



Your technology partner for cost-effective machining

# SOLUTIONS AND INNOVATIONS 2024

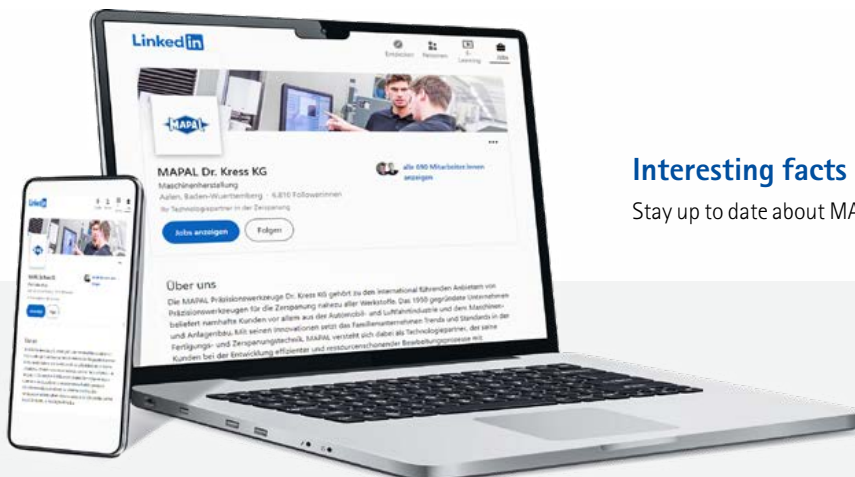
# You

don't want to do everything differently. But many things better.

Opening up opportunities

# We

always find new ways to get more for you out of your processes.



## Interesting facts in brief on LinkedIn

Stay up to date about MAPAL and the latest technology.



<https://www.linkedin.com/company/mapal-dr-kress-kg>



# Contents

## ■ Product innovations 2024

High-volume machining of aluminium materials – OptiMill-Alu-Wave and NeoMill-Alu-QBig _____	<b>04</b>
MEGA-Deep-Drill-Steel – efficient deep drilling up to 40xD _____	<b>06</b>
Valve seat machining with HNHX indexable inserts – more inserts, lower cost per part _____	<b>08</b>
FixReam 700 – reconditioning enables considerable reduction of cost per part _____	<b>10</b>
OptiMill-Diamond – performance optimisation for precise and efficient milling _____	<b>12</b>
UNIQ series expansion – diameter expansion and new lengths _____	<b>13</b>
UNISSET-V expert – high flexibility and precision when setting tools _____	<b>14</b>

## ■ Technology and sustainability

Development of custom diamond coating – for a longer tool life _____	<b>16</b>
MAPAL as your partner for sustainable manufacturing – combination tools and hydraulic clamping technology _____	<b>18</b>

## ■ Solutions

Aerospace – Aluminium machining in new dimensions _____	<b>20</b>
Automotive – Structural parts in record time _____	<b>22</b>
Die and mould – Added value in mould making _____	<b>24</b>
Fluid power – Controlling, regulating and moving fluids _____	<b>26</b>

## High-volume machining of aluminium materials

**New milling cutter made of solid carbide and with indexable inserts**  
MAPAL is launching two new products for high-volume milling of aluminium, thus expanding its portfolio for the aerospace industry. The two milling cutter series in solid carbide and with indexable inserts are particularly suitable for use on high-performance machines.

Material  
removal  
rate  
> 20 l/min

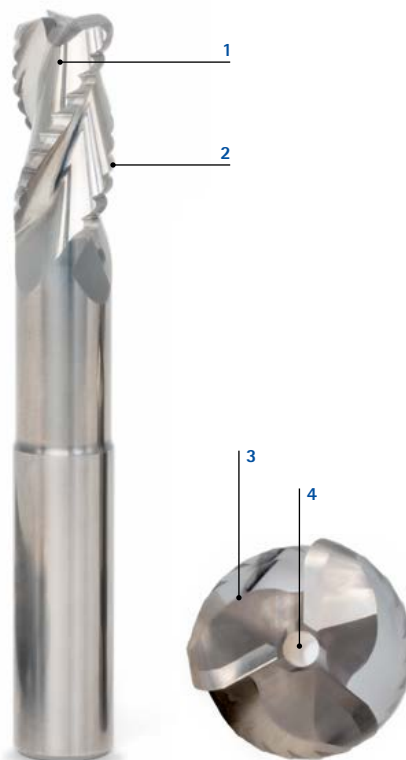
## OptiMill®-Alu-Wave

### High-volume machining at over 20 l/min.

The new solid carbide roughing cutter OptiMill-Alu-Wave for aluminium materials takes full advantage of the performance of the fastest machines on the market, achieving a material removal rate of up to 21 litres per minute.

The cord roughing cutter has large, flat shafts for optimal chip formation. Polished chip flutes facilitate chip removal. The three-side cutter is fitted with central cooling and a modified face geometry, which enables ramp angles up to 30 degrees. The OptiMill-Alu-Wave is not only ideal for aerospace structural parts but also for applications in the automotive field and general machine engineering.

Diameter ranges from 12 to 25 mm with projection lengths short, medium and long are available. Further variations are configurable, so close-contour roughing is also supported.



#### 1 Highly polished chip space

- Reduced adhesion tendency

#### 2 Innovative cord roughing profile

- Targeted chip formation
- Short chips
- Smooth cutting behaviour

#### 3 Unequal spacing

- Runs as quietly as possible

#### 4 Central cooling channel

- Process-reliable chip removal





Learn more about high-volume machining at <https://mapal.com>

## NeoMill®-Alu-QBig

### Fast material removal rates with low cutting forces and high-quality surface finishes

The new indexable insert cutters NeoMill-Alu-QBig are a highly economical solution for larger diameters. They offer maximum efficiency with a material removal rate of up to 18 litres per minute. Thanks to ultra-strong bolts and a fine-balancing system, this tool boasts a spindle speed of up to 35,000 rpm. The combination of low cutting forces and high-precision indexable inserts enables high-quality surface finishes. Internal cooling and very large chip spaces ensure optimal heat dissipation and chip removal.

Depending on the application, the milling cutter is available with uncoated inserts, PVD-coated indexable inserts and CVD-diamond indexable inserts. The tool bodies are available in a diameter range of 32 to 63 mm for hollow shank taper (HSK) or shank taper (SK) as well as mounting tool variants.



