



Tool Management

Intelligent concepts to reduce costs
in all aspects of Tool Management

- advice regarding the optimal Tool Management concept
- Tool Management to customer specific requirements
- hardware for optimised tool logistics
- software for Tool Management and production planning

GUHRING
The Tool Company



Why should you introduce your company to Tool Management?

Dr. Steffen Lang, head of Guhring's service department, talks about Tool Management and its advantages.

? Dr. Lang, why should a manufacturing company become involved in Tool Management?

! Whilst the direct tooling costs, that reflect tool consumption, are often known and the aim of optimisation, the indirect tooling costs are hidden in the process organisation of the tool administration. Subsequently, they are not as visible and quantifiable. Indirect tooling costs are, for example, procurement and storage costs, but also costs created by

the unavailability of tools, i.e. causing machine downtimes. Often the organisational shortcomings in a company are known but for different reasons the opportunities to introduce improvements are lacking. The required action would have to be carried out alongside the actual daily business and there is never enough time. Here is where we begin with our Tool Management concepts.

? What are the consequences of these shortcomings?

! To describe the possible consequences, I would very much like to quote from a case study¹⁾: 16% of all workflow interruptions can be attributed to a lack of tools. Foremen spend up to 60% and machine operators up to 20% of their time searching for tools and all this leads to the total machine availability being reduced by approximately 9%. Such organisational shortcomings and their repercussions we often come across - more or less strongly pronounced - in the companies. Optimisation can naturally remedy the situation. In this particular case the tool diversity could be reduced by 30% and the stock or work in progress respectively

could be reduced by 20% with an optimised Tool Management concept. Optimisation of the tools themselves reduced tool consumption by 15%. These and further measures resulted in a 5% increase in machine capacity utilisation.

Investments and process optimisations carelessly given away through inadequate organisation

? These are impressive figures. How does Guhring's Tool Management specifically help to exploit this potential?

! One pre-requisite is that Guhring's Tool Management concept is a modular structured system. No customer has to buy system components from us that he doesn't really need or wants to outsource! The appropriate advice in close consultation with the customer is, therefore, very important to us. I have indeed already addressed the analysis of the manufacturing and process chain. Building on that, then follow suggestions for the outsourcing of processes and functions as well as for the application of our Tool Management soft- and hardware. At the end stands a Tool Management individually made-to-measure for the customer, optimally satisfying his wishes and requirements and entailing corresponding optimisations.

? The described measures target the indirect tooling costs. But what does it look like for the direct tooling costs?

! For optimising the tool consumption and therewith the direct tooling costs we engage experienced Guhring Tool Managers. Due to their expertise they can also optimise tools for technologies that are not part of Guhring's product portfolio such as, for example, honing or grinding tools. A further advantage is that Guhring tool Managers are not involved in the customer's day-to-day business. Thus you can concentrate 100% on optimising the tooling costs. Therefore, the optimisation targets are achieved in the shortest possible time.

Tool Management with Guhring is well worth it

? What further advantages does a Tool Management with Guhring exactly offer?

! As Tool Manager, Guhring has at its disposal comprehensive experience and knowledge in the field of Tool Management through the successful processing of diverse projects. Furthermore, the customer receives from us important building blocks for a successful Tool Management from a single source: clear advice, operating a Tool Management project with the customer, a tried Tool Management software as well as automated tool dispensing systems and shrink fit systems. Dependent on the specific type of Tool Management project, the customer alone determines which tools he wants to acquire from Guhring. An example are projects where Guhring is responsible only for the procurement, stock-keeping and provisioning of the tools.

? Many companies operate internationally. Can they also benefit from these advantages in their subsidiaries?

! Guhring is a globally positioned company with its own sales companies as well as production and service centres on every continent. We are, therefore, in a position to offer our Tool Management concepts anywhere in the world – and indeed on the same high standard and with the same building blocks as in Germany. For example, we are currently successfully operating Tool Management projects in other European countries as well as in the Asia/Pacific region.

¹⁾ Sources:

- Ulf Müller: *Concept for the systematic planning and control of tooling in terms of an event oriented Tool-Management; page 2; ISBN 3-8322-2569-2; Shaker Verlag, 2004*
- VDI-Z 147 (2005), No. 3 - March
- MaschinenMarkt, March 2005

Combined expertise world-wide

Guhring is one of the world's leading manufacturer and supplier of rotary cutting tools. In excess of 100 years know-how in tool manufacture as well as own expertise centres for the areas of tool development, tool materials and coatings enable us to again and again develop outstanding tool innovations. The central focus of these activities is always the customer and his desire for efficient, economical and practical tools.

As we see ourselves as the complete supplier for everything in matters metal cutting we offer our customers timely and market oriented services in matters tool application. Our service division provides service features from re-grinding to re-coating right up to complete Tool Management concepts as well as the necessary soft- and hardware for Tool Management and process planning.

