Edition 1/09

world of tools

HORN´S CUSTOMER MAGAZINE

SUBJECT:

TIME REVERSAL:

INCREASE IN EFFICIENCY USING COMBINED TOOLS

- Machining superalloys
- New: diamond tools for mirror turning
- Broaching on CNC machines
- Grooving tools from Rotterdam

Dear Readers,

The ultimate outcome of the international financial crisis is not yet foreseeable. Nevertheless we must come to terms with its current consequences such as the downturn in manufacturing industry. As well as the various industry-sector specific measures, one is applicable to all manufacturers: the potential to optimise productivity whatever the activity. The achievable improvements there are indispensable aids to reducing costs and cycle times and manufacturing challenging products with high productivity and reliability.

With completion of our new building and factory-wide reorganisation during Autumn 2008, we have laid an important foundation for our company. Thanks to the highly flexible production facilities, your requirements can now be realised even faster and with maximum quality. As we have also strengthened the Research and Development, we can develop tooling for grooving and other applications even more cost-effectively.

Our customer magazine describes some examples such as combined tools, machining superalloys, mirror turning, broaching and new coatings. These innovations and further developments are designed to contribute to increasing your productivity and thus your competitiveness through shorter retooling and machining times.

Do not fight against the wind. Set sail with us in the right direction.

Lothar Horn
Managing Director,
Hartmetall-Werkzeugfabrik Paul Horn GmbH,
Tübingen

world of tools HORN´S CUSTOMER MAGAZINE

Practical matters

Products

About us

Exhibitions

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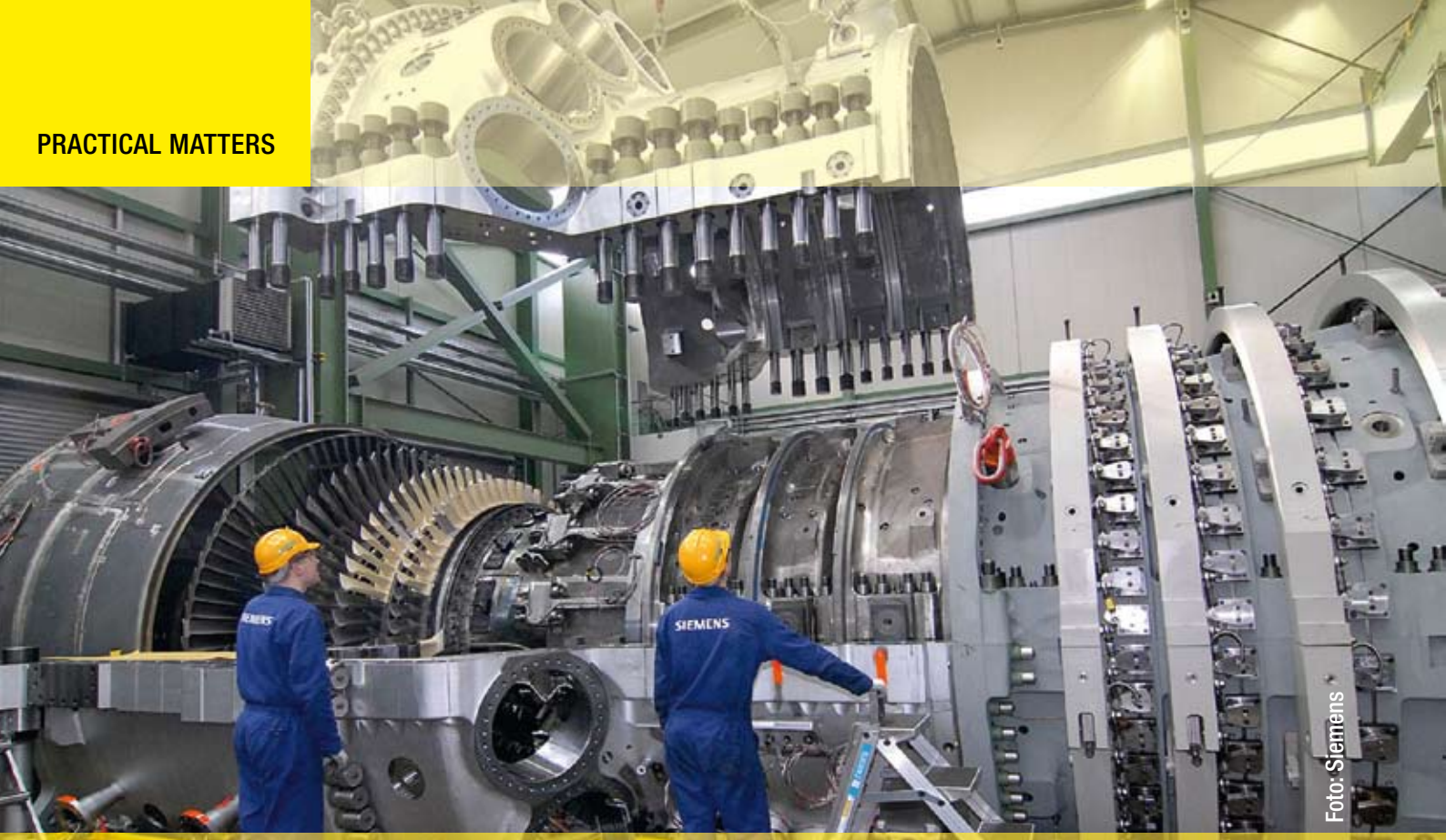


Foto: Siemens

MACHINING SUPERALLOYS

Challenge for our specialists

The most powerful gas turbine in the world manufactured in the Siemens gas turbine factory in Berlin generates 340 megawatts.

Superalloys are materials developed for applications at very high temperatures such as those occurring in aircraft engines, power station turbines, rocket drives, nuclear reactors and turbochargers in diesel engines. These alloys are extremely difficult to machine.

A comparison of material-dependent tool life shows how difficult superalloys are to machine. If a service life of several days is not unusual for machining aluminium, this is reduced to approx. 1 hour for spheroidal graphite cast iron and to 5 to 10 minutes for superalloys. Non-coated carbide tools achieve a service life of less than 1 minute when machining forged turbine blades made of Inconel 718 – a nickel-based superalloy. About nine years ago, this value could be increased to about 6 minutes using TiAlN coatings whilst availability of TiAlN SN² coatings about five years ago increased tool life to around 25 minutes.