#### 1 New MAPAL system insert

- Cutting edge up to 12.5 mm

#### 2 Polished rake face and highly positive rake angle

- Less friction resistance and heat generation

#### 3 Prismatic insert seat and special clamping screw

- Cutting edge has a firm seat, even at spindle speeds of 35,000 rpm

#### 4 Fine-balancing system

- For quiet running and high-quality surface finish
- Longer tool life



## MEGA-Deep-Drill-Steel

### Efficient deep drilling up to 40xD

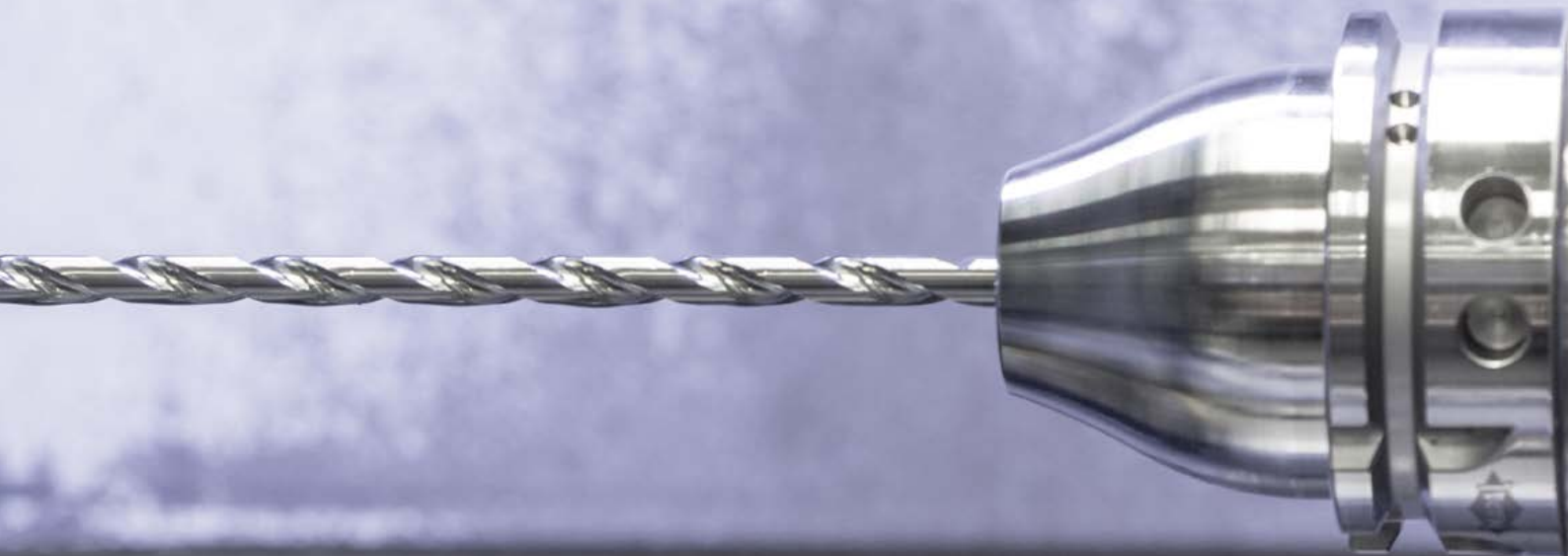
With the MEGA-Deep-Drill-Steel, MAPAL presents the new standard for deep drilling, especially for machining steel and cast iron. The solid carbide deep drills are optimally protected with an innovative coating with HiPIMS technology in the cutting edge area. The head coating ensures frictionless chip removal and is therefore essential for reliable processes when producing deep bores.

Spherical blades provide stability at the cutting edges and thus ensure a long tool life and high level of productivity. The point angles were selected so that the deep drills always start the cut with the chisel in the pilot bore. The four margin lands ensure exact drilling precision as well as a very small bore pattern.

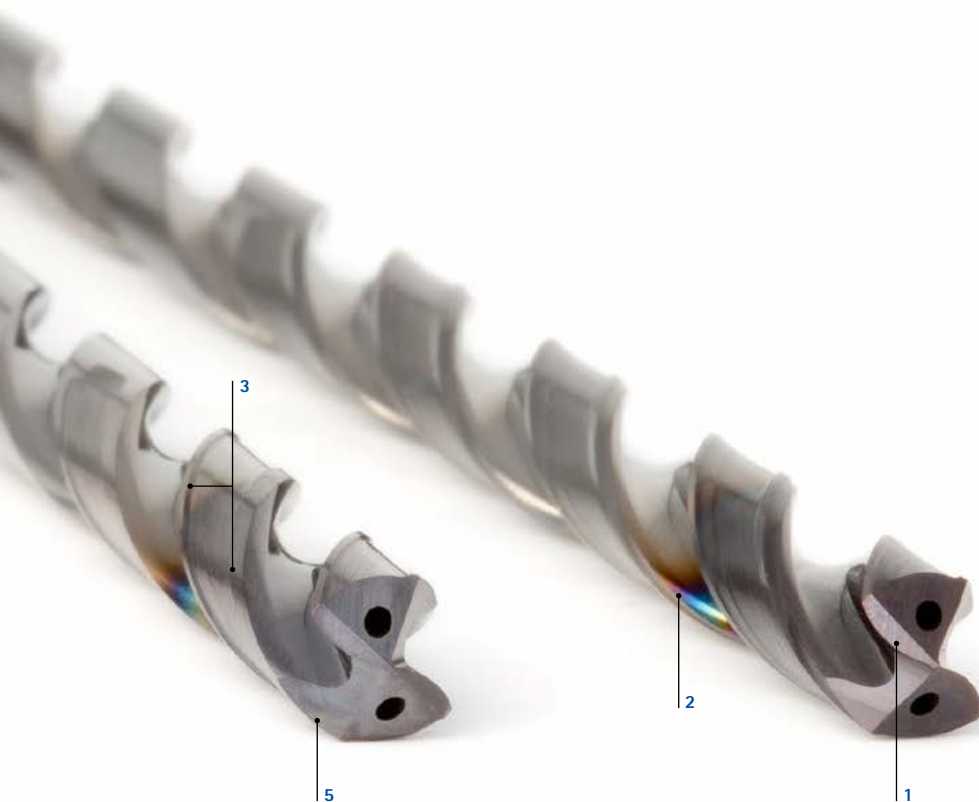
With the MEGA-Deep-Drill-Steel, deep drilling is possible without pecking cycles at very high feed rates. The tools are suitable both for use with internal cooling and for minimum quantity lubrication, which has a positive effect on the tool life in steel machining.

The standard range available from stock includes length ratios of 15xD to 40xD and the diameter range from 3 mm to 16 mm, with the long designs up to 9 mm. Adapted pilot drills are available for difficult drilling conditions.





Find out more about efficient deep drilling up to 40xD at <https://mapal.com>



#### 1 Spherical main cutter

- Good cutting properties
- Short chips and highest feed rates

#### 2 Perfectly tuned core pattern

- Maximum stability

#### 3 Four margin lands

- Very small bore pattern
- Maximum guiding precision even for skewed bore outlets

#### 4 20% bigger cooling channels

- Maximum cooling power
- Ideal chip removal

#### 5 Innovative cutting material

- Maximum tool life



## Valve seat machining with HNHX indexable inserts

### More inserts, lower cost per part

To further lower the cost per part when machining valve seats in the cylinder head, MAPAL has developed the new HNHX indexable inserts. With up to 24 usable PcBN cutting edges, they are not only particularly economical but also make the most effective use of the cutting material. Thanks to the high-quality cutting edges, the new HNHX indexable inserts allow for surface finishes greater than  $R_a$  0.2  $\mu\text{m}$ .

The newly designed machining star guarantees uniform pressure distribution when clamping the indexable insert. The development expands the range of application for valve seat tools because the clamping screw had previously prevented their use in certain valve seat diameter ranges.

The stock HNHX inserts are hexagonal like their HX predecessors, but unlike them they can be turned, which doubles the number of available cutting edges from six to twelve. This is made possible by the negative mounting position and the cutting material used.

Where it is constructively possible, for example with larger valve seat rings in the truck sector, each of these cutting edges can be used twice, making 24 cutting edges usable. This is done by removing a cutting edge at the end of its service life and reinserting it in a different angular position, allowing further work to be carried out with an area of the cutting edge that is still unused. Whether the insert can be used at two different angles must be determined by examining the respective component. In any case, there is a significant reduction in the cost per part.







Learn more about valve  
seat machining at:  
<https://mapal.com>



### 1 New HNHX insert geometry

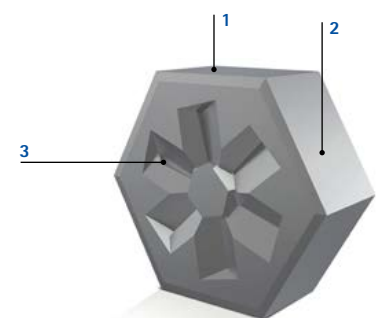
- Up to 24 cutting edge inserts possible
- Significantly reduces costs per part

### 2 New PcBN high-performance cutting material

- Excellent cutting edge quality
- Achieves surface finishes greater than  $R_a 0.2$