Our service centres

Re-grinding with or without re-coating world-wide to original Guhring quality!



- | | | | | | | | | | | |
|---|-----------------|-------------|----------|-----------|----------------|------------|-----------------|-------------------|------------|-----------------|
| 1 Germany
Albstadt
Berlin
Chemnitz
Eisenach
Geislingen
Gosheim
Mindelheim
Saarbrücken | 2 Australia | 5 China | 8 India | 11 Japan | 14 Netherlands | 17 Rumania | 20 Spain | 23 Thailand | 26 Hungary | 29 Vietnam |
| 3 Brazil - Diadema | 6 France | 9 Indonesia | 10 Italy | 12 Korea | 15 Austria | 18 Russia | 21 South Africa | 22 Taiwan | 25 Turkey | 30 White Russia |
| 4 Brazil - Joinville | 7 Great Britain | | | 13 Mexico | 16 Poland | | | 24 Czech Republic | | |

Advice



Customer



**TM-
project**



Software



Hardware



Tool Management from Guhring – everything from a single source

Customers can get all the components to optimise their tool administration from a single source - from Guhring.

Our service begins with practical advice and support for optimising the customer's tool administration and leads via the required hardware (automated tool dispensing systems, GISS shrink fit systems) and software (Guhring Tool Management Software) to a part or complete management of the customer's tool administration.

The customer benefits from the advantages of having Guhring as a partner at his side that can support him in all aspects of tool administration. Thus, projects can develop step-by-step and are always accompanied by the same partner that knows the customer and that the customer knows.

Solid advice is the basis of further optimisation steps for the customer's tool administration and logistics. Experienced Guhring Tool Managers provide both advice and practical support.

With the advice concept, the central focus is on the indirect tooling costs. These can account for a considerable part of the actual existing tooling costs. As the direct tooling costs are hidden in the organisational processes, they are also often not apparent in contrast to the direct tooling costs. Thus, an evaluation of the consequences of an inadequately organised tool administration is not possible, whereby these can be serious and result in a production stoppage due to the non-availability of tools.

With an inadequately organised tool administration, cost savings in direct tooling cost achieved through technology and tool optimisation can be easily lost or not realised.

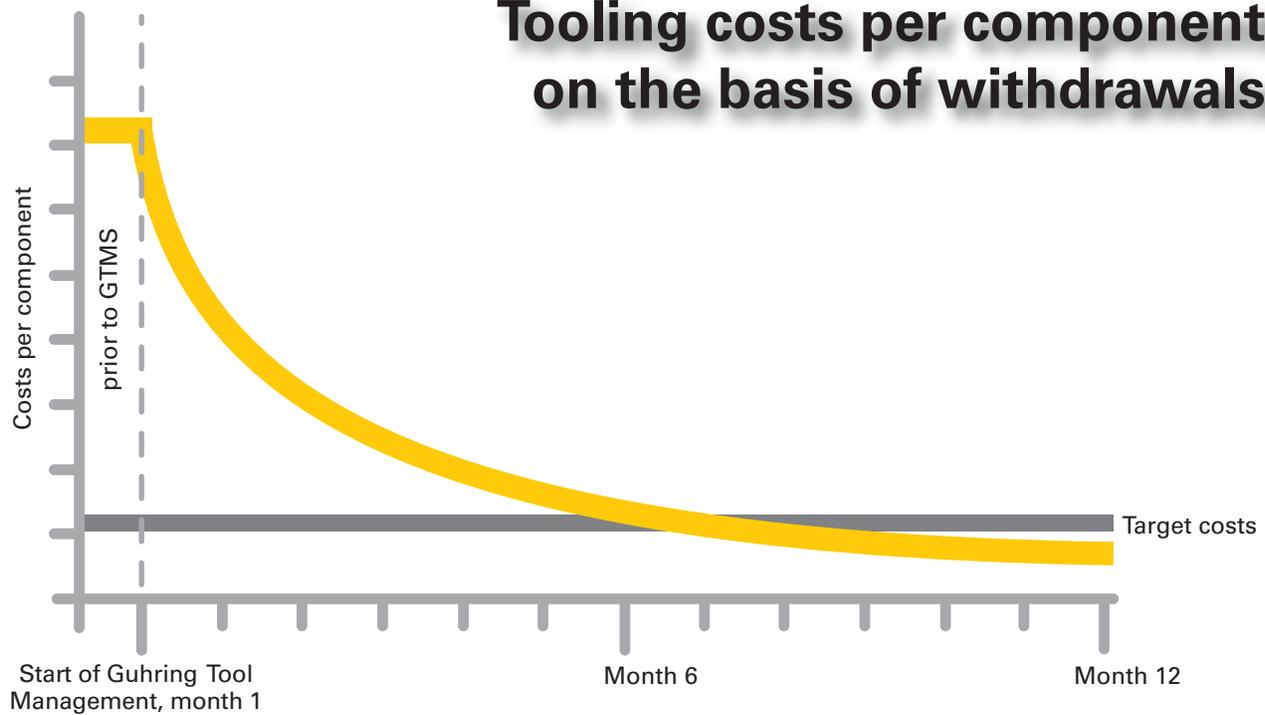
Amongst other things the following processes can be identified as the cause of indirect tooling costs:

- the order process including the order, order registration, accounting control and registration of invoices, payment etc.
- the engagement of personnel in the purchasing department, in the planning department, in tools inwards, in tool distribution, in tool allocation etc.
- the storage costs including interest on the stock, in particular tools not required very often.
- the inadequate transparency of the current stock level.
- incomplete information regarding the current tool consumption.
- the stock assessment and possible writing-off of tools not used frequently.





Tooling costs per component on the basis of withdrawals



Together with the customer, Guhring Tool Managers analyse the complete tooling including tool cycle, process planning, tool storage and production areas. The aim is to gain as deep as possible insight into the processes of the customer's day-to-day business. How is the tool storage and the process planning organised? How does the tool cycle function in production? How does the disposition and ordering of tools work?

Therefore, not only tooling is in the focus of the consideration. We together with the customer carefully examine all the factors involved in the process.

Based on these analyses, the optimising solutions and the appropriate implementation concepts are determined. Thereby, we benefit from the experience gained from the Tool Management projects we carry out world-wide. Therefore, the Guhring Tool Managers are in a position to work out and present practical and relevant business improvement concepts to the customer.

The subsequent implementation of such improvement concepts requires additional work to be carried out by the participants alongside the actual day-to-day business. Because not every company is in a position to make these additional working hours available, we are able to support the customer on the premises with our experienced Tool Managers during the implementation. This guarantees that the optimisation measures are actually implemented

as soon as possible. Only measures actually implemented show results.

Aim of a joint advisory concept is to pinpoint the organisational weak points and the resulting starting points for optimisation and implement these together with the customer, so that he works with an optimised tool administration after project completion.

Guhring's Tool Management Service consists of five different service package moduls that the customer can assemble and combine flexibly, individually and made-to-measure according to customer's requirements.

The aim of Guhring's Tool Management Service is the

- technology awareness
- high quality
- within the time-frame
- cost-justified
- increased productivity

provision of all tools required in the customer's manufacturing process as well as relieving the customer's production and tooling of non-value adding tasks and services.

Utilise the expertise and benefits of Guhring's Tool Management Service, to increase the customer's efficiency and optimise tool logistics. Choose the building blocks required in the production and combine them to create a customer individual Tool Management package.

Two typical project models are a logistical and technological Tool Management.

The 5 Tool Management columns



Process planning

Are you just setting-up a new production line?

Do you want to optimise the complete manufacturing process and apply intelligent tooling solutions?

Then Guhring's Tool Management Service will provide the following support:

- tool layouts
- tool design
- technological parameters
- manufacturing documents
- planning the original equipment



Logistics

Prevent down-times through lack of or wrongly supplied tools and spare yourself unnecessary administrative costs of processing the tool order, delivery and storage.

To ensure the correct tool is at the machine at the right time, we also take over tasks in logistical matters:

- determination of requirements
- planning and acquisition
- consignment stock
- incoming goods inspection
- warehouse management
- provision of new tools at the machine
- collection of worn tools at the machine
- tool vending machines and tool administration systems
- monthly invoicing

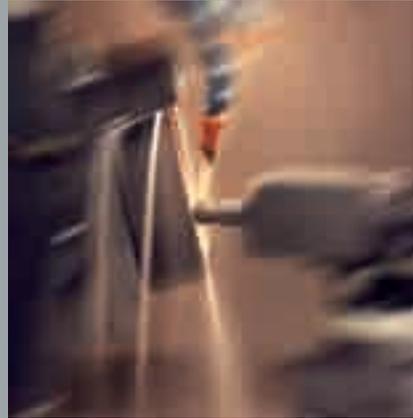


Tool application

The actual tool application requires numerous operating steps that Guhring's Tool Management Service can relieve you from. Enabling you to concentrate on your core task: the machining of components.

You can confidently leave the preparation of new tools and the maintenance of worn tools to us:

- stock withdrawal
- assembly and pre-setting
- disassembly
- evaluation
- despatch for refurbishment
- scrapping



Tool maintenance

The evaluation of a worn tool has shown that it is worth refurbishing? An applied tool is to be optimised by modifications? These are also tasks for Guhring's Tool Management Service – including the accompanying logistics.

Our service centres world-wide takeover the following services quickly and uncomplicated directly near you:

- tool collection
- de-coating
- re-grinding
- coating
- modifications
- tool delivery



Process optimisation

Our offers as part of the process optimisation module predominantly target the optimisation of tools already applied in the customer's production. As a result, the customer can on the one hand reduce the range of tool options and therefore the stock-keeping, on the other increase the efficiency of the production. For this purpose, we offer the following services:

- ABC-analysis of the tool costs
- analysis of unstable processes
- plan of action
- target tracking

Services ...