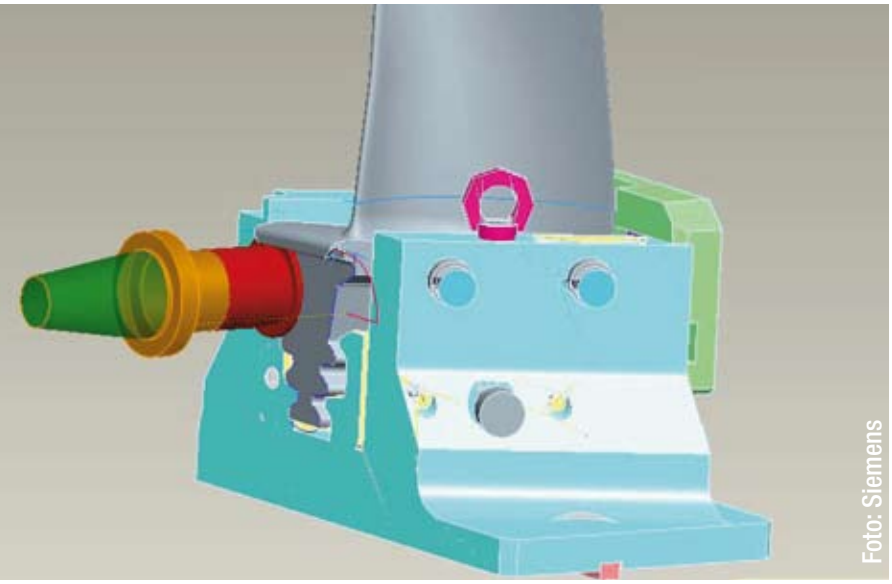


Foto: Siemens

Finish milling of the sealing plate groove.

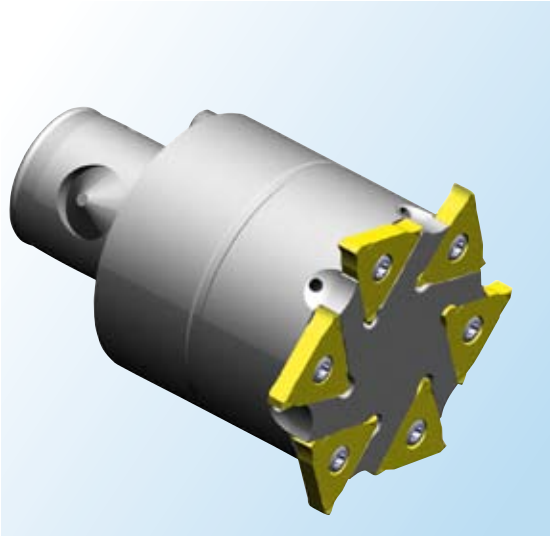
Extreme cutting wear

Superalloys based on nickel tend to work harden during machining. This leads to vibrations which, together with the material's high strength, exert extreme stress on the cutting edge. Other stresses in the form of very high temperatures result from the low thermal conductivity of superalloys. The effects on the tool can be reduced by application of a friction-reducing, smooth cover layer; ideally the coating should also offer the contradictory properties of high hardness and low susceptibility to cracking.

Experience from turbine construction

The most powerful gas turbine in the world operates

at the Irsching power station near Ingoldstadt in South Germany. The turbine, manufactured in the Berlin gas turbine factory of Siemens AG is impressive not only due to its size but also due to its output of 340 megawatts. Combustion temperatures of more than 1,500 °C enable efficiency of 39 percent. The process efficiency can be increased to 60 percent in the case of coupling with a steam turbine (GuD = G+S)) – this is also a world record. The turbine blades are made of the material René 80 with a nickel proportion of 60 percent. They are covered with a metal adhesive layer and a ceramic layer. Thanks to this coating and integrated air cooling, they heat up to "only" 950 °C despite the high turbine inlet temperature.



Circular interpolation groove milling cutter with triple-edged indexable insert and internal coolant supply for machining the sealing plate groove.

Circular interpolation groove milling cutter bears up

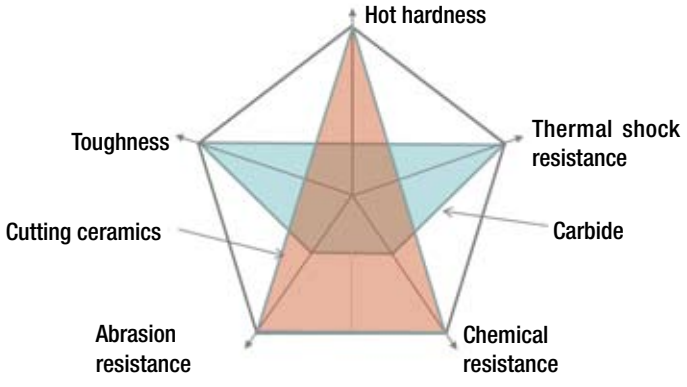
A groove must be milled at the base of every blade for fixing a sealing plate. Unfortunately, the strategy developed by us for this is only permitted to be distributed in extracts. The blades clamped on a machining centre are pre-milled by down-cutting by an 80 mm diameter circular interpolation groove milling cutter with six triple-edged cutting inserts and then finished. At a cutting speed vc ≤ 25 m/min (82 sfm) and a very low feed rate fz ≤ 0.08 per tooth, the desired, very short swarf was produced for a contact width ae = 0.24 mm (0.010") per page and the milling cutter achieved a tool life of five to seven blades. The tendency for the material to adhere to the cutting edge and the formation of wear marks on the chip surface and the cutting edges proved to be "service life killers".

