x 6	12	50	30	1.1	12	
	F 2253.BN.160.Z07.12R	160	40	75	2 x 7	12	50	40	1.8	14	
	F 2253.BN.125.Z05.16R	125	32	60	2 x 5	16	50	30	1.5	10	CN . . 1206 . .
	F 2253.BN.160.Z06.16R	160	40	75	2 x 6	16	50	40	2.3	12	
	F 2253.BN.200.Z07.16R	200	40/40 B	90	2 x 7	16	50	50	3.5	14	
	F 2253.BN.160.Z06.20R	160	40	75	2 x 6	20	50	40	2.9	12	CN . . 1206 . .
	F 2253.BN.200.Z07.20R	200	40/40 B	90	2 x 7	20	50	50	4.4	14	
	F 2253.BN.250.Z08.20R	250	60/50 B	135	2 x 8	20	50	55	6.8	16	
	F 2253.BN.200.Z07.25R	200	40/40 B	90	2 x 7	25	50	50	5.5	14	CN . . 1608 . .
	F 2253.BN.250.Z08.25R	250	60/50 B	135	2 x 8	25	50	55	8.5	16	
	F 2253.BN.315.Z10.25R	315	60/50 B	135	2 x 10	25	50	85	13.6	20	

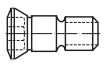
Bodies and assembly parts are included in the scope of delivery.

WALTER side and face milling cutter F 2253

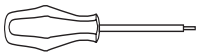
negative, κ = 90°

full side and face milling – cutting on three sides

Assembly parts

		CN . . 0805 SB 10	CN . . 0805 SB 12	CN . . 1206 SB 16+20	CN . . 1608 SB 25
	Clamping screw for insert	FS 1015 (Torx 8)			
	Tightening torque	1.0 Nm			
	Clamping screw for insert		FS 379 (Torx 8)	FS 1007 (Torx 15)	FS 1009 (Torx 20)
	Tightening torque		1.0 Nm	3.0 Nm	5.0 Nm

Accessories

		CN . . 0805	CN . . 1206	CN . . 1608
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 20)

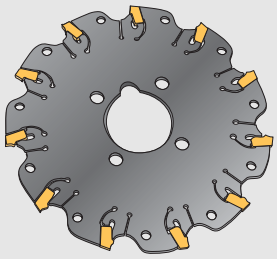
Indexable inserts

	Designation	Radius mm	Corner facet width mm	P					M	K				N		H		
				HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	CNMQ 080508 T – A 27 T	0.8			☹							☹							
	CNHQ 0805 PPN – A 57 T	0.8	1.2	☺	☹					☺	😐	☹							
	CNMQ 080508 – A 57 T	0.8		😐	☹					☺	😐	☹							
	CNHU 0805 PPN – D 57 T	0.8	1.2	😐	☹	☹					😐	☹							
	CNMU 080508 – D 57 T	0.8		😐	☹	☹					😐	☹							
	CNMQ 120608 T – A 27 T	0.8			☹							☹							
	CNHQ 1206 PPN – A 57 T	0.8	1.5	☺	☹					☺	😐	☹							
	CNMQ 120608 – A 57 T	0.8		😐	☹					☺	😐	☹							
	CNHU 1206 PPN – D 57 T	0.8	1.5	😐	☹	☹					😐	☹							
	CNMU 120608 – D 57 T	0.8		😐	☹	☹					😐	☹							
	CNMQ 160812 T – A 27 T	1.2			☹							☹							
	CNHQ 1608 PPN – A 57 T	1.2	1.8	☺	☹					☺	😐	☹							
	CNMQ 160812 – A 57 T	1.2		😐	☹					☺	😐	☹							
	CNHU 1608 PPN – D 57 T	1.2	1.8	😐	☹	☹					😐	☹							
	CNMU 160812 – D 57 T	1.2		😐	☹	☹					😐	☹							

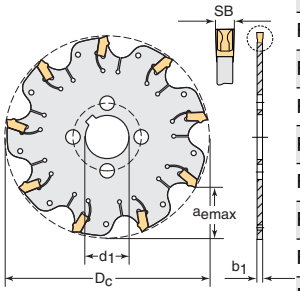




→ 426 → 684 → 624





Tool	Designation	D_C mm	d_1 mm	b_1 mm	Z	SB mm	$a^*_{e\,max}$ mm	kg	No. of inserts	Type
cyl. bore longitudinal keyway DIN 138 	F 2255.B.063.Z05.1,6	63	16	1.3	5	1.6	15	0.03	5	NSM 3.90016 . .
	F 2255.B.063.Z05.2,2	63	16	1.8	5	2.2	15	0.03	5	NSM 3.90022 . .
	F 2255.B.063.Z04.3,0	63	16	2.4	4	3.0	15	0.05	4	NSM 3.90030 . .
	F 2255.B.063.Z04.4,0	63	16	3.4	4	4.0	15	0.06	4	NSM 3.90040 . .
	F 2255.B.080.Z07.1,6	80	16	1.3	7	1.6	21	0.04	7	NSM 3.90016 . .
	F 2255.B.080.Z07.2,2	80	16	1.8	7	2.2	21	0.05	7	NSM 3.90022 . .
	F 2255.B.080.Z06.3,0	80	16	2.4	6	3.0	21	0.08	6	NSM 3.90030 . .
	F 2255.B.080.Z06.4,0	80	16	3.4	6	4.0	21	0.10	6	NSM 3.90040 . .
	F 2255.B.100.Z09.1,6	100	22	1.3	9	1.6	27	0.07	9	NSM 3.90016 . .
	F 2255.B.100.Z09.2,2	100	22	1.8	9	2.2	27	0.08	9	NSM 3.90022 . .
	F 2255.B.100.Z09.3,0	100	22	2.4	9	3.0	27	0.13	9	NSM 3.90030 . .
	F 2255.B.100.Z09.4,0	100	22	3.4	9	4.0	27	0.15	9	NSM 3.90040 . .
	F 2255.B.125.Z11.1,6	125	32	1.3	11	1.6	35	0.10	11	NSM 3.90016 . .
	F 2255.B.125.Z11.2,2	125	32	1.8	11	2.2	35	0.12	11	NSM 3.90022 . .
	F 2255.B.125.Z11.3,0	125	32	2.4	11	3.0	35	0.20	11	NSM 3.90030 . .
	F 2255.B.125.Z11.4,0	125	32	3.4	11	4.0	35	0.25	11	NSM 3.90040 . .
	F 2255.B.160.Z14.2,2	160	40	1.8	14	2.2	40	0.30	14	NSM 3.90022 . .
	F 2255.B.160.Z14.3,0	160	40	2.4	14	3.0	40	0.35	14	NSM 3.90030 . .
	F 2255.B.160.Z14.4,0	160	40	3.4	14	4.0	40	0.40	14	NSM 3.90040 . .
	F 2255.B.200.Z19.3,0	200	40	2.4	19	3.0	60	0.50	19	NSM 3.90030 . .
	F 2255.B.200.Z19.4,0	200	40	3.4	19	4.0	60	0.65	19	NSM 3.90040 . .
	F 2255.B.250.Z24.3,0	250	40	2.4	24	3.0	85	0.80	24	NSM 3.90030 . .
	F 2255.B.250.Z24.4,0	250	40	3.4	24	4.0	85	0.95	24	NSM 3.90040 . .

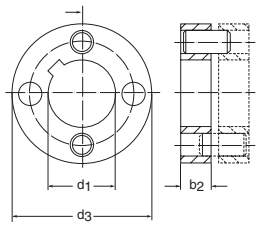
* Values for $a_{e\,max}$ in combination with drive collar.
For information on high-speed applications, see page 666.
Use key FS 1353 for the mounting / dismounting of inserts (see page 677).

WALTER slitting cutter

F 2255.B

positive, κ = 90°

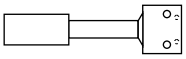
Accessories



Designation	for D_C mm	SB mm	d_1 mm	d_3 mm	b_2 mm	$a_{e\ max}$ mm	kg
Drive collar							
FS 1345	63	1.6–2.2	16	32	8	15	0.04
FS 1346	63	3.0–4.0	16	32	8	15	0.03
FS 1347	80	1.6–4.0	16	38	8	21	0.05
FS 1348	100	1.6–4.0	22	46	10	27	0.09
FS 1349	125	1.6–4.0	32	55	10	35	0.12
FS 1350	160	2.2–4.0	40	80	12	40	0.34
FS 1350	200	3.0–4.0	40	80	12	60	0.34
FS 1350	250	3.0–4.0	40	80	12	85	0.34
Supporting disk instead of drive collar							
FS 1351	200	3.0–4.0	40	140	12	30	1.15
FS 1351	250	3.0–4.0	40	140	12	55	1.15
FS 1352	250	3.0–4.0	40	190	12	30	2.35



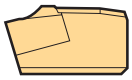
Clamping screw for supporting disk — FS 966 (SW 5), M 6x16 ISO 4762



Key — FS 1353

The drive collar and supporting disks should always be ordered in pairs.
The clamping screws for the supporting disks are included in the scope of delivery of the supporting disks.

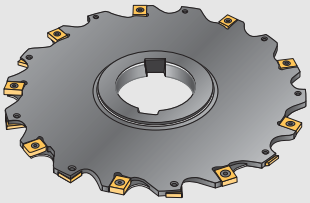
Inserts

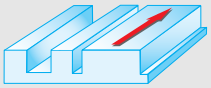


Designation	SB mm	r mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WAK 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 30
NSM 3.90016 EC-GDW	1.6	0.15																☹
NSM 3.90016 SN-GBW	1.6	0.15			☺	😐				😐								
NSM 3.90016 SN-GDW	1.6	0.15			☺	😐				😐								
NSM 3.90022 EC-GDW	2.2	0.2																☹
NSM 3.90022 SN-GBW	2.2	0.2			☺	😐				😐								
NSM 3.90022 SN-GDW	2.2	0.2			☺	😐				😐								
NSM 3.90030 EC-GDW	3.0	0.2																☹
NSM 3.90030 SN-GBW	3.0	0.2			☺	😐				😐								
NSM 3.90030 SN-GDW	3.0	0.2			☺	😐				😐								
NSM 3.90040 EC-GDW	4.0	0.2																☹
NSM 3.90040 SN-GBW	4.0	0.2			☺	😐				😐								
NSM 3.90040 SN-GDW	4.0	0.2			☺	😐				😐								

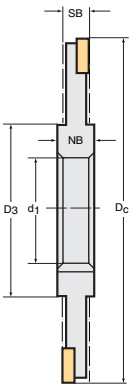


→ 432 | → 686 | → 677 | → 624







Tool	Designation	D_C mm	d_1 mm	d_3 mm	Z	SB mm	NB	kg	No. of inserts	Type
cyl. bore longitudinal keyway DIN 138 	F 2053.B.100.Z05.06	100	32	50	2 x 5	6	12	0.3	10	P 44 . . – 1
	F 2053.B.125.Z06.06	125	40	65	2 x 6	6	12	0.5	12	
	F 2053.B.160.Z08.06	160	40	65	2 x 8	6	12	0.8	16	
	F 2053.B.200.Z09.06	200	50	75	2 x 9	6	12	1.2	18	
	F 2053.B.100.Z05.08	100	32	50	2 x 5	8	12	0.4	10	P 44 . . – 3
	F 2053.B.125.Z06.08	125	40	65	2 x 6	8	12	0.6	12	
	F 2053.B.160.Z08.08	160	40	65	2 x 8	8	12	0.9	16	
	F 2053.B.200.Z09.08	200	50	75	2 x 9	8	12	1.3	18	

Bodies and assembly parts are included in the scope of delivery.

WALTER side and face milling cutter F 2053.B

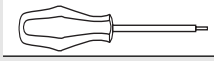
positive, κ = 90°

for cutting off and slotting

Assembly parts

		SB 6 mm	SB 8 mm
	Clamping screw for insert	FS 320 (Torx 15)	FS 321 (Torx 15)
	Tightening torque	3.0 Nm	3.0 Nm

Accessories

	Screwdriver	FS 229 (Torx 15)

Indexable inserts

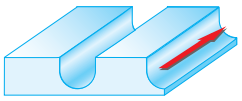
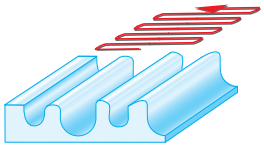
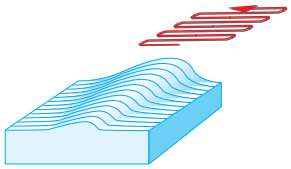
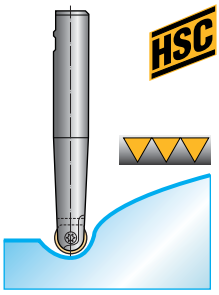
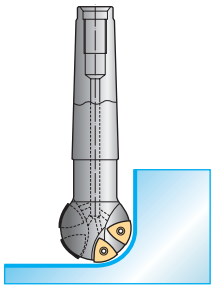
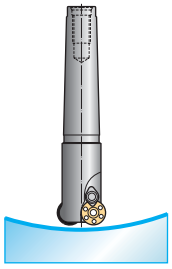
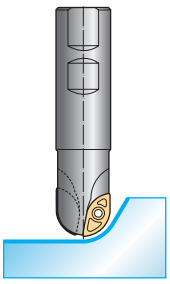
	Designation	Corner radius mm	P					M	K					N		H		
			HC				HW	HC	HC			HW	CN	HC	HW	HC	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WSN 10	WXN 15	WK 10	WXH 15	WXM 15	WMG 40
	P 4406 – 1	0.5 x 45°		☺	☹		☺		☺		☹							
	P 4406 – 3	0.4 x 45°		☺	☹		☺		☺		☹							
	P 44462 – 1	0.5 x 45°		☺	☺		☺				☺							
	P 44462 – 3	0.4 x 45°		☺	☺		☺				☺							



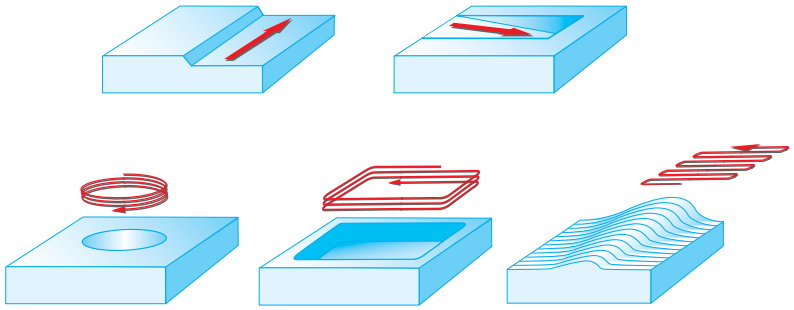


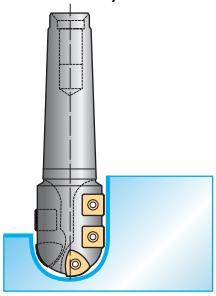
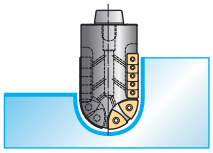
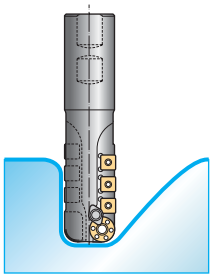
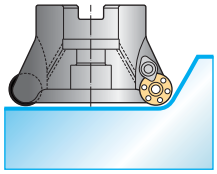
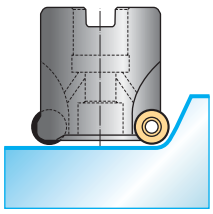
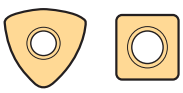
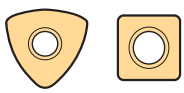
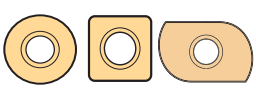
→ 427 | → 686 | → 624

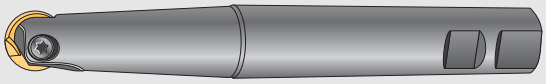
WALTER SELECT

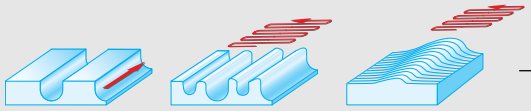
Application						
						
Copy milling cutters		**F 2139** 	**F 2239 B** 	**F 2231 / A** 	**F 2339 / A + B** 	
Dia. range [mm]		8–32	20–50	10–40	20–50	
Page		580	594	582	598 + 600	
P	Steel	●●	●●	●●	●●	
M	Stainless steel	●●	●	●●	●●	
K	Cast iron	●●	●●	●●	●●	
N	NF metals	●●	●●	●●	●	
S	Difficult-to-machine materials	●●	●	●	●	
H	Hard materials	●●		●●	●	
Basic shape of indexable insert						
Indexable insert types		P 3201 P 3204	P 2631 . .	RD. . 0501 / 0803 . . RD. . 10T3 / 1204 . . RD. . 1505 / 1605 . . RD. . 2006 . .	XD . . 16 / 20 / 24 . . XD . . 25 / 32 / 40 . . SP . . 0603/09T3 . . SP . . 1204 . .	
max. cut depths [mm]		4–16	15–39	2.5–10	15–57	

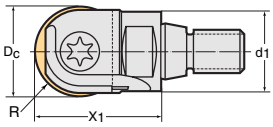
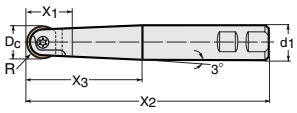
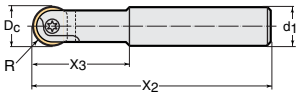
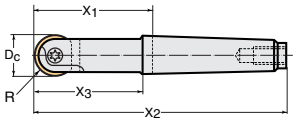
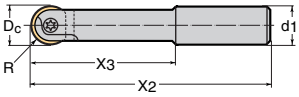
Copy milling cutters



	F 2239 / Z = 1	F 2239 F / Z = 2	F 2231 / B	F 2234	F 2334
					
	20–63	50 + 63	24–40	12–160	25–160
	594	596	584	586 + 588	590 + 592
	●●	●●	●●	●●	●●
	●	●●	●	●●	●●
	●●	●●	●●	●●	●●
	●●	●	●	●●	●
	●	●	●	●	●●
			●	●●	●
					
	P 2631 . . SP . . 0603 . . SP . . 09T3 . . SP . . 1204 . .	P 26325 . . SP . . 09T3 . .	RD. . SP . . XD . .	RD. .	RO . X . .
	15–84	42–103	34–78	2.5–10	4–10





Tool	Designation	D_C mm	R mm	d_1 mm	X_1 mm	X_2 mm	X_3 mm	Z	kg	No.	Insert
NCT ScrewFit	F 2139.T09.008.Z02.04	8	4	9.7	20			2	0.1	1	P 32 . . – D 08
	F 2139.T09.010.Z02.05	10	5	9.7	25			2	0.1	1	P 32 . . – D 10
	F 2139.T09.012.Z02.06	12	6	9.7	25			2	0.1	1	P 32 . . – D 12
	F 2139.T14.012.Z02.06	12	6	14.5	25			2	0.1	1	P 32 . . – D 12
	F 2139.T14.016.Z02.08	16	8	14.5	25			2	0.1	1	P 32 . . – D 16
	F 2139.T18.020.Z02.10	20	10	18.5	30			2	0.1	1	P 32 . . – D 20
	F 2139.T22.025.Z02.12	25	12.5	22	35			2	0.1	1	P 32 . . – D 25
	F 2139.T28.030.Z02.15	30	15	28	40			2	0.2	1	P 32 . . – D 30
	F 2139.T28.032.Z02.16	32	16	28	40			2	0.2	1	P 32 . . – D 32
Shank type DIN 1835, version B	F 2139.5.12.140.08	8	4	12	11	140	50	2	0.1	1	P 32 . . – D 08
	F 2139.5.12.150.10	10	5	12	15	150	35	2	0.1	1	P 32 . . – D 10
	F 2139.5.16.160.12	12	6	16	20	160	58.5	2	0.2	1	P 32 . . – D 12
	F 2139.5.20.175.16	16	8	20	26	175	65	2	0.3	1	P 32 . . – D 16
	F 2139.5.25.190.20	20	10	25	18	190	76	2	0.6	1	P 32 . . – D 20
	F 2139.5.32.210.25	25	12.5	32	31	210	98	2	1.1	1	P 32 . . – D 25
	F 2139.5.40.240.30	30	15	40	25	240	121	2	1.9	1	P 32 . . – D 30
	F 2139.5.40.240.32	32	16	40	44	240	121	2	1.9	1	P 32 . . – D 32
Parallel shank without flat	F 2139.5.10.110.08	8	4	10		110	25	2	0.1	1	P 32 . . – D 08
	F 2139.5.12.130.10	10	5	12		130	30	2	0.1	1	P 32 . . – D 10
	F 2139.5.12.130.12	12	6	12		130	32	2	0.1	1	P 32 . . – D 12
	F 2139.5.16.140.16	16	8	16		140	36	2	0.2	1	P 32 . . – D 16
	F 2139.5.20.160.20	20	10	20		160	45	2	0.3	1	P 32 . . – D 20
	F 2139.5.25.160.25	25	12.5	25		160	45	2	0.5	1	P 32 . . – D 25
	F 2139.5.32.175.30	30	15	32		175	56	2	0.9	1	P 32 . . – D 30
	F 2139.5.32.175.32	32	16	32		175	56	2	0.9	1	P 32 . . – D 32
Shank type DIN 228, version A	F 2139.5.01.040.10	10	5	MK 1	40	93.5	36.5	2	0.1	1	P 32 . . – D 10
	F 2139.5.01.040.12	12	6	MK 1	40	93.5	36.5	2	0.1	1	P 32 . . – D 12
	F 2139.5.02.060.16	16	8	MK 2	60	124	55	2	0.1	1	P 32 . . – D 16
	F 2139.5.02.061.20	20	10	MK 2	61	125	56	2	0.1	1	P 32 . . – D 20
	F 2139.5.03.064.25	25	12.5	MK 3	64	145	59	2	0.3	1	P 32 . . – D 25
	F 2139.5.04.062.30	30	15	MK 4	62.5	165	56	2	0.7	1	P 32 . . – D 30
	F 2139.5.04.062.32	32	16	MK 4	62.5	165	56	2	0.7	1	P 32 . . – D 32
Parallel shank without flat solid carbide shank	F 2139.5.08.070.08–CS	8	4	8		70	25	2	0.1	1	P 32 . . – D 08
	F 2139.5.08.100.08–CS	8	4	8		100	55	2	0.1	1	
	F 2139.5.10.080.10–CS	10	5	10		80	30	2	0.1	1	P 32 . . – D 10
	F 2139.5.10.120.10–CS	10	5	10		120	70	2	0.1	1	
	F 2139.5.12.090.12–CS	12	6	12		90	32	2	0.2	1	P 32 . . – D 12
	F 2139.5.12.145.12–CS	12	6	12		145	87	2	0.2	1	
	F 2139.5.16.110.16–CS	16	8	16		110	43	2	0.3	1	P 32 . . – D 16
	F 2139.5.16.195.16–CS	16	8	16		195	128	2	0.5	1	
	F 2139.5.20.130.20–CS	20	10	20		130	47	2	0.5	1	P 32 . . – D 20
	F 2139.5.20.240.20–CS	20	10	20		240	157	2	0.9	1	

Bodies and assembly parts are included in the scope of delivery.
For information on high-speed applications, see page 666.
For open-ended wrenches for screw heads, see page 783.

F 2139 . . –CS with solid carbide shank
Advantages: increased rigidity; deflection reduction; vibration neutralisation

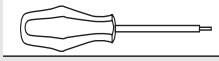
WALTER copy finishing milling cutter F 2139

HSC

Assembly parts

		D_C = 8 mm	D_C = 10 mm	D_C = 12 mm	D_C = 16 mm	D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm
	Clamping screw for cutting insert	FS 397 (Torx 8)	FS 390 (Torx 15)	FS 391 (Torx 20)	FS 392 (Torx 20)	FS 393 (Torx 20)	FS 394 (Torx 20)	FS 395 (Torx 30)
	Tightening torque	1.0 Nm	4.0 Nm	5.0 Nm	5.0 Nm	5.0 Nm	5.0 Nm	6.0 Nm

Accessories

		D_C = 8 mm	D_C = 10 mm	D_C = 12 mm	D_C = 16 mm	D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)	FS 228 (Torx 20)	FS 228 (Torx 20)	FS 396 (Torx 30)

Indexable inserts



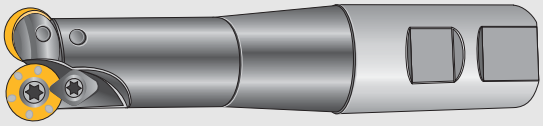
Designation		D_C + 0.00 − 0.03 mm	P				M			K				S		H		
			HC				HC			HC		HW	BH	HC		HC	BH	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WCB 80	WSM 35	WSP 45	WXH 15	WCB 50	WMG 40
P 3201 – D 08		8	●	●					●	●	●	●				●		
P 3201 – D 10		10	●	●					●	●	●	●				●		
P 3201 – D 12		12	●	●					●	●	●	●				●		
P 3201 – D 16		16	●	●					●	●	●	●				●		
P 3201 – D 20		20	●	●					●	●	●	●				●		
P 3201 – D 25		25	●	●					●	●	●	●				●		
P 3201 – D 30		30	●	●					●	●	●	●				●		
P 3201 – D 32		32	●	●					●	●	●	●				●		
P 3201 – D 08		8											☺				☺	
P 3201 – D 10		10											☺				☺	
P 3201 – D 12		12											☺				☺	
P 3201 – D 16		16											☺				☺	
P 3201 – D 20		20											☺				☺	
P 3204 – D 08		8	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 10		10	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 12		12	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 16		16	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 20		20	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 25		25	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 30		30	☺		✕		●	✕	●		●			●	✕	☺		●
P 3204 – D 32		32	☺		✕		●	✕	●		●			●	✕	☺		●

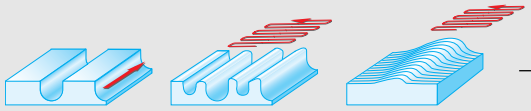


Tiger·tec®



→ 431 → 684 → 626





Tool	Designation	$D_{a-0.2}$ mm	d_1 mm	X_1 mm	X_2 mm	X_3 mm	R / L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit $D_{a-0.05}$ mm	F 2231.T09.010.Z02.02,5	10	9.7	20			2.5	2	0.06	2	RD. . 0501 . .
	F 2231.T14.016.Z02.04	16	14.5	25			4	2	0.1	2	RD. . 0803 . .
	F 2231.T18.020.Z02.05	20	18.5	30			5	2	0.1	2	RD. . 10T3 . .
	F 2231.T22.024.Z02.06	24	22	35			6	2	0.1	2	RD. . 1204 . .
	F 2231.T28.030.Z02.07	30	28	40			7.5	2	0.2	2	RD. . 1505 . .
	F 2231.T28.032.Z02.08	32	28	40			8	2	0.2	2	RD. . 1605 . .
	F 2231.T36.040.Z02.10	40	36	45			10	2	0.3	2	RD. . 2006 . .
Shank type DIN 228, version A	F 2231.M.016.Z02.04	16	MK 2	40	104		4	2	0.3	2	RD. . 0803 . .
	F 2231.M.020.Z02.05	20	MK 2	50	114		5	2	0.4	2	RD. . 10T3 . .
	F 2231.M.024.Z02.06	24	MK 2	50	114		6	2	0.4	2	RD. . 1204 . .
	F 2231.M.032.Z02.08	32	MK 3	65	146		8	2	0.7	2	RD. . 1605 . .
	F 2231.M.040.Z02.10	40	MK 4	80	182.5		10	2	1.1	2	RD. . 2006 . .
Shank type DIN 1835, version B	F 2231.W.016.Z02.04.L	16	16	51	100	35	4	2	0.2	2	RD. . 0803 . .
	F 2231.W.016.Z02.04.XL	16	16	81	130	31	4	2	0.3	2	
	F 2231.W.020.Z02.05.L	20	20	59	110	39	5	2	0.4	2	RD. . 10T3 . .
	F 2231.W.020.Z02.05.XL	20	20	99	150	40	5	2	0.4	2	
	F 2231.W.024.Z02.06.L	24	25	73	130	48	6	2	0.5	2	RD. . 1204 . .
	F 2231.W.024.Z02.06.XL	24	25	118	175	47	6	2	0.5	2	
	F 2231.W.030.Z02.07.L	30	32	99	160	62	7.5	2	0.7	2	RD. . 1505 . .
	F 2231.W.030.Z02.07.XL	30	32	159	220	62	7.5	2	1.1	2	
	F 2231.W.032.Z02.08.L	32	32	99	160	63	8	2	0.8	2	RD. . 1605 . .
	F 2231.W.032.Z02.08.XL	32	32	159	220	59	8	2	1.2	2	
	F 2231.W.040.Z02.10.L	40	40	119	190	79	10	2	1.4	2	RD. . 2006 . .
	F 2231.W.040.Z02.10.XL	40	40	199	270	83	10	2	1.4	2	

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

Note:
When installing the BH grades, the clamps (FS 1022, FS 1035) and the corresponding clamping screws (FS 359, FS 1030, FS 1031) must be removed.

Assembly parts		D_a = 10 mm	D_a = 16 mm	D_a = 20 mm	D_a = 24 mm	D_a = 30+32 mm	D_a = 40 mm
	Clamping screw for insert	FS 1358 (Torx 6)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1030 (Torx 20)	FS 1010 (Torx 20)
	Tightening torque	0.4 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
	Clamp				FS 1035	FS 1022	FS 1022
	Clamping screw for clamp				FS 359 (Torx 15)	FS 1030 (Torx 20)	FS 1031 (Torx 20)
	Tightening torque				2.5 Nm	5.0 Nm	5.0 Nm

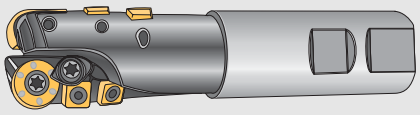
Accessories		D_a = 10 mm	D_a = 16 mm	D_a = 20 mm	D_a = 24 mm	D_a = 30+32 mm	D_a = 40 mm
	Screwdriver	FS 1063 (Torx 6)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

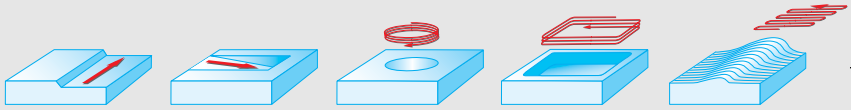
Indexable inserts



Designation	Radius mm		P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K BH WCB 80	N HC WXN 15	N HW WK 10	H HC WXH 15	H BH WCB 50	HF WMG 40
RDHX 0501M0 – A 57	2.5		●						●	●						●		
RDGX 0501M0 – G 85	2.5																	●
RDHW 0803M0 T – A 25	4												●				●	
RDHW 0803M0 T – A 27	4		●	●		●				●	●							
RDMW 0803M0 T – A 27	4		●	●		●				●	●							
RDHW 0803M0 – A 57	4		●						●	●						●		
RDMT 0803M0 – D 57	4		●	●				●		●	●							
RDGT 0803M0 – G 85	4																	●
RDGT 0803M0 – G 88	4													●	●			
RDHW 10T3M0 T – A 25	5												●				●	
RDHW 10T3M0 T – A 27	5		●	●		●				●	●							
RDMW 10T3M0 T – A 27	5		●	●		●				●	●							
RDHW 10T3M0 – A 57	5		●						●	●						●		
RDMT 10T3M0 – D 57	5		●	●				●		●	●							
RDGT 10T3M0 – G 85	5																	●
RDGT 10T3M0 – G 88	5													●	●			
RDHW 1204M0 T – A 25	6												●				●	
RDHW 1204M0 T – A 27	6		●	●		●				●	●							
RDMW 1204M0 T – A 27	6		●	●		●				●	●							
RDHW 1204M0 – A 57	6		●						●	●						●		
RDMT 1204M0 – D 57	6		●	●				●		●	●							
RDGT 1204M0 – G 85	6																	●
RDGT 1204M0 – G 88	6													●	●			
RDHW 1505M0 T – A 27	7.5			●		●					●							
RDHW 1505M0 – A 57	7.5		●						●	●						●		
RDMT 1505M0 – D 57	7.5			●				●			●							
RDGT 1505M0 – G 85	7.5																	●
RDGT 1505M0 – G 88	7.5													●	●			
RDHW 1605M0 T – A 27	8		●	●		●				●	●							
RDMW 1605M0 T – A 27	8		●	●		●				●	●							
RDHW 1605M0 – A 57	8		●						●	●						●		
RDMT 1605M0 – D 57	8		●	●				●		●	●							
RDGT 1605M0 – G 85	8																	●
RDGT 1605M0 – G 88	8													●	●			
RDHW 2006M0 T – A 27	10		●	●		●				●	●							
RDMW 2006M0 T – A 27	10		●	●		●				●	●							
RDHW 2006M0 – A 57	10		●						●	●						●		
RDMT 2006M0 – D 57	10		●	●				●		●	●							
RDGT 2006M0 – G 85	10																	●
RDGT 2006M0 – G 88	10													●	●			

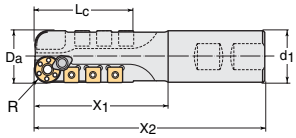
→ 420 | → 684 | | → 626





Tool

Designation	$D_{a-0.2}$ mm	R mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
Shank type DIN 1835, version B										
F 2231.W.024.Z01.34	24	6	25	63	120	34	2 / 1*	0.4	1 1 4	RD. . 1204 . . XD . . 1504 . . SP . . 0603 . .
F 2231.W.024.Z01.44	24	6	25	63	120	44	2 / 1*	0.4	1 1 6	RD. . 1204 . . XD . . 1504 . . SP . . 0603 . .
F 2231.W.032.Z01.47	32	8	32	84	145	47	2 / 1*	0.7	1 1 4	RD. . 1605 . . XD . . 200580 . . SP . . 09T3 . .
F 2231.W.040.Z01.78	40	10	40	104	175	78	2 / 1*	1.2	1 1 8	RD. . 2006 . . XD . . 2506 . . SP . . 09T3 . .



Bodies and assembly parts are included in the scope of delivery.
* When using the full cutting depth L_C (= engagement of the circumference cutting edges), the feed rate should be calculated where Z = 1.

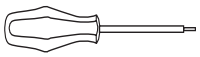
Assembly parts

	D_C = 24 mm		D_C = 32 mm		D_C = 40 mm		
	RD / XD . .	SP . .	SP . .	RD / XD . .	SP . .	XD . .	RD. .
 Clamping screw for insert	FS 359 + (Torx 15)	FS 923 (Torx 8)	FS 359 + (Torx 15)	FS 1030 (Torx 20)	FS 359 + (Torx 15)	FS 1031 + (Torx 20)	FS 1010 (Torx 20)
Tightening torque	2.5 Nm	0.8 Nm	2.5 Nm	5.0 Nm	2.5 Nm	5.0 Nm	5.0 Nm
 Clamp	FS 1035		FS 1022		FS 1022		
 Clamping screw for clamp	FS 359 (Torx 15)		FS 1030 (Torx 20)		FS 1030 (Torx 20)		
Tightening torque	2.5 Nm		5.0 Nm		5.0 Nm		

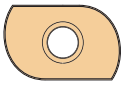
WALTER profile milling cutter F 2231

version B

Accessories

		D_C = 24 mm	D_C = 32 mm	D_C = 40 mm
	Screwdriver	FS 229 + FS 230 (Torx 15) (Torx 8)	FS 229 + FS 228 (Torx 15) (Torx 20)	FS 229 + FS 228 (Torx 15) (Torx 20)

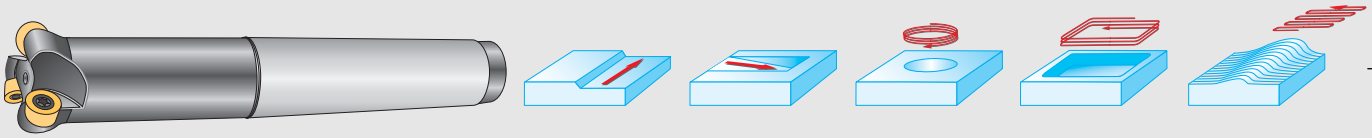
Indexable inserts

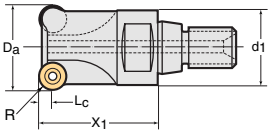
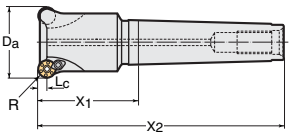
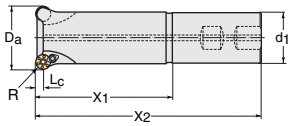
	Designation	Radius mm		P					M	K					N	H		
				HC				HW	HC	HC			HW	BH	HC	HC	BH	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WXH 15	WCB 50	WMG 40
	SPMW 060304 T – A 27	0.4		●	●			●			●	●						
	SPMW 060304 – A 57	0.4		●	●					●	●	●	●					
	SPMT 060304 – D 51	0.4		●	●	●	●				●	●						
	SPMT 060304 – F 55	0.4			●	●	●		●	●		●	●					
	SPMW 09T308 T – A 27	0.8		●	●						●	●						
	SPMW 09T308 – A 57	0.8		●	●			●		●	●	●	●					
	SPMT 09T308 – D 51	0.8		●	●	●	●				●	●						
	SPMT 09T308 – F 55	0.8			●	●	●		●	●		●	●					
	RDHW 1204M0 T – A 27	6		●	●		●				●	●						
	RDMW 1204M0 T – A 27	6		●	●		●				●	●						
	RDHW 1204M0 – A 57	6		●						●	●					●		
	RDHW 1505M0 T – A 27	7.5			●		●					●						
	RDHW 1505M0 – A 57	7.5		●						●	●					●		
	RDHW 1605M0 T – A 27	8		●	●		●				●	●						
	RDMW 1605M0 T – A 27	8		●	●		●				●	●						
	RDHW 1605M0 – A 57	8		●						●	●					●		
	RDHW 2006M0 T – A 27	10		●	●		●				●	●						
	RDMW 2006M0 T – A 27	10		●	●		●				●	●						
	RDHW 2006M0 – A 57	10		●						●	●					●		
	XDGW 150460 TR – A 27	6			●							●						
	XDGW 150460 R – A 57	6			●					●		●						
	XDGW 200575 R – A 57	7.5			●					●		●						
	XDGW 200580 TR – A 27	8			●							●						
	XDGW 200580 R – A 57	8			●					●		●						
	XDGW 2506100 TR – A 27	10			●							●						
	XDGW 2506100 R – A 57	10			●					●		●						





→ 410 → 684 → 626



Tool	Designation	$D_{a-0.2}$ mm	d_1 mm	X_1 mm	X_2 mm	R / L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2234.T09.012.Z03.02,5	12	9.7	20		2.5	3	0.06	3	RD. . 0501 . .
	F 2234.T14.015.Z04.02,5	15	14.5	25		2.5	4	0.1	4	
	F 2234.T14.015.Z03.03,5	15	14.5	25		3.5	3	0.1	3	RD. . 07T1 . .
	F 2234.T18.020.Z05.02,5	20	18.5	30		2.5	5	0.1	5	RD. . 0501 . .
	F 2234.T18.020.Z04.03,5	20	18.5	30		3.5	4	0.1	4	RD. . 07T1 . .
	F 2234.T22.025.Z05.03,5	25	22	35		3.5	5	0.1	5	
	F 2234.T22.025.Z03.04	25	22	35		4	3	0.1	3	RD. . 0803 . .
	F 2234.T22.025.Z03.05	25	22	35		5	3	0.1	3	RD. X 1003 . .
	F 2234.T28.030.Z06.03,5	30	28	40		3.5	6	0.2	6	RD. X 07T1 . .
	F 2234.T28.030.Z03.05	30	28	40		5	3	0.2	3	RD. . 10T3 . .
	F 2234.T28.030.Z04.05	30	28	40		5	4	0.2	4	RD. X 1003 . .
	F 2234.T28.032.Z03.05	32	28	40		5	3	0.2	3	RD. . 10T3 . .
	F 2234.T28.032.Z04.05	32	28	40		5	4	0.2	4	RD. X 1003 . .
	F 2234.T28.035.Z07.03,5	35	28	40		3.5	7	0.3	7	RD. . 07T1 . .
	F 2234.T28.035.Z05.05	35	28	40		5	5	0.3	5	RD. X 1003 . .
	F 2234.T28.035.Z03.06	35	28	40		6	3	0.3	3	RD. X 12T3 . .
	F 2234.T28.035.Z04.06	35	28	40		6	4	0.3	4	
	F 2234.T36.042.Z08.03,5	42	36	40		3.5	8	0.35	8	RD. . 07T1 . .
	F 2234.T36.042.Z04.06	42	36	40		6	4	0.35	4	RD. X 12T3 . .
	F 2234.T36.042.Z05.06	42	36	40		6	5	0.35	5	
Shank type DIN 228, version A	F 2234.M.025.Z03.04	25	MK 2	55	119	4	3	0.3	3	RD. . 0803 . .
	F 2234.M.032.Z03.05	32	MK 3	55	136	5	3	0.5	3	RD. . 10T3 . .
	F 2234.M.040.Z04.06	40	MK 4	65	167.5	6	4	0.6	4	RD. . 1204 . .
	F 2234.M.050.Z04.06	50	MK 4	70	172.5	6	4	0.7	4	
	F 2234.M.050.Z03.08.L	50	MK 4	55	157.5	8	3	0.8	3	RD. . 1605 . .
	F 2234.M.050.Z03.08.XL	50	MK 4	100	202.5	8	3	1.0	3	
Shank type DIN 1835, version B	F 2234.W.025.Z03.04	25	25	93	150	4	3	0.6	3	RD. . 0803 . .
	F 2234.W.032.Z03.05	32	32	114	175	5	3	0.9	3	RD. . 10T3 . .
	F 2234.W.040.Z04.06	40	40	149	220	6	4	1.2	4	RD. . 1204 . .
	F 2234.W.050.Z04.06	50	40	109	180	6	4	1.3	4	
	F 2234.W.050.Z03.08	50	40	109	180	8	3	1.3	3	RD. . 1605 . .

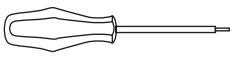
Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

Note:
When installing the BH grades, the clamps (FS 1022, FS 1035) and the corresponding clamping screws (FS 359, FS 1030) must be removed.

Assembly parts		RD. . 0501	RD. . 07T1	RD. . 0803	RD. . 10 . . RD. . 12T3	RD. . 1204	RD. . 1605
	Clamping screw for insert	FS 1358 (Torx 6)	FS 924 (Torx 8)	FS 1005 (Torx 8)	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.4 Nm	0.8 Nm	1.0 Nm	2.5 Nm	2.5 Nm	5.0 Nm
	Clamp					FS 1035	FS 1022
	Clamping screw for clamp					FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque					2.5 Nm	5.0 Nm

WALTER milling cutter with round inserts

Accessories

		RD. . 0501	RD. . 07T1	RD. . 0803	RD. . 10 . . RD. . 12T3	RD. . 1204	RD. . 1605
	Screwdriver	FS 1063 (Torx 6)	FS 230 (Torx 8)	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)

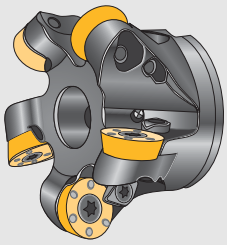
Indexable inserts

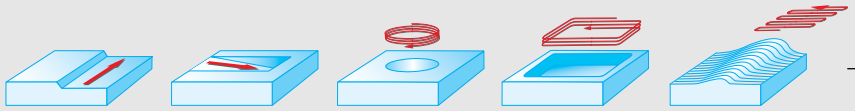


Designation	Radius mm		P				M	K					N		H		
			HC				HC	HC			HW	BH	HC	HW	HC	BH	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WK 10	WXH 15	WCB 50	WMG 40
RDHX 0501M0 – A 57	2.5		●					●	●						●		
RDGX 0501M0 – G 85	2.5																●
RDHX 07T1M0 T – A 27	3.5		●	●		●			●	●							
RDHX 07T1M0 – A 57	3.5		●					●	●						●		
RDGX 07T1M0 – G 85	3.5																●
RDHW 0803M0 T – A 25	4											●				●	
RDHW 0803M0 T – A 27	4		●	●		●			●	●							
RDMW 0803M0 T – A 27	4		●	●		●			●	●							
RDHW 0803M0 – A 57	4		●					●	●						●		
RDMT 0803M0 – D 57	4		●	●			●		●	●							
RDGT 0803M0 – G 85	4																●
RDGT 0803M0 – G 88	4												●	●			
RDHW 10T3M0 T – A 25	5											●				●	
RDHW 10T3M0 T – A 27	5		●	●		●			●	●							
RDMW 10T3M0 T – A 27	5		●	●		●			●	●							
RDHW 10T3M0 – A 57	5		●					●	●						●		
RDMT 10T3M0 – D 57	5		●	●			●		●	●							
RDGT 10T3M0 – G 85	5																●
RDGT 10T3M0 – G 88	5												●	●			
RDHX 1003M0 T – A 27	5		●	●		●			●	●							
RDMX 1003M0 T – A 27	5		●	●		●			●	●							
RDHX 1003M0 – A 57	5		●					●	●						●		
RDGX 1003M0 – G 85	5																●
RDHW 1204M0 T – A 25	6											●				●	
RDHW 1204M0 T – A 27	6		●	●		●			●	●							
RDMW 1204M0 T – A 27	6		●	●		●			●	●							
RDHW 1204M0 – A 57	6		●					●	●						●		
RDMT 1204M0 – D 57	6		●	●			●		●	●							
RDGT 1204M0 – G 85	6																●
RDGT 1204M0 – G 88	6												●	●			
RDHX 12T3M0 T – A 27	6		●	●		●			●	●							
RDMX 12T3M0 T – A 27	6		●	●		●			●	●							
RDHX 12T3M0 – A 57	6		●					●	●						●		
RDGX 12T3M0 – G 85	6																●
RDHW 1605M0 T – A 27	8		●	●		●			●	●							
RDMW 1605M0 T – A 27	8		●	●		●			●	●							
RDHW 1605M0 – A 57	8		●					●	●						●		
RDMT 1605M0 – D 57	8		●	●			●		●	●							
RDGT 1605M0 – G 85	8																●
RDGT 1605M0 – G 88	8												●	●			

→ 420 | → 684 | | → 626

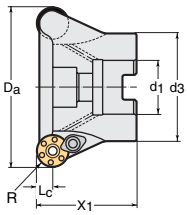
Tiger·tec®

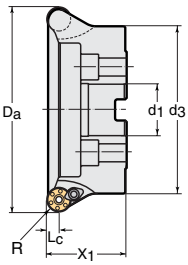




Tool

cyl. bore
cross drive DIN 138





Designation	$D_{a-0.2}$ mm	d_1/ISO mm	d_3 mm	X_1 mm	R / L_C mm	Z	kg	No. of inserts	Type
F 2234.B.040.Z04.06	40	16	31	45	6	4	0.3	4	RD. . 1204 . .
F 2234.B.050.Z04.08	50	16	33	50	8	4	0.3	4	RD. . 1605 . .
F 2234.B.050.Z05.06	50	22	41	50	6	5	0.4	5	RD. . 1204 . .
F 2234.B.052.Z04.08	52	22	42	50	8	4	0.5	4	RD. . 1605 . .
F 2234.B.052.Z06.05	52	22	42	50	5	6	0.5	6	RD. . 10T3 . .
F 2234.B.063.Z04.10	63	22	45	50	10	4	0.6	4	RD. . 2006 . .
F 2234.B.063.Z05.08	63	22	45	50	8	5	0.6	5	RD. . 1605 . .
F 2234.B.063.Z06.06	63	22	45	50	6	6	0.6	6	RD. . 1204 . .
F 2234.B.066.Z05.08	66	27	50	50	8	5	0.7	5	RD. . 1605 . .
F 2234.B.080.Z05.10	80	27	54	50	10	5	1.3	5	RD. . 2006 . .
F 2234.B.080.Z07.06	80	27	54	50	6	7	1.3	7	RD. . 1204 . .
F 2234.B.100.Z06.10	100	32	80	50	10	6	2.0	6	RD. . 2006 . .
F 2234.B.100.Z07.08	100	32	80	50	8	7	2.0	7	RD. . 1605 . .
F 2234.B.100.Z08.06	100	32	80	50	6	8	2.1	8	RD. . 1204 . .
F 2234.B.125.Z07.10	125	40	85	63	10	7	3.8	7	RD. . 2006 . .
F 2234.B.125.Z08.08	125	40	85	63	8	8	3.8	8	RD. . 1605 . .
F 2234.B.160.Z08.10	160	40/40 B	130	63	10	8	6.2	8	RD. . 2006 . .

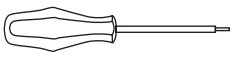
Bodies and assembly parts are included in the scope of delivery.

Note:
When installing the BH grades, the clamps (FS 1022, FS 1035) and the corresponding clamping screws (FS 359, FS 1030) must be removed.

Assembly parts

	RD. . 10T3	RD. . 1204	RD. . 1605	RD. . 2006
Clamping screw for insert	FS 920 (Torx 15)	FS 359 (Torx 15)	FS 1030 (Torx 20)	FS 1010 (Torx 20)
Tightening torque	2.5 Nm	2.5 Nm	5.0 Nm	5.0 Nm
Clamp		FS 1035	FS 1022	FS 1022
Clamping screw for clamp		FS 359 (Torx 15)	FS 1030 (Torx 20)	FS 1030 (Torx 20)
Tightening torque		2.5 Nm	5.0 Nm	5.0 Nm

WALTER milling cutter with round inserts

Accessories		RD. . 10T3 RD . . 1204	RD. . 1605	RD. . 2006
	Screwdriver	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)

Clamping screw for adaptor*		d_1 = 16 mm	d_1 = 22 mm
	Clamping screw ISO 4762 (12.9)	M 8 x 30 (SW 6)	M 10 x 30 (SW 8)

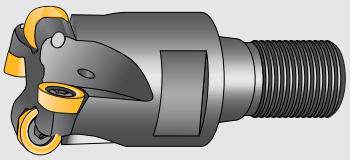
* for arbor mounted tools F 2234.B and adaptors types A 150 . . , A 155 . . and AK 155 . .

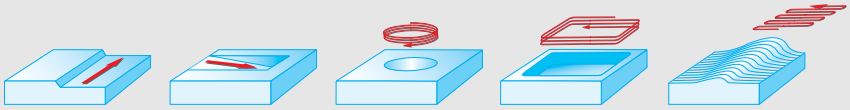
Indexable inserts

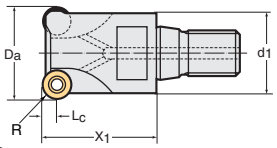
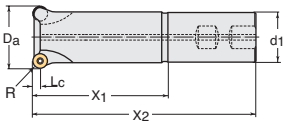
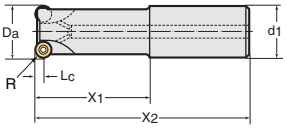


Designation	Radius mm		P				M	K					N		H		
			HC				HC	HC			HW	BH	HC	HW	HC	BH	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WK 10	WXH 15	WCB 50	WMG 40
RDHW 10T3M0 T – A 25	5											●				●	
RDHW 10T3M0 T – A 27	5		◐	◐		◒			◐	◒							
RDMW 10T3M0 T – A 27	5		◐	◐		◒			◐	◒							
RDHW 10T3M0 – A 57	5		●					●	◐						●		
RDMT 10T3M0 T – D 57	5		●	●			◐		◐	◒							
RDGT 10T3M0 – G 85	5																◐
RDGT 10T3M0 – G 88	5												●	●			
RDHW 1204M0 T – A 25	6											●				●	
RDHW 1204M0 T – A 27	6		◐	◐		◒			◐	◒							
RDMW 1204M0 T – A 27	6		◐	◐		◒			◐	◒							
RDHW 1204M0 – A 57	6		●					●	◐						●		
RDMT 1204M0 – D 57	6		●	●			◐		◐	◒							
RDGT 1204M0 – G 85	6																◐
RDGT 1204M0 – G 88	6												●	●			
RDHW 1605M0 T – A 27	8		◐	◐		◒			◐	◒							
RDMW 1605M0 T – A 27	8		◐	◐		◒			◐	◒							
RDHW 1605M0 – A 57	8		●					●	◐						●		
RDMT 1605M0 – D 57	8		●	●			◐		◐	◒							
RDGT 1605M0 – G 85	8																◐
RDGT 1605M0 – G 88	8												●	●			
RDHW 2006M0 T – A 27	10		◐	◐		◒			◐	◒							
RDMW 2006M0 T – A 27	10		◐	◐		◒			◐	◒							
RDHW 2006M0 – A 57	10		●					●	◐						●		
RDMT 2006M0 – D 57	10		●	●			◐		◐	◒							
RDGT 2006M0 – G 85	10																◐
RDGT 2006M0 – G 88	10												●	●			

→ 420 | → 684 | → 626





Tool	Designation	$D_{a-0.05}$ mm	d_1 mm	X_1 mm	X_2 mm	R / L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2334.T22.025.Z03.04	25	22	35		4	3	0.1	3	RO . X 0803 . .
	F 2334.T22.025.Z03.05	25	22	35		5	3	0.1	3	RO . X 10T3 . .
	F 2334.T28.032.Z03.05	32	28	40		5	3	0.2	3	
	F 2334.T28.032.Z05.04	32	28	40		4	5	0.2	5	RO . X 0803 . .
	F 2334.T28.032.Z04.05	32	28	40		5	4	0.2	4	RO . X 10T3 . .
	F 2334.T36.040.Z04.06	40	36	40		6	4	0.4	4	RO . X 1204 . .
	F 2334.T45.050.Z05.06	50	45	40		6	5	0.5	5	
Shank type DIN 1835, version B	F 2334.W25.025.Z03.04	25	25	35	92	4	3	0.3	3	RO . X 0803 . .
	F 2334.W32.032.Z03.05	32	32	40	101	5	3	0.5	3	RO . X 10T3 . .
	F 2334.W40.040.Z04.06	40	40	40	111	6	4	0.7	4	RO . X 1204 . .
Parallel shank without flat	F 2334.Z25.025.Z03.04	25	25	60	117	4	3	0.4	3	RO . X 0803 . .
	F 2334.Z32.032.Z05.04	32	32	70	131	4	5	0.6	5	RO . X 0803 . .
	F 2334.Z32.032.Z04.05	32	32	70	131	5	4	0.6	4	RO . X 10T3 . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

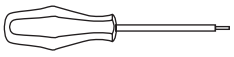
WALTER milling cutter with round inserts

F 2334

Assembly parts

		RO . X 0803	RO . X 10T3	RO . X 1204
	Clamping screw for insert	FS 1013 (Torx 8)	FS 359 (Torx 15)	FS 378 (Torx 15)
	Tightening torque	1.0 Nm	2.5 Nm	3.0 Nm

Accessories

		RO . X 0803	RO . X 10T3	RO . X 1204
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 229 (Torx 15)

Indexable inserts

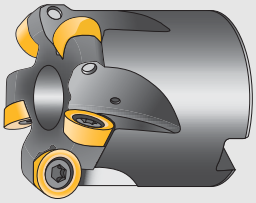


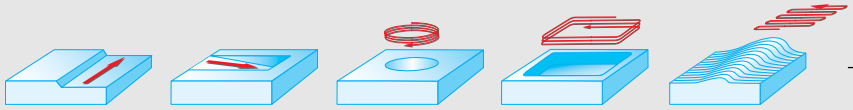
Designation	Radius mm		P				M			K			N		S		H	
			HC				HC			HC			HC	HW	HC		HC	HF
			WKP 25	WKP 35	WSP 45	WXP 45	WSM 35	WSP 45	WXM 35	WAK 15	WKP 25	WKP 35	WXN 15	WK 10	WSM 35	WSP 45	WXH 15	WMG 40
ROHX 0803M0T – A 27	4		++	+							++	+						
ROHX 0803M0 – D 57	4		++	++	+	+	++	+	++		++	+			++	+		
ROMX 0803M0 – D 57	4			++	+	+	++	+	++			+			++	+		
ROHX 10T3M0T – A 27	5		++	+							++	+						
ROHX 10T3M0 – D 57	5		++	++	+	+	++	+	++		++	+			++	+		
ROMX 10T3M0 – D 57	5			++	+	+	++	+	++			+			++	+		
ROHX 1204M0T – A 27	6		++	+							++	+						
ROHX 1204M0 – D 57	6		++	++	+	+	++	+	++		++	+			++	+		
ROMX 1204M0 – D 57	6			++	+	+	++	+	++			+			++	+		





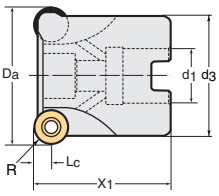
→ 419 → 684 → 626



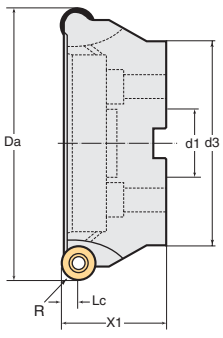


Tool

cyl. bore
cross drive DIN 138



Designation	$D_{a-0.05}$ mm	d_1/ISO mm	d_3 mm	X_1 mm	R / L_C mm	Z	kg	No. of inserts	Type
F 2334.B.040.Z05.05	40	16	35	40	5	5	0.2	5	RO . X 10T3 . .
F 2334.B.040.Z04.06	40	16	35	40	6	4	0.2	4	RO . X 1204 . .
F 2334.B.050.Z05.06	50	22	45	40	6	5	0.3	5	
F 2334.B22.050.Z06.05	50	22	41	40	5	6	0.3	6	RO . X 10T3 . .
F 2334.B22.052.Z05.05	52	22	41	40	5	5	0.3	5	
F 2334.B22.052.Z06.05	52	22	41	40	5	6	0.3	6	
F 2334.B22.052.Z05.06	52	22	41	40	6	5	0.3	5	RO . X 1204 . .
F 2334.B22.052.Z04.08	52	22	41	40	8	4	0.3	4	RO . X 1605 . .
F 2334.B.063.Z07.06	63	22	58	40	6	7	0.6	7	RO . X 1204 . .
F 2334.B27.063.Z07.05	63	27	54	50	5	7	0.6	7	RO . X 10T3 . .
F 2334.B27.063.Z05.08	63	27	54	50	8	5	0.6	5	RO . X 1605 . .
F 2334.B27.063.Z05.10	63	27	54	50	10	5	0.6	5	RO . X 2006 . .
F 2334.B27.066.Z06.05	66	27	54	50	5	6	0.7	6	RO . X 10T3 . .
F 2334.B27.066.Z07.05	66	27	54	50	5	7	0.6	7	
F 2334.B27.066.Z06.06	66	27	54	50	6	6	0.7	6	RO . X 1204 . .
F 2334.B27.066.Z07.06	66	27	54	50	6	7	0.6	7	
F 2334.B27.066.Z04.08	66	27	54	50	8	4	0.6	4	RO . X 1605 . .
F 2334.B27.066.Z05.08	66	27	54	50	8	5	0.6	5	
F 2334.B27.066.Z04.10	66	27	54	50	10	4	0.6	4	RO . X 2006 . .
F 2334.B27.066.Z05.10	66	27	54	50	10	5	0.6	5	
F 2334.B27.080.Z07.06	80	27	60	50	6	7	1.0	7	RO . X 1204 . .
F 2334.B27.080.Z09.06	80	27	60	50	6	9	1.0	9	
F 2334.B27.080.Z05.08	80	27	60	50	8	5	0.9	5	RO . X 1605 . .
F 2334.B27.080.Z06.08	80	27	60	50	8	6	0.9	6	
F 2334.B27.080.Z05.10	80	27	60	50	10	5	0.9	5	RO . X 2006 . .
F 2334.B27.080.Z06.10	80	27	60	50	10	6	0.9	6	
F 2334.B27.096.Z06.08	96	27	60	50	8	6	1.3	6	RO . X 1605 . .
F 2334.B32.100.Z06.08	100	32	78	50	8	6	1.6	6	
F 2334.B32.100.Z07.10	100	32	78	50	10	7	1.4	7	RO . X 2006 . .
F 2334.B32.116.Z07.08	116	32	78	50	8	7	2.1	7	RO . X 1605 . .
F 2334.B40.125.Z07.08	125	40	95	63	8	7	3.4	7	
F 2334.B40.125.Z08.10	125	40	95	63	10	8	3.4	8	RO . X 2006 . .
F 2334.B40.141.Z08.08	141	40	95	63	8	8	4.3	8	RO . X 1605 . .
F 2334.B40.160.Z10.10	160	40/40 B	100	63	10	10	4.1	10	RO . X 2006 . .



Bodies and assembly parts are included in the scope of delivery.

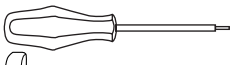
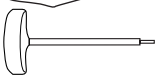
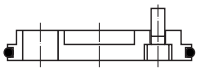
WALTER milling cutter with round inserts

F 2334

Assembly parts

		RO . X 10T3	RO . X 1204	RO . X 1605	RO . X 2006
	Clamping screw for insert	FS 359 (Torx 15)	FS 378 (Torx 15)	FS 1030 (Torx 20)	FS 1036 (Torx 20)
	Tightening torque	2.5 Nm	3.0 Nm	5.0 Nm	5.0 Nm

Accessories

		RO . X 10T3	RO . X 1204	RO . X 1605	RO . X 2006
	Screwdriver	FS 229 (Torx 15)	FS 229 (Torx 15)	FS 228 (Torx 20)	FS 228 (Torx 20)
	Handle key			FS 1173 (Torx 20)	FS 1173 (Torx 20)
	Sealing disc set (incl. gasket and screws)	FS 936 (only for D_C = 160 mm)			
	Gasket	O–R 96 x 4			

Indexable inserts

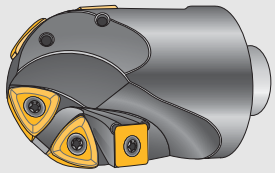


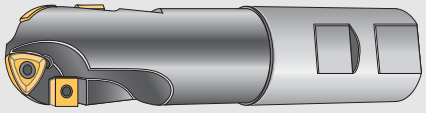
Designation	Radius mm		P HC WKP 25	P HC WKP 35	P HC WSP 45	P HC WXP 45	M HC WSM 35	M HC WSP 45	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	N HC WXN 15	N HW WK 10	S HC WSM 35	S HC WSP 45	H HC WXH 15	HF WMG 40
ROHX 10T3M0T – A 27	5		☺	☹							☺	☹						
ROHX 10T3M0 – D 57	5		☺	☺	☹	☹	☺	☹	☺		☺	☹			☺	☹		
ROMX 10T3M0 – D 57	5			☺	☹	☹	☺	☹	☺			☹			☺	☹		
ROHX 1204M0T – A 27	6		☺	☹							☺	☹						
ROHX 1204M0 – D 57	6		☺	☺	☹	☹	☺	☹	☺		☺	☹			☺	☹		
ROMX 1204M0 – D 57	6			☺	☹	☹	☺	☹	☺			☹			☺	☹		
ROHX 1605M0T – A 27	8		☺	☹							☺	☹						
ROMX 1605M0 – D 57	8			☺	☹	☹	☺	☹	☺			☹			☺	☹		
ROHX 2006M0T – A 27	10		☺	☹							☺	☹						
ROMX 2006M0 – D 57	10			☺	☹	☹	☺	☹	☺			☹			☺	☹		

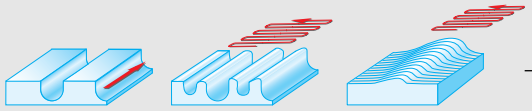


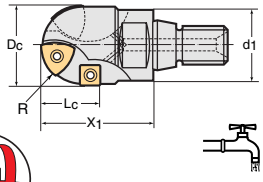
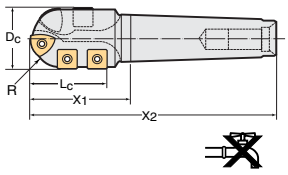
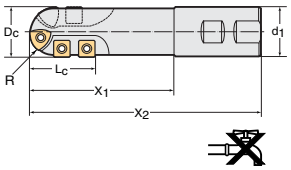
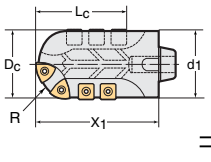
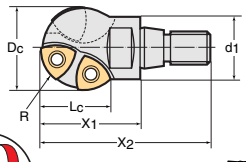
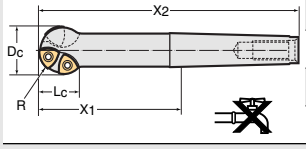


→ 419 | → 684 | → 626







Tool	Designation	$D_{C-0.2}$ mm	R	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2239.T18.020.Z01.15*	20	10	18.5	30		15	1	0.1	2 1	P 2631 . – R 10 SP . . 0603 . .
	F 2239.T22.025.Z01.18	25	12.5	22	35		18	1	0.1	2 1	P 2631 . – R 12 SP . . 0603 . .
	F 2239.T28.030.Z01.23	30	15	28	40		23	1	0.2	2 1	P 2631 . – R 15 SP . . 09T3 . .
	F 2239.T28.032.Z01.24	32	16	28	40		24	1	0.2	2 1	P 2631 . – R 16 SP . . 09T3 . .
	F 2239.T36.040.Z01.41	40	20	36	65		41	1	0.5	2 2	P 2631 . – R 20 SP . . 1204 . .
	F 2239.T45.050.Z01.46	50	25	45	70		46	1	0.8	3 2	P 2631 . – R 25 SP . . 1204 . .
Shank type DIN 228, version A	F 2239.M.020.Z01.25*	20	10	MK 2	65	129	25	1	0.3	2 3	P 2631 . – R 10 SP . . 0603 . .
	F 2239.M.025.Z01.28	25	12.5	MK 2	45	109	28	1	0.4	2 3	P 2631 . – R 12 SP . . 0603 . .
	F 2239.M.032.Z01.38	32	16	MK 3	60	141	38	1	0.8	2 3	P 2631 . – R 16 SP . . 09T3 . .
	F 2239.M.040.Z01.51	40	20	MK 4	75	177.5	51	1	1.3	2 3	P 2631 . – R 20 SP . . 1204 . .
Shank type DIN 1835, version B	F 2239.W.020.Z01.25	20	10	20	59	110	25	1	0.3	2 3	P 2631 . – R 10 SP . . 0603 . .
	F 2239.W.025.Z01.28	25	12.5	25	73	130	28	1	0.5	2 3	P 2631 . – R 12 SP . . 0603 . .
	F 2239.W.032.Z01.38	32	16	32	99	160	38	1	0.9	2 3	P 2631 . – R 16 SP . . 09T3 . .
	F 2239.W.040.Z01.51	40	20	40	119	190	51	1	1.4	2 3	P 2631 . – R 20 SP . . 1204 . .
modular adaptor with internal coolant supply	F 2239.N5.050.Z01.46	50	25	48	70		46	1	0.8	3 2	P 2631 . – R 25 SP . . 1204 . .
	F 2239.N5.050.Z01.77	50	25	48	105		77	1	1.3	3 5	P 2631 . – R 25 SP . . 1204 . .
	F 2239.N6.063.Z01.53	63	31.5	61	80		53	1	1.2	3 2	P 2631 . – R 31 SP . . 1204 . .
	F 2239.N6.063.Z01.84	63	31.5	61	115		84	1	2.0	3 5	P 2631 . – R 31 SP . . 1204 . .
NCT ScrewFit	F 2239B.T14.020.Z01.10	20	10	14.5	25	43	15	1	0.1	3	P 2631 . – R 10
	F 2239B.T18.025.Z01.12	25	12.5	18.5	30	51	20	1	0.1	3	P 2631 . – R 12
	F 2239B.T22.030.Z01.15	30	15	22	40	63	24	1	0.1	3	P 2631 . – R 15
	F 2239B.T22.032.Z01.16	32	16	22	40	63	26	1	0.2	3	P 2631 . – R 16
	F 2239B.T28.040.Z01.20	40	20	28	45	74	32	1	0.4	3	P 2631 . – R 20
Shank type DIN 228, version A	F 2239B.M4.040.Z01.20	40	20	MK 4	100	202.5	32	1	0.9	3	P 2631 . – R 20
	F 2239B.M4.050.Z01.25	50	25	MK 4	80	182.5	39	1	0.8	4	P 2631 . – R 25

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

WALTER ball nose cutter

with peripheral cutting inserts, Z = 1

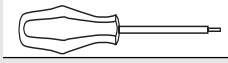
F 2239
F 2239B

Assembly parts

		D_C = 20+25 mm	D_C = 30+32 mm	D_C = 40–63 mm
	Clamping screw for insert	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
	Tightening torque	0.8 Nm	2.5 Nm	5.0 Nm

* Important: Use the clamping screw FS 1129 for F 2239.T18.20 . . and F 2239M.020 . .

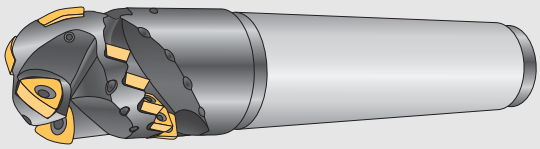
Accessories

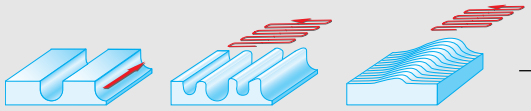
		D_C = 20–25 mm	D_C = 30+32 mm	D_C = 40–63 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)

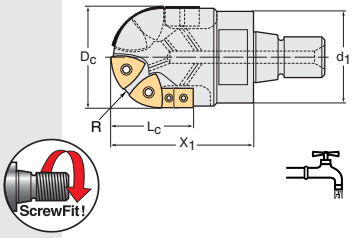
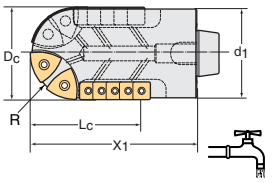
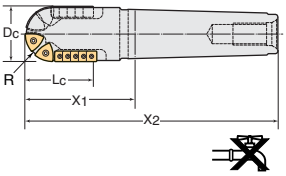
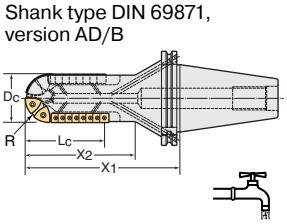
Indexable inserts

	Designation	Radius mm		P					M	K					N		H	
				HC				HW	HC	HC			HW	BH	HC	HW	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WK 10	WXH 15	WMG 40
	P 26315 – R 10	10.0		☺	☺	☹				☺	☺	☹						
	P 26315 – R 12	12.5		☺	☺	☹				☺	☺	☹						
	P 26315 – R 15	15.0		☺	☺	☹				☺	☺	☹						
	P 26315 – R 16	16.0		☺	☺	☹				☺	☺	☹						
	P 26315 – R 20	20.0		☺	☺	☹				☺	☺	☹						
	P 26315 – R 25	25.0		☺	☺	☹				☺	☺	☹						
	P 26315 – R 31	31.5		☺	☺	☹				☺	☺	☹						
	P 26316 – R 10 – G 88	10.0					☺								☺	☺		
	P 26316 – R 12 – G 88	12.5					☺								☺	☺		
	P 26316 – R 15 – G 88	15.0					☺								☺	☺		
	P 26316 – R 16 – G 88	16.0					☺								☺	☺		
	P 26316 – R 20 – G 88	20.0					☺								☺	☺		
	P 26316 – R 25 – G 88	25.0					☺								☺	☺		
	P 26316 – R 31 – G 88	31.5					☺								☺	☺		
	SPMW 060304 T – A 27	0.4		☺	☹			☺			☺	☹						
	SPMW 060304 – A 57	0.4		☺	☹					☺	☺	☹	☺					
	SPMT 060304 – D 51	0.4		☺	☹	☹	☹				☺	☹						
	SPMT 060304 – F 55	0.4			☺	☹	☹		☺	☺		☹	☺					
	SPMW 09T308 T – A 27	0.8		☺	☹						☺	☹						
	SPMW 09T308 – A 57	0.8		☺	☹			☺		☺	☺	☹	☺					
	SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹						
	SPMT 09T308 – F 55	0.8			☺	☹	☹		☺	☺		☹	☺					
	SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹						
	SPMW 120408 – A 57	0.8		☺	☹			☺		☺	☺	☹	☺					
	SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹						
	SPMT 120408 – F 55	0.8			☺	☹	☹		☺	☺		☹	☺					

→ 410 | → 684 | | → 626





Tool	Designation	$D_{C-0.2}$ mm	R mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit 	F 2239F.T45.050.Z02.42	50	25	45	70		42	2	0.2	4 4	P 26325 – R 25 SP . . 09T3 . .
modular adaptor 	F 2239F.N5.050.Z02.42	50	25	48	70		42	2	0.8	4 4	P 26325 – R 25 SP . . 09T3 . .
	F 2239F.N5.050.Z02.61	50	25	48	90		61	2	1.1	4 10	P 26325 – R 25 SP . . 09T3 . .
	F 2239F.N6.063.Z02.53	63	31.5	61	80		53	2	1.2	6 6	P 26325 – R 31 SP . . 09T3 . .
	F 2239F.N6.063.Z02.75	63	31.5	61	105		75	2	1.6	6 12	P 26325 – R 31 SP . . 09T3 . .
Shank type DIN 228, version A 	F 2239F.M5.050.Z02.61	50	25	MK 5	100	229	61	2	2.3	4 10	P 26325 – R 25 SP . . 09T3 . .
	F 2239F.M5.063.Z02.75	63	31.5	MK 5	110	239	75	2	3.2	6 12	P 26325 – R 31 SP . . 09T3 . .
Shank type DIN 69871, version AD/B 	F 2239F.S5.050.Z02.82	50	25	SK 50	160	113	82	2	4.7	4 16	P 26325 – R 25 SP . . 09T3 . .
	F 2239F.S5.063.Z02.103	63	31.5	SK 50	200	165	103	2	5.5	6 20	P 26325 – R 31 SP . . 09T3 . .

Bodies and assembly parts are included in the scope of delivery.
For assembly aids, see page 782.

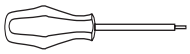
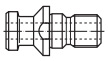
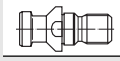
WALTER ball nose cutter — F 2239 F

with peripheral cutting inserts, Z = 2

Assembly parts

		P 26325	SP . . 09T3
	Clamping screw for insert	FS 1030 (Torx 20)	FS 359 (Torx 15)
	Tightening torque	5.0 Nm	2.5 Nm

Accessories

		P 26325	SP . . 09T3
	Screwdriver	FS 228 (Torx 20)	FS 229 (Torx 15)
	Pull stud DIN 69872, version AD	C 100.50.115	
	Pull stud DIN 69872, version B	C 100.50.215	

Indexable inserts

	Designation	Radius mm		P HC WKP 25	P HC WKP 35	P HC WTP 35	P HC WXP 45	P HW WPM	M HC WXM 35	K HC WAK 15	K HC WKP 25	K HC WKP 35	K HW WKM	K BH WCB 80	N HC WXN 15	N HW WK 10	H HC WXH 15	H HF WMG 40
	P 26325 – R 25	25.0		☺	☹		☹		☺	☺	☺	☹						
	P 26325 – R 31	31.5		☺	☹				☺	☺	☺	☹						
	SPMW 09T308 T – A 27	0.8		☺	☹			☺			☺	☹						
	SPMW 09T308 – A 57	0.8		☺	☹			☺		☺	☺	☹	☹					
	SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹						
	SPMT 09T308 – F 55	0.8			☺	☺	☹		☺	☺		☹	☺					





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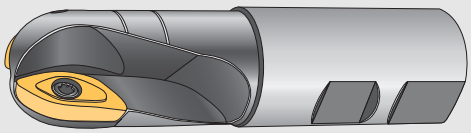
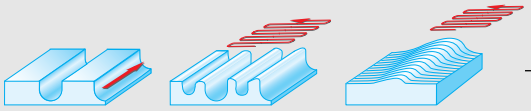
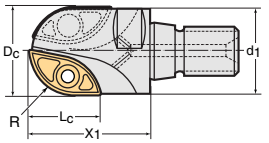
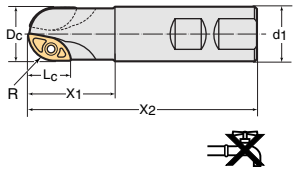




Tool	Designation	$D_{C-0.2}$ mm	R mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2339.T18.020.Z02.15	20	10	18.5	30		15	2	0.1	2	XD . . 16T3100 R . .
	F 2339.T22.025.Z02.20	25	12.5	22	35		20	2	0.1	2	XD . . 2004125 R . .
	F 2339.T28.030.Z02.24	30	15	28	40		24	2	0.2	2	XD . . 2405150 R . .
	F 2339.T28.032.Z02.25	32	16	28	40		25	2	0.2	2	XD . . 2506160 R . .
	F 2339.T36.040.Z02.31	40	20	36	50		31	2	0.4	2	XD . . 3207200 R . .
	F 2339.T45.050.Z02.40	50	25	45	60		40	2	0.7	2	XD . . 4009250 R . .
Shank type DIN 1835, version B	F 2339.W20.020.Z02.15	20	10	20	35	90	15	2	0.2	2	XD . . 16T3100 R . .
	F 2339.W25.025.Z02.20	25	12.5	25	40	105	20	2	0.3	2	XD . . 2004125 R . .
	F 2339.W32.030.Z02.24	30	15	32	50	125	24	2	0.6	2	XD . . 2405150 R . .
	F 2339.W32.032.Z02.25	32	16	32	50	125	25	2	0.6	2	XD . . 2506160 R . .
	F 2339.W40.040.Z02.31	40	20	40	65	150	31	2	1.2	2	XD . . 3207200 R . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

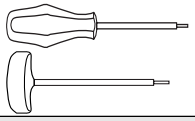
WALTER ball nose cutter F 2339

Z = 2, version A

Assembly parts

		D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm	D_C = 40 mm	D_C = 50 mm
	Clamping screw for insert	FS 1013 (Torx 8)	FS 378 (Torx 15)	FS 1165 (Torx 20)	FS 1164 (Torx 25)	FS 1152 (Torx 30)
	Tightening torque	1.0 Nm	2.5 Nm	6.0 Nm	10.0 Nm	10.0 Nm

Accessories

		D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm	D_C = 40 mm	D_C = 50 mm
	Screwdriver	FS 230 (Torx 8)	FS 229 (Torx 15)			
	Handle key			FS 1173 (Torx 20)	FS 1174 (Torx 25)	FS 1175 (Torx 30)

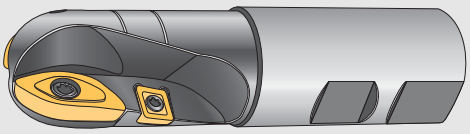
Indexable inserts

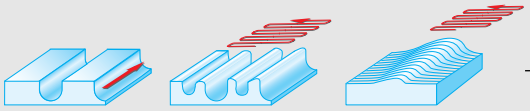
	Designation	Radius mm		P					M	K					N		H	
				HC				HW	HC	HC			HW	BH	HC	HW	HC	HF
				WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WK 10	WXH 15	WMG 40
	XDMT 16T3100 R – F 55	10		☺	😐		☹				😐	☹						
	XDMT 2004125 R – F 55	12.5		☺	😐		☹				😐	☹						
	XDMT 2405150 R – F 55	15		☺	😐		☹				😐	☹						
	XDMT 2506160 R – F 55	16		☺	😐		☹				😐	☹						
	XDMT 3207200 R – F 55	20		☺	😐		☹				😐	☹						
	XDMT 4009250 R – F 55	25		☺	😐		☹				😐	☹						

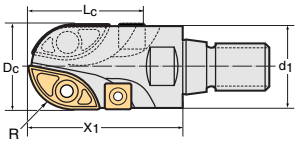
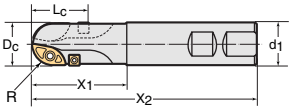
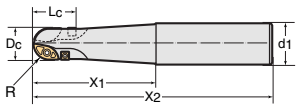




→ 430 | → 684 | → 626





Tool	Designation	$D_{C-0.2}$ mm	R mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	kg	No. of inserts	Type
NCT ScrewFit	F 2339.T18.020.Z02.28	20	10	18.5	40		28	2 / 1*	0.1	2 2	XD . . 16T3100 R . . SP . . 0603 . .
	F 2339.T22.025.Z02.32	25	12.5	22	45		32	2 / 1*	0.1	2 2	XD . . 2004125 R . . SP . . 0603 . .
	F 2339.T28.030.Z02.42	30	15	28	60		42	2 / 1*	0.2	2 2	XD . . 2405150 R . . SP . . 09T3 . .
	F 2339.T28.032.Z02.43	32	16	28	60		43	2 / 1*	0.2	2 2	XD . . 2506160 R . . SP . . 09T3 . .
											