- provision of tools with consignment stock.
- the customer decides on the tools to be applied during the project term.
- Guhring is the main contact for all tools, including non-Guhring tools and turning, grinding and honing tools etc. including so-called C-products (i. e. assembly tools or inspection instruments).
- Guhring TM tool dispensing system for the storage of tools.
- monitoring the stock level with the customer.
- planning and ordering all tools to be applied including third party products.
- monitoring delivery dates.
- separate stocking of new and refurbished tools.
- collection of worn tools by the Guhring collection service.
- re-grinding and re-coating with original geometries and original coatings in Guhring service centres.
- delivery of new and refurbished tools, stocking Guhring's TM tool dispensing system.
- provision of withdrawal lists and tool movement journal, evaluation of tool costs in respect of new and refurbished tools.
- producing consumption analyses.
- monthly billing of tools dispensed by Guhring. Subcontractors are paid by Guhring.
- extending the project is possible at any time. The price for new tools to be added to the project is agreed with the customer.



... and customer advantages

- **only a single contact for all tools and products.**
- **Guhring also supplies non-Guhring tools and so-called C-products.**
- **the customer can concentrate on his core competences and value adding activities.**
- **reducing tied-up capital through consignment stock.**
- **accessing the cost savings potential with indirect tooling costs.**
- **cost transparency through clear cost allocation and monthly consumption reports according to different criteria such as period, product, cost centre, tool type etc.**
- **24 hour tool issue with partly un-manned shifts.**
- **customer specific composition of the scope of services.**



Services ...

- *Guhring responsible for the complete tooling.*
- *Guhring project team with Tool Managers, application engineers and pre-setters on the customer's premises.*
- *support for Guhring tools and third party products – also for turning, grinding, honing and assembly.*
- *planning and ordering all tools to be applied.*
- *monitoring the delivery dates.*
- *incoming goods inspection.*
- *administration of tool storage.*
- *assembly and pre-setting of tools.*
- *supply of pre-set tools direct to the production facilities.*
- *collection of worn tools from production.*
- *disassembly and evaluation of worn tools including wear analysis.*
- *despatch of tools for refurbishment, i.e. for re-grinding and re-coating.*
- *continuous technological optimisation of tools and processes (CIP).*
- *systematic registering of achieved actual tool life.*
- *comprehensive reporting, i.e. tooling costs per component, determining the cost drivers per workpiece, documentation of tool life development.*
- *monthly billing according to price per component.*



... and customer advantages

- *the customer can concentrate on his core competences and value-adding activities.*
- *quickly achieving the optimisation targets, as Guhring Tool Managers can dedicate 100% of their working time for optimisations.*
- *reducing the personnel costs in the area of tool administration.*
- *fixed tooling costs for the project term through fixed price per component*
- *reduction of tied-up capital, as tools remain the property of Guhring.*
- *accessing the cost reduction potential for indirect tooling costs.*
- *cost transparency through clear cost allocation and monthly consumption reports according to different criteria*
- *customer specific composition of the scope of services.*



GUHRING

Successful with Tool Management



**“Guhring
has unrivalled
experience
in Tool
Management.”**



The correct tool always on hand

Erwin Aberl, divisional manager of Central Services and Global Investment Planning at Engel Austria GmbH in Schwertberg/austria, counts on Guhring's logistical Tool Management.

He has many good reasons for this.

? Mr. Aberl, you have placed the complete tool logistics for your production in the hands of Guhring, an external supplier. Were you not afraid to handover such important competences?

! Naturally one is first of all sceptical and imagines all that could happen when externally allocating such an important strategic task. But following thorough examination of the offer, consideration of all advantages and disadvantages as well as a testing phase in our training workshop we were just absolutely convinced of Guhring's logistical Tool Management.

? From your point of view what has improved since the introduction of the logistical Tool Management?

! For us everything has become easier. For example, there is now only one point of contact, because Guhring also takes care of non-Guhring tools. In addition, we could considerably reduce the costs in the area of tool logistics. With the consignment stock costs incurred are only for actually applied tools, storage costs are beared by Guhring. The shorter paths save our employees time no longer having to look up a central tool dispensory, as they can withdraw the required tools from a locally positioned TM tool vending machine. Thus, we can now concentrate a hundred percent on our manufacturing expertise. The provision of tools no longer causes us any worries whatsoever.

Engel Austria GmbH in Schwertberg/Austria is the world's largest manufacturer of injection moulding machines and one of the leading companies in plastics machinery manufacture.

The high degree of product specialisation requires a component part or small lot production that entails very complex tool logistics. Subsequently, a large variety of tools must be kept in stock, the stock turnover, however, is relatively low. The result is an immense capital commitment.