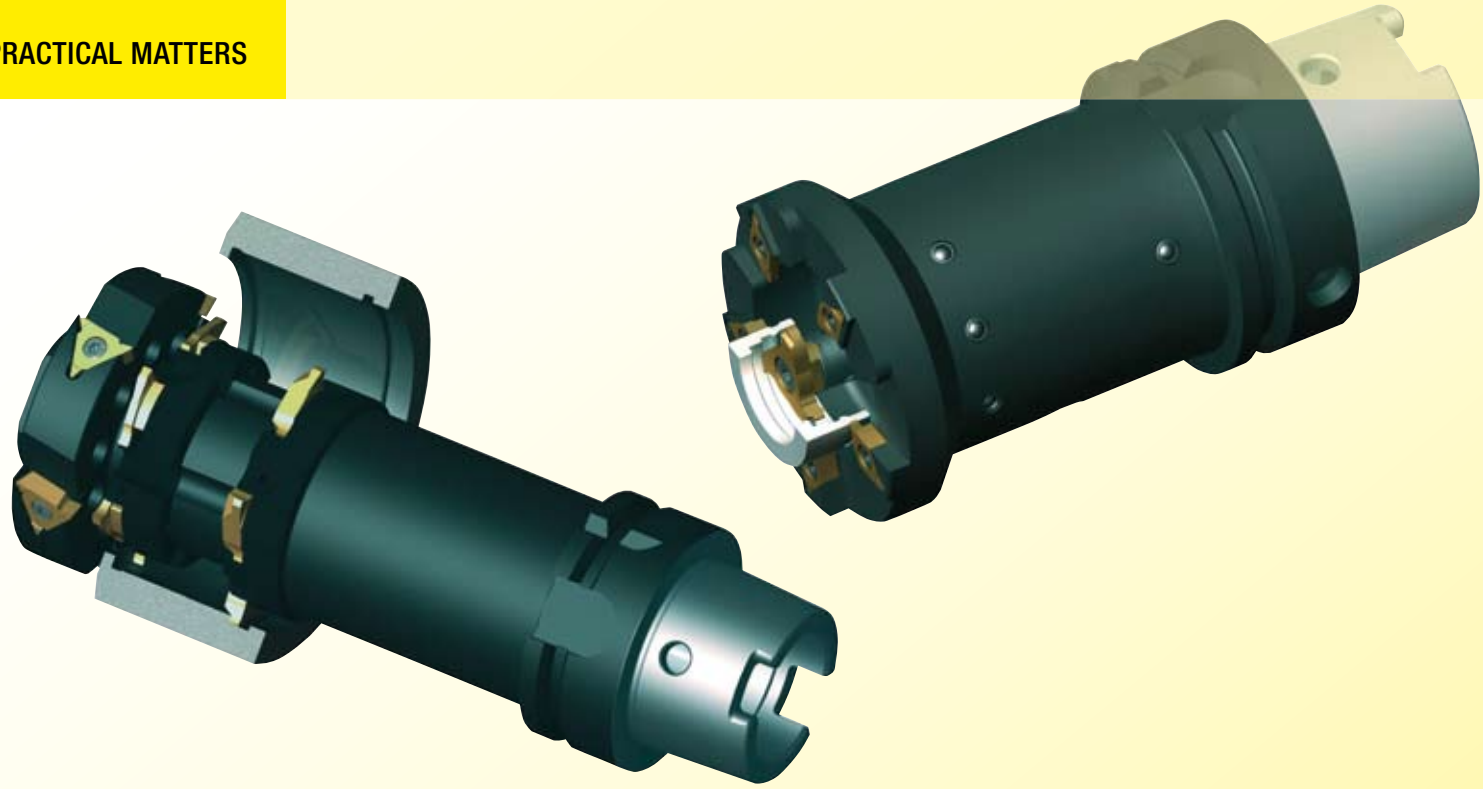
Superalloys challenge our Development Department

Higher service lives for the machining of superalloys require an improved tool coating, for example nano-hard layers with crystalline material structures. The tendency for oxidation can be significantly reduced with this coating. The resulting development of cutting edges with particular fracture toughness makes milling at speeds of 30 to 65 m/min (98 to 213 sfm) practicable. Completely different machining parameters characterise the cutting ceramics made of aluminium oxide with chamfered silicon carbide whisker reinforcement and wear-resistant silicon aluminium oxy-nitrides. They are distinguished by high hot hardness and high wear resistance. Despite tool life of less than one minute, they can achieve cutting speeds up to 750 m/min (2460 sfm). During turning this provides a stock removal capability 15 to 40 times higher in comparison with carbide tools, though ceramics have been little used to date for milling. As well as cutting ceramics, PCBN (polycrystalline cubic boron nitride) is currently used exclusively for turning superalloys at cutting speeds up to 350 m/min (1150 sfm). The low fracture toughness of PCBN prevents its use for milling.

For these materials, the matching of the most important parameters such as cutting speed, feed per tooth and cutting depth is becoming more and more important. Therefore, the assessment of machining conditions for the increasing applications of superalloys will increasingly influence the work of our Development Department.

Comparison of the material properties of cutting ceramics and carbide.





COMBINATION TOOLS INCREASE EFFICIENCY

Top left:
Milling two internal grooves and a contact surface in one pass.

Top right:
Milling an internal and outer groove in one pass.

Combining work processes in a time saving way and reliably

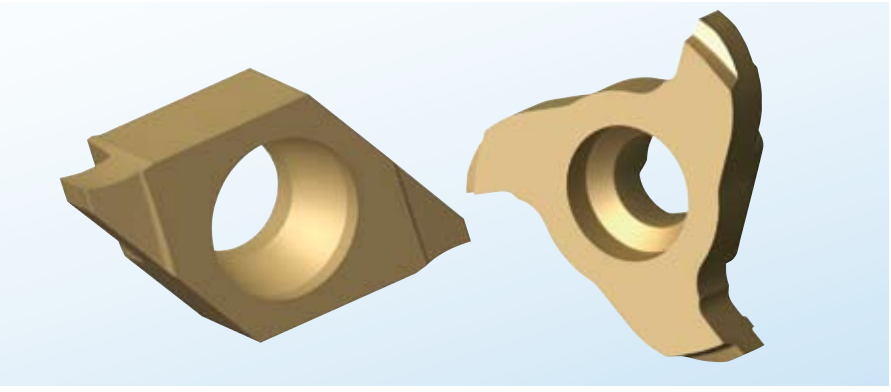
Machining can be performed in one cycle and without tool change using combination tools. This saves time and costs, increases quality, reduces inspection effort and simplifies handling.

Planning combination tools jointly

Combination tools, compiled from various standard tools, can only rarely be used successfully due to the special tool characteristics required. Therefore, our combination tools are adapted to the machines and machining processes of the customer and designed taking particular account of the swarf formation and control and the chip breaking behaviour.

Bottom left:
Insert Type 314 for milling the internal grooves.
(Tool top left)

Bottom right:
Insert Type 313 for milling the internal groove.
(Tool top right)



Planing and grooving in one pass

In an automobile factory, the application of two grooves in the axle leg bore hole including face milling of one contact surface had to be optimised. Our solution is a combined milling cutter which mills both grooves and the face using circular interpolation.

The milling arbor with internal cooling and an HSK-A63 holder also guarantees the required stiffness for a projection length of 173 mm (6.810"). For milling the inside slots it holds five indexable Type 314 inserts in each of two rows, whilst for face milling the contact surface five indexable inserts of Type S302 are mounted on the face side. The groove spacing – the spacing between cutter is 38.7 ± 0.05 mm (1.524" ± 0.002") – can be set exactly using adjustment rings. The cutting edge diameters are 75 mm (2.953") for the face milling, and 65.9 mm (2.594") and 68.98 mm (2.716") for the grooving, each with ± 0.04 mm (0.0016") tolerance. A threaded connection on the face side secures the tool holders and allows simple removal. The index-

able inserts can be rotated and changed in the machine.

The combination tool has confirmed the customer's decision with its many years of use. For a cutting speed vc = 230 m/min (755 sfm) and a feed rate fz = 0.3 mm (0.012")/tooth, the work is performed reliably, with high precision and approx. 60 percent faster as compared with the previously used individual tools.