Shank type DIN 1835, version B max. pos. free projection length: 3 x D_C	F 2339.W20.020.Z02.28	20	10	20	50	110	28	2 / 1*	0.2	2 2	XD . . 16T3100 R . . SP . . 0603 . .
	F 2339.W25.025.Z02.32	25	12.5	25	55	130	32	2 / 1*	0.5	2 2	XD . . 2004125 R . . SP . . 0603 . .
	F 2339.W32.030.Z02.42	30	15	32	70	160	42	2 / 1*	0.7	2 2	XD . . 2405150 R . . SP . . 09T3 . .
	F 2339.W32.032.Z02.43	32	16	32	70	160	43	2 / 1*	0.7	2 2	XD . . 2506160 R . . SP . . 09T3 . .
	F 2339.W40.040.Z02.57	40	20	40	90	190	57	2 / 1*	1.5	2 2	XD . . 3207200 R . . SP . . 1204 . .
Parallel shank without flat max. pos. free projection length: 5 x D_C	F 2339.Z25.020.Z02.28	20	10	25	75	150	28	2 / 1*	0.4	2 2	XD . . 16T3100 R . . SP . . 0603 . .
	F 2339.Z32.025.Z02.32	25	12.5	32	95	185	32	2 / 1*	0.8	2 2	XD . . 2004125 R . . SP . . 0603 . .
	F 2339.Z40.030.Z02.42	30	15	40	120	220	42	2 / 1*	1.2	2 2	XD . . 2405150 R . . SP . . 09T3 . .
	F 2339.Z40.032.Z02.43	32	16	40	120	220	43	2 / 1*	1.6	2 2	XD . . 2506160 R . . SP . . 09T3 . .

Bodies and assembly parts are included in the scope of delivery.
For open-ended wrenches for screw heads, see page 783.

* When using the full cutting depth L_C (= engagement of the circumference cutting edges), the feed rate should be calculated where Z = 1.

WALTER ball nose cutter F 2339

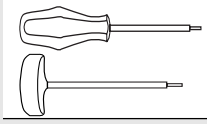
with peripheral cutting inserts, Z = 2
version B

Assembly parts



	D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm	D_C = 40 mm
Clamping screw for Radius insert	FS 1013 (Torx 8)	FS 378 (Torx 15)	FS 1165 (Torx 20)	FS 1164 (Torx 25)
Tightening torque	1.0 Nm	2.5 Nm	6.0 Nm	10.0 Nm
Clamping screw for square insert	FS 923 (Torx 8)	FS 923 (Torx 8)	FS 359 (Torx 15)	FS 1030 (Torx 20)
Tightening torque	0.8 Nm	0.8 Nm	2.5 Nm	5.0 Nm

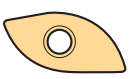
Accessories



	D_C = 20 mm	D_C = 25 mm	D_C = 30+32 mm	D_C = 40 mm
Screwdriver	FS 230 (Torx 8)	FS 229 + FS 230 (Torx 15) (Torx 8)	FS 229 (Torx 15)	FS 228 (Torx 20)
Handle key			FS 1173 (Torx 20)	FS 1174 (Torx 25)

Indexable inserts





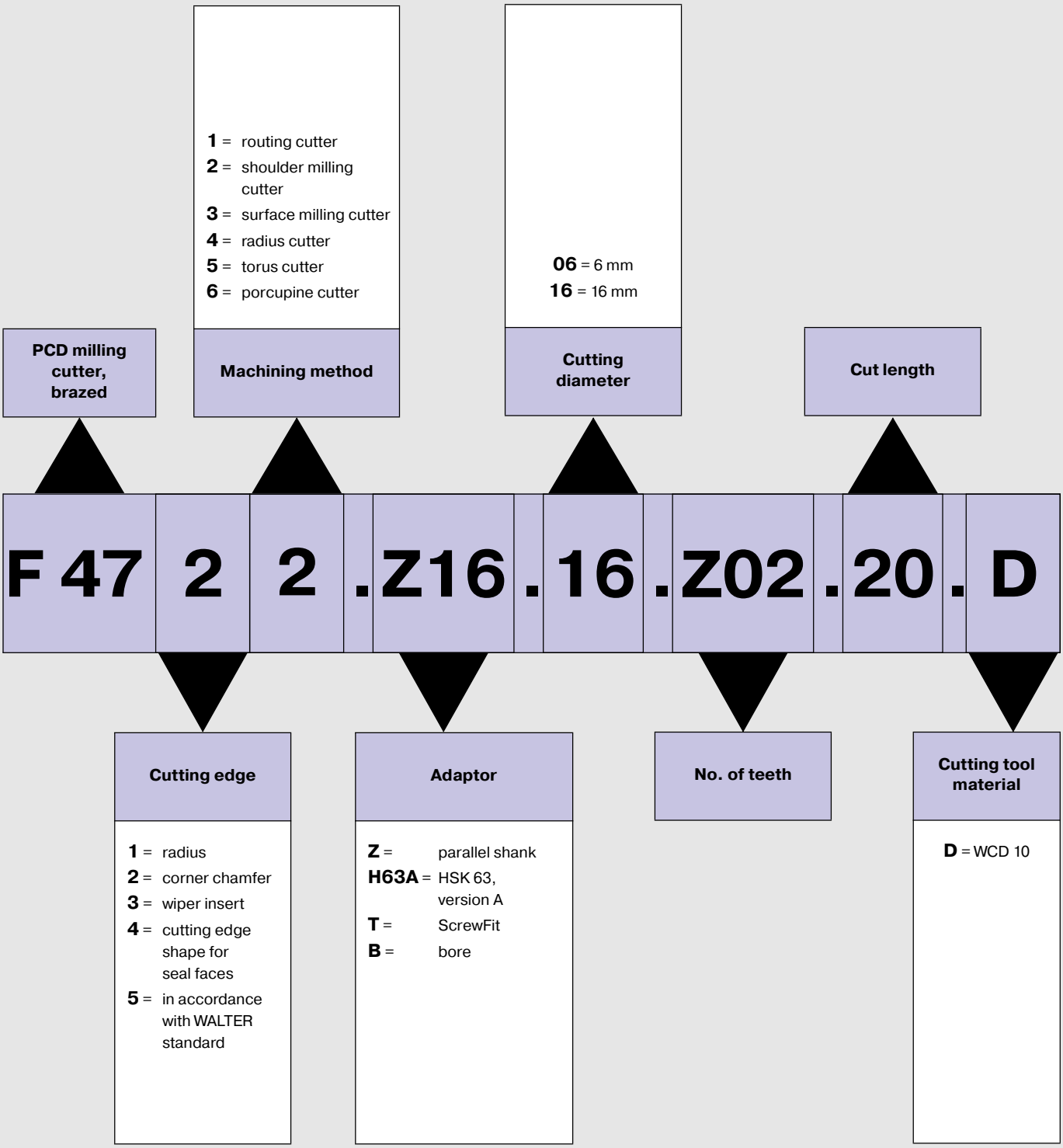
Designation	Radius mm		P					M	K					N		H	
			HC				HW	HC	HC				HW	BH	HC	HW	HC	HF
			WKP 25	WKP 35	WTP 35	WXP 45	WPM	WXM 35	WAK 15	WKP 25	WKP 35	WKM	WCB 80	WXN 15	WK 10	WXH 15	WMG 40
SPMW 060304 T – A 27	0.4		☺	☹			☺			☺	☹						
SPMW 060304 – A 57	0.4		☺	☹					☻	☺	☹	☺					
SPMT 060304 – D 51	0.4		☺	☹	☹	☹				☺	☹						
SPMT 060304 – F 55	0.4			☻	☺	☹		☺	☻		☹	☺					
SPMW 09T308 T – A 27	0.8		☺	☹						☺	☹						
SPMW 09T308 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺					
SPMT 09T308 – D 51	0.8		☺	☹	☹	☹				☺	☹						
SPMT 09T308 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺					
SPMW 120408 T – A 27	0.8		☺	☹			☺			☺	☹						
SPMW 120408 – A 57	0.8		☺	☹			☺		☻	☺	☹	☺					
SPMT 120408 – D 51	0.8		☺	☹	☹	☹				☺	☹						
SPMT 120408 – F 55	0.8			☻	☺	☹		☺	☻		☹	☺					
XDMT 16T3100 R – F 55	10		☻	☺		☹				☺	☹						
XDMT 2004125 R – F 55	12.5		☻	☺		☹				☺	☹						
XDMT 2405150 R – F 55	15		☻	☺		☹				☺	☹						
XDMT 2506160 R – F 55	16		☻	☺		☹				☺	☹						
XDMT 3207200 R – F 55	20		☻	☺		☹				☺	☹						
XDMT 4009250 R – F 55	25		☻	☺		☹				☺	☹						



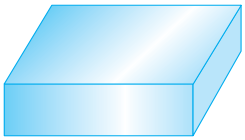
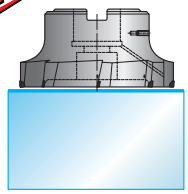
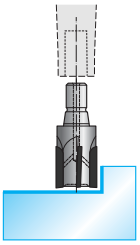
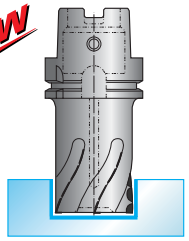
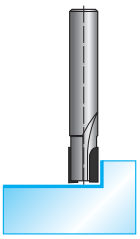
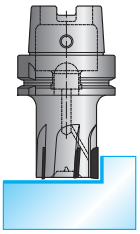


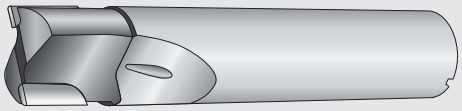
→ 410 → 684 → 626

Designation key for WALTER PCD milling cutters



WALTER PCD milling cutter product range

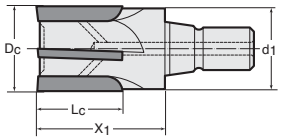
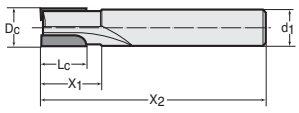
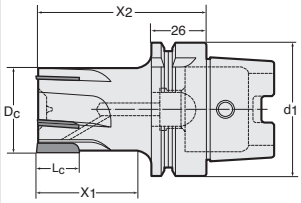
Surface Milling	Shoulder Milling	Slot Milling
Milling cutters with finishing inserts 		
NEW  κ = 90° **F 4723.B** Page 605	NEW  κ = 90° **F 4722.T** Page 604	NEW  κ = 90° **F 4726.HSK** Page 606
	NEW  κ = 90° **F 4722.Z** Page 604	
	NEW  κ = 90° **F 4722.HSK** Page 604	



WALTER PCD shoulder milling cutter

F 4722

κ = 90°

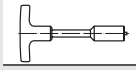
Tool	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	c mm	kg	WCD 10
  	F 4722.T18.020.Z04.20 . .	20	18.5	30		18	4	0.2	0.1	. D
	F 4722.T22.025.Z04.20 . .	25	22	35		20	4	0.2	0.2	. D
	F 4722.T28.032.Z04.20 . .	32	28	40		20	4	0.2	0.3	. D
	F 4722.T36.040.Z04.20 . .	40	36	40		20	4	0.2	0.5	. D
 	F 4722.Z06.06.Z02.08 . .	6	6	13	50	8	2		0.1	. D
	F 4722.Z08.08.Z02.10 . .	8	8	15	70	10	2		0.1	. D
	F 4722.Z10.10.Z02.12 . .	10	10	17	80	12	2		0.1	. D
	F 4722.Z12.12.Z02.16 . .	12	12	21	80	16	2		0.1	. D
	F 4722.Z16.16.Z02.20 . .	16	16	25	90	20	2		0.1	. D
	F 4722.Z20.20.Z02.20 . .	20	20	25	100	20	2		0.1	. D
 	F 4722.H63A.025.Z04.20 . .	25	HSK-A63	56	110	20	4	0.2	1.0	. D
	F 4722.H63A.032.Z04.20 . .	32	HSK-A63	62	110	20	4	0.2	1.2	. D
	F 4722.H63A.040.Z05.20 . .	40	HSK-A63	54	80	20	5	0.2	1.2	. D

Pre-balanced to G 6.3 where n = 16000 min $^{-1}$

Order example: F 4722.T18.020.Z04.20 . . with WCD 10 = **F 4722.T18.020.Z04.20.D**

For open-ended wrenches for screw heads, see page 783

Accessories

	Transfer unit for HSK	FS 1065
	Socket key for HSK	FS 953

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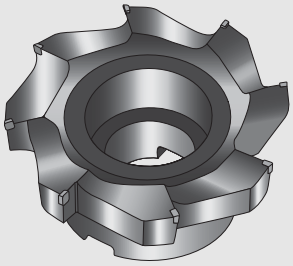
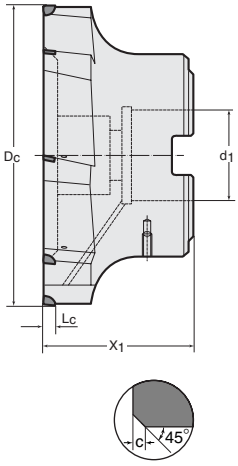


WALTER PCD surface milling cutter

F 4723

κ = 75° / 90°

Tool	Designation	D_C mm	d_1 mm	X_1 mm	L_C mm	Z	c mm	kg	WCD 10
κ = 75° to L_C = 1.1	F 4723.B22.050.Z05.05 . .	50	22	40	5	5	0.1	0.5	. D
	F 4723.B22.063.Z05.05 . .	63	22	40	5	5	0.1	0.6	. D
	F 4723.B27.080.Z06.05 . .	80	27	50	5	6	0.1	1.0	. D
	F 4723.B32.100.Z08.05 . .	100	32	50	5	8	0.1	1.4	. D
	F 4723.B40.125.Z08.05 . .	125	40	63	5	8	0.1	2.8	. D



Pre-balanced to G 6.3 where n = 16000 min $^{-1}$

Order example: F 4723.B22.050.Z05.05 . . with WCD 10 = **F 4723.B22.050.Z05.05.D**

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	Balancing screw DIN 913	M 4 x 6

Accessories

	Wrench DIN 911 for balancing screw	SW 2

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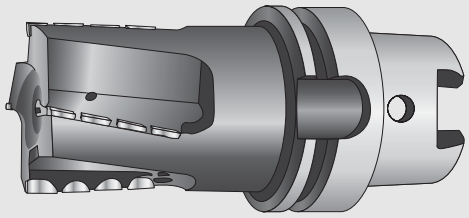
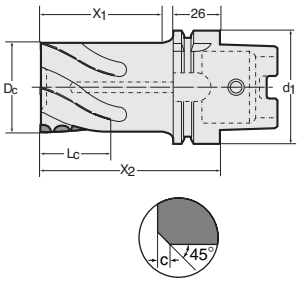


WALTER PCD
Porcupine cutter

F 4726

κ = 90°

Tool



Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	c mm	kg	WCD 10
F 4726.H63A.032.Z04.30 . .	32	HSK-A63	72	100	30	2+2	0.2	1.1	. D
F 4726.H63A.040.Z04.40 . .	40	HSK-A63	72	100	40	2+2	0.2	1.4	. D
F 4726.H63A.050.Z04.40 . .	50	HSK-A63	72	100	40	2+2	0.2	1.8	. D
F 4726.H63A.063.Z04.40 . .	63	HSK-A63	72	100	40	2+2	0.2	2.1	. D

Pre-balanced to G 6.3 where n = 16000 min $^{-1}$

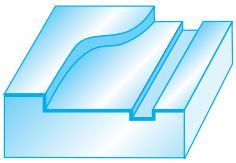
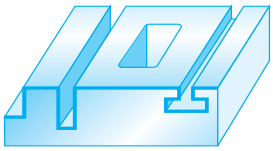
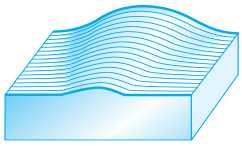
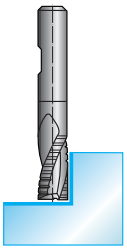
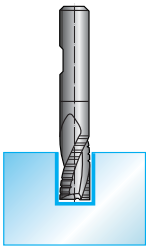
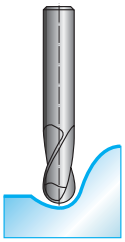
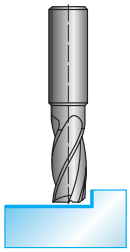
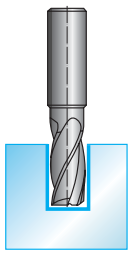
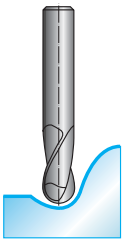
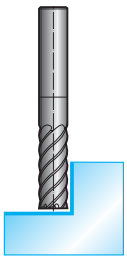
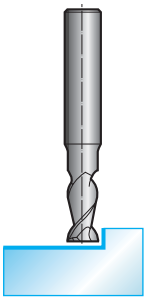
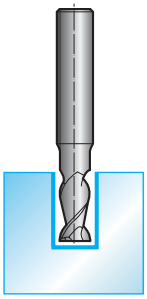
Order example: F 4726.H63A.032.Z04.30 . . with WCD 10 = **F 4726.H63A.032.Z04.30.D**

Accessories

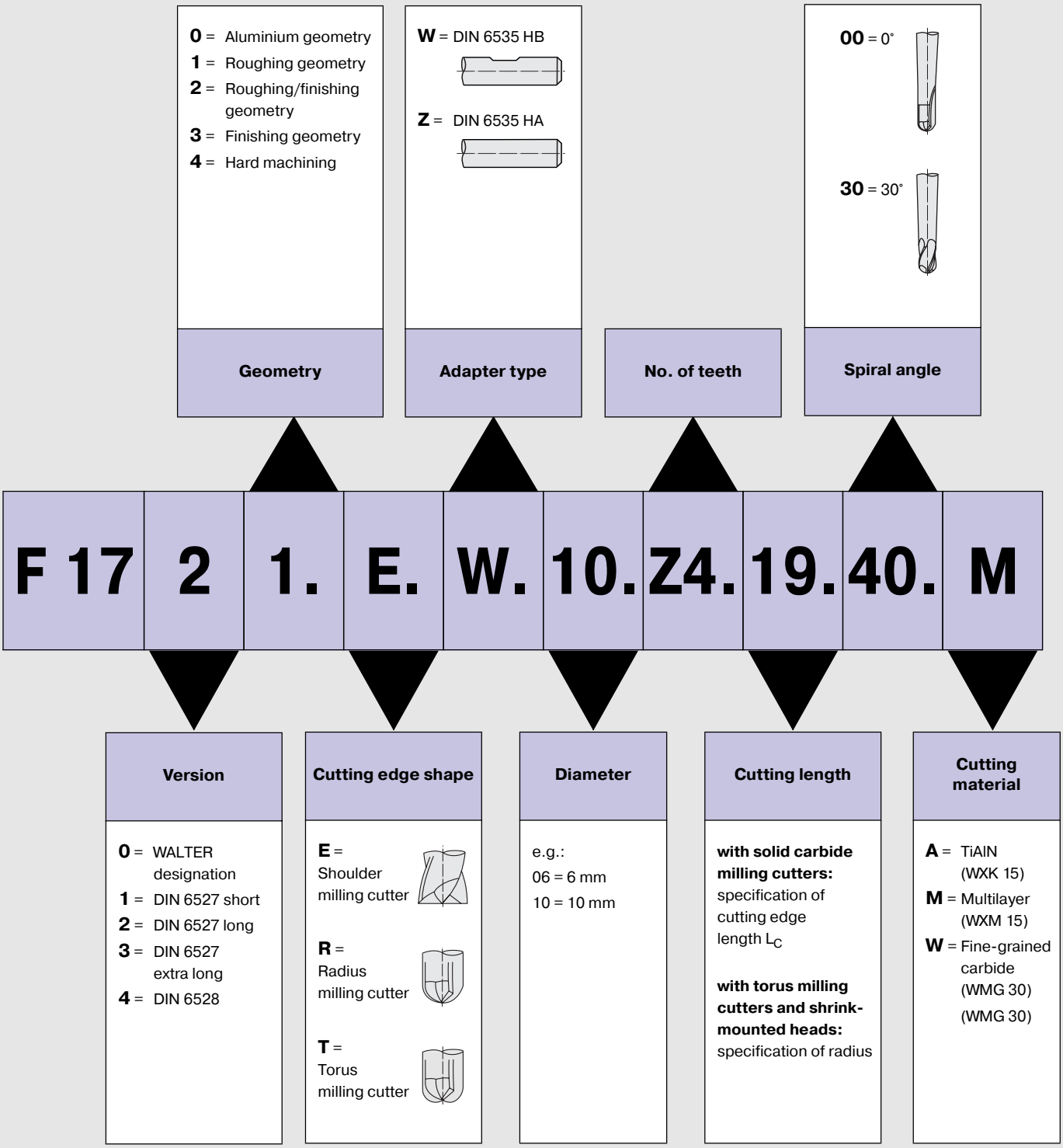
Transfer unit for HSK	FS 1065
Socket key for HSK	FS 953

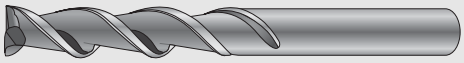
→ 636

Solid carbide cutters and brazed-type tools product range overview

Shoulder Milling	Slot Milling	Copy Milling
		 Roughing – Semi-finishing – Finishing
Roughing  **F 1721 E** Page 613 **Brazed-type Porcupine cutters** Page 618	**Roughing**  **F 1721 E** Page 613	**$L_C > 1.5 \times D_C$**  **F 1703 R** Page 616
Roughing/ finishing  **F 1702 E** Page 611 **F 1722 E** Page 614	**Roughing/ finishing**  **F 1702 E** Page 611 **F 1722 E** Page 615	**$L_C > 1.5 \times D_C$**  **F 1722 R** Page 617
Finishing  **F 1713 E** Page 610 **F 1723 E** Page 615 **Brazed-type Heli cutters** Page 619		
Aluminium milling  **F 1700 E** Page 609 **F 1720 E** Page 612	**Aluminium milling**  **F 1720 E** Page 612	

Designation key for solid carbide milling cutters





Solid carbide aluminium cutters

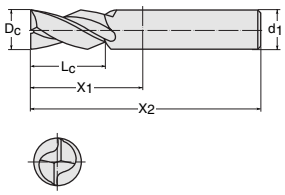
45°, extra long version

F 1700 E

HSC

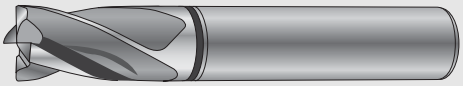
Tool

HF = fine-grained carbide, uncoated HC = coated carbide

	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg	HF WMG 30	HC WXK 15	HC WXM 15
Spiral angle 45°	F 1700E.Z.06.Z2.35.45 . .	6	6	44	80	35	2	45°	0.04	.W		
	F 1700E.Z.08.Z2.45.45 . .	8	8	61	97	45	2	45°	0.07	.W		
	F 1700E.Z.10.Z2.50.45 . .	10	10	78	118	50	2	45°	0.13	.W		
	F 1700E.Z.12.Z2.60.45 . .	12	12	75	120	60	2	45°	0.20	.W		
	F 1700E.Z.16.Z2.65.45 . .	16	16	82	130	65	2	45°	0.38	.W		
	F 1700E.Z.20.Z2.75.45 . .	20	20	95	145	75	2	45°	0.66	.W		

Order example: F 1700E.Z.06.Z2.35.45 . . with WMG 30 = **F 1700E.Z.06.Z2.35.45.W**

→ 634



Solid carbide milling cutters

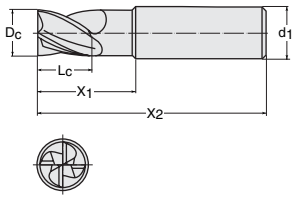
DIN 6527, 30°, short version

F 1713 E

HSC

Tool

HC = coated carbide

	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
2 teeth cutting to centre	F 1713E.Z.02.Z4.04.30 . .	2	6	14	50	4	4	30°	0.02				.M	
	F 1713E.Z.03.Z4.05.30 . .	3	6	14	50	5	4	30°	0.02				.M	
	F 1713E.Z.04.Z4.08.30 . .	4	6	18	54	8	4	30°	0.02				.M	
	F 1713E.Z.05.Z4.09.30 . .	5	6	18	54	9	4	30°	0.02				.M	
	F 1713E.Z.06.Z4.10.30 . .	6	6	18	54	10	4	30°	0.02				.M	
	F 1713E.Z.08.Z4.12.30 . .	8	8	22	58	12	4	30°	0.04				.M	
	F 1713E.Z.10.Z4.14.30 . .	10	10	26	66	14	4	30°	0.07				.M	
	F 1713E.Z.12.Z4.16.30 . .	12	12	28	73	16	4	30°	0.12				.M	
	F 1713E.Z.16.Z4.22.30 . .	16	16	34	82	22	4	30°	0.24				.M	
	F 1713E.Z.20.Z4.26.30 . .	20	20	42	92	26	4	30°	0.42				.M	

Order example: F 1713E.Z.02.Z4.04.30 . . with WXM 15 = **F 1713E.Z.02.Z4.04.30.M**



Solid carbide milling cutters

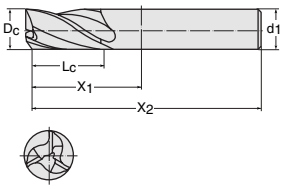
30°, extra long version

F 1702 E

HSC

Tool

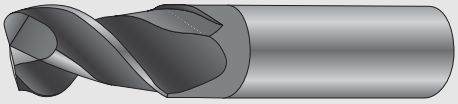
HC = coated carbide



Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
F 1702E.Z.02.Z3.08.30 . .	2	3	10	38	8	3	30°	0.02				.M	
F 1702E.Z.03.Z3.12.30 . .	3	3	10	38	12	3	30°	0.02				.M	
F 1702E.Z.04.Z3.14.30 . .	4	4	22	50	14	3	30°	0.03				.M	
F 1702E.Z.05.Z3.16.30 . .	5	6	14	50	16	3	30°	0.03				.M	
F 1702E.Z.06.Z3.22.30 . .	6	6	29	65	22	3	30°	0.03				.M	
F 1702E.Z.08.Z3.28.30 . .	8	8	44	80	28	3	30°	0.06				.M	
F 1702E.Z.10.Z3.32.30 . .	10	10	60	100	32	3	30°	0.11				.M	
F 1702E.Z.12.Z3.38.30 . .	12	12	55	100	38	3	30°	0.16				.M	
F 1702E.Z.16.Z3.50.30 . .	16	16	67	115	50	3	30°	0.34				.M	
F 1702E.Z.20.Z3.50.30 . .	20	20	75	125	50	3	30°	0.57				.M	

Order example: F 1702E.Z.02.Z3.08.30 . . with WXM 15 = **F 1702E.Z.02.Z3.08.30.M**

→ 634



Solid carbide aluminium cutters

DIN 6527, 45°, long version

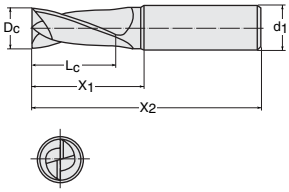
F 1720 E

HSC

Tool

HF = fine-grained carbide, uncoated HC = coated carbide

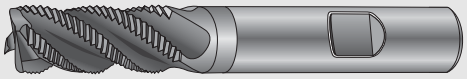
2 teeth cutting to centre
Aluminium cutter



Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg	HF WMG 30	HC WXK 15	HC WXM 15
F 1720E.Z.04.Z2.08.45 . .	4	6	21	57	8	2	45°	0.01	.W		
F 1720E.Z.05.Z2.10.45 . .	5	6	21	57	10	2	45°	0.13	.W		
F 1720E.Z.06.Z2.10.45 . .	6	6	21	57	10	2	45°	0.18	.W		
F 1720E.Z.08.Z2.16.45 . .	8	8	27	63	16	2	45°	0.36	.W		
F 1720E.Z.10.Z2.19.45 . .	10	10	32	72	19	2	45°	0.65	.W		
F 1720E.Z.12.Z2.22.45 . .	12	12	38	83	22	2	45°	0.10	.W		
F 1720E.Z.16.Z2.26.45 . .	16	16	44	92	26	2	45°	0.21	.W		
F 1720E.Z.20.Z2.32.45 . .	20	20	54	104	32	2	45°	0.38	.W		

Order example: F 1720E.Z.04.Z2.08.45 . . with WMG 30 = **F 1720E.Z.04.Z2.08.45.W**

→ 634



Solid carbide milling cutters

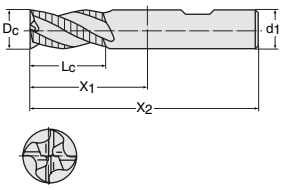
F 1721 E

DIN 6527, 40°, long version

Tool

HC = coated carbide

	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Rake angle	kg			HC WXK 15	HC WXM 15	
1 tooth cutting over centre Roughing cutter	F 1721E.W.06.Z4.10.40 . .	6	6	21	57	10	4	40°	0.02				.M	
	F 1721E.W.08.Z4.16.40 . .	8	8	27	63	16	4	40°	0.05				.M	
	F 1721E.W.10.Z4.19.40 . .	10	10	32	72	19	4	40°	0.08				.M	
	F 1721E.W.12.Z4.22.40 . .	12	12	38	83	22	4	40°	0.14				.M	
	F 1721E.W.16.Z4.26.40 . .	16	16	44	92	26	4	40°	0.27				.M	
	F 1721E.W.20.Z4.32.40 . .	20	20	54	104	32	4	40°	0.48				.M	



Order example: F 1721E.W.06.Z4.10.40 . . with WXM 15 = **F 1721E.W.06.Z4.10.40.M**

→ 634



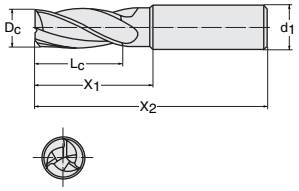
Solid carbide milling cutters

F 1722 E

DIN 6527, 45°, long version

Tool

HC = coated carbide

	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
1 tooth cutting over centre	F 1722E.Z.02.Z3.06.45 . .	2	6	21	57	6	3	45°	0.02				.M	
	F 1722E.Z.03.Z3.07.45 . .	3	6	21	57	7	3	45°	0.02				.M	
	F 1722E.Z.04.Z3.08.45 . .	4	6	21	57	8	3	45°	0.02				.M	
	F 1722E.Z.05.Z3.10.45 . .	5	6	21	57	10	3	45°	0.02				.M	
	F 1722E.Z.06.Z3.10.45 . .	6	6	21	57	10	3	45°	0.02				.M	
	F 1722E.Z.08.Z3.16.45 . .	8	8	27	63	16	3	45°	0.05				.M	
	F 1722E.Z.10.Z3.19.45 . .	10	10	32	72	19	3	45°	0.08				.M	
	F 1722E.Z.12.Z3.22.45 . .	12	12	38	83	22	3	45°	0.14				.M	
	F 1722E.Z.16.Z3.26.45 . .	16	16	44	92	26	3	45°	0.27				.M	
	F 1722E.Z.20.Z3.32.45 . .	20	20	54	104	32	3	45°	0.48				.M	

Order example: F 1722E.Z.02.Z3.06.45 . . with WXM 15 = **F 1722E.Z.02.Z3.06.45.M**

→ 634



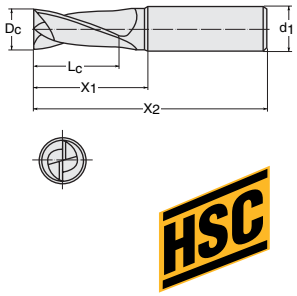
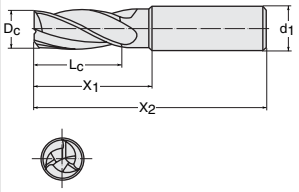
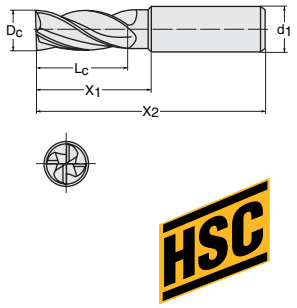
Solid carbide milling cutters

DIN 6527, 30°, long version

F 1722 E
F 1723 E

Tool

HC = coated carbide

	Designation	D_C mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
2 teeth cutting to centre	F 1722E.Z.02.Z2.06.30 . .	2	6	21	57	6	2	30°	0.02				.M	
	F 1722E.Z.03.Z2.07.30 . .	3	6	21	57	7	2	30°	0.02				.M	
	F 1722E.Z.04.Z2.08.30 . .	4	6	21	57	8	2	30°	0.02				.M	
	F 1722E.Z.05.Z2.10.30 . .	5	6	21	57	10	2	30°	0.02				.M	
	F 1722E.Z.06.Z2.10.30 . .	6	6	21	57	10	2	30°	0.02				.M	
	F 1722E.Z.08.Z2.16.30 . .	8	8	27	63	16	2	30°	0.05				.M	
	F 1722E.Z.10.Z2.19.30 . .	10	10	32	72	19	2	30°	0.08				.M	
	F 1722E.Z.12.Z2.22.30 . .	12	12	38	83	22	2	30°	0.14				.M	
	F 1722E.Z.16.Z2.26.30 . .	16	16	44	92	26	2	30°	0.27				.M	
	F 1722E.Z.20.Z2.32.30 . .	20	20	54	104	32	2	30°	0.48				.M	
1 tooth cutting over centre	F 1722E.Z.02.Z3.06.30 . .	2	6	21	57	6	3	30°	0.02				.M	
	F 1722E.Z.03.Z3.07.30 . .	3	6	21	57	7	3	30°	0.02				.M	
	F 1722E.Z.04.Z3.08.30 . .	4	6	21	57	8	3	30°	0.02				.M	
	F 1722E.Z.05.Z3.10.30 . .	5	6	21	57	10	3	30°	0.02				.M	
	F 1722E.Z.06.Z3.10.30 . .	6	6	21	57	10	3	30°	0.02				.M	
	F 1722E.Z.08.Z3.16.30 . .	8	8	27	63	16	3	30°	0.05				.M	
	F 1722E.Z.10.Z3.19.30 . .	10	10	32	72	19	3	30°	0.08				.M	
	F 1722E.Z.12.Z3.22.30 . .	12	12	38	83	22	3	30°	0.14				.M	
	F 1722E.Z.16.Z3.26.30 . .	16	16	44	92	26	3	30°	0.27				.M	
	F 1722E.Z.20.Z3.32.30 . .	20	20	54	104	32	3	30°	0.48				.M	
2 teeth cutting to centre	F 1723E.Z.02.Z4.07.30 . .	2	6	21	57	7	4	30°	0.02				.M	
	F 1723E.Z.03.Z4.08.30 . .	3	6	21	57	8	4	30°	0.02				.M	
	F 1723E.Z.04.Z4.11.30 . .	4	6	21	57	11	4	30°	0.02				.M	
	F 1723E.Z.05.Z4.13.30 . .	5	6	21	57	13	4	30°	0.02				.M	
	F 1723E.Z.06.Z4.13.30 . .	6	6	21	57	13	4	30°	0.02				.M	
	F 1723E.Z.08.Z4.19.30 . .	8	8	27	63	19	4	30°	0.05				.M	
	F 1723E.Z.10.Z4.22.30 . .	10	10	32	72	22	4	30°	0.08				.M	
	F 1723E.Z.12.Z4.26.30 . .	12	12	38	83	26	4	30°	0.14				.M	
	F 1723E.Z.16.Z4.32.30 . .	16	16	44	92	32	4	30°	0.27				.M	
	F 1723E.Z.20.Z4.38.30 . .	20	20	54	104	38	4	30°	0.48				.M	

Order example: F 1722E.Z.02.Z2.06.30 . . with WXM 15 = **F 1722E.Z.02.Z2.06.30.M**

→ 634



Solid carbide milling cutters

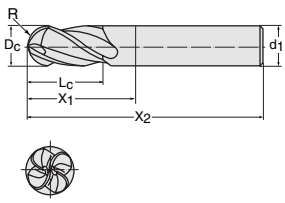
30°, long version

F 1703 R

HSC

Tool

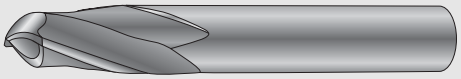
HC = coated carbide



Designation	D_C mm	d_1 mm	R mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
F 1703R.Z.03.Z4.08.30 . .	3	3	1.5	44	80	8	4	30°	0.03				.M	
F 1703R.Z.04.Z4.11.30 . .	4	6	2	44	80	11	4	30°	0.04				.M	
F 1703R.Z.05.Z4.13.30 . .	5	6	2.5	44	80	13	4	30°	0.04				.M	
F 1703R.Z.06.Z4.13.30 . .	6	6	3	44	80	13	4	30°	0.04				.M	
F 1703R.Z.08.Z4.19.30 . .	8	8	4	64	100	19	4	30°	0.07				.M	
F 1703R.Z.10.Z4.22.30 . .	10	10	5	60	100	22	4	30°	0.11				.M	
F 1703R.Z.12.Z4.26.30 . .	12	12	6	55	100	26	4	30°	0.16				.M	
F 1703R.Z.16.Z4.32.30 . .	16	16	8	52	100	32	4	30°	0.29				.M	
F 1703R.Z.20.Z4.38.30 . .	20	20	10	75	125	38	4	30°	0.57				.M	

Order example: F 1703R.Z.02.Z2.06.30 . . with WXM 15 = **F 1703R.Z.02.Z2.06.30.M**

→ 634



Solid carbide milling cutters

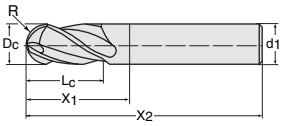
DIN 6527, 30°, long version

F 1722 R

HSC

Tool

HC = coated carbide

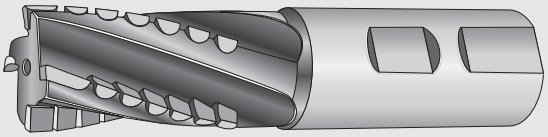




Designation	D_C mm	d_1 mm	R mm	X_1 mm	X_2 mm	L_C mm	Z	Spiral angle	kg			HC WXK 15	HC WXM 15	
F 1722R.Z.02.Z2.06.30 . .	2	3	1	10	38	6	2	30°	0.02			.A	.M	
F 1722R.Z.03.Z2.07.30 . .	3	3	1.5	10	38	7	2	30°	0.02			.A	.M	
F 1722R.Z.04.Z2.08.30 . .	4	6	2	21	57	8	2	30°	0.03			.A	.M	
F 1722R.Z.05.Z2.10.30 . .	5	6	2.5	21	57	10	2	30°	0.03			.A	.M	
F 1722R.Z.06.Z2.10.30 . .	6	6	3	21	57	10	2	30°	0.03			.A	.M	
F 1722R.Z.08.Z2.16.30 . .	8	8	4	27	63	16	2	30°	0.04			.A	.M	
F 1722R.Z.10.Z2.19.30 . .	10	10	5	32	72	19	2	30°	0.08			.A	.M	
F 1722R.Z.12.Z2.22.30 . .	12	12	6	38	83	22	2	30°	0.14			.A	.M	
F 1722R.Z.16.Z2.26.30 . .	16	16	8	44	92	26	2	30°	0.27			.A	.M	
F 1722R.Z.20.Z2.32.30 . .	20	20	10	54	104	32	2	30°	0.47			.A	.M	

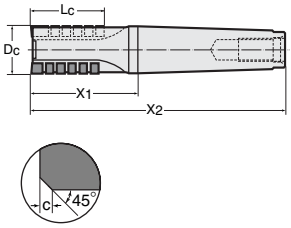
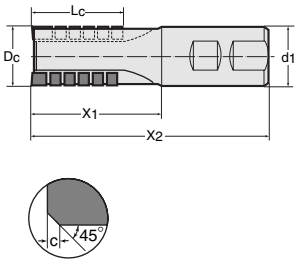
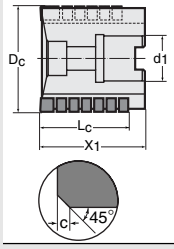
Order example: F 1722R.Z.02.Z2.06.30 . . with WXK 15 = **F 1722R.Z.02.Z2.06.30.A**

→ 634



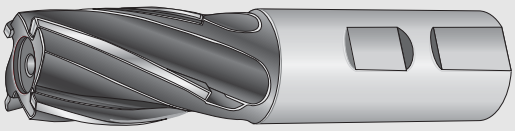
Porcupine® cutters F 1375 / F 16 . .

with brazed inserts

Tool	Designation	$D_{C\ js16}$ mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	c mm	Spiral lead	kg
Shank type DIN 228, version A	F 1605.M.020.Z02.40.K	20	MK 2	60	124.0	40	2	0.5	163	0.2
	F 1605.M.020.Z02.40.P	20	MK 2	60	124.0	40	2	0.5	163	0.2
	F 1605.M.025.Z02.50.K	25	MK 3	70	151.0	50	2	0.5	204	0.4
	F 1605.M.025.Z02.50.P	25	MK 3	70	151.0	50	2	0.5	204	0.4
	F 1605.M.028.Z02.50.K	28	MK 3	75	156.0	50	2	0.5	230	0.5
	F 1605.M.028.Z02.50.P	28	MK 3	75	156.0	50	2	0.5	230	0.5
	F 1605.M.032.Z02.50.K	32	MK 4	75	177.5	50	2	0.5	262	0.7
	F 1605.M.032.Z02.50.P	32	MK 4	75	177.5	50	2	0.5	262	0.7
	F 1605.M.040.Z02.63.K	40	MK 4	95	197.5	63	2	0.8	327	1.2
	F 1605.M.040.Z02.63.P	40	MK 4	95	197.5	63	2	0.8	327	1.2
Shank type DIN 1835, version B	F 1616.W.016.Z01.32.K	16	16	46	95.0	32	1	0.5	131	0.1
	F 1616.W.016.Z01.32.P	16	16	46	95.0	32	1	0.5	131	0.1
	F 1616.W.018.Z01.36.K	18	20	49	100.0	36	1	0.5	147	0.2
	F 1616.W.018.Z01.36.P	18	20	49	100.0	36	1	0.5	147	0.2
	F 1616.W.020.Z02.40.K	20	20	54	105.0	40	2	0.5	163	0.2
	F 1616.W.020.Z02.40.P	20	20	54	105.0	40	2	0.5	163	0.2
	F 1616.W.025.Z02.50.K	25	25	68	125.0	50	2	0.5	204	0.4
	F 1616.W.025.Z02.50.P	25	25	68	125.0	50	2	0.5	204	0.4
	F 1616.W.028.Z02.50.K	28	25	68	125.0	50	2	0.5	230	0.5
	F 1616.W.028.Z02.50.P	28	25	68	125.0	50	2	0.5	230	0.5
	F 1616.W.032.Z02.50.K	32	32	69	130.0	50	2	0.5	262	0.7
	F 1616.W.032.Z02.50.P	32	32	69	130.0	50	2	0.5	262	0.7
	F 1616.W.040.Z02.63.K	40	32	84	145.0	63	2	0.8	327	1.0
	F 1616.W.040.Z02.63.P	40	32	84	145.0	63	2	0.8	327	1.0
cyl. bore cross drive DIN 138	F 1375.B.050.Z03.40.K	50	22	50		40	3	0.8	409	0.5
	F 1375.B.050.Z03.40.P	50	22	50		40	3	0.8	409	0.5
	F 1375.B.063.Z03.50.K	63	27	63		50	3	0.8	515	0.9
	F 1375.B.063.Z03.50.P	63	27	63		50	3	0.8	515	0.9
	F 1375.B.080.Z04.50.K	80	32	63		50	4	1.0	654	1.5
	F 1375.B.080.Z04.50.P	80	32	63		50	4	1.0	654	1.5
	F 1375.B.100.Z04.63.K	100	40	80		63	4	1.0	818	2.9
	F 1375.B.100.Z04.63.P	100	40	80		63	4	1.0	818	2.9

K = Cast iron machining
P = Steel machining

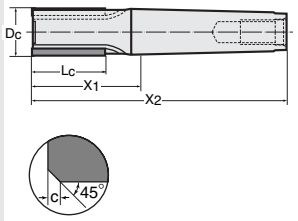
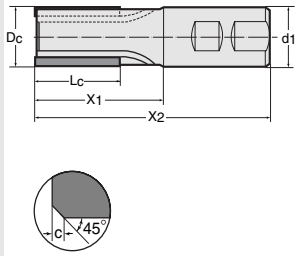
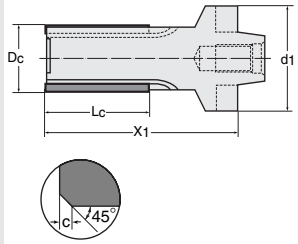
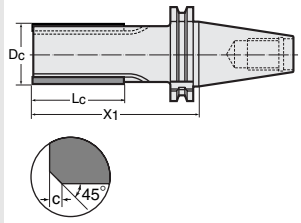
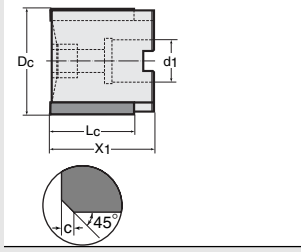
→ 634



Heli cutters

with brazed inserts

F 16 . .

Tool	Designation	$D_{C\ js16}$ mm	d_1 mm	X_1 mm	X_2 mm	L_C mm	Z	c mm	Spiral lead	kg
Shank type DIN 228, version A	F 1677.M.020.Z03.40.K	20	MK 2	60	124.0	40	3	0.5	140	0.2
	F 1677.M.020.Z03.40.P	20	MK 2	60	124.0	40	3	0.5	140	0.2
	F 1677.M.025.Z04.50.K	25	MK 3	70	151.0	50	4	0.5	160	0.4
	F 1677.M.025.Z04.50.P	25	MK 3	70	151.0	50	4	0.5	160	0.4
	F 1677.M.032.Z04.50.K	32	MK 4	75	177.5	50	4	0.5	224	0.7
	F 1677.M.032.Z04.50.P	32	MK 4	75	177.5	50	4	0.5	224	0.7
	F 1677.M.040.Z06.63.K	40	MK 4	95	197.5	63	6	0.8	270	1.2
	F 1677.M.040.Z06.63.P	40	MK 4	95	197.5	63	6	0.8	270	1.2
Shank type DIN 1835, version B	F 1678.W.016.Z02.32.K	16	16	46	95.0	32	2	0.5	100	0.1
	F 1678.W.016.Z02.32.P	16	16	46	95.0	32	2	0.5	100	0.1
	F 1678.W.020.Z03.40.K	20	20	54	105.0	40	3	0.5	140	0.2
	F 1678.W.020.Z03.40.P	20	20	54	105.0	40	3	0.5	140	0.2
	F 1678.W.025.Z04.50.K	25	25	68	125.0	50	4	0.5	160	0.4
	F 1678.W.025.Z04.50.P	25	25	68	125.0	50	4	0.5	160	0.4
	F 1678.W.032.Z04.50.K	32	32	69	130.0	50	4	0.5	224	0.7
	F 1678.W.032.Z04.50.P	32	32	69	130.0	50	4	0.5	224	0.7
	F 1678.W.040.Z06.63.K	40	32	84	145.0	63	6	0.8	270	1.0
	F 1678.W.040.Z06.63.P	40	32	84	145.0	63	6	0.8	270	1.0
modular adaptor NCT	F 1682.N6.032.Z04.50.K	32	63	110		50	4	0.5	224	1.0
	F 1682.N6.032.Z04.50.P	32	63	110		50	4	0.5	224	1.0
	F 1682.N6.040.Z06.63.K	40	63	120		63	6	0.8	270	1.3
	F 1682.N6.040.Z06.63.P	40	63	120		63	6	0.8	270	1.3
	F 1682.N8.050.Z06.80.K	50	80	135		80	6	0.8	320	2.3
	F 1682.N8.050.Z06.80.P	50	80	135		80	6	0.8	320	2.3
	F 1682.N8.063.Z06.100.K	63	80	150		100	6	0.8	420	3.3
	F 1682.N8.063.Z06.100.P	63	80	150		100	6	0.8	420	3.3
Combi-shank DIN 69871+2080	F 1676.S4.040.Z06.63.K	40	SK 40	115		63	6	0.8	270	1.5
	F 1676.S4.040.Z06.63.P	40	SK 40	115		63	6	0.8	270	1.5
	F 1676.S5.050.Z06.80.K	50	SK 50	135		80	6	0.8	320	4.3
	F 1676.S5.050.Z06.80.P	50	SK 50	135		80	6	0.8	320	4.3
	F 1676.S5.063.Z06.100.K	63	SK 50	155		100	6	0.8	420	5.3
	F 1676.S5.063.Z06.100.P	63	SK 50	155		100	6	0.8	420	5.3
cyl. bore cross drive DIN 138	F 1675.B.050.Z06.40.K	50	22	50		40	6	0.8	320	0.5
	F 1675.B.050.Z06.40.P	50	22	50		40	6	0.8	320	0.5
	F 1675.B.063.Z06.50.K	63	27	63		50	6	0.8	420	0.9
	F 1675.B.063.Z06.50.P	63	27	63		50	6	0.8	420	0.9
	F 1675.B.080.Z08.50.K	80	32	63		50	8	1.0	540	1.5
	F 1675.B.080.Z08.50.P	80	32	63		50	8	1.0	540	1.5
	F 1675.B.100.Z08.63.K	100	40	80		63	8	1.0	675	2.9
	F 1675.B.100.Z08.63.P	100	40	80		63	8	1.0	675	2.9

Pull stud for SK 40
Pull stud for SK 50

C 100.40.615 B for DIN 69871 version B or C 100.40.600 for DIN 2080.
C 100.50.615 B for DIN 69871 version B or C 100.50.600 for DIN 2080.
K = Cast iron machining, P = Steel machining

→ 634

Cutting data for roughing
Surface and shoulder milling cutters

Tiger·tec®

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_c [m/min] HC = coated grades: WKP 25 a_e/D_c* 1/1	WKP 25 a_e/D_c* 1/2	WKP 25 a_e/D_c* 1/5	WKP 35 a_e/D_c* 1/1	WKP 35 a_e/D_c* 1/2	WKP 35 a_e/D_c* 1/5	WSM 35 a_e/D_c* 1/1	WSM 35 a_e/D_c* 1/2	WSM 35 a_e/D_c* 1/5	WSP 45 a_e/D_c* 1/1	WSP 45 a_e/D_c* 1/2	WSP 45 a_e/D_c* 1/5
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	290	370		250	300					230	290	
		approx. 0.45 % C	annealed	190	2	260	330		220	260					190	250	
		approx. 0.45 % C	tempered	250	3	240	300		195	220					155	200	
		approx. 0.75 % C	annealed	270	4	230	300		180	200					145	170	
		approx. 0.75 % C	tempered	300	5	220	260		160	180					130	145	
	Low-alloyed steel[1]		annealed	180	6	260	320		220	270					190	240	
			tempered	275	7	220	270		180	210					145	170	
			tempered	300	8	210	250		170	190					130	145	
			tempered	350	9	170	190		130	150					100	110	
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	140	170		130	160					115	140	
			hardened and tempered	325	11	110	130		80	90					75	90	
	Stainless steel[1]		ferritic / martensitic, annealed	200	12				140	160		120	150		115	140	
			martensitic, tempered	240	13				100	120		95	120		90	110	
M	Stainless steel[1]		austenitic[2], quenched	180	14							130	155		110	130	
K	Grey cast iron		perlitic/ferritic	180	15	320	350		300	330							
			perlitic (martensitic)	260	16	180	210		170	200							
	Cast iron with spheroidal graphite		ferritic	160	17	220	240		200	220							
			perlitic	250	18	150	180		140	160							
	Malleable cast iron		ferritic	130	19	250	280		210	240							
			perlitic	230	20	170	200		150	180							
N	Aluminium wrought alloys		can not be hardened	60	21												
			can be hardened, hardened	100	22												
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23												
			≤ 12 % Si, can be hardened, hardened	90	24												
			> 12 % Si, can not be hardened	130	25												
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26												
			Brass, red brass	90	27												
			Bronze, lead-free copper and electrolytic copper	100	28												
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29												
			Hard rubber		30												
S	Heat-resistant alloys	Fe basis	annealed	200	31							80	90		65	70	
			hardened	280	32							60	65		45	50	
		Ni or Co basis	annealed	250	33					65		60	70		50	55	
			hardened	350	34					35		40	45		30	35	
			cast	320	35					45		50	55		40	45	
	Titanium alloys	Pure titanium		400[3]	36							80	100		65	80	
		Alpha + Beta alloys, hardened		1050[3]	37							50	55		40	45	
H	Hardened steel		hardened and tempered	55[4]	38												
			hardened and tempered	60[4]	39												
	Chilled cast iron		cast	400	40												
	Hardened cast iron		hardened and tempered	55[4]	41												

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm² [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Roughing with surface/shoulder milling cutters

Starting value for cutting speed v_C [m/min]																						
	HC = coated grades										HF		HW = uncoated grades						CN=Si_3N_4		DP	
	WAK 15		WTP 35		WXP 45		WXM 35		WXN 15		WMG 40		WK 10		WKM		WPM		WSN 10		WCD 10	
	a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*	
	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/1	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5
			170	220	190	240	210	240									110	140				
			145	190	160	210	190	220									100	130				
			120	150	130	165	160	180									90	105				
			110	130	120	140	140	160									80	90				
			100	110	110	120	120	140									70	80				
			145	185	160	200	190	230									90	120				
			110	130	120	140	140	170									80	100				
			100	110	110	120	120	140									70	80				
			70	80	80	90	100	110									60	75				
			85	105	95	115	100	120									70	80				
			50	60	55	70	70	80									50	55				
			120	140	130	155	110	130														
			80	100	90	110	80	100														
			130	150			120	140														
	380	410	100	130											80	90			1100	1210		
	220	250	80	90											70	70			660	730		
	260	280	100	135											70	70			660	730		
	180	210	80	110											60	60			400	440		
	300	330	130	165											80	80			830	910		
	200	220	100	130											70	70			500	550		
			700	825					2640	2640	1500	1500	2200	2200	2000	2000					3000	4000
			450	560					1980	1980	1000	1000	1650	1650	1500	1500					2000	2000
			550	650					660	730			550	605	500	550					1500	1500
			400	400					530	530			440	440	400	400					1000	1000
			250	295					265	310			220	260	200	235					500	500
			400	400					460	460			385	385	350	350						
			250	295					265	310			220	260	200	235						
									200	220			165	180	150	165						
							80	90			75	80										
							60	65			45	50										
				50		50	60	70			55	60										
				50		50	40	45			25	30										
				35		35	50	55			35	40										
							80	100			70	80			80	90						
			45	50			50	55			45	50										
																30						

*a_e/D_c = 1/10, v_C = 10 % higher than 1/5

Cutting data for roughing
Slot milling with Porcupine cutters

Tiger·tec®

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_c [m/min] HC = coated grades: WKP 25 a_e/D_c* 1/1	WKP 25 1/2	WKP 25 1/5	WKP 35 1/1	WKP 35 1/2	WKP 35 1/5	WSM 35 1/1	WSM 35 1/2	WSM 35 1/5	WSP 45 1/1	WSP 45 1/2	WSP 45 1/5
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	210	275		195	250					185	230	
		approx. 0.45 % C	annealed	190	2	200	255		170	215					150	200	
		approx. 0.45 % C	tempered	250	3	175	220		150	185					125	160	
		approx. 0.75 % C	annealed	270	4	165	210		140	170					115	135	
		approx. 0.75 % C	tempered	300	5	165	200		130	145					105	115	
	Low-alloyed steel[1]		annealed	180	6	200	255		170	215					150	190	
			tempered	275	7	165	210		135	155					115	135	
			tempered	300	8	155	200		130	145					105	115	
			tempered	350	9	130	145		90	105					80	90	
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	110	130		100	120					90	110	
			hardened and tempered	325	11	75	90		60	70					60	70	
	Stainless steel[1]		ferritic / martensitic, annealed	200	12				105	120		95	120		90	110	
			martensitic, tempered	240	13				70	95		75	95		70	90	
M	Stainless steel[1]	austenitic[2], quenched		180	14							105	125		90	105	
K	Grey cast iron		perlitic/ferritic	180	15	180	230		160	180							
			perlitic (martensitic)	260	16	130	150		120	140							
	Cast iron with spheroidal graphite		ferritic	160	17	150	160		140	150							
			perlitic	250	18	125	130		110	120							
	Malleable cast iron		ferritic	130	19	170	190		150	170							
			perlitic	230	20	140	150		130	140							
N	Aluminium wrought alloys		can not be hardened	60	21												
			can be hardened, hardened	100	22												
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23												
			≤ 12 % Si, can be hardened, hardened	90	24												
			> 12 % Si, can not be hardened	130	25												
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26												
			Brass, red brass	90	27												
			Bronze, lead-free copper and electrolytic copper	100	28												
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29												
			Hard rubber		30												
S	Heat-resistant alloys	Fe basis	annealed	200	31							65	70		50	55	
			hardened	280	32							50	50		35	40	
		Ni or Co basis	annealed	250	33							50	55		40	45	
			hardened	350	34							30	35		25	30	
			cast	320	35							40	45		30	35	
	Titanium alloys		Pure titanium	400[3]	36							65	80		50	65	
			Alpha + Beta alloys, hardened	1050[3]	37							40	45		30	35	
H	Hardened steel		hardened and tempered	55[4]	38												
			hardened and tempered	60[4]	39												
	Chilled cast iron	cast		400	40												
	Hardened cast iron	hardened and tempered		55[4]	41												

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm² [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Roughing with slot milling cutters – Porcupine cutters –

Starting value for cutting speed v_C [m/min]																		
	HC = coated grades										HF		HW = uncoated grades					
	WAK 15		WTP 35		WXP 45		WXM 35		WXN 15		WMG 40		WK 10		WKM		WPM	
	a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*		a_e/D_c*	
	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5	1/1 1/2	1/5
			140	175	155	190	155	190									110	110
			120	150	130	165	130	165									95	95
			100	125	110	140	110	140									85	85
			90	115	100	130	100	130									75	75
			80	95	90	105	90	105									70	70
			120	150	130	165	130	165									95	95
			90	110	100	120	100	120									75	75
			80	95	90	105	90	105									70	70
			55	65	60	70	60	70									60	60
			70	90	80	100	80	100									70	70
			40	50	45	55	45	55									45	50
			95	120	105	130	105	130										
			65	85	70	90	70	90										
			100	120			100	120										
	220	280	80	100									75	85	75	85		
	160	180	65	80									65	65	65	65		
	180	190	80	110									65	65	65	65		
	150	160	65	90									55	55	55	55		
	200	230	105	135									75	75	75	75		
	170	180	80	100									65	65	65	65		
			560	710					1800	1800	1200	1200	1500	1500	1500	1500		
			360	460					1440	1440	900	900	1200	1200	1200	1200		
			440	515					540	640	360	425	450	530	450	530		
			320	375					430	430	290	290	360	360	360	360		
			200	235					220	260	145	170	180	215	180	215		
			320	375					385	385	260	260	320	320	320	320		
			200	235					280	280	185	185	230	230	230	230		
									170	210	140	175	140	175	140	175		
											60	70						
											40	45						
			45	50	45	50	45	50			45	50						
			25	30	25	30	25	30			25	30						
			35	40	35	40	35	40			35	40						
											60	80						
				50							40	45						
												30		35		35		

*a_e/D_c = 1/10, v_C = 10 % higher than 1/5

Cutting data for roughing
Slot milling with side and face milling cutters

Tiger·tec®

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_C [m/min] HC = coated grades: WKP 25 a_e/D_c central	WKP 25 a_e/D_c 1/5	WKP 25 a_e/D_c 1/10	WKP 35 a_e/D_c central	WKP 35 a_e/D_c 1/5	WKP 35 a_e/D_c 1/10	WSM 35 a_e/D_c central	WSM 35 a_e/D_c 1/5	WSM 35 a_e/D_c 1/10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	210	285	320	195	250	275			
		approx. 0.45 % C	annealed	190	2	200	255	275	170	215	230			
		approx. 0.45 % C	tempered	250	3	175	220	240	150	185	285			
		approx. 0.75 % C	annealed	270	4	165	210	220	140	170	170			
		approx. 0.75 % C	tempered	300	5	165	200	210	130	145	150			
	Low-alloyed steel[1]		annealed	180	6	200	255	275	170	215	235			
			tempered	275	7	165	210	220	130	165	165			
			tempered	300	8	155	200	200	125	145	150			
			tempered	350	9	130	145	145	90	100	105			
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	110	145	155	100	120	130			
			hardened and tempered	325	11	75	100	100	60	75	75			
	Stainless steel[1]		ferritic / martensitic, annealed	200	12				105	130	130	95	120	130
			martensitic, tempered	240	13				70	95	105	75	95	105
M	Stainless steel[1]		austenitic[2], quenched	180	14							105	125	135
K	Grey cast iron		perlitic/ferritic	180	15	180	230	240	160	180	190			
			perlitic (martensitic)	260	16	130	150	160	120	140	150			
	Cast iron with spheroidal graphite		ferritic	160	17	150	160	165	140	150	160			
			perlitic	250	18	125	130	140	110	120	130			
	Malleable cast iron		ferritic	130	19	170	190	200	150	170	180			
			perlitic	230	20	110	150	160	130	140	150			
N	Aluminium wrought alloys		can not be hardened	60	21									
			can be hardened, hardened	100	22									
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23									
			≤ 12 % Si, can be hardened, hardened	90	24									
			> 12 % Si, can not be hardened	130	25									
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26									
			Brass, red brass	90	27									
			Bronze, lead-free copper and electrolytic copper	100	28									
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29									
			Hard rubber		30									
S	Heat-resistant alloys	Fe basis	annealed	200	31								70	80
			hardened	280	32								50	55
		Ni or Co basis	annealed	250	33								55	60
			hardened	350	34								35	40
			cast	320	35								45	50
	Titanium alloys		Pure titanium	400[3]	36								80	90
			Alpha + Beta alloys, hardened	1050[3]	37								45	50
H	Hardened steel		hardened and tempered	55[4]	38									
			hardened and tempered	60[4]	39									
	Chilled cast iron		cast	400	40									
	Hardened cast iron		hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm² [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Roughing with slot milling cutters – Side and face milling cutters –

Starting value for cutting speed v_C [m/min]																								
	HC = coated grades															HF			HW = uncoated grades					
	WSP 45			WAK 15			WTP 35			WXP 45			WXN 15			WMG 40			WK 10			WPM		
	a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c		
	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10	central	1/5	1/10
	185	230	255				140	175	195	140	190	260										110	110	120
	150	200	220				120	150	160	130	170	230										95	95	105
	125	160	175				100	125	125	100	140	185										85	85	95
	115	135	150				90	115	115	90	120	160										75	75	85
	105	115	125				80	95	95	70	90	120										70	70	75
	150	190	210				120	150	165	120	160	210										95	95	105
	115	135	150				90	110	110	100	140	185										75	75	85
	105	115	125				80	90	95	95	130	170										70	70	75
	80	90	95				55	70	70	90	120	160										60	60	65
	90	110	125				70	90	100	90	120	160										70	70	75
	60	70	80				40	50	50	80	110	150										45	50	60
	90	110	125				95	120	120	100	140	185												
	70	90	95				65	85	95	80	110	150												
	90	105	125					120	120															
				220	280	290	80	100	110															
				160	180	190	65	80	80															
				180	190	200	80	110	125															
				150	160	170	65	85	95															
				200	230	240	105	135	150															
				130	180	190	80	100	110															
													1800	1800	2040	960	960	1120	1500	1500	1700			
													1440	1440	1680	720	720	960	1200	1200	1400			
													540	640	700	360	425	470	450	530	585			
													430	430	475	290	290	320	360	360	395			
													220	280	310	145	185	205	180	230	255			
													385	385	430	260	260	285	320	320	355			
													280	280	310	185	185	205	230	230	255			
													170	210	235	110	140	160	140	175	195			
		55	60																					
		40	45																					
		45	50					50	55		50	55												
		30	35					30	35		30	35												
		35	40					35	35		35	35												
		65	70					60	65		60	65												
		35	40					50	50		50	55												
																				35	35			

Cutting data for roughing for coated grades when copy milling

Tiger·tec®

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_C [m/min] HC = coated grades: WKP 25 a_e/D_c 1/1	WKP 25 a_e/D_c 1/5	WKP 25 a_e/D_c 1/10	WKP 35 a_e/D_c 1/1	WKP 35 a_e/D_c 1/5	WKP 35 a_e/D_c 1/10	WSM 35 a_e/D_c 1/1	WSM 35 a_e/D_c 1/5	WSM 35 a_e/D_c 1/10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	285	375	365	240	300	300			
		approx. 0.45 % C	annealed	190	2	240	310	330	200	255	275			
		approx. 0.45 % C	tempered	250	3	230	285	285	185	240	240			
		approx. 0.75 % C	annealed	270	4	200	255	255	155	195	210			
		approx. 0.75 % C	tempered	300	5	185	230	230	145	180	185			
	Low-alloyed steel[1]		annealed	180	6	210	265	300	165	210	230			
			tempered	275	7	200	255	275	155	195	215			
			tempered	300	8	185	230	255	145	180	200			
			tempered	350	9	155	200	220	120	155	170			
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	145	185	200	110	145	160			
			hardened and tempered	325	11	100	120	120	75	100	100			
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	155	200	220	120	155	170	120	150	190
			martensitic, tempered	240	13	130	165	165	110	145	155	95	120	150
M	Stainless steel[1]		austenitic[2], quenched	180	14							130	155	195
K	Grey cast iron		perlitic/ferritic	180	15	300	350	370	240	280	300			
			perlitic (martensitic)	260	16	250	300	320	190	230	250			
	Cast iron with spheroidal graphite		ferritic	160	17	300	350	370	240	280	300			
			perlitic	250	18	250	300	320	190	230	250			
	Malleable cast iron		ferritic	130	19	320	370	400	250	290	310			
			perlitic	230	20	270	320	350	200	240	260			
N	Aluminium wrought alloys		can not be hardened	60	21									
			can be hardened, hardened	100	22									
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23									
			≤ 12 % Si, can be hardened, hardened	90	24									
			> 12 % Si, can not be hardened	130	25									
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26									
			Brass, red brass	90	27									
			Bronze, lead-free copper and electrolytic copper	100	28									
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29									
			Hard rubber		30									
S	Heat-resistant alloys	Fe basis	annealed	200	31							80	90	115
			hardened	280	32							60	54	70
		Ni or Co basis	annealed	250	33							60	70	90
			hardened	350	34							40	45	55
			cast	320	35							50	55	70
	Titanium alloys		Pure titanium	400[3]	36							80	100	125
			Alpha + Beta alloys, hardened	1050[3]	37							50	55	70
H	Hardened steel		hardened and tempered	55[4]	38									
			hardened and tempered	60[4]	39									
	Chilled cast iron		cast	400	40									
	Hardened cast iron		hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm² [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Roughing with copy milling cutters

Starting value for cutting speed v_C [m/min]																					
HC = coated grades																					
	WSP 45			WAK 15			WTP 35			WXP 45			WXM 35			WXN 15			WXH 15		
	a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c			a_e/D_c		
	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10
	230	290	365				190	220	220	140	190	260	140	190	260				170	225	305
	190	250	315				170	200	200	130	170	230	130	170	230				150	200	270
	155	200	250				150	180	180	100	140	185	100	140	185				120	160	220
	145	170	215				130	165	170	90	120	160	90	120	160				105	140	190
	130	145	180				110	140	150	70	90	120	70	90	120				80	105	145
	190	240	300				130	165	180	120	160	210	120	160	210				140	185	250
	145	170	215				120	150	165	100	140	185	100	140	185				120	160	220
	130	145	180				110	140	155	95	130	170	95	130	170				110	150	200
	100	110	140				100	130	145	90	120	160	90	120	160				105	140	190
	115	140	175				90	110	120	90	120	160	90	120	160				105	140	190
	75	90	115				60	75	80	80	110	150	80	110	150				100	130	180
	115	140	175				100	130	145	100	140	185	100	140	185				120	160	220
	90	110	140				90	110	110	80	110	150	80	110	150				100	130	180
	110	130	165				80	100	110	60	85	120	75	100	140						
				350	400	420	110	140	150										110	150	200
				300	350	370	80	100	110										90	120	160
				350	400	420	100	140	155										110	150	200
				300	350	370	90	110	120										90	130	180
				370	420	450	120	150	165										105	140	190
				320	370	400	100	130	140										90	120	160
																1920	1920	2110			
																1440	1440	1630			
																480	530	580			
																385	385	420			
																190	225	250			
																365	465	515			
																260	325	360			
																240	310	340			
																580	735	810			
																190	245	270			
	65	70	90																		
	45	50	65																		
	50	55	70							60	65	70	60	65	70						
	30	35	45							50	55	60	50	55	60						
	40	45	55							40	45	50	40	45	50						
	65	80	100				60	80	90	60	80	90	60	80	90						
	40	45	55				45	50	55	45	50	55	45	50	55						

Cutting data for roughing for uncoated grades when copy milling

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_C [m/min] HF = Fine-grained carbide WMG 40 a_e/D_c 1/1	1/5	1/10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1			
		approx. 0.45 % C	annealed	190	2			
		approx. 0.45 % C	tempered	250	3			
		approx. 0.75 % C	annealed	270	4			
		approx. 0.75 % C	tempered	300	5			
	Low-alloyed steel[1]		annealed	180	6			
			tempered	275	7			
			tempered	300	8			
			tempered	350	9			
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10			
			hardened and tempered	325	11			
	Stainless steel[1]		ferritic / martensitic, annealed	200	12			
			martensitic, tempered	240	13			
M	Stainless steel[1]		austenitic[2], quenched	180	14			
K	Grey cast iron		perlitic/ferritic	180	15			
			perlitic (martensitic)	260	16			
	Cast iron with spheroidal graphite		ferritic	160	17			
			perlitic	250	18			
	Malleable cast iron		ferritic	130	19			
			perlitic	230	20			
N	Aluminium wrought alloys		can not be hardened	60	21	1600	1600	1760
			can be hardened, hardened	100	22	1200	1200	1360
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23	400	440	480
			≤ 12 % Si, can be hardened, hardened	90	24	320	320	350
			> 12 % Si, can not be hardened	130	25	160	190	210
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26	305	390	430
			Brass, red brass	90	27	220	270	300
			Bronze, lead-free copper and electrolytic copper	100	28	200	260	280
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29	600	765	840
			Hard rubber		30	200	255	280
S	Heat-resistant alloys	Fe basis	annealed	200	31			
			hardened	280	32			
		Ni or Co basis	annealed	250	33	50	55	60
			hardened	350	34	40	45	50
			cast	320	35	30	35	40
	Titanium alloys		Pure titanium	400[3]	36	70	90	100
			Alpha + Beta alloys, hardened	1050[3]	37	30	40	45
H	Hardened steel		hardened and tempered	55[4]	38			
			hardened and tempered	60[4]	39			
	Chilled cast iron		cast	400	40			
	Hardened cast iron		hardened and tempered	55[4]	41			

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Roughing with copy milling cutters

Starting value for cutting speed v_C [m/min]									
HW = uncoated grades									
	WK 10			WKM			WPM		
	a_e/D_c			a_e/D_c			a_e/D_c		
	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10
							160	180	180
							140	160	160
							120	140	140
							100	115	120
							80	90	100
							120	155	170
							100	130	145
							90	110	120
							80	90	100
							80	110	125
							60	75	85
							80	100	110
				90	110	120			
				70	90	100			
				90	110	120	80	100	110
							70	90	100
				95	120	130			
	2000	2000	2200	2000	2000	2200			
	1500	1500	1700	1500	1500	1700			
	500	550	600	500	550	600			
	400	400	440	400	400	440			
	200	235	260	200	235	260			
	380	485	535	380	485	535			
	270	340	375	270	340	375			
	250	320	355	250	320	350			
	600	765	840	600	765	840			
	200	255	280	200	255	280			

Cutting data for semi-finishing and finishing for coated grades during copy milling

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_C [m/min] HC = coated grades: WKP 25 a_e/D_c* 1/1	WKP 25 a_e/D_c* 1/5	WKP 25 a_e/D_c* 1/20	WKP 35 a_e/D_c* 1/1	WKP 35 a_e/D_c* 1/5	WKP 35 a_e/D_c* 1/20	WSM 35 a_e/D_c* 1/1	WSM 35 a_e/D_c* 1/5	WSM 35 a_e/D_c* 1/20
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	255	340	460	210	275	375			
		approx. 0.45 % C	annealed	190	2	230	310	405	185	255	340			
		approx. 0.45 % C	tempered	250	3	185	240	330	145	185	260			
		approx. 0.75 % C	annealed	270	4	155	210	285	120	165	220			
		approx. 0.75 % C	tempered	300	5	120	155	220	90	120	160			
	Low-alloyed steel[1]		annealed	180	6	210	275	375	165	220	295			
			tempered	275	7	185	240	330	145	185	260			
			tempered	300	8	165	230	310	130	175	240			
			tempered	350	9	155	210	285	120	165	220			
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	155	210	285	130	175	240			
			hardened and tempered	325	11	145	200	265	120	165	220			
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	185	240	330	145	185	260	180	225	280
			martensitic, tempered	240	13	145	200	265	110	145	200	145	180	225
M	Stainless steel[1]		austenitic[2], quenched	180	14							195	235	290
K	Grey cast iron		perlitic/ferritic	180	15	250	350	450	190	250	300			
			perlitic (martensitic)	260	16	200	270	370	140	200	250			
	Cast iron with spheroidal graphite		ferritic	160	17	250	350	450	190	250	300			
			perlitic	250	18	210	290	410	150	210	260			
	Malleable cast iron		ferritic	130	19	230	330	430	170	230	290			
			perlitic	230	20	200	270	370	140	200	250			
N	Aluminium wrought alloys		can not be hardened	60	21									
			can be hardened, hardened	100	22									
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23									
			≤ 12 % Si, can be hardened, hardened	90	24									
			> 12 % Si, can not be hardened	130	25									
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26									
			Brass, red brass	90	27									
			Bronze, lead-free copper and electrolytic copper	100	28									
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29									
			Hard rubber		30									
S	Heat-resistant alloys	Fe basis	annealed	200	31							120	135	170
			hardened	280	32							90	100	125
		Ni or Co basis	annealed	250	33							90	105	130
			hardened	350	34							60	70	90
			cast	320	35							75	85	105
	Titanium alloys		Pure titanium	400[3]	36							120	150	190
			Alpha + Beta alloys, hardened	1050[3]	37							75	85	105
H	Hardened steel		hardened and tempered	55[4]	38									
			hardened and tempered	60[4]	39									
	Chilled cast iron		cast	400	40									
	Hardened cast iron		hardened and tempered	55[4]	41									

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Semi-finishing / finishing with copy milling cutters

Starting value for cutting speed v_C [m/min]

HC = coated grades

WSP 45			WAK 15			WTP 35			WXP 45			WXM 35			WXN 15			WXH 15		
a_e/D_c*			a_e/D_c*			a_e/D_c*			a_e/D_c*			a_e/D_c*			a_e/D_c*			a_e/D_c*		
			1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20	1/1	1/5	1/20
345	435	545				170	230	310	180	240	320	180	240	320				210	280	380
285	375	470				150	200	270	160	210	290	160	210	290				190	250	340
235	300	375				110	150	200	130	170	230	130	170	230				150	200	270
220	255	320				90	120	160	110	145	200	110	145	200				130	170	235
195	220	270				70	90	130	85	110	150	85	110	150				100	130	180
285	360	450				135	180	240	145	195	260	145	195	260				170	230	310
220	255	320				120	160	220	130	170	230	130	170	230				150	200	270
195	220	270				110	150	200	120	160	210	120	160	210				140	190	250
150	165	205				100	130	180	110	145	200	110	145	200				130	170	235
175	210	265				110	150	200	110	145	200	110	145	200				130	170	235
115	135	170				100	130	180	100	140	190	100	140	190				120	160	220
175	210	260				130	170	235	130	170	230	130	170	230				150	200	270
135	160	205				100	130	180	100	140	190	100	140	190				120	160	220
165	195	245				80	110	145				95	130	170						
			300	400	500	110	150	200										140	190	250
			250	320	420	80	110	145										110	150	200
			300	400	500	110	150	200										140	190	250
			260	340	460	90	120	160										120	160	220
			280	380	480	100	130	180										130	170	235
			250	320	420	80	110	145										110	150	200
															2400	2400	2640			
															1800	1800	2040			
															600	660	720			
															480	480	530			
															240	280	310			
															460	580	640			
															320	410	450			
															300	380	430			
															720	920	1010			
															240	310	340			
100	105	130																		
70	75	95																		
75	85	105							70	70	80	70	70	80						
45	55	70							55	60	70	55	60	70						
60	70	90							45	50	55	45	50	55						
100	120	150							70	90	100	70	90	100						
60	70	90	40	50	70	40	50	70	50	55	60	50	55	60						
																		60	80	110
																		40	50	70
																		60	80	110
																		50	70	90

*a_e/D_c = 1/50, v_C = 40 % higher than 1/20

Cutting data for semi-finishing and finishing for uncoated grades and CBN during copy milling

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_C [m/min] HF = Fine-grained carbide WMG 40 a_e/D_c 1/1	1/5	1/10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1			
		approx. 0.45 % C	annealed	190	2			
		approx. 0.45 % C	tempered	250	3			
		approx. 0.75 % C	annealed	270	4			
		approx. 0.75 % C	tempered	300	5			
	Low-alloyed steel[1]		annealed	180	6			
			tempered	275	7			
			tempered	300	8			
			tempered	350	9			
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10			
			hardened and tempered	325	11			
	Stainless steel[1]		ferritic / martensitic, annealed	200	12			
			martensitic, tempered	240	13			
M	Stainless steel[1]		austenitic[2], quenched	180	14			
K	Grey cast iron		perlitic/ferritic	180	15			
			perlitic (martensitic)	260	16			
	Cast iron with spheroidal graphite		ferritic	160	17			
			perlitic	250	18			
	Malleable cast iron		ferritic	130	19			
			perlitic	230	20			
N	Aluminium wrought alloys		can not be hardened	60	21	1600	1600	1760
			can be hardened, hardened	100	22	1200	1200	1360
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23	400	440	480
			≤ 12 % Si, can be hardened, hardened	90	24	320	320	350
			> 12 % Si, can not be hardened	130	25	160	190	210
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26	305	390	430
			Brass, red brass	90	27	220	270	300
			Bronze, lead-free copper and electrolytic copper	100	28	200	260	280
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29	480	610	670
			Hard rubber		30	160	205	225
S	Heat-resistant alloys	Fe basis	annealed	200	31			
			hardened	280	32			
		Ni or Co basis	annealed	250	33	55	60	65
			hardened	350	34	45	50	55
			cast	320	35	30	40	45
	Titanium alloys		Pure titanium	400[3]	36	80	100	110
			Alpha + Beta alloys, hardened	1050[3]	37	30	45	50
H	Hardened steel		hardened and tempered	55[4]	38			
			hardened and tempered	60[4]	39			
	Chilled cast iron		cast	400	40			
	Hardened cast iron		hardened and tempered	55[4]	41			

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

Semi-finishing / finishing with copy milling cutters

Starting value for cutting speed v_C [m/min]									
	HW = uncoated grades			BH = CBN					
	WK 10			WCB 50			WCB 80		
	a_e/D_c			a_e/D_c			a_e/D_c		
	1/1	1/5	1/10	1/1	1/5	1/10	1/1	1/5	1/10
				1000	1330	1810	1000	1330	1810
				800	1060	1450	800	1060	1450
				600	800	1090	600	800	1090
				400	530	720	400	530	720
	2000	2000	2200						
	1500	1500	1700						
	500	550	600						
	400	400	440						
	200	235	260						
	380	485	535						
	270	340	375						
	250	320	355						
	600	765	840						
	200	255	280						
				220	290	400	220	290	400
				140	190	250	140	190	250
				100	130	180	100	130	180

Cutting data for solid carbide shank cutters

Material group	Classification of the main material groups and code letters: Workpiece material			Brinell hardness HB	Machining group[5]	Starting value for v_c [m/min]: Shoulder milling cutters (coated) a_e/D_c 1/1	1/2	1/5	1/10
P	Non-alloyed steel[1]	approx. 0.15 % C	annealed	125	1	200	260	325	375
		approx. 0.45 % C	annealed	190	2	140	185	225	265
		approx. 0.45 % C	tempered	250	3	120	160	200	230
		approx. 0.75 % C	annealed	270	4	120	155	190	225
		approx. 0.75 % C	tempered	300	5	110	145	180	215
	Low-alloyed steel[1]		annealed	180	6	155	200	250	290
			tempered	275	7	125	165	200	235
			tempered	300	8	120	155	190	225
			tempered	350	9	110	145	180	205
	High-alloyed steel and high-alloyed tool steel[1]		annealed	200	10	115	155	190	220
			hardened and tempered	325	11	90	120	150	170
	Stainless steel[1]		ferritic / martensitic, annealed	200	12	75	100	125	145
			martensitic, tempered	240	13	70	95	115	135
M	Stainless steel[1]		austenitic[2], quenched	180	14	95	130	160	185
K	Grey cast iron		perlitic/ferritic	180	15	150	200	250	290
			perlitic (martensitic)	260	16	125	165	205	240
	Cast iron with spheroidal graphite		ferritic	160	17	170	225	280	320
			perlitic	250	18	125	170	205	240
	Malleable cast iron		ferritic	130	19	170	220	275	320
			perlitic	230	20	135	175	215	250
N	Aluminium wrought alloys		can not be hardened	60	21				
			can be hardened, hardened	100	22				
	Aluminium cast iron alloys		≤ 12 % Si, can not be hardened	75	23	595	785	970	1125
			≤ 12 % Si, can be hardened, hardened	90	24	475	630	775	900
			> 12 % Si, can not be hardened	130	25	400	525	645	750
	Copper and copper alloys (bronze/brass)		Free cutting alloys, Pb > 1 %	110	26				
			Brass, red brass	90	27	595	785	970	1120
			Bronze, lead-free copper and electrolytic copper	100	28				
	Non-metallic materials		Curable plastics, fibre-reinforced plastics		29	195	255	315	365
			Hard rubber		30				
S	Heat-resistant alloys	Fe basis	annealed	200	31	60	75	105	120
			hardened	280	32	50	65	95	110
		Ni or Co basis	annealed	250	33	55	70	100	115
			hardened	350	34	35	45	65	75
			cast	320	35	45	55	75	85
	Titanium alloys		Pure titanium	400[3]	36				
			Alpha + Beta alloys, hardened	1050[3]	37	70	95	135	155
H	Hardened steel		hardened and tempered	55[4]	38				
			hardened and tempered	60[4]	39				
	Chilled cast iron		cast	400	40				
	Hardened cast iron		hardened and tempered	55[4]	41				

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.