With Guhring's logistical Tool Management introduced in 2008 today covers in excess of 12,000 different tools.



? So cost was not the most important criteria for the decision?

! I wouldn't put it quite like that. Only the introduction of the logistical Tool Management has opened our eyes in many areas regarding the actual costs. Let's stay with the example point of contact. At first glance this may have little to do with costs. But if you look at the consequences of ordering with several suppliers one inevitably also comes across the cost factor. And this is not insignificant once respective analyses have been conducted.

? On what basis have you generated these analyses?

! The introduction of logistical Tool Management in cooperation with Guhring already contains comprehensive analyses. This includes a look at procedures and processes for the tool procurement and provision as well as the quantitative and qualitative analysis of the tool requirement. Following the introduction of logistical Tool Management, for example, consumption reports and cost centre allocation always provide maximum and complete tooling transparency. The facts and figures are clear for all to see.

GUHRING

Successfull with Tool Management

? How have your employees reacted to this changeover?

! I would be lying, if at first there had not also been a certain scepticism. But the advantages of Tool Managements are simply convincing. Today, everybody is delighted with the new opportunities we have in our production thanks to the benefits provided by logistical Tool Management. The cost awareness of our employees has also changed. When taking a tool they now see the cost which leads to a entirely different appreciation. Some employees were often not aware that a special indexable insert costs € 70. Subsequently, at times it would be disposed of before the end of tool life. Today, this doesn't happen any more thanks to the new cost awareness.



**Guhring delivery service:
automatically always the
correct tools.**



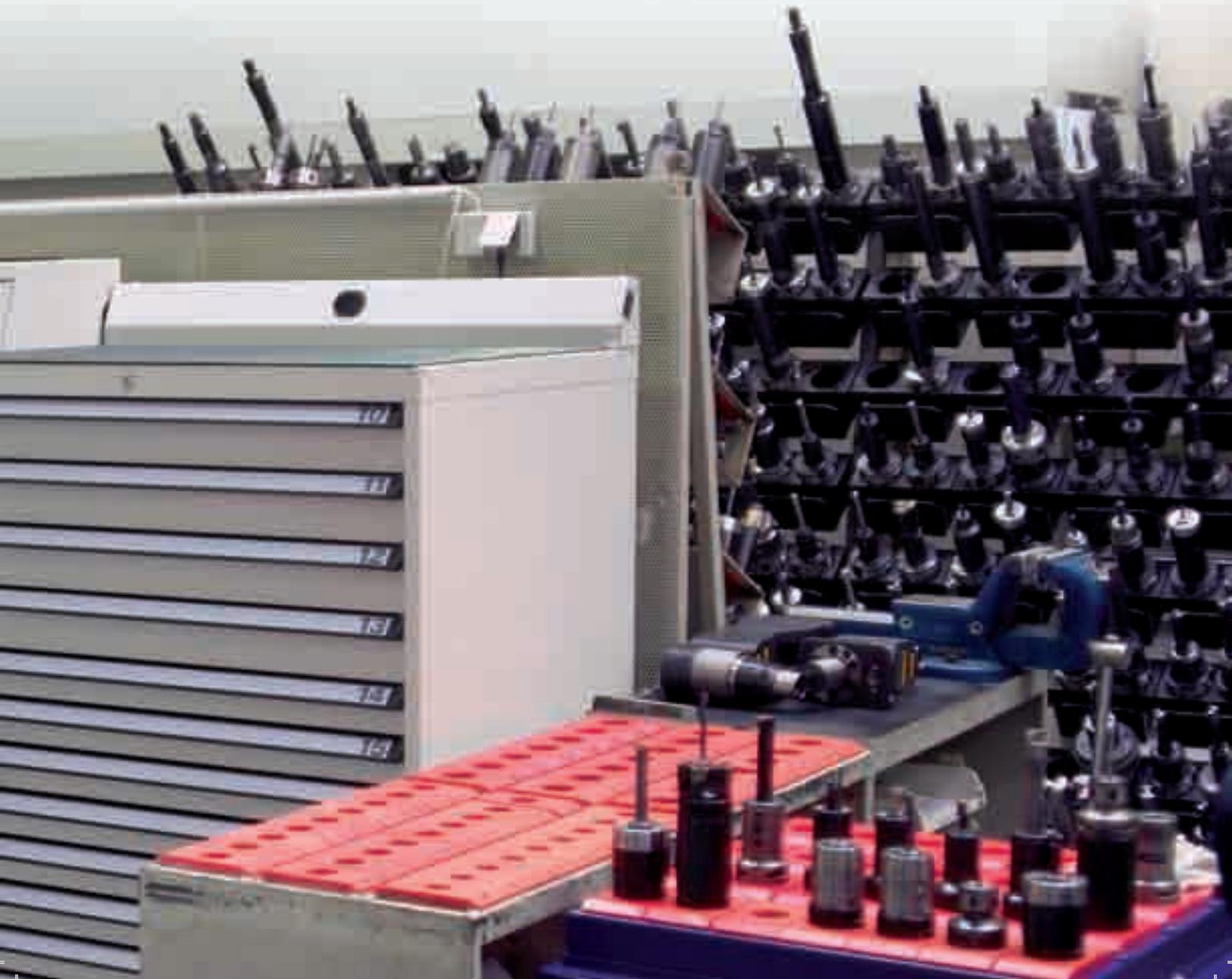


? How does logistical Tool Management now actually work in your company?