Grooving, internal and external, in one pass

A manufacturer of hydraulic components expected a significant productivity increase from our proposals for making an internal and external groove in flange parts made of red brass. In the combination tool designed for this, five indexable inserts of the Type S275 produce the external groove and an insert Type 313 supported centrically in the milling shank produces the internal groove using circular interpolation. Both grooves must be made with a tolerance of ± 0.02 mm (0.0008") to each other.

A robust milling arbor with an HSK-A63 holder and internal cooling is used as the tool carrier. The „bell cutters" are set to a cutting edge diameter of 34.5 mm (1.358") and the triple cutters to 21.7 mm (0.854"). For easier adjustment of the groove distances, also in the machine, the shaft with the Type 313 insert must be moved axially by ± 0.5 mm (0.002").

The tool is used on a special machine for a projection of 105 mm (4.134"). The specified piece count is reliably reached at a speed n = 6,000 rpm and a feed rate vf = 3,000 mm/min. (118" per min.). In comparison with the previous turning of both the grooves, our combination tool has impressed the user with a time saving of approx. 68 percent.

Productivity increase also for smaller series

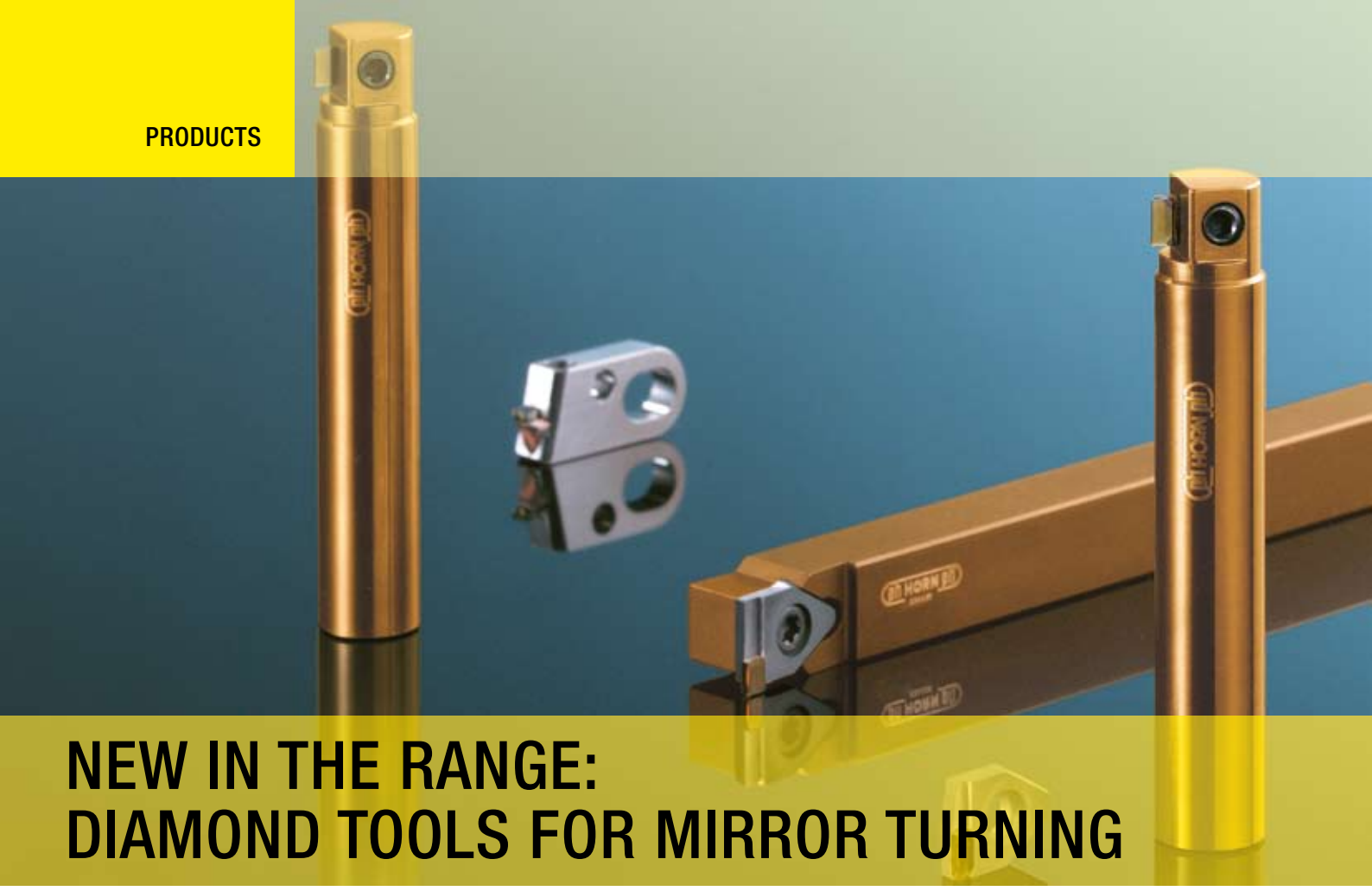
With HORN combination tools, work operations such as milling, drilling, countersinking, grooving, chamfering and others can be performed without tool change with reproducible accuracy. Working with our customers we make our expertise available in all phases of manufacture in order to find a cost-effective solution.

Tool package for the CTX series from DMG

Jointly with Gildermeister AG, we have designed a tool package for the DMG CTX series universal lathes for grooving, parting off and broaching. It contains tools from the Supermini, Mini and S117 series as well as GPS indexable inserts. The associated tool package from the Kennametal company provides a further customer benefit. It consists of turning, drilling and threading tools from the Kenloc, Screw-On and LT series as well as holders according to VDI 30, 40 or 50. The HORN-Kennametal high performance tool package is provided by DMG Vertriebs- und Service GmbH in the package with the machines of the CTX series (alpha, beta and gamma).

With the versatile tool package, the companies involved combine their technical resources for effective customer support. Using a joint analysis of the manufacturing process and the technologies to be used and close collaboration for the creation of machining concepts, the development of tool plans and time studies including cost overviews, further customer requirements and complete equipment projects can be responded to quickly – without interfacing and communication problems between the company locations.

High-performance tool package for the DMG universal lathes CTX alpha/beta/gamma.



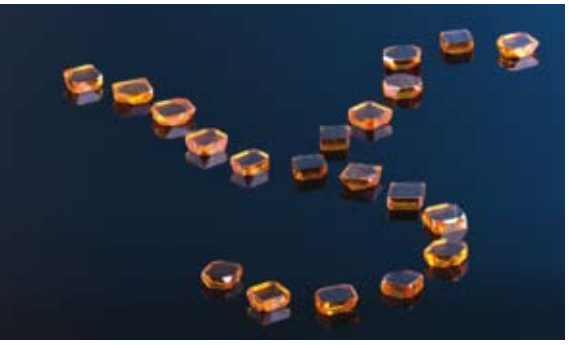
NEW IN THE RANGE: DIAMOND TOOLS FOR MIRROR TURNING

Our first tools for mirror turning: toolholder B105 (vertical) with insert 105 and toolholder H117 (horizontal) with insert S117.