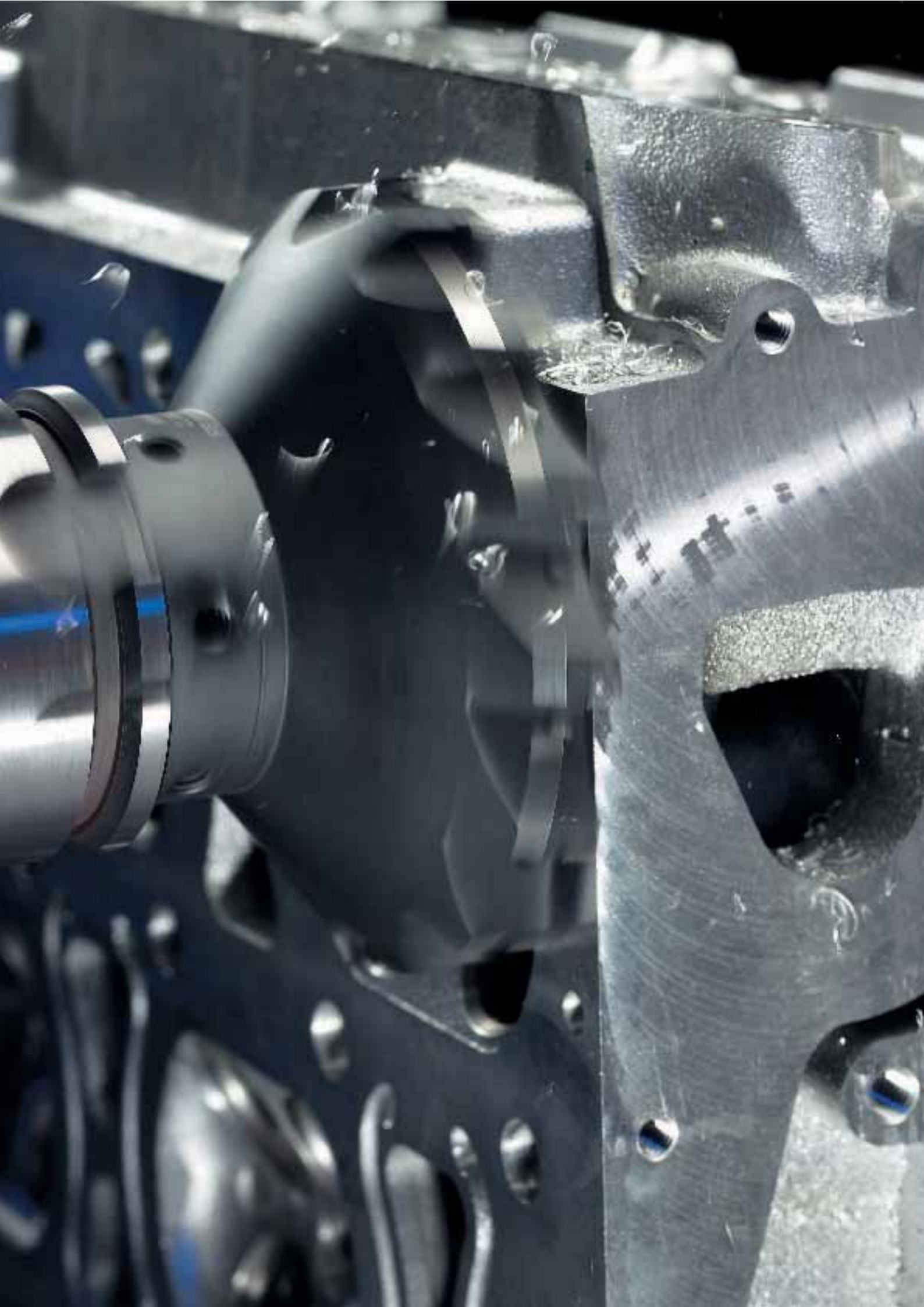
Starting value for v_C [m/min]

Shoulder milling cutters (uncoated)				Copy milling cutters a_e/D_c				Aluminium cutters a_e/D_c				Hard machining a_e/D_c
1/1	1/2	1/5	1/10	1/1	1/2	1/5	1/10	1/1	1/2	1/5	1/10	1/20
	130	160		230	300	370	430					
	105	130		160	210	260	305					
	90	115		140	185	230	265					
	80	105		130	175	220	255					
	70	90		110	155	200	230					
	105	130		175	235	285	335					
	90	110		140	185	230	270					
	80	100		135	180	220	255					
	70	90		125	165	205	235					
	90	110		135	175	220	250					
	70	90		105	140	170	195					
	55	65		90	115	145	165					
	50	60		80	105	130	155					
	65	80		110	150	185	210					
	80	100		175	230	285	330					
	95	115		145	195	240	275					
	105	130		195	260	320	370					
	85	90		145	195	240	275					
	110	135		200	270	330	380					
	90	110		155	200	250	298					
		1570		875	1020	1200	1570	2380	3140	3870	4480	
		1570		875	1020	1200	1570	2250	2970	3670	4250	
		810		630	810	1000	1180	595	785	970	1120	
		325		510	660	810	935	240	315	385	450	
		270		425	565	695	805	200	260	320	375	
		455		605	795	985	1140					
255	335	410		640	845	1040	1210					
		375		495	655	810	935					
200				210	275	340	395					
				190	190	190	190					
				75	95	130	150					
				65	85	120	140					
				70	90	125	145					
				45	60	85	95					
				55	70	95	100					
95	130	160		245	325	400	460					
				90	120	170	195					
												105
												75
												110

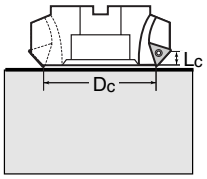
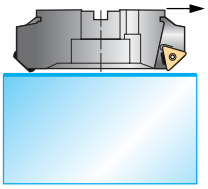
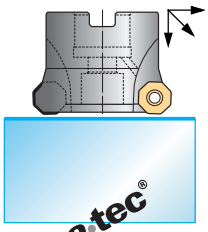
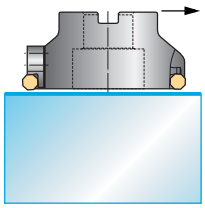
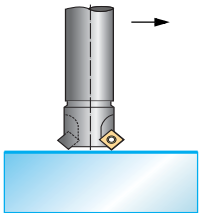
Cutting data for WALTER PCD milling cutters

Material group	Classification of the main material groups and code letters Workpiece material			Brinell hardness HB	Machining group	Cutting speed v_c [m/min]	Feed per tooth f_z [mm]
P	Non-alloyed steel[1]	approx. 0.15 % C annealed		125	1		
		approx. 0.45 % C annealed		190	2		
		approx. 0.45 % C tempered		250	3		
		approx. 0.75 % C annealed		270	4		
		approx. 0.75 % C tempered		300	5		
	Low-alloyed steel[1]	annealed		180	6		
		tempered		275	7		
		tempered		300	8		
		tempered		350	9		
	High-alloyed steel and high-alloyed tool steel[1]	annealed		200	10		
		hardened and tempered		325	11		
	Stainless steel[1]	ferritic / martensitic, annealed		200	12		
		martensitic, tempered		240	13		
M	Stainless steel[1]	austenitic[2], quenched		180	14		
K	Grey cast iron	perlitic/ferritic		180	15		
		perlitic (martensitic)		260	16		
	Cast iron with spheroidal graphite	ferritic		160	17		
		perlitic		250	18		
	Malleable cast iron	ferritic		130	19		
		perlitic		230	20		
N	Aluminium wrought alloys	can not be hardened		60	21	500–5000	0.05–0.2
		can be hardened. hardened		100	22	500–4000	0.05–0.2
	Aluminium cast iron alloys	≤ 12 % Si, can not be hardened		75	23	500–4000	0.05–0.2
		≤ 12 % Si, can be hardened, hardened		90	24	400–3800	0.05–0.2
		> 12 % Si, can not be hardened		130	25	250–3000	0.03–0.15
	Copper and copper alloys (bronze/brass)	Free cutting alloys, Pb > 1 %		110	26	300–6000	0.05–0.4
		Brass, red brass		90	27	300–6000	0.05–0.4
		Bronze, lead-free copper and electrolytic copper		100	28		
	Non-metallic materials	Curable plastics, fibre-reinforced plastics			29	250–4000	0.08–1.0
		Hard rubber			30		
S	Heat-resistant alloys	Fe basis	annealed	200	31		
			hardened	280	32		
		Ni or Co basis	annealed	250	33		
			hardened	350	34		
			cast	320	35		
	Titanium alloys	Pure titanium		400[3]	36		
		Alpha + Beta alloys, hardened		1050[3]	37		
H	Hardened steel	hardened and tempered		55[4]	38		
		hardened and tempered		60[4]	39		
	Chilled cast iron	cast		400	40		
	Hardened cast iron	hardened and tempered		55[4]	41		

[1] and cast steel [2] and austenitic / ferritic [3] Rm: tensile strength in MPa = N/mm^2 [4] HRC: Rockwell hardness HRC C
[5] The machining group assignment can be found from page 798 onwards.



Feed rate specification (starting values)

Milling cutter type		F 2044 / F 2244		F 2010 / F 2280 F 4080		F 2146	F 2232		
Feed per tooth f_{zo} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$									
Approach angle κ		42°		43°		43°	45°		
Page		476 / 478		454 / 500 / 510		480	482		
Tool dia. or dia. range [mm]		f_{zo} [mm] 63–315	f_{zo} [mm] 160–315	f_{zo} [mm] F 2280 32–125	f_{zo} [mm] F 2010 F 4080 50–315	f_{zo} [mm] 80–250	f_{zo} [mm] 12–16	20–40	32–40
max. cut depths $a_{p\,max} = L_c$ [mm]		8	12	3 / 8	4 / 10	3	3	5	7
P	Non-alloyed steel[1]	0.50*	0.50*	0.45	0.50	0.25	0.15	0.20	0.25
	Low-alloyed steel[1]	0.40*	0.40*	0.40	0.45	0.20	0.12	0.15	0.20
	High-alloyed steel and tool steel[1]	0.30*	0.30*	0.30	0.35	0.20	0.12	0.15	0.20
	Stainless steel[1] martensitic	0.20*	0.20*	0.20	0.25	0.20	0.10	0.12	0.15
M	Stainless steel[1] austenitic[2]	0.15	0.15	0.15	0.15	—	0.08	0.10	0.12
K	Grey cast iron	0.50	0.50	0.45	0.50	0.35	0.20	0.25	0.30
	Cast iron with spheroidal graphite	0.40	0.40	0.35	0.40	0.30	0.15	0.20	0.25
	Malleable cast iron	0.40	0.40	0.35	0.40	0.30	0.15	0.20	0.25
N	Aluminium	0.25	0.25	0.25	0.25	—	0.10	0.12	0.15
	Copper and copper alloys	0.15	0.15	0.15	0.15	—	0.08	0.10	0.12
	Non-metallic materials	0.15	0.15	0.15	0.15	—	0.08	0.10	0.12
S	Heat-resistant alloys	—	—	0.15	0.15	—	0.08	0.10	0.12
	Titanium alloys	—	—	0.15	0.15	—	0.08	0.10	0.12
H	Hardened steel	—	—	—	—	—	—	—	—
Indexable insert types		P 23 . . – Size 1	P 23 . . – Size 2	OD . . 0504	OD . . 0605	OP . . 0504	SP . . 0603	SP . . 09T3	SP . . 1204
Correction factor Ka_e for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	a_e / D_c = 1/1–1/2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	1/5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	1/10	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	1/20	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	1/50						1.5	1.5	1.5
Correction factor Ka_p for the feed per tooth dependant on the cut depth a_p	a_p = 1			1.0	1.0				
	2			1.0	1.0				
	3			1.0	1.0				
	4			0.6	1.0				
	6			0.6	0.6				
	8			0.6	0.6				
	$a_{p\,max} = L_c$			0.6	0.6				
$f_z = f_{zo} \cdot Ka_e \cdot Ka_p$									

[1] and cast steel
[2] and austenitic / ferritic

* when using inserts with chip breaker groove reduce the feed rate f_{zo} by a factor of 0.7.

Surface and shoulder milling cutters

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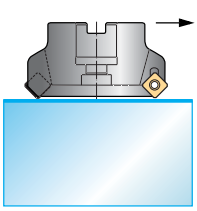
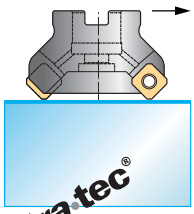
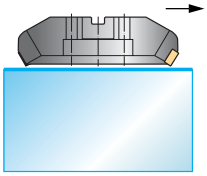
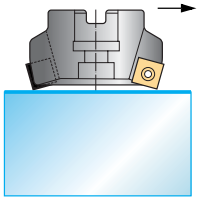
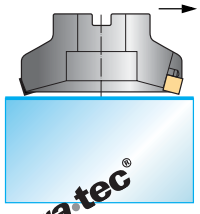
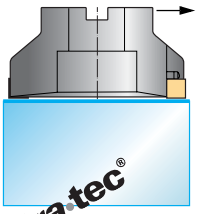
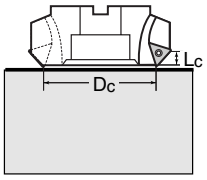
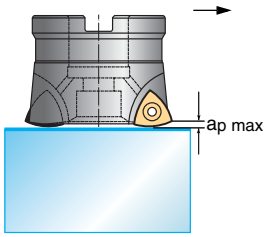
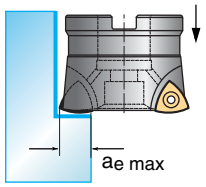
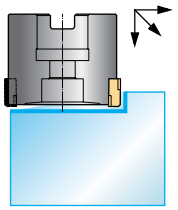
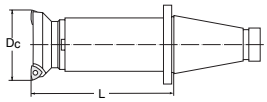
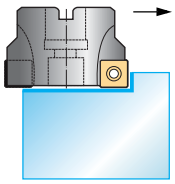
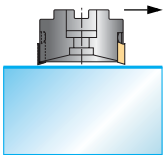
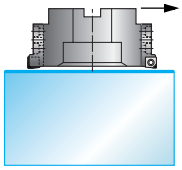
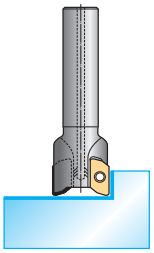
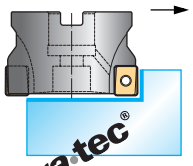
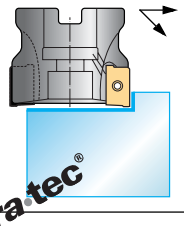
								
	45°		45°	60°		75°	75°	88°
	458 / 484 / 486		456 / 504	496 / 498		462 / 488	460 / 506	464 / 508
	f_{z0} [mm]		f_{z0} [mm]	f_{z0} [mm]		f_{z0} [mm]	f_{z0} [mm]	f_{z0} [mm]
	20–80	25–315	40–250	F 2260	F 2265	80–315	63–250	63–250
	5	7	6	11/15	12/20	10	8	10
	0.20	0.25	0.25	0.60	1.0	0.25	0.22	0.20
	0.15	0.20	0.20	0.45	0.80	0.20	0.18	0.17
	0.15	0.20	0.20	—	0.50	0.20	0.18	0.17
	0.12	0.15	0.15	—	0.40	0.20	0.14	0.13
	0.10	0.12	0.12	—	0.30	0.15	—	—
	0.25	0.30	0.30	1.0	1.0	0.30	0.25	0.22
	0.20	0.25	0.25	0.80	0.80	0.25	0.22	0.20
	0.20	0.25	0.25	0.80	0.80	0.25	0.22	0.20
	0.12	0.15	—	—	—	0.20	—	—
	0.10	0.12	—	—	—	0.15	—	—
	0.10	0.12	—	—	—	0.15	—	—
	0.10	0.12	0.12	—	—	0.10	—	—
	0.10	0.12	0.12	—	—	0.10	—	—
	—	—	—	—	—	—	—	—
	SD . . 09T3	SP . . 1204	SN . X 120512 SN . X 120520 SN . X 1205 ANN	LNMU	LNKU	SP . . 1204	SN . X 120512 SN . X 120520 SN . X 1205 ENN	SN . X 120512 SN . X 120520 SN . X 1205 ZNN
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

Feed rate specification (starting values)

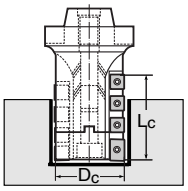
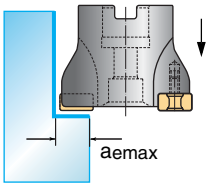
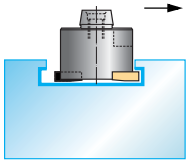
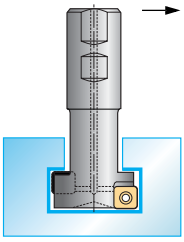
Milling cutter type		F 2010 / F 2330			F 2330			F 2254	
Feed per tooth f_{zo} for $a_e = D_c$, $a_p = a_{p\,max} = L_c$									
Approach angle κ		15°			15°			89°	
Page		452 / 502			502			494	
		f_{zo} [mm]			f_{zo} [mm]			f_{zo} [mm]	
Tool dia. or dia. range [mm]		20–25	32–42	52–250	20–25	32–42	52–85	50–160	
max. cut depths $a_{p\,max} = L_c$ [mm]		a_{pmax}=1	a_{pmax}=1.5	a_{pmax}=2	a_{emax}=7	a_{emax}=10	a_{emax}=15	7	
P	Non-alloyed steel[1]	1.2	1.6	2.0	0.18	0.25	0.30	0.15	
	Low-alloyed steel[1]	1.0	1.4	1.8	0.16	0.22	0.25	0.10	
	High-alloyed steel and tool steel[1]	0.7	1.0	1.2	0.12	0.16	0.22	0.10	
	Stainless steel[1] martensitic	0.5	0.6	0.8	0.10	0.12	0.15	0.08	
M	Stainless steel[1] austenitic[2]	0.5	0.6	0.8	0.10	0.12	0.15	—	
K	Grey cast iron	1.2	1.6	2.0	0.18	0.25	0.30	0.15	
	Cast iron with spheroidal graphite	1.0	1.4	1.8	0.16	0.22	0.28	0.15	
	Malleable cast iron	1.0	1.4	1.8	0.16	0.22	0.28	0.10	
N	Aluminium	—	—	—	—	—	—	—	
	Copper and copper alloys	—	—	—	—	—	—	—	
	Non-metallic materials	—	—	—	—	—	—	—	
S	Heat-resistant alloys	0.5	0.6	0.8	0.08	0.10	0.12	—	
	Titanium alloys	0.5	0.6	0.8	0.08	0.10	0.12	—	
H	Hardened steel	—	—	—	—	—	—	—	
Indexable insert types		P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25	P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25	SNHQ 1205	
Correction factor Ka_e for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	a_e / D_c = 1/1–1/2	1.0	1.0	1.0				1.0	
	1/5	1.4	1.4	1.3				1.4	
	1/10	1.8	1.8	1.6				1.5	
	1/20							1.8	
	1/50							2.0	
Correction factor Ka_p for the feed per tooth dependant on the cut depth a_p	a_p = 0.5	1.3	1.4	1.5					
	1.0	1.0	1.2	1.4					
	1.5		1.0	1.2					
	2.0			1.0					
Correction factor **K** 	1<(L : D_c)ð2	1.4	1.4	1.4	1.0	1.0	1.0		
	2<(L : D_c)ð4	1.0	1.0	1.0	0.7	0.7	0.7		
	4<(L : D_c)ð6	0.7	0.7	0.7	0.5	0.5	0.5		
$f_z = f_{zo} \cdot Ka_e \cdot Ka_p \cdot K$									

[1] and cast steel
[2] and austenitic / ferritic

Surface and shoulder milling cutters

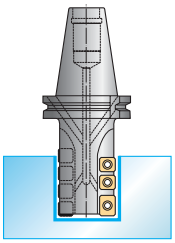
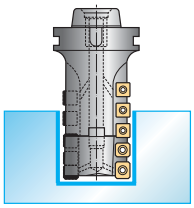
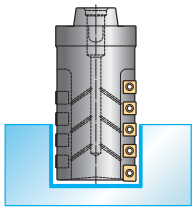
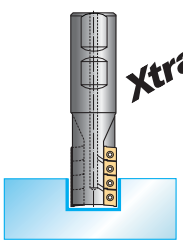
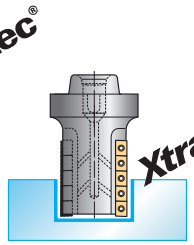
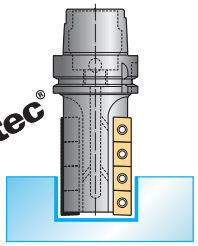
	F 2010 / F 2241			F 2140	F 2250	F 3040		F 2010 / F 4041	F 2010 / F 4042			
												
	89°45'			90°	75 + 90°	90°		90°	90°			
	466 / 516			514	490 / 492	518		472 / 520	468 / 522–529			
	f_{zo} [mm]			f_{zo} [mm]	f_{zo} [mm]	f_{zo} [mm]		f_{zo} [mm]	f_{zo} [mm]			
	16–40	25-160	32-315	63–160	63–200	25–63	32–63	40–250	10-50	25-250	40-250	50-160
	6	9	12	10	3 / 4	Z = 2...5	Z = 2...4	13	7	11	15	16.9
	0.10	0.15	0.20	0.12	—	—	—	0.20	0.15	0.20	0.25	0.30
	0.08	0.12	0.15	0.10	—	—	—	0.15	0.10	0.15	0.18	0.22
	0.08	0.12	0.15	0.10	—	—	—	0.15	0.10	0.15	0.18	0.22
	0.06	0.10	0.12	0.08	—	—	—	0.12	0.08	0.12	0.15	0.18
	0.06	0.08	0.10	—	—	0.10	0.10	0.10	0.08	0.10	0.12	0.14
	0.12	0.2	0.25	—	—	0.25	0.25	0.25	0.15	0.25	0.30	0.40
	0.10	0.15	0.20	—	—	0.20	0.20	0.20	0.12	0.20	0.25	0.30
	0.10	0.15	0.20	—	—	0.20	0.20	0.20	0.12	0.20	0.25	0.30
	0.10	0.12	0.15	0.15	0.15	0.15	0.20	0.15	0.12	0.15	0.15	—
	0.08	0.10	0.12	0.15	0.15	0.12	0.15	0.12	0.10	0.12	0.15	—
	0.08	0.10	0.12	0.15	0.15	0.12	0.12	0.12	0.10	0.12	0.15	—
	0.06	0.10	0.10	—	—	0.12	0.12	0.12	0.08	0.12	0.15	0.18
	0.06	0.10	0.10	—	—	0.12	0.12	0.12	0.08	0.12	0.15	0.18
	—	—	—	—	—	—	—	—	—	—	—	—
	SP . . 0603	SD . . 09T3	SP . . 1204	P2792 – size 1	SP . . 1204 PCD	ZD . . 1504	ZD . . 2005	LNGX 1307	AD . . 0803	AD . . 1204	AD . . 1606	AD . . 1807
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3

Feed rate specification (starting values)

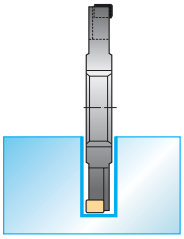
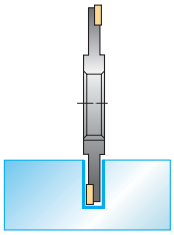
Milling cutter type		F 2230		F 2036				F 2237			F 2243		
Feed per tooth f_{zo} for $a_e = D_c$, $a_p = a_{p\,max} = L_c$													
Approach angle κ		90°		90°				90°			90°		
Page		538		536				540			542		
		f_{zo} [mm]		f_{zo} [mm]				f_{zo} [mm]			f_{zo} [mm]		
Tool dia. or dia. range [mm]		50	63–80	16	25	20	63	18–20	25–32	40	21–25	32–40	50
max. cut depths $a_{p\,max} = L_c$ [mm]		$a_{e\,max}$=11	$a_{e\,max}$=14.5	1.6	2.15	3.15	5.15	13	22	25	9–11	14–17	21
P	Non-alloyed steel[1]	0.30	0.35	0.10	0.16	0.24	0.30	0.10*	0.15*	0.20*	0.10	0.12	0.16
P	Low-alloyed steel[1]	0.25	0.30	0.10	0.16	0.24	0.30	0.08*	0.12*	0.15*	0.08	0.09	0.10
P	High-alloyed steel and tool steel[1]	0.25	0.30	0.08	0.14	0.19	0.25	0.08*	0.12*	0.15*	0.08	0.06	0.08
P	Stainless steel[1] martensitic	0.15	0.20	0.08	0.14	0.19	0.25	0.06*	0.08*	0.12*	0.06	0.06	0.08
M	Stainless steel[1] austenitic[2]	0.15	0.20	—	—	—	—	0.06*	0.08*	0.10*	0.06	0.06	0.06
K	Grey cast iron	0.35	0.40	0.10	0.16	0.24	0.30	0.12*	0.20*	0.25*	0.12	0.16	0.18
K	Cast iron with spheroidal graphite	0.30	0.35	0.09	0.15	0.22	0.28	0.10*	0.15*	0.20*	0.10	0.12	0.12
K	Malleable cast iron	0.30	0.35	0.08	0.14	0.19	0.25	0.10*	0.15*	0.20*	0.08	0.08	0.10
N	Aluminium	—	—	—	—	—	—	0.10*	0.12*	0.12*	—	—	—
N	Copper and copper alloys	—	—	—	—	—	—	0.08*	0.10*	0.10*	—	—	—
N	Non-metallic materials	—	—	—	—	—	—	0.08*	0.10*	0.10*	—	—	—
S	Heat-resistant alloys	0.10	0.10	—	—	—	—	0.06*	0.10*	0.10*	0.06	0.06	0.06
S	Titanium alloys	0.10	0.10	—	—	—	—	0.06*	0.10*	0.10*	0.06	0.06	0.06
H	Hardened steel	—	—	—	—	—	—	—	—	—	—	—	—
Indexable insert types		CNHQ 1206	CNHQ 1608	P20. 1.1-1.3	P20. 1.2-1.5	P20. 2.1-2.3	P20. 3.1-3.3	SP.. 0603 LP.. 0703	SP.. 09T3 LP.. 15T3	SP.. 09T3 1204 LP.. 1504	SP.. 0603	SP.. 09T3	SP.. 1204
Correction factor Ka_e for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	a_e / D_c = 1/1–1/2	—	—					1.0	1.0	1.0	1.0	1.0	1.0
	1/5	1.0	1.0					1.1	1.1	1.1	1.5	1.5	1.5
	1/10	1.1	1.1					1.2	1.2	1.2	1.8	1.8	1.8
	1/20	1.2	1.2					1.3	1.3	1.3	2.5	2.5	2.5
	1/50												
Correction factor Ka_p for the feed per tooth dependant on the cut depth a_p	a_p = 6												
	9												
	12												
	0.5 x D_c												
	0.75 x D_c												
	1 x D_c												
	$a_{p\,max} = L_c$												
$f_z = f_{zo} \cdot Ka_e \cdot Ka_p$													

[1] and cast steel
[2] and austenitic / ferritic

* only possible if $a_p < 0.75 \times D_C$
** only if $a_e/D_C < 1/5$

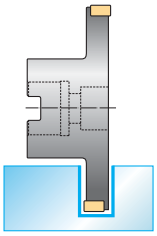
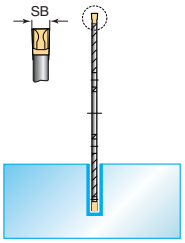
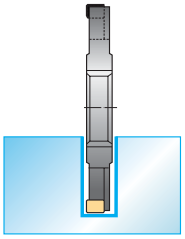
	F 2238			F 2238 CE / CK	F 2338/F 2338 F		F 4038	F 4138	F 4238
									
	90°			90°	90°		90°	90°	90°
	544			546 / 548	550 / 552		554	556	558
	f_{z0} [mm]			f_{z0} [mm]	f_{z0} [mm]		f_{z0} [mm]	f_{z0} [mm]	f_{z0} [mm]
	20–32	40–65	80–125	63–80	63–80	85–100	20–32	32–80	40–80
	42	50	87	117	Z ≤ 4	Z > 4	15–37	33–65	29–85
	0.10	0.15	0.20	0.20	0.30	0.30	0.15	0.20	0.25
	0.08	0.12	0.15	0.15	0.25	0.25	0.10	0.15	0.20
	0.08	0.12	0.15	0.15	0.20	0.20	0.10	0.15	0.18
	0.06	0.08	0.12	0.10	0.15	0.15	0.08	0.12	0.12
	0.06	0.08	0.10	0.10	0.15	0.15	0.08	0.10	0.12
	0.12	0.20	0.25	0.25	0.40	0.40	0.15	0.25	0.28
	0.10	0.15	0.20	0.20	0.30	0.30	0.12	0.20	0.22
	0.10	0.15	0.20	0.20	0.30	0.30	0.12	0.20	0.22
	0.10	0.12	0.12	0.12	—	—	0.12	0.15	0.15
	0.08	0.10	0.10	0.10	—	—	0.10	0.12	0.12
	0.08	0.10	0.10	0.10	—	—	0.10	0.12	0.12
	0.06	0.10	0.10	0.10	0.12	0.12	0.08	0.12	0.12
	0.06	0.10	0.10	0.10	0.12	0.12	0.08	0.12	0.12
	—	—	—	—	—	—	—	—	—
	SP . . 0603 LP . . 0703	SP . . 09T3 LP . . 15T3	SP . . 1204 LP . . 1504	SP . . 1204 LP . . 1504	LP . . 1506 SP . . 1206	LP . . 1506 SP . . 1206	AD . . 0803	AD . . 1204	AD . . 1606
	1.0	1.0	—	1.0	1.0	—	1.0*	1.0*	1.0*
	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
							1.5	1.5	1.5
	1.6	1.6	1.6	1.0	1.0	1.0	1.0	1.0	1.0
	1.0	1.6	1.6	1.0	1.0	1.0	1.0	1.0	1.0
	1.0	1.0	1.6	1.0	1.0	1.0	1.0	1.0	1.0
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
	0.5**	0.5**	0.5**	0.5**	0.5**	0.5**	0.5**	0.5**	0.5**

Feed rate specification (starting values)

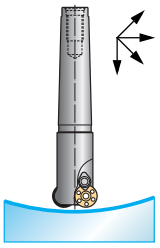
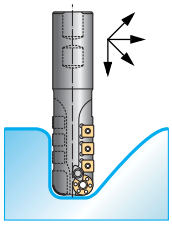
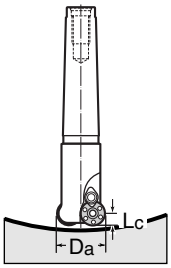
Milling cutter type		full side and face milling							
		F 2252						F 2053	
Feed per tooth f_{z0} for plunging central positioning									
Approach angle κ		90°						90°	
Page		564 / 566			568 / 570			576	
		f_{z0} [mm]			f_{z0} [mm]			f_{z0} [mm]	
Tool dia. or dia. range [mm]		100–160	125–315	125–250	80–160	100–160	125–315	100–200	
Cut width SB [mm]		12–16	16–22	22–25	8–10	10–16	16–23.5	6	8
P	Non-alloyed steel[1]	0.10	0.14	0.20	0.10	0.10	0.17	0.11	0.12
P	Low-alloyed steel[1]	0.07	0.10	0.14	0.07	0.07	0.13	0.09	0.11
P	High-alloyed steel and tool steel[1]	0.07	0.10	0.14	0.07	0.07	0.13	0.09	0.11
P	Stainless steel[1] martensitic	0.05	0.07	0.10	0.05	0.05	0.10	0.05	0.07
M	Stainless steel[1] austenitic[2]	0.05	0.07	0.10	0.05	0.05	0.08	0.05	0.07
K	Grey cast iron	0.10	0.15	0.23	0.10	0.10	0.2	0.12	0.14
K	Cast iron with spheroidal graphite	0.08	0.12	0.18	0.08	0.08	0.17	0.11	0.12
K	Malleable cast iron	0.08	0.12	0.18	0.08	0.08	0.17	0.11	0.12
N	Aluminium	0.08	0.10	0.12	0.08	0.08	0.10	—	—
N	Copper and copper alloys	0.07	0.09	0.11	0.07	0.07	0.10	—	—
N	Non-metallic materials	0.07	0.09	0.11	0.07	0.07	0.10	—	—
S	Heat-resistant alloys	0.05	0.07	0.10	0.05	0.05	0.10	0.05	0.07
S	Titanium alloys	0.05	0.07	0.10	0.05	0.05	0.10	0.05	0.07
H	Hardened steel	—	—	—	—	—	—	—	—
Indexable insert types		AD . . 0803 R/L	AD . . 1204 R/L	AD . . 1606 R/L	MP . . 0603	MP . . 0803	MP . . 1204	P 44 . . Size 1	P 44 . . Size 3
Correction factor Ka_e for the feed per tooth dependant on the ratio: groove depth to a_e / cutter diameter D_c	a_e / D_c = central	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	1/3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	1/5	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	1/10	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	1/20	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	1/50	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8

[1] and cast steel
[2] and austenitic / ferritic

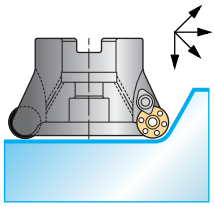
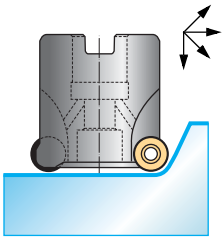
Please note: The feed per tooth f_z should not exceed 0.6 mm!

	full side and face milling									helical milling					
	F 2253					F 2255				F 2252					
															
	90°					90°				88° / 90°					
	572					574				560			562		
	f_{z0} [mm]					f_{z0} [mm]				f_{z0} [mm]			f_{z0} [mm]		
	80-125	100-160	125-200	160-250	200-315	63-125	63-160	63-250	63-250	100-160	125-315	125-250	80-125	100-160	125-315
	10	12	16	20	25	1.6	2.2	3.0	4.0	12–16	16–22	22–25	6	8	12
	0.12	0.15	0.2	0.17	0.23	0.06	0.08	0.10	0.12	0.12	0.17	0.24	0.12	0.15	0.20
	0.10	0.13	0.17	0.14	0.20	0.06	0.07	0.09	0.11	0.10	0.14	0.20	0.10	0.10	0.15
	0.10	0.13	0.17	0.14	0.20	0.06	0.07	0.09	0.11	0.10	0.14	0.20	0.10	0.10	0.15
	0.06	0.08	0.10	0.08	0.13	0.05	0.06	0.08	0.09	0.08	0.11	0.16	0.08	0.08	0.12
	0.06	0.08	0.10	0.08	0.13	0.05	0.06	0.08	0.09	0.08	0.11	0.16	0.08	0.08	0.10
	0.14	0.18	0.23	0.19	0.27	0.06	0.08	0.10	0.12	0.15	0.23	0.34	0.15	0.15	0.25
	0.12	0.15	0.20	0.17	0.23	0.06	0.07	0.09	0.11	0.12	0.18	0.27	0.12	0.12	0.20
	0.12	0.15	0.20	0.17	0.23	0.06	0.07	0.09	0.11	0.12	0.18	0.27	0.12	0.12	0.20
	—	—	—	—	—	0.06	0.07	0.09	0.11	0.12	0.16	0.19	0.12	0.12	0.15
	—	—	—	—	—	0.06	0.07	0.09	0.11	0.10	0.13	0.16	0.10	0.10	0.12
	—	—	—	—	—	0.06	0.07	0.09	0.11	0.10	0.13	0.16	0.10	0.10	0.12
	0.06	0.08	0.10	0.08	0.12	—	—	—	—	0.08	0.10	0.12	0.08	0.08	0.12
	0.06	0.08	0.10	0.08	0.12	—	—	—	—	0.08	0.10	0.12	0.08	0.08	0.12
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	CN . . 0805		CN . . 1206		CN . . 1608	NSM 3.90016 .	NSM 3.90022 .	NSM 3.90030 .	NSM 3.90040 .	AD . . 0803 R/L	AD . . 1204 R/L	AD . . 1606 R/L	MP . . 0603	MP . . 0803	MP . . 1204
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8

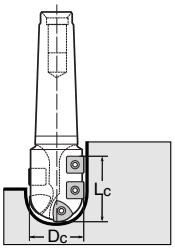
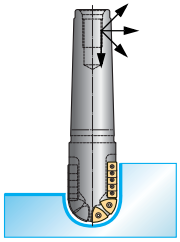
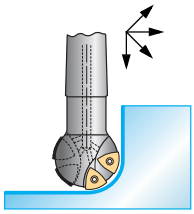
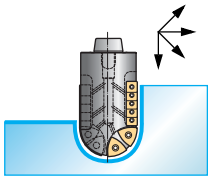
Feed rate specification (starting values)

Milling cutter type			F 2231 version A / Z = 2 					F 2231 version B / Z = 2/1 			
Feed per tooth f_{zo} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$ 											
Page			582					584			
			f_{zo} [mm]					f_{zo} [mm]			
Tool dia. or dia. range [mm]			10	16	20	24	30 / 32	40	24	30 / 32	40
max. cut depths $a_{p\,max} = L_c$ [mm]			2.5	4	5	6	8	10	44	61	78
P	Non-alloyed steel[1]		0.06	0.10	0.15	0.20	0.25	0.30	0.20	0.25	0.30
	Low-alloyed steel[1]		0.05	0.08	0.12	0.14	0.20	0.25	0.14	0.20	0.25
	High-alloyed steel and tool steel[1]		0.05	0.08	0.12	0.14	0.20	0.25	0.14	0.20	0.25
	Stainless steel[1] martensitic		0.04	0.06	0.08	0.10	0.12	0.15	0.10	0.12	0.15
M	Stainless steel[1] austenitic[2]		0.04	0.06	0.08	0.1	0.12	0.12	0.10	0.12	0.12
K	Grey cast iron		0.08	0.12	0.20	0.25	0.30	0.35	0.25	0.30	0.35
	Cast iron with spheroidal graphite		0.06	0.10	0.15	0.20	0.25	0.30	0.20	0.25	0.30
	Malleable cast iron		0.06	0.10	0.15	0.20	0.25	0.30	0.20	0.25	0.30
N	Aluminium		0.06	0.10	0.12	0.14	0.16	0.16	0.14	0.16	0.16
	Copper and copper alloys		0.05	0.08	0.10	0.12	0.14	0.16	0.12	0.14	0.16
	Non-metallic materials		0.05	0.08	0.10	0.12	0.14	0.16	0.12	0.14	0.16
S	Heat-resistant alloys		0.04	0.06	0.08	0.10	0.10	0.10	0.10	0.10	0.10
	Titanium alloys		0.04	0.06	0.08	0.10	0.10	0.10	0.10	0.10	0.10
H	Hardened steel		0.03	0.04	0.08	0.06	0.06	0.06	—	—	—
Indexable insert types			RD.. 0501	RD.. 0803	RD.. 10T3	RD.. 1204	RD.. 1505 RD.. 1605	RD.. 2006	RD.. 1204 XD.. 1504 SP.. 0603	RD.. 1505 RD.. 1605 XD.. 2005 SP.. 09T3	RD.. 2006 XD.. 2506 SP.. 09T3
Correction factor Ka_e for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	a_e / D_c =	1/1–1/2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		1/5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
		1/10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		1/20	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
		1/50	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Correction factor Ka_p for the feed per tooth dependant on the cut depth a_p	a_p =	1	1.3	1.4	1.5	1.6	1.8	2.0	1.6	1.8	2.0
		2	1.0	1.1	1.2	1.3	1.4	1.5	1.3	1.4	1.5
		4		1.0	1.0	1.1	1.2	1.2	1.1	1.2	1.2
		5			1.0	1.0	1.1	1.1	1.0	1.1	1.1
		6				1.0	1.1	1.1	1.0	1.1	1.1
		8					1.0	1.1	0.5	1.0	1.1
		10						1.0	0.5	0.5	1.0
		12.5							0.5	0.5	0.5
$f_z = f_{zo} \cdot Ka_e \cdot Ka_p$		15/16							0.5	0.5	0.5
		$a_{pmax} = L_c$							0.5	0.5	0.5

[1] and cast steel
[2] and austenitic / ferritic

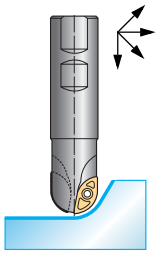
	F 2234								F 2010 / F 2334				
													
	586 / 588								474 / 590 / 592				
	f_{zo} [mm]								f_{zo} [mm]				
	12–42	25	25–35	30 / 32	35 / 42	40–100	50–125	63–160	25 / 32	32 / 66	40–80	52–250	63–160
	2.5–3.5	4	5	5	6	6	8	10	4	5	6	8	10
	0.06	0.10	0.10	0.15	0.15	0.20	0.25	0.30	0.11	0.17	0.22	0.28	0.33
	0.05	0.08	0.08	0.12	0.12	0.14	0.20	0.25	0.09	013	0.15	0.22	0.28
	0.05	0.08	0.08	0.12	0.12	0.14	0.20	0.25	0.09	0.13	0.15	0.22	0.28
	0.04	0.06	0.06	0.08	0.08	0.10	0.12	0.15	0.07	0.09	0.11	0.13	0.17
	0.04	0.06	0.06	0.08	0.08	0.10	0.12	0.12	0.07	0.09	0.11	0.13	0.13
	0.08	0.12	0.12	0.20	0.20	0.25	0.30	0.35	0.13	0.22	0.28	0.33	0.39
	0.06	0.10	0.10	0.15	0.15	0.20	0.25	0.30	0.11	0.17	0.22	0.28	0.33
	0.06	0.10	0.10	0.15	0.15	0.20	0.25	0.30	0.11	0.17	0.22	0.28	0.33
	0.06	0.10	0.10	0.12	0.12	0.14	0.16	0.16	—	—	—	—	—
	0.05	0.08	0.08	0.10	0.10	0.12	0.14	0.16	—	—	—	—	—
	0.05	0.08	0.08	0.10	0.10	0.12	0.14	0.16	—	—	—	—	—
	0.04	0.06	0.06	0.08	0.08	0.10	0.10	0.10	0.07	0.09	0.11	0.11	0.11
	0.04	0.06	0.06	0.08	0.08	0.10	0.10	0.10	0.07	0.09	0.11	0.11	0.11
	0.03	0.06	0.06	0.06	0.06	0.06	0.06	0.06	—	—	—	—	—
	RD. . 0501 RD . . 07T1	RD. . 0803	RD. . 1003	RD. . 10T3	RD. . 12T3	RD. . 1204	RD. . 1605	RD. . 2006	RO . X 0803	RO . X 10T3	RO . X 1204	RO . X 1605	RO . X 2006
	1.0	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.0	1.0	1.2	1.2	1.2
	1.2	1.2	1.2	1.2	1.4	1.4	1.4	1.4	1.2	1.2	1.4	1.4	1.4
	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.6
	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	1.3	1.4	1.5	1.5	1.6	1.6	1.8	2.0	1.4	1.5	1.6	1.8	2.0
	1.0	1.1	1.2	1.2	1.3	1.3	1.4	1.5	1.1	1.2	1.3	1.4	1.5
		1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.0	1.0	1.1	1.2	1.5
			1.0	1.0	1.0	1.0	1.1	1.1		1.0	1.0	1.1	1.2
					1.0	1.0	1.1	1.1				1.0	1.1
							1.0	1.1					1.1
								1.0					1.0

Feed rate specification (starting values)

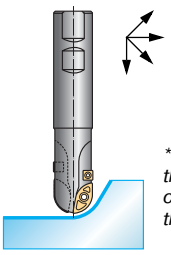
Milling cutter type			F 2239 / Z = 1	F 2239 B / Z = 1				F 2239 F / Z = 2	
Feed per tooth f_{zo} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$				 * the max. cut depths for this type of tool are shown in the brackets.					
Page			594					596	
			f_{zo} [mm]					f_{zo} [mm]	
Tool dia. or dia. range [mm]			20	25	30 / 32	40	50	63	50	63
max. cut depths $a_{p\,max} = L_c$ [mm]			25 (15)*	28 (20)*	38 (26)*	51 (32)*	77 (39)*	84	42/61/82	53/75/103
P	Non-alloyed steel[1]		0.18	0.24	0.30	0.36	0.36	0.36	0.27	0.27
	Low-alloyed steel[1]		0.12	0.17	0.24	0.30	0.30	0.30	0.23	0.23
	High-alloyed steel and tool steel[1]		0.12	0.17	0.24	0.30	0.30	0.30	0.23	0.23
	Stainless steel[1] martensitic		0.08	0.12	0.16	0.20	0.20	0.20	0.15	0.15
M	Stainless steel[1] austenitic[2]		0.08	0.12	0.14	0.14	0.14	0.14	0.11	0.11
K	Grey cast iron		0.24	0.3	0.36	0.42	0.42	0.42	0.32	0.32
	Cast iron with spheroidal graphite		0.18	0.24	0.30	0.36	0.36	0.36	0.27	0.27
	Malleable cast iron		0.18	0.24	0.30	0.36	0.36	0.36	0.27	0.27
N	Aluminium		0.10	0.14	0.20	0.20	0.20	0.20	0.15	0.15
	Copper and copper alloys		0.08	0.12	0.17	0.20	0.20	0.20	0.15	0.15
	Non-metallic materials		0.08	0.12	0.17	0.20	0.20	0.20	0.15	0.15
S	Heat-resistant alloys		0.08	0.12	0.12	0.12	0.12	0.12	0.09	0.09
	Titanium alloys		0.08	0.12	0.12	0.12	0.12	0.12	0.09	0.09
H	Hardened steel		—	—	—	—	—	—	—	—
Indexable insert types			P 26315 – R10 SP . . 0603	– R12 SP . . 0604	– R15 – R16 SP . . 09T3	– R20 SP . . 1204	– R25 SP . . 1205	– R31 SP . . 1206	P 26325 – R25 SP . . 09T3	– R31 SP . . 09T3
Correction factor **Ka_e** for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	a_e / D_c =	1/1–1/2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		1/5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
		1/10	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		1/20	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
		1/50	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Correction factor **Ka_p** for the feed per tooth dependant on the cut depth a_p	a_p =	1	1.9	2.1	2.3	2.5	2.8	3.0	2.8	3.0
		2	1.5	1.6	1.8	1.9	2.1	2.3	2.1	2.3
		4	1.2	1.3	1.4	1.5	1.6	1.8	1.6	1.8
		6	1.1	1.2	1.2	1.3	1.4	1.5	1.4	1.5
		8	1.1	1.1	1.1	1.2	1.3	1.4	1.3	1.4
		10	1.0	1.1	1.1	1.2	1.2	1.3	1.2	1.3
		12.5	0.5	1.0	1.1	1.1	1.1	1.2	1.1	1.2
		15/16	0.5	0.5	1.0	1.1	1.1	1.1	1.1	1.1
$f_z = f_{zo} \cdot Ka_e \cdot Ka_p$		20	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0
		$a_{pmax} = L_c$	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

[1] and cast steel
[2] and austenitic / ferritic

F 2339 version A / Z = 2



F 2339 version B / Z = 2/1



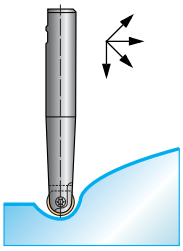
** the values for this tool version can be seen in the brackets.

598 / 600

f_{zo} [mm]

20	25	30 / 32	40	50
15 (28)**	20 (32)**	24/25 (42/43)**	31 (57)**	40
0.15	0.20	0.25	0.30	0.35
0.10	0.14	0.2	0.25	0.30
0.10	0.14	0.2	0.25	0.30
0.07	0.10	0.12	0.14	0.18
0.07	0.10	0.12	0.12	0.14
0.20	0.25	0.30	0.35	0.40
0.15	0.20	0.25	0.30	0.35
0.15	0.20	0.25	0.30	0.35
0.09	0.12	0.16	0.16	0.18
0.07	0.10	0.14	0.16	0.18
0.07	0.10	0.14	0.16	0.18
0.07	0.10	0.10	0.10	0.12
0.07	0.10	0.10	0.10	0.12
—	—	—	—	—
XD . . 16T3100 R (SP . . 0603)**	XD . . 2004125 R (SP . . 0604)**	XD . . 2405150 R XD . . 2506160 R (SP . . 09T3)**	XD . . 3207200 R (SP . . 1204)**	XD . . 4009250 R
1.0	1.0	1.0	1.0	1.0
1.2	1.2	1.2	1.2	1.2
1.5	1.5	1.5	1.5	1.5
1.8	1.8	1.8	1.8	1.8
2.0	2.0	2.0	2.0	2.0
1.9	2.1	2.3	2.5	2.7
1.5	1.6	1.8	1.9	2.0
1.2	1.3	1.4	1.5	1.6
1.1	1.2	1.2	1.3	1.4
1.1	1.1	1.1	1.2	1.3
1.0	1.1	1.1	1.2	1.2
1.0	1.0	1.1	1.1	1.2
1.0	1.0	1.0	1.1	1.1
(0.5)**	1.0	1.0	1.0	1.0
(0.5)**	(0.5)**	1.0 (0.5)**	1.0 (0.5)**	1.0

F 2139 / Z = 2



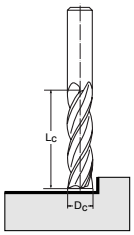
580

f_{zo} [mm]

	8	10 / 12	16 / 20	25 / 30 / 32
	4	5 / 6	8 / 10	12 / 15 / 16
	0.08	0.10	0.12	0.15
	0.06	0.08	0.10	0.12
	0.06	0.08	0.10	0.12
	0.05	0.06	0.08	0.10
	0.05	0.06	0.08	0.10
	0.10	0.12	0.15	0.18
	0.08	0.10	0.12	0.15
	0.08	0.10	0.12	0.15
	0.05	0.07	0.09	0.11
	0.05	0.06	0.08	0.10
	0.05	0.06	0.08	0.10
	0.04	0.05	0.06	0.06
	0.04	0.05	0.06	0.06
	0.04[3]	0.05[3]	0.06[3]	0.06[3]
	P 32 . .			
	– D08	– D10 – D12	– D16 – D20	– D25 – D30 – D32
a_e / D_c 1/1-1/2	1.0	1.0	1.0	1.0
1/5	1.2	1.2	1.2	1.2
1/10	1.5	1.5	1.5	1.5
1/20	1.8	1.8	1.8	1.8
1/50	2.0	2.0	2.0	2.0
a_p = 0.2	1.8	2.3	2.5	2.7
0.4	1.5	2.0	2.2	2.4
0.6	1.2	1.7	1.9	2.1
0.8	1.0	1.3	1.5	1.7
1.0	1.0	1.0	1.2	1.4
1.5	0.8	0.8	1.0	1.2
2.0	0.7	0.7	0.8	1.0
3.0	0.6	0.6	0.7	0.8
4.0	0.5	0.5	0.6	0.7
a_{pmax}= L_c	0.5	0.5	0.5	0.5

[3] Ka_e correction factor when finishing· Ka_p must not be set higher than 3!

Feed rate specification (starting values)

Milling cutter type		Solid carbide shoulder milling cutters									
Feed per tooth f_{zo} for $a_e = D_c$ $a_p = a_{p\,max} = L_c$											
Approach angle κ		90°									
Page		609									
		f_{zo} [mm]									
Tool dia. [mm]		2	3	4	5	6	8	10	12	16	20
max. cut depths $a_{p\,max} = L_c$ [mm]											
P	Non-alloyed steel[1]	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	Low-alloyed steel[1]	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	High-alloyed steel and tool steel[1]	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	Stainless steel[1] martensitic	0.004	0.012	0.022	0.028	0.028	0.031	0.038	0.048	0.061	0.073
M	Stainless steel[1] austenitic[2]	0.007	0.017	0.026	0.028	0.028	0.031	0.038	0.048	0.061	0.073
K	Grey cast iron	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	Cast iron with spheroidal graphite	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	Malleable cast iron	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
N	Aluminium	0.027	0.041	0.063	0.071	0.077	0.089	0.1	0.11	0.126	0.141
	Copper and copper alloys	0.013	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
	Non-metallic materials	0.027	0.041	0.063	0.071	0.077	0.089	0.1	0.11	0.126	0.141
S	Heat-resistant alloys	—	—	—	—	—	—	—	—	—	—
	Titanium alloys	0.01	0.02	0.031	0.036	0.041	0.051	0.061	0.079	0.1	0.123
H	Hardened steel	—	—	—	—	0.036	0.063	0.071	0.077	0.089	0.1

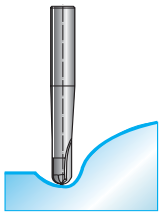
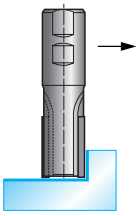
Correction factor Ka_e for the feed per tooth dependant on the ratio: cut width a_e / cutter diameter D_c	$a_e / D_c = 1/1$	0.7
	1/2	1.0
	1/5	1.2
	1/10	1.4
	1/20	1.6
	1/50	2.0
Correction factor Ka_p for the feed per tooth dependant on the cut depth a_p	$a_p = 0.2 \times D_C$	1.5
	$0.5 \times D_C$	1.2
	$0.7 \times D_C$	1.0
	$1.0 \times D_C$	0.8
	$1.5 \times D_C$	0.7

$$f_z = f_{zo} \cdot Ka_e \cdot Ka_p$$

Important: when Plunge Milling f_Z only 30 %!

[1] and cast steel
[2] and austenitic / ferritic

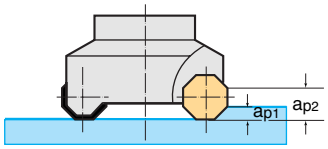
Solid carbide and brazed-type milling cutters

	Solid carbide slot and copy milling cutters 										F 1675 / F 1676 F 1677 	
	90°										90°	
	616										618	
	f_{z0} [mm]										f_{z0} [mm]	
	2	3	4	5	6	8	10	12	16	20	20–40	> 40–100
											63	100
	0.007	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.1	0.15
	0.007	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.08	0.12
	0.007	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.08	0.12
	0.002	0.006	0.011	0.016	0.02	0.022	0.028	0.035	0.045	0.053	0.06	0.1
	0.003	0.009	0.017	0.02	0.02	0.022	0.028	0.035	0.045	0.053	0.06	0.08
	0.006	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.12	0.2
	0.006	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.1	0.15
	0.006	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.1	0.15
	0.02	0.03	0.046	0.053	0.06	0.073	0.099	0.119	0.149	0.185	0.1	0.12
	0.009	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.08	0.1
	0.02	0.03	0.046	0.053	0.06	0.073	0.099	0.119	0.149	0.185	0.08	0.1
	—	—	—	—	—	—	—	—	—	—	0.06	0.1
	0.007	0.015	0.022	0.026	0.03	0.037	0.045	0.058	0.076	0.089	0.06	0.1
	—	0.009	0.01	0.011	0.011	0.011	0.02	0.033	0.033	—	—	—
	0.7											
	1.0											
	1.2											
	1.4										1.0	1.0
	1.6										1.1	1.1
	2.0										1.2	1.2
	1.3											
	1.1											
	0.9											
	0.7											
	0.6											

Technical information on milling

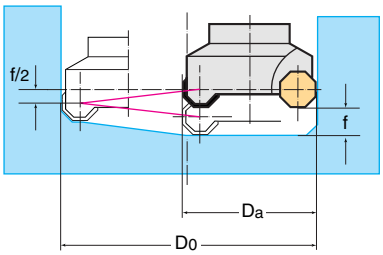
1. Octagon cutter F 2280 / F 4080

Surface milling



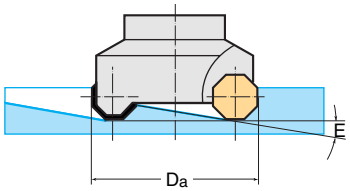
Max. cut depth a_p [mm]		
	OD . . 0504 . .	OD . . 0605 . .
a_{p1}	3	4
a_{p2}	8	10

Circular interpolation into solid material



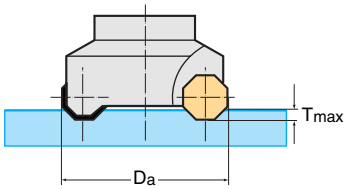
Range of diameters for milling of bore in one pass [mm]						
	Indexable insert					
	OD . . 050408			OD . . 060508		
D_a [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	f_{max} [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	f_{max} [mm]
32	40.4	64	4.5			
40	56.4	80	4.5			
50	76.4	100	4.5	69.5	100	5.8
52	80.4	104	4.5	73.5	104	5.8
58	92.4	116	4.5			
60				89.5	120	5.8
63	102.4	126	4.5	95.5	126	5.8
66	108.4	132	4.5	101.5	132	5.8
71	118.4	142	4.5			
73				115.5	146	5.8
80	136.4	160	4.5	129.5	160	5.8
88	152.4	176	4.5			
90				149.5	180	5.8
100	176.4	200	4.5	169.5	200	5.8
108	192.4	216	4.5			
110				189.5	220	5.8
125	226.4	250	4.5	219.5	250	5.8
133	242.4	266	4.5			
135				239.5	270	5.8
160				289.5	320	5.8
170				309.5	340	5.8

Angular plunging (ramping)



Max. plunging angle E [°]					
D_a [mm]	OD . . 0504 . .	OD . . 0605 . .	D_a [mm]	OD . . 0504 . .	OD . . 0605 . .
32	14.0		88	2.4	
40	8.3		90		4.0
50	5.5	9.6	100	2.0	3.1
52	5.1	8.9	108	2.0	
58	4.6		110		3.1
60		7.7	125	1.5	2.3
63	3.8	6.2	133	1.5	
66	3.5	5.8	135		2.3
71	3.2		160		1.7
73		5.4	170		1.7
80	2.7	4.3			

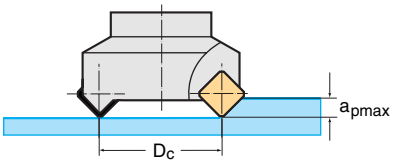
Vertical plunging



Max. plunging depth T_{max} [mm]		
	OD . . 0504 . .	OD . . 0605 . .
T_{max}	2.8	4.0

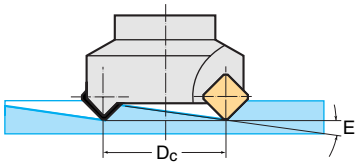
2. MINI-KW F 2233

Surface milling



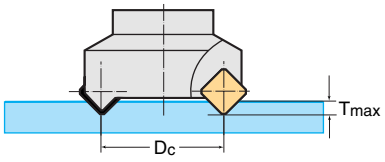
Max. cut depth a_p [mm]		
	SD . . 09T3 . .	SP . . 1204 . .
a_p	5.0	7.0

Angular plunging (ramping)



Max. plunging angle E [°]				
D_C [mm]	SD . . 09T3 . .	D_C [mm]	SD . . 09T3 . .	SP . . 1204 . .
20	23.4	63	5.2	not suitable for plunging!
25	16.8	80	4.0	
32	12.0	100	3.1	
40	9.0	125	2.4	
50	6.8	160	1.9	

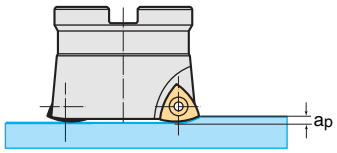
Vertical plunging



Max. plunging depth T_{max} [mm]		
	SD . . 09T3 . .	SP . . 1204 . .
T_{max}	5.0	not suitable for plunging!

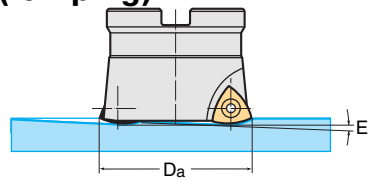
3. High-performance cutter F 2330

Surface milling



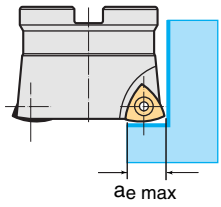
Max. cut depth a_p [mm]			
	P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25
$a_{p\,max}$	1	1.5	2

Angular plunging (ramping)



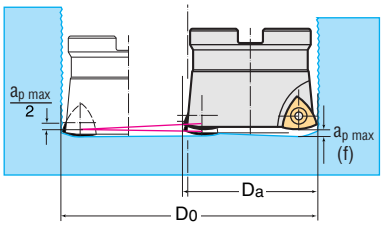
Max. plunging angle E [°]			
D_a [mm]	P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25
20	4.0		
25	2.3		
32		2.5	
35		2.0	
40		1.5	
42		1.4	
52		1.2	2.3
66		0.9	1.4
85		0.6	1.0
$a_{p\,max}$ [mm]	1	1.5	2

Plunging



Max. plunging depth a_e [mm]			
	P 2633 . – R 10	P 2633 . – R 14	P 2633 . – R 25
$a_{e\,max}$	7	10.3	15

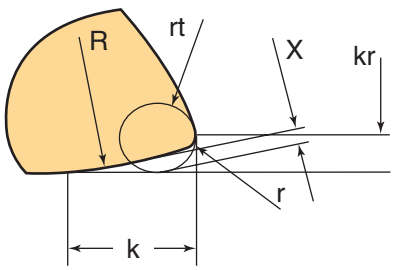
Circular interpolation into solid material



Range of diameters for milling of bore in one pass [mm]						
	Indexable insert					
	P 2633 . – R 10		P 2633 . – R 14		P 2633 . – R 25	
D_a [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]
20	24.2	40				
25	34.2	50				
32			41.8	64		
35			47.8	70		
40			57.8	80		
42			61.8	84		
52			81.8	104	70.4	102.6
66			109.8	132	98.4	130.6
85			147.8	170	136.4	168.6

Programming information

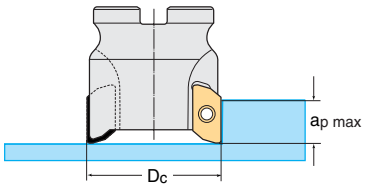
Programming the theoretical tool radius “rt” results in a maximum deviation from the final contour as shown.
The minimal difference (only in the corners) is corrected by the subsequent tools during the remaining machining operations.



Insert	R	r	rt	k	kr	X
P 2633 . – R 10	10.0	0.8	2.0	4.0	1.8	0.5
P 2633 . – R 14	14.0	1.2	2.5	5.5	2.6	0.8
P 2633 . – R 25	25.0	2.0	3.0	8.0	3.4	0.9

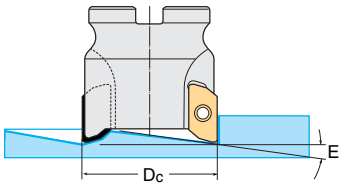
4. Ramping Cutter F 3040

Shoulder milling



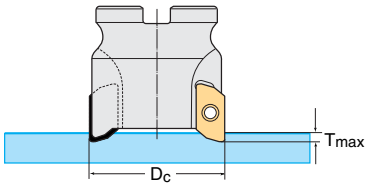
Max. cut depth a_p [mm]		
Corner radius [mm]	ZD . . 1504 . .	ZD . . 2005 . .
0.8	16.0	21.3
1.6	15.8	21.0
2.5	15.5	20.8
4.0	15.1	20.3
6.0		19.8

Angular plunging (ramping)



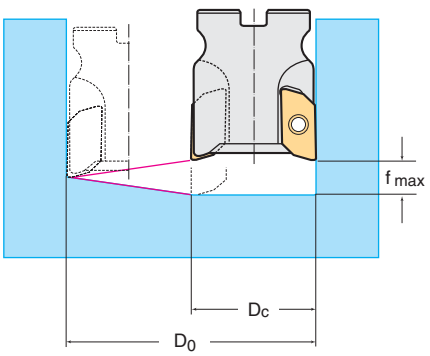
Max. plunging angle E [°]		
D_C [mm]	ZD . . 1504 . .	ZD . . 2005 . .
25	16	
32	11	16
40	7	12
50	5	8
63	4	6

Vertical plunging



Max. plunging depth T_{max} [mm]		
Corner radius [mm]	ZD . . 1504 . .	ZD . . 2005 . .
0.8	4.5	6.0
1.6	4.2	5.7
2.5	4.0	5.5
4.0	3.5	5.0
6.0		4.5

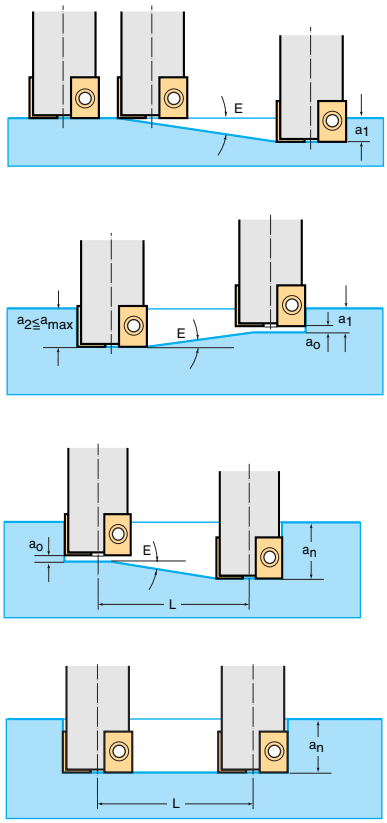
Circular interpolation into solid material



Possible bore diameters and axial feeds						
	ZDGT 1504			ZDGT 2005		
Milling cutter dia. D_C [mm]	$D_{0\ min}$ [mm]	$D_{0\ max}$ [mm]	f_{max} [mm]	$D_{0\ min}$ [mm]	$D_{0\ max}$ [mm]	f_{max} [mm]
25	31	50	5.4			
32	45	64	7.9	38	64	5.4
40	61	80	8.1	54	80	9.3
50	81	100	8.5	74	100	10.6
63	107	126	9.7	100	126	12.2

5. Shoulder milling cutter F 4042

Angular plunging (ramping) and circular interpolation in solid material



Plunging with shoulder milling cutter F 4042

Milling cutter dia. D_C [mm]	AD . . 080304 a_{max} = 8 mm				AD . . 120408 a_{max} = 11 mm			
	Plunging angle E_{max} [°]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	a_0 [mm]	Plunging angle E_{max} [°]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	a_0 [mm]
10	12.1	15	20	0.75				
12	9.9	17	24	0.8				
16	13.7	21	32	2.0				
20	8.9	29	40	1.9				
25	5.6	39	50	1.7	8.5	36	50	2.3
32	3.8	53	64	1.6	5.6	50	64	2.2
40	2.8	69	80	1.6	3.9	66	80	2.1
50	2.2	89	100	1.6	2.7	86	100	1.9
63					2.0	112	126	1.9
80					1.5	146	160	1.9

Plunging with shoulder milling cutter F 4042

Milling cutter dia. D_C [mm]	AD . . 160608 a_{max} = 15 mm				AD . . 180712 a_{max} = 16 mm			
	Plunging angle E_{max} [°]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	a_0 [mm]	Plunging angle E_{max} [°]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	a_0 [mm]
40	5.9	62	80	2.9				
50	3.9	82	100	2.6	2.9	74	100	1.7
63	2.6	108	126	2.3	2.1	100	126	1.7
80	1.9	142	160	2.3	1.5	134	160	1.7
100	1.5	182	200	2.3	1.2	174	200	1.7
120	1.2	232	250	2.3	0.9	224	250	1.7
160	0.9	302	320	2.3	0.7	294	320	1.7

Groove depth after plunging

$$a_n = n \cdot L \cdot \tan E - (n-1) \cdot a_0$$

Number of angular plunging operations:

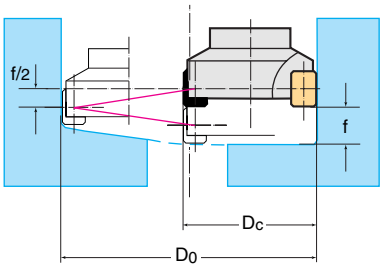
$$n = \frac{(a_n - a_0)}{(L \cdot \tan E_{max} - a_0)}$$

Plunging angle:

$$\tan E = \frac{[a_n + (n-1) \cdot a_0]}{(n \cdot L)}$$

Circular interpolation

specially for boring of pre-fabricated or precast bores



Max. axial feed per tool revolution ("thread pitch") f [mm]

pre-fabricated bore dia. D_0 [mm]	AD . . 080304 D_C [mm]								AD . . 120408 D_C [mm]					
	10	12	16	20	25	32	40	50	25	32	40	50	63	80
15	3.4													
20	6.7	4.4												
30	8.0	8.0	8.0	4.9										
40	8.0	8.0	8.0	8.0	4.7				7.0					
50	8.0	8.0	8.0	8.0	7.8				11.0	5.5				
60	8.0	8.0	8.0	8.0	8.0	5.8			11.0	8.6				
80	8.0	8.0	8.0	8.0	8.0	8.0	6.2		11.0	11.0	8.7			
100	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	11.0	11.0	11.0	7.4		
120	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	11.0	11.0	11.0	10.3	6.4	
150	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0	9.7	3.4
180	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0	11.0	5.9
200	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0	11.0	8.5
250	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	11.0	11.0	11.0	11.0	11.0	10.2
300									11.0	11.0	11.0	11.0	11.0	11.0
350									11.0	11.0	11.0	11.0	11.0	11.0

Max. axial feed per tool revolution ("thread pitch") f [mm]

pre-fabricated bore dia. D_0 [mm]	AD . . 160608 D_C [mm]							AD . . 180712 D_C [mm]					
	40	50	63	80	100	125	160	50	63	80	100	125	160
80	13.1							4.8					
100	15.0	10.8						7.9	4.2				
120	15.0	15.0	8.1					11.1	6.5				
150	15.0	15.0	12.4	7.5				15.9	10.0	5.9			
180	15.0	15.0	15.0	10.7				16.0	13.4	8.4	5.1		
200	15.0	15.0	15.0	12.8	8.2			16.0	15.7	10.1	6.4		
250	15.0	15.0	15.0	15.0	12.3	8.0		16.0	16.0	14.3	9.6	6.1	
300	15.0	15.0	15.0	15.0	15.0	11.2		16.0	16.0	16.0	12.8	8.6	5.2
350	15.0	15.0	15.0	15.0	15.0	14.4	9.3	16.0	16.0	16.0	16.0	11.1	7.1
400	15.0	15.0	15.0	15.0	15.0	15.0	11.7	16.0	16.0	16.0	16.0	13.5	8.9
450	15.0	15.0	15.0	15.0	15.0	15.0	14.2	16.0	16.0	16.0	16.0	16.0	10.8
500	15.0	15.0	15.0	15.0	15.0	15.0	15.0	16.0	16.0	16.0	16.0	16.0	12.6

Groove depth after 2 plunging operations:

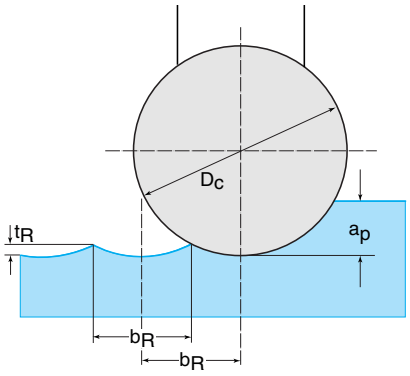
$$a_2 = 2 \cdot L \cdot \tan E - a_0$$

Explanation of letter symbols

a_0	[mm]	amount by which the tool is to be lifted off at the end of plunging before starting the next plunging operation
a_n	[mm]	cut depth
a_{max}	[mm]	max. tool cut depth
E	[°]	plunging angle
L	[mm]	groove length without radius
n		number of plunging operations into inclined surface

6. Ball nose cutters F 2139 / F 2239 / F 2339

Line-by-line milling



Groove depth:

$$t_R = 0.5 \cdot \left(D_C - \sqrt{D_C^2 - b_R^2}\right)$$

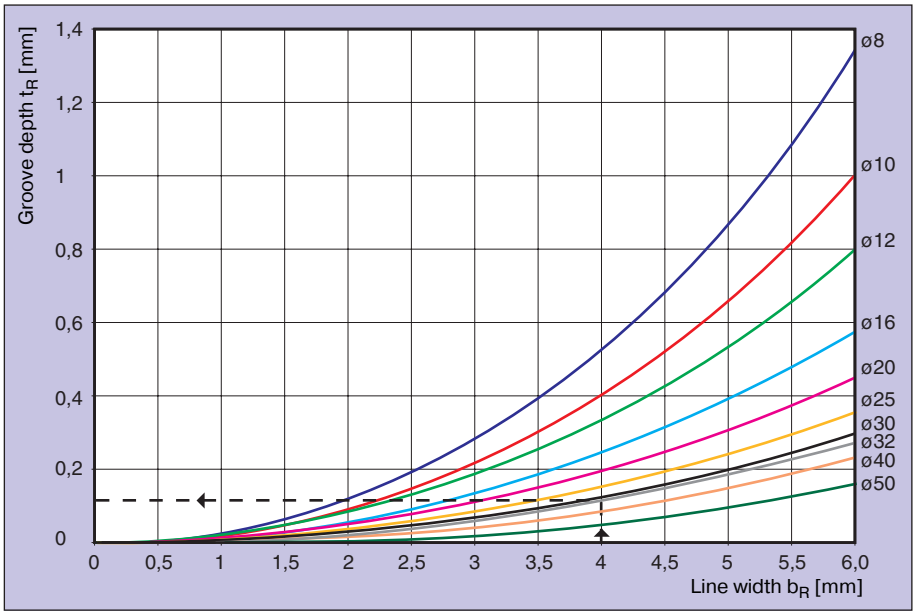
Recommendations when copy finishing F 2139		
Tool ∅ D_C [mm]	Line width b_R [mm]	Groove width t_R [mm]
8	0.5	0.008
10	0.6	0.009
12	0.7	0.010
16	0.8	0.010
20	1.0	0.012
25	1.2	0.014
30	1.3	0.014
32	1.4	0.015

0.3 to 0.5 mm stock removal when finishing depending on tool diameter

Semi-finishing – roughing

Example:

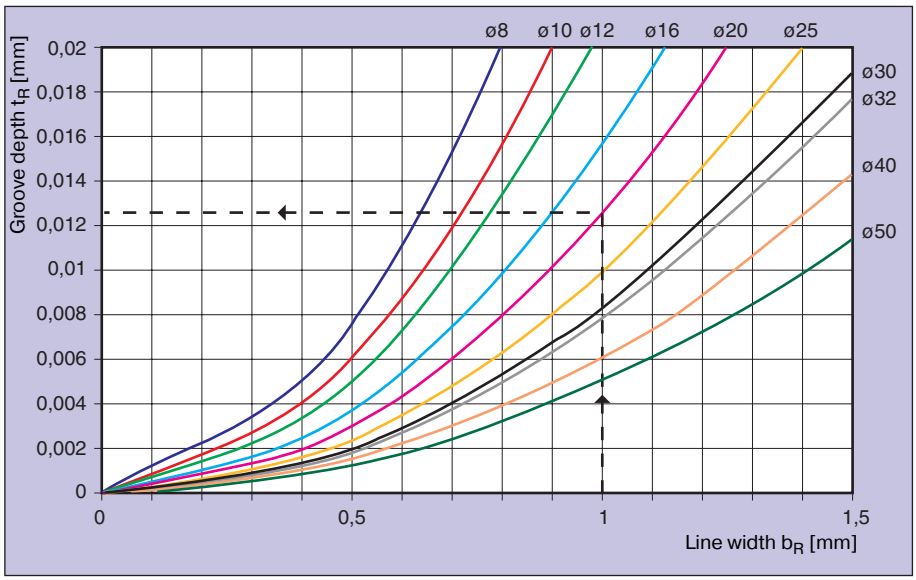
D_C = 32 mm
b_R = 4 mm
➔ **t_R = 0.125 mm**



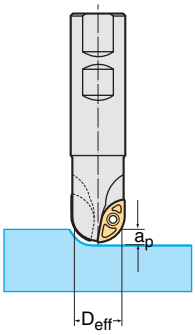
Finishing

Example:

D_C = 20 mm
b_R = 1.0 mm
➔ **t_R = 0.0125 mm**

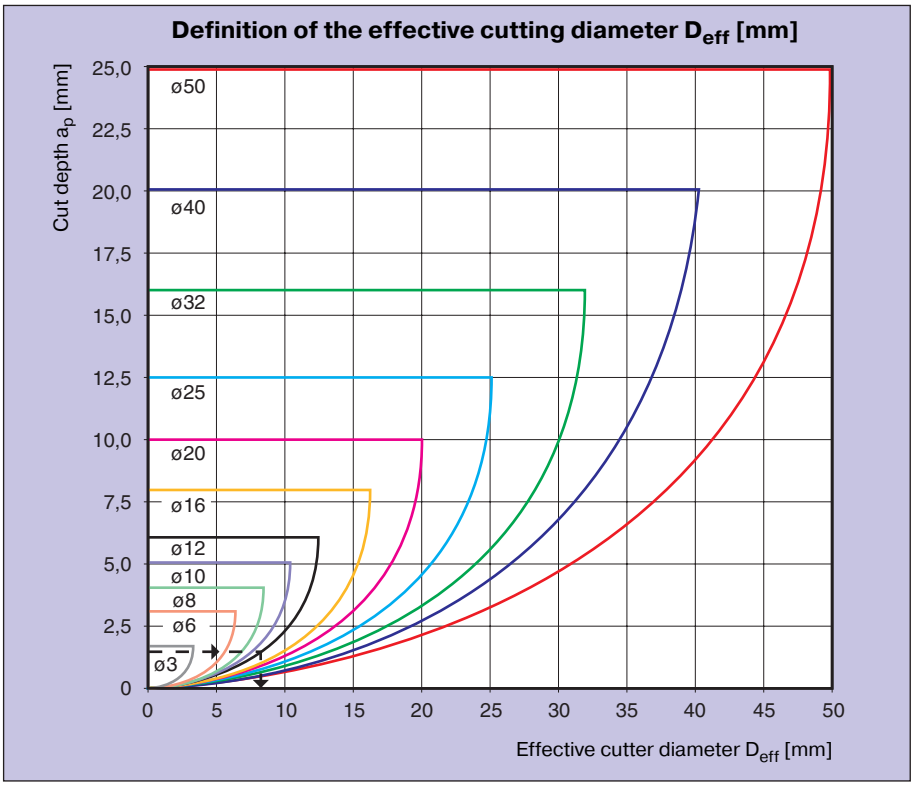


Definition of the effective cutting diameter



Example:

D_C = 12 mm
a_p = 1.5 mm
➔ **D_{eff} = 8 mm**

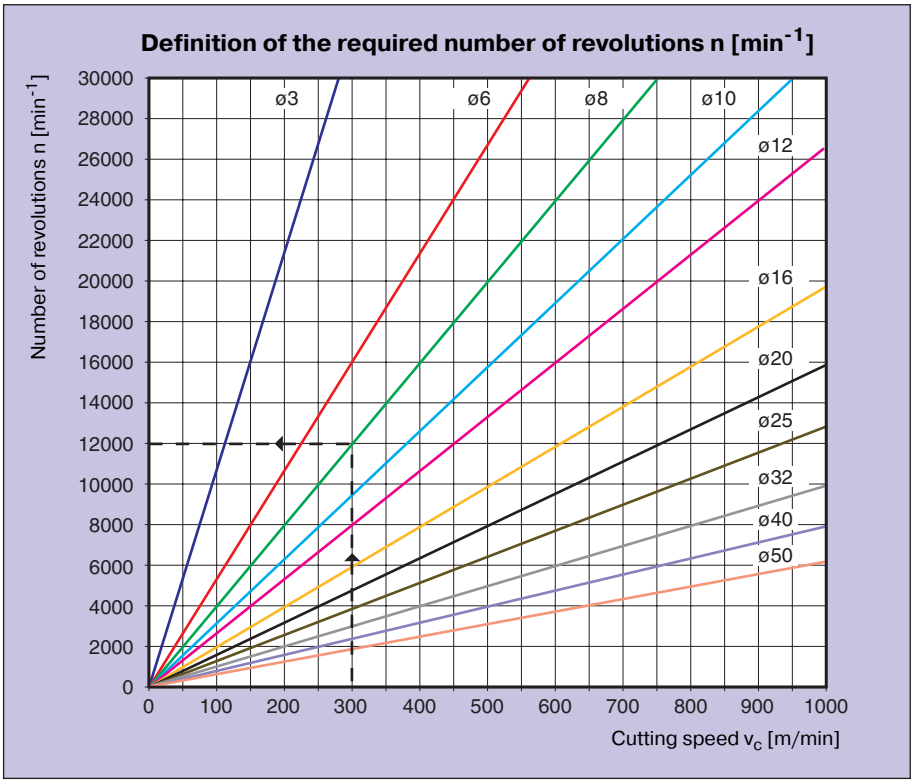


Definition of the required number of revolutions

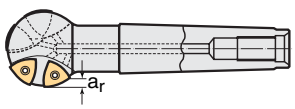
Example:

D_{eff} = 8 mm
v_c = 300 m/min
➔ **n = 12000 min^{-1}**

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_{eff}} \text{ [min-1]}$$



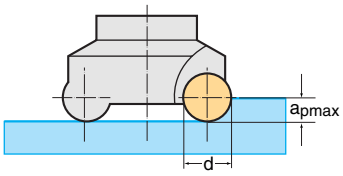
Radial plunging with F 2239 B



Radial plunging			
Tool dia. D_C [mm]	a_r [mm]	Tool dia. D_C [mm]	a_r [mm]
20	2.0	32	4.4
25	2.8	40	4.6
30	3.5	50	5.0

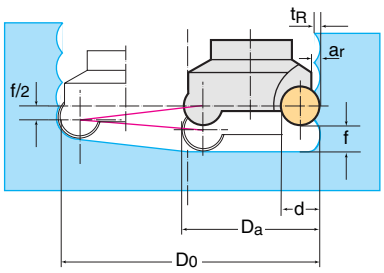
7. Milling cutters with round inserts F 2231 / F 2234 / F 2334

Surface milling



Max. milling depth $a_{p\,max}$ [mm]								
	Insert diameter d [mm]							
	d = 5	d = 7	d = 8	d = 10	d = 12	d = 15	d = 16	d = 20
a_{pmax} [mm]	2.5	3.5	4.0	5.0	6.0	7.5	8.0	10.0

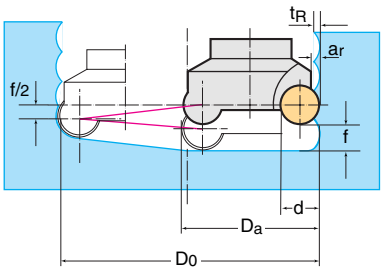
Circular interpolation into solid material



F 2334: Range of diameters for milling of bore in one pass [mm]										
	Insert diameter d [mm]									
	d = 8		d = 10		d = 12		d = 16		d = 20	
D_a [mm]	D_{0min} [mm]	D_{0max} [mm]	D_{0min} [mm]	D_{0max} [mm]	D_{0min} [mm]	D_{0max} [mm]	D_{0min} [mm]	D_{0max} [mm]	D_{0min} [mm]	D_{0max} [mm]
25	34.6	50								
32	48.4	64	45	64						
40			61	80	57.4	80				
50			81.4	100	77.2	100				
52			85	104	81.2	104	75.4	104		
63			102.4	126	103.2	126	97.6	126		
66			113	132	109.4	132	103.4	132	97	132
80					137.8	160	131.4	160	124.8	160
96							163.4	192		
100							171.4	200	164.8	200
116							203.4	232		
125							221.4	250	214.8	250
141							253.4	282		
160									284.8	320

F 2231 / F 2234: Range of diameters for milling of bore in one pass [mm]

D_a [mm]	Insert diameter d [mm]															
	d = 5		d = 7		d = 8		d = 10		d = 12		d = 15		d = 16		d = 20	
	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]	$D_{0\,min}$ [mm]	$D_{0\,max}$ [mm]
10	10	20														
12	14.7	24														
15	20.7	30	16	30												
16					16	32										
20	30.6	40	27.2	40			20	40								
24									24	48						
25			37	50	35.2	50	31.6	50								
30			47.1	60			41.3	60			30	60				
32							45.3	64					32	64		
35			57.2	70			51.3	70	47.8	70						
40									57.6	80					40	80
42			71.3	84					61.3	84						
50									77.6	100			69.2	100		
52							84.7	104	80.3	104			72.7	104		
63									103.6	126			95.2	126	88.7	126
66													100.1	132		
80									137.6	160			129.2	160	122.7	160
100									177.6	200			169.2	200	162.7	200
125													219.2	250	212.7	250
160															282.7	320

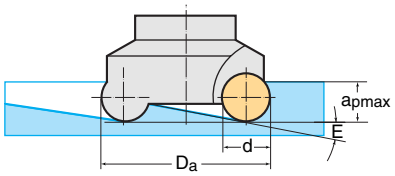


Groove depth on the bore wall t_R [mm]

axial feed rate per revolution f [mm]	Insert diameter d [mm]							
	d = 5	d = 7	d = 8	d = 10	d = 12	d = 15	d = 16	d = 20
1	0.051	0.036	0.031	0.025	0.02	0.017	0.015	0.01
2	0.209	0.146	0.127	0.010	0.08	0.067	0.06	0.05
3	0.500	0.338	0.292	0.230	0.19	0.15	0.14	0.11
4			0.536	0.417	0.34	0.27	0.25	0.20
5			0.878	0.670	0.54	0.43	0.40	0.32
6				(1.000)	0.80	0.63	0.58	0.46
7				(1.429)	(1.12)	0.87	0.81	0.63
8					(1.53)	(1.16)	(1.07)	0.84
$a_{r\,max}$	0.5	0.5	1.25	1.5	2.0	2.3	3.0	4.5

The values in brackets only apply to short bores

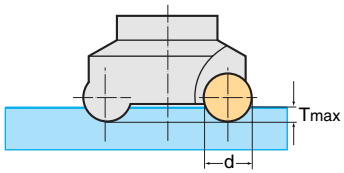
Angular plunging (ramping)



F 2334: Max. plunging angle E [°]					
D_a [mm]	Insert diameter d [mm]				
	d = 8	d = 10	d = 12	d = 16	d = 20
25	10.5				
32	6.8	8.6			
40		5.8	7.9		
50		4.0	5.4		
52		3.9	5.3	6.1	
63		3.0	3.4	4.4	
66		2.8	3.4	4.1	5.3
80			2.6	3.1	3.9
96				2.4	
100				2.3	2.8
116				1.9	
125				1.7	2.1
141				1.5	
160					1.5
$a_{p\,max}$ [mm]	6.9	8.8	10.5		1.9

F 2234: Max. plunging angle E [°]							
D_a [mm]	Insert diameter d [mm]						
	d = 5	d = 7	d = 8	d = 10	d = 12	d = 16	d = 20
12	14.4						
15	8.8	43.7					
20	5.7	9.2					
25	7.9	6.2	7.9	14.6			
30		4.5		9.6			
32				8.0			
35		3.4		6.9	8.5		
40					11.4		
42		2.5			7.0		
50					7.9	15	
52				8.8	7.4	18.5	
63					5.6	10.1	10.9
66						9.4	
80					4.1	7.1	7.3
100					3.1	5.2	5.2
125						3.9	3.8
160							2.8
$a_{p\,max}$ [mm]	4.1	5.4	5.9	7.9	10.4	12.6	16.6

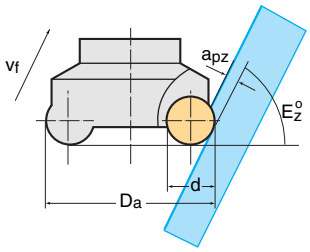
Vertical plunging

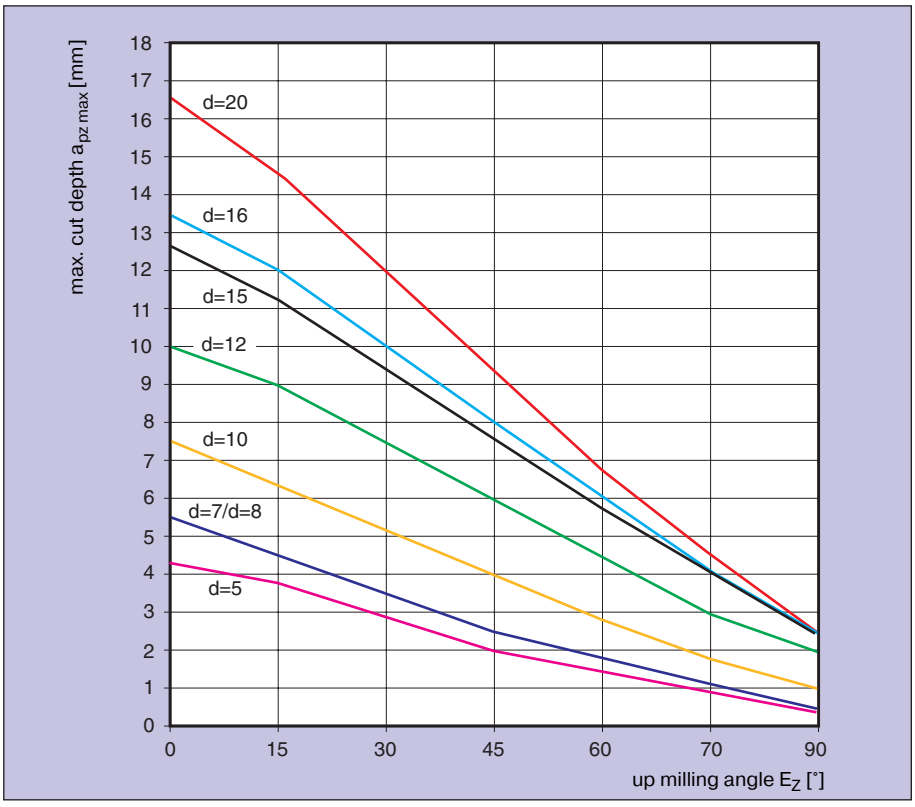


F 2334: Max. plunging depth T_{max} [mm]					
	Insert diameter d [mm]				
	d = 8	d = 10	d = 12	d = 16	d = 20
T_{max} [mm]	2.4	2.6	3.1	1.2	1.6

F 2231 / F 2234: Max. plunging depth T_{max} [mm]								
	Insert diameter d [mm]							
	d = 5	d = 7	d = 8	d = 10	d = 12	d = 15	d = 16	d = 20
T_{max} [mm]	1.1	1.5	1.9	2.5	4.5	6.0	7.0	6.5

Up milling of steep surfaces



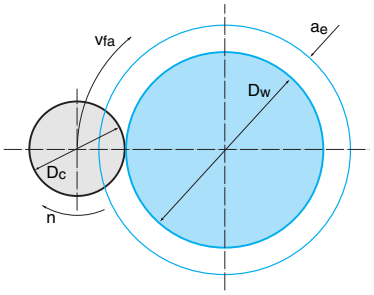


8. General

General circular interpolation

External contour

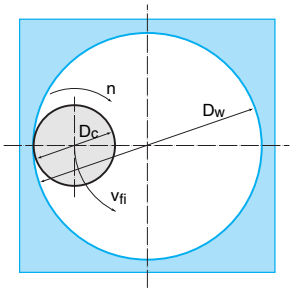
v_{fa}	[mm/min]	feed rate of tool axis
D_c	[mm]	cutter diameter
D_w	[mm]	workpiece diameter
a_e	[mm]	stock removal
n	[min^{-1}]	speed
f_z	[mm]	feed per tooth
z		number of teeth



$$v_{fa} = \left(1 + \frac{D_c}{D_w + a_e}\right) \cdot n \cdot f_z \cdot z$$

Internal contour

v_{fi}	[mm/min]	feed rate of tool axis
D_c	[mm]	cutter diameter
D_w	[mm]	workpiece diameter
n	[min^{-1}]	speed



$$v_{fi} = \left(1 - \frac{D_c}{D_w}\right) \cdot n \cdot f_z \cdot z$$

9. Milling calculation formulas

Speed

$$n = \frac{v_c \times 1000}{D_c \times \pi} \quad [min^{-1}]$$

Cutting speed

$$v_c = \frac{D_c \times \pi \times n}{1000} \quad [m/min]$$

Feed rate

$$v_f = f_z \times Z \times n \quad [mm/min]$$

Feed per tooth

$$f_z = \frac{v_f}{Z \times n} \quad [mm/Z]$$

Metal removal rate

$$Q = \frac{a_e \times a_p \times v_f}{1000} \quad [cm^3/min]$$

Power requirement

$$P_{mot} = \frac{a_p \times a_e \times v_f \times k_c}{6 \times 10^7 \times \eta} \quad [kW]$$

Medium chip thickness

$$h_m = \frac{\{114{,}7 \times f_z \times \sin\kappa \times (a_e / D_c)\}}{\varphi_s}$$

or

$$hm \cong f_z \times \sqrt{\frac{a_e}{D_c}} \quad [mm]$$

Approximation formula for ae/Dc < 30 %

Engagement angle

where cutter is positioned centrally

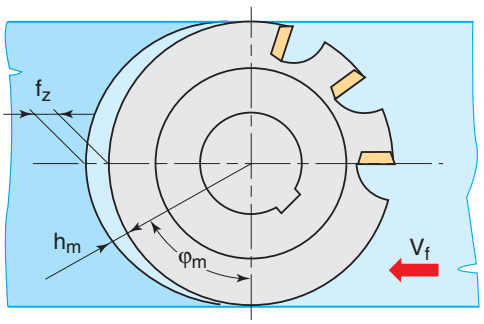
$$\varphi_s = 2 \times \arcsin\left(\frac{a_e}{D_c}\right)$$

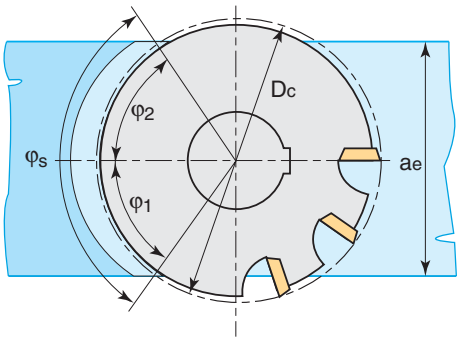
where cutter is positioned out of centre

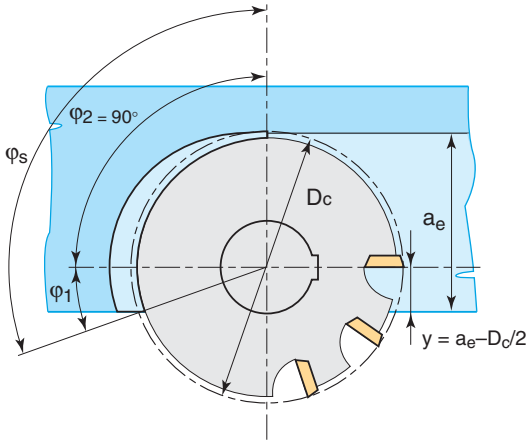
$$\varphi_s = 90 + \arcsin\frac{a_e \times (D_c/2)}{(D_c/2)}$$

Specific cutting force

$$k_c = \frac{1 - 0{,}01 \times \gamma_0}{h_m^{\,mc}} \times k_c 1.1$$







n	Speed	min^{-1}
D_C	Cutting diameter	mm
a_p	Cut depth	mm
a_e	Cut width	mm
Z	No. of teeth	
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min
f_z	Feed per tooth	mm
Q	Metal removal rate	cm^3/min
P_{mot}	Power requirement	kW
h_m	Medium chip thickness	mm
k_c	Specific cutting force	N/mm^2
η	Machine efficiency (0.7–0.95)	
κ	Approach angle	°
φ_s	Engagement angle	°
$k_c 1.1$*	Specific cutting force for 1 mm^2 chip section	N/mm^2
m_c*	k_c curve rise	

*m_c and k_c 1.1 see table on page 769.

Information on High Speed Cutting

1. Maximum permissible speed: the limiting values shown in the tables should not be exceeded. Otherwise the function and reliability is not guaranteed.
2. Only use original WALTER inserts and assembly parts (screws etc.).
   Recommendation: After having changed the inserts at least five times, new screws should be fitted.
3. Adhere to the torques specified in the catalogue.
4. Balancing
   Balancing in two steps is required when milling in the upper speed range (> 6,000):

   a. Basic balancing of tool body including inserts (carried out by WALTER upon request). The tool adaptor should also be balanced.

   b. Fine balancing of the cutter when fully mounted on the adaptor. The fine balancing operation is strongly recommended as even the smallest eccentricity can seriously affect the balance status.
5. Short projection lengths reduce concentricity faults or an imbalance as well as increase spindle life. The specified speeds apply to the use of tools without additional extensions.
6. Safety guards
   Appropriate safety guards or machine encapsulations must be used to securely collect particles which spin off such as chips or cutting elements broken as a result of collisions.
7. Damaged tools
   The operating speed must be specified for the repair of HSC Tools.
   Only WALTER must carry out repairs on WALTER tools for HSC machining operations.
8. Technical progress
   As research and standardisation on HSC machining operations is ongoing, we reserve the right to make technical changes. The discussion on balancing specifications is still in progress. The results of the “Balancing” study group of the Technical University in Darmstadt show that the quality category G16 is usually sufficient.

WALTER milling cutters

Tool	Safety relevant parts	related to	n_{max} [1/min] with D														
			dia.10	dia.16	dia.20	dia.25	dia.32	dia.40	dia.50	dia.63	dia.80	dia.100	dia.125	dia.160	dia.200	dia.250	dia.315
F 2010	all cartridges	D_c									6,700	6,000	5,400	4,700	4,200	3,800	3,350
F 2139[1]	Basic body	D_c		40,000*	40,000*	40,000*	40,000*										
F 2140	P 2792 - Size 1	D_c								17,500	15,500	13,800	12,400	10,900			
F 2231 Version A	RD. . 0501M0	D_a	40,000*														
	RD. . 0803M0	D_a		40,000*													
	RD. . 10T3M0	D_a			40,000*												
	RD. . 1204M0	D_a				33,300											
	RD. . 1605M0	D_a					27,200										
	RD. . 2006M0	D_a						24,300									
F 2233	SD . . 09T3 . .	D_c			40,000*	39,600	35,000	31,300	28,000	25,000	22,100	19,800					
	SP . . 1204 . .	D_c				40,000	40,000	37,600	33,600	30,000	26,600	23,800	21,200	17,000			
F 2234	RD. . 0501M0	D_a		40,000*	40,000*	40,000*											
	RD. . 07T1M0	D_a		40,000*	40,000*	40,000*	35,000	31,300									
	RD. . 0803M0	D_a		40,000*	40,000*	40,000*											
	RD. . 10T3M0	D_a			40,000*	40,000*	37,100										
	RD. . 1204M0	D_a				33,300	29,400	26,300	23,500	21,000	18,600	16,600					
	RD. . 1605M0	D_a							21,700	19,400	17,200	15,300	13,700				
	RD. . 2006M0	D_a								19,400	17,200	15,300	13,700	12,100			

[1] The specified speed of 40,000 1/min refers to the complete range of diameters from 8–32 mm.
* Higher speeds than 40,000 1/min are possible under favourable conditions and short projection lengths upon consultation with WALTER.

WALTER milling cutters

Tool	Safety relevant parts	related to	n_{max} [1/min] with D dia.10	dia.16	dia.20	dia.25	dia.32	dia.40	dia.50	dia.63	dia.80	dia.100	dia.125	dia.160	dia.200	dia.250	dia.315
F 2238	LP . . 0703 . .	D_c			40,000*	40,000*	39,900	35,700	31,900								
	LP . . 15T3 . .	D_c						21,900	19,600								
	LP . . 1504 . .	D_c							18,500	16,500	14,600	13,000	11,700				
	AP . . 2004 . .	D_c							17,300	15,500	13,700						
F 2241	SP . . 0603 . .	D_c		40,000*	40,000*	40,000*	38,500	37,600	33,600								
	SP . . 09T3 . .	D_c				40,000*	39,900	35,700	31,900	28,500	25,200	22,600	20,200	17,000			
	SP . . 1204 . .	D_c					30,800	27,600	24,600	22,000	19,500	17,400	15,600	13,800			
F 2250	all cartridges	D_c									21,200	18,900	16,900	14,900	13,400		
	without cartridges SP . . 1204 . .	D_c								22,000	19,500	17,400					
F 2255	NSM 3.900 . .	D_c								5,100	4,000	3,200	2,600	2,000	1,600	1,300	
F 2280	OD . . 0504 . .	D_a					29,400	26,300	23,500	21,000	18,600	16,600	14,900				
F 2330	P 2633 . .	D_c			35,400	31,700	28,000	25,000	22,400	20,000	17,700						
F 2334	RO . . 0803M0	D_a				40,000*	37,100										
	RO . . 10T3M0	D_a					37,100	33,200	29,700	26,500	23,500						
	RO . . 1204M0	D_a						28,200	25,200	22,500	19,900						
	RO . . 1605M0	D_a							23,000	20,500	18,100	16,200	14,500				
	RO . . 2006M0	D_a								19,400	17,200	15,300	13,700	12,100			
F 3040	ZD . . 1504 . .	D_c				36,500	32,200	28,800	25,800	23,000							
	ZD . . 2005 . .	D_c					32,200	28,800	25,800	23,000							
F 4033	SN . X 1205 . .	D_c						20,000	17,900	16,000	14,200	12,700	11,300	10,000			
F 4041	LNGX 1307 . .	D_c						15,000	13,400	12,000	10,600	9,500	8,500	7,500			
F 4042	AD . . 0803 . .	D_c		40,000*	40,000*	38,000	33,600	30,100	26,900								
	AD . . 1204 . .	D_c				28,400	25,100	22,400	20,000	17,900	15,800						
	AD . . 1606 . .	D_c						15,800	14,100	12,600	11,100	10,000	8,900	7,900			
	AD . . 1807 . .	D_c							14,100	12,600	11,100	10,000	8,900	7,900			
F 4047	SN . X 1205 . .	D_c						18,800	16,800	14,000	13,300	11,900	10,600	9,400	8,400		
F 4048	SN . X 1205 . .	D_c						18,800	16,800	14,000	13,300	11,900	10,600	9,400	8,400		
F 4080	OD . . 0605 . .	D_c						21,900	19,600	17,500	15,500	13,800	12,400	10,900			
F 4038	AD . . 0803 . .	D_c			40,000*	38,000	33,600										
F 4138	AD . . 1204 . .	D_c					25,100	22,400	20,000	17,900	15,800						
F 4238	AD . . 1606 . .	D_c						15,800	14,100	12,600	11,100						

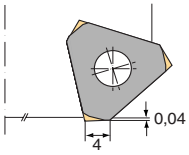
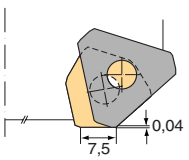
* Higher speeds than 40,000 1/min are possible under favourable conditions and short projection lengths upon consultation with WALTER.

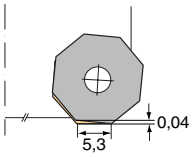
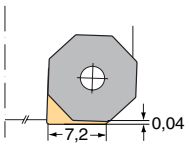
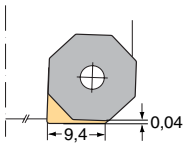
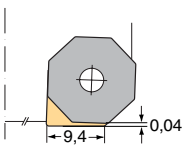
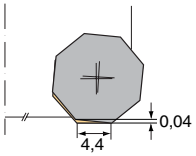
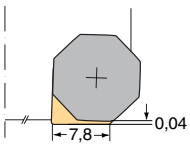
Geometry overview for milling inserts

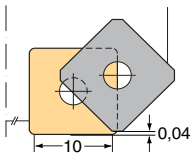
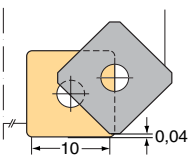
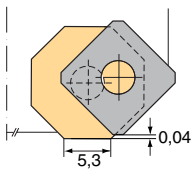
Tool families / insert geometry		Features
F 4042 / F 4038 / F 4138 / F 4238 Xtra·tec®		
	**D 51** 	**The quiet one** →Antivibration geometry →for tools with longer projection lengths →10° rake angle
	D 56 	**The stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →10° rake angle
	F 56 	**The universal one** →for medium machining conditions →universal application for most materials →16° rake angle
	G 56 	**The easy-cutting one** →for good machining conditions →low cutting forces →medium feed rates →20° rake angle
	G 88 	**The sharp one** →for aluminium machining →low cutting forces →sharp cutting edges →20° rake angle
F 2334	**A 27** 	**The stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →0° rake angle
	**D 57** 	**The universal one** →for medium machining conditions →universal application for most materials →10° rake angle
F 2330	**P 26335** 	**The easy-cutting one** →for good machining conditions →low cutting forces →medium feed rates →10° rake angle
	**P 26337** 	**The stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →0° rake angle
	P 26339 	**The universal one** →for medium machining conditions →universal application for most materials →10° rake angle at perimeter, 0° rake angle at the cutting edge

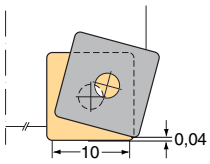
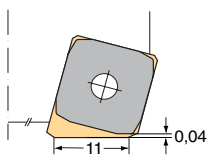
Tool families / insert geometry		Features
F 4033 / F 4047 / F 4048 Xtra·tec®		
	**F 27** 	**The stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →16° rake angle
	F 57 	**The universal one** →for medium machining conditions →universal application for most materials →16° rake angle
	F 67 	**The easy-cutting one** →for good machining conditions →low cutting forces →medium feed rates →16° rake angle
F 4041 Xtra·tec®	**L 55** 	**The universal one** →for medium machining conditions →universal application for most materials →28° rake angle
		
F 4080 Xtra·tec®	**A 27** 	**The stable one** →for unfavourable machining conditions →maximum cutting edge stability →high feed rates →0° rake angle
	**A 57** 	**The special one** →for medium machining conditions →predominantly for cast iron machining →0° rake angle
	D 57 	**The universal one** →for medium machining conditions →universal application for most materials →10° rake angle
	F 57 	**The easy-cutting one** →for good machining conditions →low cutting forces →medium feed rates →16° rake angle
	G 88 	**The sharp one** →for aluminium machining →low cutting forces →sharp cutting edges →20° rake angle

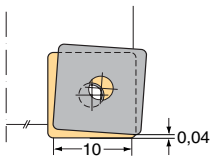
Roughing-finishing combinations with WALTER milling cutters

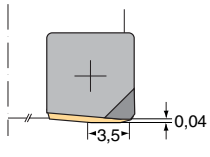
κ = 42°	Roughing	Finishing
F 2044 	**Indexable insert** P 23 . . – size 1 **Cartridge** FR 436	**Indexable insert** P 25 . . – size 1 **Cartridge** FR 436
F 2044 	**Indexable insert** P 23 . . – size 1 P 23 . . – size 2 **Cartridge** FR 436 FR 437	**Indexable insert** P 25 . . – size 3 **Cartridge** FR 438

κ = 43°	Roughing	Finishing
F 2010 	**Indexable insert** OD . . 0605 . . **Cartridge** FR 592 M	**Indexable insert** ODHX 0605 ZZN **Cartridge** FR 681 M
F 2280 	**Indexable insert** ODH . 0504 ZZN	**Indexable insert** ODHX 0504 ZZR
F 4080 	**Indexable insert** ODH . 0605 ZZN	**Indexable insert** ODHX 0605 ZZR
F 2010 	**Indexable insert** ODH . 0605 . . **Cartridge** FR 592 M	**Indexable insert** ODHX 0605 ZZR **Cartridge** FR 592 M
F 2146 	**Indexable insert** OP . . 0504 . .	**Indexable insert** OPHX 0504 ZZN **Cartridge** FR 683
F 2146 	**Indexable insert** OP . . 0504 . .	**Indexable insert** OPHX 0504 ZZR **Cartridge** FR 599

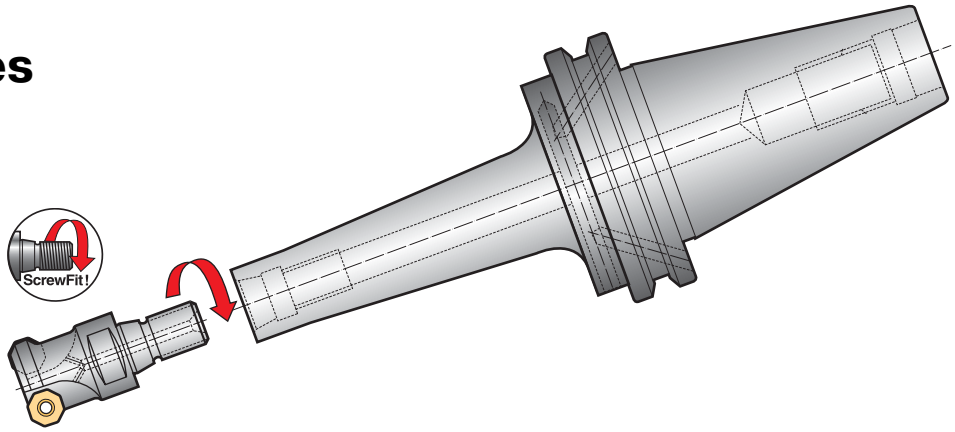
κ = 45°	Roughing	Finishing
F 2010 	**Indexable insert** SP . . 1204 A . . **Cartridge** FR 495 M	**Indexable insert** P 2905 – size 1 **Cartridge** FR 448 M
F 2010 	**Indexable insert** SN . . 1205 ANN **Cartridge** FR 720 M	**Indexable insert** P 2905 – 1 **Cartridge** FR 448 M
F 2010 	**Indexable insert** SN . . 1205 ANN **Cartridge** FR 720 M	**Indexable insert** ODHX 0605 ZZN **Cartridge** FR 681 M

κ = 75°	Roughing	Finishing
F 2010 	**Indexable insert** SP . . 120408 **Cartridge** FR 441 M	**Indexable insert** P 2905 – size 1 **Cartridge** FR 448 M
F 2010 	**Indexable insert** SP . . 1204 EDR **Cartridge** FR 441 M	**Indexable insert** P 2901 – size 1 **Cartridge** FR 441 M

κ = 89°45'	Roughing	Finishing
F 2010 	**Indexable insert** SP . . 120408 **Cartridge** FR 445 M	**Indexable insert** P 2905 – size 1 **Cartridge** FR 448 M

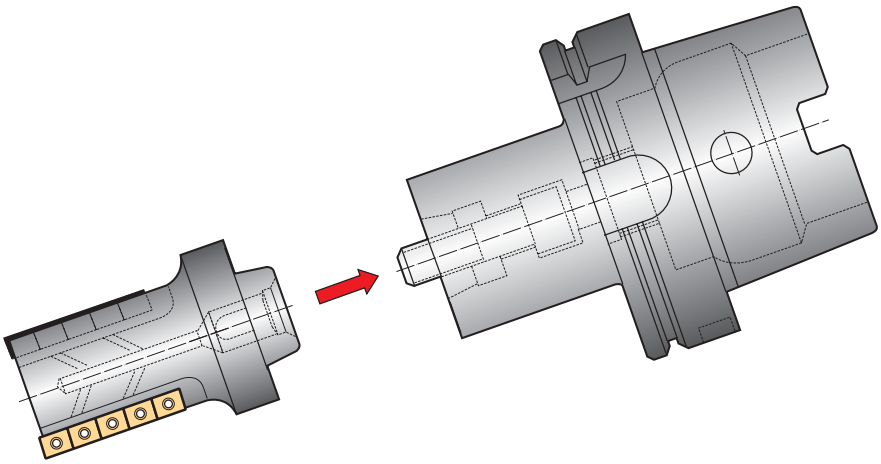
κ = 90°	Roughing	Finishing
F 2250 PCD 	**Indexable insert** SPHW 1204 PDR **Cartridge** FR 594	**Indexable insert** SPHX 1204 PDR **Cartridge** FR 595

Tightening torques



Tightening torques for modular front pieces

Interface	Thread	Tightening torque	Wrench size [mm]	Diameter of corresponding NCT taper
T 9	M 5	6 Nm	SW 8	–
T 14	M 8	25 Nm	SW 12	–
T 18	M 10	50 Nm	SW 14	–
T 22	M 12	80 Nm	SW 17	NCT 25/32
T 28	M 16	150 Nm	SW 21	–
T 36	M 20	200 Nm	SW 30	NCT 40/50
T 45	M 20	200 Nm	SW 36	NCT 40/50



Axial clamping system for NCT

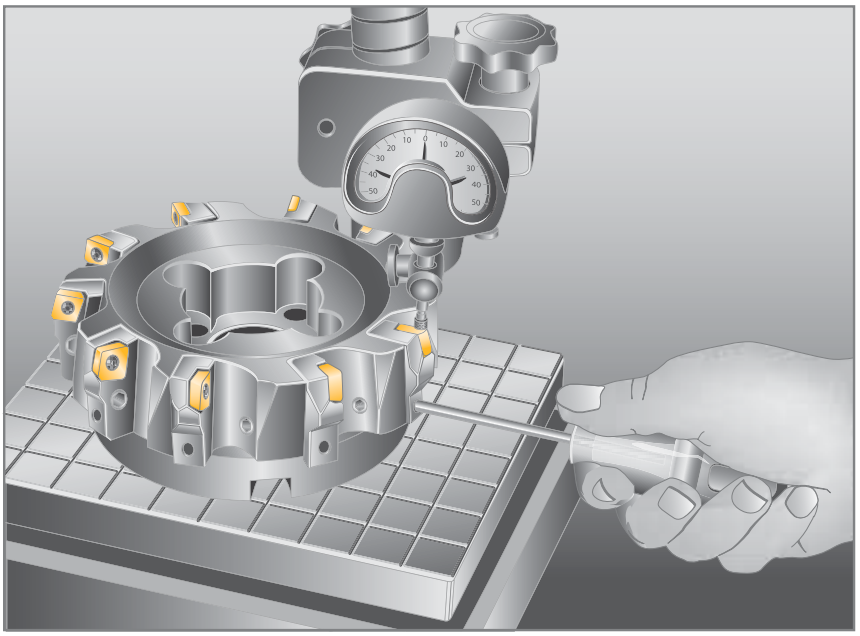
D_2 mm	Thread	Wrench size	Torque wrench	Socket key	Tightening torque	max. speed
25	M 8	5	FS 1385	FS 402	18 Nm	20 000 rpm
32	M 8	5	FS 1385	FS 402	18 Nm	30 000 rpm
40	M 12	8	FS 1386	FS 403	80 Nm	30 000 rpm
50	M 12	8	FS 1386	FS 403	80 Nm	30 000 rpm
63	M 16	12	FS 1386	FS 404	150 Nm	30 000 rpm
80	M 20	14	FS 1386	FS 405	200 Nm	30 000 rpm

Setting instructions for WALTER milling cutter F 2010, positive microplan

Design principle:

The pockets of the cutter have a countersunk hole in which the adjustment screw sits.

By tightening this screw, the cartridge is displaced axially. The cartridge can be adjusted with micro precision (see picture).



Axial fine adjustment of the microplan milling cutter

1. Before mounting the cartridge ① turn the adjusting screw ② so that the taper is approx. 0.3–0.5 mm above the bottom of the slot.
2. Then fit the cartridge and tighten the screw ③. Take care that the cartridge lies against the bottom of the annular groove ④. The adjusting screw should not be stressed.
3. By tightening the adjusting screw ② clockwise, the cartridge ① can be adjusted to the required plane position.

   Here it must be ensured that after the µm-precise adjustment, the pretension of the adjusting screw is released. This is achieved by turning the adjusting screw anticlockwise and reattaching it free from pretension.

   There is approx. 0.2 mm of adjustment.

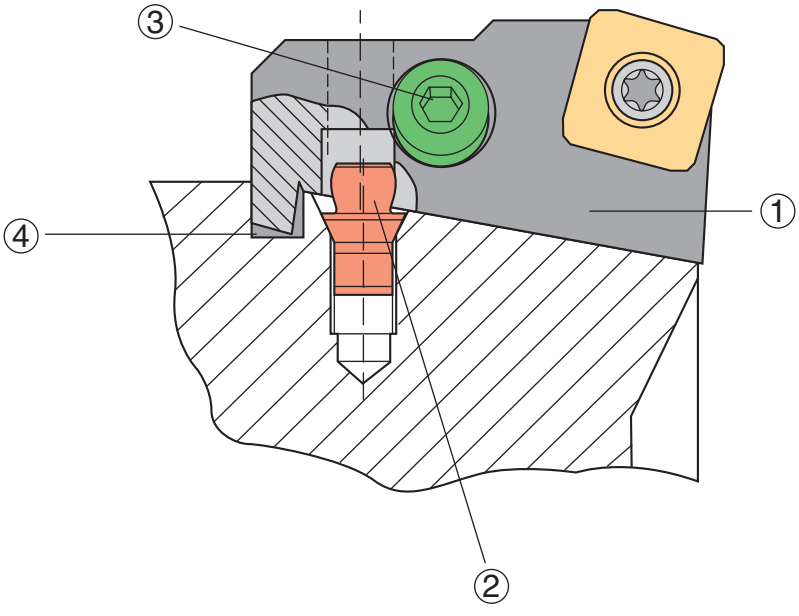
4. When resetting, the adjustment screw ② should be brought back to its original position. After loosening the clamping screw ③, the cartridge ① returns to the axial starting position.

① **Cartridge**

② **Adjusting screw**

③ **Clamping screw**

④ **Annular groove**



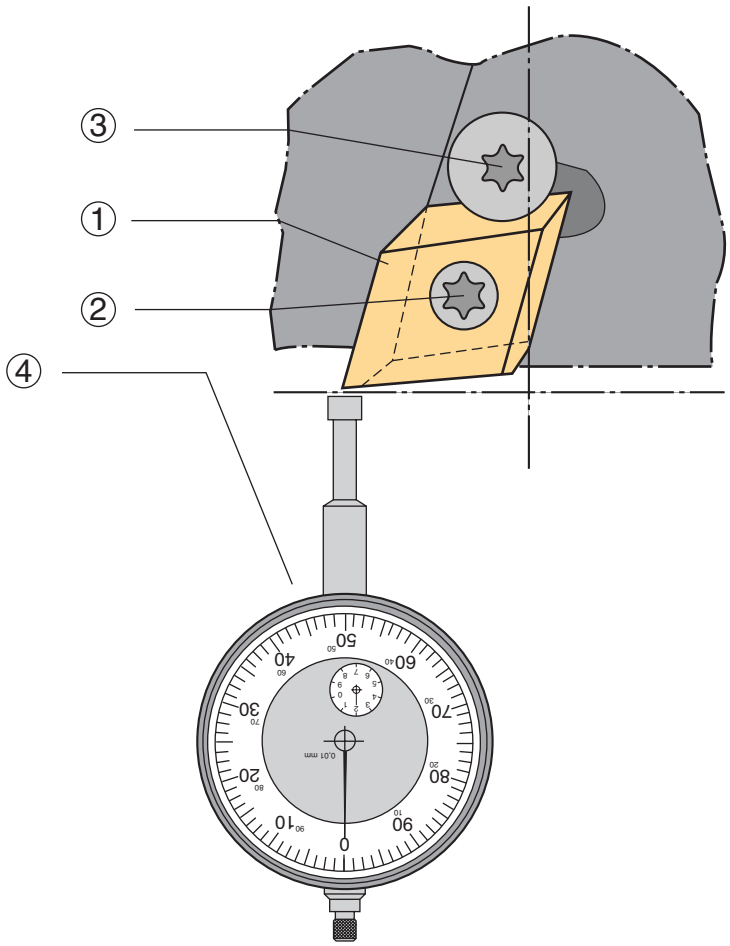
Setting instructions for the axial concentricity of WALTER Milling Cutter F 2140

① **Insert**

② **Clamping screw for insert**

③ **Adjusting screw (left-hand thread) for insert**

④ **Gauge**



Setting the axial concentricity

1. Fit the insert ①, tighten the clamping screw ②.
2. Unscrew the adjusting screw ③ by turning clockwise until the insert ① is free of location.
3. Lightly tighten the screw ②.
4. Move the insert by 0.2 – 0.25 mm towards the gauge ④ by turning the adjusting screw ③ counterclockwise, the insert is thus pre-tensioned.
5. Then adjust the overall height and the axial concentricity by rotating the adjusting screw ③ further in the counterclockwise direction.
6. After adjusting the axial concentricity, tighten the clamping screw ② with a tightening torque of 5 Nm.
7. Check all cutting edges for concentricity. Fine adjustment by means of the adjusting screw ③, if necessary.

Setting instructions for the axial concentricity of WALTER close pitch milling cutter F 2146

① **Stop-piece**

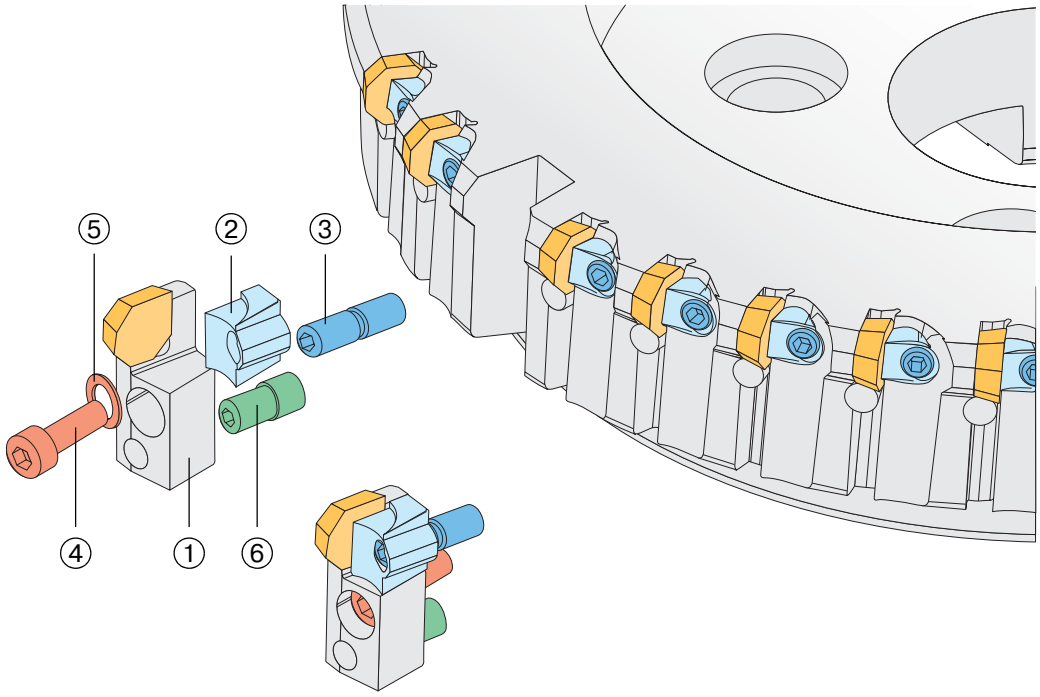
② **Clamping wedge**

③ **Compound screw**

④ **Cap screw**

⑤ **Spring washer**

⑥ **Eccentric bolt**



Setting the axial concentricity

1. Loosen the clamping wedge ② by means of the compound screw ③. Press the insert into the pocket of the stop-piece ①.
2. Apply light pressure to the wedge ②.
3. Pretension the cap screw ④ until the spring washer ⑤ is flattened.
4. By turning the eccentric bolt ⑥ the cutting edges can be axially adjusted (remain approx. 5 µm below size).
5. Firmly tighten wedge ② with compound screw ③.
6. Tighten cap screw ④ with 8 Nm of torque
7. Check the axial concentricity.

Please note:

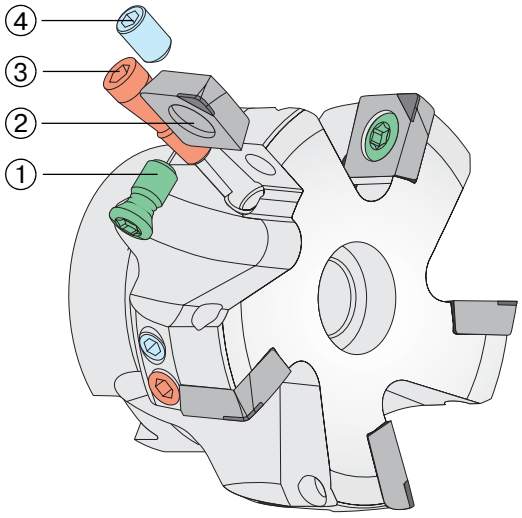
When using the roughing-finishing combination, the wiper insert should be set at 0.03 – 0.04 mm above the roughing insert.
To reset the stop-piece, the insert should be manually pushed down by hand.

Note:

Insert the spring washer ⑤ with the camber pointing towards the screw head side.
Lubricate the eccentric bolt ⑥ with special copper grease.

Setting instructions for the axial concentricity (and secondary cutting edge angle) of WALTER light alloy milling cutter F 2250

F 2250 with fixed insert pockets



① **Clamping screw for insert**

② **PCD insert**

③ **Countersunk head bolt**

④ **Fine balancing screw**

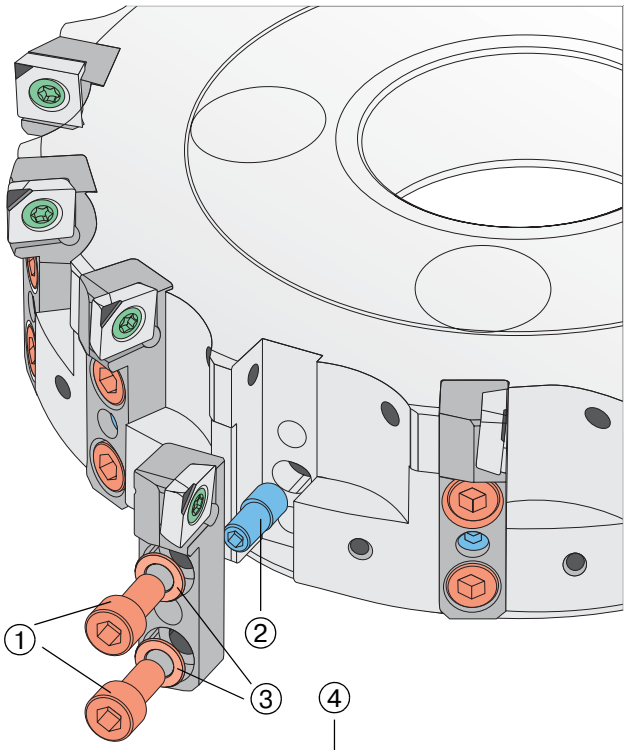
Setting the axial concentricity

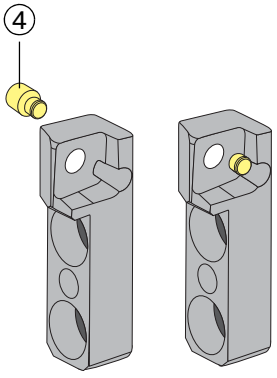
1. Tighten inserts ② to 5 Nm of torque.
   Insert must not lie on adjustment screw ③.
2. Now fit countersunk head bolt ③ and pretension highest insert approx. 0.05–0.08 mm.
3. Set all inserts to the same level. Check the concentricity.

Note:

Do not retighten the insert clamping screw ①.
Lubricate the adjustment screw with special copper grease.

F 2250 – Cartridge design





2D cartridge FR 595

① **Cap screws**

② **Eccentric bolt**

③ **Spring washer**

④ **Adjusting screw**

Axial adjustment for 1D cartridge

1. Loosen cap screws ①.
2. Turn eccentric bolt ② until the cartridge is at the lowest position.
3. Pretension the cap screw ① until the spring washer ③ is flattened.
4. Using eccentric bolt ②, adjust the cutting edges to size (remain approx. 4 µm above size).
   The cartridges can be adjusted by 0.2 mm below the nominal size and 0.8 mm above the nominal size.
5. Tighten cap screws ① to 14 Nm of torque.
6. Check the axial concentricity.

Axial concentricity and secondary cutting edge for 2D cartridge

1. The adjustment screw ④ must not protrude from the back of the cartridge.
2. Cartridge assembly is the same as for 1D cartridge.
3. Clamp insert with 5 Nm of torque. Make sure that the insert sits so that there is no front clearance.
4. Turn the adjustment screw ④ in small steps to change the angle of the insert until the desired angle for the secondary cutting edge is reached. The wrench is applied from behind the cartridge through the cutter body.
5. Set the axial concentricity in accordance with the 1D cartridge. Ensure that the wiper insert SPHX 1204 PDR-A88 sits 0.04 mm above the roughing insert SPHW 1204 PDR-A88.

Note:

Fit spring washers ③ with the camber pointing towards the screw head side.
Lubricate the eccentric bolt ② and adjusting screw ④ with special copper grease.

Setting instructions for the cut width of WALTER side and face milling cutter F 2252

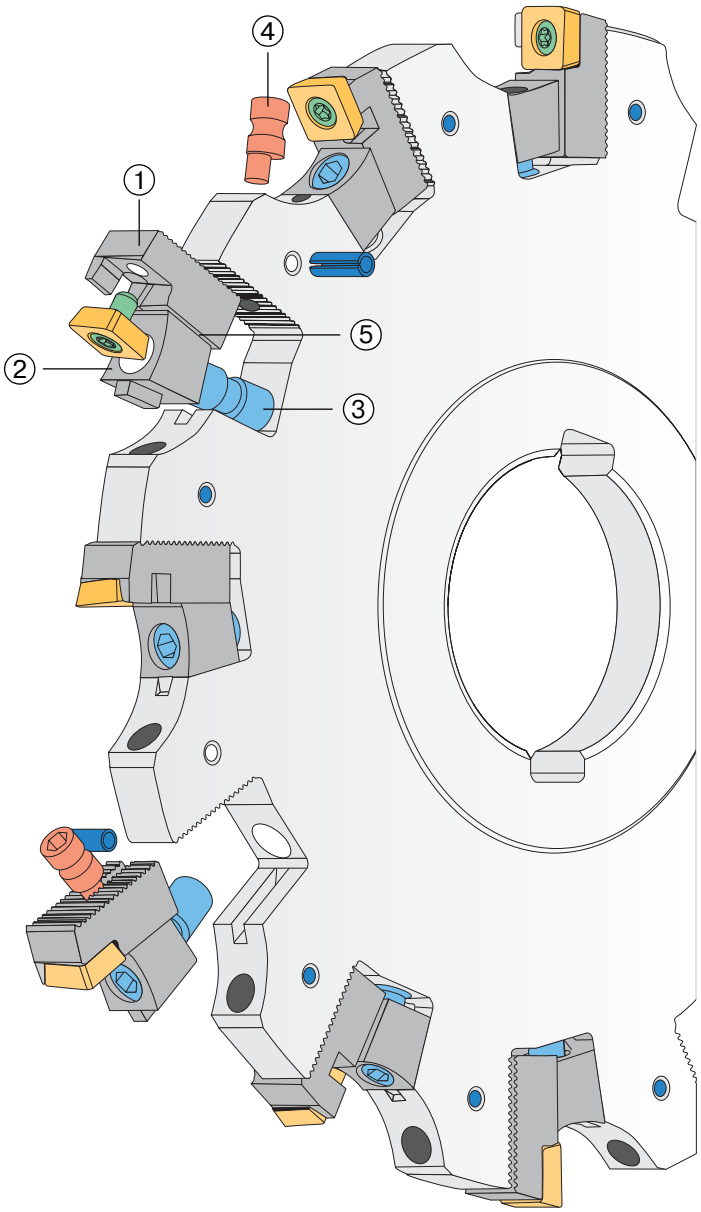
① **Cartridge**

② **Clamping wedge**

③ **Compound screw**

④ **Eccentric bolt**

⑤ **Spring washer**



Cutting width adjustment

1. Loosen compound screw ③ of the clamping wedge ②. Turn the compound screw until spring washer ⑤ applies pretension between the clamping wedge and the cartridge.
2. Set the right-hand cartridge ① with the cutting edge of the insert to half the width of cut (for a full side and face milling cutter, the cartridges should lie symmetrical to the cutter body) by turning the eccentric bolt ④.
3. Then set the left-hand cartridge ① in the same way described in 2. (half the width of cut for full side and face milling cutters).
4. Ensure that there is sufficient tension against the eccentric bolt ④. If necessary, tighten compound screw ③ to increase spring washer ⑤ pretension.
5. Tighten compound screw ③ with the required torque setting (see assembly parts table on the appropriate catalogue page).
6. Check cutting width and axial concentricity.

Note:

Lubricate the eccentric bolt ④ and adjustment screw ⑤ with special copper grease.

Setting instructions F 2254

① **Indexable insert SNHQ 1205 ZZN**

② **Clamping screw for insert**

③ **Setting key**

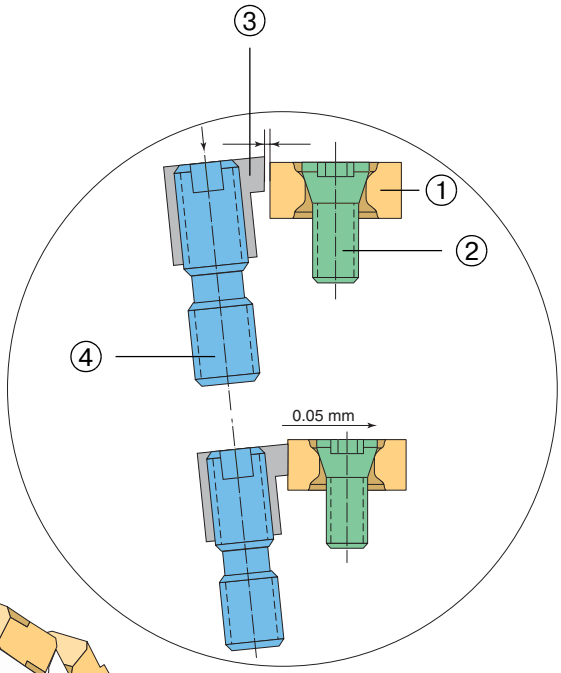
④ **Compound screw**

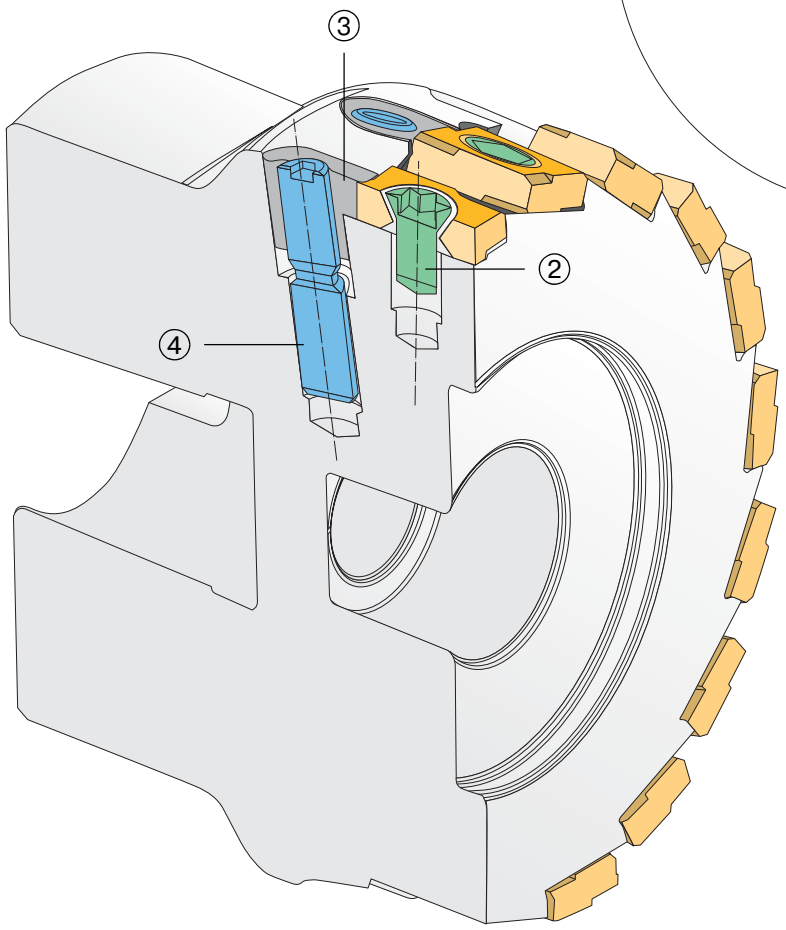
Setting instructions

1. Insert the indexable insert in the cleaned insert seat and tighten the clamping screw ② to 3 Nm of torque. During this process the setting key ③ must be loose. If necessary, release the setting key using the compound screw ④ and reinsert and tighten the indexable insert.

2. Check the axial concentricity and adjust the indexable insert with its greatest overall height above the setting key ③ at around 0.05 mm; then align all the other indexable inserts to the same height. Check axial concentricity again.

3. Do **not retighten** the indexable insert clamping screw ② !

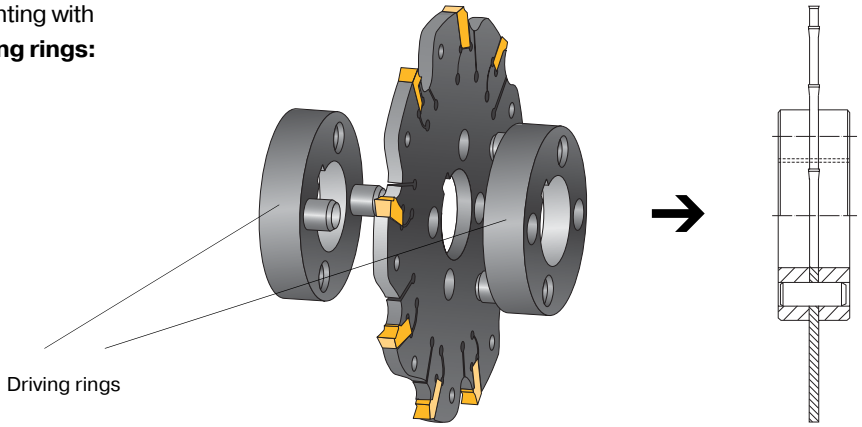




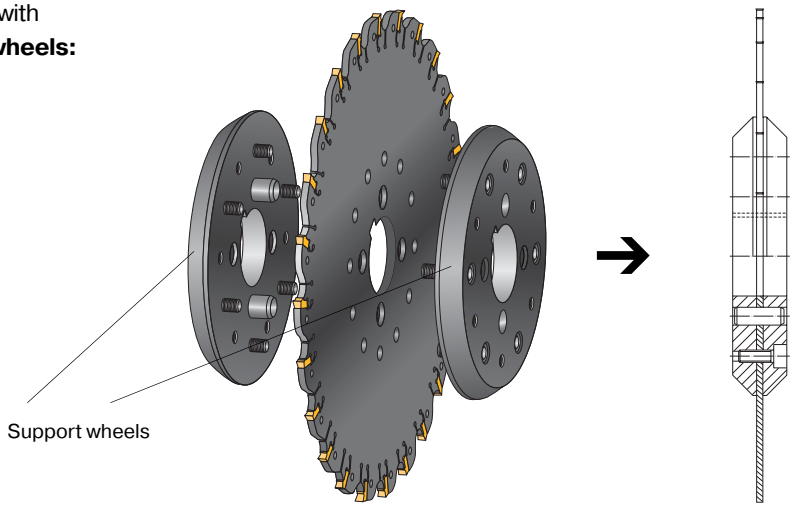
Assembly instructions for slitting cutters F 2255

Slitting Cutters F 2255 must always be used together with two driving rings or support wheels (order separately):

Mounting with
driving rings:



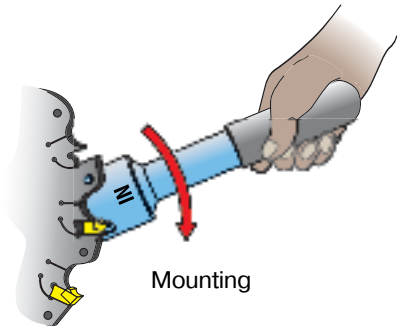
Mounting with
support wheels:



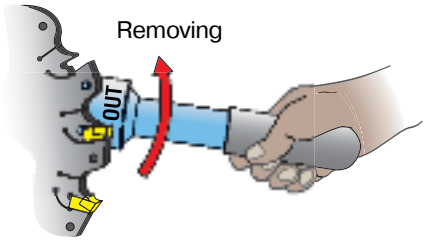
Please note:
When using support wheels, observe the a_e dimension
(see page 574)

Use of the mounting wrench:

Mounting the insert



Removing the insert

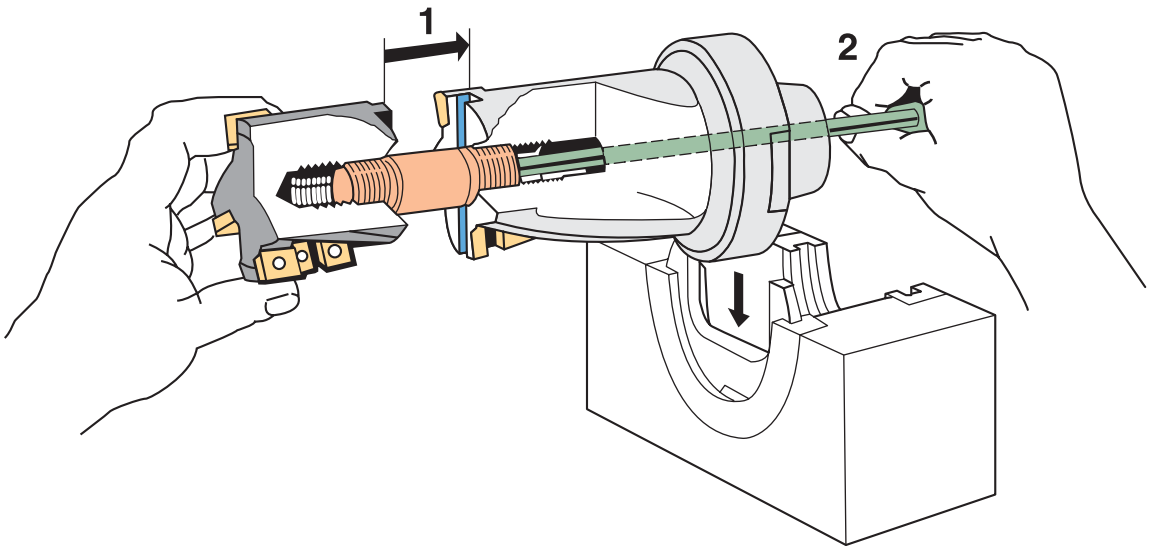


Please note: Only use mounting wrench FS 1353. When mounting the insert, always position the wrench in the bore hole above the insert. When mounting and removing, pay attention to the orientation side of the wrench (different pin sizes!).

Assembly instructions for WALTER Porcupine cutters F 2238 with front piece

– Mount the taper shank-type tool onto the assembly block

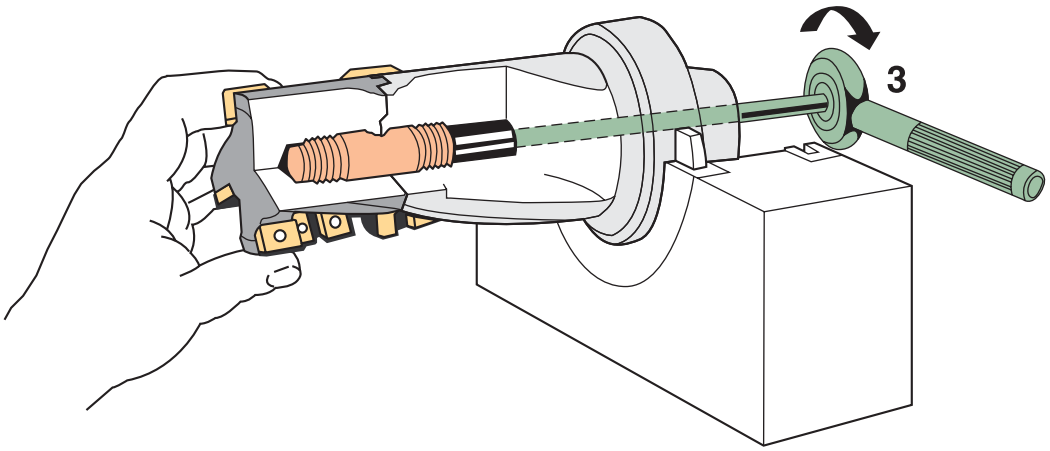
– Mount the tool with NCT interface and insert the collar onto the assembly block



1 Insert pull stud into basic body (with hexagon socket in direction of basic body).

Then fit front piece and align drive in front piece with drive slot in basic body. Hold the front piece in position.

2 Using the socket wrench, tighten the pull stud by **turning anticlockwise** until the front piece lies against the basic body.



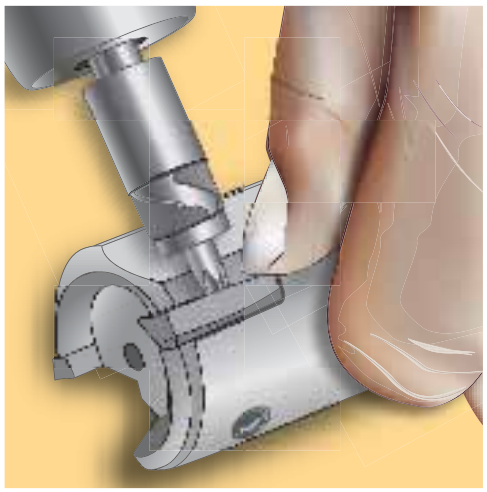
3 Tighten the screw to the **left** according the prescribed torque.

Safety information for F 3040

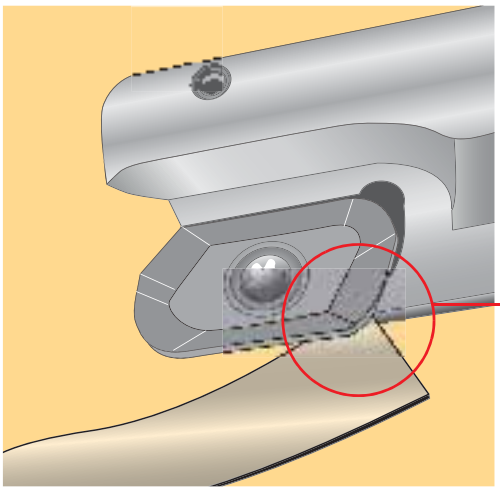
When inserting the F 3040, observe the following:

Always tighten the indexable insert using a torque key! For the correct torque settings, see the table on page 804.
Do not lubricate insert screws!
After 5 insert changes, also change the indexable insert screws.
Insert must be well seated in the insert pocket – see illustration.
Check the balance status and concentricity of the adaptor.

Press on the indexable insert while tightening the screw



Check with 0.01 mm shim



The shim must **not** be able to slide in-between the indexable insert and the insert seat!



Adaptors and clamping units

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WALTER CAPTO clamping units and adaptors	VDI clamping units	690
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	Basic holder	694
	Extensions/reduction adaptors	695
	Toolholder for ISO boring bars	697
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Clamping units and adaptors for modular systems

WALTER CAPTO – the modular solution for modern lathes and turning-milling centres

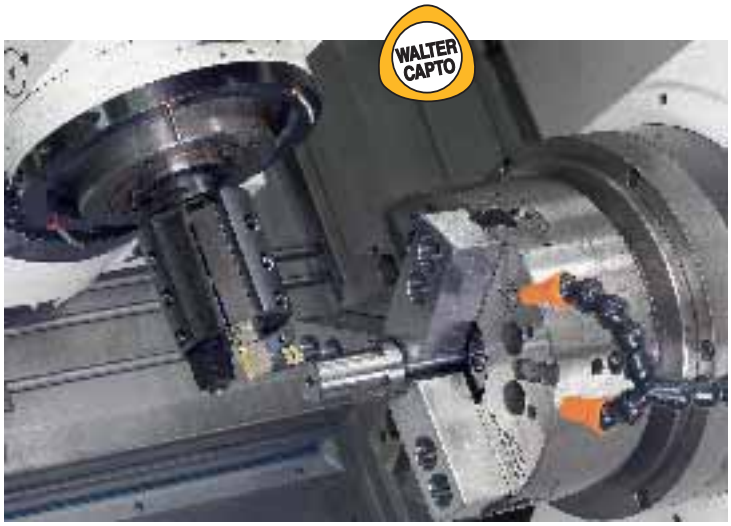


WALTER CAPTO clamping units are available for VDI as well as for square and round shank turrets.

Short tool replacement times and maximum repeat accuracy increase your productivity.

In addition, we are also pleased to offer you clamping units in an integrated design in accordance with customer requirements. These can also be designed as driven clamping units.





Thanks to our ScrewFit adaptor for turning-milling centres with integrated CAPTO milling spindles, the most comprehensive milling product range as well as boring and precision boring tools are available to you.

Additional innovative solutions ensure a greater increase in productivity, for example the new mini revolver with WALTER CAPTO coupling.







WALTER NCT – the modular solution for modern machining centres

Regardless of whether you must work with tools with short or long projection lengths: with the modular WALTER NCT interfaces you can assemble a customised milling or boring tool.







The modular design of the WALTER concept offers scope for outstanding versatility.

Whether you have to clamp a solid carbide drill in a hydraulic expansion chuck or clamp a bore-type milling cutter onto an arbor - at WALTER you will find the right toolholder for your needs.

Benefit from the versatility of the WALTER NCT short taper and increase your productivity!













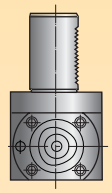


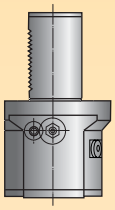
Product range overview

Manual Clamping Units

VDI Clamping units
right angle
Page 690

straight
Page 690





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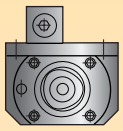

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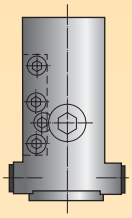

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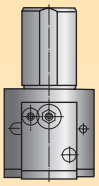

Adaptors

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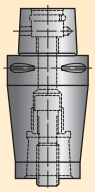

391.01
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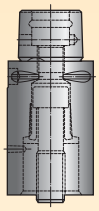
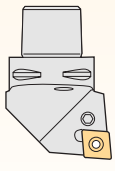


Tool adaptors

WALTER CAPTO Tools



C–ASHA
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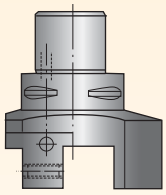



C–ASH
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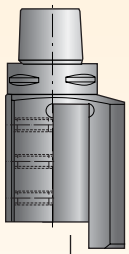



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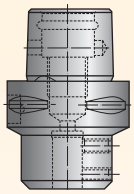

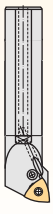

391.14
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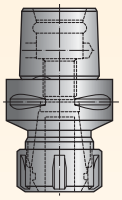

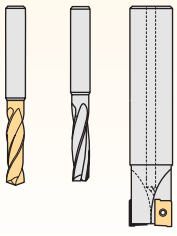

391.20
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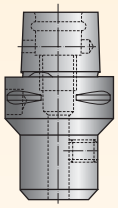
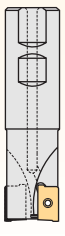
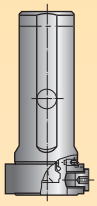




WALTER CAPTO clamping units and adaptors

Type 2000 / 3000
Page 692



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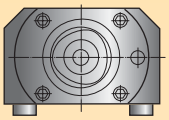
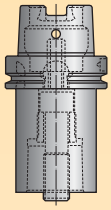


HSK-CAPTO Type 390.410
Page 694



Driven WALTER CAPTO toolholder
on request

WALTER CAPTO special clamping units
on request

WALTER CAPTO

391.27
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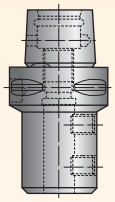
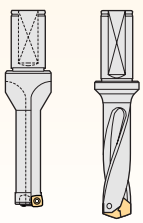
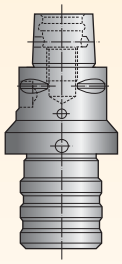


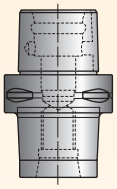


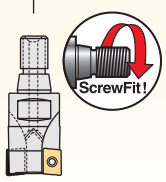
391.60
Page 702





AK 580.C
Page 706





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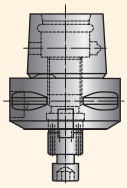
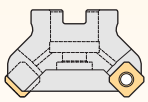
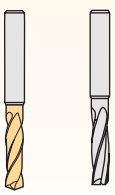


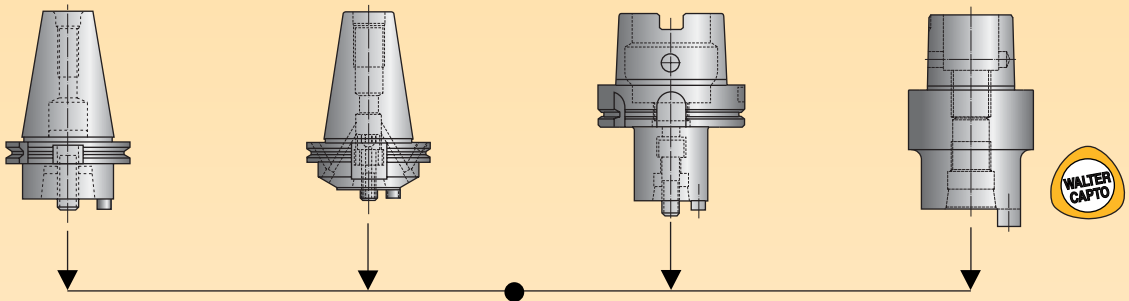


WALTER CAPTO hydraulic expansion chuck
on request

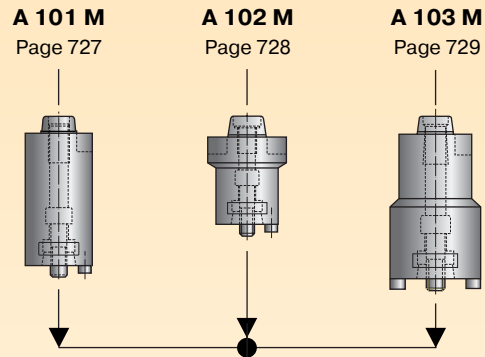


Product range overview

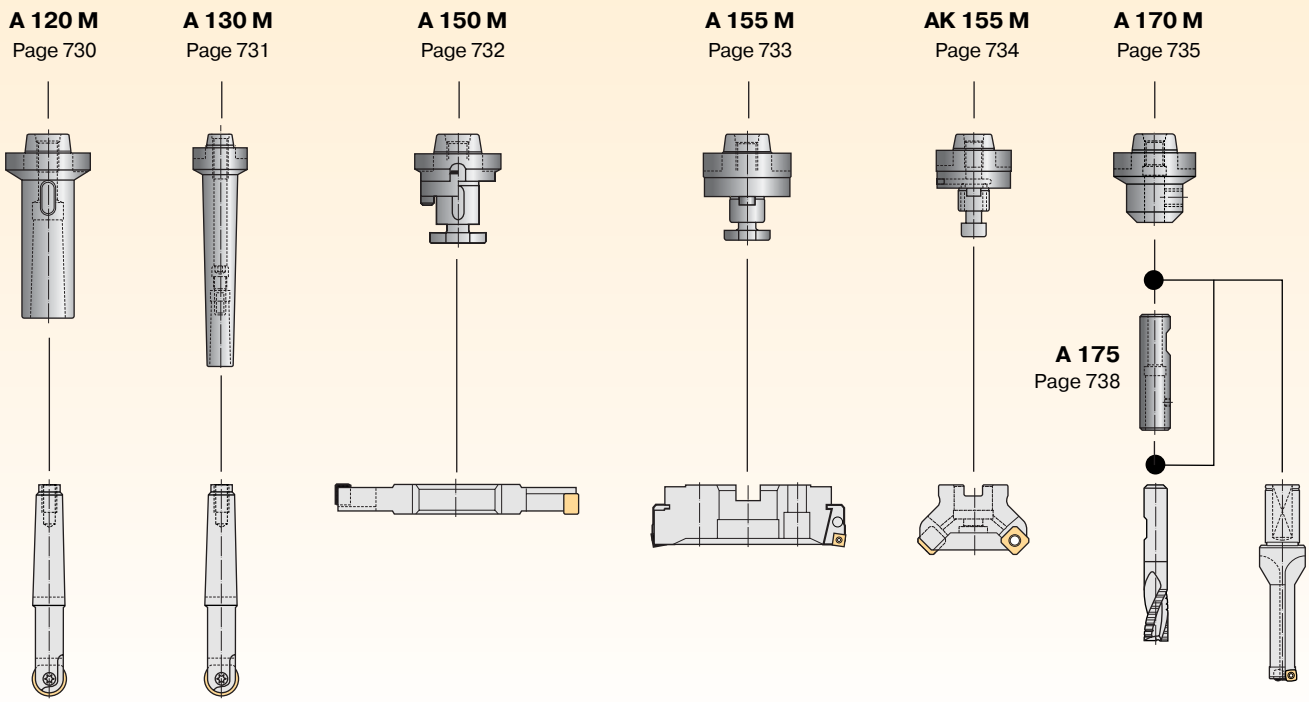
Master



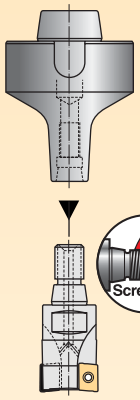
Intermediate elements



NCT adaptors



AK 520
Page 748



For ScrewFit system, see page 274 and 440

A 171 M
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A 201 M
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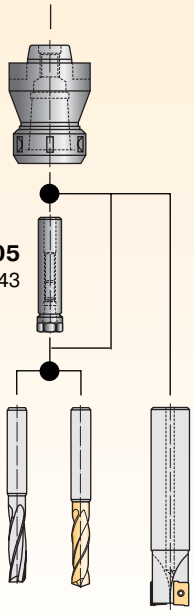
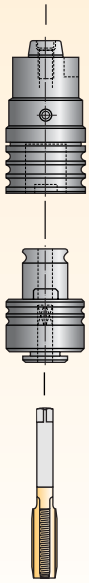
AK 300 M
Page 741



A 305
Page 743

A 320 M
Page 744



A 330/
A 331
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A 340 M
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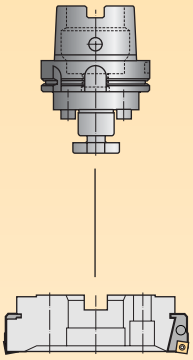
Tools with NCT coupling

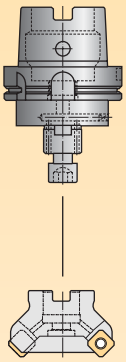


Product range overview

A 155…HSK
Page 765

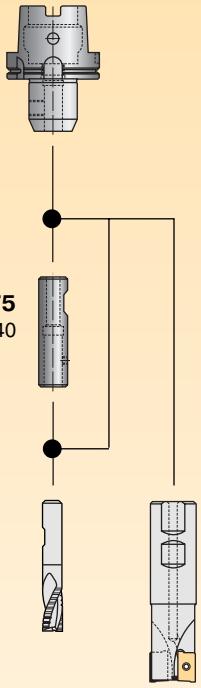


AK 155…HSK
Page 766



A 170…HSK
Page 767

A 175
Page 740



A 171…HSK
Page 768

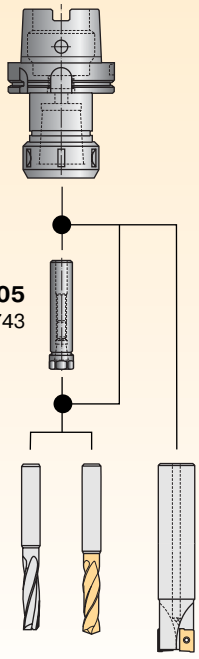


AK 180…HSK
Page 769



AK 300…HSK
Page 770

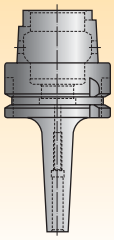
A 305
Page 743



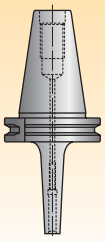
Shrink-fit adaptors

HSC

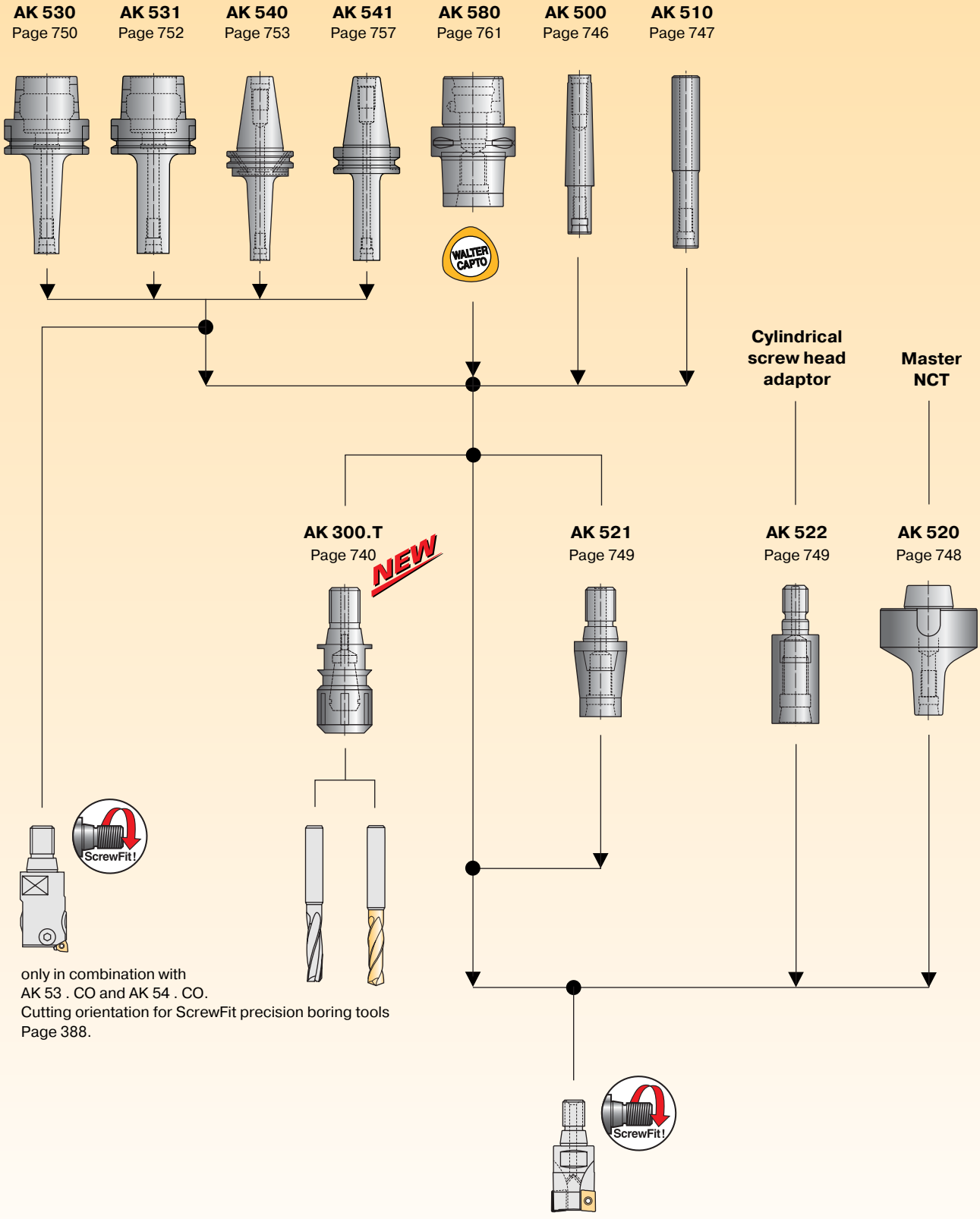
A 560
Page 762



A 570
Page 763

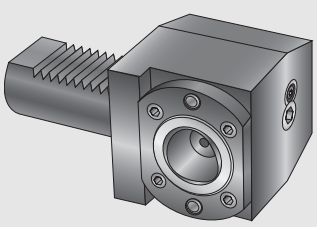


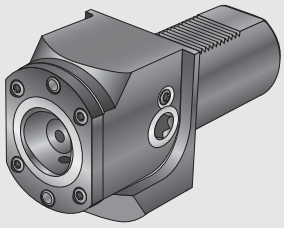
Adaptors for ScrewFit front pieces



only in combination with
AK 53 . CO and AK 54 . CO.
Cutting orientation for ScrewFit precision boring tools
Page 388.