### 3 Unique clamping system

- Maximum force closure
- Uniform pressure distribution in the insert seat





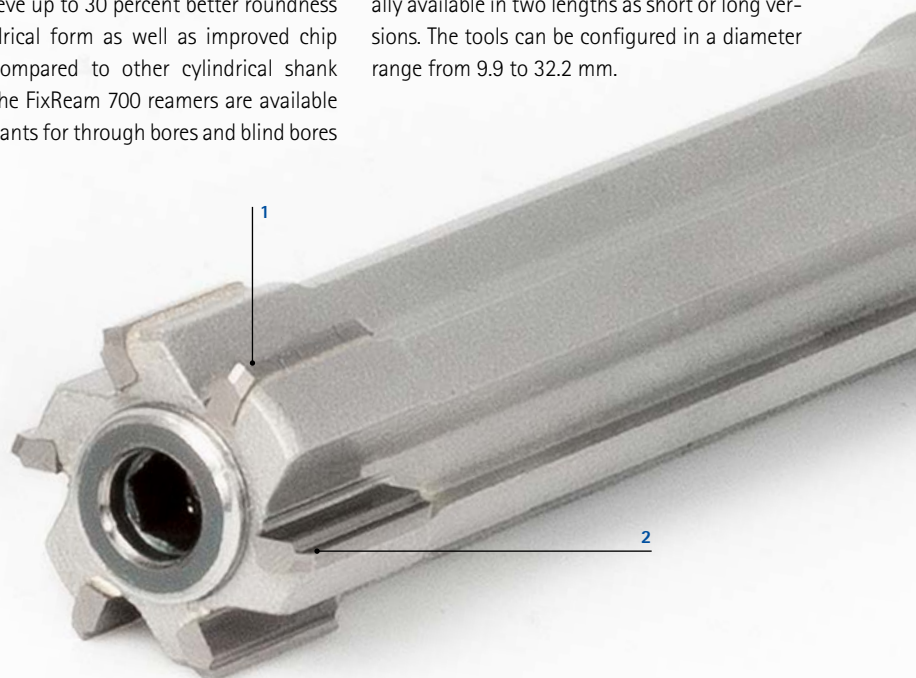
## FixReam 700

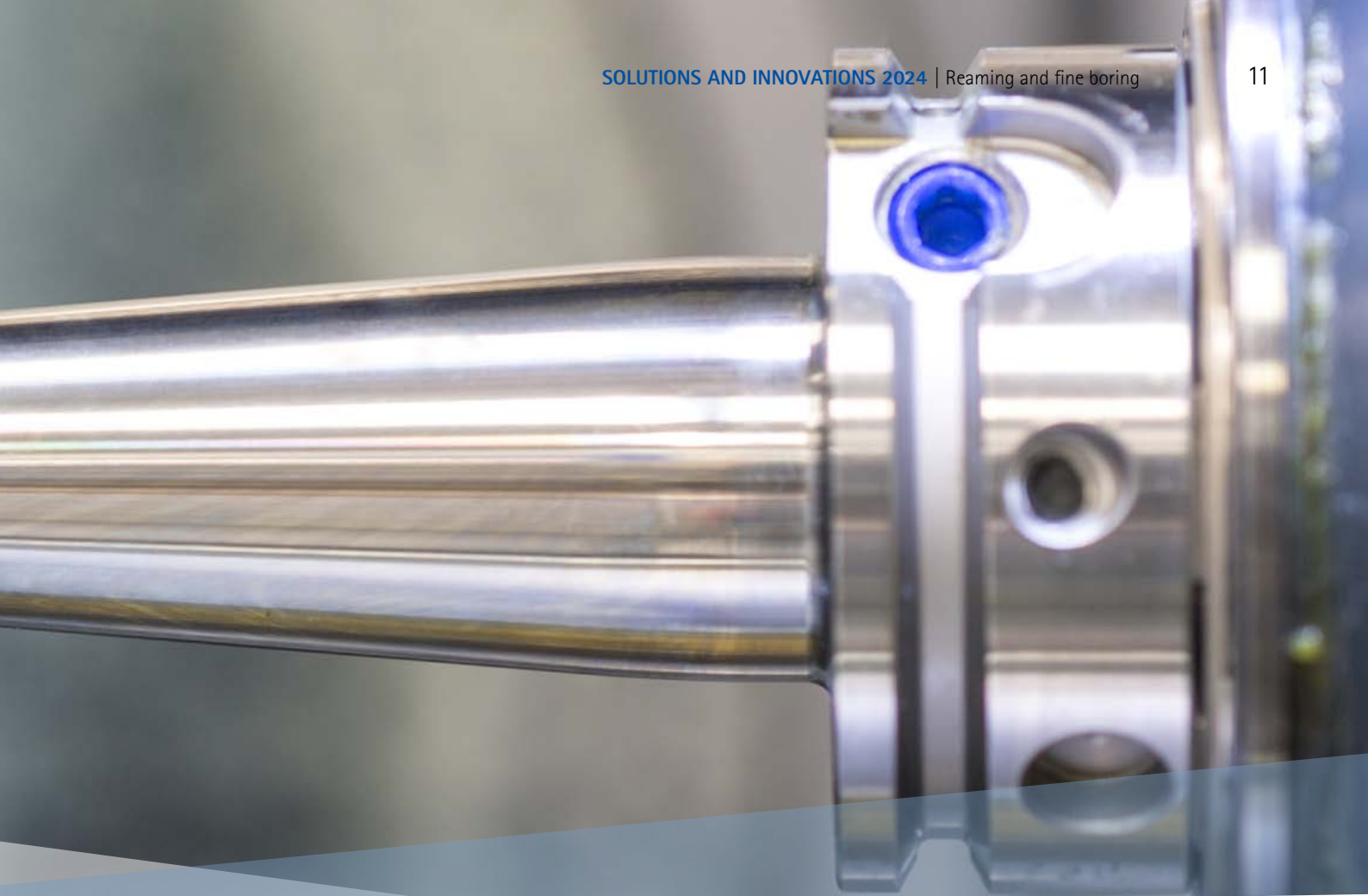
### Significantly reduced cost per part thanks to reconditioning

MAPAL is bringing a particularly sustainable tool to the market with the FixReam 700 reamer. What's special about the cylindrical shank reamer with brazed cutting edges is that it can be used so often – the cutting edges can be replaced and reground. A tool can be reground up to twice before new cutting edges have to be brazed in. After that, it is possible to regrind the tool twice again, replace the cutting edges again and then regrind the tool twice more. A reamer therefore has nine tool lives. During servicing, the manufacturer expands the tool a little with an expansion screw and can thus regrind all functional surfaces, i.e. lead and diameter. Tool costs can be reduced by up to 15 percent compared to a tool without an expansion function.

MAPAL has developed and patented new geometries especially for these reamers. As a result, users achieve up to 30 percent better roundness and cylindrical form as well as improved chip removal compared to other cylindrical shank reamers. The FixReam 700 reamers are available in two variants for through bores and blind bores

with uncoated, wear-resistant cermet blades for machining steel and cast material. They are usually available in two lengths as short or long versions. The tools can be configured in a diameter range from 9.9 to 32.2 mm.





Find out more about the new  
FixReam 700 at  
<https://mapal.com>



### 1 Patented geometry

- 30% better roundness and cylindrical form

### 2 Innovative lead

- Optimal chip formation

### 3 Expansion screw

- Allows up to 9 tool inserts
- Compensation prior to regrinding

3





Find out more about the  
OptiMill-Diamond product family at  
<https://mapal.com>



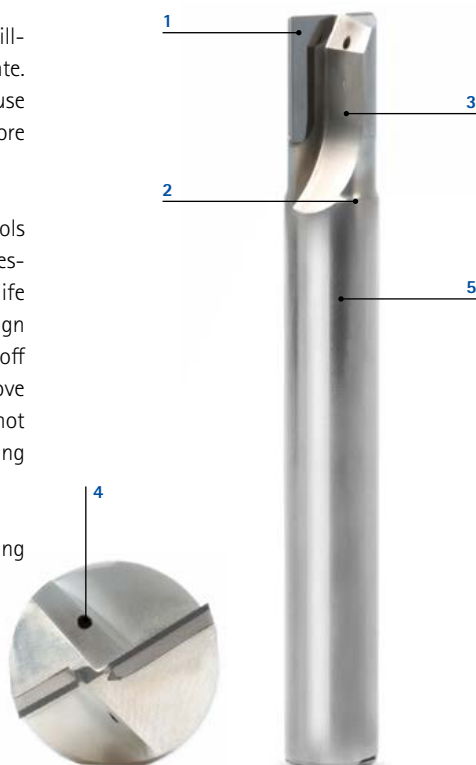
## OptiMill®-Diamond

### Performance optimisation for precise and efficient milling

The proven PCD end milling cutters OptiMill-Diamond have undergone a technology update. Many optimisations ensure that users can use the tool to mill non-ferrous metals even more economically and reliably.

Thanks to the revised geometry, the new tools are more rigid and stable than the predecessor models. They thus achieve a longer tool life and more precise results. The new blade design provides more power and material is carried off more efficiently. Optimised chip spaces improve chip removal. This means that surfaces are not damaged by chips, especially for long-chipping aluminium alloys.