! Visible signs of our Tool Management with Gühring are the ten TM tool dispensing systems in our production. They dispense all the tools around-the-clock and take them back again following use. Then we are regularly visited by an employee from Guhring to collect the worn tools and restock with new or refurbished tools respectively. The rest happens actually unseen in the background. The recording of withdrawals and returns, the herefrom resulting orders, the billing – all that happens over online networks between Guhring and our company. Thereby, it was absolutely essential to us that the Guhring system was integrated in our existing data network with SAP, Oracle and Coscom.

? How would you sum up the introduction of the logistical Tool Management?

! We are absolutely satisfied and benefit immensely from this changeover. We have a made-to-measure solution that suits us perfectly: Everything we need, no unnecessary ballast. Therefore, we are already thinking about expanding the system. Because we now have the tooling costs so well under control, we would also like to get to grips with other cost drivers with Guhring's Tool Management. I'm thinking in particular of measuring equipment, replacement parts and especially protective equipment such as hearing protection, gloves or protective goggles, where we have an enormous consumption.

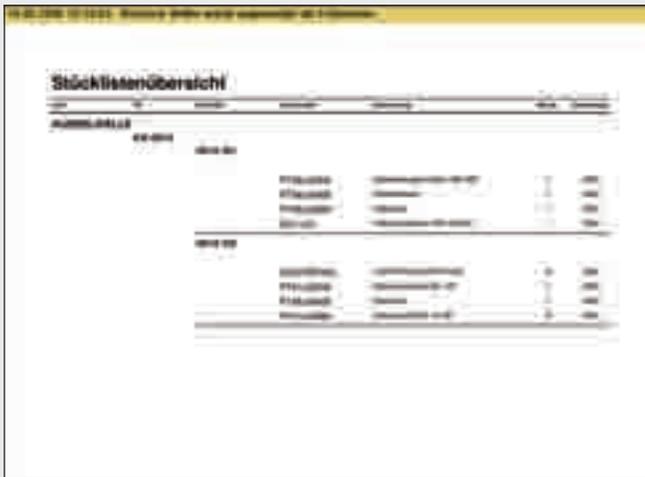




Stock list administration for producing new and for maintaining existing tool stock lists.



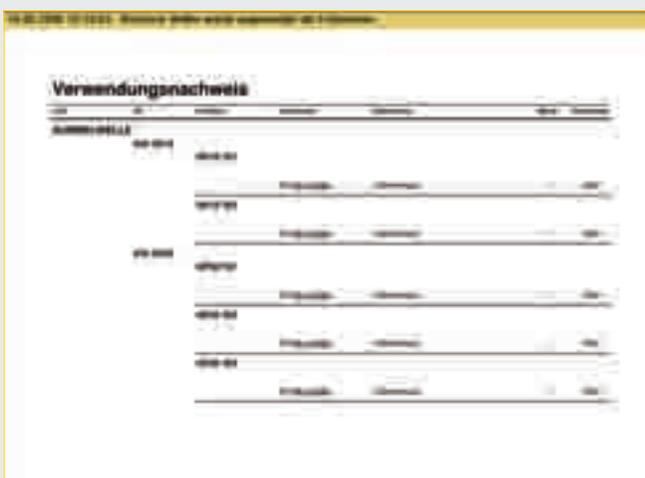
Allocating the withdrawn tools to different cost groupings.



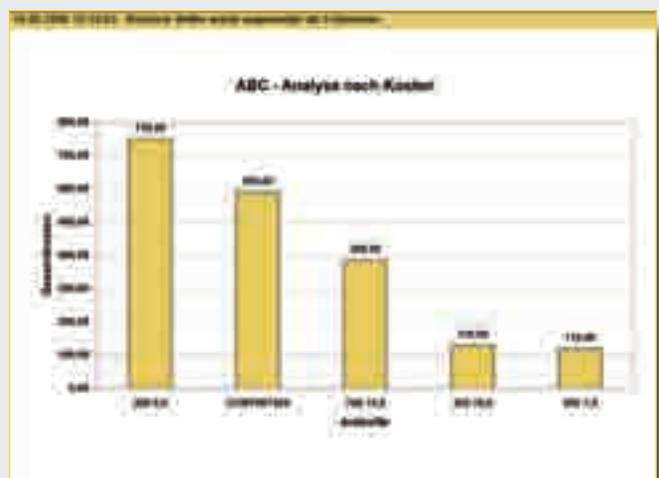
Stock list print-out, displaying the required data to customer specifications.