For ScrewFit system, see page 274 and 440

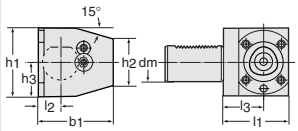
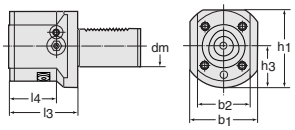




Clamping units

VDI

DIN 69880, manually actuated

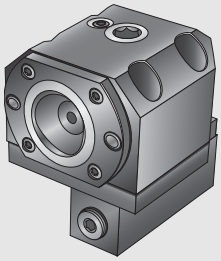
Tool	Designation	Size	dm mm	l_1 mm	l_2 mm	l_3 mm	l_4 mm	b_1 mm	b_2 mm	h_1 mm	h_2 mm	h_3 mm
right angle	C3–R/L C2030-41020M	C3	30	60	20	41		74		57	38	30
	C3–R/L C2030-41030M	C3	30	60	30	41		73		57	41	30
	C4–R/L C2040-51030M	C4	40	75	30	51		86		75	54	38
	C4–R/L C2040-51040M	C4	40	75	40	51		86		75	60	38
	C5–R/L C2040-53030M	C5	40	85	30	53		99		82	47	41
	C5–R/L C2040-53040M	C5	40	85	40	53		99		82	53	41
	C4–R/L C2050-41030M	C4	50	65	30	41		86		86	66	41
	C4–R/L C2050-41040M	C4	50	65	40	41		86		86	72	41
	C5–R/L C2050-53040M	C5	50	85	40	53		99		86	65	43
	C5–R/L C2060-43040M	C5	60	75	40	43		99		94	76	53
	C6–R/L C2060-53040	C6	60	95	40	53		122		105	70	53
straight	C3–R/L C2030-00060M	C3	30			60	44	50	38	61		34
	C4–R/L C2040-00075M	C4	40			75	53	75	48	75		38
	C5–R/L C2040-00085M	C5	40			85	72	75	64	82		41
	C4–R/L C2050-00065M	C4	50			65	39	70	48	83		42
	C5–R/L C2050-00085M	C5	50			85	61	83	64	90		45
	C5–R/L C2060-00075M	C5	60			75	16	80	64	82		58
	C6–R/L C2060-00095	C6	60			95	50	84	84	105		58

Drawing shows right-hand cutting units
Bodies and assembly parts are included in the scope of delivery.

Note:
To protect the polygon adaptor from contamination and damage, the clamping units – where no tool is clamped or during storage in the tool area – must be provided with protective covering (see page 716).

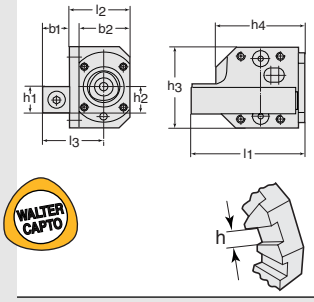
For selection of VDI clamping units, see page 784.

→ 707 | → 784 | → 788

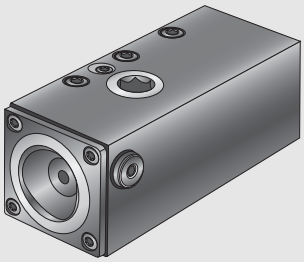


Clamping units Type 2080

with square shank for external applications
manually actuated

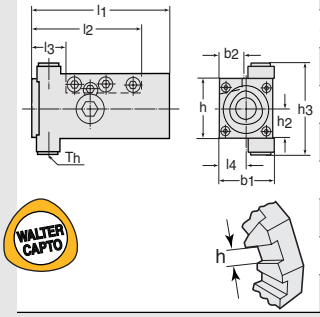
Tool	Designation	Size	l_1 mm	l_2 mm	l_3 mm	b_1* mm	b_2 mm	h_1 mm	h_2 mm	h_3 mm	h_4 mm
	C3–R/L C2080-48090M	C3	90	45.5	48	21.5	38	20	20	54	73
	C4–R/L C2080-59110A	C4	110	57	59	26	48	25	25	77	86
	C5–R/L C2080-77110A	C5	110	75.5	77	33.5	64	32	32	92	100
	C6–R/L C2080-93140**	C6	140	95	93	40	—	40	40	105	122

* Slot depth in the turret
** One-piece version
Drawing shows right-hand cutting units
Bodies and assembly parts are included in the scope of delivery.



Clamping units Type 2085

with square shank for external applications
manually actuated

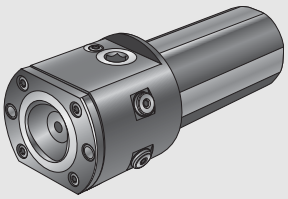
Tool	Designation	Size	Turret shank size	h mm	h_2 mm	h_3 mm	l_1* mm	l_2 mm	l_3 mm	l_4 mm	b_1 mm	b_2* mm	T_h mm
with expandable segmented bushing clamp	C3–R/L C2085-4038M	C3	2020	40	20	62	95	78.5	25	19	38	20	G 1/8
	C4–R/L C2085-5048	C4	2525	50	25	54	125	101	30.5	24	48	25	G 1/8
	C5–R/L C2085-6464	C5	3232	64	32	68	145	118	36	32	64	32	G 1/8

* Slot length and depth in the turret.
Drawing shows right-hand cutting units
Bodies and assembly parts are included in the scope of delivery.

For selection of clamping units, see page 785.

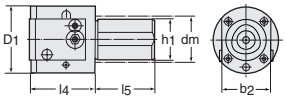
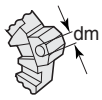
Note:
To protect the polygon adaptor from contamination and damage, the clamping units – where no tool is clamped or during storage in the tool area – must be provided with protective covering (see page 716).

→ 709 → 784 → 788

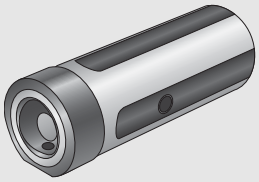


Clamping units Type 2035 / 2045 Type 2055 / 2065

with round shank
for internal applications
manually actuated

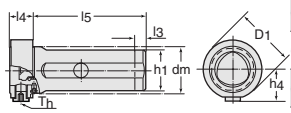
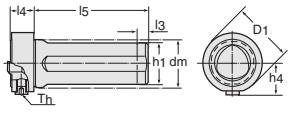
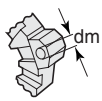
Tool	Designation	Size	dm mm	D_1 mm	l_4 mm	l_5 mm	b_2 mm	h_1 mm
	C3–R/L C2035-00060M	C3	32	54	60	80	38	29
	C4–R/L C2045-00075M	C4	40	67	75	81	48	37
	C5–R/L C2055-00085M	C5	50	82	85	100	64	47
	C6–R/L C2065-00095	C6	60	105	95	120	84	57
 								

Drawing shows right-hand cutting units
Bodies and assembly parts are included in the scope of delivery.
For selection of clamping units, see page 785.



Clamping units Type 2000 / 3000

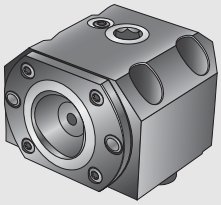
with round shank for internal applications
manually actuated

Tool	Designation	Size	dm mm	D_1 mm	l_3* mm	l_4 mm	l_5 mm	h_1 mm	h_4 mm	T_h mm
Type 2000	C3–NC2000-08018-32	C3	32	45.5	—	18	80	30	26	G 1/8
	C4–NC2000-10020-40	C4	40	51.5	8	20	100	37	28	G 1/8
	C4–NC2000-12020-50	C4	50	51.5	28	20	120	47	28	G 1/8
	C5–NC2000-12024-50	C5	50	61.5	—	24	120	47	33	G 1/8
	C5–NC2000-14024-60	C5	60	61.5	20	24	140	57	33	G 1/8
 										
Type 3000	C3–NC3000-08018-32	C3	32	45.5	—	18	80	30	26	G 1/8
	C3–NC3000-10018-40	C3	40	45.5	20	18	100	37	26	G 1/8
	C4–NC3000-10020-40	C4	40	51.5	10	20	100	37	28	G 1/8
	C5–NC3000-12024-50	C5	50	61.5	—	24	120	47	33	G 1/8
 										

* Max. reduction of the clamping unit length
Bodies and assembly parts are included in the scope of delivery.
For selection of clamping units, see page 785.

Note:
To protect the polygon adaptor from contamination and damage, the clamping units – where no tool is clamped or during storage in the tool area – must be provided with protective covering (see page 716).

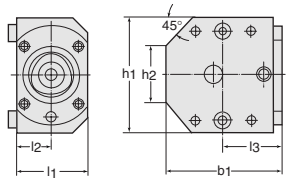
→ 711 | → 784 | → 788



Clamping units

Type 2090

for special flange-mount applications
manually actuated

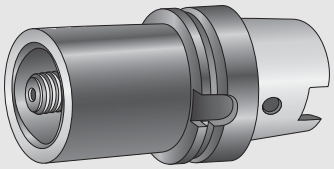
Tool	Designation		l_1 mm	l_2 mm	l_3 mm	b_1 mm	h_1 mm	h_2 mm	
	C3–R/L C2090-19039M	C3	38	19	39	73	54	30	
	C4–R/L C2090-24043A	C4	48	24	43	86	77	38	
	C5–R/L C2090-32048A	C5	64	32	48	100	92	44	
	C6–R/L C2090-42060	C6	84	42	60	122	105	37	

Drawing shows right-hand cutting units
Bodies and assembly parts are included in the scope of delivery.

Note:
To protect the polygon adaptor from contamination and damage, the clamping units – where no tool is clamped or during storage in the tool area – must be provided with protective covering (see page 716).

Application example, see page 786.

→ 713 | → 786 | → 788

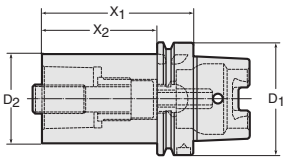
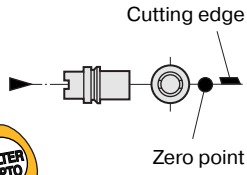


Basic holder

HSK – DIN 69893/1 version A

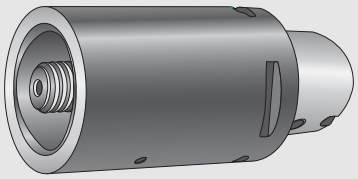
390.410



Tool	Designation	Size	HSK-Size	D_1 mm	D_2 mm	X_1 mm	X_2 mm	kg
	C3–390.410-63 075 B	C 3	63– A	63	32	75	49	1.4
	C4–390.410-63 080 B	C 4	63– A	63	40	80	54	1.6
	C4–390.410-100 090	C 4	100– A	100	40	90	61	4.1
	C5–390.410-63 090 B	C 5	63– A	63	50	90	64	1.5
	C5–390.410-100 100	C 5	100– A	100	50	100	71	3.0
	C6–390.410-100 110	C 6	100– A	100	63	110	81	3.6

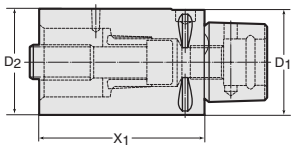
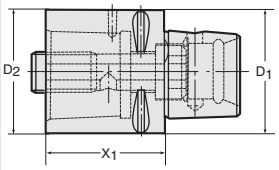
Bodies and assembly parts are included in the scope of delivery.

→ 714 → 788



Extension

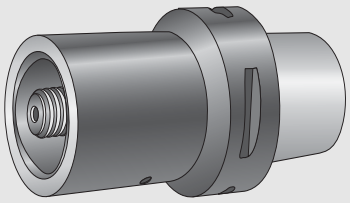
391.01

Tool	Designation	Size	D_1 mm	D_2 mm	X_1 mm				kg
	C3–391.01-32060A	C 3	32	32	60				0.3
	C3–391.01-32080A	C 3	32	32	80				0.4
	C4–391.01-40060 A	C 4	40	40	60				0.6
	C4–391.01-40080 A	C 4	40	40	80				0.8
	C5–391.01-50080A	C 5	50	50	80				1.2
	C5–391.01-50100A	C 5	50	50	100				1.4
	C6–391.01-63100A	C 6	63	63	100				2.3
	C6–391.01-63140A	C 6	63	63	140				3.2
short version	C3–391.01-32035*	C 3	32	32	35				0.2
	C4–391.01-40040*	C 4	40	40	40				0.4
	C5–391.01-50050*	C 5	50	50	50				0.7
	C6–391.01-63060*	C 6	63	63	60				1.3

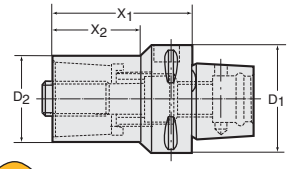
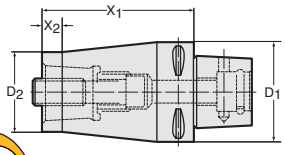
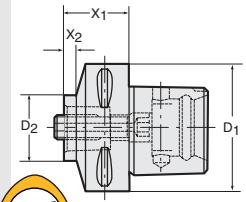
* short version only for expandable segmented bushing clamp.

Bodies and assembly parts are included in the scope of delivery.

→ 715 → 788



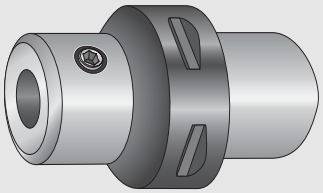
Reduction adaptor 391.02

Tool	Designation	Size	D_1 mm	D_2 mm	X_1 mm	X_2 mm			kg
	C4–391.02-32055 A	C 4	40	32 (C3)	55	31			0.4
	C5–391.02-32060A	C 5	50	32 (C3)	60	35			0.4
	C5–391.02-40065A	C 5	50	40 (C4)	65	40			0.8
	C6–391.02–32070 A	C 6	63	40 (C3)	70	39			1.0
	C6–391.02-40080A	C 6	63	40 (C4)	80	51.3			1.2
	C6–391.02-50080A	C 6	63	50 (C5)	80	51.5			1.4
	C4–391.02-32070 A	C 4	40	32 (C3)	70	12			0.6
	C5–391.02-40085A	C 5	50	40 (C4)	85	12			1.1
	C6–391.02-50110A	C 6	63	50 (C5)	110	12			2.0
short version	C5–391.02-32033*	C 5	50	32 (C3)	33	10			0.5
	C5–391.02-40040*	C 5	50	40 (C4)	40	18			0.6
	C6–391.02-32032*	C 6	63	32 (C3)	32	6			0.85
	C6–391.02-40040*	C 6	63	40 (C4)	40	11			0.9
	C6–391.02-50050*	C 6	63	50 (C5)	50	24.5			1.0

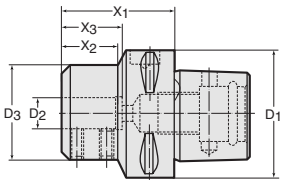
* short version only for expandable segmented bushing clamp.

Bodies and assembly parts are included in the scope of delivery.

→ 715 → 788



Toolholder for ISO boring bars

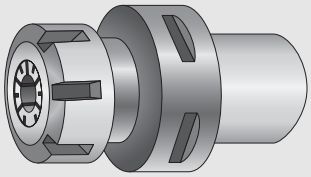
Tool	Designation	Size	D_1 mm	$D_{2\,H8}$ mm	D_3 mm	X_1 mm	X_2 mm	X_3 mm		kg
	C3–131-00035-10	C 3	32	10	36	35	20	20		0.2
	C3–131-00040-12	C 3	32	12	36	40	24	24		0.25
	C4–131-00040-10	C 4	40	10	36	40	19	20		0.4
	C4–131-00045-12	C 4	40	12	36	45	24	24		0.45
	C4–131-00050-16	C 4	40	16	36	50	29	32		0.5
	C5–131-00045-10	C 5	50	10	36	45	21	20		0.6
	C5–131-00045-12	C 5	50	12	36	45	22.5	24		0.6
	C5–131-00055-16	C 5	50	16	36	55	31	32		0.7

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		$D_{2\,H8}$ = 10–12 mm	$D_{2\,H8}$ = 16 mm	
	Screw	5514 020-04	5514 020-02	

Accessories		$D_{2\,H8}$ = 10–12 mm	$D_{2\,H8}$ = 16 mm	
	Wrench DIN 911	SW 3	SW 4	

→ 716 → 788

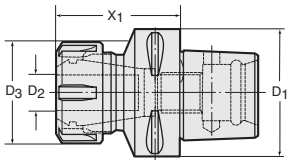


Collet chuck

for ER collets i.a.w. DIN 6499

391.14

Tool



Designation	Size	D_1 mm	D_2 mm	D_3 mm	X_1 mm	Collets	kg
C3–391.14-20 045	C 3	32	1–13	35	45	ER 20	0.3
C4–391.14-20 052	C 4	40	1–13	35	52	ER 20	0.3
C4–391.14-25 052	C 4	40	1–16	42	52	ER 25	0.4
C4–391.14-32 054	C 4	40	1–20	50	54	ER 32	0.5
C5–391.14-20 055	C 5	50	1–13	35	55	ER 20	0.5
C5–391.14-25 055	C 5	50	1–16	42	55	ER 25	0.5
C5–391.14-32 057	C 5	50	1–20	50	57	ER 32	0.6
C6–391.14-20 060	C 6	63	1–13	35	60	ER 20	0.8
C6–391.14-25 060	C 6	63	1–16	42	60	ER 25	0.9
C6–391.14-25 100	C 6	63	1–16	42	100	ER 25	1.3
C6–391.14-32 060	C 6	63	2–20	50	60	ER 32	0.9
C6–391.14-32 100	C 6	63	2–20	50	100	ER 32	1.5
C6–391.14-40 065	C 6	63	3–26	63	65	ER 40	1.1

For collets, see page774.

Bodies and assembly parts are included in the scope of delivery.

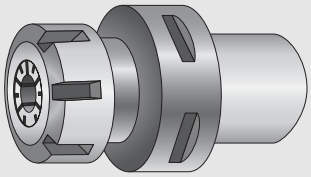
Assembly parts

	ER 20	ER 25	ER 32	ER 40
Clamping nut	FS 1451	FS 1540	FS 1541	FS 1542

Accessories

	ER 20	ER 25	ER 32	ER 40
Tensioning key	FS 1452	FS 1544	FS 1545	FS 1546

→ 716 | → 789 | → 788

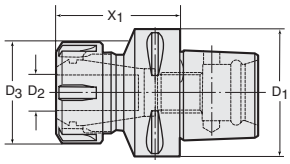


Collet chuck

for ER collets i.a.w. DIN 6499

391.14

Tool



Designation	Size	D_1 mm	D_2 mm	D_3 mm	X_1 mm	Collets	kg
C3–391.14-20 050	C 3	32	1–13	35	50	ER 20	0.3
C4–391.14-20 057	C 4	40	1–13	35	57	ER 20	0.3
C4–391.14-25 057	C 4	40	1–16	42	57	ER 25	0.4
C4–391.14-32 059	C 4	40	1–20	50	59	ER 32	0.5
C5–391.14-20 060	C 5	50	1–13	35	60	ER 20	0.5
C5–391.14-25 060	C 5	50	1–16	42	60	ER 25	0.5
C5–391.14-32 062	C 5	50	1–20	50	62	ER 32	0.6
C6–391.14-20 065	C 6	63	1–13	35	65	ER 20	0.8
C6–391.14-25 065	C 6	63	1–16	42	65	ER 25	0.9
C6–391.14-25 105	C 6	63	1–16	42	105	ER 25	1.3
C6–391.14-32 065	C 6	63	2–20	50	65	ER 32	0.9
C6–391.14-32 105	C 6	63	2–20	50	105	ER 32	1.5
C6–391.14-40 070	C 6	63	3–26	63	70	ER 40	1.1

If the collet chuck is used for internal coolant supply, the sealing discs on page 777 must be utilised.
The clamping nut can be damaged if the chuck is used without a sealing disc!
For collets, see page 774.

Bodies and assembly parts are included in the scope of delivery.

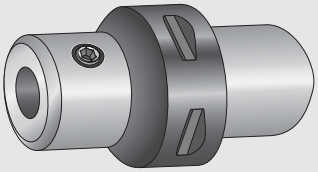
Assembly parts

	ER 20	ER 25	ER 32	ER 40
Clamping nut for internal coolant supply	FS 1359	FS 1449	FS 1360	FS 1450

Accessories

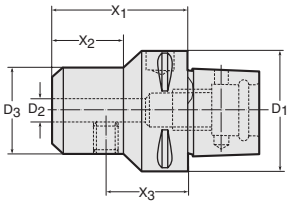
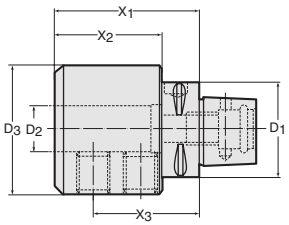
	ER 20	ER 25	ER 32	ER 40
Tensioning key	FS 1452	FS 1544	FS 1545	FS 1546

→ 716 → 789 → 788



Weldon shank adaptor 391.20

for shanks i.a.w. DIN 1835B

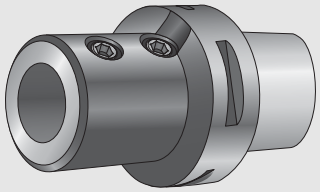
Tool	Designation	Size	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	X_3 mm	kg
 $D_2 \leq 20$ mm	C3–391.20-06 045 A	C 3	32	6	25	45	26.5	27	0.3
	C3–391.20-08 045 A	C 3	32	8	28	45	28	27	0.3
	C3–391.20-10 050	C 3	32	10	35	50	35	30	0.4
	C3–391.20-12 055	C 3	32	12	42	50	40	32.5	0.3
	C4–391.20-06 050	C 4	40	6	25	50	26.5	32	0.4
	C4–391.20-08 050	C 4	40	8	28	50	26.5	32	0.4
	C4–391.20-10 050 A	C 4	40	10	35	50	28.6	30	0.5
	C4–391.20-12 055 A	C 4	40	12	42	55	35	32.5	0.6
	C4–391.20-14 055	C 4	40	14	44	55	32.5	35	0.6
	C4–391.20-16 055	C 4	40	16	48	55	35	31	0.7
 $D_2 > 20$ mm	C5–391.20-06 050	C 5	50	6	25	50	26.5	32	0.6
	C5–391.20-08 050	C 5	50	8	28	50	26	32	0.7
	C5–391.20-10 055	C 5	50	10	35	55	27.5	35	0.7
	C5–391.20-12 060	C 5	50	12	42	60	36	37.5	0.9
	C5–391.20-14 060	C 5	50	14	44	60	37	37.5	0.9
	C5–391.20-16 060	C 5	50	16	48	60	39	36	1.0
	C5–391.20-18 060	C 5	50	18	50	60	—	36	1.0
	C5–391.20-20 060	C 5	50	20	52	60	40	35	1.0
	C5–391.20-25 080	C 5	50	25	65	80	60	56	1.8
	C6–391.20-06 055	C 6	63	6	25	55	25	37	0.9
	C6–391.20-08 055	C 6	63	8	28	55	26	37	0.9
	C6–391.20-10 060	C 6	63	10	35	60	30	40	1.0
	C6–391.20-12 060	C 6	63	12	42	60	33	37.5	1.1
	C6–391.20-14 060	C 6	63	14	44	60	33.5	37.5	1.1
	C6–391.20-16 065	C 6	63	16	48	65	35.5	41	1.2
	C6–391.20-18 065	C 6	63	18	50	65	39	41	1.2
	C6–391.20-20 065	C 6	63	20	52	65	37.5	40	1.5
	C6–391.20-25 080	C 6	63	25	65	80	58	56	1.9
	C6–391.20-32 090	C 6	63	32	72	90	68	66	2.4
	C6–391.20-40 100	C 6	63	40	90	100	77	70	3.7

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		D_2 = 6 mm	D_2 = 8 mm	D_2 = 10 mm	D_2 = 12-14 mm	D_2 = 16-18 mm	D_2 = 20 mm	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm
	Screw	3214 050-357	3214 050-407	3214 050-458	3214 050-509	3214 050-539	3214 050-559	3214 050-590	3214 050-610	3214 050-611

Accessories		D_2 = 6 mm	D_2 = 8 mm	D_2 = 10 mm	D_2 = 12-14 mm	D_2 = 16-18 mm	D_2 = 20 mm	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm
	Wrench DIN 911	SW3	SW4	SW5	SW6	SW6	SW8	SW10	SW10	SW10

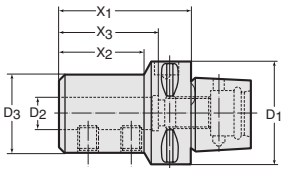
→ 716 → 788



Adaptor 391.27

for drilling and boring tools with flat or Weldon shank

Tool



Designation	Size	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	X_3 mm	kg
C3–391.27-16056	C 3	32	16	36	56	41	49.5	0.4
C3–391.27-20060	C 3	32	20	40	60	45	51.5	0.4
C4–391.27-16056	C 4	40	16	36	56	32.5	49.5	0.6
C4–391.27-20060	C 4	40	20	40	60	60	51.5	0.6
C4–391.27-25077	C 4	40	25	45	77	57	57.5	0.7
C5–391.27-16065	C 5	50	16	36	65	41.7	49.5	0.7
C5–391.27-20060	C 5	50	20	40	60	37.7	51.5	0.7
C5–391.27-25071	C 5	50	25	45	71	41.7	57.5	0.8
C5–391.27-32075	C 5	50	32	52	75	55	61.5	1.0
C6–391.27-16070	C 6	63	16	36	70	43	49.5	1.2
C6–391.27-20070	C 6	63	20	40	70	43.8	51.5	1.1
C6–391.27-25070 A	C 6	63	25	45	70	43.8	57.5	1.2
C6–391.27-32075	C 6	63	32	52	75	49.8	61.5	1.3
C6–391.27-40085	C 6	63	40	65	85	63	71.5	1.6

Bodies and assembly parts are included in the scope of delivery.

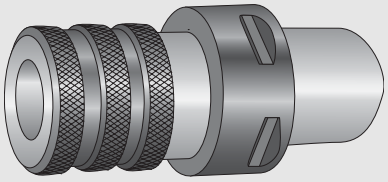
Assembly parts

	$D_{2\ H8}$ = 16–20 mm	$D_{2\ H8}$ = 25–32 mm	$D_{2\ H8}$ = 40 mm
Screw	5514 042-04	416.1-838	5514 042-06

Accessories

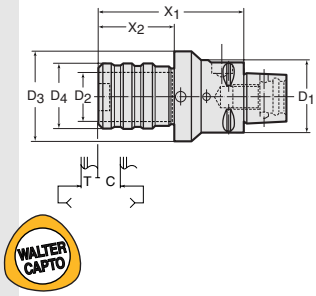
	$D_{2\ H8}$ = 16–20 mm	$D_{2\ H8}$ = 25–32 mm	$D_{2\ H8}$ = 40 mm
Wrench DIN 911	SW 4	SW 6	SW 8

→ 716 → 788



Tapping head adaptor 391.60

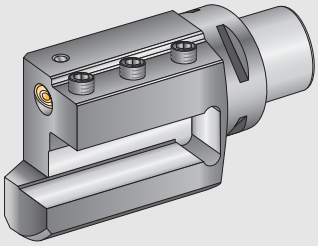
with elastic length compensation for compression and extension



Tool	Designation	Size	D_1 mm	D_2 mm	D_3 mm	d_4 mm	X_1 mm	X_2 mm	Length compensation C mm T		Collet size	for tapping head	kg
	C3–391.60-01080A	C 3	32	19	50	36	80	40.5	7.5	7.5	1	M 4–M 12	0.4
	C4–391.60-01080A	C 4	40	19	50	36	80	40.5	7.5	7.5	1	M 4–M 12	0.7
	C5–391.60-01080A	C 5	50	19		36	80	40.5	7.5	7.5	1	M 4–M 12	1.0
	C6–391.60-01090A	C 6	63	19	50	36	90	40.5	7.5	7.5	1	M 4–M 12	1.4
	C4–391.60-02110A	C 4	40	31	63	53	110	64.5	12.5	12.5	3	M 8–M 20	1.4
	C5–391.60-02115A	C 5	50	31	63	53	115	64.5	12.5	12.5	3	M 8–M 20	1.7
	C6–391.60-02120A	C 6	63	31	63	53	120	64.5	12.5	12.5	3	M 8–M 20	2.3
	C6–391.60-03170A	C 6	63	48		78	170		20.0	20.0	4	M 14–M 33	3.5

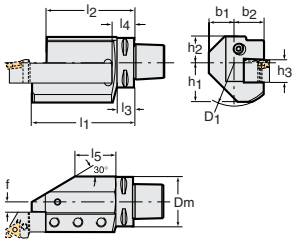
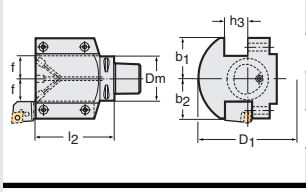
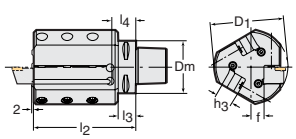
A quick change tap collet A 330/A 331 is required for each tapping head adaptor (order in accordance with D_2) – see page 772.

→ 716 | → 779 | → 788



Axial adaptor

for modular tools

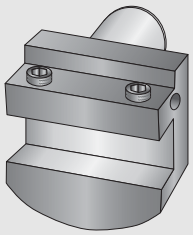
Tool	Designation	Size	h_3 mm	b_1 mm	b_2 mm	D_1 mm	dm mm	f mm	h_1 mm	h_2 mm	l_1 mm	l_2 mm	l_3 mm	l_4 mm	kg
	C5–ASH R/L-30098-20	C 5	20	29	30	90	50	10	41	33	98	88	20	23	2.5
	C6–ASH R/L-30100-20	C 6	20	29	30	90	63	10	41	33	100	90	22	25	2.5
	C6–ASH R/L-38130-25	C 6	25	32	38	110	63	13	50	33	130	112	22	28	3.4
	C6–ASHS-58115-32	C 6	32	58	58	140	63	33	—	—	115	—	22	—	7.3
	C5–ASH R/L3-36123-20	C 5	20	—	—	90	50	16	—	—	123	—	20	26	3.4
	C6–ASH R/L3-36125-20	C 6	20	—	—	90	63	16	—	—	125	—	22	28	3.8

Bodies and assembly parts are included in the scope of delivery.

Attention: adaptors are provided for machines with automatic tool replacement.
Please ensure that no malfunctions develop between the magazine and tool replacement cycle.

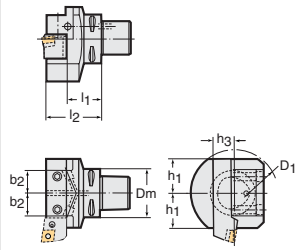
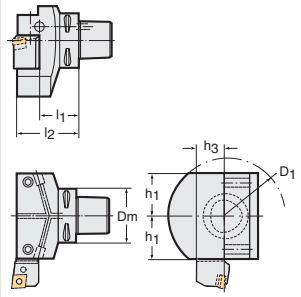
Assembly parts		for C5–ASH R/L-30...	for C6–ASH R/L-30...	for C6–ASH R/L-38...	for C6–ASHS	for C5-/ C6–ASH R/L3
	Screw	3214 020-461	3214 020-411	3214 020-512	3214 040-462	3214 020-512
	Coolant nozzle	5691 029-10	5691 029-10	5691 029-03	5691 029-02	5691 029-02

→ 716 → 788



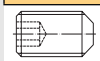
Radial adaptor

for modular tools

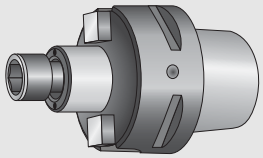
Tool	Designation	Size	h_3 mm	b_2 mm	D_1 mm	dm mm	h_1 mm	l_1 mm	l_2 mm	kg
	C5–ASHA-38058-20	C 5	20	23	90	50	38	38	58	1.4
	C6–ASHA-38060-20	C 6	20	23	90	63	38	40	60	1.9
	C6–ASHA-45071-25	C 6	25	30	110	63	45	45	71	2.6
	C6–ASHA-50071-32	C 6	32	—	130	63	50	45	71	3.6

Bodies and assembly parts are included in the scope of delivery.

Attention: adaptors are provided for machines with automatic tool replacement.
Please ensure that no malfunctions develop between the magazine and tool replacement cycle.

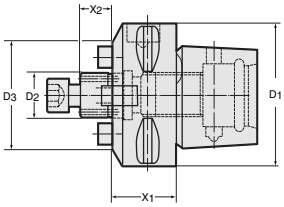
Assembly parts		l_1 = 38	l_1 = 40	l_1 = 45	
	Screw	3214 020-461	3214 020-411	3214 040-462	
	Coolant nozzle	5691 029-09	5691 029-09	5691 029-02	

→ 716 → 788



Face mill adaptor AK 155.8.C

WALTER CAPTO version

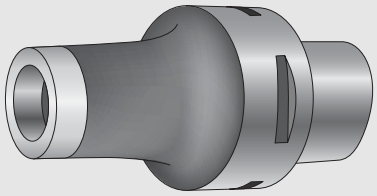
Tool	Designation	Size	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
	AK 155.8.C4.020.16	C 4	40	16	38	20	17	0.28
	AK 155.8.C5.025.16	C 5	50	16	38	25	17	0.5
	AK 155.8.C5.025.22	C 5	50	22	48	25	19	0.6
	AK 155.8.C5.030.27	C 5	50	27	60	30	21	0.75
	AK 155.8.C6.030.16	C 6	63	16	38	30	17	0.9
	AK 155.8.C6.025.22	C 6	63	22	48	25	19	0.87
	AK 155.8.C6.025.27	C 6	63	27	60	25	21	0.94
	AK 155.8.C6.035.32	C 6	63	32	78	35	24	0.97

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm
	Tightening screw DIN 912	FS 938 (SW 6) M 8 x 25	FS 939 (SW 8) M 10 x 25	FS 940 (SW 10) M 12 x 35	FS 941 (SW 14) M 16 x 35

Accessories		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm
	Wrench DIN 911 for tightening screw	SW 6	SW 8	SW 10	SW 14

→ 716 → 788

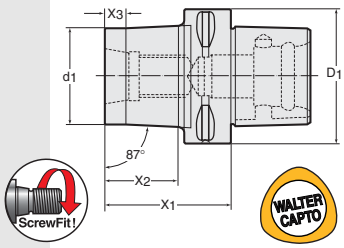


Capto Adaptor

AK 580.C

for ScrewFit front pieces



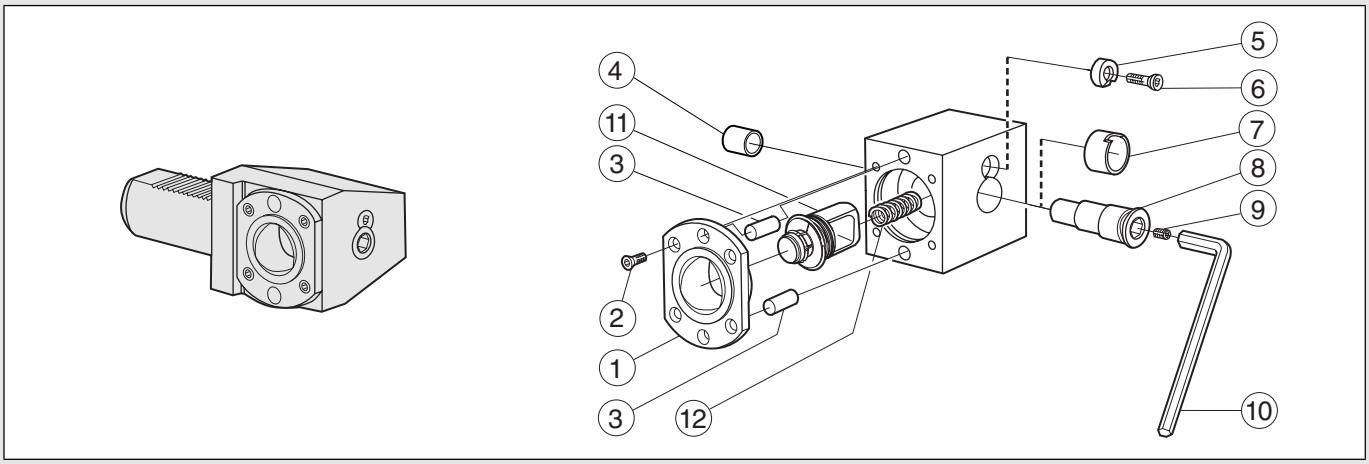
Tool	Designation	D_1 mm	d_1 mm	X_1 mm	X_2 mm	X_3 mm			kg
	AK 580.C3.T09.30	32	9.7	30	12.2	10			0.1
	AK 580.C3.T14.45	32	14.5	45	27.2	10			0.2
	AK 580.C3.T18.45	32	18.5	45	27.2	10			0.2
	AK 580.C3.T22.45	32	22	45	27.2	10			0.3
	AK 580.C3.T28.55	32	28	55	40	10			
	AK 580.C4.T09.30	40	9.7	30	—	7			0.3
	AK 580.C4.T14.45	40	14.5	45	22.2	10			0.35
	AK 580.C4.T18.45	40	18.5	45	22.2	10			0.4
	AK 580.C4.T22.45	40	22	45	22.2	10			0.4
	AK 580.C4.T28.55	40	28	55	32.2	10			0.5
	AK 580.C4.T36.55	40	36	55	35	10			0.55
	AK 580.C4.T45.55	40	45	55	35	10			0.7
	AK 580.C5.T09.35	50	9.7	35	12.2	10			0.55
	AK 580.C5.T14.45	50	14.5	45	22.2	10			0.55
	AK 580.C5.T18.45	50	18.5	45	22.2	10			0.6
	AK 580.C5.T22.45	50	22	45	22.2	10			0.6
	AK 580.C5.T28.55	50	28	55	32.2	10			0.7
	AK 580.C5.T36.55	50	36	55	32.2	10			0.8
	AK 580.C5.T45.55	50	45	55	35	10			1.0
	AK 580.C6.T14.50	63	14.5	50	25.2	10			1.0
	AK 580.C6.T18.50	63	18.5	50	25.2	10			1.0
	AK 580.C6.T22.50	63	22	50	25.2	10			1.0
	AK 580.C6.T28.60	63	28	60	35.2	10			1.0
	AK 580.C6.T36.60	63	36	60	35.2	10			1.0
	AK 580.C6.T45.60	63	45	60	35.2	10			1.5

For tightening torques for screw-fit front pieces, see page 783.

→ 716 → 788

Assembly parts and accessories for clamping units VDI

Right angle version DIN 69880

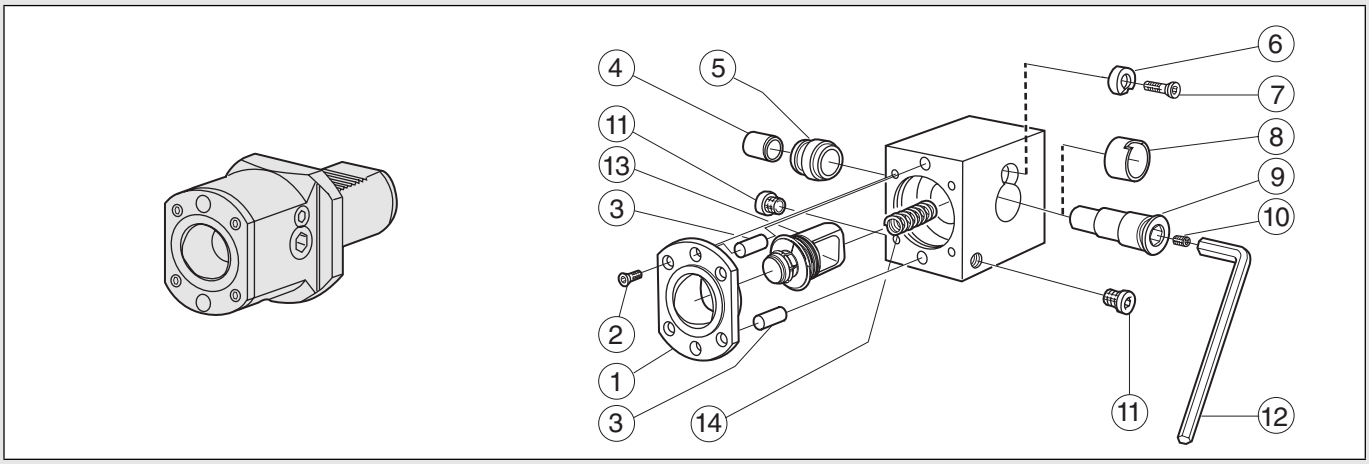


Assembly parts		Coupling size C3	C4	C5	C6
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	5252 010-04
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	3213 010-410
3	Pin	3111 050-558	3111 050-610	3111 050-661	3111 050-715
4	Slide bearing	3823 010-101	3823 010-122	3823 010-162	3823 010-183
5	Washer disc	5541 030-01	5541 030-02	5541 030-03	5541 030-04
6	Screw	416.1-834	416.1-834	5513 020-14	5513 020-14
7	Slide bearing	5638 022-01	5638 022-02	5638 022-03	5638 022-04
8	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	5333 025-04
9	Screw	3214 010-355	3214 010-355	3214 010-355	3214 010-355
11	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	5461 100-131
12	Spring	5561 001-71	5561 001-41	5561 001-41	5561 001-41

Accessories		Coupling size C3	C4	C5	C6
10	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	SW 12 (DIN 911)

Assembly parts and accessories for clamping units VDI

Straight version DIN 69880

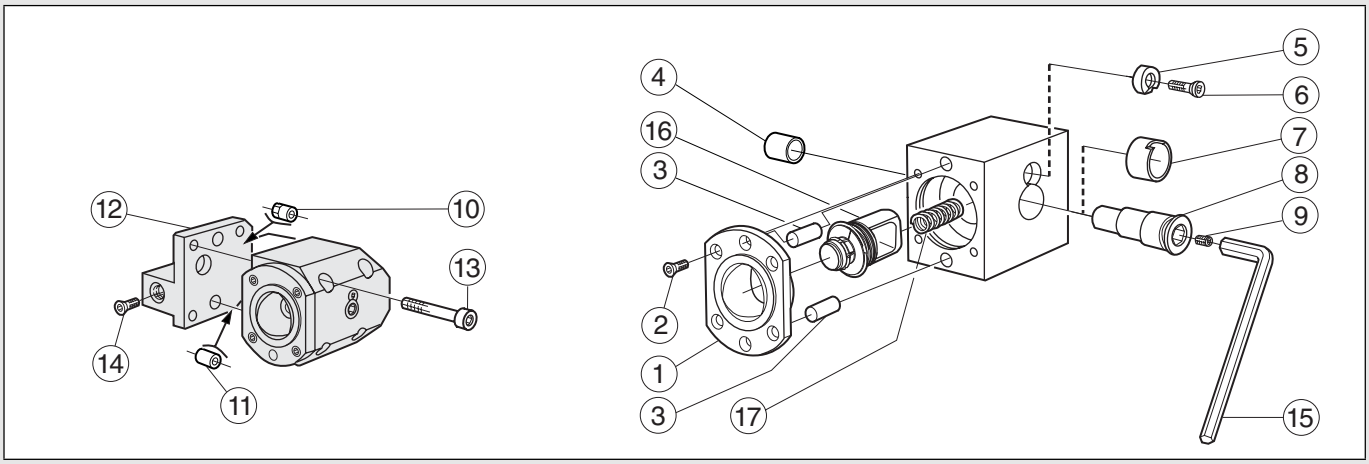


Assembly parts		Coupling size C3	C4	C5	C6
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	5252 010-04
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	3213 010-410
3	Pin	3111 050-558	3111 050-610	3111 050-661	3111 050-715
4	Slide bearing	3823 010-101	3823 010-122	3823 010-162	3823 010-183
5	Bush	5638 024-01	5638 024-02	5638 024-03	5638 024-04
6	Washer disc	5541 030-01	5541 030-02	5541 030-03	5541 030-04
7	Screw	416.1-834	416.1-834	5513 020-14	5513 020-14
8	Slide bearing	5638 022-01	5638 022-02	5638 022-03	5638 022-04
9	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	5333 025-04
10	Screw	3214 010-355	3214 010-355	3214 010-355	3214 010-355
11	Seal	3611 005-180	3611 005-180	3611 005-180	3611 005-140
13	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	5461 100-131
14	Spring	5561 001-71	5561 001-41	5561 001-41	5561 001-41

Accessories		Coupling size C3	C4	C5	C6
12	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	SW 12 (DIN 911)

Assembly parts and accessories for clamping units

Type 2080

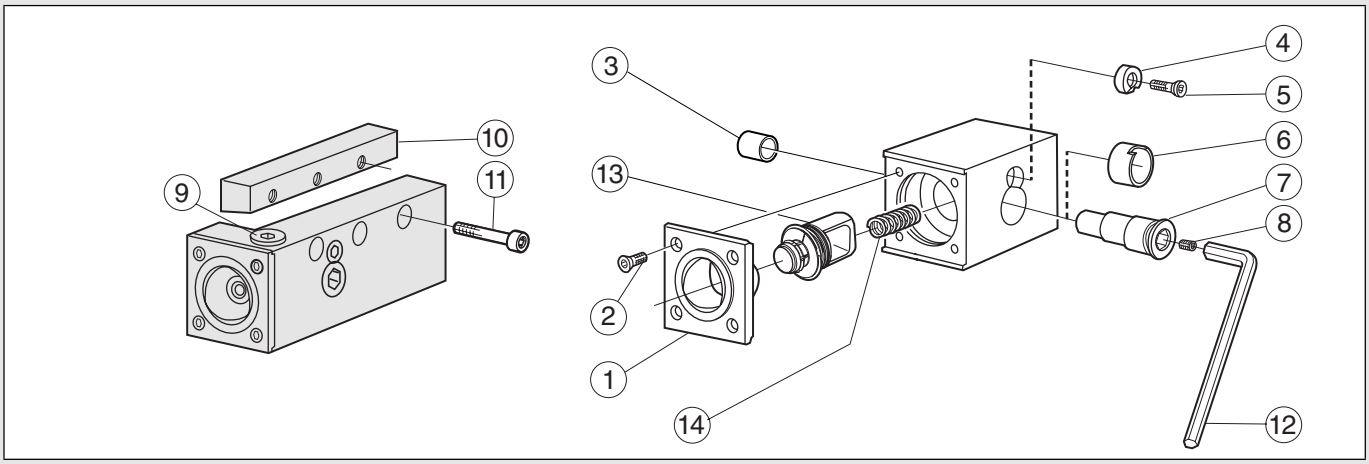


Assembly parts		Coupling size C3	C4	C5	C6
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	5252 010-04
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	3213 010-410
3	Pin	3111 020-558	3111 020-610	3111 020-661	3111 020-715
4	Slide bearing	3823 010-101	3823 010-122	3823 010-162	3823 010-183
5	Washer disc	5541 030-01	5541 030-02	5541 030-03	5541 030-04
6	Screw	416.1-834	416.1-834	5513 020-14	5513 020-14
7	Slide bearing	5638 022-01	5638 022-02	5638 022-03	5638 022-04
8	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	5333 025-04
9	Screw	3214 010-355	3214 010-355	3214 010-355	3214 010-355
10	Pipe pin	5552 063-05	5552 063-07	5552 063-06	—
11	Pin	5552 061-07	5552 061-09	5552 061-08	—
12	**Clamping unit, right-hand** Positioning pin	**RC 2080-48090** 5253 005-01	**RC 2080-59110A** 5253 005-15	**RC 2080-77110A** 5253 005-11	**RC 2080-93140** —
12	**Clamping unit, left-hand** Positioning pin	**LC 2080-48090** 5253 005-02	**LC 2080-59110A** 5253 005-16	**LC 2080-77110A** 5253 005-12	**LC 2080-93140** —
13	Screw	3212 010-363	3212 010-364	3212 010-416	—
14	Seal	3611 005-180	3611 005-140	—	—
16	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	5461 100-131
17	Spring	5561 001-71	5561 001-41	5561 001-41	5561 001-41

Accessories		Coupling size C3	C4	C5	C6
15	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	SW 12 (DIN 911)

Assembly parts and accessories for clamping units

Type 2085

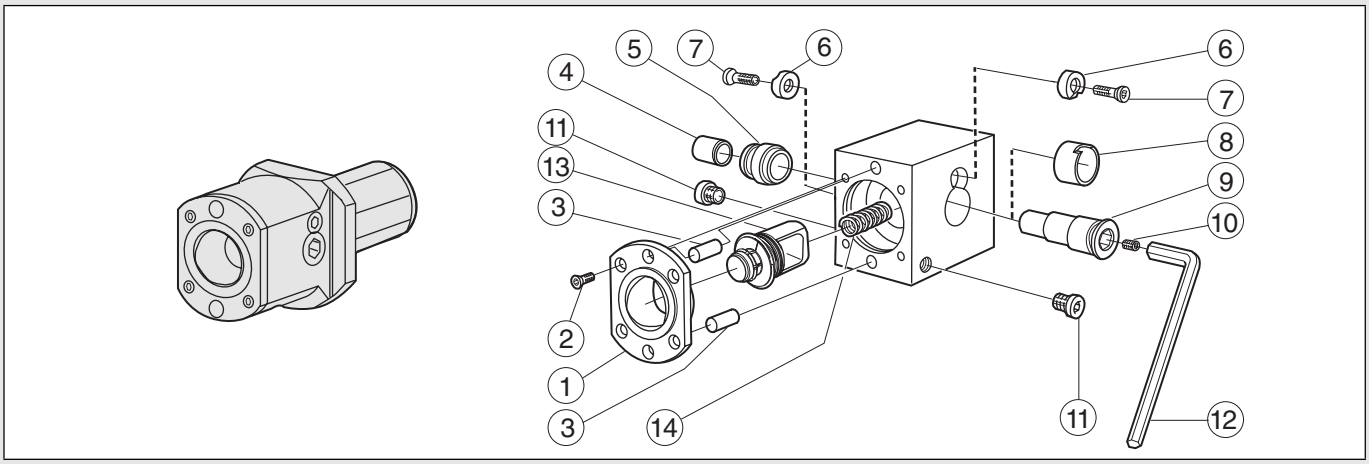


Assembly parts		Coupling size C3	C4	C5	
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	
3	Slide bearing	3823 010-101	3823 010-122	3823 010-162	
4	Washer disc	5541 030-01	5541 030-02	5541 030-03	
5	Screw	416.1-834	416.1-834	5513 020-14	
6	Slide bearing	5638 022-01	5638 022-02	5638 022-03	
7	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	
8	Screw	3214 010-355	3214 010-355	3214 010-355	
9	Seal	3611 005-180	3611 005-180	3611 005-180	
10	Clamping wedge system	5421 115-01	5421 115-02	5421 115-03	
11	Screw	3212 101-362	3212 101-364	3212 101-416	
13	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	
14	Spring	5561 001-71	5561 001-41	5561 001-41	

Accessories		Coupling size C3	C4	C5	
12	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	

Assembly parts and accessories for clamping units

Type 2035 / 2045 / 2055 / 2065



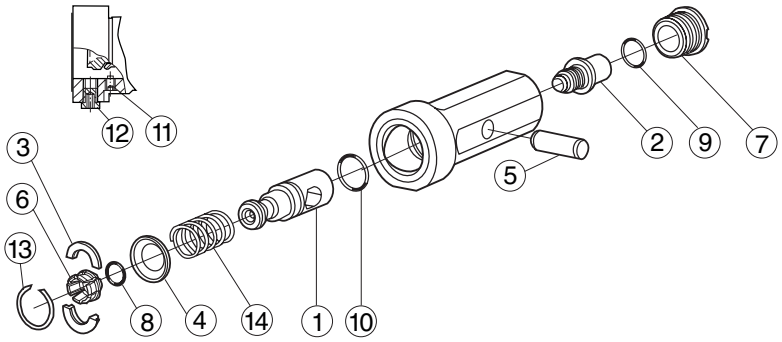
Assembly parts		Coupling size C3	C4	C5	C6
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	5252 010-04
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	3213 010-410
3	Pin	3111 020-558	3111 020-610	3111 020-661	3111 020-715
4	Slide bearing	3823 010-101	3823 010-122	3823 010-162	3823 010-183
5	Bush	5638 024-01	5638 024-02	5638 024-03	5638 024-04
6	Washer disc	5541 030-01	5541 030-02	5541 030-03	5541 030-04
7	Screw	416.1-834	416.1-834	5513 020-14	5513 020-14
8	Slide bearing	5638 022-01	5638 022-02	5638 022-03	5638 022-04
9	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	5333 025-04
10	Screw	3214 010-355	3214 010-355	3214 010-355	3214 010-355
11	Seal	3611 005-180	3611 005-180	3611 005-180	3611 005-140
13	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	5461 100-131
14	Spring	5561 001-71	5561 001-41	5561 001-41	5561 001-41

Accessories		Coupling size C3	C4	C5	C6
12	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	SW 12 (DIN 911)

Assembly parts and accessories for clamping units

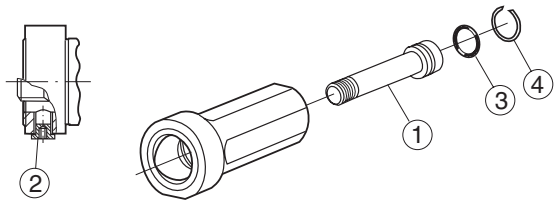
Type2000 / Type 3000

Type 2000



Assembly parts		Coupling size C3	C4	C5	
1	Drawbar	5461 105-01	5461 105-02	5461 105-03	
2	Clamping screw	5519 105-01	5519 105-02	5519 105-03	
3	Separated guide ring	5546 002-01	5546 002-02	5546 002-03	
4	Ring	5541 028-01	5541 028-02	5541 028-03	
5	Locking pin	5552 032-01	5552 032-02	5552 032-03	
6	Segment (1 set = 6 pieces)	5549 120-08	5549 120-06	5549 120-07	
7	Threaded bush	5512 091-03	5512 091-01	5512 091-02	
8	O-ring	5641 005-01	5641 005-05	5641 005-06	
9	O-ring	3671 010-118	3671 010-120	3671 010-124	
10	O-ring	3671 010-124	3671 010-126	3671 010-128	
11	Screw	3214 020-204	3214 020-255	3214 020-255	
12	Seal	3611 005-180	3611 005-180	3611 005-180	
13	Spring ring	5545 042-01	3421 105-026	3421 105-032	
14	Spring	5561 001-52	5561 001-53	5561 001-54	

Type 3000



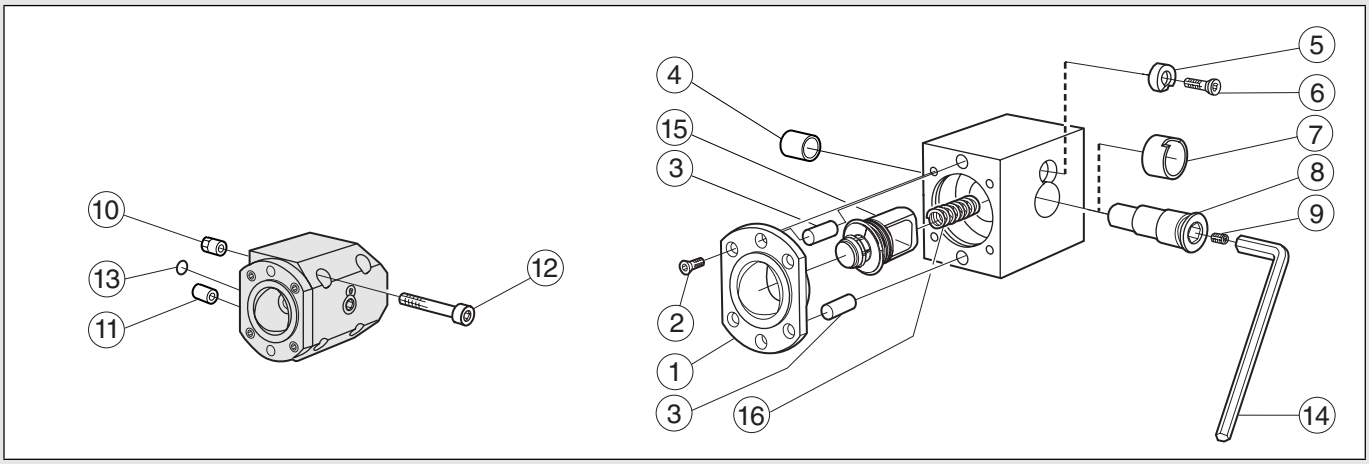
Assembly parts		Coupling size C3	C4-10020-40	C4-12020-50	C5
1	Clamping screw	5512 096-01	5512 096-02	5512 096-04[1]	5512 096-03
2	Seal	3611 005-180	3611 005-180	3611 005-180	3611 005-180
3	O-ring	3671 010-020	3671 010-022	3671 010-022	3671 010-024
4	Spring ring	5545 040-03	5545 040-05	5545 040-05	5545 040-06

[1] Please use the clamping screw 5512 096-02 for shortening the clamping unit C4-12020-50.

Accessories for Type 2000 + Type 3000		Coupling size C3	C4	C5	
	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	

Assembly parts and accessories for clamping units

Type 2090

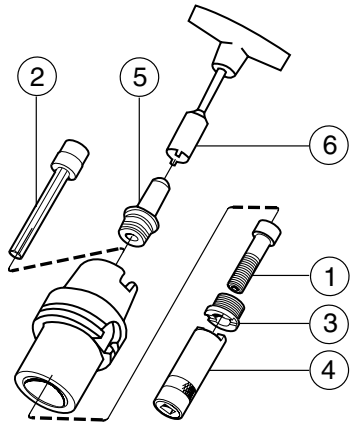


Assembly parts		Coupling size C3	C4	C5	C6
1	Adaptor sleeve	5252 010-01	5252 010-02	5252 010-03	5252 010-04
2	Screw (4x)	416.1-834	5513 020-26	5513 020-14	3213 010-410
3	Pin	3111 050-558	3111 050-610	3111 050-661	3111 050-715
4	Slide bearing	3823 010-101	3823 010-122	3823 010-162	3823 010-183
5	Washer disc	5541 030-01	5541 030-02	5541 030-03	5541 030-04
6	Screw	416.1-834	416.1-834	5513 020-14	5513 020-14
7	Slide bearing	5638 022-01	5638 022-02	5638 022-03	5638 022-04
8	Eccentric pin	5333 025-01	5333 025-02	5333 025-03	5333 025-04
9	Screw	3214 010-355	3214 010-355	3214 010-355	3214 010-355
10	Pipe pin	5552 063-05	5552 063-07	5552 063-06	5552 063-03
11	Pin	5552 061-07	5552 061-09	5552 061-08	5552 061-05
12	Screw	3212 010-363	3212 010-414	3212 010-466	3212 010-469
13	O-ring	5641 001-22	3671 010-114	3671 010-114	3671 010-119
15	Drawbar (set)	5461 100-101	5461 100-111	5461 100-121	5461 100-131
16	Spring	5561 001-71	5561 001-41	5561 001-41	5561 001-41

Accessories		Coupling size C3	C4	C5	C6
14	Wrench	SW 8 (DIN 911)	SW 10 (DIN 911)	SW 12 (DIN 911)	SW 12 (DIN 911)

Assembly parts and accessories for basic holder

390.410



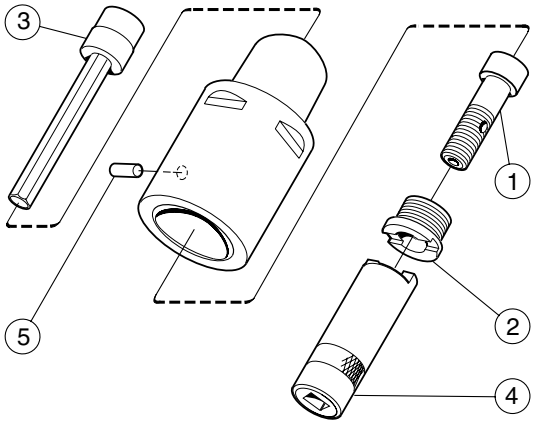
Assembly parts			Coupling size C3	C4	C5	C6
1	Centre screw*		5512 063-10	5512 063-07	5512 063-08	5512 063-09
3	Retaining nut		5512 091-04	5512 091-03	5512 091-01	5512 091-02
5	Transfer unit for	HSK 50	5692 020-03	5692 020-03		
		HSK 63	5692 020-04	5692 020-04	5692 020-04	
		HSK 80	5692 020-05	5692 020-05	5692 020-05	5692 020-05
		HSK 100		5692 020-06	5692 020-06	5692 020-06

Accessories			Coupling size C3	C4	C5	C6
2	Extension key (mm)		5680 015-05 (SW 8.0)	5680 015-05 (SW 8.0)	5680 015-01 (SW 10.0)	5680 015-02 (SW 14.0)
4	Socket wrench for ring nut		5680 065-13	5680 065-10	5680 065-11	5680 065-12
6	Socket wrench for transfer unit	HSK 50	FS 1212	FS 1212		
		HSK 63	FS 952	FS 952	FS 952	
		HSK 80	FS 1213	FS 1213	FS 1213	FS 1213
		HSK 100		FS 953	FS 953	FS 953

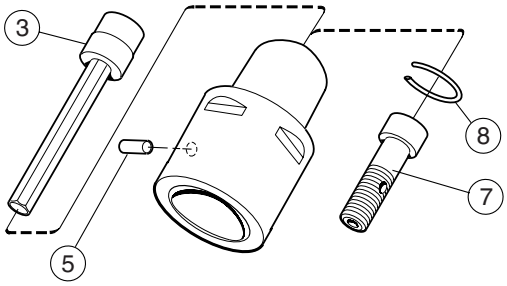
* Please use the centre screw (page 715) for the internal coolant supply to the WALTER CAPTO cutting heads (1).
Attention: the transfer unit must be installed in machines with automatic tool replacement.
The clamping system release mechanism can be damaged if the transfer unit is not installed.

Assembly parts and accessories for

Extensions 391.01
Reduction adaptors 391.02



Short versions



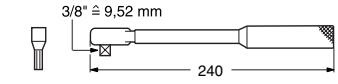
Assembly parts		Coupling size C3	C4	C5	C6
1	Centre screw*	5512 067-01	5512 067-02	5512 067-03	5512 067-04
2	Retaining nut	5512 091-04	5512 091-03	5512 091-01	5512 091-02
5	Pin	3113 020-304	3113 020-355	3113 020-406	3113 020-457
7	Centre screw for short version	5512 068-01	5512 068-02	5512 068-03	5512 068-04
8	Spring ring	5545 040-02	5545 040-03	5545 040-07	5545 040-08

Accessories		Coupling size C3	C4	C5	C6
3	Extension key (mm)	5680 015-05 (SW 8.0)	5680 015-05 (SW 8.0)	5680 015-01 (SW 10.0)	5680 015-02 (SW 14.0)
4	Socket wrench for retaining nut	5680 065-13	5680 065-10	5680 065-11	5680 065-12

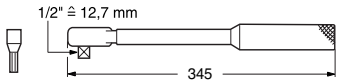
* Please use the centre screw for mounting WALTER CAPTO cutting heads on extensions and an internal coolant supply is required (not necessary for short version).

Accessories for WALTER CAPTO

Torque wrench for bush clamping



BT-TK-02

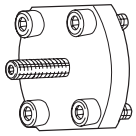


C-TK-01

Reference no.	Size	Nm	Spare parts	
			Wrench adaptor	Size [mm]
BT-TK-02	C3	35	5680 035-05	8
C-TK-01	C4	50	5680 035-06	10
C-TK-01	C5	70	5680 035-07	12
C-TK-01	C6	90	5680 035-07	12

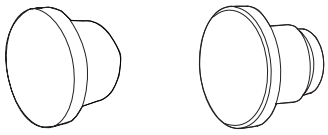
For tightening torques for WALTER CAPTO, see page 788.

Tool for disassembling the polygon socket on manual clamping units



Reference no.	Size	
C3-WDT-01M	C3	
C4-WDT-01M	C4	
C5-WDT-01M	C5	
C6-WDT-01M	C6	

Cover plug for the CAPTO taper in clamping units



Reference no.	Size	
C3-CP-01	C3	
C4-CP-01	C4	
C5-CP-01	C5	
C6-CP-01	C6	

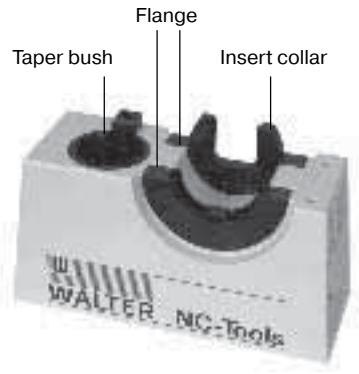
Lubricating nipple for WALTER CAPTO clamping units



Reference no.	Size	
5692 012-01	C3—C6	

Accessories for WALTER CAPTO

Assembly Device



Size	Base body with integrated taper bush Reference no.	Flange Reference no.	Insert collar Reference no.
C3	V 500.00.C3	V 510.23.050	V 530.C3
C4	V 500.00.C4	V 510.23.050	V 530.C4
C5	V 500.00.C5	V 510.23.050	V 530.C5
C6	V 500.00.C6	V 510.23.050	V 530.C6

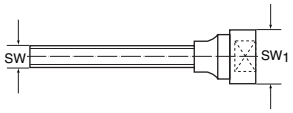
The assembly device is already equipped with the suitable taper bush.
The flange and insert collar must be ordered separately. The assembly device enables two flanges (e.g. for equipping two different CAPTO sizes) to be mounted opposite each other on the base body.

Tightening torques for WALTER CAPTO extensions/reductions
Clamping by means of centre screw

Size	Tightening torque	
C3	50 Nm	
C4	60 Nm	
C5	100 Nm	
C6	180 Nm	

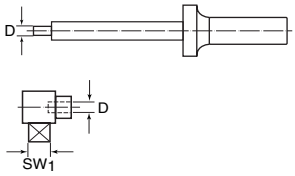
Note:
For additional assembly options for HSK (hollow tool shank) and DIN tapers, see page 782.

Socket key for WALTER CAPTO extensions/reductions



Reference no.	SW mm	SW_1 mm	Size
5680 015-05	8	12.7	C3, C4
5680 015-01	10	12.7	C5
5680 015-02	14	12.7	C6

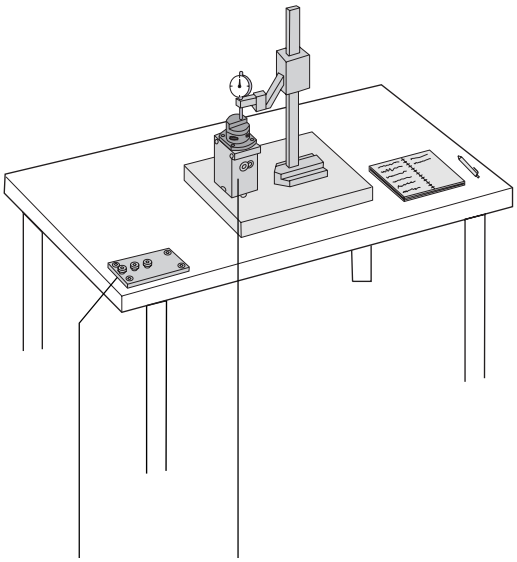
Torque wrench and head pieces for WALTER CAPTO extensions/reductions



Reference no.	D mm	Torque range	SW_1 mm
FS 1385	16	10–100 Nm	
FS 1386	16	20–200 Nm	
FS 399	16		12.7

Accessories for WALTER CAPTO

WALTER CAPTO fixture



Base plate Toolholder block

The precision of the WALTER CAPTO coupling system guarantees excellent repeat accuracy when changing cutting heads. This degree of precision has consistently proven highly beneficial, for example for manual changeover operations where cutting edges are changed outside the machine. With the aid of the new, easy-to-operate WALTER CAPTO fixture, the position of the cutting edge can be measured in two co-ordinates.

Once the measured cutting head has been mounted in the toolholder, any cutting edge deviation can be compensated for by the machine's control system.

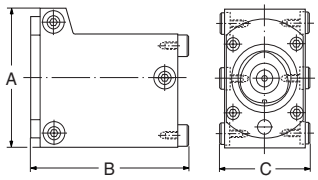
The fixture can be used in combination with any normal gauge and test plate, WALTER recommends, however, using an indicator with zero setting and a flat tracing probe.

Basic equipment

If you already have a measuring plate with measuring device, all you require is the following additional equipment:

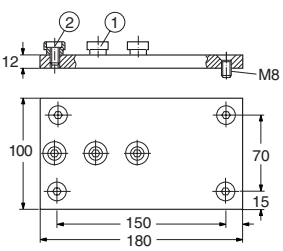
– Fixture for tool gauging
– Base plate
– Gauge head (see master setting gauges MAS, page 719)

Toolholder block for tool gauging



Reference no.	Size	Dimensions [mm] A	B	C
C3-PMU-01M	C3	65	85	44
C4-PMU-01M	C4	77	94	54
C5-PMU-01M	C5	94	130	70
C6-PMU-01	C6	114	135	90

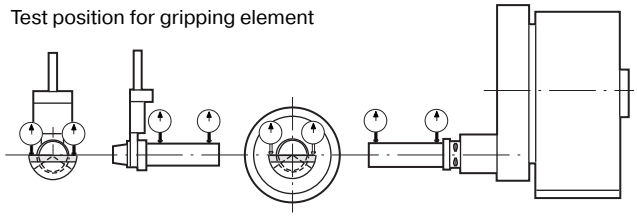
Base plate



Reference no.	Size	Spare parts ① Pin	② Screw
C-HP-01	C3—C6	5638 060-01	3212 020-409

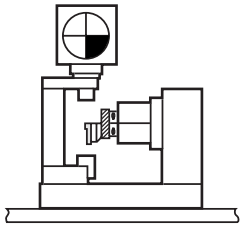
Accessories for WALTER CAPTO

Test position for gripping element

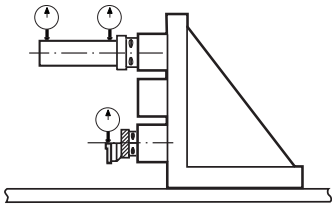


Spindle alignment

Tool centre line tool



Spindle alignment



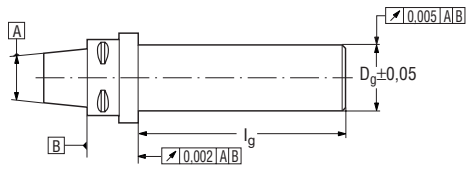
Geometric check of part fixtures

The WALTER CAPTO modular system guarantees outstanding repeat accuracy. However, this is only effective if the wide variety of other components of importance for the overall machining operation demonstrate the same degree of precision and are set correctly.

WALTER therefore offers a wide range of measurement aids for axial and centre measurement for all coupling sizes. Their use is also highly recommended for setting the most important parameters such as

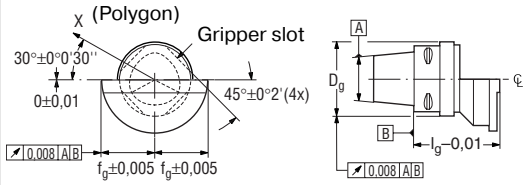
– Centre line
– Spindle alignment
– Tool position for the gripping element
– Centre height of the tool and cutting edge position (f1 and l1). The gauges can be used for pre-measurement
– Part fixture

Axial gauge / master setting gauges MAS-11

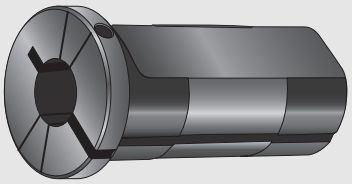


Reference no.	Size	Dimensions [mm] D_g	l_g	
C3-MAS-11	C3	25	160	
C4-MAS-11	C4	25	160	
C5-MAS-11	C5	32	215	
C6-MAS-11	C6	40	320	

Centre height gauge / master setting gauges MAS-01

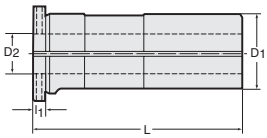


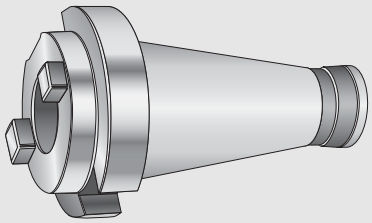
Reference no.	Size	Dimensions [mm] f_g	D_g	l_g
C3-MAS-01	C3	22	34	40
C4-MAS-01	C4	27	42	50
C5-MAS-01	C5	35	52	60
C6-MAS-01	C6	45	65	65



Boring bar adaptor AK 600

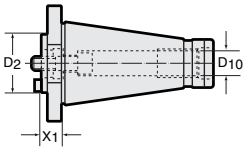
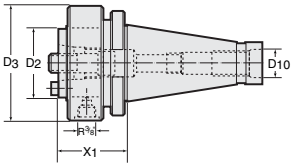
with Weldon shank i.a.w. DIN 9766
and self centring for cylindrical round shank

Tool	Designation	D_1 mm	D_2 mm	l_1 mm	L mm			
	AK 600.25.061.10	25	10	5	61			
	AK 600.25.061.12	25	12	5	61			
	AK 600.25.061.16	25	16	5	61			
	AK 600.32.085.10	32	10	5	85			
	AK 600.32.085.12	32	12	5	85			
	AK 600.32.085.16	32	16	5	85			
	AK 600.32.085.20	32	20	5	85			
	AK 600.40.105.10	40	10	5	105			
	AK 600.40.105.12	40	12	5	105			
	AK 600.40.105.16	40	16	5	105			
	AK 600.40.105.20	40	20	5	105			

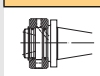


MASTER DIN 2080 A 100 M.1

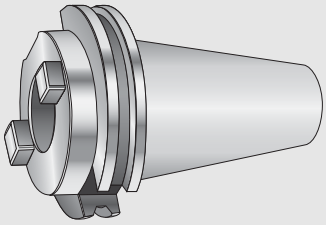
complies with ISO 2583

Tool	Designation	SK	D_2 mm	D_3 mm	D_{10}	X_1 mm	Version	kg
 Version A	A 100 M.1.40.020.25*	40*	25		M 16	20	C	0.9
	A 100 M.1.40.020.32*	40*	32		M 16	20	C	0.9
	A 100 M.1.40.020.40*	40*	40		M 16	20	C	0.9
	A 100 M.1.40.020.50*	40*	50		M 16	20	A	0.9
	A 100 M.1.40.030.63*	40*	63		M 16	30	B	1.0
	A 100 M.1.50.020.25	50	25		M 24	20	C	2.8
	A 100 M.1.50.020.32	50	32		M 24	20	C	2.8
 Version B  C	A 100 M.1.50.020.40	50	40		M 24	20	C	2.8
	A 100 M.1.50.020.50	50	50		M 24	20	A	2.8
	A 100 M.1.50.020.63	50	63		M 24	20	B	2.8
	A 100 M.1.50.025.80	50	80		M 24	25	B	2.8
with coolant ring	AK 100 MR.1.50.075.50	50	50	90	M 24	75	A	4.6
 Version A	AK 100 MR.1.50.075.63	50	63	105	M 24	75	B	5.2
	AK 100 MR.1.50.085.80	50	80	120	M 24	85	B	6.3
 Version B								

* SK 40 with ring groove
Bodies and assembly parts are included in the scope of delivery.