Turning very shiny surfaces

Mirror turning has for some time been used by the jewellery and watch making industries to generate highly reflective surfaces. Today, mirror turned products are also in demand in the automotive, optics, entertainment and plumbing sectors, lighting technology and for high quality writing implements.

Surfaces comparable with that of a mirror can be produced by mirror turning on workpieces made of non-ferrous metals such as gold, silver, platinum, brass, aluminium, copper and red brass and plastics such as acrylic (PMMA) and polycarbonate (PC).



The inserts for our mirror turning tools are produced in several work operations from industrial diamonds.

Finishing by grinding or polishing is no longer required and in contrast to polishing, the contours and dimensions are maintained exactly. In order to maintain such flat, even and glossy surfaces in the nano range, the lathe must also satisfy high requirements and have, for example, hydrostatic bearings and air bearing spindles. Although a glossy surface can also be achieved with conventional machines, microscopic inspection reveals a slightly bumpy surface.

Cooperation with the company H10 expands our range

One of the world's leading manufacturers of diamond tools is the H10 company. Thanks to more than forty years of experience, the specialists from Engelsbrand near Pforzheim can provide the best suited diamond tools for the most challenging tasks. With the growing importance of diamond machining, the number of applications which require such special tool expertise is growing. We can now provide the necessary tools for these tasks; from the preliminary machining to the generation of the high gloss surfaces – and realise preliminary and finish machining in one pass by the combination of different diamond grades.

The cooperation starts with mounting diamonds on the cutting edges of the S117 and 105 tool systems. When these tools are used on lathes designed for mirror turning, no turning grooves are visible on the surfaces even at high magnification. The surface roughness Rz is less than 0.1 µm.

Vibration-free turning without manual interventions

Lathes which operate without vibration are required for the manufacture of particularly high quality surfaces both technically and visually; for example laser reflectors have particular requirements for the flatness, peak-to-valley and uniformity. Our cooperation partner already has longstanding connections with the manufacturers of such machines. Our objective is to collaborate with all manufacturers of lathes to provide our customers with our well-known support competence also for mirror turning.

The surfaces for mirror turning are usually pre-turned with PCD or carbide inserts with an allowance of 0.02 to 0.05 mm (0.001" to 0.002"). The diamond tools are used afterwards. It is recommended for surface protection reasons to largely automate the work process, even under clean room conditions if necessary. The employees must wear gloves – fingerprints mean rejection – and the workpieces are deposited and palletised in special holders.

High gloss surfaces are produced by mirror turning – contours and dimensions are maintained exactly.

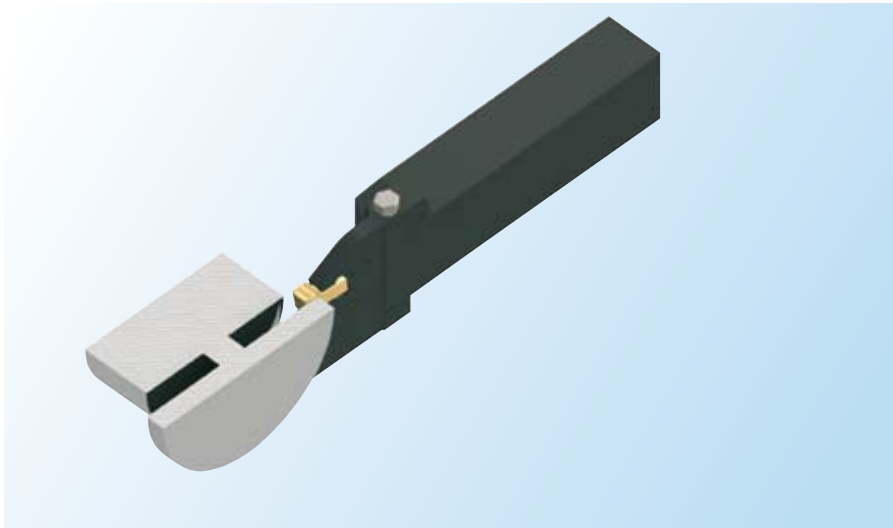
Insert S100 with 8 mm (0.315") groove width

Parting off pipes up to 35 mm (1.378") wall thickness

The new, 8 mm (0.315") wide grooving insert and its tool holders designed for depths up to 35 mm (1.378") significantly expand the application areas of the S100 inserts previously only available for groove widths of 2 to 5 mm (0.079" to 0.197"). A valuable feature is the high feed rate od 0.15-0.25 mm (0.006"-0.010")/tooth which can be sustained thanks to the wear-resistant carbide grade AS6G. In addition the .EN geometry form guarantees a good chipping process with reliable methodology.

The toolholders with a cross section of 32 x 25 mm (1.260" x 0.984") or with reinforced blade design are available in clockwise and anticlockwise versions. A screw clamp holds the insert securely and enables simple insert replacement with high repeat accuracy; this offers a significant benefit with respect to the application and cost-effectiveness as compared with carbide-tipped inserts.

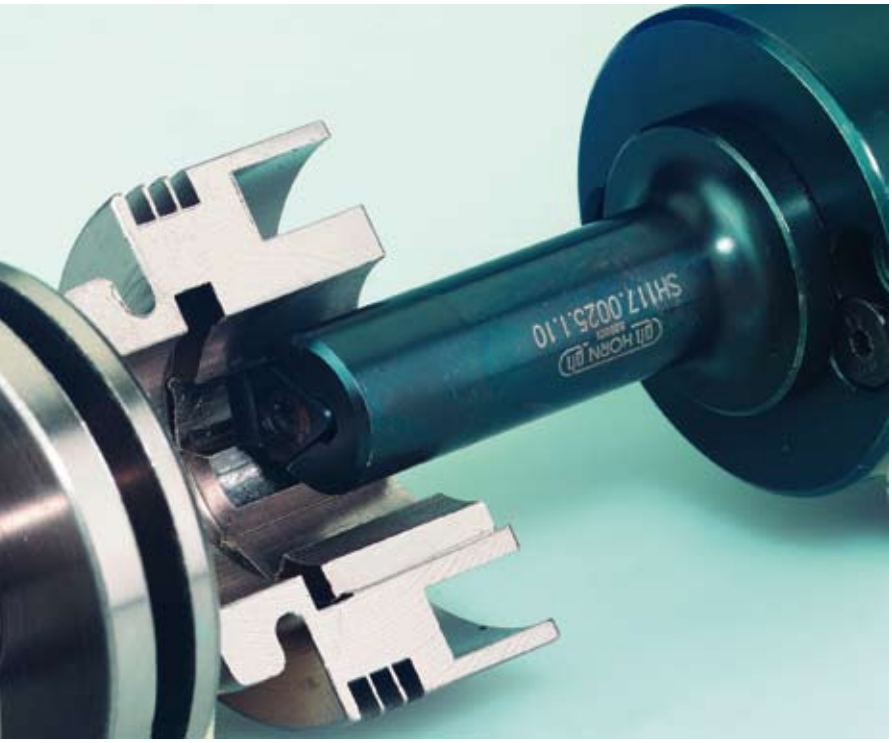
The grooving inserts of the Type S100 are now available according to the catalogue with different geometries and coatings for groove widths of 2 to 8 mm (0.079" to 0.315"). Inserts with 10 and 12 mm (0.394" and 0.472") width are in development.