The tool selection is carried out to various criteria, i.e. item no., description or size.



Usage list of the application of tools.



ABC-analyses for a detailed cost distribution



Services and customer advantages

- producing tool stock lists.
- integrating electronic tool catalogues.
- direct call-up of CAD systems and graphics programs for processing and displaying of tool drawings.
- comprehensive warehouse management functionality which also controls the Guhring TM tool vending machines.
- three-level cost hierarchy for a clear cost allocation of tool withdrawals.
- exact consumption analyses to different criteria as, for example, tool consumption per component, per machine or per production area.
- the software already includes additional standard tools such as measuring equipment management, re-grinding management or ABC-analysis of consumption.
- individual solutions can be programmed according to customer request.
- simple, intuitive user guide.
- problem-free link to SAP, TDM, Coscom, IBM, ODBC, WebRFC etc. via respective interfaces.
- the software is available in German, English, French, Italian, Dutch, Polish, Danish, Hungarian, Czech, Spanish, Portuguese and Chinese (traditional).



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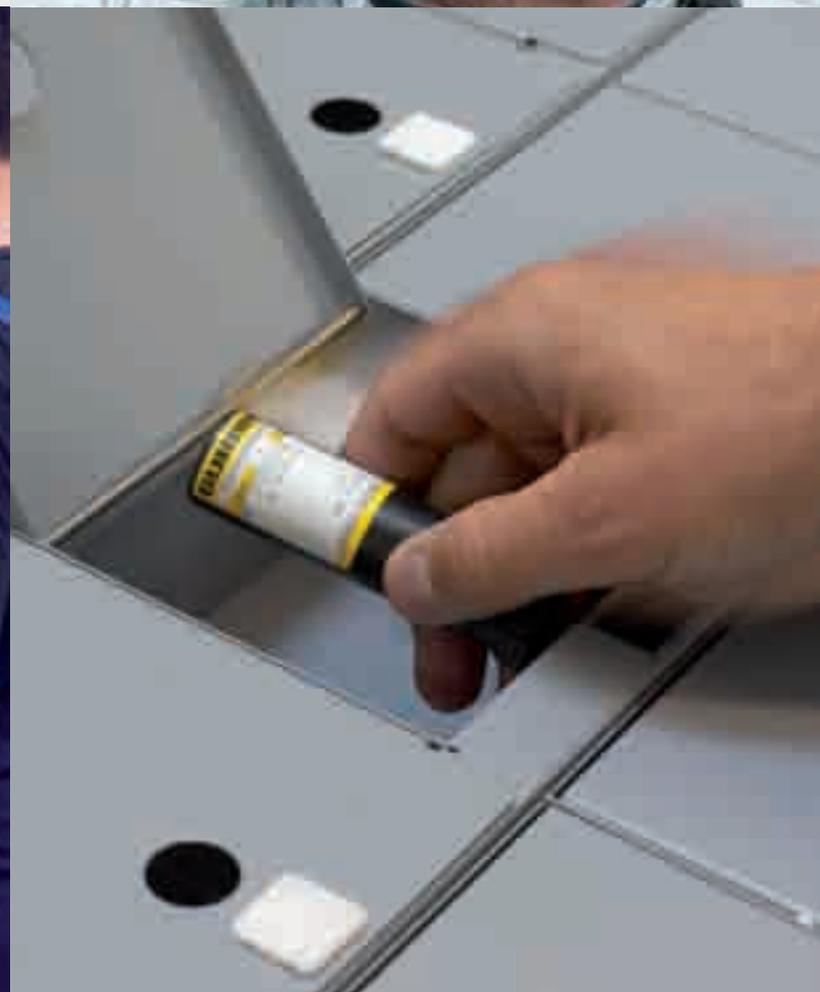
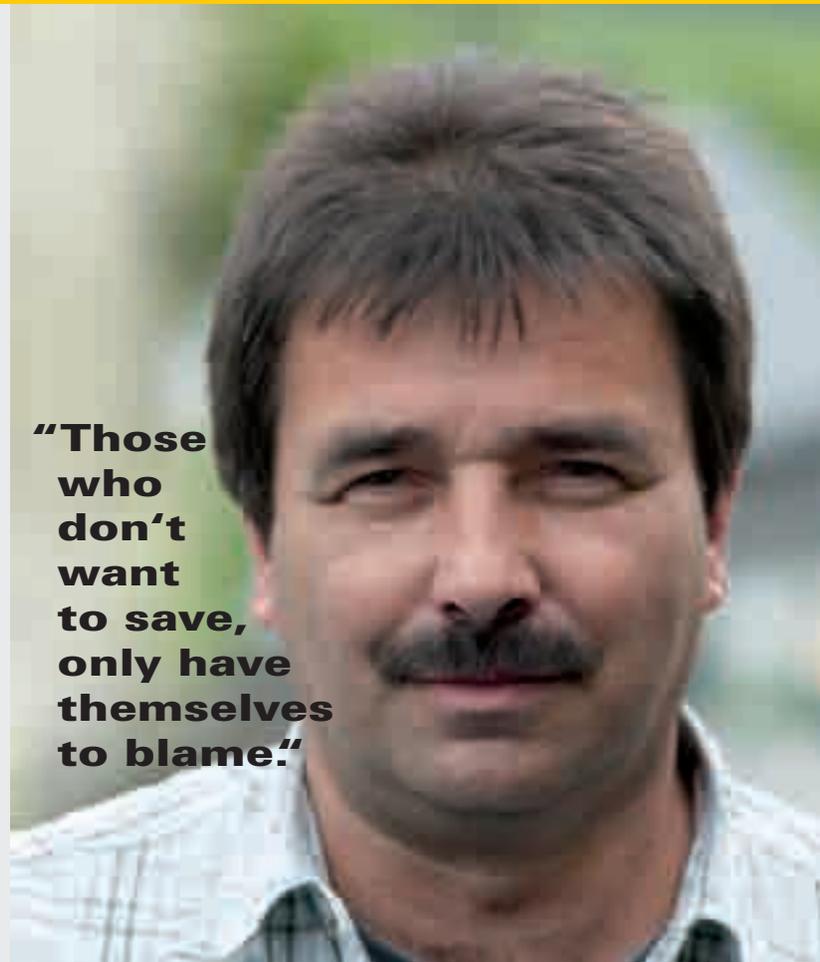
TM Tool vending Machine and TM Multi-Ve