The coolant outlet of the redesigned milling cutter OptiMill-Diamond is located on the cutting edge. This extends tool life and improves machining results. The dimensions of the of the new OptiMill-Diamond series are identical to those of the predecessor models.



#### 1 Revised cutting edge design

- More power and precision

#### 2 New tool design

- Higher rigidity and stability
- Longer tool life and more precise results

#### 3 Optimised chip space

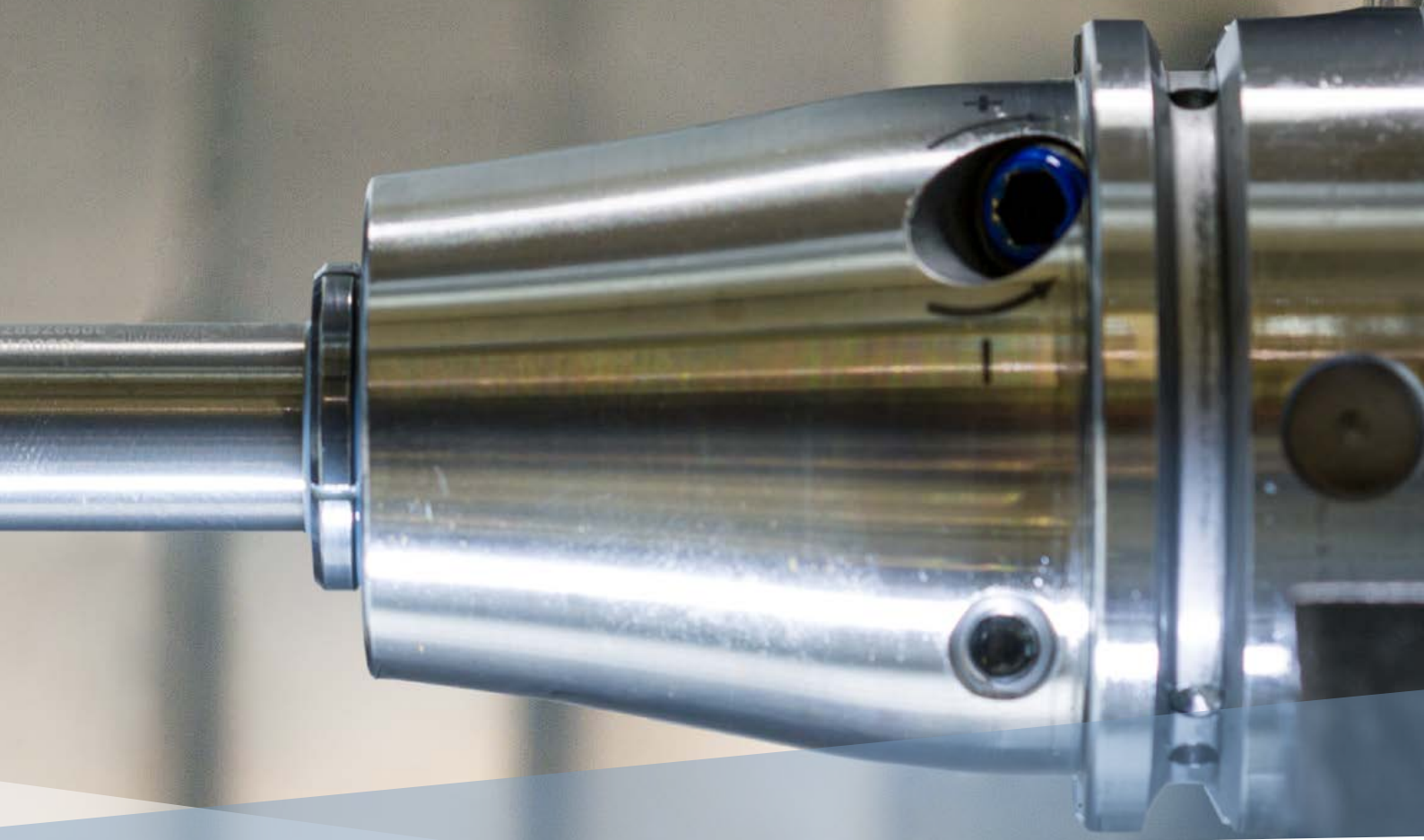
- Improved chip removal and better surfaces

#### 4 Direct coolant supply

- Optimal cooling and thermal management on the cutting edge

#### 5 Same dimensions

- No need to switch to new product range



Find out more about  
these products at  
<https://mapal.com>

## UNIQ<sup>®</sup> series expansion

### Expanded diameters and new lengths

MAPAL is adding new connections, clamping diameters and lengths to the UNIQ chuck range.

The UNIQ MillChuck is the chuck of choice for highly dynamic milling applications. Besides the established HSK-A63 and BT30 connections, it will be available in future with a BT40 connection. The clamping diameters 25 and 32 mm are also being added. In this way, users can employ the UNIQ MillChuck in a considerably wider range of machining situations.

The UNIQ DReaM Chuck 4.5° for reaming and drilling applications as well as for use with finishing milling cutters will have the same connections and diameters added as the UNIQ MillChuck and will be available in future with the HSK-A63, BT30 and BT40 connections. In addition, the UNIQ DReaM Chuck will be available for the 120 mm length for the HSK-A63 and SK40 connections. This addition means that hydraulic clamping technology can now also be deployed for deep cavities where previously shrinking technology was often the only choice.





## UNISSET-V expert

### High flexibility and precision when setting tools

The new MAPAL setting fixture UNISSET-V expert is designed as a modular system. Users can choose suitable modules to put together a setting fixture that optimally meets their requirements.

The UNISSET-V expert lends itself to mounting, measuring and setting almost any type of tool: amongst others, tools with indexable inserts, boring bars or fine boring heads with carbide, PCD, PcBN or cermet cutting edges.

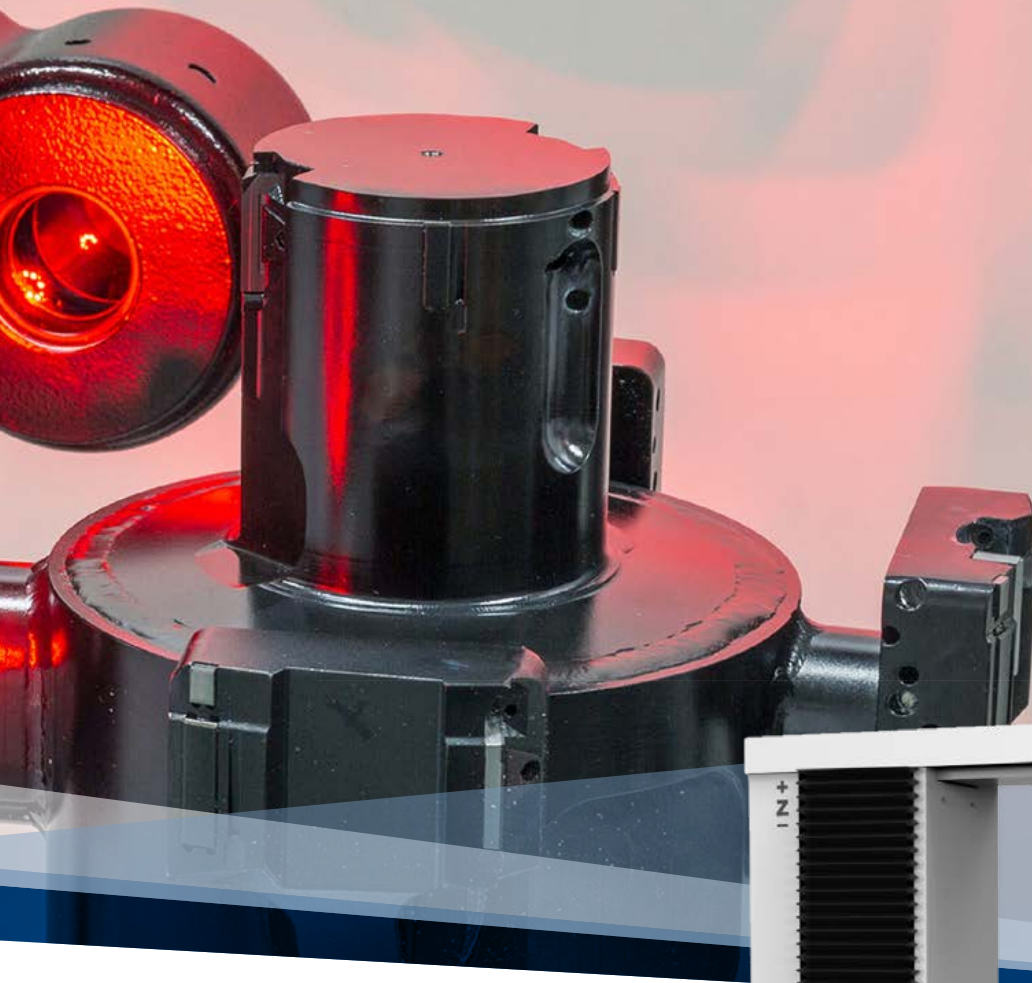
Various tactile measuring sensors can be integrated in addition to the optical measuring functions. This makes even more micrometre-accurate setting results possible. Depending upon the tool length, the UNISSET-V expert can be set up as a gantry with heel. This increases stability and – especially for long tools – the precision of the settings.