Insert S100 for 8 mm (0.315") groove width.

BROACHING ON CNC MACHINES

Manufacture of longitudinal slots makes complete machining on one machine possible



Retracted and working situation for the broaching.

With regard to complete machining in a single clamping, broaching tools are an extremely cost-effective method for the generation of key-ways, splines and hubs on lathes or machining centres.

Broaching with programmable Y-axis

The simplest and least expensive solution for manufacturing grooves according to DIN 138 or 6885 on almost every CNC machine is provided by the SB105, SB110 and SH117 guided tool systems. Grooves which are wider than the insert can be broached in several infeeds though the machine must have a programmable Y-axis for this. If several grooves with exact pitch have to be applied on one circumference, a programmable C-axis is beneficial. Longitudinal slots can also be made on milling machines or machining centres if the milling spindle is secured against twisting. Helical grooves are produced by turning the C-axis during the pushing movement.

Grooving tools for standard and special profiles

Keyways	DIN 138 and DIN 6885 tolerance fields C11, P9, JS9		
Insert Type	N105	N110	S117
Groove width mm (")	2-4 (0.079-0.157)	4/5 (0.157/0.197)	5-12 (0.197-0.472)
Retracted length mm (")	12-15 (0.472-0.591)	25-40 (0.984-1.575)	40-75 (1.575-2.953)
can be used from Ø mm (")	6 (0.236)	9 (0.354)	17 (0.669)

Special inserts are available for involute and special toothing, toxprofiles or multi-edged with 3, 4, 6 and 8 surfaces. Thanks to this tool diversity, different profiles can be produced in the longitudinal direction, also with taper.

Broaching made easy

The cutting forces can be calculated approximately according to the formula:
$F_c = w \cdot zh^{(1-mc)} \cdot k_{c\,1.1} \cdot K_{sW} \cdot K_s$ where: Fc cutting force (N), w groove width mm ("), zh infeed/stroke mm ("), mc slope exponent, Kc 1.1 specific cutting force, Ksw correction factors for variants of the chipping angle and movement.

We are happy to make a cutting force calculation with machining recommendations for you as the basis for your time and cost-effectiveness calculations.

Sample of a customer-related cutting force calculation. The cutting forces and infeeds are also shown in a diagram.

Expected cutting forces

Workpiece material	GGG-55			
Cutting width w mm ["]	10 (0.394)			
Insert	S117...Special with ER0,3; 0,2 x 45° NAKF; SW 15°			
Tool holder	SH117.3032.1.16			
Machine	unknown			
Infeed per stroke mm ["]	0.01 (0.0004)	0.02 (0.0008)	0.03 (0.0012)	0.04 (0.0016)
Fc calculated [N]	395	665	901	1118
Infeed per stroke mm ["]	0.05 (0.002)	0.06 (0.0024)	0.07 (0.0028)	0.08 (0.0031)
Fc calculated [N]	1322	1516	1702	1881

GROOVING SYSTEM 312 MORE COST-EFFECTIVE THAN EVER BEFORE

View of the grinding shop of the 312 inserts In the foreground on the left: Partial view of a measuring and inspection station.

Ultramodern production of an always young system

As an area representative for carbide tools, clamping and measuring equipment, Paul Horn knew the production problems of his customers very precisely when he founded the company Paul Horn Einstechtechnik in 1969. The young entrepreneur had initial success with the grooving system 312 for circlip grooves. The tools developed at the beginning of the 1970s are also still very much in demand today due to their technical and economic benefits.

Successful in the market for 40 years

Paul Horn developed the insert system 312 – the 3 stands for three cutting edges and the 12 for the inner circle diameter – for grooving slots for circlips. As other plunge cuts and external profiles can also be machined extremely cost-effectively with the new tools, their sales success made a decisive contribution to the growth of our company. The growing market and customer requirements were responded to with different substrates and coatings and the range was expanded continuously over time. For example, cutting in the µm range and specially matched holders for single or package grooving of piston ring grooves have been developed whose precision is unsurpassed today. The manufacture of sintered geometries in 1997 was a milestone in the production of our inserts as shapes can be made with the sintering process which could not be realised by grinding.

New organisation encourages many variants

About 300 employees in our grinding shop bring more than 6 million inserts per year into their final form with an average batch size of 100 pieces. With around one million, the System 312 is the most numerous of all HORN tools. These quantities require a high

At the beginning of the 1970s, Paul Horn presented his new toolholder grooving tool in this sample case.

Many in-house developments make the automated grinding process possible.

degree of automation which is almost 100 percent today for the 60 CNC grinding machines for the 312 production.

The manufacture of the triple-edged tools was in one department until about five years ago. However, the growing requirement for standard and special inserts required division into two departments. System 312 standard inserts are now under the management of Peter Langer and the Systems 314, 315, 316, 320 as well as various special versions are under the management of Eckhard Speidel.

The team of Production Manager Walter Wiedenhöfer: Peter Langer (left), Eckhard Speidel (right).

System 312 forced our production automation

The geometry shapes were previously produced in seven work operations, manually and as piece work. We installed the first NC machines as early as the beginning of the 1980s and automated these with our own developments. Since then, our efforts have been directed to development of the required grinding machines, for example with the conception of standardised grinding equipment as the interface for our automation concepts. They enable the simultaneous processing of different operations on machines with several spindles. In order to be able to maintain the strictest tolerances, we developed special grinding strategies for the surface and cutting edge stability including the cutting edge preparation. The software has also been specially written for our requirements with many in-house features. The CNC programs enable the programming of 99 percent of all indexable inserts in the grinding shop. The remainder which cannot be ground due to the shapes and profiles is milled in Gomaringen. The experiences gained from all these development steps are still beneficial for our production today.