Assembly parts for AK 100 MR		D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
	Coolant set	FS 667	FS 668	FS 669
	Gasket set (2 pieces)	FS 670	FS 671	FS 672

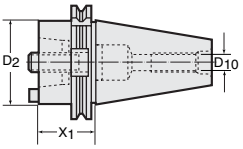
→ 780 → 791 → 790



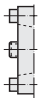
Master DIN 69871/1 A 100 M.2 Version AD

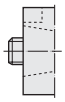
complies with ISO 7388/1

Tool



Version A

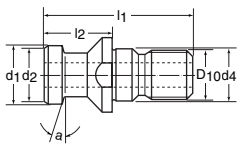

Version B


C

Designation	SK	D_2 mm		D_{10}	X_1 mm	Version	kg
A 100 M.2.40.020.25	40	25		M 16	20	C	0.9
A 100 M.2.40.020.32	40	32		M 16	20	C	0.9
A 100 M.2.40.030.40	40	40		M 16	30	C	1.0
A 100 M.2.40.030.50	40	50		M 16	30	A	1.0
A 100 M.2.40.050.63	40	63		M 16	50	B	1.3
A 100 M.2.40.090.80	40	80		M 16	90	B	2.5
A 100 M.2.50.020.25	50	25		M 24	20	C	2.8
A 100 M.2.50.020.32	50	32		M 24	20	C	2.8
A 100 M.2.50.020.40	50	40		M 24	20	C	2.8
A 100 M.2.50.020.50	50	50		M 24	20	A	2.8
A 100 M.2.50.020.63	50	63		M 24	20	B	2.8
A 100 M.2.50.025.80	50	80		M 24	25	B	2.8

Bodies and assembly parts are included in the scope of delivery.

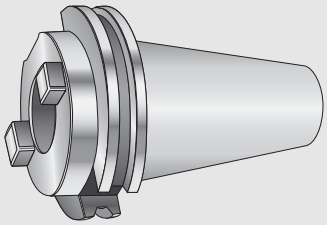
Accessories



Pull stud
DIN 69872 version AD
with coolant bore

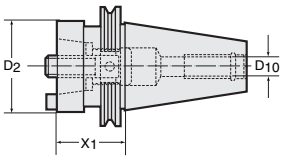
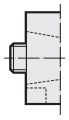
Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
C 100.40.115	19	14	17	M 16	54	26	15°
C 100.50.115	28	21	25	M 24	74	34	15°

→ 780 → 791 → 790

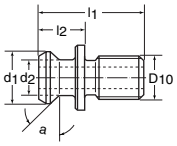
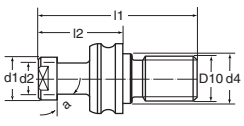


Master ANSI and CAT A 100 M.3

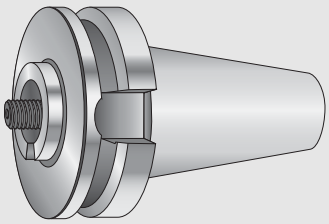
complies with ANSI/ASME B 5.50 – 1985

Tool	Designation	SK	D_2 mm		D_{10}	X_1 mm	Version	kg
 Version A	A 100 M.3.40.035.25	40	25		M 16	35	C	1.1
	A 100 M.3.40.035.32	40	32		M 16	35	C	1.1
	A 100 M.3.40.040.40	40	40		M 16	40	C	1.2
	A 100 M.3.40.050.50	40	50		M 16	50	A	1.2
	A 100 M.3.40.050.63	40	63		M 16	50	B	1.3
	A 100 M.3.50.035.25	50	25		M 24	35	C	3.2
	A 100 M.3.50.035.32	50	32		M 24	35	C	3.2
 Version B  C	A 100 M.3.50.035.40	50	40		M 24	35	C	3.2
	A 100 M.3.50.035.50	50	50		M 24	35	A	3.2
	A 100 M.3.50.035.63	50	63		M 24	35	B	3.2
	A 100 M.3.50.050.80	50	80		M 24	50	B	3.5

Bodies and assembly parts are included in the scope of delivery.

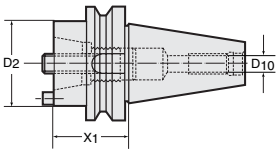
Accessories	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
 Pull stud ANSI B 5.50	C 100.40.345	18.8	12.8		M 16	38	16.20	45°
	C 100.50.345	28.9	19.5		M 24	58	25.40	45°
 Pull stud CAT	C 100.40.390	15	10	17	M 16	52	26.75	90°
	C 100.50.390	23	17	25	M 24	85	45.20	90°

→ 780 → 791 → 790

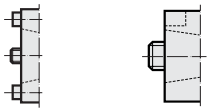


Master MAS BT A 100 M.4

Tool



Version A

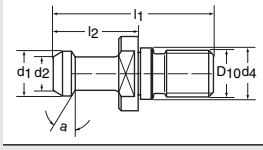


Version B C

Designation	SK	D_2 mm		D_{10}	X_1 mm	Version	kg
A 100 M.4.40.030.25	40	25		M 16	30	C	1.0
A 100 M.4.40.030.32	40	32		M 16	30	C	1.0
A 100 M.4.40.030.40	40	40		M 16	30	C	1.0
A 100 M.4.40.030.50	40	50		M 16	30	A	1.1
A 100 M.4.40.040.63	40	63		M 16	40	B	1.2
A 100 M.4.40.090.80	40	80		M 16	90	B	2.7
A 100 M.4.50.040.25	50	25		M 24	40	C	3.8
A 100 M.4.50.040.32	50	32		M 24	40	C	3.8
A 100 M.4.50.040.40	50	40		M 24	40	C	3.8
A 100 M.4.50.040.50	50	50		M 24	40	A	3.8
A 100 M.4.50.040.63	50	63		M 24	40	B	3.8
A 100 M.4.50.040.80	50	80		M 24	40	B	3.8

Bodies and assembly parts are included in the scope of delivery.

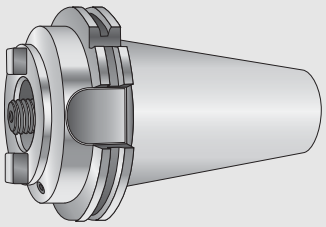
Accessories



Pull stud MAS BT

Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
C 100.40.430	15	10	17	M 16	60	35	30°
C 100.40.445	15	10	17	M 16	60	35	45°
C 100.50.430	23	17	25	M 24	85	45	30°
C 100.50.445	23	17	25	M 24	85	45	45°

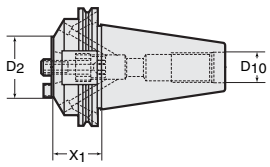
→ 780 → 791 → 790



Master

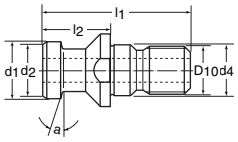
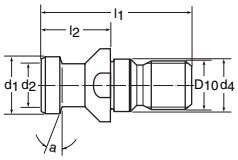
AK 200 M.2

DIN 69871/1 Version AD + B

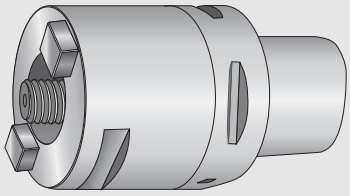
Tool	Designation	SK	D_2 mm	D_{10}	X_1 mm	Version	kg
 Version A	AK 200 M.2.40.030.25	40	25	M 16	30	C	1.0
	AK 200 M.2.40.030.32	40	32	M 16	30	C	1.0
	AK 200 M.2.40.030.40	40	40	M 16	30	C	1.0
	AK 200 M.2.40.030.50	40	50	M 16	30	A	1.0
	AK 200 M.2.40.060.63	40	63	M 16	60	B	1.3
	AK 200 M.2.50.030.25	50	25	M 24	30	C	3.0
	AK 200 M.2.50.030.32	50	32	M 24	30	C	3.0
 Version B  C	AK 200 M.2.50.030.40	50	40	M 24	30	C	3.0
	AK 200 M.2.50.030.50	50	50	M 24	30	A	3.0
	AK 200 M.2.50.030.63	50	63	M 24	30	B	3.0
	AK 200 M.2.50.030.80	50	80	M 24	30	B	3.0

Bodies and assembly parts are included in the scope of delivery.
The masters are supplied according to version AD.
If the adaptor should be changed to version B, remove the two threaded plugs fitted on both sides.

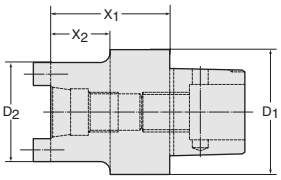
Assembly parts		for SK 40	for SK 50
	Threaded plug DIN 913	M 4 x 5	M 6 x 6

Accessories	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
	C 100.40.115	19	14	17	M 16	54	26	15°
Pull stud DIN 69872 version AD with coolant bore	C 100.50.115	28	21	25	M 24	74	34	15°
	C 100.40.215	19	14	17	M 16	54	26	15°
Pull stud DIN 69872 version B without bore	C 100.50.215	28	21	25	M 24	74	34	15°

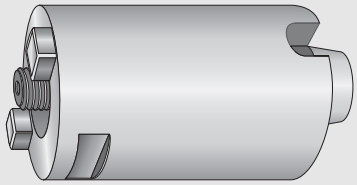
→ 780 → 791 → 790



Master Capto A 100 M.8

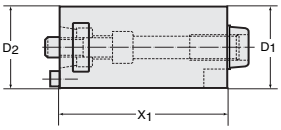
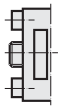
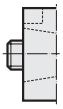
Tool	Designation	D_1 mm	D_2 mm	X_1 mm	X_2 mm				kg
	A 100 M.8.63.070.63.C6	63	63	70	40				1.2
	A 100 M.8.80.065.63.C8	80	63	65	35				1.8
	A 100 M.8.80.070.80.C8	80	80	70	40				2.0

→ 780 → 791



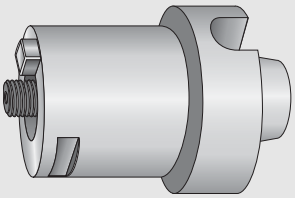
Extension

A 101 M

Tool	Designation	D_1 mm	D_2 mm	X_1 mm	Version	kg
 VersionA	A 101 M.0.25.050.25	25	25	50	C	0.2
	A 101 M.0.25.060.25	25	25	60	C	0.2
	A 101 M.0.32.050.32	32	32	50	C	0.3
	A 101 M.0.32.060.32	32	32	60	C	0.3
	A 101 M.0.32.075.32	32	32	75	C	0.4
	A 101 M.0.40.070.40	40	40	70	C	0.6
 Version B  C	A 101 M.0.40.080.40	40	40	80	C	0.7
	A 101 M.0.50.070.50	50	50	70	A	1.0
	A 101 M.0.50.080.50	50	50	80	A	1.1
	A 101 M.0.50.100.50	50	50	100	A	1.4
	A 101 M.0.63.080.63	63	63	80	B	1.8
	A 101 M.0.63.100.63	63	63	100	B	2.3
	A 101 M.0.63.120.63	63	63	120	B	2.8
	A 101 M.0.63.140.63	63	63	140	B	3.2
	A 101 M.0.63.160.63	63	63	160	B	3.6
	A 101 M.0.80.100.80	80	80	100	B	3.6
	A 101 M.0.80.120.80	80	80	120	B	4.4
	A 101 M.0.80.140.80	80	80	140	B	5.2
	A 101 M.0.80.160.80	80	80	160	B	5.9

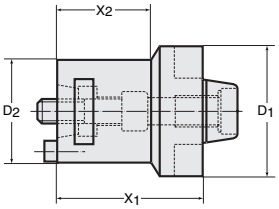
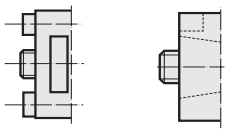
Bodies and assembly parts are included in the scope of delivery.

→ 781 → 791



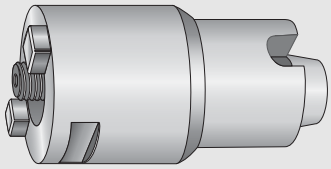
Reduction adaptor A 102 M



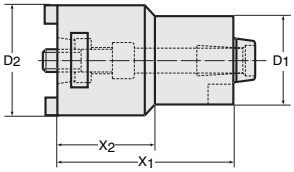
Tool	Designation	D_1 mm	D_2 mm	X_1 mm	X_2 mm	Version	kg
 Version A	A 102 M.0.32.050.25	32	25	50	32	C	0.2
	A 102 M.0.40.050.25	40	25	50	30	C	0.3
	A 102 M.0.40.050.32	40	32	50	28	C	0.4
	A 102 M.0.50.050.25	50	25	50	25	C	0.4
	A 102 M.0.50.050.32	50	32	50	25	C	0.5
	A 102 M.0.50.070.40	50	40	70	50	C	0.7
	A 102 M.0.63.050.25	63	25	50	20	C	0.7
	A 102 M.0.63.060.25	63	25	60	30	C	0.7
	A 102 M.0.63.080.25	63	25	80	50	C	0.8
	A 102 M.0.63.050.32	63	32	50	20	C	0.8
	A 102 M.0.63.060.32	63	32	60	30	C	0.8
 Version B C	A 102 M.0.63.080.32	63	32	80	50	C	1.0
	A 102 M.0.63.070.40	63	40	70	45	C	1.0
	A 102 M.0.63.080.40	63	40	80	55	C	1.0
	A 102 M.0.63.100.40	63	40	100	75	C	1.0
	A 102 M.0.63.120.40	63	40	120	95	C	1.4
	A 102 M.0.63.140.40	63	40	140	115	C	1.5
	A 102 M.0.63.070.50	63	50	70	45	A	1.2
	A 102 M.0.63.080.50	63	50	80	55	A	1.3
	A 102 M.0.63.100.50	63	50	100	75	A	1.6
	A 102 M.0.63.120.50	63	50	120	95	A	2.0
	A 102 M.0.63.140.50	63	50	140	115	A	2.2
	A 102 M.0.80.080.40	80	40	80	45	C	1.6
	A 102 M.0.80.080.50	80	50	80	48	A	1.9
	A 102 M.0.80.080.63	80	63	80	50	B	2.3

Bodies and assembly parts are included in the scope of delivery.

→ 781 → 791



Expansion adaptors A 103 M

Tool	Designation	D_1 mm	D_2 mm	X_1 mm	X_2 mm	kg
	A 103 M.0.63.090.80	63	80	90	55	2.6

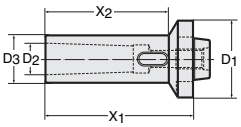
Bodies and assembly parts are included in the scope of delivery.

→ 781 → 791



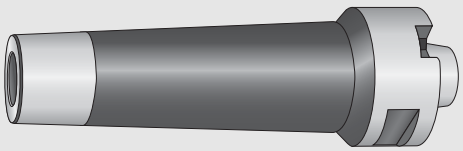
Morse taper adaptor A 120 M

for tools i.a.w. DIN 228 version B

Tool	Designation	D_1 mm	D_2 mm	D_3 mm		X_1 mm	X_2 mm	kg
without tang end	A 120 M.0.25.085.01	25	MT 1	25		85	85	0.3
	A 120 M.0.32.085.01	32	MT 1	25		85	72	0.3
	A 120 M.0.32.100.02	32	MT 2	32		100	100	0.5
	A 120 M.0.40.095.01	40	MT 1	25		95	75	0.5
	A 120 M.0.40.105.02	40	MT 2	32		105	86	0.6
	A 120 M.0.40.120.03	40	MT 3	40		120	120	0.9
	A 120 M.0.50.095.01	50	MT 1	25		95	73	0.6
	A 120 M.0.50.105.02	50	MT 2	32		105	85	0.7
	A 120 M.0.50.120.03	50	MT 3	40		120	100	1.0
	A 120 M.0.63.130.03	63	MT 3	40		130	107	1.3
	A 120 M.0.63.155.04	63	MT 4	48		155	132	1.8
	A 120 M.0.80.125.03	80	MT 3	40		125	103	1.6
	A 120 M.0.80.150.04	80	MT 4	48		150	125	2.0
	A 120 M.0.80.180.05	80	MT 5	63		180	153	3.2

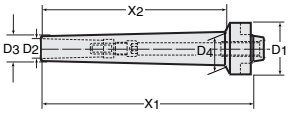
Bodies and assembly parts are included in the scope of delivery.

→ 782 → 791



Morse taper adaptor A 130 M

for tools i.a.w. DIN 228 version A

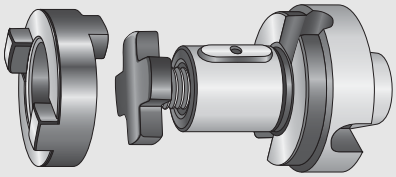
Tool	Designation	D_1 mm	D_2 mm	D_3 mm	d_4 mm	X_1 mm	X_2 mm	kg
with tang end 	A 130 M.0.63.095.01	63	MT 1	18	25	95	58	1.0
	A 130 M.0.63.115.02	63	MT 2	24	32	115	75	1.2
	A 130 M.0.63.220.02	63	MT 2	24	34	220	190	1.5
	A 130 M.0.63.125.03	63	MT 3	32	40	125	93	1.2
	A 130 M.0.63.250.03	63	MT 3	32	44	250	220	2.4
	A 130 M.0.63.155.04	63	MT 4	40	48	155	125	1.7
	A 130 M.0.63.250.04	63	MT 4	40	52	250	220	3.0
	A 130 M.0.80.135.03	80	MT 3	32	40	135	95	1.7
	A 130 M.0.80.155.04	80	MT 4	40	48	155	121	2.2
	A 130 M.0.80.180.05	80	MT 5	52	63	180	150	3.0

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		D_1 mm	MT 1	MT 2	MT 3	MT 4	MT 5
	Screw	63	FS 651	FS 652 for X_1 = 115 mm FS 796 for X_1 = 220 mm	FS 831	FS 832	
		80			FS 831	FS 833	FS 834
	Ring nut	63	FS 1075	FS 1076 for X_1 = 115 mm FS 1231 for X_1 = 220 mm	FS 1077	FS 655	
		80			FS 1078	FS 655	FS 413
	Locking screw DIN 914	63	M 5 x 12	M 5 x 12	M 5 x 8	M 6 x 10	
		80			M 6 x 16	M 6 x 10	M 6 x 12

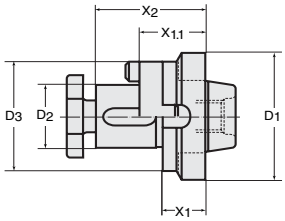
Accessories		D_1 mm	MT 1	MT 2	MT 3	MT 4	MT 5
	Pipe spanner	63+80	FS 1460	FS 1460 for X_1 = 115 mm FS 1206 for X_1 = 220 mm	FS 739	FS 740	FS 741
	Hexagon wrench DIN 911 for threaded plug	63	SW 2.5	SW 2.5	SW 2.5	SW 2.5	
		80			SW 3	SW 3	SW 3
	Hexagon wrench DIN 911 for screw	63	SW 5	SW 7	SW 10	SW 12	
		80			SW 10	SW 14	SW 14

→ 782 → 791



Combination adaptors A 150 M

Tool



Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	$X_{1.1}$ mm	X_2 mm	kg
A 150 M.0.32.030.16	32	16	32	20	30	47	0.2
A 150 M.0.40.030.16	40	16	32	20	30	47	0.3
A 150 M.0.40.030.22	40	22	40	18	30	49	0.4
A 150 M.0.50.035.16	50	16	32	25	35	52	0.5
A 150 M.0.50.035.22	50	22	40	23	35	54	0.6
A 150 M.0.50.035.27	50	27	48	23	35	56	0.7
A 150 M.0.50.040.32	50	32	58	26	40	64	1.0
A 150 M.0.63.035.16	63	16	32	25	35	52	0.6
A 150 M.0.63.035.22	63	22	40	23	35	54	0.7
A 150 M.0.63.035.27	63	27	48	23	35	56	0.8
A 150 M.0.63.040.32	63	32	58	26	40	64	1.1
A 150 M.0.63.040.40	63	40	70	26	40	67	1.6
A 150 M.0.80.040.22	80	22	40	28	40	59	1.2
A 150 M.0.80.040.27	80	27	48	28	40	61	1.3
A 150 M.0.80.040.32	80	32	58	26	40	64	1.4
A 150 M.0.80.040.40	80	40	70	26	40	67	1.8
A 150 M.0.80.045.50	80	50	90	29	45	75	2.9
A 150 M.0.80.055.60	80	60	110	39	55	105	5.0

Bodies and assembly parts are included in the scope of delivery.

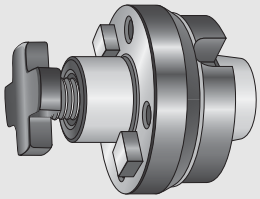
Assembly parts

	D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 60 mm
Drive collar DIN 6366	FS 424	FS 425	FS 426	FS 427	FS 428	FS 429	FS 911
Milling cutter locking screw DIN 6367	FS 430	FS 431	FS 432	FS 433	FS 434	FS 435	FS 912

Accessories

		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 60 mm
Wrench		FS 436	FS 437	FS 438	FS 439	FS 440	FS 441	FS 913
Spacing ring set (b_1 = mm)	b_1 = 2, 5, 10	FS 418	FS 419	FS 420				
	b_1 = 3, 5, 10				FS 421			
	b_1 = 2, 10, 20					FS 422	FS 423	FS 914
Spacing rings (b_1 = mm)	b_1 = 2	FS 461	FS 465	FS 469	FS 473	FS 477	FS 481	FS 915
	b_1 = 3	FS 462	FS 466	FS 470	FS 474	FS 478	FS 482	FS 916
	b_1 = 5	FS 463	FS 467	FS 471	FS 475	FS 479	FS 483	FS 917
	b_1 = 10	FS 464	FS 468	FS 472	FS 476	FS 480	FS 484	FS 918

→ 782 → 791

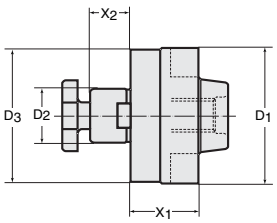


Face mill adaptor

A 155 M

with enlarged collar diameter
and fixed driving lugs

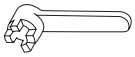


Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
	A 155 M.0.63.030.22	63	22	50	30	19	0.7
	A 155 M.0.63.030.27	63	27	60	30	21	0.9
	A 155 M.0.63.030.32	63	32	78	30	24	1.2
	A 155 M.0.63.045.40*	63	40	89	45	27	2.1
	A 155 M.0.80.030.22	80	22	50	30	19	1.0
	A 155 M.0.80.030.27	80	27	60	30	21	1.2
	A 155 M.0.80.030.32	80	32	78	30	24	1.5
	A 155 M.0.80.040.40*	80	40	89	40	27	2.1
	A 155 M.0.80.065.60*	80	60	128	65	50	5.4

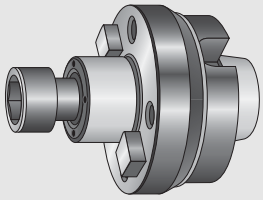
* The adaptors marked with * have an additional 4 tapped bores suitable for the mounting of tools with tool connections ISO 40 or ISO 50 in accordance to DIN 2079.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 60 mm
	Milling cutter locking screw DIN 6367	FS 431	FS 432	FS 433	FS 434	FS 912

Accessories		D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 60 mm
	Wrench for milling cutter locking screw	FS 437	FS 438	FS 439	FS 440	FS 913

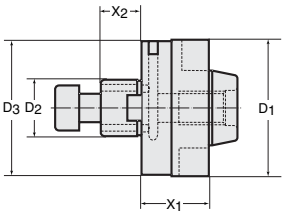
→ 782 → 791



Face mill adaptor

AK 155 M

with enlarged collar diameter
and fixed driving lugs

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
	AK 155 M.0.50.025.16	50	16	38	25	17	0.4
	AK 155 M.0.50.025.22	50	22	48	25	19	0.5
	AK 155 M.0.63.030.16	63	16	38	30	17	0.6
	AK 155 M.0.63.030.22	63	22	48	30	19	0.7
	AK 155 M.0.63.030.27	63	27	60	30	21	0.9
	AK 155 M.0.63.030.32	63	32	78	30	24	1.2
	AK 155 M.0.80.030.27	80	27	60	30	21	1.2
	AK 155 M.0.80.030.32	80	32	78	30	24	1.4
	AK 155 M.0.80.040.40*	80	40	89	40	27	2.0

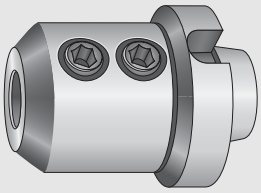
* The adaptors marked with * have an additional 4 tapped bores suitable for the mounting of tools with tool connection ISO 40 in accordance with DIN 2079.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm
	Tightening screw DIN 912	FS 938 (SW 6) M 8 x 25	FS 939 (SW 8) M 10 x 25	FS 940 (SW 10) M 12 x 35	FS 941 (SW 14) M 16 x 35	FS 942 (SW 17) M 20 x 40

Accessories		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm
	Wrench DIN 911 for tightening screw	SW 6	SW 8	SW 10	SW 14	SW 17

→ 782 → 791

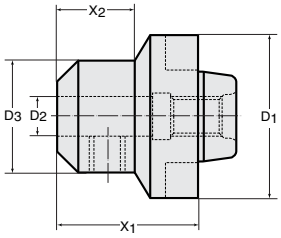


End mill adaptor DIN 1835/6359

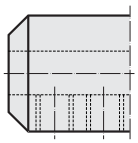
A 170 M

for tools with cylindrical shank
and flat i.a.w. DIN 1835 version B

Tool



$D_2 \leq 20$ mm



$D_2 \geq 25$ mm

Designation	D_1 mm	D_2 (H_4) mm	D_3 mm	X_1 mm	X_2 mm	kg
A 170 M.0.25.050.06	25	6	25	50		0.2
A 170 M.0.32.050.08	32	8	28	50	32	0.2
A 170 M.0.32.060.10	32	10	36	60	38	0.4
A 170 M.0.32.065.12	32	12	42	65	45	0.5
A 170 M.0.40.050.08	40	8	28	50	30	0.4
A 170 M.0.40.060.10	40	10	36	60	35	0.5
A 170 M.0.40.065.12	40	12	42	65	43	0.6
A 170 M.0.40.065.14	40	14	44	65	43	0.7
A 170 M.0.40.070.16	40	16	48	70	48	0.8
A 170 M.0.40.070.18	40	18	50	70	48	0.8
A 170 M.0.50.050.06	50	6	25	50	27	0.4
A 170 M.0.50.050.08	50	8	28	50	27	0.4
A 170 M.0.50.060.10	50	10	35	60	35	0.6
A 170 M.0.50.065.12	50	12	42	65	42	0.7
A 170 M.0.50.065.14	50	14	44	65	42	0.8
A 170 M.0.50.070.16	50	16	48	70	48	0.8
A 170 M.0.50.070.18	50	18	50	70	48	0.9
A 170 M.0.63.070.16	63	16	48	70	42	1.2
A 170 M.0.63.070.18	63	18	50	70	42	1.2
A 170 M.0.63.070.20	63	20	52	70	45	1.2
A 170 M.0.63.080.25	63	25	63	80		1.7
A 170 M.0.63.085.32	63	32	72	85	68	2.1
A 170 M.0.80.070.20	80	20	52	70	38	1.7
A 170 M.0.80.085.25	80	25	63	85	62	2.2
A 170 M.0.80.085.32	80	32	72	85	65	2.4
A 170 M.0.80.095.40	80	40	78	95	75	2.6

Bodies and assembly parts are included in the scope of delivery.

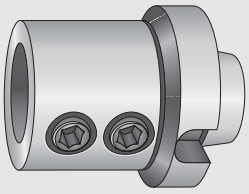
Assembly parts



Clamping screw
DIN 1835-B

for D_2 mm	Type
6	M 6 x 10
8	M 8 x 10
10	M 10 x 12
12, 14	M 12 x 16
16, 18	M 14 x 16
20	M 16 x 16
25	M 18 x 2 x 20
32, 40	M 20 x 2 x 20

→ 782 → 791

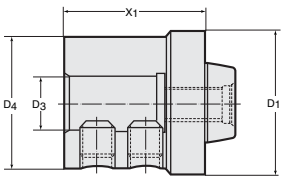


Adaptor for eccentric sleeve

A 170 M … Ex

for diameter adjustment
of WALTER STARDRILL with cylindrical shank

Tool



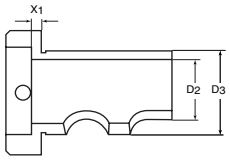
Designation	D_1 mm	D_3 mm	d_4 mm	X_1 mm		kg
A 170 M.0.63.079.32.EX	63	32	72	79		2.0
A 170 M.0.80.079.32.EX	80	32	72	79		2.2
A 170 M.0.80.087.40.EX	80	40	78	87		2.7
A 170 M.0.80.096.50.EX	80	50	85	96		3.0

Bodies and assembly parts are included in the scope of delivery.

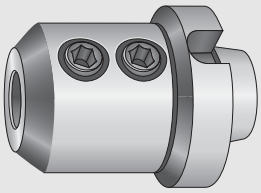
Assembly parts

		D_3 = 32–40 mm	D_3 = 50 mm
	Screw DIN 1835-B	M 20 x 2 x 20 (SW 10)	M 24 x 2 x 25 (SW 12)

Accessories

	Designation	D_C STARDRILL mm	D_2 mm	D_3 mm	X_1 mm
	Eccentric sleeve Adjustment range: –0.1 mm to +0.3 mm compared with nominal diameter	FS 1208	16–25	25	32	4
	Eccentric sleeve Adjustment range: –0.2 mm to +0.55 mm compared with nominal diameter	FS 722	16–25	25	32	4
		FS 723	26–36	32	40	4
		FS 724	37–58	40	50	4
	Wrench DIN 911	for D_3 = 32–40 mm = SW 10		for D_3 = 50 mm = SW 12	

→ 782 → 791 → 385

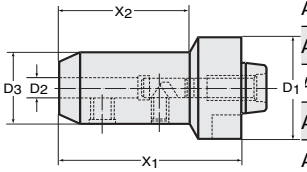


End mill adaptor

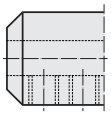
A 171 M

for tools with cylindrical shank
and notch i.a.w. DIN 1835 version E

Tool



$D_2 \leq 20$ mm



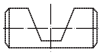
$D_2 \geq 25$ mm

Designation	D_1 mm	D_2 (H_4) mm	D_3 mm	X_1 mm	X_2 mm	kg
A 171 M.0.25.065.06	25	6	25	65		0.2
A 171 M.0.32.065.08	32	8	28	65	50	0.3
A 171 M.0.32.070.10	32	10	35	70		0.5
A 171 M.0.32.075.12	32	12	42	75		0.7
A 171 M.0.40.070.06	40	6	25	70	45	0.4
A 171 M.0.40.070.08	40	8	28	70	50	0.4
A 171 M.0.40.075.10	40	10	35	75	55	0.6
A 171 M.0.40.080.12	40	12	42	80		0.8
A 171 M.0.40.080.14	40	14	44	80		0.9
A 171 M.0.40.085.16	40	16	48	85		1.1
A 171 M.0.40.085.18	40	18	50	85		1.0
A 171 M.0.50.070.06	50	6	25	70	45	0.5
A 171 M.0.50.070.08	50	8	28	70	50	0.5
A 171 M.0.50.075.10	50	10	35	75	55	0.7
A 171 M.0.50.080.12	50	12	42	80	60	0.9
A 171 M.0.50.080.14	50	14	44	80	60	0.9
A 171 M.0.50.085.16	50	16	48	85	65	1.1
A 171 M.0.50.085.18	50	18	50	85		1.2
A 171 M.0.63.090.16	63	16	48	90	65	1.4
A 171 M.0.63.090.18	63	18	50	90	65	1.5
A 171 M.0.63.090.20	63	20	52	90	65	1.5
A 171 M.0.63.095.25	63	25	65	95		2.1
A 171 M.0.63.100.32	63	32	72	100		2.6
A 171 M.0.80.100.20	80	20	52	100	70	2.2
A 171 M.0.80.105.25	80	25	65	105	80	2.8
A 171 M.0.80.110.32	80	32	72	110	85	3.3
A 171 M.0.80.120.40	80	40	80	120		4.0

Axial adjustment 3 mm.

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

	D_2 = 6+8 mm	D_2 = 10+12 mm	D_2 = 14 mm	D_2 = 16 mm	D_2 = 18 mm	D_2 = 20 mm	D_2 = 25–40 mm
 Stop	FS 842	FS 842	FS 842	FS 843	FS 843	FS 843	FS 843
 Locking screw	FS 844	FS 845	FS 744	FS 846	FS 745	FS 846	FS 847

 Clamping screw DIN 1835-B	6	M 6 x 10
	8	M 8 x 10
	10	M 10 x 12
	12, 14	M 12 x 16
	16, 18	M 14 x 16
	20	M 16 x 16
	25	M 18 x 2 x 20
	32	M 20 x 2 x 20

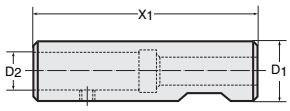
→ 782 → 791



Small diameter milling extensions

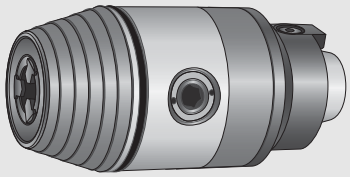
A 175

with flat i.a.w. DIN 1835 version B
for tools with cylindrical shank

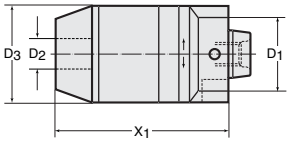
Tool	Designation	D_1 mm	D_2 (H_4) mm		X_1 mm		kg
	A 175.0.20.090.04	20	4		90		0.2
	A 175.0.20.090.05	20	5		90		0.2
	A 175.0.20.090.06	20	6		90		0.2
	A 175.0.20.090.08	20	8		90		0.2
	A 175.0.20.090.10	20	10		90		0.2
	A 175.0.20.090.12	20	12		90		0.2
	A 175.0.20.130.04	20	4		130		0.3
	A 175.0.20.130.05	20	5		130		0.3
	A 175.0.20.130.06	20	6		130		0.3
	A 175.0.20.130.08	20	8		130		0.3
	A 175.0.20.130.10	20	10		130		0.3
	A 175.0.20.130.12	20	12		130		0.3
	A 175.0.25.100.14	25	14		100		0.3
	A 175.0.25.100.16	25	16		100		0.3
	A 175.0.25.150.14	25	14		150		0.4
	A 175.0.25.150.16	25	16		150		0.4

Bodies and assembly parts are included in the scope of delivery.

Assembly parts		for D_2 mm	Type
	Locking screw	4 5 6, 8, 10 12 14, 16	M 4 x 8 DIN 913 M 5 x 8 DIN 913 M 6 x 6 DIN 913 M 6 x 5 DIN 913 M 6 x 6 DIN 913

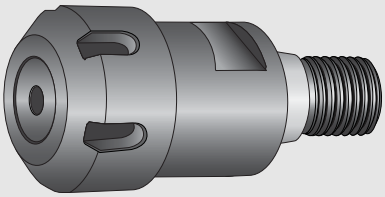


Small drill chuck A 201 M

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm		kg
with chuck security mechanism*	A 201 M.0.40.092.13	40	1 – 13	50	92		1.1
	A 201 M.0.50.092.13	50	1 – 13	50	92		1.2

* The chuck security mechanism avoids any loosening, should the spindle suddenly stop.

→ 782 → 791

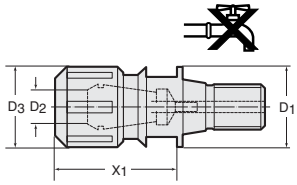


Collet chuck

for ER collets i.a.w. DIN 6499

AK 300 T

Tool





Designation	D_1 mm	D_2 mm	D_3 mm		X_1 mm	Collets	kg
AK 300.T18.030.06	18.5	1 – 6	19		30	ER 11	
AK 300.T22.030.06	22	1 – 6	19		30	ER 11	
AK 300.T22.040.10	22	1 – 10	28		40	ER 16	
AK 300.T28.040.10	28	1 – 10	28		40	ER 16	
AK 300.T36.050.16	36	1 – 16	42		50	ER 25	
AK 300.T22.045.10	22	1 – 10	28		45	ER 16	
AK 300.T28.045.10	28	1 – 10	28		45	ER 16	
AK 300.T36.055.16	36	1 – 16	42		55	ER 25	

Bodies and assembly parts are included in the scope of delivery.

If the collet chuck is used for internal coolant supply, the sealing discs on page 777 must be utilised.
The clamping nut can be damaged if the chuck is used without a sealing disc!
For collets, see page 774.

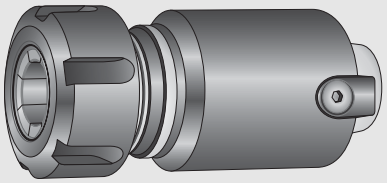
Assembly parts

	ER 11	ER 16	ER 25
Clamping nut	FS 653		
Clamping nut		FS 1537	FS 1540
Clamping nut for internal coolant supply		FS 1448	FS 1449

Accessories

	ER 16	ER 25
Tensioning key	FS 1539	FS 1544

→ 782 → 791 → 789

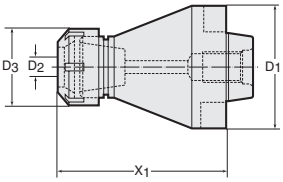


Collet chuck

for ER collets i.a.w. DIN 6499

AK 300 M

Tool



Designation	D_1 mm	D_2 mm	D_3 mm		X_1 mm	Collets	kg
AK 300 M.0.25.055.10	25	1 – 10	28		55	ER 16	0.2
AK 300 M.0.32.055.10	32	1 – 10	28		55	ER 16	0.2
AK 300 M.0.40.085.16	40	1 – 16	42		85	ER 25	0.6
AK 300 M.0.50.085.16	50	1 – 16	42		85	ER 25	0.9
AK 300 M.0.50.085.20	50	1 – 20	50		85	ER 32	1.1
AK 300 M.0.50.085.26	50	2 – 26	63		85	ER 40	1.4
AK 300 M.0.63.085.26	63	2 – 26	63		85	ER 40	1.5

Bodies and assembly parts are included in the scope of delivery.
If the collet chuck is used for internal coolant supply, the sealing discs on page 777 must be utilised.
The clamping nut can be damaged if the chuck is used without a sealing disc!
For collets, see page 774.

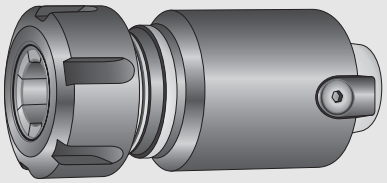
Assembly parts

	ER 16	ER 25	ER 32	ER 40
Clamping nut for internal coolant supply	FS 1448	FS 1449	FS 1360	FS 1450

Accessories

	ER 16	ER 25	ER 32	ER 40
Tensioning key	FS 1539	FS 1544	FS 1545	FS 1546

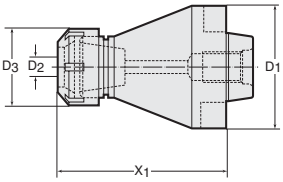
→ 782 → 791 → 789



Collet chuck

for ER collets i.a.w. DIN 6499

AK 300 M

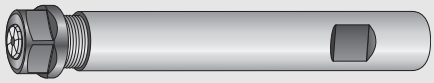
Tool	Designation	D_1 mm	D_2 mm	D_3 mm		X_1 mm	Collets	kg
	AK 300 M.0.25.050.10	25	1 – 10	28		50	ER 16	0.2
	AK 300 M.0.32.050.10	32	1 – 10	28		50	ER 16	0.2
	AK 300 M.0.40.080.16	40	1 – 16	42		80	ER 25	0.6
	AK 300 M.0.50.080.16	50	1 – 16	42		80	ER 25	0.9
	AK 300 M.0.50.080.20	50	1 – 20	50		80	ER 32	1.1
	AK 300 M.0.50.080.26	50	2 – 26	63		80	ER 40	1.4
	AK 300 M.0.63.080.26	63	2 – 26	63		80	ER 40	1.5

Bodies and assembly parts are included in the scope of delivery.
For collets, see page 774.

Assembly parts		ER 16	ER 25	ER 32	ER 40
	Clamping nut	FS 1537	FS 1540	FS 1541	FS 1542

Accessories		ER 16	ER 25	ER 32	ER 40
	Tensioning key	FS 1539	FS 1544	FS 1545	FS 1546

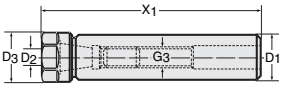
→ 782 | → 791 | → 789



Mini collet chuck

A 305

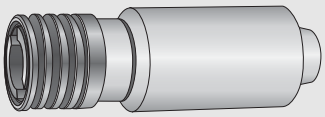
for ER-Collets i.a.w. DIN 6499

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	G_3 mm	Collets	kg
	A 305.0.16.120.06	16	1 – 6	19	120	M 8	ER 11	0.2
	A 305.0.16.180.06	16	1 – 6	19	180	M 8	ER 11	0.2
	A 305.0.25.140.10	25	1 – 10	28	140	M 12	ER 16	0.4
	A 305.0.25.180.10	25	1 – 10	28	180	M 12	ER 16	0.5

Bodies and assembly parts are included in the scope of delivery.
For collets, see page 774.

Assembly parts		ER 11	ER 16
	Clamping nut	FS 653	FS 654
	Tightening torque	30.0 Nm	40.0 Nm

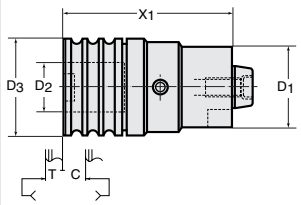
→ 789



Tapping head-quick change tap collet

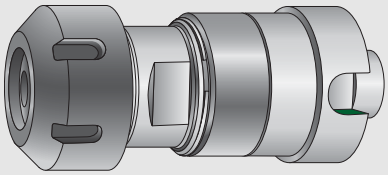
A 320 M

with elastic length compensation for compression and extension

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	Length C	Length T	Collet size	for tapping head	kg
	A 320 M.0.40.110.19	40	19	36	110	7.5	7.5	1	M 4–M 12	0.9
	A 320 M.0.50.136.31	50	31	53	136	12.5	12.5	3	M 8–M 20	1.8
	A 320 M.0.63.180.48	63	48	78	180	20.0	20.0	4	M 14–M 33	4.1
	A 320 M.0.63.196.60	63	60	96	196	22.5	22.5	5	M 22–M 48	5.8

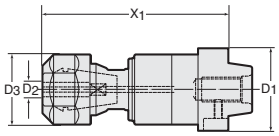
Bodies and assembly parts are included in the scope of delivery.
A quick change tap collet A 330 / A 331 is required for each tapping head, see page 772 (order in accordance with D_2).

→ 772 | → 791 | → 779



Soft synchro chuck A 340 M

for thread cutting on synchro spindles

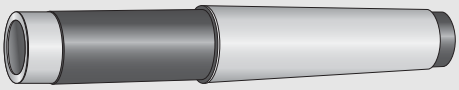
Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	Collets	kg
	A 340 M.0.40.092.10	40	4.5 – 10	34	92	ER 20	0.7
	A 340 M.0.50.105.16	50	4.5 – 16	50	105	ER 32	0.9

Bodies and assembly parts are included in the scope of delivery.
If the soft synchro chuck is used for internal coolant supply, the sealing discs on page 777 must be utilised.
The clamping nut can be damaged if the chuck is used without a sealing disc!
For tap collets, see page 776.

Assembly parts		ER 20	ER 32
	Clamping nut for internal coolant supply	FS 1359	FS 1360

Accessories		ER 20	ER 32
	Tensioning key	FS 1452	FS 1545

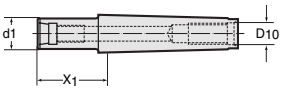
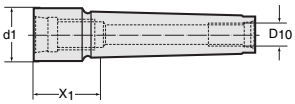
→ 782 → 791 → 798



Adaptor

AK 500

for ScrewFit front pieces
Shank DIN 228, version A

Tool	Designation	MT	d_1 mm	D_{10} mm	X_1 mm	Version	kg
 Version A	AK 500.M2.T14.015	2	14.5	M 10	15	A	0.1
	AK 500.M2.T14.035	2	14.5	M 10	35	A	0.1
	AK 500.M2.T14.065	2	14.5	M 10	65	A	0.2
	AK 500.M2.T18.015	2	18.5	M 10	15	B	0.1
	AK 500.M2.T18.035	2	18.5	M 10	35	B	0.1
	AK 500.M2.T18.065	2	18.5	M 10	65	B	0.2
 Version B	AK 500.M3.T22.015	3	22	M 12	15	A	0.2
	AK 500.M3.T22.035	3	22	M 12	35	A	0.3
	AK 500.M3.T22.065	3	22	M 12	65	A	0.4
	AK 500.M4.T22.100	4	22	M 16	100	A	0.6
	AK 500.M3.T28.035	3	28	M 12	35	B	0.3
	AK 500.M3.T28.065	3	28	M 12	65	B	0.4
	AK 500.M4.T28.015	4	28	M 16	15	A	0.5
	AK 500.M4.T28.045	4	28	M 16	45	A	0.5
	AK 500.M4.T28.075	4	28	M 16	75	A	0.5
	AK 500.M4.T36.035	4	36	M 16	35	B	0.8
	AK 500.M4.T36.065	4	36	M 16	65	B	0.8

→ 782

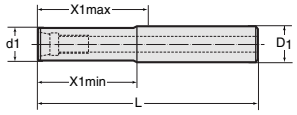
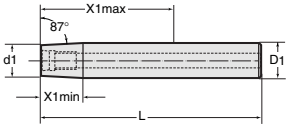
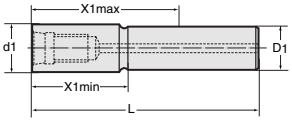
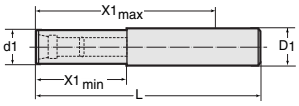
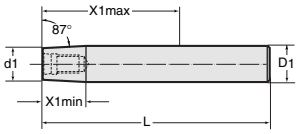
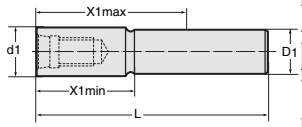


Adaptor

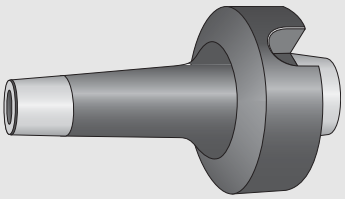
AK 510

for ScrewFit front pieces

Parallel shank DIN 1835, version A

Tool	Designation	$D_{1\ h6}$ mm	d_1 mm	$X_{1\ min}$ mm	$X_{1\ max}$ mm	L mm	Version	kg
 Version A	AK 510.Z10.T09.030	10	9.7	10	30	70	A	0.1
	AK 510.Z10.T09.060	10	9.7	20	60	100	A	0.1
	AK 510.Z12.T09.060	12	9.7	20	60	105	A	0.1
	AK 510.Z16.T09.090	16	9.7	20	90	140	A	0.1
	AK 510.Z16.T14.050	16	14.5	45	50	100	A	0.1
	AK 510.Z16.T14.110	16	14.5	45	110	160	A	0.1
	AK 510.Z20.T14.108	20	14.5	52	108	160	B	0.1
	AK 510.Z25.T14.152	25	14.5	100	152	210	B	0.5
 Version B	AK 510.Z20.T18.068	20	18.5	50	68	120	A	0.2
	AK 510.Z20.T18.128	20	18.5	50	128	180	A	0.3
	AK 510.Z25.T18.122	25	18.5	62	122	180	B	0.5
	AK 510.Z32.T18.178	32	18.5	128	178	240	B	1.2
	AK 510.Z25.T22.072	25	22	55	72	130	A	0.3
	AK 510.Z25.T22.142	25	22	55	142	200	A	0.6
	AK 510.Z32.T22.138	32	22	95	138	200	B	1.1
	AK 510.Z40.T22.228	40	22	172	228	300	B	2.2
 Version C	AK 510.Z25.T28.072	25	28	55	72	130	C	0.5
	AK 510.Z25.T28.142	25	28	55	142	200	C	0.7
	AK 510.Z32.T28.138	32	28	40	138	200	B	1.1
	AK 510.Z40.T28.228	40	28	115	228	300	B	2.4
	AK 510.Z32.T36.090	32	36	60	90	150	C	0.9
	AK 510.Z32.T36.140	32	36	60	140	200	C	1.2
	AK 510.Z40.T36.130	40	36	60	130	200	A	1.7
	AK 510.Z40.T36.230	40	36	100	230	300	A	2.6
	AK 510.Z40.T45.080	40	45	60	80	150	C	1.5
	AK 510.Z40.T45.230	40	45	100	230	300	C	3.0
without internal coolant supply with solid carbide shank	A 510.Z10.T09.070-CS	10	9.7	29	70	120	D	0.1
	A 510.Z12.T09.120-CS	12	9.7	32	120	170	E	0.2
	A 510.Z16.T14.070-CS	16	14.5	38	70	120	E	0.3
 Version D	A 510.Z16.T14.120-CS	16	14.5	37	120	170	E	0.4
	A 510.Z20.T14.278-CS	20	14.5	37	278	330	E	1.2
	A 510.Z20.T18.070-CS	20	18.5	45	70	120	D	0.5
	A 510.Z20.T18.123-CS	20	18.5	45	123	175	D	0.7
 Version E	A 510.Z25.T18.277-CS	25	18.5	45	277	335	D	1.9
	A 510.Z25.T22.070-CS	25	22	55	70	130	D	0.8
	A 510.Z25.T22.122-CS	25	22	55	122	180	D	1.1
	A 510.Z25.T22.282-CS	25	22	55	282	340	D	2.0
	A 510.Z25.T28.070-CS	25	28	60	70	130	F	0.8
 Version F	A 510.Z25.T28.127-CS	25	28	60	127	185	F	1.1
	A 510.Z32.T28.283-CS	32	28	60	283	345	D	3.3

→ 782

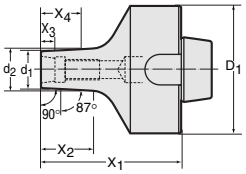


Adaptor

AK 520

for ScrewFit front pieces

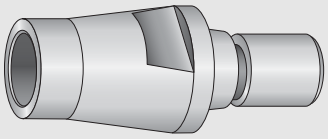
NCT adaptors

Tool	Designation	D_1 mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
	AK 520.N50.T09.050	50	9.7	12	50	14	10	14	0.4
	AK 520.N50.T09.075	50	9.7	12	75	40	10	31	0.4
	AK 520.N50.T09.100	50	9.7	12	100	65	10	31	0.5
	AK 520.N50.T14.055	50	14.5	16	55	20	10	20	0.4
	AK 520.N50.T14.085	50	14.5	16	85	50	10	24	0.6
	AK 520.N50.T14.120	50	14.5	16	120	85	10	24	0.6
	AK 520.N50.T18.060 CO*	50	18.5	20	60	27	10	24	0.4
	AK 520.N50.T18.095	50	18.5	20	95	62	10	24	0.5
	AK 520.N50.T22.065 CO*	50	22	25	65	33	10	33	0.5
	AK 520.N50.T22.115	50	22	25	115	83	10	38	0.7
	AK 520.N63.T18.060 CO*	63	18.5	20	60	22	10	22	0.7
	AK 520.N63.T18.095	63	18.5	20	95	60	10	24	0.9
	AK 520.N63.T18.145	63	18.5	20	145	110	10	24	1.0
	AK 520.N63.T22.065 CO*	63	22	25	65	30	10	30	0.7
	AK 520.N63.T22.115	63	22	25	115	80	10	38	1.0
	AK 520.N63.T22.165	63	22	25	165	130	10	38	1.2
	AK 520.N63.T22.215	63	22	25	215	183	10	38	1.8
	AK 520.N63.T22.265	63	22	25	265	235	10	38	2.1
	AK 520.N63.T28.085 CO*	63	28	32	85	52	10	48	0.9
	AK 520.N63.T28.150	63	28	32	150	118	10	48	1.7
	AK 520.N80.T28.220	80	28	32	220	180	10	47	2.8



* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

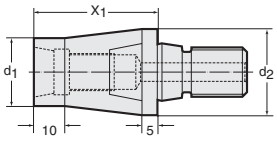
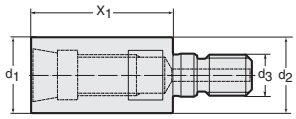
→ 782 → 791



Adaptor

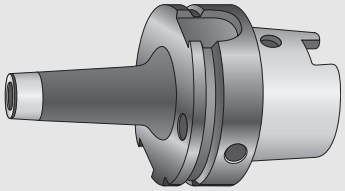
for ScrewFit front pieces

AK 521 / 522

Tool	Designation	d_1 mm	d_2 mm	X_1 mm	d_3		kg
Reduction adaptor  	AK 521.T14.25.T09	9.7	14.5	25			0.1
	AK 521.T18.30.T14	14.5	18.5	30			0.1
	AK 521.T22.35.T18	18.5	22.0	35			0.1
	AK 521.T28.40.T22	22.0	28.0	40			0.1
	AK 521.T36.45.T28	28.0	36.0	45			0.2
	AK 521.T45.50.T36	36.0	45.0	50			0.3
Conversion kit* 	AK 522.TC06.25.T09	9.7	9.7	25	M 6		0.1
	AK 522.TC08.30.T14	14.5	14.5	30	M 8		0.1
	AK 522.TC10.35.T18	18.5	18.5	35	M 10		0.1
	AK 522.TC12.40.T22	22.0	22.0	40	M 12		0.1
	AK 522.TC16.40.T28	28.0	29.0	40	M 16		0.2

*for converting from the cylindrical interface to the WALTER interface.

→ 782



Adaptor

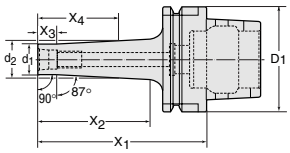
for ScrewFit front pieces

HSK DIN 69893-1, version A

AK 530

D_1 = 63 mm

Tool



ScrewFit!

Designation	D_1 mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 530.H63A.T09.045	63	9.7	12	45	14	10	14	0.6
AK 530.H63A.T09.070	63	9.7	12	70	39	10	31	0.7
AK 530.H63A.T09.095	63	9.7	12	95	64	10	31	0.7
AK 530.H63A.T14.045	63	14.5	16	45	11	10	11	0.7
AK 530.H63A.T14.070	63	14.5	16	70	36	10	24	0.8
AK 530.H63A.T14.095	63	14.5	16	95	61	10	24	0.8
AK 530.H63A.T14.120	63	14.5	16	120	86	10	24	0.9
AK 530.H63A.T18.050 CO*	63	18.5	20	50	16	10	16	0.7
AK 530.H63A.T18.075	63	18.5	20	75	41	10	24	0.8
AK 530.H63A.T18.100	63	18.5	20	100	66	10	24	0.9
AK 530.H63A.T18.125	63	18.5	20	125	91	10	24	1.0
AK 530.H63A.T18.150	63	18.5	20	150	116	10	24	1.1
AK 530.H63A.T22.060 CO*	63	22	25	60	26	10	26	0.8
AK 530.H63A.T22.085	63	22	25	85	51	10	38	0.9
AK 530.H63A.T22.110	63	22	25	110	76	10	38	0.9
AK 530.H63A.T22.135	63	22	25	135	101	10	38	1.1
AK 530.H63A.T22.160	63	22	25	160	126	10	38	1.3
AK 530.H63A.T28.065 CO*	63	28	32	65	31	10	31	0.8
AK 530.H63A.T28.090	63	28	32	90	59	10	48	1.0
AK 530.H63A.T28.115	63	28	32	115	81	10	48	1.2
AK 530.H63A.T28.140	63	28	32	140	109	10	48	1.4
AK 530.H63A.T28.165	63	28	32	165	134	10	48	1.6
AK 530.H63A.T36.065 CO*	63	36	40	65	34	10	34	1.0
AK 530.H63A.T36.090	63	36	40	90	59	10	48	1.1
AK 530.H63A.T36.115	63	36	40	115	84	10	48	1.4
AK 530.H63A.T45.065 CO*	63	45	50	65	36	10	36	1.2
AK 530.H63A.T45.090	63	45	50	90	62	10	57	1.5

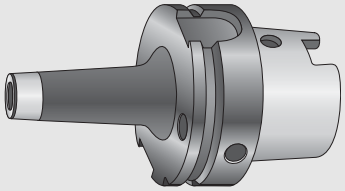
Balance class G 6.3 where n = 25,000 min^{-1}

* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

Accessories

	D_1 = 63 mm
Transfer unit	FS 1064
Socket key	FS 952

→ 782 → 790



Adaptor

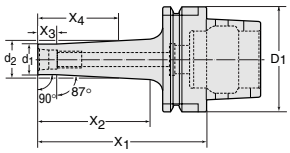
for ScrewFit front pieces

HSK DIN 69893-1, version A

AK 530

D_1 = 100 mm

Tool



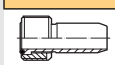
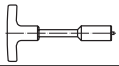


Designation	D_1 mm	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 530.H100A.T22.055 CO*	100	22	25	55	21	10	21	2.1
AK 530.H100A.T22.100	100	22	25	100	66	10	38	2.3
AK 530.H100A.T22.150	100	22	25	150	116	10	38	2.6
AK 530.H100A.T22.200	100	22	25	200	166	10	38	2.7
AK 530.H100A.T28.060 CO*	100	28	32	60	26	10	26	2.2
AK 530.H100A.T28.110	100	28	32	110	76	10	48	2.5
AK 530.H100A.T28.160	100	28	32	160	126	10	48	2.7
AK 530.H100A.T28.210	100	28	32	210	176	10	48	3.1
AK 530.H100A.T28.260	100	28	32	260	226	10	48	4.2
AK 530.H100A.T36.070 CO*	100	36	40	70	36	10	36	2.3
AK 530.H100A.T36.120	100	36	40	120	86	10	48	2.8
AK 530.H100A.T36.170	100	36	40	170	136	10	48	3.5
AK 530.H100A.T36.220	100	36	40	220	186	10	48	4.0
AK 530.H100A.T36.270	100	36	40	270	236	10	48	5.5
AK 530.H100A.T45.070 CO*	100	45	50	70	36	10	36	2.6
AK 530.H100A.T45.120	100	45	50	120	86	10	57	3.1
AK 530.H100A.T45.170	100	45	50	170	136	10	57	4.0
AK 530.H100A.T45.220	100	45	50	220	186	10	57	4.8
AK 530.H100A.T45.270	100	45	50	270	236	10	57	5.4

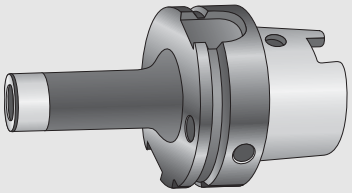
Balance class G 6.3 where n = 16,000 min^{-1}

* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

Accessories

	Transfer unit	FS 1065
	Socket key	FS 953

→ 782 → 790



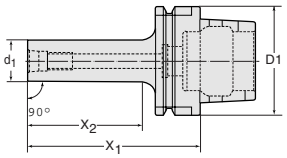
Adaptor

for ScrewFit front pieces
HSK DIN 69893-1, version A
cutting orientated

AK 531

D_1 = 63 +100 mm

Tool



ScrewFit!

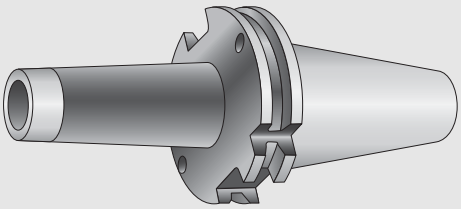
Designation	D_1 mm	d_1 mm		X_1 mm	X_2 mm			kg
AK 531.H63A.T18.075 CO*	63	18.5		75	41			0.8
AK 531.H63A.T22.110 CO*	63	22		110	76			0.9
AK 531.H63A.T28.115 CO*	63	28		115	81			1.2
AK 531.H63A.T36.115 CO*	63	36		115	84			1.4
AK 531.H63A.T45.090 CO*	63	45		90	62			1.5
AK 531.H100A.T22.100 CO*	100	22		100	66			2.3
AK 531.H100A.T28.110 CO*	100	28		110	76			2.5
AK 531.H100A.T36.120 CO*	100	36		120	86			2.8
AK 531.H100A.T45.170 CO*	100	45		170	136			4.0

D_1 = 63 mm: Balance class G 6.3 where n = 25,000 min^{-1}, D_1 = 100 mm: Balance class G 6.3 where n = 16.000 min^{-1}
* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

Accessories

	D_1 = 63 mm	D_1 = 100 mm
Transfer unit	FS 1064	FS 1065
Socket key	FS 952	FS 953

→ 782 → 790



Adaptor

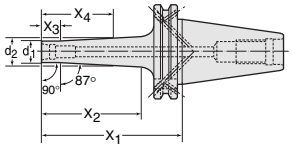
AK 540

for ScrewFit front pieces

SK = 40

Steep taper DIN 69871, version AD + B

Tool

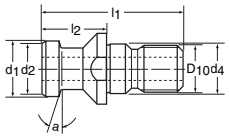
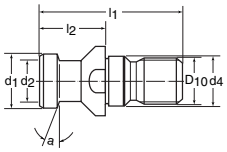




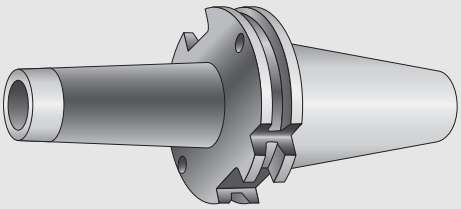
Designation	SK	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 540.S40.T09.040	40	9.7	12	40	17	10	17	0.8
AK 540.S40.T09.065	40	9.7	12	65	40	10	31	0.9
AK 540.S40.T09.090	40	9.7	12	90	65	10	31	0.9
AK 540.S40.T14.045	40	14.5	16	45	17	10	17	0.9
AK 540.S40.T14.070	40	14.5	16	70	45	10	24	1.0
AK 540.S40.T14.095	40	14.5	16	95	67	10	24	0.9
AK 540.S40.T14.120	40	14.5	16	120	95	10	24	1.1
AK 540.S40.T18.050 CO*	40	18.5	20	50	22	10	22	0.9
AK 540.S40.T18.075	40	18.5	20	75	50	10	24	1.0
AK 540.S40.T18.100	40	18.5	20	100	72	10	24	1.0
AK 540.S40.T18.125	40	18.5	20	125	100	10	24	1.1
AK 540.S40.T18.150	40	18.5	20	150	125	10	24	1.3
AK 540.S40.T22.060 CO*	40	22	25	60	32	10	32	0.9
AK 540.S40.T22.085	40	22	25	85	60	10	38	1.0
AK 540.S40.T22.110	40	22	25	110	82	10	38	1.3
AK 540.S40.T22.135	40	22	25	135	110	10	38	1.4
AK 540.S40.T22.160	40	22	25	160	135	10	38	1.5
AK 540.S40.T28.040 CO*	40	28	32	40	17	—	17	0.9
AK 540.S40.T28.065	40	28	32	65	37	10	37	1.0
AK 540.S40.T28.090	40	28	32	90	65	10	48	1.1
AK 540.S40.T28.115	40	28	32	115	90	10	48	1.3
AK 540.S40.T28.140	40	28	32	140	115	10	48	1.8
AK 540.S40.T28.165	40	28	32	165	140	10	48	1.9
AK 540.S40.T36.040 CO*	40	36	40	40	17	—	17	0.9
AK 540.S40.T36.065	40	36	40	65	40	10	40	1.1
AK 540.S40.T36.090	40	36	40	90	65	10	48	1.3
AK 540.S40.T36.115	40	36	40	115	90	10	48	1.7
AK 540.S40.T45.040 CO*	40	45	50	40	17	—	17	1.0
AK 540.S40.T45.065	40	45	50	65	42	—	42	1.3
AK 540.S40.T45.090	40	45	50	90	67	—	67	1.6

* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
The adaptors are supplied in version AD. If the adaptor is to be converted to version B, both threaded plugs fitted at the sides must be removed.
Bodies and assembly parts are included in the scope of delivery.

Accessories + Assembly parts

	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
 **Accessories** Pull stud DIN 69872 version AD with coolant bore	C 100.40.115	19	14	17	M 16	54	26	15°
 **Accessories** Pull stud DIN 69872 version B without bore	C 100.40.215	19	14	17	M 16	54	26	15°
 **Assembly part** Threaded plug DIN 913	M 4 x 5	for SK 40						

→ 782 → 790



Adaptor

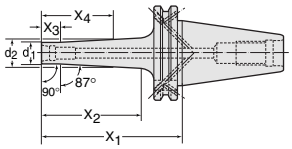
AK 540

for ScrewFit front pieces

SK = 50

Steep taper DIN 69871, version AD + B

Tool





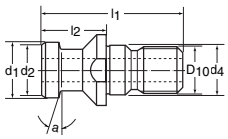
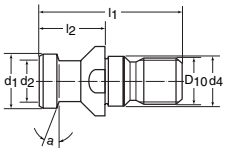
Designation	SK	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 540.S50.T22.050 CO*	50	22	25	50	25	10	25	2.7
AK 540.S50.T22.100	50	22	25	100	75	10	38	3.0
AK 540.S50.T22.150	50	22	25	150	125	10	38	4.0
AK 540.S50.T22.200	50	22	25	200	175	10	38	3.8
AK 540.S50.T28.050 CO*	50	28	32	50	25	10	25	2.9
AK 540.S50.T28.100	50	28	32	100	75	10	48	3.2
AK 540.S50.T28.150	50	28	32	150	125	10	48	3.6
AK 540.S50.T28.200	50	28	32	200	175	10	48	4.2
AK 540.S50.T28.250	50	28	32	250	225	10	48	5.0
AK 540.S50.T36.050 CO*	50	36	40	50	25	10	25	2.8
AK 540.S50.T36.100	50	36	40	100	75	10	48	3.4
AK 540.S50.T36.150	50	36	40	150	125	10	48	4.2
AK 540.S50.T36.200	50	36	40	200	175	10	48	4.6
AK 540.S50.T36.250	50	36	40	250	225	10	48	5.5
AK 540.S50.T45.050 CO*	50	45	50	50	25	10	25	3.0
AK 540.S50.T45.100	50	45	50	100	75	10	57	3.7
AK 540.S50.T45.150	50	45	50	150	125	10	57	4.4
AK 540.S50.T45.200	50	45	50	200	175	10	57	5.6
AK 540.S50.T45.250	50	45	50	250	225	10	57	5.9

* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
The adaptors are supplied in version AD. If the adaptor is to be converted to version B, both threaded plugs fitted at the sides must be removed.
Bodies and assembly parts are included in the scope of delivery.

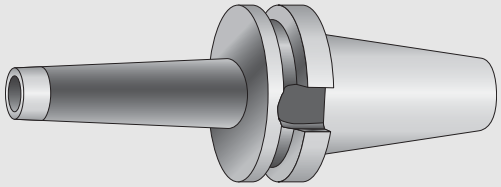
Assembly parts

		for SK 50
	Threaded plug DIN 913	M 6 x 6

Accessories

	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
	Pull stud DIN 69872 version AD with coolant bore	C 100.50.115	28	21	25	M 24	74	34	15°
	Pull stud DIN 69872 version B without bore	C 100.50.215	28	21	25	M 24	74	34	15°

→ 782 → 790



Adaptor

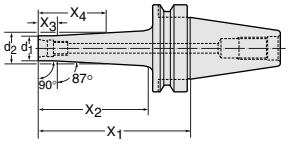
for ScrewFit front pieces

Steep taper MAS BT

AK 540

SK = 40

Tool

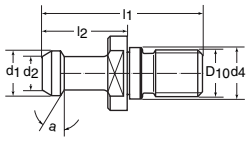


ScrewFit!

Designation	SK	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 540.BT40.T09.050	40	9.7	12	50	17	10	17	0.8
AK 540.BT40.T09.075	40	9.7	12	75	42	10	31	0.9
AK 540.BT40.T09.100	40	9.7	12	100	67	10	31	0.9
AK 540.BT40.T14.055	40	14.5	16	55	22	10	22	0.6
AK 540.BT40.T14.080	40	14.5	16	80	47	10	24	0.9
AK 540.BT40.T14.105	40	14.5	16	105	72	10	24	0.9
AK 540.BT40.T14.130	40	14.5	16	130	97	10	24	1.0
AK 540.BT40.T18.060 CO *	40	18.5	20	60	27	10	24	0.7
AK 540.BT40.T18.085	40	18.5	20	85	52	10	24	0.9
AK 540.BT40.T18.110	40	18.5	20	110	77	10	24	1.0
AK 540.BT40.T18.135	40	18.5	20	135	102	10	24	1.1
AK 540.BT40.T18.160	40	18.5	20	160	127	10	24	1.2
AK 540.BT40.T22.070 CO *	40	22	25	70	37	10	37	0.9
AK 540.BT40.T22.095	40	22	25	95	62	10	38	1.0
AK 540.BT40.T22.120	40	22	25	120	84	10	38	1.1
AK 540.BT40.T22.145	40	22	25	145	112	10	38	1.2
AK 540.BT40.T22.170	40	22	25	170	137	10	38	1.4
AK 540.BT40.T28.050 CO *	40	28	32	50	17	10	17	0.9
AK 540.BT40.T28.075	40	28	32	75	42	10	42	1.0
AK 540.BT40.T28.100	40	28	32	100	67	10	48	1.1
AK 540.BT40.T28.125	40	28	32	125	92	10	48	1.3
AK 540.BT40.T28.150	40	28	32	150	117	10	48	1.5
AK 540.BT40.T28.175	40	28	32	175	142	10	48	1.8
AK 540.BT40.T36.075 CO *	40	36	40	75	42	10	42	0.9
AK 540.BT40.T36.100	40	36	40	100	67	10	48	1.1
AK 540.BT40.T36.125	40	36	40	125	92	10	48	1.3
AK 540.BT40.T45.075 CO *	40	45	50	75	42	10	42	1.3
AK 540.BT40.T45.100	40	45	50	100	67	10	57	1.6

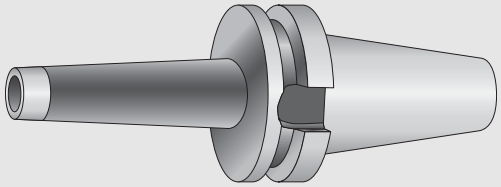
* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

Accessories



	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
Pull stud MAS BT	C 100.40.430	15	10	17	M 16	60	35	30°
	C 100.40.445	15	10	17	M 16	60	35	45°

→ 782 → 790



Adaptor

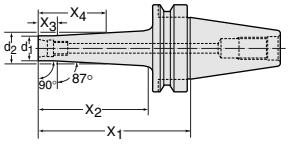
for ScrewFit front pieces

Steep taper MAS BT

AK 540

SK = 50

Tool

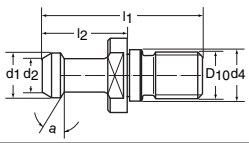


ScrewFit!

Designation	SK	d_1 mm	d_2 mm	X_1 mm	X_2 mm	X_3 mm	X_4 mm	kg
AK 540.BT50.T22.070 CO *	50	22	25	70	26	10	26	2.7
AK 540.BT50.T22.120	50	22	25	120	76	10	38	2.9
AK 540.BT50.T22.170	50	22	25	170	126	10	38	3.2
AK 540.BT50.T22.220	50	22	25	220	176	10	38	3.6
AK 540.BT50.T28.070 CO *	50	28	32	70	26	10	26	2.7
AK 540.BT50.T28.120	50	28	32	120	76	10	48	3.0
AK 540.BT50.T28.170	50	28	32	170	126	10	48	3.4
AK 540.BT50.T28.220	50	28	32	220	176	10	48	3.9
AK 540.BT50.T28.270	50	28	32	270	226	10	48	4.6
AK 540.BT50.T36.070 CO *	50	36	40	70	26	10	26	2.8
AK 540.BT50.T36.120	50	36	40	120	76	10	48	3.2
AK 540.BT50.T36.170	50	36	40	170	126	10	48	3.8
AK 540.BT50.T36.220	50	36	40	220	176	10	48	4.6
AK 540.BT50.T36.270	50	36	40	270	226	10	48	5.5
AK 540.BT50.T45.070 CO *	50	45	50	70	26	10	26	2.9
AK 540.BT50.T45.120	50	45	50	120	76	10	57	3.6
AK 540.BT50.T45.170	50	45	50	170	126	10	57	4.5
AK 540.BT50.T45.220	50	45	50	220	176	10	57	5.6
AK 540.BT50.T45.270	50	45	50	270	226	10	57	6.9

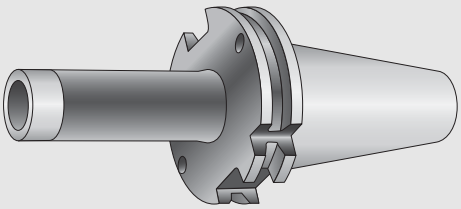
* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.

Accessories



	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
Pull stud MAS BT	C 100.50.430	23	17	25	M 24	85	45	30°
	C 100.50.445	23	17	25	M 24	85	45	45°

→ 782 → 790



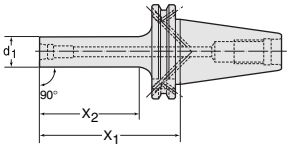
Adaptor

for ScrewFit front pieces
Steep taper DIN 69871, version AD + B
cutting orientated

AK 541

SK = 40

Tool



ScrewFit!

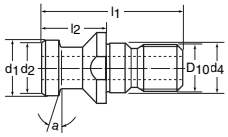
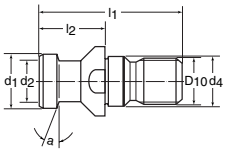
Designation	SK	d_1 mm		X_1 mm	X_2 mm			kg
AK 541.S40.T18.075 CO *	40	18		75	50			0.9
AK 541.S40.T22.110 CO *	40	22		110	85			1.0
AK 541.S40.T28.115 CO *	40	28		115	90			1.2
AK 541.S40.T36.115 CO *	40	36		115	92			1.4
AK 541.S40.T45.090 CO *	40	45		90	67			1.5

* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
The adaptors are supplied in version AD. If the adaptor is to be converted to version B, both threaded plugs fitted at the sides must be removed.
Bodies and assembly parts are included in the scope of delivery.
Balance class G 6.3 where n = 25,000 min^{-1}

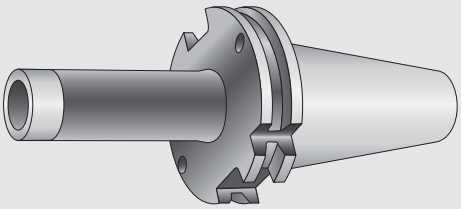
Assembly parts

		for SK 40
	Threaded plug DIN 913	M 4 x 5

Accessories

	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
 Pull stud DIN 69872 version AD with coolant bore	C 100.40.115	19	14	17	M 16	54	26	15°
 Pull stud DIN 69872 version B without bore	C 100.40.215	19	14	17	M 16	54	26	15°

→ 782 → 790



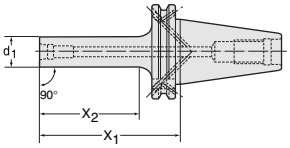
Adaptor

for ScrewFit front pieces
Steep taper DIN 69871, version AD + B
cutting orientated

AK 541

SK = 50

Tool



ScrewFit!

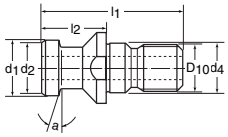
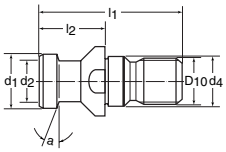
Designation	SK	d_1 mm		X_1 mm	X_2 mm			kg
AK 541.S50.T22.100 CO *	50	22		100	75			2.8
AK 541.S50.T28.100 CO *	50	28		100	75			2.9
AK 541.S50.T36.150 CO *	50	36		150	125			3.4
AK 541.S50.T45.200 CO *	50	45		200	175			4.6

* … CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
The adaptors are supplied in version AD. If the adaptor is to be converted to version B, both threaded plugs fitted at the sides must be removed.
Bodies and assembly parts are included in the scope of delivery.
Balance class G 6.3 where n = 25,000 min^{-1}

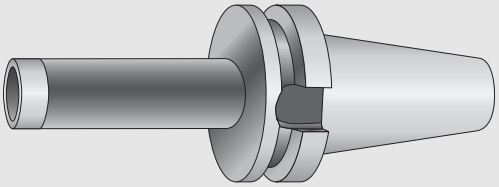
Assembly parts

		for SK 50
	Threaded plug DIN 913	M 6 x 6

Accessories

	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
	Pull stud DIN 69872 version AD with coolant bore	C 100.50.115	28	21	25	M 24	74	34	15°
	Pull stud DIN 69872 version B without bore	C 100.50.215	28	21	25	M 24	74	34	15°

→ 782 → 790



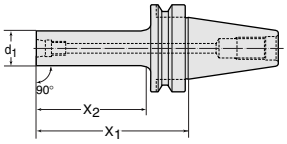
Adaptor

for ScrewFit front pieces
Steep taper MAS BT
cutting orientated

AK 541

SK = 40

Tool

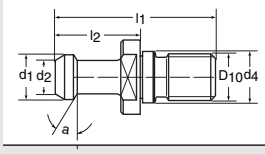


ScrewFit!

Designation	SK	d_1 mm		X_1 mm	X_2 mm			kg
AK 541.BT40.T18.085 CO *	40	18		85	53			1.1
AK 541.BT40.T22.120 CO *	40	22		120	88			1.2
AK 541.BT40.T28.125 CO *	40	28		125	93			1.4
AK 541.BT40.T36.125 CO *	40	36		125	93			1.6
AK 541.BT40.T45.100 CO *	40	45		100	68			1.8

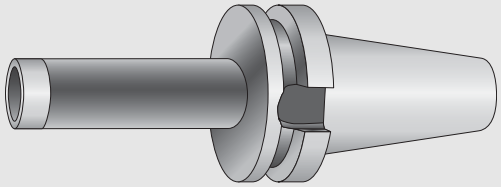
* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
Balance class G 6.3 where n = 25,000 min^{-1}

Accessories



Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
Pull stud MAS BT							
C 100.40.430	15	10	17	M 16	60	35	30°
C 100.40.445	15	10	17	M 16	60	35	45°

→ 782 → 790



Adaptor

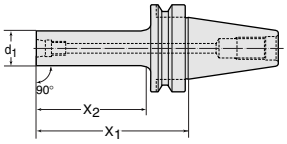
for ScrewFit front pieces
Steep taper MAS BT
cutting orientated

AK 541

SK = 50

Tool

Designation	SK	d_1 mm		X_1 mm	X_2 mm			kg
AK 541.BT50.T22.120 CO *	50	22		120	77			3.9
AK 541.BT50.T28.120 CO *	50	28		120	77			4.0
AK 541.BT50.T36.170 CO *	50	36		170	127			4.5
AK 541.BT50.T45.220 CO *	50	45		220	177			5.7

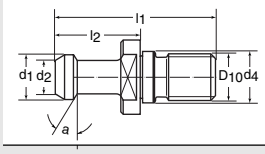




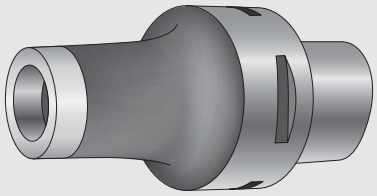
* ... CO = coupling is produced cutting orientated. Necessary for use of B 4030.T and B 3230.T.
Balance class G 6.3 where n = 25,000 min^{-1}

Accessories

Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
Pull stud MAS BT C 100.50.430	23	17	25	M 24	85	45	30°
Pull stud MAS BT C 100.50.445	23	17	25	M 24	85	45	45°



→ 782 → 790

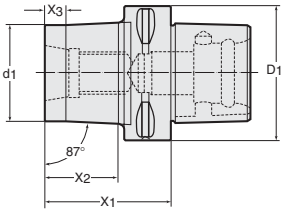


Capto adaptor

for screw-fit front pieces

AK 580.C



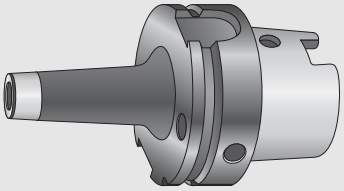
Tool	Designation	D_1 mm	d_1 mm	X_1 mm	X_2 mm	X_3 mm			kg
	AK 580.C3.T09.30	32	9.7	30	12.2	10			0.1
	AK 580.C3.T14.45	32	14.5	45	27.2	10			0.2
	AK 580.C3.T18.45	32	18.5	45	27.2	10			0.2
	AK 580.C3.T22.45	32	22	45	27.2	10			0.3
	AK 580.C3.T28.55	32	28	55	40	10			
	AK 580.C4.T09.30	40	9.7	30	—	7			0.3
	AK 580.C4.T14.45	40	14.5	45	22.2	10			0.4
	AK 580.C4.T18.45	40	18.5	45	22.2	10			0.4
	AK 580.C4.T22.45	40	22	45	22.2	10			0.4
	AK 580.C4.T28.55	40	28	55	32.2	10			0.5
	AK 580.C4.T36.55	40	36	55	35	10			0.6
	AK 580.C4.T45.55	40	45	55	35	10			0.7
	AK 580.C5.T09.35	50	9.7	35	12.2	10			0.6
	AK 580.C5.T14.45	50	14.5	45	22.2	10			0.6
	AK 580.C5.T18.45	50	18.5	45	22.2	10			0.6
	AK 580.C5.T22.45	50	22	45	22.2	10			0.6
	AK 580.C5.T28.55	50	28	55	32.2	10			0.7
	AK 580.C5.T36.55	50	36	55	32.2	10			0.8
	AK 580.C5.T45.55	50	45	55	35	10			1.0
	AK 580.C6.T14.50	63	14.5	50	25.2	10			1.0
	AK 580.C6.T18.50	63	18.5	50	25.2	10			1.0
	AK 580.C6.T22.50	63	22	50	25.2	10			1.0
	AK 580.C6.T28.60	63	28	60	35.2	10			1.0
	AK 580.C6.T36.60	63	36	60	35.2	10			1.0
	AK 580.C6.T45.60	63	45	60	35.2	10			1.5

ScrewFit!