Thanks to its stable construction, the device is not affected by vibrations and oscillation that occur during manufacturing. The controls are designed to be very user friendly and thus easy to use.



#### **i** Application solution

The requirements for e-mobility show just how important a high degree of setting precision is: Compared to a regular transmission housing, the stator housing of an electric motor must be manufactured with substantially lower tolerances, as accuracy has a decisive influence on the motor's efficiency.



Find out more about  
the new UNISET-V expert at  
<https://mapal.com>

#### 1 Tactile measuring sensor

- High precision tool settings down to  $< 2 \mu\text{m}$
- Various sensor versions available

#### 2 Modular system

- Flexible device configuration

#### 3 New gantry setup

- Resilient to vibration and oscillations due to gantry setup

#### 4 Heel

- High degree of stability for long tools
- For high-precision setting procedures





## Development of custom diamond coating

### Longer tool life and improved process reliability

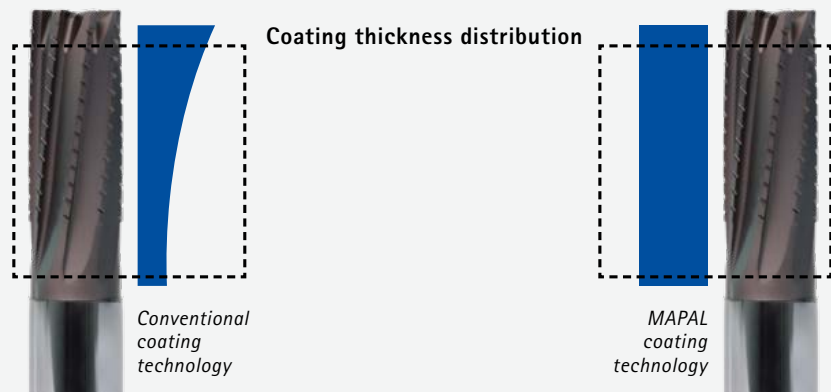
With its in-depth knowledge in the field of coating technology, MAPAL now also develops extremely hard and wear-resistant diamond coating for machining materials such as CFRP, ceramics, graphite and aluminium alloys. MAPAL's machining solutions achieve a longer tool life and more process reliability especially for applications in the automotive and aerospace industry, for die and mould and in medical technology. After all, the individual components are perfected tuned to one another because everything comes from a single source at MAPAL – from tool design and the selection of substrates to the coating. Tools can be designed even more precisely to meet customers' requirements.

To produce the new coating for milling and drilling highly abrasive material, MAPAL is using hot-filament CVD (abbreviated HF CVD) to syn-

thesize pure diamond coating. The HF CVD process produces layers with almost uniform thickness, which MAPAL uses in developing its OptiMill-Composite-Speed-Plus.

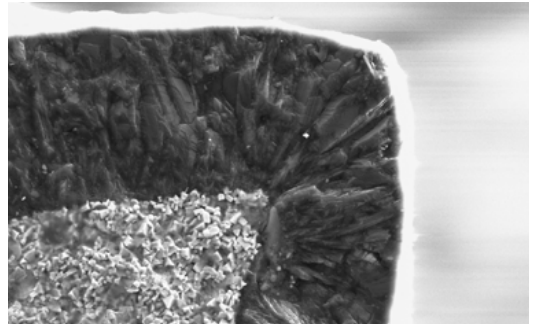
Conventional CVD coatings are not suitable for coating shank tools because the tool lengths and the high coating temperatures usually result in length distortion.

#### MAPAL coating



- Optimal distribution of coating thickness
- Increased diamond thickness for maximum tool life





Uniform coating thickness over the entire blade length



Find out more about the development of diamond coating at <https://mapal.com>

## Advantages

- Hardest material, extremely abrasion resistant
- Low friction values
- High thermal conductivity
- Chemical resistance
- Coating thickness of 50  $\mu\text{m}$  possible
- Complex geometries can be coated

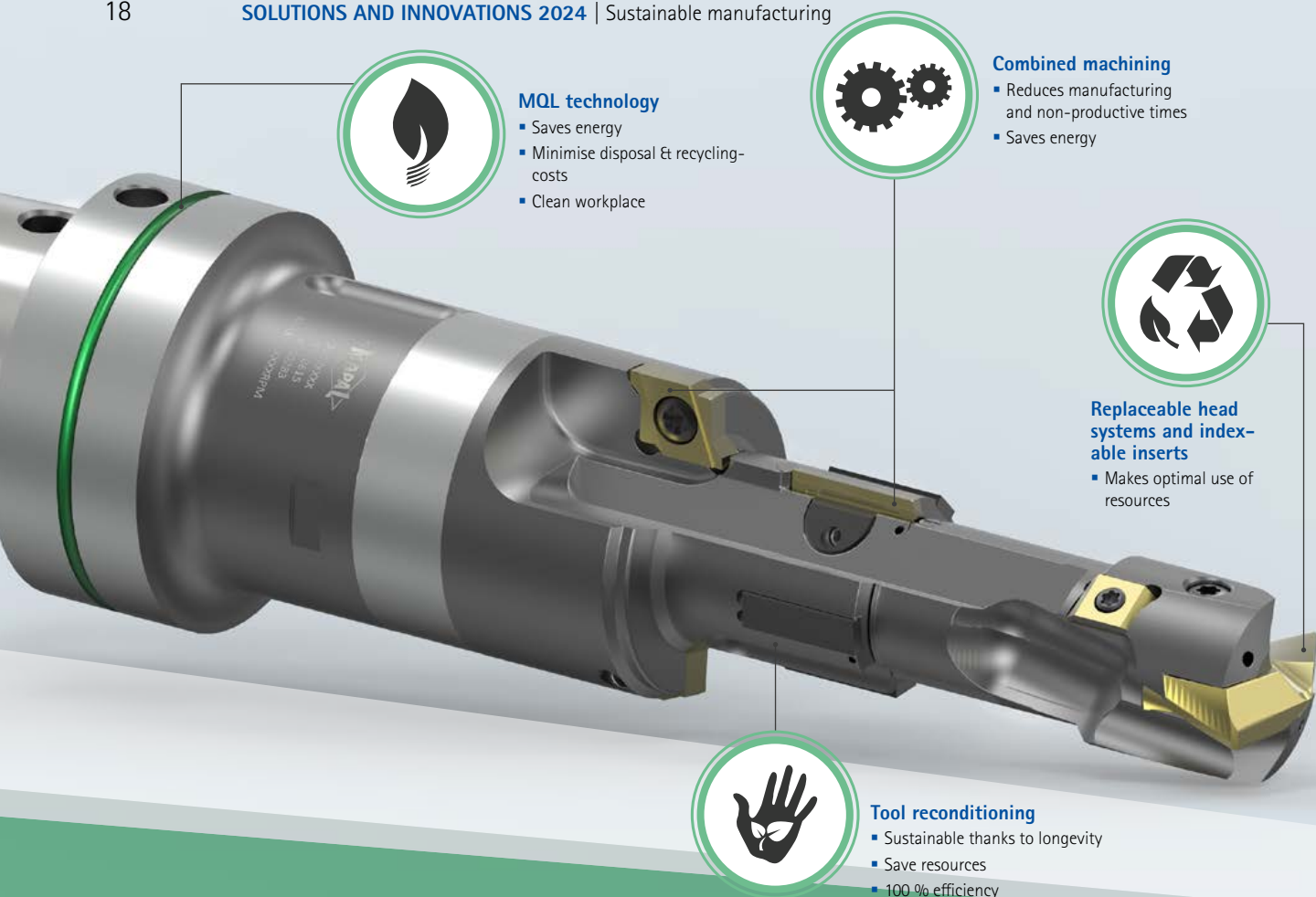
## **i** Application solution

With HF CVD coating, the entire cutting edge length can be reliably used in the respective machining application regardless of the cutting depth. Theoretically, layers up to a thickness of 50  $\mu\text{m}$  can be produced by HF-CVD.