AFS Fördertechnik GmbH, Mudenbach

“The investment in TM Multi-Vend Tool Management system should amortise within 5 years. We have reached this target in less than 3 years. Those who shy away from this investment only have themselves to blame!”

Horst Bender, owner of AFS Fördertechnik GmbH, manages his tools and measuring equipment with Guhring's TM Multi-Vend Tool Management system. He particularly values the permanent overview of stocks and withdrawals. The latter information is especially of interest with the measuring equipment, requiring readjustment after a certain number of applications - information, provided without problem by TM Multi-Vend Tool Management system. The permanent stock control simplifies the planning of orders and tool orders considerably: "I now take stock in 5 minutes, not in a week! And that tools aren't there at the beginning of a project although they're in my manually kept lists is also history."

“Those who don't want to save, only have themselves to blame!”



Vend Tool Management System



The controlled storage and dispensing of tools is the basis of maintaining the transparency of tool consumption and of the direct tooling costs. However, it requires that the tool stocks are kept under lock and key and that really every tool withdrawal is booked in the management software. This is the only way to ensure that the stock displayed is also physically present and that the tool planning can work reliably.

For the controlled storage and dispensing of the tools Guhring has at its disposal its Tool Management Systems TM Tool Vending Machine and TM Multi-Vend Tool Management System. Both excel thanks to simple operation, optimal storage possibilities as well as transparency of consumption and cost allocation. The systems are controlled directly via the Guhring Tool Management Software. Thus, all stock movements, including tool withdrawals can be booked directly into the central databank of Guhring's Tool Management Software and are available in real time for administrative procedures, i.e. tool planning.

When withdrawing tools the employee is forced by the running dialogue of Guhring's Tool Management Software to book in the tool withdrawal. If he doesn't end the dialogue correctly, the systems won't open and a tool withdrawal is not possible.

Subsequently, Guhring TM Tool Dispensing Systems offer all the decisive advantages of intelligent tool dispensing:

- **transparency of tool consumption, cost allocation and stock.**
- **24 hour controlled tool availability.**
- **preventing production downtime through monitoring the minimum stock level.**
- **sensitising personnel with regard to tooling costs.**
- **open system (multi-supplier capable).**



The best tool can't exploit its full performance if the basic conditions are not optimal. Therefore, Guhring have included the application of efficient shrink fit and pre-setting systems in their Tool Management offer.



More than just shrink fitting: Guhring's GISS shrink fit systems:

Guhring's GISS shrink fit systems guarantee optimal tool clamping in shrink fit chucks. There is a choice of different models for shrink fitting tools for insertion or withdrawal depending on the specific requirements of the customer's production.

It includes high-tech solutions with integrated, highly accurate length setting as well as special shrink fit systems for extra length tools or multi-facet systems with different equipment options :

- **GISS 5000** for shrink fitting, setting and measuring including fully automatic cutting edge form recognition and length setting
- **GISS 3000** with automatic length setting
- **GISS 2500** for shrink fitting, setting and measuring.
- **GISS 2000** in different equipment packages, adapted to individual customer requirements.

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