WALTER CAPTO

For tightening torques for screw-fit front pieces, see page 670.

→ 782

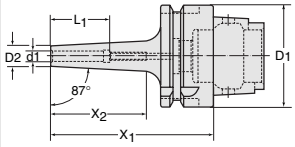


Shrink-fit adaptor

HSK DIN 69893-1, version A

A 560

Tool



Designation	D_1 mm	d_1 mm	D_2 mm	X_1 mm	X_2 mm	L_1 mm	kg
A 560.H63A.05.080	63	5	10	80	45	29	0.7
A 560.H63A.06.080	63	6	12	80	45	37	0.7
A 560.H63A.08.080	63	8	16	80	45	37	0.8
A 560.H63A.10.085	63	10	20	85	50	41	0.9
A 560.H63A.12.090	63	12	24	90	55	46	0.9
A 560.H63A.16.095	63	16	28	95	60	49	1.0
A 560.H63A.20.100	63	20	34	100	68	51	1.2
A 560.H63A.25.115	63	25	39	115	85	57	1.5

Bodies and assembly parts are included in the scope of delivery.
Balance class G 6.3 where n = 25,000 min^{-1}

All solid carbide tools with parallel shanks accordance with DIN 1835 can be shrink fitted into these adaptors.

Assembly parts



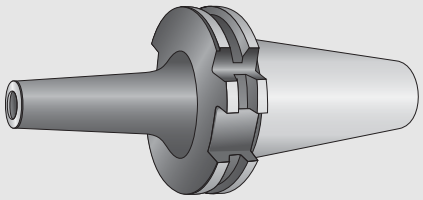
	for d_1 mm	Type
Threaded plug	5	FS 1137
	6	FS 1138
	8	FS 1139
	10	FS 1140
	12	FS 1141
	16–25	FS 1142

Accessories



	for d_1 mm	Type
Wrench DIN 911	5	SW 2
	6	SW 2.5
	8	SW 3
	10	SW 4
	12	SW 5
	16–25	SW 6

→ 790



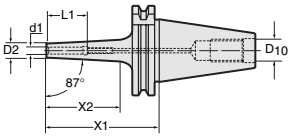
Shrink-fit adaptor

Steep taper DIN 69871, version AD

A 570

HSC

Tool



Designation	SK	d_1 mm	D_2 mm	D_{10}	X_1 mm	X_2 mm	L_1 mm	kg
A 570.S40.05.080	40	5	10	M 16	80	52	29	0.9
A 570.S40.06.080	40	6	12	M 16	80	52	37	0.9
A 570.S40.08.080	40	8	16	M 16	80	52	37	1.0
A 570.S40.10.080	40	10	20	M 16	80	52	41	1.0
A 570.S40.12.080	40	12	24	M 16	80	52	46	1.1
A 570.S40.16.080	40	16	28	M 16	80	52	49	1.1
A 570.S40.20.080	40	20	34	M 16	80	55	51	1.2

Bodies and assembly parts are included in the scope of delivery.
Balance class G 6.3 where n = 10,000 min^{-1}

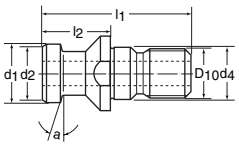
All solid carbide tools with parallel shanks accordance with DIN 1835 can be shrink fitted into these adaptors.

Assembly parts

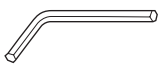


	for d_1 mm	Type
Threaded plug	5	FS 1137
	6	FS 1138
	8	FS 1139
	10	FS 1140
	12	FS 1141
	16	FS 1142
	20	FS 1143
	25	FS 1144

Accessories

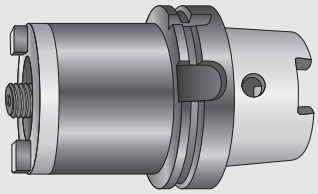


	Designation	d_1 mm	d_2 mm	d_4 mm	D_{10}	l_1 mm	l_2 mm	a
Pull stud DIN 69872 version AD with coolant bore	C 100.40.115	19	14	17	M 16	54	26	15°
	C 100.50.115	28	21	25	M 24	74	34	15°



	d_1 mm	
Wrench DIN 911 for d_1 mm	5	SW 2
	6	SW 2.5
	8	SW 3
	10	SW 4
	12	SW 5
	16	SW 6
	20	SW 8
	25	SW 10

→ 790



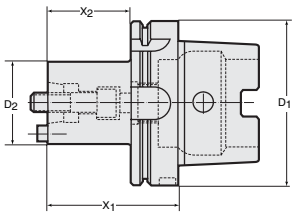
Master

DIN 69893/1 version A

A 100 M ... HSK

D_1 = 63+100 mm

Tool



Version A



Version B



C

Designation	D_1 mm	D_2 mm	X_1 mm	X_2 mm	Version	kg
A 100 M.7.063.055.25.HSK	63	25	55	29	C	0.8
A 100 M.7.063.080.25.HSK	63	25	80	54	C	0.9
A 100 M.7.063.055.32.HSK	63	32	55	29	C	0.8
A 100 M.7.063.080.32.HSK	63	32	80	54	C	1.0
A 100 M.7.063.065.40.HSK	63	40	65	39	C	0.9
A 100 M.7.063.080.40.HSK	63	40	80	54	C	1.1
A 100 M.7.063.065.50.HSK	63	50	65	39	A	1.0
A 100 M.7.063.080.50.HSK	63	50	80	54	A	1.4
A 100 M.7.063.075.63.HSK	63	63	75	49	B	2.1
A 100 M.7.063.100.63.HSK	63	63	100	74	B	2.2
A 100 M.7.100.060.25.HSK	100	25	60	31	C	2.2
A 100 M.7.100.080.25.HSK	100	25	80	51	C	3.0
A 100 M.7.100.060.32.HSK	100	32	60	31	C	2.2
A 100 M.7.100.080.32.HSK	100	32	80	51	C	2.5
A 100 M.7.100.080.40.HSK	100	40	80	51	C	2.6
A 100 M.7.100.080.50.HSK	100	50	80	51	A	2.8
A 100 M.7.100.080.63.HSK	100	63	80	51	B	3.4
A 100 M.7.100.100.63.HSK	100	63	100	71	B	3.6
A 100 M.7.100.100.80.HSK	100	80	100	71	B	4.1

Bodies and assembly parts are included in the scope of delivery.
The transfer units FS 1210 (HSK 50) and FS 1064 (HSK 63) should only be used with these adaptors.

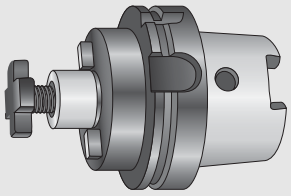
Assembly parts

	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
Driving lug				FS 554	FS 555 (B = 12) FS 557 (B = 14)	FS 556 (B = 14) FS 558 (B = 16)
Cap screw	FS 414	FS 414	FS 415	FS 415	FS 416	FS 417
Ring nut	FS 410	FS 410	FS 411	FS 411	FS 412	FS 413
Threaded plug DIN 914	M 4 x 6	M 4 x 8	M 5 x 10	M 5 x 10	M 6 x 12	M 6 x 16

Accessories

	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
Pipe spanner for ring nut	FS 738	FS 738	FS 739	FS 739	FS 740	FS 741
Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065					
Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953					

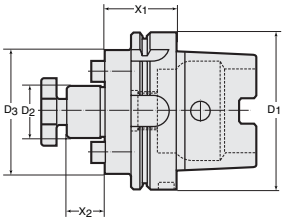
→ 782 → 791 → 790



Face mill adaptor A 155 … HSK

DIN 69893/1 version A



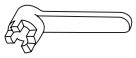
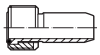
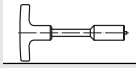
Tool	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
	A 155.7.063.050.22.HSK	63	22	48	50	19	1.1
	A 155.7.063.100.22.HSK	63	22	48	100	19	1.8
	A 155.7.063.060.27.HSK	63	27	60	60	21	1.5
	A 155.7.063.100.27.HSK	63	27	60	100	21	2.4
	A 155.7.063.060.32.HSK	63	32	78	60	24	1.8
	A 155.7.063.100.32.HSK	63	32	78	100	24	3.3
	A 155.7.063.060.40.HSK	63	40	89	60	27	2.2
	A 155.7.063.100.40.HSK	63	40	89	100	27	3.8
	A 155.7.100.050.22.HSK	100	22	48	50	19	2.5
	A 155.7.100.100.22.HSK	100	22	48	100	19	3.2
	A 155.7.100.050.27.HSK	100	27	60	50	21	2.7
	A 155.7.100.100.27.HSK	100	27	60	100	21	4.6
	A 155.7.100.050.32.HSK	100	32	78	50	24	3.0
	A 155.7.100.100.32.HSK	100	32	78	100	24	4.9
	A 155.7.100.060.40.HSK	100	40	89	60	27	4.0
	A 155.7.100.100.40.HSK	100	40	89	100	27	5.8
	A 155.7.100.075.60.HSK	100	60	128	75	40	6.8
	A 155.7.100.160.60.HSK	100	60	128	160	40	16.0

Bodies and assembly parts are included in the scope of delivery.

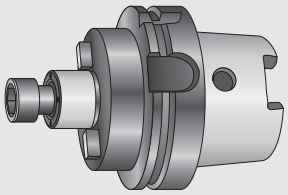
Assembly parts

		D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 60 mm
	Milling cutter locking screw DIN 6367	FS 431	FS 432	FS 433	FS 434	FS 912

Accessories

		D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 60 mm
	Wrench for milling cutter locking screw	FS 437	FS 438	FS 439	FS 440	FS 913
	Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065				
	Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953				

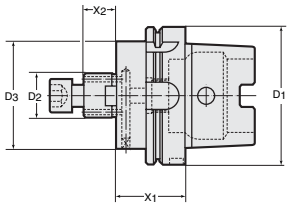
→ 782 → 790



Face mill adaptor AK 155 … HSK

DIN 69893/1 version A

Tool

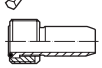
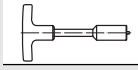
	Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
	AK 155.7.063.050.16.HSK	63	16	38	50	17	1.3
	AK 155.7.063.050.22.HSK	63	22	48	50	19	1.4
	AK 155.7.063.060.27.HSK	63	27	60	60	21	1.5
	AK 155.7.063.060.32.HSK	63	32	78	60	24	1.9
	AK 155.7.063.060.40.HSK	63	40	89	60	27	2.1
	AK 155.7.100.050.22.HSK	100	22	48	50	19	2.4
	AK 155.7.100.050.27.HSK	100	27	60	50	21	2.6
	AK 155.7.100.050.32.HSK	100	32	78	50	24	3.0
	AK 155.7.100.060.40.HSK	100	40	89	60	27	3.7

Bodies and assembly parts are included in the scope of delivery.

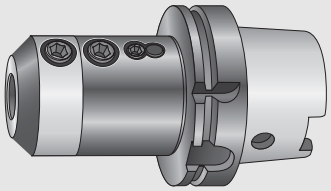
Assembly parts

		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm
	Tightening screw DIN 912	FS 938 (SW 6) M 8 x 25	FS 939 (SW 8) M 10 x 25	FS 940 (SW 10) M 12 x 35	FS 941 (SW 14) M 16 x 35	FS 942 (SW 17) M 20 x 40

Accessories

		D_2 = 16 mm	D_2 = 22 mm	D_2 = 27 mm	D_2 = 32 mm	D_2 = 40 mm
	Wrench DIN 911 for tightening screw	SW 6	SW 8	SW 10	SW 14	SW 17
	Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065				
	Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953				

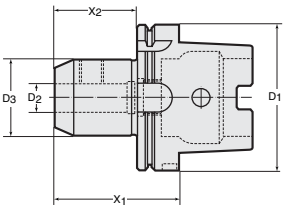
→ 782 → 790



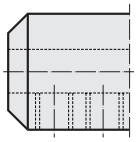
End mill adaptor A 170 … HSK

DIN 69893/1 version A
for tools with cylindrical shank
and flat i.a.w. DIN 1835 version B

Tool



$D_2 \leq 20$ mm



$D_2 > 20$ mm

Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
A 170.7.063.065.06.HSK	63	6	25	65	39	0.7
A 170.7.063.065.08.HSK	63	8	28	65	39	0.8
A 170.7.063.065.10.HSK	63	10	35	65	39	0.9
A 170.7.063.080.12.HSK	63	12	42	80	54	1.2
A 170.7.063.080.14.HSK	63	14	44	80	54	1.2
A 170.7.063.080.16.HSK	63	16	48	80	54	1.3
A 170.7.063.080.18.HSK	63	18	50	80	54	1.3
A 170.7.063.080.20.HSK	63	20	52	80	54	1.4
A 170.7.063.110.25.HSK	63	25	65	110	84	2.4
A 170.7.063.110.32.HSK	63	32	72	110	84	2.6
A 170.7.100.080.06.HSK	100	6	25	80	51	2.3
A 170.7.100.080.08.HSK	100	8	28	80	51	2.3
A 170.7.100.080.10.HSK	100	10	35	80	51	2.4
A 170.7.100.080.12.HSK	100	12	42	80	51	2.6
A 170.7.100.080.14.HSK	100	14	44	80	51	2.6
A 170.7.100.100.16.HSK	100	16	48	100	71	3.0
A 170.7.100.100.18.HSK	100	18	50	100	71	3.0
A 170.7.100.100.20.HSK	100	20	52	100	71	3.2
A 170.7.100.100.25.HSK	100	25	65	100	71	3.6
A 170.7.100.100.32.HSK	100	32	72	100	71	4.0
A 170.7.100.105.40.HSK	100	40	80	105	76	4.2

Bodies and assembly parts are included in the scope of delivery.

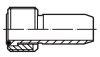
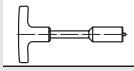
Assembly parts



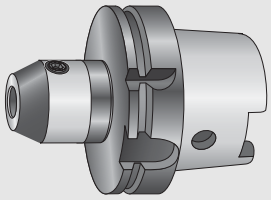
Clamping screw
DIN 1835-B

for D_2 mm	Type
6	M 6 x 10
8	M 8 x 10
10	M 10 x 12
12, 14	M 12 x 16
16, 18	M 14 x 16
20	M 16 x 16
25	M 18 x 2 x 20
32, 40	M 20 x 2 x 20

Accessories

	D_1 = 63 mm	D_1 = 100 mm
 Transfer unit	FS 1064	FS 1065
 Socket key	FS 952	FS 953

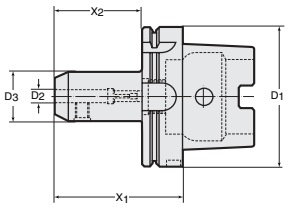
→ 782 → 790



End mill adaptor A 171 ... HSK

DIN 69893/1 version A
for tools with cylindrical shank
and notch i.a.w. DIN 1835 version E

Tool



$D_2 \leq 20$ mm



$D_2 > 20$ mm

Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	kg
A 171.7.063.080.06.HSK	63	6	25	80	54	0.9
A 171.7.063.080.08.HSK	63	8	28	80	54	0.9
A 171.7.063.080.10.HSK	63	10	35	80	54	1.0
A 171.7.063.090.12.HSK	63	12	42	90	64	1.2
A 171.7.063.090.14.HSK	63	14	44	90	64	1.4
A 171.7.063.100.16.HSK	63	16	48	100	74	1.6
A 171.7.063.100.18.HSK	63	18	50	100	74	1.6
A 171.7.063.100.20.HSK	63	20	52	100	74	1.8
A 171.7.063.110.25.HSK	63	25	65	110	84	2.4
A 171.7.063.110.32.HSK	63	32	72	110	84	2.6
A 171.7.100.090.06.HSK	100	6	25	90	61	2.4
A 171.7.100.090.08.HSK	100	8	28	90	61	2.4
A 171.7.100.090.10.HSK	100	10	35	90	61	2.5
A 171.7.100.100.12.HSK	100	12	42	100	71	2.8
A 171.7.100.100.14.HSK	100	14	44	100	71	2.9
A 171.7.100.100.16.HSK	100	16	48	100	71	2.9
A 171.7.100.100.18.HSK	100	18	50	100	71	3.0
A 171.7.100.110.20.HSK	100	20	52	110	81	3.2
A 171.7.100.120.25.HSK	100	25	65	120	91	4.1
A 171.7.100.120.32.HSK	100	32	72	120	91	4.5

Bodies and assembly parts are included in the scope of delivery.

Assembly parts

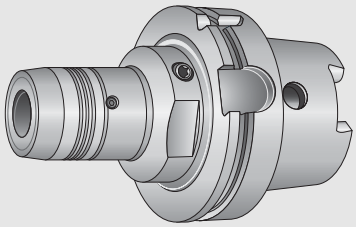
	D_2 = 6 mm	D_2 = 8 mm	D_2 = 10 mm	D_2 = 12+14 mm	D_2 = 16+18 mm	D_2 = 20 mm	D_2 = 25+32 mm
Adjusting screw D_1 = 63 mm D_1 = 100 mm	FS 1066	FS 1067	FS 1068 FS 1069	FS 1070	FS 1071	FS 1072 FS 1073	FS 1074

Clamping screw DIN 1835-B	6	M 6 x 10
	8	M 8 x 10
	10	M 10 x 12
	12. 14	M 12 x 16
	16, 18	M 14 x 16
	20	M 16 x 16
	25	M 18 x 2 x 20
	32	M 20 x 2 x 20

Accessories

	D_1 = 63 mm	D_1 = 100 mm
Transfer unit	FS 1064	FS 1065
Socket key	FS 952	FS 953

→ 782 → 790



Ext. clamping chuck AK 180 ... HSK

DIN 69893/1 version A
for tools with cylindrical shank
i.a.w. DIN 1835 version A

Tool

Designation	D_1 mm	D_2 mm	D_3 mm	d_4 mm	X_1 mm	X_2 mm	$X_{3\,min}$ mm	$X_{3\,max}$ mm	kg
AK 180.7.063.090.12.HSK	63	12	50	32	90	44	37	47	1.4
AK 180.7.063.100.20.HSK	63	20	50	42	100	58	42	52	1.5
AK 180.7.100.105.20.HSK	100	20	63	42	105	54	42	52	3.8

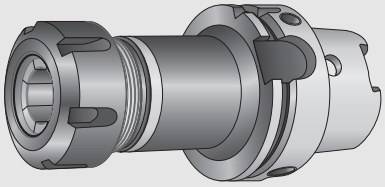
Bodies and assembly parts are included in the scope of delivery.

If you require an adaptor which is different from the adaptors specified in the present catalogue, please contact our sales staff.

Accessories

	D_4 = 6 mm	D_4 = 8 mm	D_4 = 10 mm	D_4 = 12 mm	D_4 = 14 mm	D_4 = 16 mm
Intermediate bushes D_2 = 12 mm D_2 = 20 mm	FS 1405 FS 1120	FS 1406 FS 1121	FS 1122	FS 1123	FS 1124	FS 1125
Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065					
Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953					

→ 782 → 790

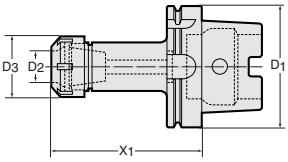


Collet chuck

AK 300…HSK

DIN 69893/1 version A
for ER collets i.a.w. DIN 6499

Tool



Designation	D_1 mm	D_2 mm	D_3 mm	X_1 mm	X_2 mm	Collets	kg
AK 300.7.063.105.10.HSK	63	1–10	28	105	79	ER 16	1.0
AK 300.7.063.105.16.HSK	63	1–16	42	105	79	ER 25	1.1
AK 300.7.063.105.20.HSK	63	1–20	50	105	79	ER 32	1.5
AK 300.7.063.125.26.HSK	63	2–26	63	125	99	ER 40	2.1
AK 300.7.100.105.20.HSK	100	1–20	50	105	71	ER 32	3.0
AK 300.7.100.125.26.HSK	100	2–26	63	125	91	ER 40	3.7

Bodies and assembly parts are included in the scope of delivery.
If the collet chuck is used for internal coolant supply, the sealing discs on page 777 must be utilised.
The clamping nut can be damaged if the chuck is used without a sealing disc!
For collets, see page 774.

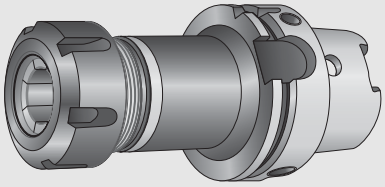
Assembly parts

	ER 16	ER 25	ER 32	ER 40
Clamping nut for internal coolant supply	FS 1448	FS 1449	FS 1360	FS 1450

Accessories

	ER 16	ER 25	ER 32	ER 40
Tensioning key	FS 1539	FS 1544	FS 1545	FS 1546
Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065			
Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953			

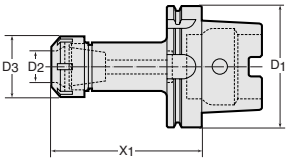
→ 782 → 789



Collet chuck

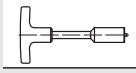
AK 300…HSK

DIN 69893/1 version A
for ER collets i.a.w. DIN 6499

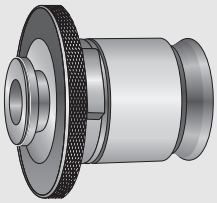
Tool	Designation	D_1 mm	D_2 mm	D_3 mm		X_1 mm	X_2 mm	Collets	kg
	AK 300.7.063.100.10.HSK	63	1–10	28		100	74	ER 16	1.0
	AK 300.7.063.100.16.HSK	63	1–16	42		100	74	ER 25	1.1
	AK 300.7.063.100.20.HSK	63	1–20	50		100	74	ER 32	1.5
	AK 300.7.063.120.26.HSK	63	2–26	63		120	94	ER 40	2.1
	AK 300.7.100.100.20.HSK	100	1–20	50		100	71	ER 32	3.0
	AK 300.7.100.120.26.HSK	100	2–26	63		120	91	ER 40	3.7

Bodies and assembly parts are included in the scope of delivery.
For collets, see page 774.

Assembly parts		ER 16	ER 25	ER 32	ER 40
	Clamping nut	FS 1537	FS 1540	FS 1541	FS 1542

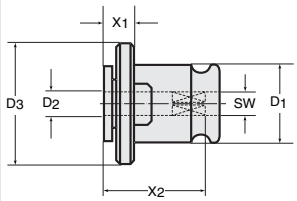
Accessories		ER 16	ER 25	ER 32	ER 40
	Tensioning key	FS 1539	FS 1544	FS 1545	FS 1546
	Transfer unit	for D_1 = 63 mm FS 1064 for D_1 = 100 mm FS 1065			
	Socket key	for D_1 = 63 mm FS 952 for D_1 = 100 mm FS 953			

→ 782 → 789



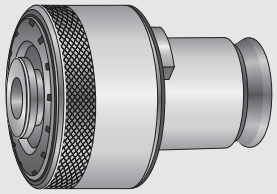
Quick change tap collet A 330

without overload clutch

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	SW mm	X_1 mm	X_2 mm	Collet size	kg
	A 330.0.19.007.04	19	4.5	30	3.4	7	23	1	0.1
	A 330.0.19.007.05	19	5.5	30	4.3	7	24	1	0.1
	A 330.0.19.007.06	19	6	30	4.9	7	25	1	0.1
	A 330.0.19.007.07	19	7	30	5.5	7	25	1	0.1
	A 330.0.19.007.08	19	8	30	6.2	7	26	1	0.1
	A 330.0.19.007.09	19	9	30	7.0	7	27	1	0.1
	A 330.0.19.007.10	19	10	30	8.0	7	28	1	0.1
	A 330.0.31.011.06	31	6	48	4.9	11	38	3	0.2
	A 330.0.31.011.07	31	7	48	5.5	11	38	3	0.2
	A 330.0.31.011.08	31	8	48	6.2	11	39	3	0.2
	A 330.0.31.011.09	31	9	48	7.0	11	40	3	0.2
	A 330.0.31.011.10	31	10	48	8.0	11	41	3	0.2
	A 330.0.31.011.11	31	11	48	9.0	11	42	3	0.2
	A 330.0.31.011.12	31	12	48	9.0	11	42	3	0.2
	A 330.0.31.011.14	31	14	48	11.0	11	44	3	0.2
	A 330.0.31.011.16	31	16	48	12.0	11	45	3	0.2

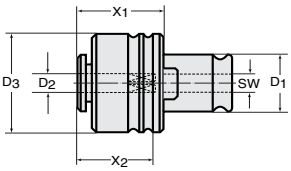
A collet is required for each tap shank diameter (order accordance with D_2).

→ 782 → 779 → 792



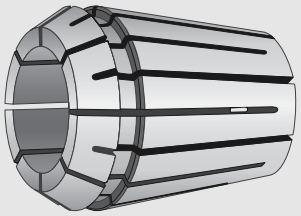
Quick change tap collet A 331

with overload clutch

Tool	Designation	D_1 mm	D_2 mm	D_3 mm	SW mm	X_1 mm	X_2 mm	Collet size	kg
	A 331.0.19.025.03	19	3.5	32	2.7	25	21	1	0.2
	A 331.0.19.025.04	19	4.5	32	3.4	25	23	1	0.2
	A 331.0.19.025.05	19	5.5	32	4.3	25	24	1	0.2
	A 331.0.19.025.06	19	6	32	4.9	25	25	1	0.2
	A 331.0.19.025.07	19	7	32	5.5	25	25	1	0.2
	A 331.0.19.025.08	19	8	32	6.2	25	26	1	0.2
	A 331.0.19.025.09	19	9	32	7.0	25	27	1	0.2
	A 331.0.19.025.10	19	10	32	8.0	25	28	1	0.2
	A 331.0.31.034.06	31	6	50	4.9	34	38	3	0.5
	A 331.0.31.034.07	31	7	50	5.5	34	38	3	0.5
	A 331.0.31.034.08	31	8	50	6.2	34	39	3	0.5
	A 331.0.31.034.09	31	9	50	7.0	34	40	3	0.5
	A 331.0.31.034.10	31	10	50	8.0	34	41	3	0.5
	A 331.0.31.034.11	31	11	50	9.0	34	42	3	0.5
	A 331.0.31.034.12	31	12	50	9.0	34	42	3	0.5
	A 331.0.31.034.14	31	14	50	11.0	34	44	3	0.5
	A 331.0.31.034.16	31	16	50	12.0	34	45	3	0.5
	A 331.0.48.045.11	48	11	72	9.0	45	56	4	1.6
	A 331.0.48.045.12	48	12	72	9.0	45	56	4	1.6
	A 331.0.48.045.14	48	14	72	11.0	45	58	4	1.6
	A 331.0.48.045.16	48	16	72	12.0	45	59	4	1.6
	A 331.0.48.045.18	48	18	72	14.5	45	61	4	1.6
	A 331.0.48.045.20	48	20	72	16.0	45	63	4	1.6
	A 331.0.48.045.22	48	22	72	18.0	45	65	4	1.6
	A 331.0.48.045.25	48	25	72	20.0	45	67	4	1.6
	A 331.0.60.068.18	60	18	95	14.5	68	88	5	4.0
	A 331.0.60.068.20	60	20	95	16.0	68	90	5	4.0
	A 331.0.60.068.22	60	22	95	18.0	68	92	5	4.0
	A 331.0.60.068.25	60	25	95	20.0	68	94	5	4.0
	A 331.0.60.068.28	60	28	95	22.0	68	96	5	4.0
	A 331.0.60.068.32	60	32	95	24.0	68	98	5	4.0
	A 331.0.60.068.36	60	36	95	29.0	68	103	5	4.0

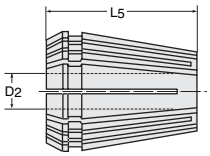
A collet is required for each tap shank diameter (order accordance with D_2).
For tightening torques for the adjustment of the overload clutch torque depending on the thread and setting tools, see page 779.
The torque is factory-set according to the metric thread chart on page 792.

→ 782 | → 779 | → 792



Collets

i.a.w. DIN 6499

Tool		Designation	D_2 mm	L_5 mm	kg	
	**ER 11**	C 330.06.010	1.0–0.5	18.0	0.01	
		C 330.06.020	2.0–1.5	18.0	0.01	
		C 330.06.030	3.0–2.5	18.0	0.01	
		C 330.06.040	4.0–3.5	18.0	0.01	
		C 330.06.050	5.0–4.5	18.0	0.01	
		C 330.06.060	6.0–5.5	18.0	0.01	
	ER 16	C 330.10.010	1.0–0.5	27.5	0.02	
		C 330.10.020	2.0–1.0	27.5	0.02	
		C 330.10.030	3.0–2.0	27.5	0.02	
		C 330.10.040	4.0–3.0	27.5	0.02	
		C 330.10.050	5.0–4.0	27.5	0.02	
		C 330.10.060	6.0–5.0	27.5	0.02	
		C 330.10.070	7.0–6.0	27.5	0.02	
		C 330.10.080	8.0–7.0	27.5	0.02	
		C 330.10.090	9.0–8.0	27.5	0.02	
		C 330.10.100	10.0–9.0	27.5	0.02	
	ER 20	C 330.13.010	1.0–0.5	31.5	0.04	
		C 330.13.020	2.0–1.0	31.5	0.04	
		C 330.13.030	3.0–2.0	31.5	0.04	
		C 330.13.040	4.0–3.0	31.5	0.04	
		C 330.13.050	5.0–4.0	31.5	0.04	
		C 330.13.060	6.0–5.0	31.5	0.04	
		C 330.13.070	7.0–6.0	31.5	0.04	
		C 330.13.080	8.0–7.0	31.5	0.04	
		C 330.13.090	9.0–8.0	31.5	0.04	
		C 330.13.100	10.0–9.0	31.5	0.04	
		C 330.13.110	11.0–10.0	31.5	0.04	
		C 330.13.120	12.0–11.0	31.5	0.04	
		C 330.13.130	13.0–12.0	31.5	0.04	
	ER 25	C 330.16.020	2.0–1.0	34	0.05	
		C 330.16.030	3.0–2.0	34	0.05	
		C 330.16.040	4.0–3.0	34	0.05	
		C 330.16.050	5.0–4.0	34	0.05	
		C 330.16.060	6.0–5.0	34	0.05	
		C 330.16.070	7.0–6.0	34	0.05	
		C 330.16.080	8.0–7.0	34	0.05	
		C 330.16.090	9.0–8.0	34	0.05	
		C 330.16.100	10.0–9.0	34	0.05	
		C 330.16.110	11.0–10.0	34	0.05	
		C 330.16.120	12.0–11.0	34	0.05	
		C 330.16.130	13.0–12.0	34	0.05	
		C 330.16.140	14.0–13.0	34	0.05	
		C 330.16.150	15.0–14.0	34	0.05	
		C 330.16.160	16.0–15.0	34	0.05	

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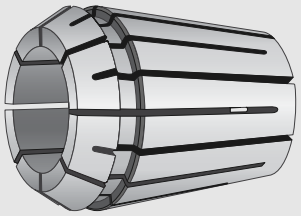


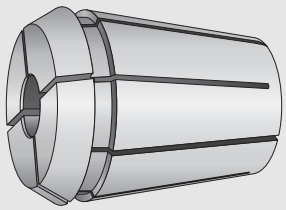
Collets

in accordance with DIN 6499

C 330

Tool	Designation	D_2 mm	L_5 mm	kg	
ER 32	C 330.20.020	2.0–1.0	40	0.09	
	C 330.20.030	3.0–2.0	40	0.09	
	C 330.20.040	4.0–3.0	40	0.09	
	C 330.20.050	5.0–4.0	40	0.09	
	C 330.20.060	6.0–5.0	40	0.09	
	C 330.20.070	7.0–6.0	40	0.09	
	C 330.20.080	8.0–7.0	40	0.09	
	C 330.20.090	9.0–8.0	40	0.09	
	C 330.20.100	10.0–9.0	40	0.09	
	C 330.20.110	11.0–10.0	40	0.09	
	C 330.20.120	12.0–11.0	40	0.09	
	C 330.20.130	13.0–12.0	40	0.09	
	C 330.20.140	14.0–13.0	40	0.09	
	C 330.20.150	15.0–14.0	40	0.09	
	C 330.20.160	16.0–15.0	40	0.09	
	C 330.20.170	17.0–16.0	40	0.09	
	C 330.20.180	18.0–17.0	40	0.09	
	C 330.20.190	19.0–18.0	40	0.09	
	C 330.20.200	20.0–19.0	40	0.09	
ER 40	C 330.26.020	2.0–1.0	46	0.14	
	C 330.26.030	3.0–2.0	46	0.14	
	C 330.26.040	4.0–3.0	46	0.14	
	C 330.26.050	5.0–4.0	46	0.14	
	C 330.26.060	6.0–5.0	46	0.14	
	C 330.26.070	7.0–6.0	46	0.14	
	C 330.26.080	8.0–7.0	46	0.14	
	C 330.26.090	9.0–8.0	46	0.14	
	C 330.26.100	10.0–9.0	46	0.14	
	C 330.26.110	11.0–10.0	46	0.14	
	C 330.26.120	12.0–11.0	46	0.14	
	C 330.26.130	13.0–12.0	46	0.14	
	C 330.26.140	14.0–13.0	46	0.14	
	C 330.26.150	15.0–14.0	46	0.14	
	C 330.26.160	16.0–15.0	46	0.14	
	C 330.26.170	17.0–16.0	46	0.14	
	C 330.26.180	18.0–17.0	46	0.14	
	C 330.26.190	19.0–18.0	46	0.14	
	C 330.26.200	20.0–19.0	46	0.14	
	C 330.26.210	21.0–20.0	46	0.14	
	C 330.26.220	22.0–21.0	46	0.14	
	C 330.26.230	23.0–22.0	46	0.14	
	C 330.26.240	24.0–23.0	46	0.14	
	C 330.26.250	25.0–24.0	46	0.14	
	C 330.26.260	26.0–25.0	46	0.14	

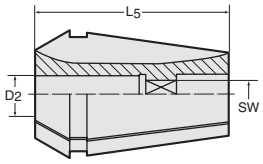
→ 789



Tap collets

ER – GB i.a.w. DIN 6499

C 340

Tool	Designation	D_2 mm	L_5 mm	SW	kg
ER 20	C 340.20.045	4.5	31.5	3.4	0.04
	C 340.20.060	6	31.5	4.9	0.04
	C 340.20.070	7	31.5	5.5	0.04
	C 340.20.080	8	31.5	6.3	0.04
	C 340.20.090	9	31.5	7.1	0.04
	C 340.20.100	10	31.5	8	0.04
ER 32	C 340.32.045	4.5	40	3.4	0.09
	C 340.32.060	6	40	4.9	0.09
	C 340.32.070	7	40	5.5	0.09
	C 340.32.080	8	40	6.3	0.09
	C 340.32.090	9	40	7.1	0.09
	C 340.32.100	10	40	8	0.09
	C 340.32.110	11	40	9	0.09
	C 340.32.120	12	40	9	0.09
	C 340.32.140	14	40	11.2	0.09
	C 340.32.160	16	40	12	0.09

→ 789



Sealing discs

for ER collets i.a.w. DIN 6499 with internal coolant supply

Designation	ER Size	D mm
FS 1238	16	3.0–2.5
FS 1239	16	3.5–3.0
FS 1240	16	4.0–3.5
FS 1241	16	4.5–4.0
FS 1242	16	5.0–4.5
FS 1243	16	5.5–5.0
FS 1244	16	6.0–5.5
FS 1245	16	6.5–6.0
FS 1246	16	7.0–6.5
FS 1247	16	7.5–7.0
FS 1248	16	8.0–7.5
FS 1249	16	8.5–8.0
FS 1250	16	9.0–8.5
FS 1251	16	9.5–9.0
FS 1252	16	10.0–9.5
FS 1408	20	3.0–2.5
FS 1409	20	3.5–3.0
FS 1410	20	4.0–3.5
FS 1411	20	4.5–4.0
FS 1412	20	5.0–4.5
FS 1413	20	5.5–5.0
FS 1361	20	6.0–5.5
FS 1414	20	6.5–6.0
FS 1362	20	7.0–6.5
FS 1415	20	7.5–7.0
FS 1363	20	8.0–7.5
FS 1416	20	8.5–8.0
FS 1364	20	9.0–8.5
FS 1417	20	9.5–9.0
FS 1365	20	10.0–9.5
FS 1418	20	10.5–10.0
FS 1419	20	11.0–10.5
FS 1420	20	11.5–11.0
FS 1421	20	12.0–11.5
FS 1422	20	12.5–12.0
FS 1423	20	13.0–12.5
FS 1253	25	3.0–2.5
FS 1254	25	3.5–3.0
FS 1255	25	4.0–3.5
FS 1256	25	4.5–4.0
FS 1257	25	5.0–4.5
FS 1258	25	5.5–5.0
FS 1259	25	6.0–5.5
FS 1260	25	6.5–6.0

Designation	ER Size	D mm
FS 1261	25	7.0–6.5
FS 1262	25	7.5–7.0
FS 1263	25	8.0–7.5
FS 1264	25	8.5–8.0
FS 1265	25	9.0–8.5
FS 1266	25	9.5–9.0
FS 1267	25	10.0–9.5
FS 1268	25	10.5–10.0
FS 1269	25	11.0–10.5
FS 1270	25	11.5–11.0
FS 1271	25	12.0–11.5
FS 1272	25	12.5–12.0
FS 1273	25	13.0–12.5
FS 1274	25	13.5–13.0
FS 1275	25	14.0–13.5
FS 1276	25	14.5–14.0
FS 1277	25	15.0–14.5
FS 1278	25	15.5–15.0
FS 1279	25	16.0–15.5
FS 1424	32	3.0–2.5
FS 1425	32	3.5–3.0
FS 1426	32	4.0–3.5
FS 1427	32	4.5–4.0
FS 1428	32	5.0–4.5
FS 1429	32	5.5–5.0
FS 1366	32	6.0–5.5
FS 1430	32	6.5–6.0
FS 1367	32	7.0–6.5
FS 1431	32	7.5–7.0
FS 1368	32	8.0–7.5
FS 1432	32	8.5–8.0
FS 1369	32	9.0–8.5
FS 1433	32	9.5–9.0
FS 1370	32	10.0–9.5
FS 1434	32	10.5–10.0
FS 1371	32	11.0–10.5
FS 1435	32	11.5–11.0
FS 1372	32	12.0–11.5
FS 1436	32	12.5–12.0
FS 1373	32	13.0–12.5

→ 789



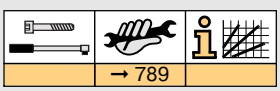
Sealing discs

for ER collets i.a.w. DIN 6499 with internal coolant supply

Designation	ER Size	D mm
FS 1437	32	13.5–13.0
FS 1374	32	14.0–13.5
FS 1438	32	14.5–14.0
FS 1375	32	15.0–14.5
FS 1439	32	15.5–15.0
FS 1376	32	16.0–15.5
FS 1440	32	16.5–16.0
FS 1441	32	17.0–16.5
FS 1442	32	17.5–17.0
FS 1443	32	18.0–17.5
FS 1444	32	18.5–18.0
FS 1445	32	19.0–18.5
FS 1446	32	19.5–19.0
FS 1447	32	20.0–19.5
FS 1280	40	3.0–2.5
FS 1281	40	3.5–3.0
FS 1282	40	4.0–3.5
FS 1283	40	4.5–4.0
FS 1284	40	5.0–4.5
FS 1285	40	5.5–5.0
FS 1286	40	6.0–5.5
FS 1287	40	6.5–6.0
FS 1288	40	7.0–6.5
FS 1289	40	7.5–7.0
FS 1290	40	8.0–7.5
FS 1291	40	8.5–8.0
FS 1292	40	9.0–8.5
FS 1293	40	9.5–9.0
FS 1294	40	10.0–9.5
FS 1295	40	10.5–10.0
FS 1296	40	11.0–10.5
FS 1297	40	11.5–11.0
FS 1298	40	12.0–11.5
FS 1299	40	12.5–12.0
FS 1300	40	13.0–12.5
FS 1301	40	13.5–13.0
FS 1302	40	14.0–13.5
FS 1303	40	14.5–14.0
FS 1304	40	15.0–14.5
FS 1305	40	15.5–15.0
FS 1306	40	16.0–15.5
FS 1307	40	16.5–16.0

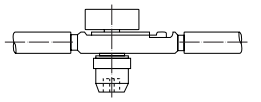
Designation	ER Size	D mm
FS 1308	40	17.0–16.5
FS 1309	40	17.5–17.0
FS 1310	40	18.0–17.5
FS 1311	40	18.5–18.0
FS 1312	40	19.0–18.5
FS 1313	40	19.5–19.0
FS 1314	40	20.0–19.5
FS 1315	40	20.5–20.0
FS 1316	40	21.0–20.5
FS 1317	40	21.5–21.0
FS 1318	40	22.0–21.5
FS 1319	40	22.5–22.0
FS 1320	40	23.0–22.5
FS 1321	40	23.5–23.0
FS 1322	40	24.0–23.5
FS 1323	40	24.5–24.0
FS 1324	40	25.0–24.5
FS 1325	40	25.5–25.0
FS 1326	40	26.0–25.5

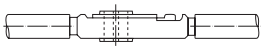
Sealing range: 0.5 mm/sealing disc
Max. coolant pressure: 150 bar.

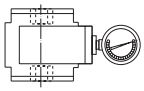

→ 789

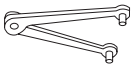
Torque setting tools
for quick change tap collets A 331

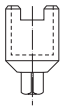
Setting tools



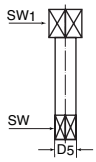




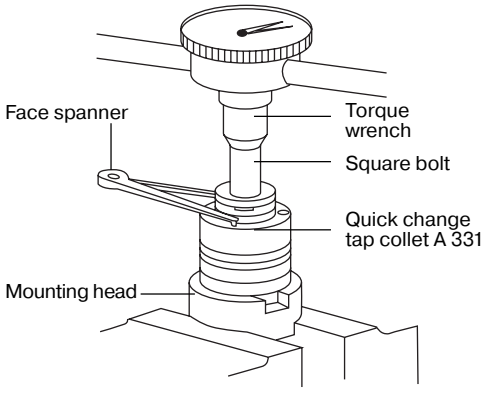




Setting tool	Designation	for collet size	Thread	Torque NM	
Torque wrench	FS 518	1	M 3–M 12	30	
	FS 519	3	M 8–M 20	120	
	FS 791	4	M 14–M 33	300	
Ratchet	FS 792	5	M 22–M 48		
Torque setting device	FS 793	5	M 22–M 48	1000	
Face spanner	FS 524	1			
	FS 526	3			
	FS 527	4			
	FS 794	5			
Mounting head	FS 520	1			
	FS 522	3			
	FS 523	4			
	FS 795	5			

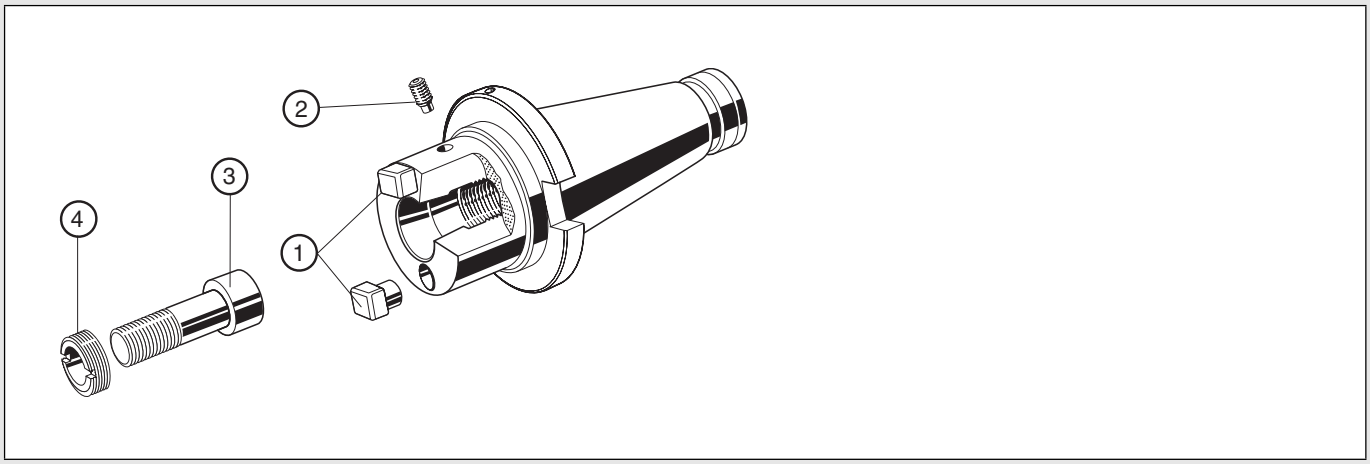


Square bolt	Designation	D_5 mm	SW_1 mm	SW mm	for collet size
	FS 779	3.5	13	2.7	1, 3, 4
	FS 536	4.5	13	3.4	1, 3, 4
	FS 538	6.0	13	4.9	1, 3, 4
	FS 539	7.0	13	5.5	1, 3, 4
	FS 540	8.0	13	6.2	1, 3, 4
	FS 541	9.0	13	7.0	1, 3, 4
	FS 542	10.0	13	8.0	1, 3, 4
	FS 543	11.0	13	9.0	1, 3, 4
	FS 544	12.0	13	9.0	1, 3, 4
	FS 545	14.0	13	11.0	1, 3, 4
	FS 546	16.0	13	12.0	1, 3, 4
	FS 547	18.0	13	14.5	1, 3, 4
	FS 548	20.0	13	16.0	1, 3, 4
	FS 549	22.0	13	18.0	1, 3, 4
	FS 550	25.0	13	20.0	1, 3, 4
	FS 780	18.0	25	14.5	5
	FS 781	20.0	25	16.0	5
	FS 782	22.0	25	18.0	5
	FS 783	25.0	25	20.0	5
	FS 784	28.0	25	22.0	5
	FS 785	32.0	25	24.0	5
	FS 786	36.0	25	29.0	5



Tightening Torques, see page 792

Assembly parts and accessories for master



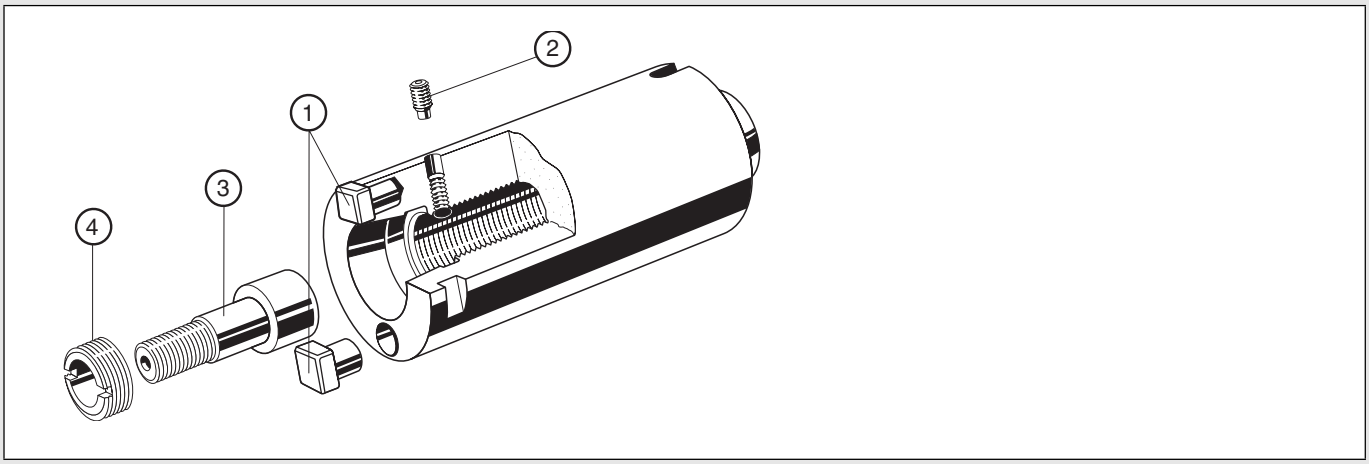
Assembly parts		D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
(1) Driving lug					FS 554	FS 555 (B = 12) FS 557 (B = 14)	FS 556 (B = 14) FS 558 (B = 16)
(2) Threaded plug DIN 914	for SK 40	M 4 x 12	M 4 x 10	M 5 x 10	M 5 x 10	M 6 x 8	M 6 x 16
	for SK 50	M 4 x 12	M 4 x 12	M 5 x 12	M 5 x 12	M 6 x 16	M 6 x 16
(3) Screw	for SK 40	FS 414	FS 414	FS 415	FS 415	FS 416	FS 850
	for SK 50	FS 414	FS 414	FS 415	FS 415	FS 416	FS 417
(4) Ring nut		FS 410	FS 410	FS 411	FS 411	FS 412	FS 413

Accessories	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
Pipe spanner for ring nut	FS 738	FS 738	FS 739	FS 739	FS 740	FS 741

Axial clamping system

D_2 mm	(3) Thread	Wrench size	Torque wrench	Socket key	Tightening torque	max. speed
25	M 8	5	FS 1385	FS 402	18 Nm	20 000 min^{-1}
32	M 8	5	FS 1385	FS 402	18 Nm	30 000 min^{-1}
40	M 12	8	FS 1386	FS 403	80 Nm	30 000 min^{-1}
50	M 12	8	FS 1386	FS 403	80 Nm	30 000 min^{-1}
63	M 16	12	FS 1386	FS 404	150 Nm	30 000 min^{-1}
80	M 20	14	FS 1386	FS 405	200 Nm	30 000 min^{-1}

Assembly parts and accessories for intermediate elements



Assembly parts		D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
1	Driving lug	FK 311	FK 312	FK 313	FS 554	FS 555 (B = 12) FS 557 (B = 14)	FS 556 (B = 14) FS 558 (B = 16)
	Screw for driving lug	FS 502	FS 503	FS 504			
2	Threaded plug DIN 914	M 4 x 6	M 4 x 8	M 5 x 10	M 5 x 12	M 6 x 16	M 6 x 16
3	Screw	FS 414	FS 414	FS 415	FS 415	FS 416	FS 417
4	Ring nut	FS 410	FS 410	FS 411	FS 411	FS 412	FS 413

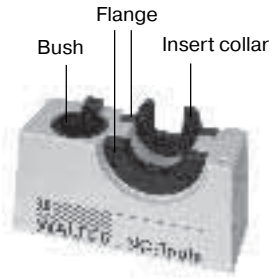
Accessories	D_2 = 25 mm	D_2 = 32 mm	D_2 = 40 mm	D_2 = 50 mm	D_2 = 63 mm	D_2 = 80 mm
Pipe spanner for ring nut	FS 738	FS 738	FS 739	FS 739	FS 740	FS 741

Axial clamping system

D_2 mm	3 Thread	Wrench size	Torque wrench	Socket key	Tightening torque	max. speed
25	M 8	5	FS 1385	FS 402	18 Nm	20 000 min^{-1}
32	M 8	5	FS 1385	FS 402	18 Nm	30 000 min^{-1}
40	M 12	8	FS 1386	FS 403	80 Nm	30 000 min^{-1}
50	M 12	8	FS 1386	FS 403	80 Nm	30 000 min^{-1}
63	M 16	12	FS 1386	FS 404	150 Nm	30 000 min^{-1}
80	M 20	14	FS 1386	FS 405	200 Nm	30 000 min^{-1}

Accessories

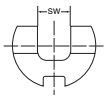
Assembly device, flange, insert collars



Assembly device



Flange



Insert collar

Assembly Device		Flange		Insert collars for NCT		
Designation	integrated bush for	Designation	for	Insert collars Designation	SW mm	for D_1 mm
V 500.00.040	SK 40	V 510.10.040	ISO 40 DIN 2080			
		V 510.23.040	ISO 40 DIN 69871 ANSI B 5.50 and CAT			
		V 510.40.040	ISO 40 MAS BT			
V 500.00.050	SK 50	V 510.10.050	ISO 50 DIN 2080 (Adaptor for NCT insert collars)	V 530.22.025	22	25
				V 530.27.032	27	32
				V 530.32.040	32	40
				V 530.41.050	41	50
				V 530.55.063	55	63
				V 530.70.080	70	80
				Insert collars suitable for flange V 510.10.050		
		V 510.23.050	ISO 50 DIN 69871 ANSI B 5.50 and CAT			
		V 510.24.050	ISO 50 DIN 69871 part 2 Version C			
		V 510.40.050	ISO 50 MAS BT			
V 500.00.HSK063	HSK 63	V 510.HSK063AC	HSK 63 Version A+C			
V 500.00.HSK100	HSK 100	V 510.HSK100AC	HSK 100 Version A+C			

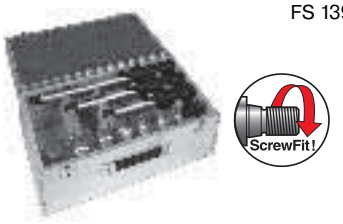
The assembly device, flange and insert collars must be ordered separately.
The assembly device is provided with the suitable bush.
The device can be fitted with max. two flanges.
Note: For other WALTER CAPTO mounting options, see page 717.

Assembly set



NCT assembly set

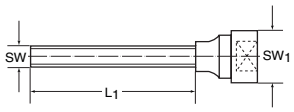
Designation	consisting of:	
FS 1407	Torque wrench	FS 1385 + 1386
	Socket key	FS 402–405
	Cleaning arbor	all V 520, version B
	Insert collars	all V 530
	Torx inserts	FS 806–808
	Wooden box	
FS 1395	Torque wrench	FS 1384 – FS 1386
	Open-ended heads	FS 1387 – FS 1393
	Adapter	FS 1394
	Wooden box	



Screw-fit assembly set

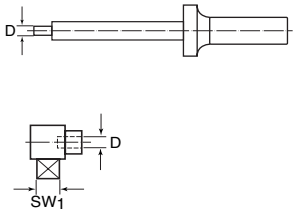
Accessories

Socket key for NCT tools



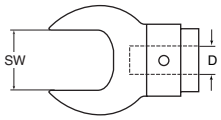
Designation	SW mm	SW_1 mm	L_1 mm	for NCT mm	for WALTER Porcupine cutter D_C mm
FS 402	5	9.52	130	25–32	
FS 403	8	12.7	130	40–50	
FS 404	12	12.7	150	63	
FS 405	14	12.7	150	80	
FS 1043	8	12.7	329		63
FS 1044	10	12.7	329		80

Torque wrench and head pieces



Designation	D mm	Torque range	SW_1 mm		
FS 1384	16	2–25 Nm			
FS 1385	16	10–100 Nm			
FS 1386	16	20–200 Nm			
FS 398	16		9.52		
FS 399	16		12.7		

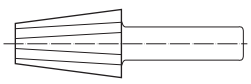
Open-ended heads for ScrewFit tools



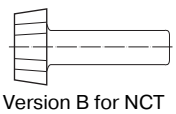


Designation	SW mm	for NCT		D mm	Tightening torque
FS 1387	SW 8	T 9		16	6 Nm
FS 1388	SW 12	T 14		16	25 Nm
FS 1389	SW 14	T 18		16	50 Nm
FS 1390	SW 17	T 22		16	80 Nm
FS 1391	SW 21	T 28		16	150 Nm
FS 1392	SW 30	T 36		16	200 Nm
FS 1393	SW 36	T 45		16	200 Nm
FS 1394	Adaptor for FS 1393 (from D 20 to D 16)			20	200 Nm

Cleaning arbor



Version A

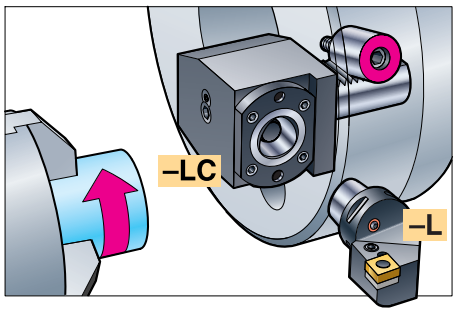


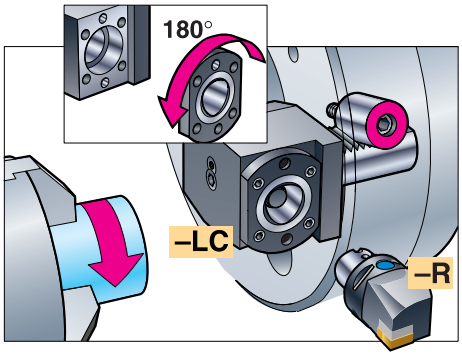
Version B for NCT

Designation	for taper	Version	
V 520.40.000	ISO 40	A	
V 520.45.000	ISO 45	A	
V 520.50.000	ISO 50	A	
V 520.25.032	D_2 = 25 + 32	B	
V 520.40.050	D_2 = 40 + 45	B	
V 520.63.000	D_2 = 63	B	
V 520.80.000	D_2 = 80	B	

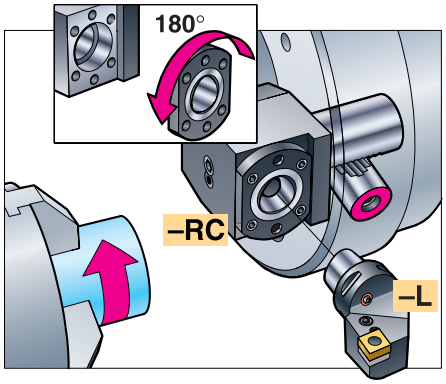
Conversion of VDI turrets to WALTER CAPTO – Selection of clamping units

External application

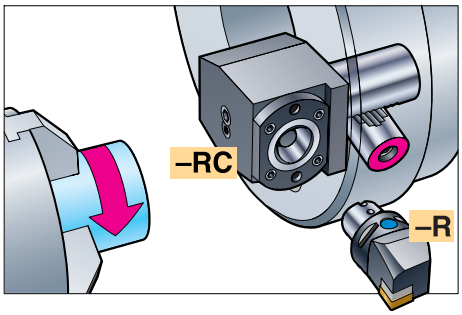




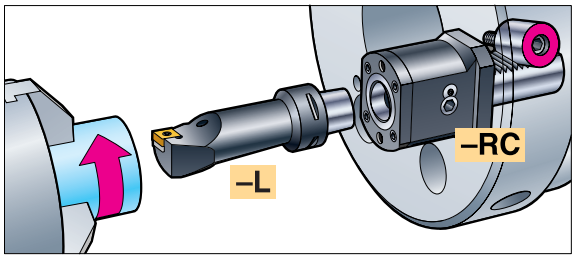
Important:
Turn polygon socket 180° – see page 788

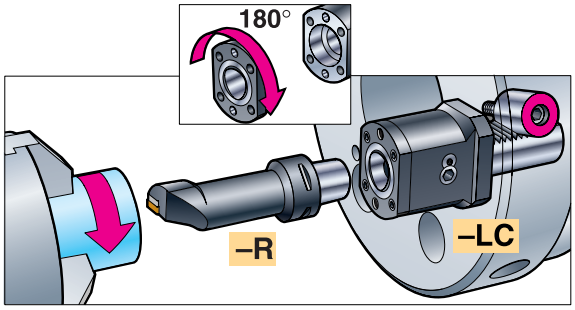


Important:
Turn polygon socket 180° – see page 788

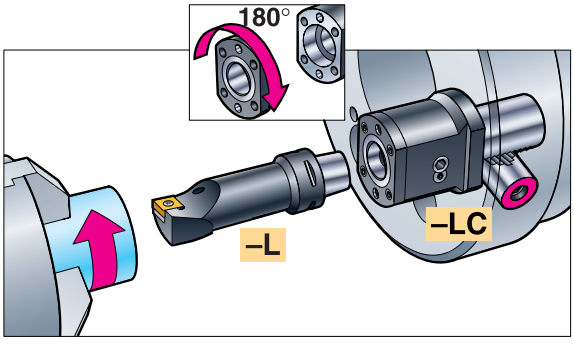


Internal application

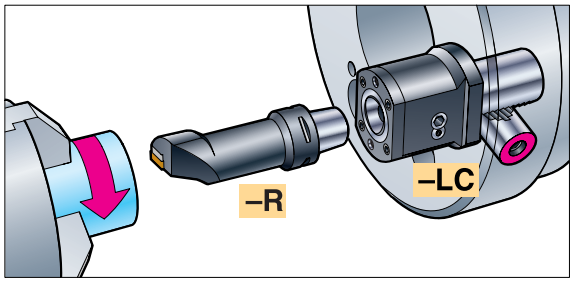




Important:
Turn the polygon socket 180° – see page 788

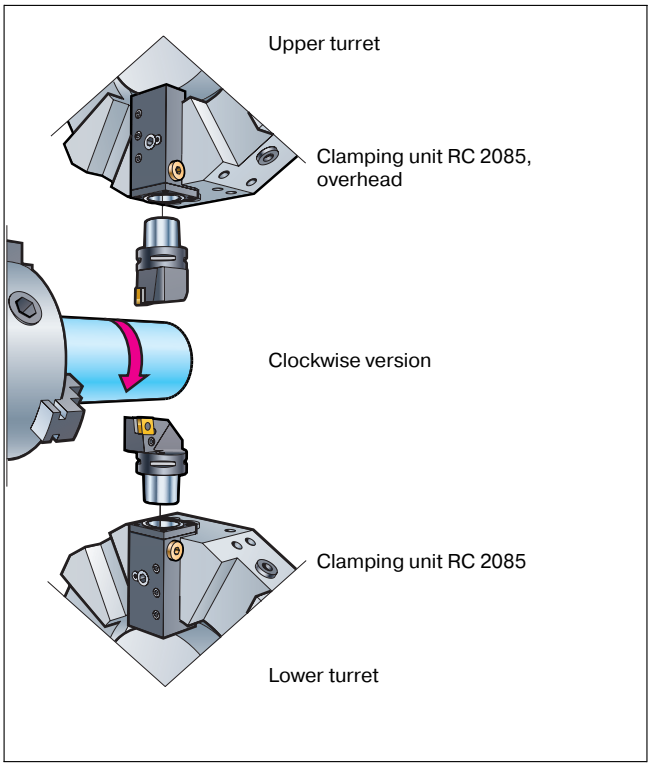


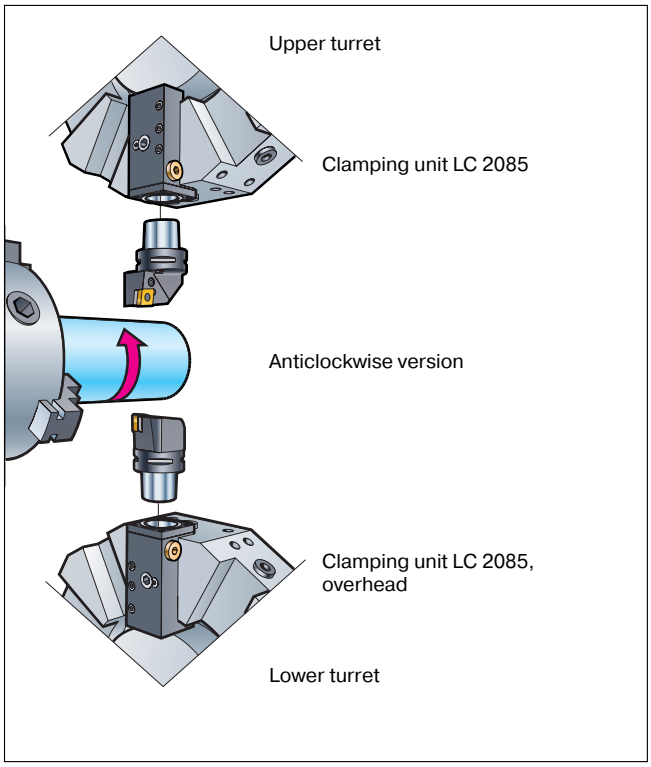
Important:
Turn the polygon socket 180° – see page 788



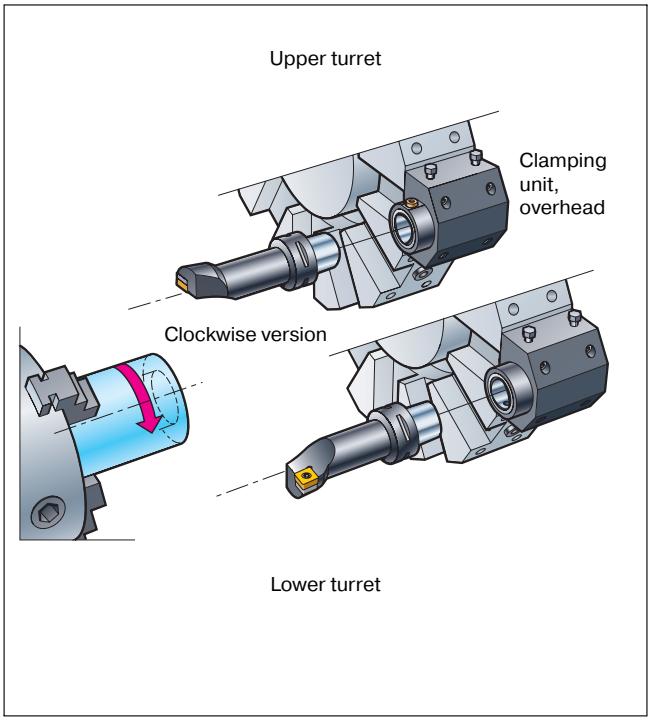
Conversion of turrets with square or round shank adaptors to WALTER CAPTO – Selection of clamping units, type 2000 / 3000 / 2085

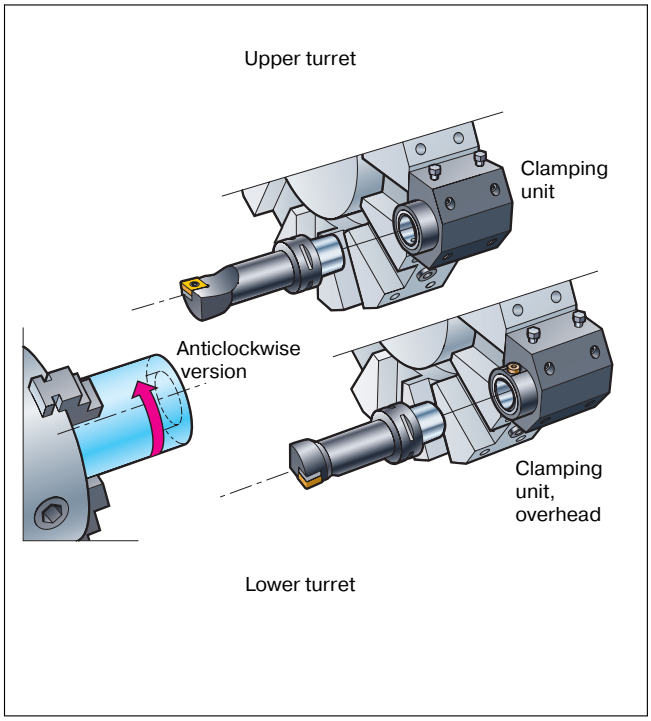
External application with clamping unit RC 2085 / LC 2085





Internal application with clamping unit NC 2000 / 3000 / 2035 / 2045 / 2055 / 2065

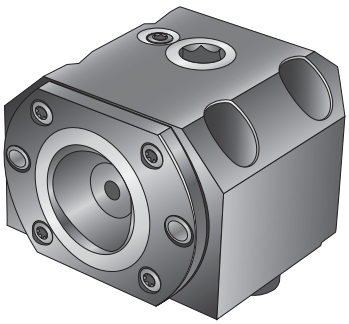




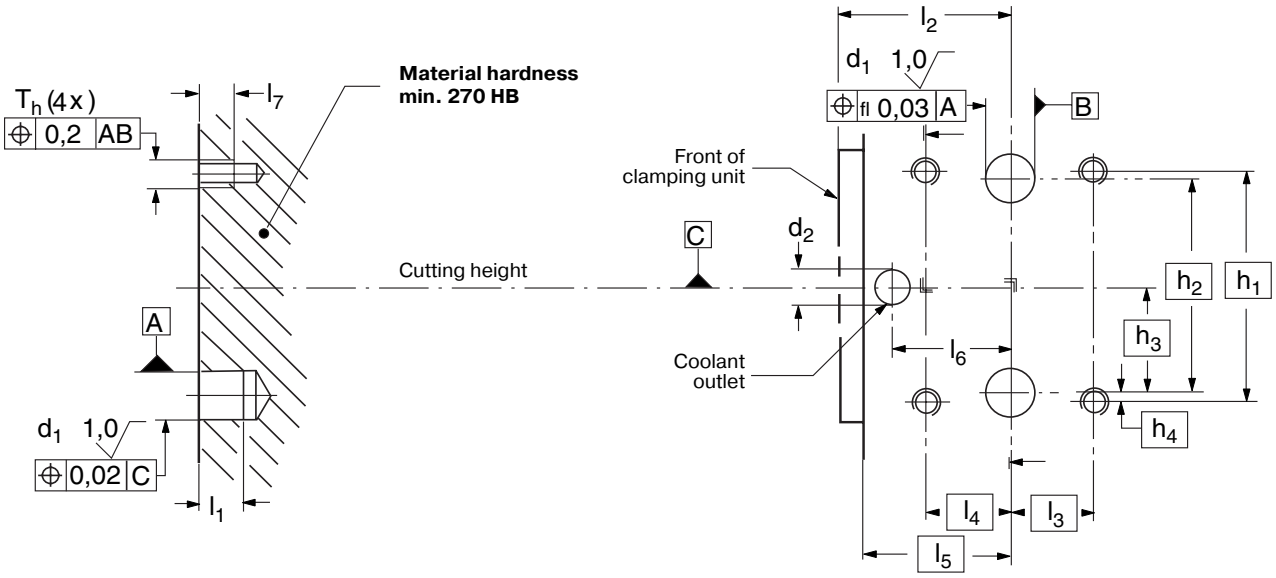
Manual clamping units for special applications – Type 2090



The clamping unit type 2090 has been designed for special applications.
For instructions on the design and use of these units, please see below.



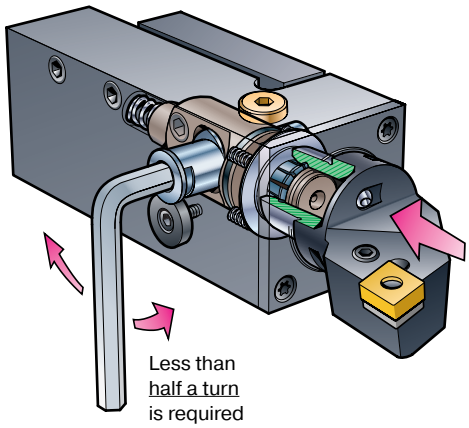
Assembly instructions (bore pattern) for the use of clamping unit RC/LC 2090



Clamping unit	d_1/H7 mm	d_2 mm	h_1 mm	h_2 mm	h_3 mm	h_4 mm	l_1 mm	l_2 mm	l_3 mm	l_4 mm	l_5 mm	l_6 mm	l_7 mm	T_h
C3-R/LC2090-19039M	12	5	42	39	19.5	1.5	8.5	39	19	19	33.5	28	7.5	M6
C4-R/LC2090-24043A	16	7	60	55	27.5	2.5	11	43	19	19	36.5	30	11	M8
C5-R/LC2090-32048A	20	7	70	62	31	4	12	48	21	21	39.5	33	13	M10
C6-R/LC2090-42060	25	10	82	71	35.5	5.5	20	60	24.5	24.5	50.5	41	12	M10

Operating instructions for WALTER CAPTO

Clamping principle for types 2035, 2045, 2055, 2065, 2080, 2085 and 2090 and VDI

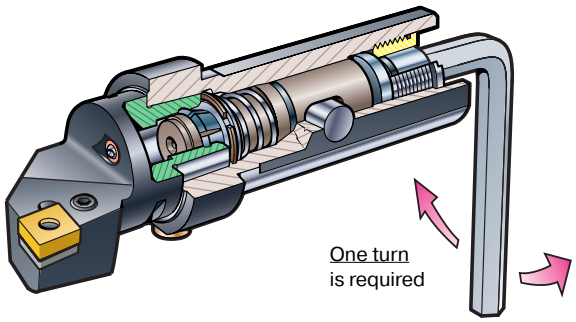


**Expandable segmented bushing clamp –
Cam shaft activated drawbar**

With the help of a cam the drawbar is moved forwards and backwards. The cutting head is clamped and released via a cam shaft.

For the tightening torque, see page 788.

Clamping principle for type 2000

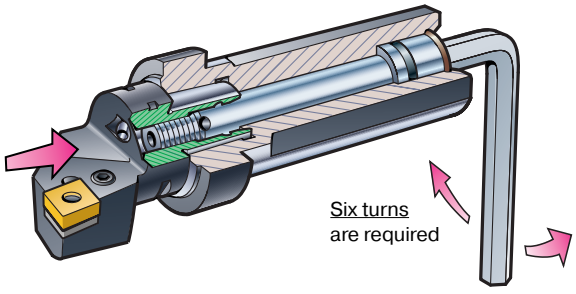


**Expandable segmented bushing clamp –
Screw activated drawbar**

The movement of the drawbar is controlled by a screw acting from the rear of the unit.

For the tightening torque, see page 788.

Clamping principle for type 3000



Centre screw clamping

A rear-activated centre screw is used to clamp/release the cutting head.

For the tightening torque, see page 788.

Operating instructions for WALTER CAPTO

Tightening torques

When clamping by means of a bush:

Recommended torque:

C3: 35 Nm
C4: 50 Nm
C5: 70 Nm
C6: 90 Nm

For torque wrench, see page 716.

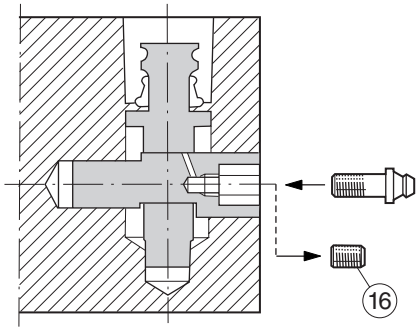
When clamping by means of a centre screw:

Recommended torque:

C3: 50 Nm
C4: 60 Nm
C5: 100 Nm
C6: 180 Nm

For torque wrench, see page 716.

Lubrication



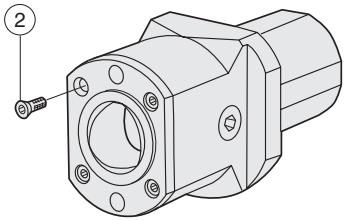
All manually actuated clamping units are lubricated prior to delivery with BP Energrease ACS-2[1].
The lubrication should be checked and replaced after around 6 months. New grease can be fed through the eccentric bolt.

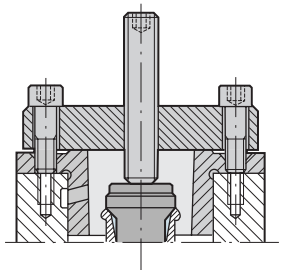
1. Remove screw (16).
2. Insert lubricating nipple 5692 012-01 (for order information see p. 716)
3. Please ensure that the clamping mechanism is in the clamped setting.
4. Using a grease gun, dispense grease until it begins to emerge on the outside
5. Remove the lubricating nipple
6. Replace screw (16) in the eccentric bolt

NOTE:
The clamping unit must be tensioned during the lubrication process.

[1] Alternatives:
STATOIL Beacon 325, MOBIL Temp SHC 32, MOBIL Grease, MOBIL Special Grease or any equivalent commercially available grease.

Operating instructions





Rotating the cutting head 180°!

In the case of an overhead machining operation, proceed as described in the following steps:

Turn the polygon adapter by 180°.

1. Release the four screws (2).

   The following recommended keys must be ordered separately:
   C3 / C4: (T20) FS 1048
   C5: (T25) FS 1049
   C6: Hexagonal key (5 mm)

2. Remove the polygon adapter. To do this, please use removal device. Order information is provided on page 716.

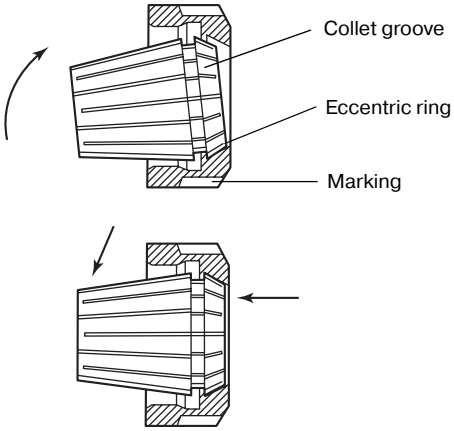
   – Using the 4 screws secure the removal device to the polygon adapter

   – Tighten the central screw of the device until the polygon adapter is released.

3. Turn the polygon adapter by 180° and remount, if necessary with the aid of a plastic or copper hammer.

Assembly instructions for collet chuck with ER collets (C 330, C 340) and sealing washers

Mounting the collet chuck



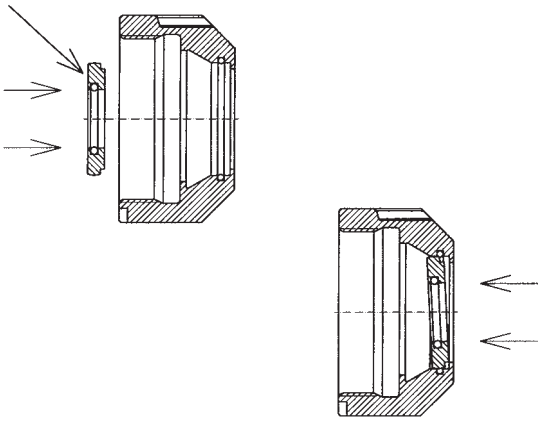
Mounting

1. Fit collet groove into the clamping nut eccentric ring at the indicated position.
2. Tilt the collet in the opposite direction until you hear it audibly click into place.
3. Insert the tool.
4. Screw the nut onto the holder and tighten

Removal

After unscrewing from the holder, simultaneously press down on the front and end of the collet.

Fitting the sealing washers



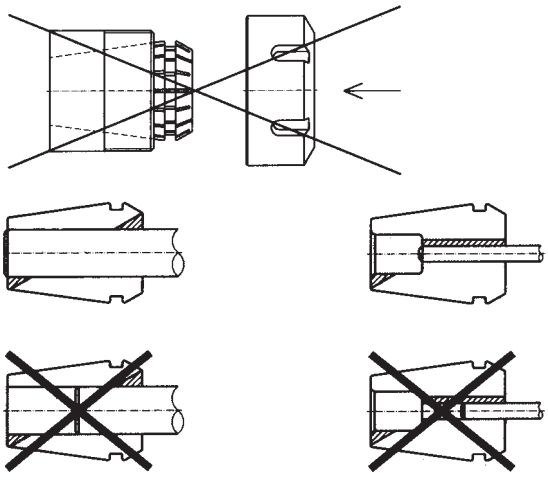
Fitting

1. Insert the sealing washer into the nut so that the inscription is at the rear.
2. Insert the sealing washer and press until you hear an audible click.
3. If correctly mounted, the sealing washer is flush with the nut at the front

Removal

Press the washer from the outside until released.