For coating its tools, MAPAL currently limits itself to the range between 3  $\mu\text{m}$  and 15  $\mu\text{m}$ , depending on the respective application.



OptiMill-Composite-Speed-Plus



#### MQL technology

- Saves energy
- Minimise disposal & recycling-costs
- Clean workplace



#### Combined machining

- Reduces manufacturing and non-productive times
- Saves energy



#### Replaceable head systems and indexable inserts

- Makes optimal use of resources



#### Tool reconditioning

- Sustainable thanks to longevity
- Save resources
- 100 % efficiency

## MAPAL as your partner for sustainable manufacturing

### Sustainable and efficient with the right technology

#### COMBINATION TOOLS

##### The key to efficient and sustainable manufacturing

Combination tools can make a decisive contribution to sustainable manufacturing. By combining various machining steps in a single tool, tool changes and unnecessary travel distance can be reduced considerably. This leads to shorter machine running times and enables significant energy savings. This method also offers the advantage that a lot less material is needed than with separate tools.

#### MQL TECHNOLOGY

##### Ecological machining by minimising the use of cooling lubricant

Minimum quantity lubrication (MQL) technology represents an ecologically responsible approach to machining. Because not as much cooling lubricant is used, fewer resources are consumed and less energy-intensive high-pressure pumping is needed. These savings have

a positive effect on the carbon footprint. The technology also reduces the amount of waste produced by the contaminated cooling lubricant, which lowers disposal and recycling costs. MAPAL offers a wide range of MQL-compatible tools that are environmentally friendly and provide for a cleaner workplace.

#### REPLACEABLE HEAD SYSTEMS AND INDEXABLE INSERTS

##### Modularity for resource-efficient manufacturing

Replaceable head systems and indexable inserts make a significant contribution to environmental sustainability and resource efficiency in the manufacturing industry. Instead of replacing entire tools, only the heads have to be replaced or the indexable insert turned and/or flipped. This saves materials and energy and reduces waste as well as the environmental impact. Modularity also facilitates flexible adaptation to various machining tasks, which increases

operational efficiency. In short, replaceable head systems and indexable inserts provide a sustainable solution that fulfils both ecological and economical requirements.

#### TOOL RECONDITIONING

##### Sustainable thanks to longevity

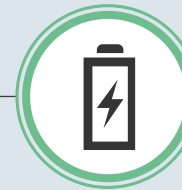
The reconditioning of cutting tools – such as PCD tools, solid carbide tools, and tools with indexable inserts or ISO elements – unlocks enormous potential for sustainability in the manufacturing industry. Tools can be brought back to their former glory through regrinding, restoring guide pads, exchanging inserts or recoating, etc. Reconditioning not only increases tool life considerably, it also effectively prevents important resources from being wasted. It represents an efficient solution that saves resources and optimally combines ecological and economic considerations.

**Social responsibility**

- Easy handling
- Safe workplace

**Environment**

- Saves energy
- Conserves resources

**Technology / Economical**

- Longer tool life
- 10 times longer service life



Find out more about sustainable manufacturing at MAPAL at <https://mapal.com>

**THE UNIQ HYDRAULIC CHUCK****Redefining energy efficiency and workplace safety**

When it comes to sustainability and efficiency, the UNIQ hydraulic chuck is more than just an alternative to the traditional shrink chuck. One of the main advantages are the significant energy savings, as energy-intensive shrinking processes are avoided. By harnessing a purely mechanical approach to tool clamping, the hydraulic chuck drastically reduces energy expenditure, which lowers carbon emissions. In addition, as shrinking procedures have been done away with, there is no material fatigue and the chuck tool life is ten times longer.

A further advantage is increased workplace safety: Shrink chucks require a special shrink unit, which poses a high risk of injury. This is no longer required with hydraulic chucks. Users also achieve a longer tool life through the precise control of the clamping force, which means less resources are consumed. In combination

with adherence to DIN tool restrictions, the UNIQ hydraulic chuck is the right choice when it comes to sustainability and efficiency.

**Dr Jochen Kress**

President  
MAPAL Dr. Kress KG

*"At MAPAL, next to our own area of responsibility, our customer's manufacturing above all takes centre stage. With innovative tools and chucks that take the issues of energy efficiency, resource conservation and safety into consideration, we help our customers to make their production more sustainable."*



## PROJECT DATA

Segment: Aerospace  
 Parts: Aluminium structural parts  
 Lot size: Individual part production



## Aluminium machining in new dimensions

### Product realisation

**The machine tool manufacturer bavius achieved impressive material removal rates of over 20 litres per minute with the new high-end model HBZ AeroCell 160 with a new generation of aluminium high-volume milling cutters from MAPAL.**

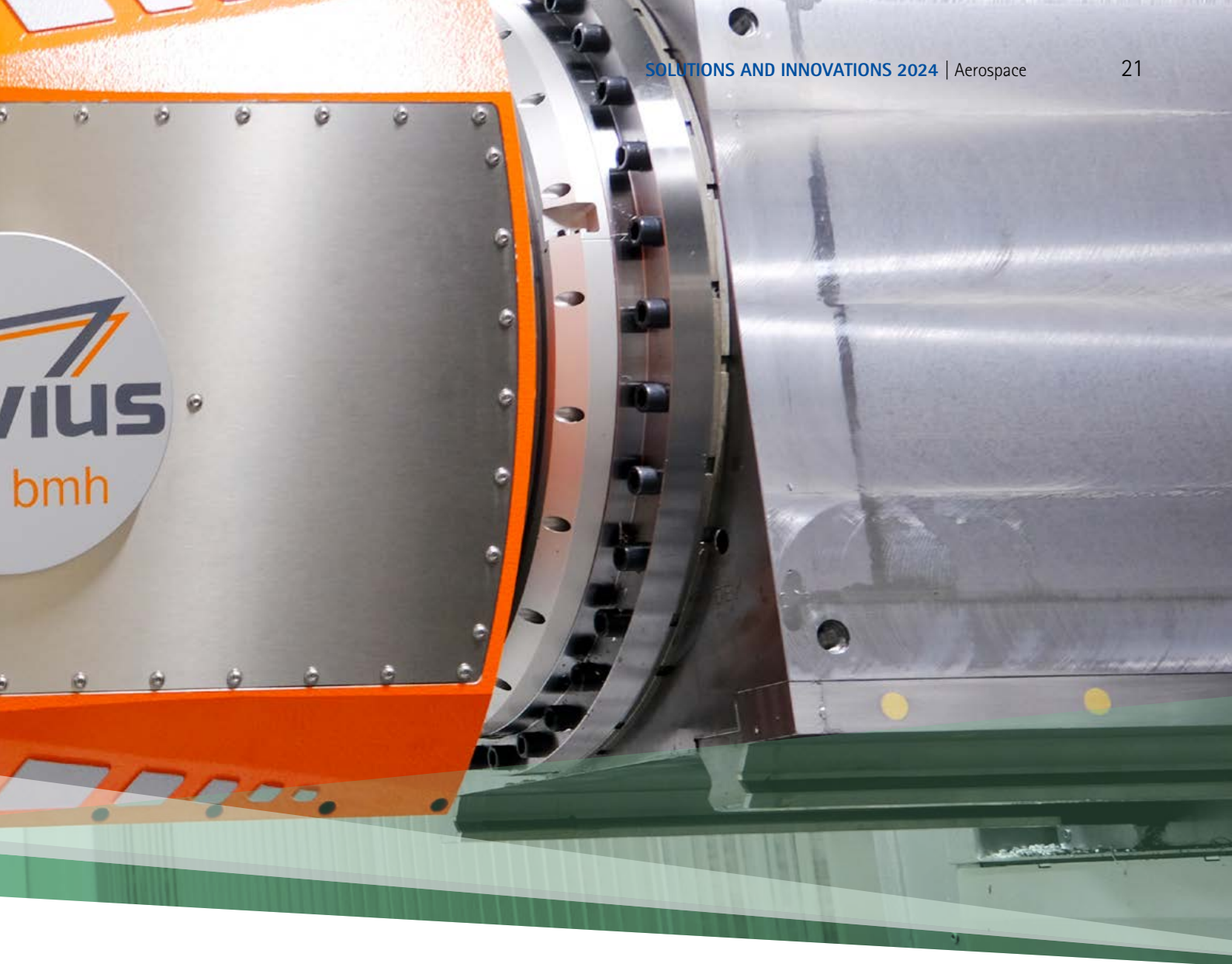
bavius is expanding its high-end series HBZ AeroCell with the new AeroCell 160 for maximum material removal rates in aluminium. In order to test new machines and at the same time provide customers with references, bavius has been carrying out milling tests that push them to their limits and beyond – for starters with the new solid carbide milling cutter OptiMill-Alu-Wave with a diameter of 25 mm. At a spindle speed of 25,465 rpm and a cutting speed of 2,000 m/min, the spindle power was gradually increased. The best material removal rate at a possible record-breaking 20 dm<sup>3</sup>/min was achieved with a spindle power of 175 kW, torque of 66 Nm and a feed of 30 mm. The tests with the new indexable insert tool NeoMill-Alu-QBig with 50 mm diameter were also extremely positive. The aluminium high-volume milling cutter achieved a material removal rate of 18.4 dm<sup>3</sup>/min.