Complete production from blank

Our objective is to completely machine the indexable inserts from the blank in preferably a single clamping. One requirement for this is a very high degree of modularity and automation. The team of Walter Wiedenhöfer, Production Manager, therefore defines very special requirements profiles for our grinding machine needs. Afterwards, a basic grinding machine – which is common to all six departments

of the grinding shop – can be set up and automated accordingly for the products to be ground.. As this modularity makes possible a standardised machine configuration with identical operation, we can machine orders in any way within the department and thus react very quickly to delivery deadlines.

Qualified employees with high personal responsibility

The automated production process from setting up and programming the machine to the part approval requires highly qualified employees. The technical knowledge of our employees with many years of service is therefore constantly updated in our own training centre. “Newcomers” are also made familiar there with the basics of carbide grinding and specially trained in important production matters.

However, the employee at the machine is not only responsible for the on-time completion of his products but also for their quality. The necessary measuring and testing equipment is available for every work place and for each department. This expenditure guarantees us a complaints rate which is significantly lower than the usual values for the sector.

System 312, a HORN performance characteristic

The insert 312 set technical and commercial standards for the manufacture of circlip grooves at its market launch. Its high acceptance was able to be significantly expanded over the course of the years by new applications for grooving and parting off. The experience gained from this and the further developments initiated in this way also spread to other products from our company. The 312 insert can therefore justifiably be designated as the nucleus of our inserts development. The System 312 is still synonymous with efficient grooving and thus not only an important support in the product range for our company but also a HORN trademark known worldwide.

Grooving system 312.

The System 312 has been setting standards for more than 40 years for the internal and external radial and axial grooving as well as for parting off.

Technical features:
- reliable, positive fit attachment of the insert in the holder
- easy insert replacement using screw / clamp connection
- indexability ± 0.02 mm (0.0008")
- insert versions: carbide, CBN, PKD tipped, Cermet, ceramic
- unobstructed chip flow during grooving
- sintered geometry for higher feed rates
- working ranges:
  groove widths 0.5-6.3 mm (0.020"-0.248")
  groove depths radial up to 9 (0.354"),
  axial up to 3 mm (0.118")

High efficiency
- inserts can be used in righthand and lefthand thread tool holders
- high tool life, three cutting edges
- very wide range of applications
- standard holders and inserts reduce the storage cost
- low tool costs
- complete machining with high process reliability

Other inserts in development:
- with 13 mm (0.152") width
- S302 for plunge cuts from 0.5 mm (0.020")
- S316 for cutting widths from 1.5 mm (0.059") and cutting depths up to 8 mm (0.315")
- S320 for cutting widths from 1.5 mm (0.059") and cutting depths up to 10 mm (0.394")

The Purchasing Team: Jeannette Binder, Renate Kupries, Berthold Vollmer (from left).

Our Purchasing Department

Our philosophy of mutual partnership also applies to the acquisition of goods. The Purchasing Department is therefore more than a "procurement centre" as the relationships with the suppliers nurtured there also affect the implementation of our corporate objectives.

The purchasing range covers auxiliary and operating materials, tools and machines, raw materials like pellets and office supplies. A minimum quantity initiated the ordering procedure for many products. Framework contracts with selected suppliers simplify these processes. For tools and machines, the respective technical department defines the technical scope and also the preferred source of supply. The Purchasing Department is responsible for the commercial processing including the invoice verification as well as for ordering specific goods for our subsidiary companies.

Supplier management is important

Efficient work in the Purchasing Department without IT would not be possible. This also applies to the supplier management with the assessment of the active and potential suppliers mainly from Germany and also partially from the rest of Europe.

The existing purchasing team of two employees was expanded about a year ago with the addition of Berthold Vollmer due to the growing technical requirements. The mechanical engineering technician has been employed by us for seven years. Initially in work preparation and then assigned various additional tasks, he is mainly responsible for the procurement of raw materials, machine accessories and operating equipment. He devotes his leisure time to his garden and music as President of the Music Club.

When Jeanette Binder joined our company in 1990, she was responsible as "lone warrior" for everything from packaging material to carbide blanks to tools. She still relaxes by reading and physical activities in a fitness centre. However, her main hobby is working in the garden which she is creating from the seed to the rain water in accordance with strict biological criteria.

She has been sharing the work for about ten years with Renate Kupries who had previously worked at the reception for five years. Ms. Kupries is primarily responsible for the purchasing of accessories, spare parts and advertising materials. Her "love" in private life is a black labrador. The four-legged bundle of energy needs movement. At least one hour before work, after work depending on the condition of its owner.

The VK2 Team:
Frank Feldwieser, Elodie Klein, Jürgen Bender, Annette Hieber, (from left).

Our Sales Department VK2

VK2 supports the Baden-Württemberg sales territory. As well as various large companies primarily active in the automotive sector, the many small and medium size businesses characterises the customer profile.

The production range of these differently structured and operating businesses requires the technical knowledge of the VK2 employees. They must be able to provide information about our entire product range and the associated process technologies. They are supported by the four field service employees operating in the VK2 territory. They analyse the requirements with the customer, define the tools and work processes and thus provide the data for making a quotation. More complex requirements which, for example, require special tools, are previously discussed with our respective specialists. The internal actions required for this, creating quotation drawings, specifying the tool concept etc., are arranged and coordinated by VK2.

Well-balanced team

The order processing is the task of Annette Hieber and Elodie Klein. However, their involvement begins at the enquiry stage. They maintain contact with the customer by telephone or email and ensure the smooth exchange of information between everyone involved. Both ladies have been working in our company for three years as sales clerks, like to occupy themselves with literature in their leisure time and look forward to Alpine skiing in the Winter. Ms. Hieber “works out” for this by cycling.

Frank Feldwieser is responsible for the technical support and preparation of quotations. After studying mechanical engineering, he acquired sales skills before joining our company eight years ago. As an escape from his professional activity he enjoys kite flying or paragliding and cycling with a racing bicycle or mountain bike.

Jürgen Bender as manager of VK2 is mainly responsible for the commercial activities in his group together with various coordination tasks. He expanded his basic technical knowledge at a manufacturer of wood machining tools until he joined us ten years ago. In his leisure time, his interests are mainly family activities and touring on his mountain bike.

Armin Jaud, Technical Support and Sales in North Baden-Württemberg.

Armin Jaud, Technical Support and Sales

The North of Baden-Württemberg, in the South limited by the line Karlsruhe–Heilbronn–Aalen, is the sales territory of Armin Jaud. Our local man is a competent contact person in the VK2 territory with its numerous small and medium size businesses and automotive suppliers known worldwide.

His career started at the university of cooperative education in Stuttgart. The characteristic mix there of studies and practical experience in the company made it easier for the graduate (Dipl.-Ing. (BA)) to start as work study engineer and project engineer at a well-known tool manufacturer.