Note



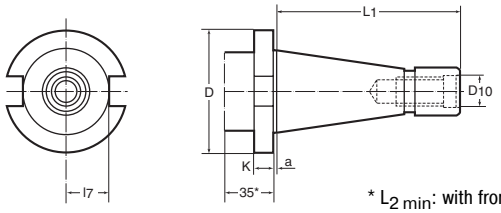
a. The collet must be engaged into the clamping nut during assembly.

b. Never apply excessive tension to shanks.
Use the next largest collet in each case.
e. g. shank dia. = 14.3 with collet
collet dia. 15–14 mm

c. If possible tension the tool shank over the entire length of the collet / at least $^{2}/_{3}$ of the collet length

Main connection dimensions and design features

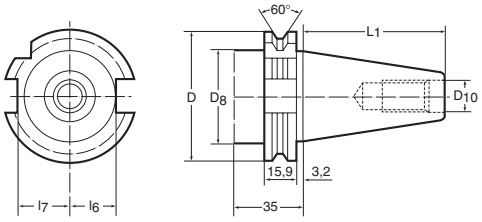
Tool adaptor DIN 2080
(ISO 2583)



* $L_{2\ min}$: with front clamping system i.a.w. DIN 2080, part 2, otherwise $L_{2\ min} = K + a$

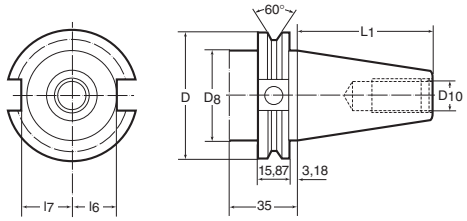
ISO no.	L_1 mm	D mm	D_{10} mm	l_7 mm	K mm	a mm
40	93.4	63.0	M 16	22.5	10	1.6
50	126.8	97.5	M 24	35.3	12	3.2

Tool adaptor DIN 69871, part 1 version A
(ISO 7388/1)



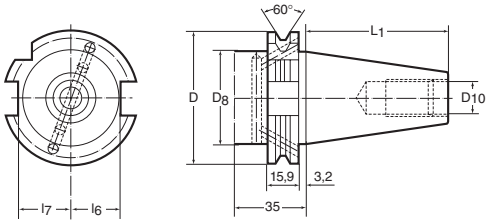
ISO no.	L_1 mm	D mm	$D_{8\ max.}$ mm	D_{10} mm	l_6 mm	l_7 mm
40	68.40	63.55	50	M 16	22.8	25.0
50	101.75	97.50	80	M 24	35.5	37.7

Tool adaptor ANSI B 5.50/CAT
(ANSI/ASME B 5.50 – 1885)



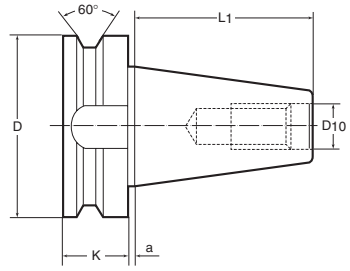
ISO no.	L_1 mm	D mm	D_8 mm	D_{10} mm	l_6 mm	l_7 mm
40	68.25	63.5	44.5	M 16	22.6	25.0
50	101.6	98.4	70.0	M 24	35.3	37.7

Tool adaptor DIN 69871, part 1 version B
(with internal coolant supply; dimensions similar to version A)



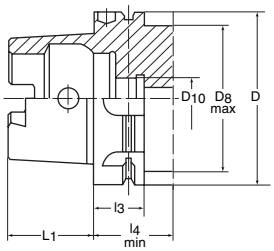
ISO no.	L_1 mm	D mm	$D_{8\ max.}$ mm	D_{10} mm	l_6 mm	l_7 mm
40	68.40	63.55	50	M 16	22.8	25.0
50	101.75	97.50	80	M 24	35.5	37.7

Tool adaptor MAS BT



ISO no.	L_1 mm	D mm	D_{10} mm	K mm	a mm
40	65.4	63	M 16	25	2
50	101.8	100	M 24	35	3

Tool adaptor HSK DIN 69893, part 1, version A



HSK	L_1 mm	D mm	$D_{8\ max.}$ mm	D_{10} mm	l_3 mm	$l_{4\ min.}$ mm
63	32	63	53	M 18×1	26	42
100	50	100	85	M 24×1.5	29	45

Assembly instructions for WALTER NC tools system



1. Assembly device with accessories.



2. Example of tooling combination.



3. Clean the inside taper and the support face.



4. Insert the collar V 530 into the flange V 510.10.050.



5. Fit the extension into the insert collar.



6. Manually screw in the extension and the face mill adaptor using the socket key.



7. Tighten using a torque wrench.



8. Insert the master into the appropriate flange.



9. Fasten the tool assembly to the master.



10. Tighten using a torque wrench.



11. Insert the assembled tool adapter into the ISO taper.



12. Install and tighten the cutting tool.

For tightening torques for NCT, see page 670

Tightening torques for tapping operations and tap shank dimensions

Tightening torques for tapping operations

for setting the correct torque for quick change tap collets A 331 with overload clutch depending on thread

Metric thread

Thread dia.	Tightening torque* (Nm)	Shank dia. i.a.w. DIN 376	Shank dia. i.a.w. DIN 371
M 4 x 0.7	1.0	2.8	4.5
M 5 x 0.8	2.0	3.5	6.0
M 6 x 1	3.5	4.5	6.0
M 8 x 1.25	7.5	6.0	8.0
M 10 x 1.5	14.5	7.0	10.0
M 12 x 1.75	20.0	9.0	
M 14 x 2	35.0	11.0	
M 16 x 2	40.0	12.0	
M 18 x 2.5	65.0	14.0	
M 20 x 2.5	75.0	16.0	
M 22 x 2.5	80.0	18.0	
M 24 x 3	110.0	18.0	
M 27 x 3	125.0	20.0	
M 30 x 3.5	175.0	22.0	
M 33 x 3.5	190.0	25.0	

Metric fine thread

Thread dia.	Tightening torque* (Nm)	Shank dia. i.a.w. DIN 374	Shank dia. i.a.w. DIN 371
M 4 x 0.5	0.7	2.8	4.5
M 5 x 0.5	1.0	3.5	6.0
M 6 x 0.75	2.0	4.5	6.0
M 8 x 1	3.5	6.0	8.0
M 10 x 1.25	9.0	7.0	10.0
M 12 x 1.25	10.0	9.0	
M 14 x 1.5	16.0	11.0	
M 16 x 1.5	17.0	12.0	
M 18 x 1.5	20.0	14.0	
M 20 x 1.5	23.0	16.0	
M 22 x 1.5	26.0	18.0	
M 24 x 2	46.0	18.0	
M 27 x 2	52.0	20.0	
M 30 x 2	58.0	22.0	
M 33 x 2	64.0	25.0	
M 36 x 3	150.0	28.0	
M 39 x 3	160.0	32.0	
M 42 x 3	172.0	32.0	

Tap shank dimensions

Shank dim. mm	DIN 371	DIN 374	DIN 376	Square bolt	Size
3.5 x 2.7	M 3	M 5	M 5	FS 779	1, 3, 4
4.5 x 3.4	M 4	M 6	M 6	FS 536	1, 3, 4
6.0 x 4.9	M 5/M 6	M 8	M 8	FS 538	1, 3, 4
7.0 x 5.5		M 10	M 10	FS 539	1, 3, 4
8.0 x 6.2	M 8			FS 540	1, 3, 4
9.0 x 7.0		M 12	M 12	FS 541	1, 3, 4
10.0 x 8.0	M 10			FS 542	1, 3, 4
11.0 x 9.0		M 14	M 14	FS 543	1, 3, 4
12.0 x 9.0		M 16	M 16	FS 544	1, 3, 4
14.0 x 11.0		M 18	M 18	FS 545	1, 3, 4
16.0 x 12.0		M 20	M 20	FS 546	1, 3, 4
18.0 x 14.5		M 22/M 24	M 22/M 24	FS 547	1, 3, 4
20.0 x 16.0		M 27	M 27	FS 548	1, 3, 4
22.0 x 18.0		M 30	M 30	FS 549	1, 3, 4
25.0 x 20.0		M 33	M 33	FS 550	1, 3, 4
18.0 x 14.5		M 22/M 24	M 22/M 24	FS 780	5
20.0 x 16.0		M 27	M 27	FS 781	5
22.0 x 18.0		M 30	M 30	FS 782	5
25.0 x 20.0		M 33	M 33	FS 783	5
28.0 x 22.0		M 36	M 36	FS 784	5
32.0 x 24.0		M 39/M 42	M 39/M 42	FS 785	5
36.0 x 29.0		M 48	M 48	FS 786	5

* The above tightening torques are suitable for steel taps in good condition, tensile strength about 600–800 N/mm^2.
Factors which increase torque can be:
dull taps, tight bore holes, coolant, cutting edge geometry, chamfer length.



Xtra·tec®

THE PEAK OF PRODUCTIVITY



General

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Hardness comparison table

Tensile strength, Brinell-, Vickers- and Rockwell hardness (extract from DIN 50150)

Tensile strength Rm N/mm²	Vickers hardness HV	Brinell hardness HB	Rockwell hardness HRC
255	80	76.0	
270	85	80.7	
285	90	85.5	
305	95	90.2	
320	100	95.0	
335	105	99.8	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	156	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	20.3
785	245	233	21.3
800	250	238	22.2
820	255	242	23.1
835	260	247	24.0
850	265	252	24.8
865	270	257	25.6
880	275	261	26.4
900	280	266	27.1
915	285	271	27.8
930	290	276	28.5
950	295	280	29.2
965	300	285	29.8
995	310	295	31.0
1030	320	304	32.2
1060	330	314	33.3
1095	340	323	34.4
1125	350	333	35.5
1155	360	342	36.6
1190	370	352	37.7
1220	380	361	38.8
1255	390	371	39.8
1290	400	380	40.8
1320	410	390	41.8
1350	420	399	42.7
1385	430	409	43.6

Tensile strength Rm N/mm²	Vickers hardness HV	Brinell hardness HB	Rockwell hardness HRC
1420	440	418	44.5
1455	450	428	45.3
1485	460	437	46.1
1520	470	447	46.9
1555	480	(456)	47.7
1595	490	(466)	48.4
1630	500	(475)	49.1
1665	510	(485)	49.8
1700	520	(494)	50.5
1740	530	(504)	51.1
1775	540	(513)	51.7
1810	550	(523)	52.3
1845	560	(532)	53.0
1880	570	(542)	53.6
1920	580	(551)	54.1
1955	590	(561)	54.7
1995	600	(570)	55.2
2030	610	(580)	55.7
2070	620	(589)	56.3
2105	630	(599)	56.8
2145	640	(608)	57.3
2180	650	(618)	57.8
	660		58.3
	670		58.8
	680		59.2
	690		59.7
	700		60.1
	720		61.0
	740		61.8
	760		62.5
	780		63.3
	800		64.0
	820		64.7
	840		65.3
	860		65.9
	880		66.4
	900		67.0
	920		67.5
	940		68.0

The hardness values converted in accordance with these tables are approximate only. See DIN 50150.

Tensile strength	N/mm^2	R_m
Vickers hardness HV	Diamond pyramid 136° Testing force $F \geq 98$ N	HV
Brinell hardness HB Calculated from: HB = 0.95 × HV	$0.102 \times F/D^2 = 30$ N/mm^2 F = testing force in N D = sphere diameter in mm	HB
Rockwell hardness C	Diamond cone 120° Overall testing force 1471 ± 9 N	HRC

Workpiece material groups

Steel		R_m (N/mm²)	k_c 1.1 (N/mm²)	m_c
P	Low-carbon soft steels; low tensile ferritic steels.	<450	1350	0.21
	Low-carbon free cutting steels	400 <700	1500	0.22
	Normal structural steels, low to medium content of carbon (< 0.5 % C)	450 <550	1500	0.25
	Normal, low-alloy steels and cast steel; tempering steel; carbon steel (> 0.5 % C); ferritic and martensitic stainless steels	550 <700	1700	0.24
	Normal tool steels; harder tempering steels; martensitic, stainless steels	700 <900	1900	0.24
	Tool steels featuring difficult cutting properties; hard, high-alloyed steels and cast steel; martensitic, stainless steels	900 <1200	2000	0.24
	High tensile steels with difficult cutting properties; hardened steels of groups 3 –6; martensitic, stainless steels	>1200	2900	0.22
Stainless steels				
M	Stainless steels featuring less difficult cutting properties		1750	0.22
	Molybdenum stainless steels; austenitic and duplex, difficult cutting properties		1900	0.20
	Austenitic and duplex featuring difficult cutting properties		2050	0.20
	Austenitic and duplex featuring extremely difficult cutting properties		2150	0.20
Cast iron				
K	Cast iron of medium hardness, grey cast iron		1150	0.22
	Low-alloyed cast iron, malleable cast iron, nodular cast iron		1225	0.25
	Cast iron alloy of medium hardness, malleable cast iron, GGG, medium cutting properties		1350	0.28
	High-alloyed cast iron with difficult cutting properties; malleable cast iron, GGG, difficult cutting properties		1470	0.30
NF metals				
N	Non-ferrous alloys which are easy to machine, aluminium with <16 % Si, brass, zinc, magnesium		700	0.25
	Non-ferrous alloys which are difficult to machine; aluminium with >16 % Si, bronze, copper, aluminium alloys (nickel, copper, magnesium)		700	0.27
High temperature alloys and titanium alloys				
S	High temperature alloys containing nickel, cobalt, iron, hardness <30 HRc, Incoloy 800 and Inconel 601, 617 and 625, Monel 400		2600	0.24
	High temperature alloys containing nickel, cobalt, iron, hardness >30 HRc, Inconnel 718 and 750-X and Incoloy 925, Monel K-5008		3300	0.24
	Titanium alloys, Ti-6Al-4V		1450	0.23

K_c1.1 value = specific cutting force with a rake angle of 0°. With other rake angles, k_c1.1 should be increased/decreased accordingly, i.e. 1 % per rake angle degree. The R_m value (tensile strength) is additional information for defining the right workpiece material group if the material was treated for higher tensile strength, e.g. rolled, drawn or heat-treated material.

Workpiece material comparison table

Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
		Structural steel										
	1	1.0401	C15	080M15	–	CC12	C15C16	–	1350	F.111	–	1015
	1	1.0402	C22	050A20	2C	CC20	C20C21	C25-1	1450	F.112	–	1020
	1/2	1.0501	C35	060A35	–	CC35	C35	C35-1	1550	F.113	–	1035
	2	1.0503	C45	080M46	–	CC45	C45	C45-1	1650	F.114	–	1045
	2/3	1.0535	C55	070M55	–	–	C55	C55-1	1655	–	–	1055
	3	1.0601	C60	080A62	43D	CC55	C60	C60-1	–	–	–	1060
	1	1.0715	9SMn28	230M07	–	S250	CF9SMn28	–	1912	11SMn28	SUM22	1213
	1	1.0718	9SMnPb28	–	–	S250Pb	CF9SMnPb28	–	1914	11SMnPb28	SUM22L	12L13
	1	1.0722	10SPb20	–	–	10PbF2	CF10SPb20	–	–	10SPb20	–	–
	2	1.0726	35S20	212M36	8M	35MF4	–	–	1957	F210G	–	1140
	1/2	1.0736	9SMn36	240M07	1B	S300	CF9SMn36	–	–	12SMn35	–	1215
	1/2	1.0737	9SMnPb36	–	–	S300Pb	CF9SMnPb36	–	1926	12SMnP35	–	12L14
	2/3	1.0904	55Si7	250A53	45	55S7	55Si8	55Si7	2085	56Si7	–	9255
	2/3	1.0961	60SiCr7	–	–	60SC7	60SiCr8	60SiCr8	–	60SiCr8	–	9262
	1	1.1141	Ck15	080M15	32C	XC12	C16	C16-2	1370	C15K	S15C	1015
	2	1.1157	40Mn4	150M36	15	35M5	–	–	–	–	–	1039
	1/2	1.1158	Ck25	–	–	–	–	C25-2	–	–	S25C	1025
	2/3	1.1167	36Mn5	–	–	40M5	–	–	2120	36Mn5	SMn438(H)	1335
	2/3	1.1170	28Mn6	150M28	14A	20M5	C28Mn	28Mn6	–	–	SCMn1	1330
	2/3	1.1183	Cf35	060A35	–	XC38TS	C36	C36	1572	–	S35C	1035
	2/3	1.1191	Ck45	080M46	–	XC42	C45	C45-2	1672	C45K	S45C	1045
	2/3	1.1203	Ck55	070M55	–	XC55	C50	C55-2	–	C55K	S55C	1055
	3/4	1.1213	Cf53	060A52	–	XC48TS	C53	C53	1674	–	S50C	1050
	3/4	1.1221	Ck60	080A62	43D	XC60	C60	C60-2	1678	–	S58C	1060
	9	1.1274	Ck101	060A96	–	–	–	–	1870	–	SUP4	1095
	10	1.3401	X120Mn12	Z120M12	–	Z120M12	XG120Mn12	–	–	X120Mn12	SCMnH/1	–
P	9	1.3505	100Cr6	534A99	31	100C6	100Cr6	–	2258	F.131	SUJ2	52100
	9	1.5415	15Mo3	1501-240	–	15D3	16Mo3KW	16Mo3	2912	16Mo3	–	ASTM A20Gr.A
	8	1.5423	16Mo5	1503-245-420	–	–	16Mo5	16Mo5	–	16Mo5	–	4520
	5	1.5622	14Ni6	–	–	16N6	14Ni6	18Ni6	–	15Ni6	–	ASTM A350LF5
	9	1.5662	X8Ni9	1501-509;510	–	–	X10Ni9	10Ni36	–	XBNi09	–	ASTM A353
	9	1.5680	12Ni19	–	–	Z18N5	–	12Ni20	–	–	–	2515
	6	1.5710	36NiCr6	640A35	111A	35NC6	–	–	–	–	SNC236	3135
	6	1.5732	14NiCr10	–	–	14NC11	16NiCr11	–	–	15NiCr11	SNC415(H)	3415
	6	1.5752	14NiCr14	655M13; 655A12	36A	12NC15	–	13NiCr12	–	–	SNC815(H)	3415;3310
	6	1.6511	36CrNiMo4	816M40	110	40NCD3	38NiCrMo4(KB)	–	–	35NiCrMo4	–	9840
	6	1.6523	21NiCrMo2	805M20	362	20NCD2	20NiCrMo2	–	2506	20NiCrMo2	SNCM220(H)	8620
	6	1.6546	40NiCrMo22	311-Type7	–	–	40NiCrMo2(KB)	40NiCrMo2	–	40NiCrMo2	SNCM240	8740
	6	1.6582	34CrNiMo6	817M40	24	35NCD6	35NiCrMo6(KB)	35CrNiMo6	2541	–	–	4340
	6	1.6587	17CrNiMo6	820A16	–	18NCD6	–	17CrNiMo7	–	14NiCrMo13	–	–
	6	1.6657	14NiCrMo134	832M13	36C	–	15NiCrMo13	14NiCrMo13	–	14NiCrMo131	–	–
	2	1.7015	15Cr3	523M15	–	12C3	–	15Cr2	–	–	SCr415(H)	5015
	6	1.7033	34Cr4	530A32	18B	32C4	34Cr4(KB)	34Cr4	–	35Cr4	SCr430(H)	5132
	6	1.7035	41Cr4	530M40	18	42C4	41Cr4	42Cr4	–	42Cr4	SCr440(H)	5140
	6	1.7045	42Cr4	–	–	–	–	–	2245	42Cr4	SCr440	5140
	6	1.7131	16MnCr5	(527M20)	–	16MC5	16MnCr5	16MnCr5	2511	16MnCr5	–	5115
	6	1.7176	55Cr3	527A60	48	55C3	–	55Cr3	–	–	SUP9(A)	5155
	6	1.7218	25CrMo4	1717CDS110	–	25CD4	25CrMo4(KB)	25CrMo4	2225	55Cr3 AM26CrMo4	SCM420; SCM430	4130
	6	1.7220	34CrMo4	708A37	19B	35CD4	35CrMo4	34CrMo4	2234	34CrMo4	SCM432; SCCRM3	4137;4135
	6	1.7223	41CrMo4	708M40	19A	42CD4TS	41CrMo4	41CrMo4	2244	42CrMo4	SCM440	4140;4142

Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
P	6	1.7225	42CrMo4	708M40	19A	42CD4	42CrMo4	42CrMo4	2244	42CrMo4	SCM440(H)	4140
	6	1.7262	15CrMo5	–	–	12CD4	–	–	2216	12CrMo4	SCM415(H)	–
	6	1.7335	13CrMo4 4	1501-620Gr.27	–	15CD3.5 15CD4.5	14CrMo4 5	14CrMo45	–	14CrMo45	–	ASTM A182 F11;F12
	6	1.7361	32CrMo12	722M24	40B	30CD12	32CrMo12	32CrMo12	2240	F.124.A	–	–
	6	1.7380	10CrMo9 10	1501-622 Size 31; 45	–	12CD9;10 –	12CrMo9,10	–	2218	TU.H –	– –	ASTM A182 F.22
	6	1.7715	14MoV6 3	1503-660-440	–	–	–	13MoCrV6	–	13MoCrV6	–	–
	7	1.8159	50CrV4	735A50	47	50CV4	50CrV4	50CrV4	2230	51CrV4	SUP10	6150
	9	1.8509	41CrAlMo7	905M39	41B	40CAD6,12	41CrAlMo7	41CrAlMo7	2940	41CrAlMo7	–	–
	9	1.8523	39CrMoV13 9	897M39	40C	–	36CrMoV12	36CrMoV13	–	–	–	–
		Tool steels										
	6/7	1.1545	C105W1	–	–	$Y_1$105	C98KU C100KU	–	1880	F.515 F.516	–	W.110
	6/7	1.1663	C125W	–	–	$Y_2$120	C120KU	–	–	(C120)	SK2	W.112
	9	1.2067	100Cr6	BL3	–	Y100C6	–	–	–	100Cr6	–	L3
	10/11	1.2080	X210Cr12	BD3	–	Z200Cr12	X210Cr13KU X250Cr12KU	–	–	X210Cr12	SKD1	D3
	10/11	1.2344	X40CrMoV51	BH13	–	Z40CDV5	X35CrMoV05KU X40CrMoV511KU	–	2242	X40CrMoV5	SKD61	H13
	10/11	1.2363	X100CrMoV51	BA2	–	Z100CDV5	X100CrMoV51KU	–	2260	X100CrMoV5	SKD12	A2
	10/11	1.2419	105WCr6	–	–	105WC13	10WCr6 107WCr5KU	–	2140	105WCr5	SKS31 SKS2,SKS3	–
	10/11	1.2436	X210CrW12	–	–	–	X215CrW121KU	–	2312	X210CrW12	SKD2	–
	10/11	1.2542	45WCrV7	BS1	–	–	45WCrV8KU	–	2710	45WCrSi8	–	S1
	10/11	1.2581	X30WCrV9 3 X30WCrV9 3KU	BH21	–	Z30WCV9	X28W09KU X30WCrV9 3KU	– –	–	X30WCrV9	SKD5	H21
	10/11	1.2601	X165CrMoV12	–	–	–	X165CrMoW12KU	–	2310	X160CrMoV12		–
	10/11	1.2713	55NiCrMoV6	–	–	55NCDV7	–	–	–	F.520.S	SKT4	L6
	10/11	1.2833	100V1	BW2	–	$Y_1$105V	–	C98KU 102V2KU	–	–	SKS43	W210
	10/11	1.3243	S 6-5-2-5	–	–	Z85WDKCV 06-05-05-04-02	HS 6-5-2-5	–	2723	HS 6-5-2-5	SKH55	–
	10/11	1.3255	S 18-1-2-5	BT4	–	Z80WKCV 18-05-04-01	X78WCo1805KU	–	–	HS 18-1-1-5	SKH3	T4
	10/11	1.3343	S 6-5-2	BM2	–	Z85WDCV 06-05-04-02	X82WMo0605KU	–	2722	HS 6-5-2	SKH9	M2
	10/11	1.3348	S 2-9-2	–	–	Z100WCWV 09-04-02-02	HS 2-9-2	–	2782	HS 2-9-2	–	M7
	10/11	1.3355	S 18-0-1	BT1	–	Z80WCV 18-04-01	X75W18KU	–	–	HS 18-0-1	SKH2	T1

Workpiece material comparison table (continued)

Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
		Stainless and heat-resistant steels										
P	12/13	1.4000	X6Cr13	403S17	–	Z6C13	X6Cr13	–	2301	F.3110	SUS403	403
	12/13	1.4001	X7Cr14							F.8401		
	12/13	1.4006	X10Cr13	410S21	56A	Z10C14	X12Cr13	–	2302	F.3401	SUS410	410
	12/13	1.4016	X6Cr17	430S15	60	Z8C17	X8Cr17	–	2320	F.3113	SUS430	430
	12/13	1.4027	G-X20Cr14	420C29	56B	Z20C13M	–	–	–	–	SCS2	–
	12/13	1.4034	X46Cr13	420S45	56D	Z40CM	X40Cr14	–	2304	F.3405	SUS420J2	–
						Z38C13M						
	12/13	1.4057	X20CrNi172	431S29	57	Z15CNi6.02	X16CrNi16	–	2321	F.3427	SUS431	431
	12/13	1.4104	X12CrMoS17	–	–	Z10CF17	X10CrS17	–	2383	F.3117	SUS430F	430F
	12/13	1.4113	X6CrMo171	434S17	–	Z8CD17.01	X8CrMo17	–	2325	–	SUS434	434
	12/13	1.4313	X5CrNi13 4	425C11	–	Z4CND13.4M	–	–	–	–	SCS5	–
	12/13	1.4408	G-X6CrNiMo18 10	316C16	–	–	–			F.8414	SCS14	
	12/13	1.4718	X45CrSi9 3	401S45	52	Z45CS 9	X45CrSi8		–	F.322	SUH1	HW3
	12/13	1.4724	X10CrAl13	403S17	–	Z10C13	X101CrA112	–	–	F.311	SUS405	405
	12	1.4742	X10CrAl18	430S15	60	Z10CAS18	X8Cr17	–	–	F.3113	SUS430	430
	12/13	1.4757	X80CrNiSi20	443S65	59	Z80CSN20.02	X80CrSiNi20		–	F.320B	SUH4	HNV6
	12	1.4762	X10CrAl24	–	–	Z10CAS24	X16Cr26	–	2322	–	SUH446	446
M	14	1.4301	X5CrNi18 10	304S15	58E	Z6CN18.09	X5CrNi1810	–	2332	F.3551	SUS304	304
										F.3541		
										F.3504		
	14	1.4305	X10CrNiS18 9	303S21	58M	Z10CNF 18.09	X10CrNiS 18.09	–	2346	F.3508	SUS303	303
	14	1.4306	X2CrNi19 11	304S12	–	Z2CN18.10	X2CrNi18.11	–	2352	F.3503	SCS19	304L
				304C12		Z3CN19.10			2333		SUS304L	
	14	1.4308	G-X6CrNi18 9	304C15	–	Z6CN18.10M	–	–	–	–	SCS13	–
	14	1.4310	X12CrNi177	–	–	Z12CN17.07	X12CrNi1707	–	2331	F.3517	SUS301	301
	14	1.4311	X2CrNiN18 10	304S62	–	Z2CN18.10	–	–	2371	–	SUS304LN	304LN
	14	1.4401	X5CrNiMo17122	316S16	58J	Z6CND17.11	X5CrNiMo17 12	–	2347	F.3543	SUS316	316
	14	1.4429	X2CrNiMoN17133	–	–	Z2CND17.13	–	–	2375	–	SUS316LN	316LN
	14	1.4435	X2CrNiMo18143	316S12	–	Z2CND17.13	X2CrNiMo17 13	–	2353	–	SCS16, SUS316L	316L
	14	1.4438	X2CrNiMo17133	317S12	–	Z2CND19.15	X2CrNiMo18 16	–	2367	–	SUS317L	317L
	14	1.4460	X8CrNiMo275	–	–	–	–	–	2324	–	SUS329L	329
											SCH11, SCS11	
	12/13	1.4541	X6CrNiTi18 10	2337	321S12	Z6CNT18.10	X6CrNiTi18 11	–	58B	F.3553, F.3523	SUS321	321
	12/13	1.4550	X6CrNiNb18 10	347S17	58F	Z6CNNb18.10	X6CrNiNb18 11	–	2338	F.3552, F.3524	SUS347	347
	12/13	1.4571	X6CrNiMoTi17122	320S17	58J	Z6NDT17.12	X6CrNiMoTi17 12	–	2350	F.3535	–	316Ti
	12/13	1.4581	G-X5CrNi	318C17	–	Z4CNDNb	XG8CrNiMo18 11	–	–	–	SCS22	–
			MoNb18 10			18 12M						
	12/13	1.4583	X10CrNi	–	–	Z6CNDNb	X6CrNiMoNb17 13	–	–	–	–	318
			MoNb18 12			17 13B		–				
	14	1.4828	X15CrNiSi20 12	309S24	–	Z15CNS20.12	–	–	–	–	SUH309	309
	14	1.4845	X12CrNi25 21	310S24	–	Z12CN25 20	X6CrNi25 20	–	2361	F.331	SUH310	310S
	14	1.4864	X12NiCrSi36 16	–	–	Z12NCS35.16	–	–	–	–	SUH330	330
	14	1.4865	G-X40NiCrSi38 18	330C11	–	–	XG50NiCr39 19	–	–	–	SCH15	–
	14	1.4871	X53CrMnNiN219	349S54	–	Z52CMN21.09	X53CrMnNiN219	–	–	–	SUH35, SUH36	EV8
				321S12	58B							
	14	1.4878	X12CrNiTi18 9	321S320	58C	Z6CNT18.12B	X6CrNiTi1811	–	–	F.3523	SU321	321

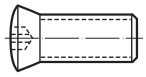
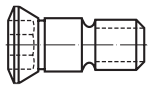
Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
K		**Cast iron (unalloyed)**										
	15											ASTM A48-76
	15		GG 10			Ft 10 D			01 00			
	15		GG 15	Grade 150		Ft 15 D			01 10			No 20 B
	15		GG 20	Grade 220		Ft 20 D			01 15			No 25 B
	15		GG 25	Grade 260		Ft 25 D			01 20			No 30 B
									01 25			No 35 B
	16		GG 30	Grade 300		R 30 D						No 40 B
	16		GG 35	Grade 350		Ft 35 D			01 30			No 45 B
	16		GG 40	Grade 400		Ft 40 D			01 35			No 50 B
									01 40			No 55 B
		Alloy grey cast iron										
	16		DIN4694	3468: 1974					MB			ASTM
	16		GGL-			A32-301			ISO-215			A436-72
	16		NiCr 20 2	L-NiCr 20 2		L-NC 20 2			05 23			Type 2
		Nodular cast iron, unalloyed										
	17/18			2789, 1973		NF A32-201						A536-72
	17/18		GGG 40	SNG 420/12		FCS 400-12			07 17-02			60-40-18
	17/18		GGG 40.3	SNG 370/1		FGS 370-17			07 17-12			–
	17/18		GGG 35.3	–		–			07 17-15			–
	17/18		GGG 50	SNG 500/7		FGS 500-7			07 27-02			80-55-06
	17/18		GGG 60	SNG 600/3		FGS 600-3			07 32-03			–
	17/18		GGG 70	SNG 700/2		FGS 700-2			07 37-01			100-70-03
		Alloy cast iron										
	18		DIN 1694									
	18		GGG NIMn 13 7	L-NiMn 13 7		L-NM 13 7			07 72			–
	18		GGG NiCr 20 2	L-NC 20 2		L-NC 20 2			07 76			Type 2
		Malleable cast iron										
	19											ASTM A47-74
	19											A 220-76 2)
	19		–	8 290/6		MN 32-8			08 14			
	19		GTS-34	B 340/12		MN 35-10			08 15			32510
	19		GTS-45	P 440/7					08 52			40010
	20		GTS-55	P 510/4		MP 50-5			08 54			50005
	20		GTS-65	P 570/3		MP 60-3			08 58			70003
	20		GTS-70	P 690/		IP 70-2			08 62			(002)

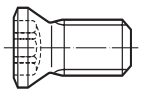
Workpiece material comparison table (continued)

Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
N		**Aluminium alloys**										
	21	3.0255	Al99.5	L31/34/36		A59050C						1000
	21	3.3315	AlMg1									
	23	3.1655	AlCuSiPb									
	23	3.1754	G-AlCu5Ni1.5									
	23	3.4345	AlZnMgCu0.5	L 86		AZ 4 GU/9051	811-04					7050
	23	3.2373	G-AlSi 9 Mg									
	23	3.2381	G-AlSi 10 Mg									
	23	3.2382	GD-AlSi10Mg									
	23	3.2383	G-AlSi10Mg (Cu)	LM 9					4253			A 360.2
	23	3.2383	GK-AlSi10Mg (Cu)	LM 9					4253			A 360.2
	23	3.2581	G-AlSi 12	LM 6					4261			A 413.2
	23	3.2582	GD-AlSi 12						4247			A 413.0
	23	3.2583	G-AlSi 12 (Cu)	LM 20					4260			A 413.1
	23	3.3561	G-AlMg 5									
	23	3.5101	G-MgZn4SE1Zr1	MAG 5		G-Z4TR						ZE 41
	23	3.5103	MgSE3Zn2Zr1	MAG 6		G-TR3Z2						EZ 33
	23	3.5106	G-MgAg3SE2Zr1	MAG 12		G-Ag 22.5						QE 22
	23	3.5812	G-MgAl8Zn1	MAG 1		G-A9						AZ 81
	23	3.5912	G-MgAl9Zn1	MAG 7		G-A9Z1						AZ 91
	24	2.1871	G-AlCu 4 TiMg									
	24	3.2371	G-AlSi 7 Mg									4218 B
		Copper alloys										
	26	2.1090	G-CuSn 7 ZnPb			U-E 7 Z 5 Pb 4						C 93200
	26	2.1096	G-CuSn 5 ZnPb	LG 2		U-E 5 Pb 5 Z 5						C 83600
	26	2.1098	G-CuSn 2 ZnPb									
	26	2.1176	G-CuPb 10 Sn	LB 2		U-E 10 Pb 10						C 93700
	26	2.1182	G-CuPb15Sn	LB 1		U-Pb 15 E 8						C 93800
	27	2.0240	CuZn15	CZ 102		CuZn 15						C 23000
	27	2.0265	CuZn30	CZ 106		CuZn 30						C 26000
	27	2.0321	CuZn37	CZ 108		CuZn 36/37	C2700, C2720					C 27200, C 27700
	27	2.0592	G-CuZn 35 Al 1	HTB 1		U-Z 36 N 3						C 86500
	27	2.0596	G-CuZn 34 Al 2	HTB 1		U-Z 36 N 3						C 86200
	27	2.1188	G-CuPb20Sn	LB 5		U-Pb 20						C 94100
	27	2.1292	G-CuCrF 35	CC1-FF								C 81500
	27	2.1293	CuCrZr	CC 102		U-Cr 0.8 Zr						C 18200
	28	2.0966	CuAl 10 Ni 5 Fe 4	Ca 104		U-A 10 N						C 6300
	28	2.0975	G-CuAl 10 Ni									B-148-52
	28	2.1050	G-CuSn 10	CT 1								C 90700
	28	2.1052	G-CuSn 12	Pb 2		UE 12 P						C 90800
S		**Heat-resistant alloys, Fe basis**										
	31	1.4558	X 2 NiCrAlTi 32 20	NA 15								N 08800
	31	1.4562	X 1 NiCrMoCu 32 28 7									N 08031
	31	1.4563	X 1 NiCrMoCuN 31 27 4			Z 1 NCDU 31.27						N 08028
	31	1.4864	X 12NiCrSi			Z12NCS35.16						330
	31	1.4864	X 12 NiCrSi 36 16	NA 17		Z 12 NCS 35.16						N 08330
	32	1.4958	X 5 NiCrAlTi 31 20									
	32	1.4977	X 40 CoCrNi 20 20			Z 42 CNKDWNb						

Material group	Machining group	Country / Standard										
		Germany		Great Britain		France	Italy	Belgium	Sweden	Spain	Japan	USA
		W.-No.	DIN	BS	EN	AFNOR	UNI	NBN	SS	UNE	JIS	AISI/SAE
S		**Heat-resistant alloys Ni/Co basis**										
	33	2.4360	NiCu30Fe	NA 13		NU 30						Monel 400
	33	2.4610	NiMo16Cr16Ti									Hastelloy C-4
	33	2.4630	NiCr20Ti	HR 5, 203-4		NC 20 T						Nimonic 75
	33	2.4642	NiCr29Fe			NC 30 Fe						Inconel 690
	33	2.4810	G-NiMo30									Hastelloy C
	33	2.4856	NiCr22Mo9Nb	NA 21		NC 22 FeDNb						Inconel 625
	33	2.4858	NiCr21Mo	NA 16		NC 21 Fe DU						Incoloy 825
	34	2.4375	NiCu30 Al	NA 18		NU 30 AT						Monel K-500
	34	2.4668	NiCr19FeNbMo			NC 19 Fe Nb						Inconel 718
	35	2.4669	NiCr15Fe7TiAl			NC 15 TNb A						Inconel X-750
	35	2.4685	G-NiMo28									Hastelloy B
	35	2.4694	NiCr16Fe7TiAl									Inconel 751
		Titanium and Titanium alloys										
	36	3.7025	Ti 1	2 TA 1								R 50250
	36	3.7124	TiCu2	2 TA 21-24								
	36	3.7195	TiAl 3 V 2.5									
	36	3.7225	Ti 1 Pd	TP 1								R 52250
	37	3.7115	TiAl5Sn2									
	37	3.7145	TiAl6Sn2Zr4Mo2Si									R 54620
	37	3.7165	Ti6Al4V	TA 10-13; TA 28		T-A 6 V						R 56400
	37	3.7175	TiAl6V6Sn2									
	37	3.7175	TiAl6V6Sn2									
	37	3.7185	TiAl4Mo4Sn2	TA 45-51; TA 57								
	37	3.7185	TiAl4Mo4Sn2	TA 45-51; TA 57								
H		**Chilled cast iron**										
	40	0.9620	G-X 260 NiCr 4 2	Grade 2 A					0512-00			Ni-Hard 2
	40	0.9625	G-X 330 NiCr 4 2	Grade 2 B					0513-00			Ni-Hard 1
	40	0.9630	G-X 300 CrNiSi 9 5 2									Ni-Hard 4
	40	0.9635	G-X 300 CrMo 15 3									
		Hardened cast iron										
	41	0.9640	G-X 300 CrMoNi 15 2 1									
	41	0.9645	G-X 260 CrMoNi 20 2 1									
	41	0.9650	G-X 260 Cr 27	Grade 3 D					0466-00			A 532 III A 25 % Cr
	41	0.9655	G-X 300 CrMo 27 1									
	41	0.9655	G-X 300 CrMo 27 1	Grade 3 E								A 532 III A 25 % Cr

Clamping screws for indexable inserts

Screw types	Designation	Dimensions	Torx	Tightening torque Nm
 **Clamping screws with head angle 43° for indexable inserts with countersink**	FS 322	M 2.5 x 5.7	7	0.8
	FS 258	M 3 x 5.7	8	1.5
	FS 246	M 3 x 7	8	1.5
	FS 1163	M 3.5 x 10	15	3.0
	FS 320	M 4 x 5	15	3.0
	FS 318	M 4 x 6	15	3.0
	FS 245	M 4 x 6.5	15	3.0
	FS 321	M 4 x 7	15	3.0
	FS 319	M 4 x 8	15	3.0
	FS 244	M 4 x 9	15	3.0
	FS 749	M 4 x 10.5	15	3.0
	FS 326	M 4 x 12	15	3.0
	FS 1458	M 4 x 12	15 IP	2.5
	FS 954	M 4.5 x 11	20	4.5
	FS 260	M 5 x 9.5	20	5.0
	FS 243	M 5 x 11	20	5.0
	FS 242	M 5 x 13	20	5.0
	FS 1165	M 5 x 12	20	6.0
	FS 1010	M 6 x 14	20	5.0
	FS 1164	M 6 x 15	25	10.0
 **Fitting bolts**	FS 925	M 2.5 x 6.5	8	0.8
	FS 397	M 3 x 6.9	8	1.0
	FS 1015	M 3 x 12	8	1.0
	FS 1396	M 2.5 x 10.9	7 IP	1.2
	FS 1397	M 3 x 12.8	8 IP	2.0
	FS 1398	M 3 x 14.7	8 IP	2.0
	FS 922	M 3.5 x 9.5	15	2.5
	FS 390	M 4 x 0.5 x 8.4	15	4.0
	FS 1399	M 4 x 16.7	15 IP	4.0
	FS 1028	M 4.5 x 12.8	20	4.0
	FS 1153	M 4.5 x 14	20	4.0
	FS 391	M 5 x 0.5 x 9.1	20	5.0
	FS 392	M 5 x 0.5 x 12.75	20	5.0
	FS 393	M 5 x 0.5 x 15.45	20	5.0
	FS 1400	M 5 x 18.7	20 IP	5.0
	FS 1401	M 5 x 20.6	20 IP	5.0
	FS 1402	M 5 x 22.6	20 IP	5.0
	FS 394	M 6 x 0.75 x 20.35	20	5.0
	FS 1403	M 6 x 24.6	25 IP	5.5
	FS 1404	M 6 x 26.6	25 IP	5.5
	FS 395	M 8 x 0.75 x 24.7	30	6.0

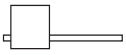
Screw types	Designation	Dimensions	Torx	Tightening torque Nm
 **Clamping screws with head angle 60° for indexable inserts with triple chamfer in accordance with ISO**	FS 1358	M 1.8 x 3.5	6	0.4
	FS 1012	M 1.8 x 4.3	6	0.4
	FS 1003	M 2 x 3.25	6	0.4
	FS 1151	M 2 x 3.45	6	0.4
	FS 1004	M 2.2 x 4.6	7	0.6
	FS 1020	M 2.2 x 5.5	7	0.6
	FS 2066	M 2.5 x 5.2	7 IP	0.9
	FS 924	M 2.5 x 4.5	8	0.8
	FS 1455	M 2.5 x 4.5	8 IP	0.8/1.2
	FS 1129	M 2.5 x 5.2	8	0.8
	FS 1021	M 2.5 x 5.5	8	0.8
	FS 2067	M 2.5 x 5.7	7 IP	0.9
	FS 375	M 2.5 x 5.8	7	0.8
	FS 923	M 2.5 x 6	8	0.8/1.2
	FS 1454	M 2.5 x 6	8 IP	0.8/1.2
	FS 2061	M 2.5 x 6.5	7 IP	0.9
	FS 1005	M 3 x 6	8	1.0
	FS 1456	M 3 x 6.2	9 IP	1.5/2.0
	FS 1013	M 3 x 7.5	8	1.0
	FS 1457	M 3 x 7.7	9 IP	1.5/2.0
	FS 379	M 3 x 8.5	8	1.0
	FS 920	M 3.5 x 7.3	15	2.5
	FS 2062	M 3.5 x 8.1	15 IP	3.0
	FS 359	M 3.5 x 9	15	2.5
	FS 2063	M 3.5 x 10.1	15 IP	3.0
	FS 1006	M 3.5 x 12	15	2.5
	FS 2060	M 3.5 x 12.1	15 IP	3.0
	FS 2064	M 4 x 0.5 x 11	15 IP	3.0
	FS 2065	M 4 x 0.5 x 14	15 IP	3.0
	FS 1011	M 4 x 7.8	15	3.0
	FS 378	M 4 x 9.5	15	3.0
	FS 1453	M 4 x 9.7	15 IP	2.5/3.5
	FS 1459*	M 4 x 10	15 IP	4.0
	FS 1007	M 4 x 12	15	3.0
	FS 1029	M 5 x 9	20	5.0
	FS 1030	M 5 x 11	20	5.0
	FS 1495	M 5 x 13	20 IP	5.0
	FS 1031	M 5 x 13	20	5.0
	FS 1009	M 5 x 16	20	5.0
	FS 1036	M 6 x 14	20	5.0
	FS 1008	M 6 x 18	20	5.0
	FS 1152	M 8 x 1 x 18.5	30	10.0

* Screw head with radius

IP** = **Torx Plus

Keys for clamping screws

Screwdriver types	Designation	Torx
Handle key, small 	FS 1047	15
	FS 1048	20
	FS 1049	25
Handle key, large 	FS 1172	15
	FS 1173	20
	FS 1174	25
	FS 1175	30

Screwdriver types	Designation	Torx	SW
Torx key 	FS 325	7	—
	FS 1490	7 IP	—
	FS 257	8	—
	FS 1466	9 IP	—
	FS 1050	10	—
	FS 255	15	—
	FS 1465	15 IP	3.5
	FS 1496	15 IP	4.0

IP** = **Torx Plus

Torque screwdriver with interchangeable blades





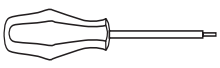
Designation	Size	⬡	Scale range
FS 2001	1	4	0.4–1.2 Nm
FS 2003	3	4	1.5–5.5 Nm
FS 2002	1	4	3.5–10.6 in lbs
FS 2004	3	4	13.3–48.7 in lbs

Designation	⬡	Scale range
FS 2041	6	4.5–14 Nm
FS 2042	6	40–123 in lbs

Interchangeable blades	Designation	Torx	⬡↕
Torx interchangeable blades Blade length 175 mm 	FS 2005	6	4
	FS 2006	7	
	FS 2007	8	
	FS 2008	10	
	FS 2009	15	
	FS 2010	20	
Torx Plus interchangeable blades Blade length 175 mm 	FS 2011	7 IP	4
	FS 2012	8 IP	
	FS 2013	9 IP	
	FS 2014	15 IP	
	FS 2015	20 IP	
	FS 2016	25 IP	
Complete blade set (FS 2005–FS 2016) Blade length 175 mm	FS 2017		4

Interchangeable blades	Designation	Torx / SW	⬡↕
Torx interchangeable blades Blade length 130 mm 	FS 2043	15	6
	FS 2044	20	
	FS 2045	25	
	FS 2046	30	
Torx Plus interchangeable blades Blade length 130 mm 	FS 2047	15 IP	6
	FS 2048	20 IP	
	FS 2049	25 IP	
Hexagonal interchangeable blades Blade length 130 mm 	FS 2050	SW 3	6
	FS 2051	SW 4	
	FS 2052	SW 5	
Complete blade set (FS 2043–FS 2052) Blade length 130 mm	FS 2053		6

Screwdrivers

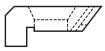
Screwdriver types	Designation	Torx	Designation	Torx
Screwdriver 	FS 1063	6	FS 229	15
	FS 309	7	FS 1485	15 IP
	FS 230	8	FS 228	20
	FS 1483	8 IP	FS 1486	20 IP
	FS 1128	9	FS 1487	25 IP
	FS 1484	9 IP	FS 396	30

IP* = *Torx Plus

Assembly parts and accessories

(for WALTER tools which are no longer shown in this catalogue)

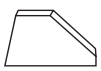
Stop-pieces

	Designation	suitable for
	FK 254 FR 277 FR 278	F 244
	FR 327	F 2040

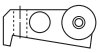
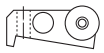
Clamping wedges

	Designation	suitable for
	FK 259	F 246
	FK 265	F 252
	FR 238	F 244
	FR 259	F 243
	FR 260	F 246
	FR 261 FR 262	F 246
	FR 281 FR 282	F 244
	FR 283	F 244

Shims

	Designation	suitable for
	FR 240 FR 280	F 244

Spare parts for F 2010

	Designation	suitable for	for indexable insert	Clamping screw	Tightening torque
	FR 442 M	Surface milling cutter, κ = 75°	SP . . 1504 . .	FS 243 (Torx 20)	5.0 Nm
	FR 444 M	Shoulder milling cutter, κ = 90°	TP . . 2204 . .	FS 243 (Torx 20)	5.0 Nm
	FR 447 M	Shoulder milling cutter, κ = 90°	P 27 . . -4R	FS 243 (Torx 20)	5.0 Nm
	FR 450 M	Milling cutter with round inserts	RP . . 1204 . .	FS 244 (Torx 15)	3.0 Nm
	FR 451 M	Surface milling cutter, κ = 75°	SF . . 1203 EFR	FS 260 (Torx 20)	5.0 Nm
	FR 456 M	Surface milling cutter, κ = 45°	SE . . 1504 . .	FS 243 (Torx 20)	5.0 Nm
	FR 495 M	Surface milling cutter, κ = 45°	SP . . 1204 A . .	FS 243 (Torx 20)	5.0 Nm
	FR 496 M	Milling cutter with round inserts	RP . . 1605 . .	FS 243 (Torx 20)	5.0 Nm
	FR 497 M	Shoulder milling cutter, κ = 90°	LP . . 1504 . .	FS 243 (Torx 20)	5.0 Nm
	FR 498 M	Surface milling cutter, κ = 45°	SP . . 1504 A . .	FS 243 (Torx 20)	5.0 Nm
	FR 562 M FR 563 M	Shoulder milling cutter, κ = 90°	AP . . 15T3 . . AP . . 0903 . .	FS 359 (Torx 15) FS 923 (Torx 8)	2.5 Nm 0.8 Nm
	FR 568 M FR 569 M	Surface milling cutter, κ = 90°	AP . . 120420 . . AP . . 120440 . . +AP . . 120460 . .	FS 1030 (Torx 20)	5.0 Nm
	FR 570 M FR 571 M	Surface milling cutter, κ = 90°	AP . . 200420 . . AP . . 200440 . . +AP . . 200460 . .	FS 1030 (Torx 20)	5.0 Nm
	FR 572 M FR 573 M FR 574 M	Milling cutter with round inserts	RD. . 1204 . . RD. . 1605 . . RD. . 2006 . .	FS 359 (Torx 15) FS 1030 (Torx 20) FS 1010 (Torx 20)	3.0 Nm 5.0 Nm 5.0 Nm
	FR 593 M	Octagon milling cutter, κ = 43°	OD . . 0504 . .	FS 359 (Torx 15)	2.5 Nm
	FR 682 M	Surface milling cutter, κ = 45°	SD . . 0903 . .	FS 359 (Torx 15)	2.5 Nm
	FR 694 M	Shoulder milling cutter, κ = 90°	AD . . 2006 . .	FS 1030 (Torx 20)	5.0 Nm
	FR 714 M FR 715 M	Shoulder milling cutter, κ = 90°	AP . . 0903 . . AP . . 15T3 . .	FS 923 (Torx 8) FS 359 (Torx 15)	0.8 Nm 2.5 Nm

Spare parts for F 2052 – Cartridges

	Designation	for indexable insert	Clamping screw	Tightening torque
	FR/FL 461	MP . . 0803 . .	FS 246 (Torx 8)	1.5 Nm
	FR/FL 462	TP . . 1604 . .	FS 244 (Torx 15)	3.0 Nm
	FR/FL 465	P 2905 -1	FS 260 (Torx 20)	5.0 Nm
	FR/FL 467	SP . . 120408	FS 260 (Torx 20)	5.0 Nm
	FR/FL 468	P 2905 -0	FS 246 (Torx 8)	1.5 Nm
	FR/FL 469	P 2700 -3	FS 244 (Torx 15)	3.0 Nm
	FR/FL 470	SP . . 09T308	FS 244 (Torx 15)	3.0 Nm
	FR/FL 471	SP . . 09T308	FS 245 (Torx 15)	3.0 Nm
	FR/FL 473	P 27275 -3	FS 260 (Torx 20)	5.0 Nm
	FR/FL 564	AP . . 0903 . .	FS 923 (Torx 8)	1.0 Nm
	FR/FL 565	AP . . 15T3 . .	FS 359 (Torx 15)	2.5 Nm
	FR/FL 566	AP . . 0903 . .	FS 923 (Torx 8)	1.0 Nm

Spare parts for F 2052 – Wedges

	Designation	for hub width	Compound screw	Tightening torque
	FK 275 FK 276 FK 277 FK 278 FK 279 FK 280	10 mm 12 mm 14 mm 16 mm 19 mm 22 mm	FS 239 (SW 3)	7.0 Nm

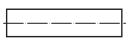
Spare parts for F 2252 – Cartridges

	Designation	for indexable insert	Clamping screw	Tightening torque
	FR/FL 687	AP . . 0903 . .	FS 923 (Torx 8)	1.0 Nm
	FR/FL 689	AP . . 15T3 . .	FS 359 (Torx 15)	2.5 Nm
	FR/FL 690	P 27. . -3	FS 244 (Torx 15)	3.0 Nm
	FR/FL 691	TP . . 1604 . .	FS 244 (Torx 15)	3.0 Nm
	FR/FL 692	SP . . 1204 . .	FS 1029 (Torx 20)	5.0 Nm

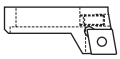
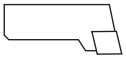
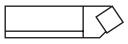
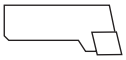
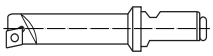
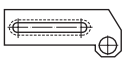
Cartridges for milling cutters

	Designation	for indexable insert	suitable for
	FR 426	P 2403 . . -3	F 2045, surface milling cutter
	FR 427	P 2453 . . -3	
	FR 432	P 23 . . -1	F 2044, surface milling cutter
	FR 433	P 23 . . -2	
	FR 596	AP . . 15T3 . .	F 2250, surface milling cutter
	FR 597	AP . . 0903 . .	
	FR 598	SD . . 0903 . .	

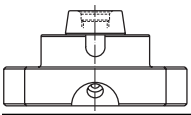
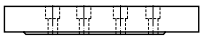
Pins

	Designation	Size	suitable for
	FS 955 FS 956 FS 957 FS 958	2.5 x 6 (DIN 6325) 3 x 8 (DIN 6325) 4 x 10 4 x 12 (DIN 6325)	F 2034 split pin
	FS 959	4 x 10 (DIN 1472)	F 2034 close tolerance groove pin
	K 25–536	∅ 5.2 x 12 mm	F 2034 stop pin

Cartridges for drilling and boring tools

	Designation	Diameter range	suitable for	for indexable insert	Clamping screw	Tightening torque
	EB 237.WC08	150–640 mm	B 3220 Boring tool	WC . . 0804 . .	FS 1030 (Torx 20)	1.5 Nm
	EB 330.CC06 EB 331.CC06 EB 332.CC06	63–73 mm 80–93 mm 130–153 mm	B 3230 Precision boring tool	CC . . 09T3 . .	FS 923 (Torx 8)	0.8 Nm
	FR 501 FR 502	21–25 mm 24–28 mm	B 2120 Boring tool	CC . . 0602 . .	FS 322 (Torx 7)	1.0 Nm
	FR 510 FR 513 FR 516 FR 519	60–77 mm 75–95 mm 90–115 mm 110–140 mm	B 2120 Boring tool	CC . . 1204 . .	FS 243 (Torx 20)	5.0 Nm
	FR 522 FR 523	135–185 mm 175–500 mm	B 2121 M Boring tool	CC . . 1204 . .	FS 243 (Torx 20)	5.0 Nm
	FR 576 FR 577 FR 578 FR 579	22–29 mm 29–38 mm 38–50 mm 50–65 mm	B 2110 Precision boring tool	P 2922 . –0	FS 322 (Torx 7)	1.0 Nm
	FR 583 FR 584 FR 585	65–88 mm 88–115 mm 115–155 mm	B 2110 Precision boring tool	P 2922 . –1	FS 244 (Torx 15)	3.0 Nm
	FR 601 FR 602	28–33 mm 33–41 mm	B 2120 Boring tool	CC . . 0602 . .	FS 322 (Torx 7)	1.0 Nm
	FR 603 FR 604	41–51 mm 51–60 mm	B 2120 Boring tool	CC . . 09T3 . .	FS 244 (Torx 15)	3.0 Nm
	FR 605 FR 606 FR 607	21–25 mm 24–28 mm 28–33 mm	B 2120 Boring tool	P 274 . –00	FS 322 (Torx 7)	1.0 Nm
	FR 608	33–41 mm	B 2120 Boring tool	P 274 . –0	FS 246 (Torx 8)	1.5 Nm
	FR 609 FR 610	41–51 mm 51–60 mm	B 2120 Boring tool	P 274 . –1	FS 244 (Torx 15)	3.0 Nm
	FR 611 FR 612 FR 613 FR 614	60–77 mm 75–95 mm 90–115 mm 110–140 mm	B 2120 Boring tool	P 274 . –2	FS 243 (Torx 20)	5.0 Nm
	FR 589 FR 590 FR 591	19–22 mm 22–25 mm 25–28 mm	B 2109 Precision boring tool	P 2922 . –0	FS 322 (Torx 7)	1.0 Nm
	FR 620	150–500 mm	B 2110 Precision boring tool	for B 2110M.025.075.038.01E in combination with FR 577		
	FR 627	150–500 mm	B 2121 Boring tool	P 2922 . –0	FS 322 (Torx 7)	1.0 Nm

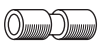
Bridges

	Designation		suitable for
	B 2110M.025.075.038.01E		Basic body, B 2120
	FR 622 FR 623 FR 624 FR 625		Bridge, B 2121

Miscellaneous

	Designation	Size	suitable for
	FS 340 FS 341 FS 342	∅ 6 mm ∅ 8 mm ∅ 10 mm	Adapter sleeve, B 2109

Compound screws

	Designation	Size	suitable for
	FS 231 FS 233	M 8 x 24 (SW 4) M 8 x 32 (SW 4)	FK 240, FR/FL 281, FR/FL 282, FR/FL 283, F 249 Special tools
	FS 234 FS 235	M 10 x 40 (SW 5) M 8 x 32 (SW 5)	FR/FL 238, FR/FL 239, FR/FL 243, FR/FL 244, FR/FL 247, FR/FL 248, FR/FL 249, FR/FL 250, FR/FL 259, FR/FL 260, FR/FL 261, FR/FL 262, FR/FL 263, FR/FL 264, FR/FL 265, FR/FL 266, FR/FL 283, FR/FL 285, FR/FL 287
	FS 236 FS 237	M 10 x 24 (SW 5) M 10 x 30 (SW 5)	FK 234, FK 259 (∅ 80–100) FK 234, FK 267, FK 259 (∅ 125–150)
	FS 926 FS 927 FS 928 FS 929	M 8 x 39 (Torx 25) M 8 x 46 (Torx 25) M 10 x 60 (Torx 40) M 12 x 76 (Torx 45)	Adaptors

Clamping elements for indexable inserts

	Designation	Size	suitable for
	FS 242	M 5 x 13 (Torx 20)	Milling system 2000
	FS 258	M 3 x 5.7 (Torx 8)	Milling system 2000, STARDRILL
	FS 318	M 4 x 6 (Torx 15)	Toolholder, F 2053, STARDRILL
	FS 749	M 4 x 10.5 (Torx 15)	Milling system 2000
	FS 1006 FS 1007 FS 1008 FS 1009	M 3.5 x 12 (Torx 15) M 4 x 12 (Torx 15) M 6 x 18 (Torx 20) M 5 x 16 (Torx 20)	Milling system 2000
	FS 1036	M 6 x 14 (Torx 20)	Milling system 2000, STARDRILL
	FS 248 FS 249 FS 250	M 4 x 10.7 (Torx 8) M 5 x 11.3 (Torx 15) M 6 x 11.6 (Torx 20)	Milling system 2000
	FS 293	M 5 x 11 (Torx 15)	Milling system 2000
	FS 305	M 5 x 11.6 (Torx 20)	F 2044

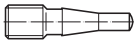
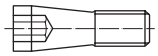
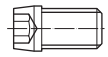
Threaded plugs

	Designation		Size	suitable for
	FS 961	DIN 7	M 4 x 28	
	FS 962	DIN 915	M 5 x 10	
		DIN 915	M 4 x 5 M 4 x 6	Adaptors
		DIN 915	M 4 x 10	WALTER milling cutter, F 2140
		DIN 915	M 6 x 10	Adaptors, B 2109
		DIN 915	M 6 x 12 M 6 x 16	Adaptors
		DIN 914	M 6 x 8	WALTER CUT
		DIN 913	M 8 x 8	STARDRILL
		DIN 913	M 10 x 10 M 12 x 12	Adaptors

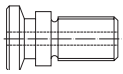
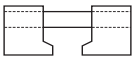
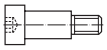
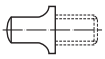
Other threaded plugs

	Designation	Size	suitable for
	FS 316	M 6 x 10 (Torx 15)	WALTER milling cutter, F 2010
	FS 492 FS 495 FS 497 FS 498 FS 499 FS 500 FS 501	M 2.5 x 4 (SW 1.3) M 4 x 9 (SW 2) M 5 x 16 (SW 2.5) M 5 x 20 (SW 2.5) M 5 x 25 (SW 2.5) M 6 x 25 (SW 3) M 6 x 40 (SW 3)	B 2120
	FS 517	M 5 x 13.5 (SW 2.5)	

Countersunk head bolts

	Designation	Size	suitable for
	FS 758 FS 759 FS 760 FS 761 FS 762 FS 763 FS 764		Countersunk head bolt B 2110, precision boring tool
	FS 945 FS 946 FS 947 FS 948 FS 949 FS 950 FS 951	for ∅ 22–29 mm for ∅ 29–38 mm for ∅ 38–50 mm for ∅ 50–65 mm for ∅ 66–88 mm for ∅ 88–115 mm for ∅ 115–155 mm	Countersunk head bolt B 2110, precision boring tool
	FS 1491 FS 2045 FS 2055 FS 1148 FS 2056 FS 2058 EN 100-100076	M 3 x 9.8 (SW 2) M 3 x 12 (SW 2) M 4 x 15 (SW 2.5) M 5 x 19 (SW 2.5) M 5 x 23 (SW 3) M 3 x 13.5 (SW 2.5) M 8 x 22 (SW 5)	Special tools
	FS 2059	M 4 x 8.8 (SW 2.5)	Special tools

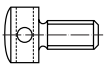
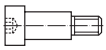
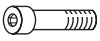
Accessories for adaptors

	Designation	Size	Description	suitable for
	C 100.45.215 C 100.45.345 C 100.45.430 C 100.50.430 C 100.50.445	SK 45 DIN 69872-B SK 45 ANSI B 5.50 SK 40 MAS BT SK 50 MAS BT SK 50 MAS BT	Pull stud	Adaptors, Porcupine cutters
	FS 709 FS 710 FS 711 FS 712	M 12 x 18 (SW 16) M 12 x 17 (SW 19) M 16 x 24 (SW 22) M 20 x 30 (SW 30)	Tensioning bolt	Adaptors, NCT radial
	FS 930 FS 931 FS 932 FS 933	M 4 x 10 (Torx 15)	Clamping unit	Adaptors, NCT radial
	FS 1079 FS 1080	for SK 40 for SK 50	Intermediate bush for pull stud	Tools with steep tapers
	FS 371 FS 372 FS 373 FS 374	SW 10 SW 10 SW 12 SW 12		Clamping screw for front piece, F 2038
	FS 906 FS 907 FS 909 FS 910		Driving lug	Adaptors
	FS 697 FS 698	M 12 x 24 (MT 3) M 16 x 27 (MT 4)	Flat tang	B 3040

Cap screws

	Designation	Size	suitable for
	DIN 912	M 4 x 8 M 5 x 12	Adaptors
	DIN 912	M 6 x 10	Precision boring tool, B 2109 M
	DIN 912	M 12 x 40	Adaptors
	DIN 912	M 12 x 60	Precision boring tool, B 2121 M
	DIN 912	M 16 x 45 M 16 x 50	Adaptors
	DIN 7984	M 16 x 40 M 16 x 45	Adaptors
	DIN 7984	M 20 x 60	Eccentric sleeve

Miscellaneous screws

	Designation	Size	suitable for
	FS 307	M 5 x 17	Adjusting screw with crosshole, F 2050
	FS 314	M 6 x 18.5 (Torx 15)	Collar screw, F 2050
	FS 370	SW 10	Clamping screw for front piece, F 2038
	FS 371 FS 372 FS 373 FS 374	SW 10 SW 10 SW 12 SW 12	Clamping screw for front piece, F 2038
	FS 385 FS 386 FS 387 FS 388 FS 485 FS 486 FS 489 FS 490 FS 491	M 4 x 19 (SW 2.5) M 5 x 23 (SW 3) M 6 x 25 (SW 4) M 8 x 29 (SW 5) M 3.5 x 22 (SW 1.5) M 4 x 22 (SW 3) M 8 x 40 (SW 5) M 10 x 45 (SW 7) M 12 x 44 (SW 8)	Fitting screw, B 2120 boring tool
	FS 752 FS 753 FS 754 FS 755 FS 756 FS 757		Adjusting screw B 2120 boring tool
	FS 765 FS 766 FS 767 FS 768 FS 769 FS 771		Fastening screw for holder B 2110 precision boring tool
	FS 935	M 2.2 x 6.4 (Torx 7)	Clamping screw
	FS 966 FS 967	M 16 x 16 M 6 x 12	Cap screw

Miscellaneous

	Designation	Size	suitable for
	FS 663	100 g	Copaslip

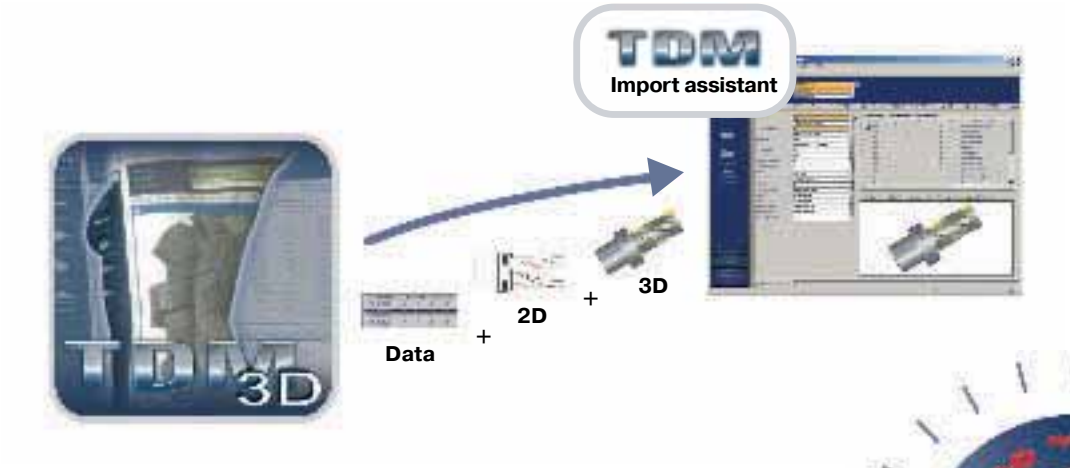
TDM V4 – digital tool data management for more productivity in programming, simulation and production!

See results quickly!

In addition to the advantages of central data management for tool components, complete tools and tool lists, TDM provides solutions for the rapid supply of tool data and graphics.

The TDM data and graphics generator includes data from the WALTER tools catalogue incl. 2D + 3D graphics.

Using the TDM import assistants, these are generated at a fraction of the original time and effort:



A full tool data bank after one pit stop

The data and graphic entry using TDM is comparable with a pit stop in motor sports:

The premium fuel =
tool data incl. 2D/3D graphics from TDM 3D

The turbo tank system =
of the TDM import assistant

The racing car =
TDM V4 tool data management

Time saving: 90 %!



90 % quicker!

Here is the comparison:

	without TDM		with TDM
System of 250 tool components incl. 2D and 3D graphics	250 h (1 h/tool)	- 90 %	25 h (approx. 6 min/tool)
Complete tool assembly incl. 2D and 3D graphics (100 complete tools)	150 h (approx. 1.5 h/complete tool)	- 90 %	15 h (approx. 9 min/complete tool)
Total time expenditure **Time expenditure per complete tool**	**400 h** **4 h**	- 90 %	**40 h** **24 min.**



TDM systems is a world leader in the software domain for tool data management.
We develop software for the organisation and management of tools, devices, monitoring equipment, assembly and clamping equipment as well as systems and operating equipment.

TDM V4 – continuous processes with tool data from a “tank”

Continuity is a winner!

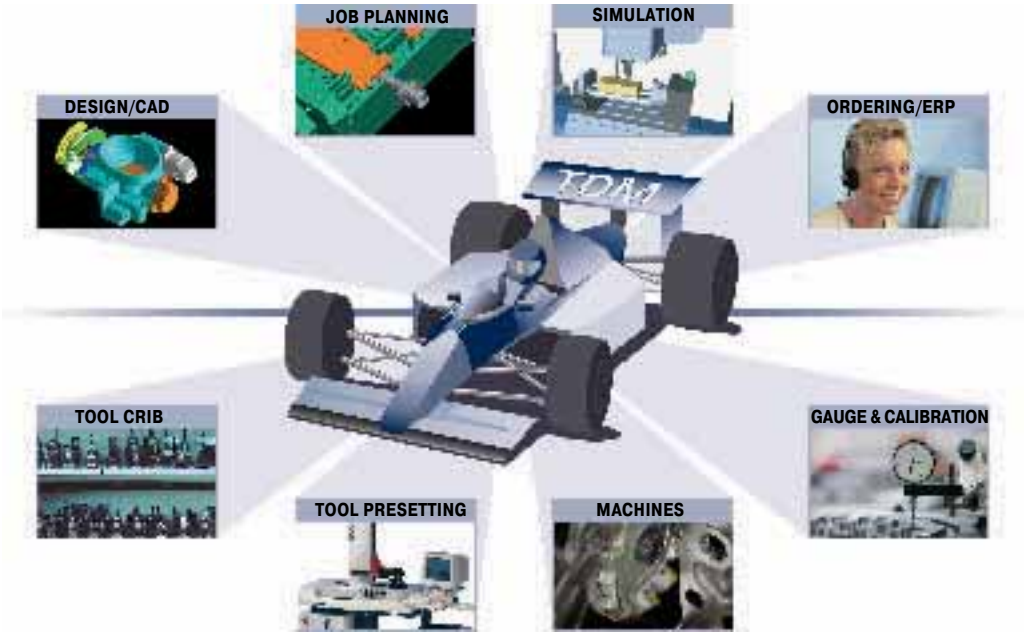
Many divisions in your company work with tool data. If the tool data is not saved centrally, each division looks after their “own” data. This not only leads to inconsistencies in the data but also to a huge increase in expenditure!**!**

What does it depend on?

- ➤ Experience values from production must be available in planning (reproducible cutting values)
- ➤ Scheduling the tools which are actually available
- ➤ Ordering the required tools on time
- ➤ Selection of the current tool for the respective machining process
- ➤ Programming & simulating with 2D + 3D models of real tools
- ➤ Realtime tool logistics in production

Central data management

With TDM, your tool data and graphics are managed centrally. All divisions have, at any time, parallel access to identical data. You work with real tool data both in the planning and in production.



Simple integration

TDM V4 can be easily integrated into almost any system environment: TDM can carry out a smooth data exchange with over 50 standard interfaces for established CAD/CAM, simulation and ERP systems as well as storage systems, pre-setting devices and machines.

TDM systems

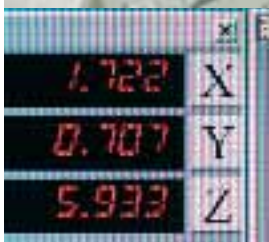
















More competitive capability:



Advantages of uniform process development via the WALTER PRODUCTIVITY SERVICES

+ Optimised processes
+ Increased productivity
+ Lower workpiece costs
+ Better supply chain management
+ Reduction in the suppliers
+ Individual machining solution
+ Increased cost transparency and control
+ Reduced stock with better availability
+ Shorter machine downtimes
+ Reduction in tool diversity
+ Introduction of standards
+ Increased process reliability

= **more competitive capability**

You want to significantly lower your unit costs?

We will the develop the ideal process chain for you!

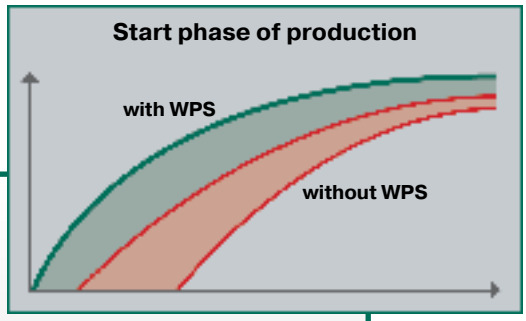
As one of the leading complete suppliers of machining tools, we optimise the most important machining operations on a daily basis for our customers.

To make the available saving potentials even more effective, the WALTER Productivity Services (WPS) concept was developed.

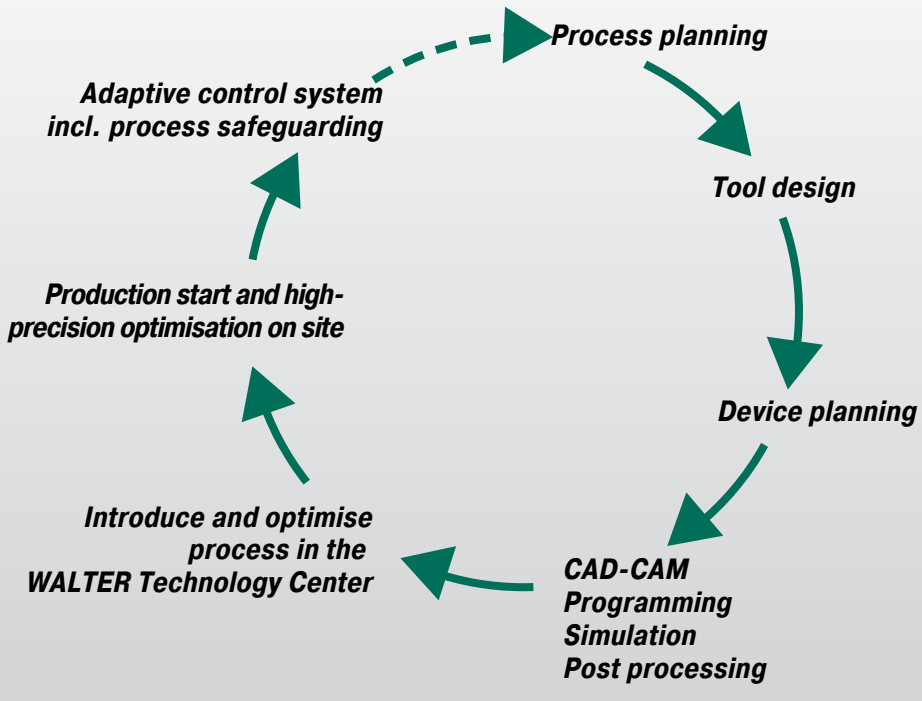
Th first key to success lies in a comprehensive analysis of the entire process chain.

With WPS, WALTER makes a team of experts available to you whose competence extends far beyond the optimum use of tools.

Additional information can be found online at www.walter-ag.com.

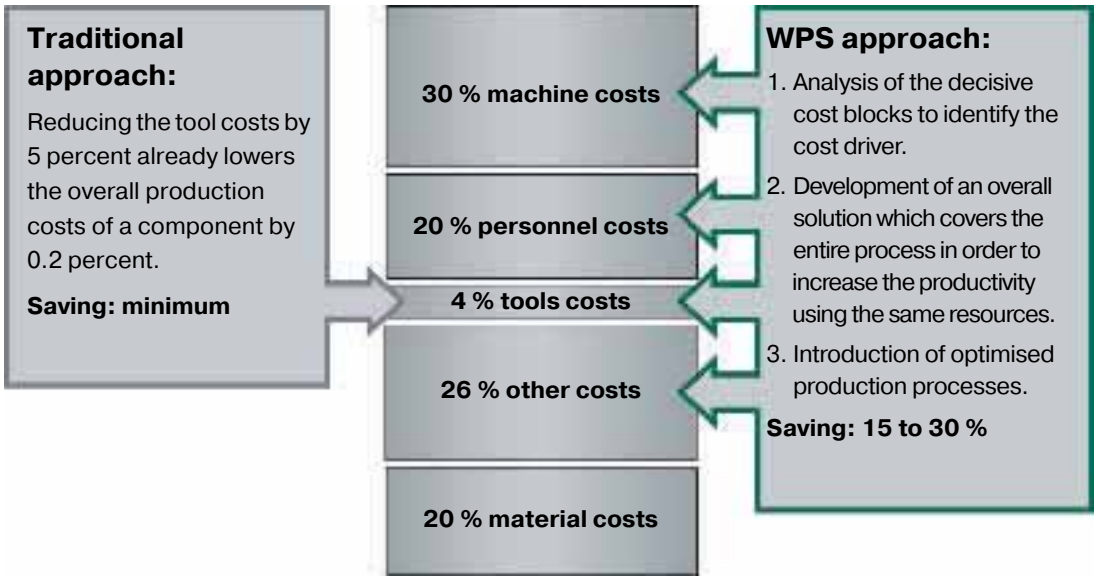


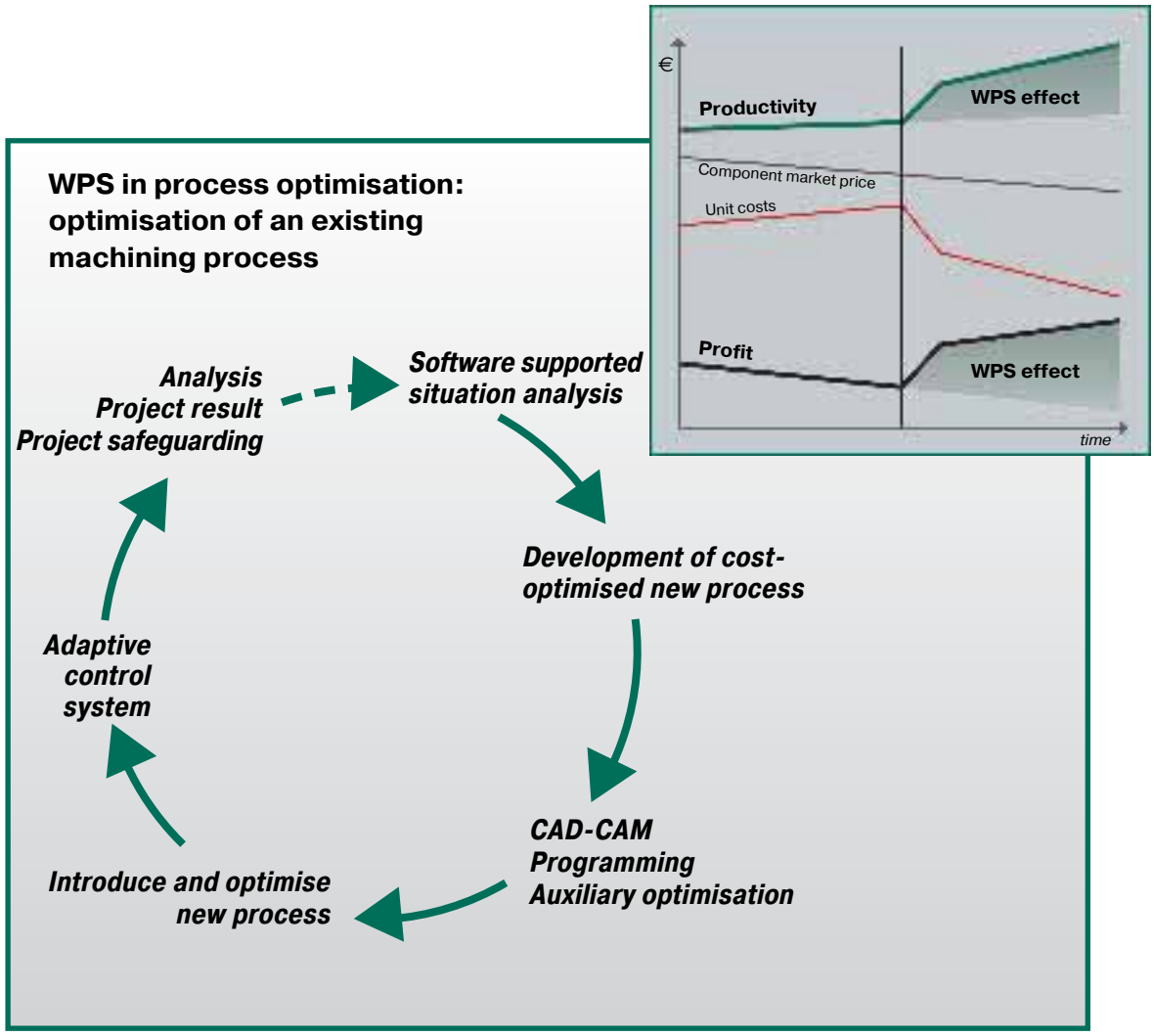
WPS in the full-service package: new planning of a machining process



WALTER PRODUCTIVITY SERVICES

Saving potentials with a standard cost distribution







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Printed in Germany 5281 852 (05/2007) EN