*Have achieved the best results in aluminium machining in close co-operation (from left): The team led by Thomas Jungbeck (Technical Consultant, MAPAL), Tim Rohmer (Product Manager of Solid Carbide Milling Tools, MAPAL) and Stefan Diem (Application Engineer, bavius). ©bavius*

*The bavius horizontal machining centre AeroCell 160 for high-speed machining of aluminium structural parts up to 1600 x 4000 mm. ©bavius*





## Project information

### Requirements

- High-volume milling at peak performance
- Maximum possible material removal rate
- Milling flutes for to measure performance

### Solutions

- OptiMill-Alu-Wave, 12–25 mm diameter in 3xD, 4xD and 5xD
- NeoMill-Alu-QBig, 32–63 mm diameter

### Customer benefits

- Tool harnesses the full power of the fastest machine on the market
- Material removal rates of 20 or 18 litres per minute
- Complete range from 12 to 63 mm for high-volume machining of aluminium material
- Collaborative partnership and close coordination with the machine manufacturer



The maximum possible cutting parameters of the machine and tools when machining an aluminium plate were tested on the bavius AeroCell 160. At 20 and 18 litres per minute, the OptiMill-Alu-Wave and NeoMill-Alu-QBig achieved remarkable results. ©bavius

### Stefan Diem

Application Engineer  
bavius technologie GmbH



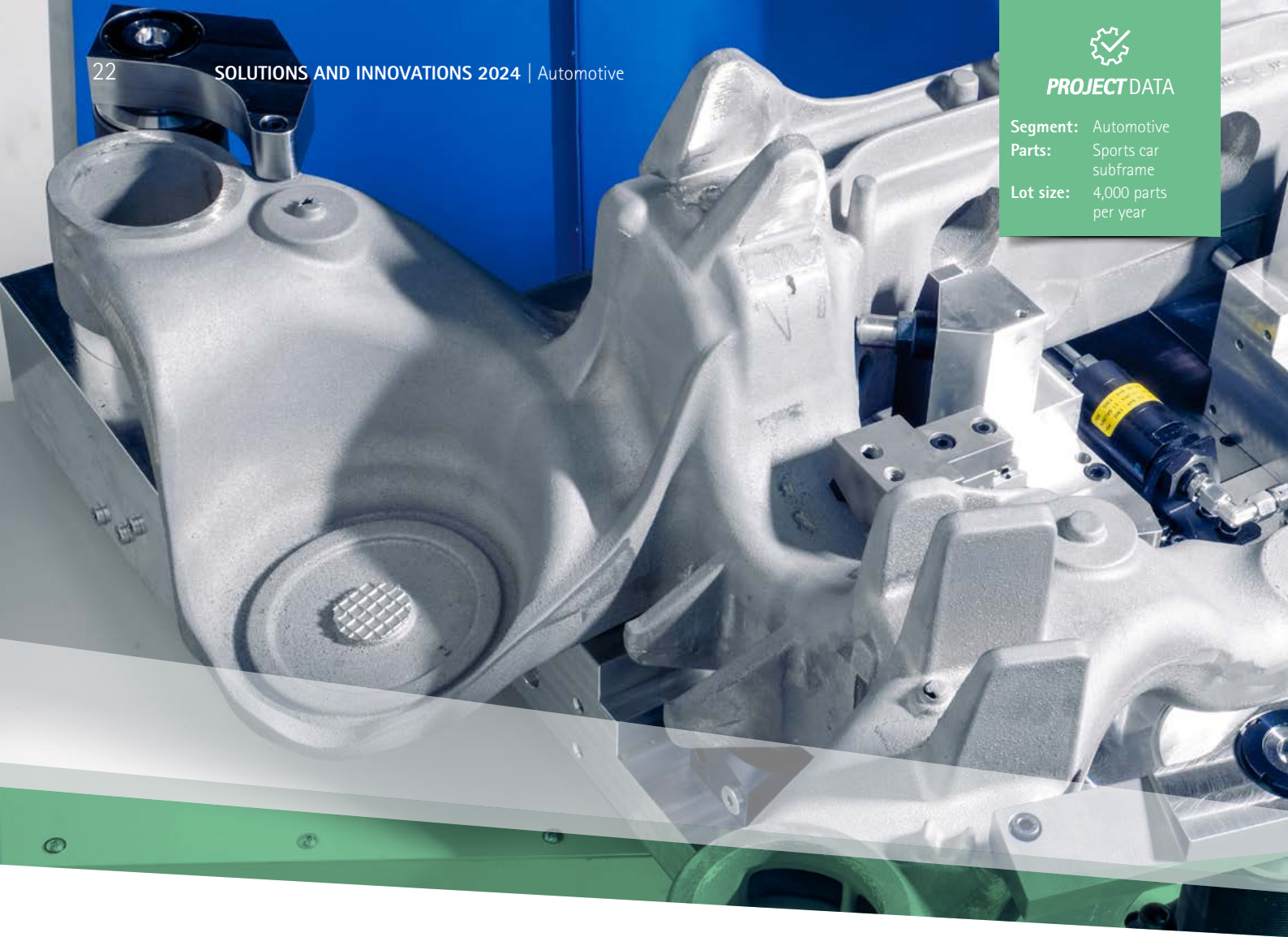
*"We've had a good relationship with MAPAL for many years and have always been very pleased with the roughing and finishing tools. I appreciate our close collaboration with MAPAL, I feel we receive excellent advice and are in good hands."*





## PROJECT DATA

Segment: Automotive  
 Parts: Sports car subframe  
 Lot size: 4,000 parts per year

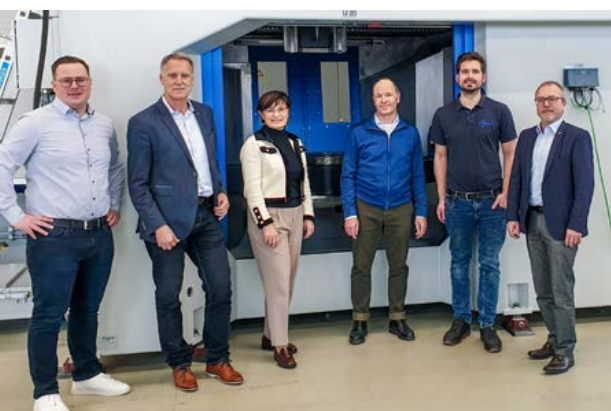


## Structural parts in record time

### Product realisation

When a sports car manufacturer was running short on structural parts, it put its trust in the process expertise of the mechanical engineers at August Wenzler Maschinenbau GmbH. In order to meet the ambitious deadline set by the automobile manufacturer, the HELLER Group subsidiary pooled its expertise with MAPAL.