He found a new challenge in our company in 1992 with the "Technical Support and Sales" role. He describes the associated activities in a short and concise way. "Understand customer requirement, prepare and implement for HORN and then realise at the customer".

The father of four also strikes the right note outside work as member of a brass band. As a former active footballer, he supports the AH team today, imparts his knowledge as youth trainer and as a member of the Board of Directors, he also has responsibility for the club.

A communications highlight: the AMB edition of the world of tools

"A complete success" These are the general assessments of the AMB. As the press provided comprehensive coverage of this exhibition, we can dispense with further comments here.

On the other hand, we would like to remember a publication which is assessed as highly informative and attractive by our customers, the visitors to our exhibition stand and other interested parties: the 2/08 edition of our "world of tools" customer magazine.

We had an ambitious objective with this exhibition special issue. In contrast to our usual format, this time our business partners with their products and services were the focus and not the innovations, further developments and events of our company. 47 companies were attracted by this idea and each presented themselves on one page using words and pictures. Flanked by the comments of well-known journalists and information about current HORN activities, a customer magazine of 76 pages with high information content was produced for the decision makers from industry.

Title page of "world of tools" for the AMB. Circulation 30,000 copies, of which 10,000 in the English language.

Review

12th trade fair for production technology, machine tools and special machines, 24-27/02/2009, Leipzig

The double exhibition of intec and automotive suppliers exhibition Z attracted a surprising increase in visitor numbers leading exhibitors to expect positive post-exhibition business.

A total of 20,200 technical visitors – 20 percent more than in the previous year – were able to inform themselves about the product ranges of the 1,320 exhibiting companies. Metalworking at the intec and components, modules and technologies for automotive and mechanical engineering at the automotive suppliers exhibition Z were the focuses of the largest industrial show of the new Federal States.

The mood among the mostly medium-sized companies was better than generally expected. 90 percent of the intec exhibitors expected good post-exhibition business and 89 percent have achieved their exhibition objectives. This assessment is also underlined by Hans-Jürgen Bender, the manager of our demonstration centre: “We were able to hold numerous discussions with interested parties for our first presentation in Leipzig. As we reach about 2,500 customers from Leipzig and there is no significant exhibition apart from the intec in Eastern Germany, we will certainly be there again in two years”.

We exhibited a cross section of our production range on a stand area of 80 m².

14. IMTEX, Indian Metalcutting Machine Tool Exhibition, 22.-28/01/2009, Bangalore, India

The trade fair centre in Bangalore is the meeting point of machine tools and mechanical engineering every two years. In accordance with the growing importance of this exhibition, the organisers have made increased investments in further exhibition areas and in the infrastructure.

Together with other partners of our representative, NN CEA Agencies, we exhibited a cross section of our production range on the 150 sqm (1.500 ft²) stand. A total of 937 companies, of which 430 were from abroad, exhibited their products. 120 exhibitors were from Germany.

Despite the tense economic situation in India, the organisers registered approx. 70,000 visitors. Many came with concrete requirements which contributed to a positive business outlook. “Our stand also had active visitors and we were able to register a strong interest in our products”, summarises Harald Haug, Export Manager. Most Indian companies still have sufficient orders on hand. In contrast, the India exports have lost a lot of momentum. Agricultural machines and energy companies and the aircraft industry are recording positive tendencies.

Picture left:
We exhibited our products on 35 m² on the joint stand.

Picture right:
Partial view of the trade fair centre in Bangalore.

GROOVING TOOLS FROM ROTTERDAM

Harry Hersbach Tools B.V., our sales partner in the Netherlands

"Tulips from Amsterdam" has been a hit in the pop world since the 1950s. A somewhat younger but also successful classic in the area of metal removal is the "grooving tools from Rotterdam" which our Netherlands partner has been carrying in its range for more than 30 years.

Two entrepreneurs, one objective

Harry Hersbach Tools B.V. was founded in 1974 by Harry Hersbach sr. in Schiedam, a suburb of Rotterdam. The young entrepreneur recognised from the start that long term success also in the Netherlands is only possible with products from specialised tool manufacturers. And this quality standard also formed the starting point for the first meeting with Paul Horn at the EMO 1977 in Hannover. Impressed by the technologically groundbreaking grooving systems, Harry Hersbach successfully realised an exclusive agency for the Benelux countries. As the chemistry between both companies was also right, it only took one month until the collaboration was defined and the contract was signed.

Our sales partners employ approx. 20 persons.

Well known as a competent partner

From 1981 – Hersbach Tools B.V. concentrated exclusively on the Netherlands – this market developed into one of the core markets for HORN. Essential factors for the success of our Netherlands partner are the service-oriented customer support and the continuous expansion of the technical field service. Approx. 20 people, of which 8 are in the technical field service, work for Harry Hersbach Tools B.V. today.

The majority of its approx. 2,000 customers have 5 to 50 employees, however there are also various large enterprises in the customer base.

Harry Hersbach sr. (sitting) with his sons Harry Hersbach jr. and Jos Hersbach, (standing from the left).

Suggestions from the Netherlands

The sales engineers of Harry Hersbach Tools B.V. are confronted with applications for the machining tasks for the Netherlands market of which more than 40 involve the machining of stainless steel. The machining of exotic alloys is also showing an increasing tendency. Due to the intensive information exchange about the current tool developments of our company, for example for the geometries of the indexable inserts and the coatings, there are always new synergy effects not only for these complex applications.

Experience from different applications

Enquiries and ideas occurred again and again from the activities of Hersbach Tools in the different industrial sectors which decisively influenced our grooving range. In accordance with the motto “every rejected request will be examined again and discussed”, we could usually still find a – sometimes also unconventional – solution. For example, 16 years ago there was a passionate discussion with successful result about the design of a Supermini tool for milling an internal thread M5 by circular interpolation. Many ideas for special solutions, particularly for shipbuilding, medical technology, the foodstuffs, chemical and packaging industries, have been “born” jointly and then implemented in Tübingen.

Company succession assured

Jos and Harry Hersbach jr., both sons of Harry Hersbach sr., work in the company today. They are also significantly involved in their positions with forming the future and successful development of the company on the Netherlands market.

The corporate objectives since the founding have been able to be realised successively. The high delivery ability from stock is a reason for this. Common items are shipped to the Netherlands customer base with an availability of more than 95 percent.

Harry Hersbach Tools B.V. with this range of services for its customers is a reliable and professional partner when it is a matter of finding the most cost-effective and most productive solution for machining tasks. Harry Hersbach sr. and Paul Horn laid the foundation for this in the year 1977.

We thank all colleagues from Harry Hersbach Tools B.V. for the very good and successful collaboration in the past and we also hope to have many joint ideas and suggestions for the classic from Rotterdam in the future.

The warehouse of Harry Hersbach Tools B.V. ensures same day deliveries.

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