August Wenzler Maschinenbau GmbH from Spaichingen, Germany, is responsible for structural part solutions within the HELLER Group. A typical part is the subframe, which acts as a rear-axle mount in vehicles. It can be up to 1000 x 1000 mm and weighs between 25 and 30 kg. A customer wanted to purchase a machine including a process designed for minimum quantity lubrication for its supplier. Together with MAPAL, the partners calculated an ambitious cycle time of 16 minutes, which also had to be achieved in practice. Of the 26 tools used, 4 milling cutters are responsible for 60 percent of the cycle time. Particularly close attention had to be paid to their design.



Pooled their expertise for this ambitious project (from left): Igor Ivankovic (Component Manager Chassis Et Brakes, MAPAL), Peter Krafft (Technical Consultant, MAPAL), Ingrid Wenzler (Managing Director, Wenzler), Wolfgang Wenzler (Managing Director, Wenzler), Sebastian Knaus (Technical Head, Wenzler) and Sven Frank (Global Head of MTB Management, MAPAL)

The structural part, a subframe, is held steady by a special clamping fixture on the Wenzler machine and can be machined from all sides in a clamping setup. ©Wenzler





## Project information

### Requirements

- Project completion within ten weeks
- Blanks with extremely large sprues and lots of stock removal
- Reliable implementation of the calculated cycle time
- Minimum quantity lubrication

### Solutions

- Tool scope of 26 tools
- Four milling cutters responsible for 60 percent of the cycle time
- Process design, technical consultation and support

### Customer benefits

- Optimal process design
- Best accuracy and process reliability
- Uncomplicated decision-making
- Great trust through longstanding partnership
- Everything from a single source

## Wolfgang Wenzler

Managing Director  
August Wenzler Maschinenbau GmbH

*"It is impressive how accessible this company is. When it comes to making decisions, we reach the right people here very quickly, all the way up to management. We were able to get binding confirmation over the phone without having to go back and forth with emails, which was very important for this project."*



*Responsible for 60 percent of the cycle time: Particular attention was paid to these four milling cutters during the machining of the subframe.*



## PROJECT DATA

Segment: Die & mould  
 Parts: Permanent  
 mould casting  
 Lot size: Individual part  
 production



## Added value in mould making

### Product realisation

To remain competitive in die & mould, efficient production with a high degree of process reliability is decisive for Krämer+Grebe GmbH & Co. KG in Biedenkopf-Wallau, Germany. Tool suppliers are judged by their application engineering, among other things. MAPAL has won confidence with its reamers and high-feed milling cutters.

Krämer+Grebe GmbH & Co. KG is specialised in finding solutions for complex geometries and stringent requirements for casting characteristics. The demands on the corresponding parts define the process. To remain economical in this competitive environment, manufacturing processes were attuned to Industry 4.0 and digitalised end to end. The cooperation with MAPAL started five years ago with 600 mm reamers that reliably completed bores in H7 quality. The NeoMill-4-HiFeed-90 enabled process improvements in high-feed cutting. It achieves a long tool life and large chip volumes when roughing and in this way reliably cuts production time.

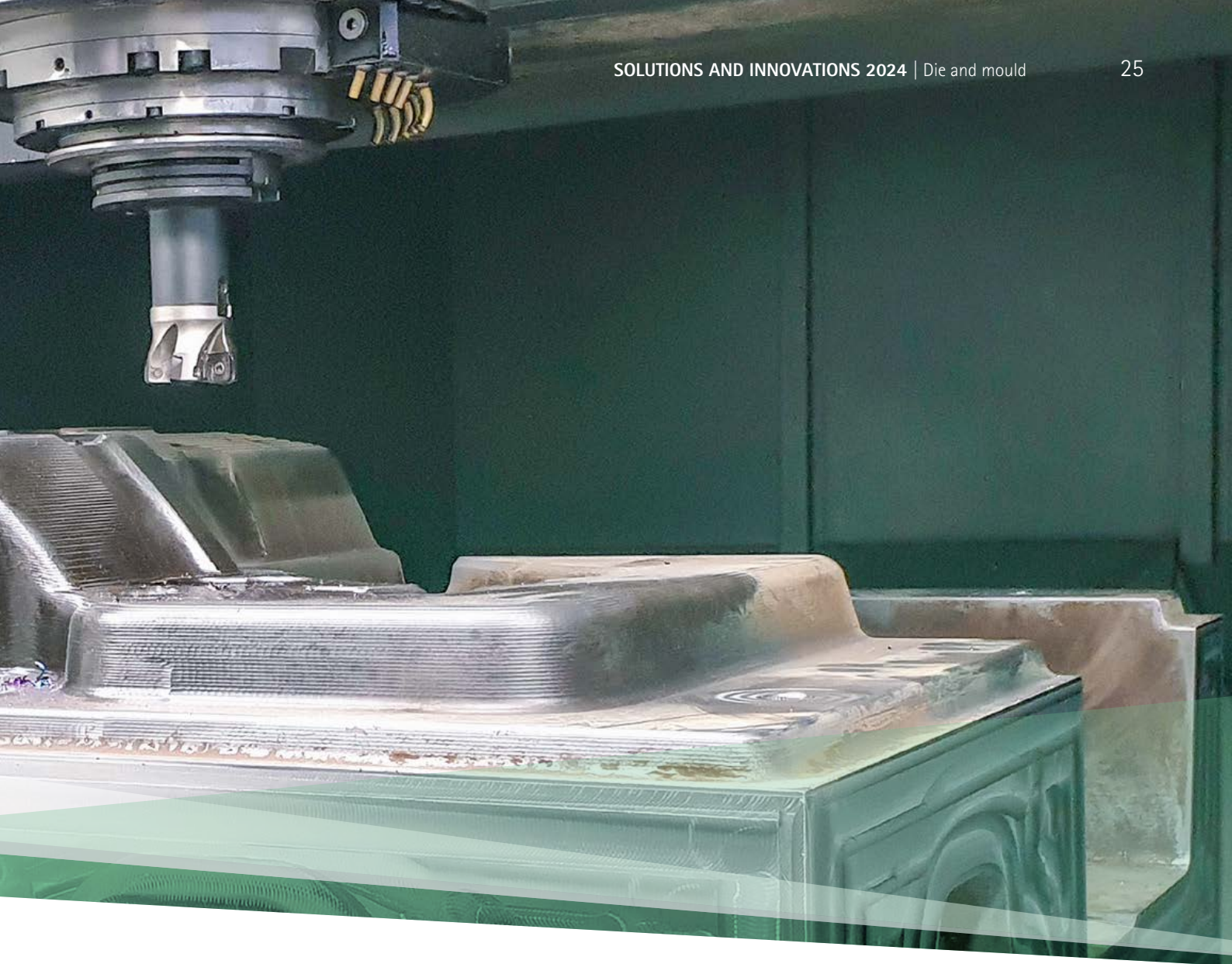


Collaborate to advance die & mould in Wallau (from left): Sebastian Schneider (Head of Order Centre and Production), Dominik Gessner (Process-Optimised Mechanical Manufacturing) and Uwe Rein (Business Development Manager Die & Mould at MAPAL)

With the NeoMill-4-HiFeed-90 and 600 mm long reamer, MAPAL helps Krämer + Grebe GmbH und Co. KG manufacture permanent mould casting.







## Project information

### Requirements

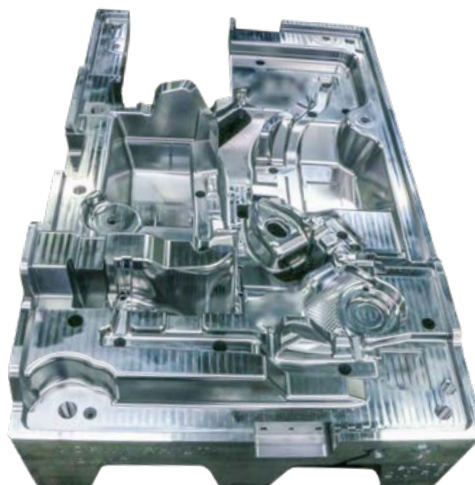
- Solutions for end-to-end digitalised manufacturing procedures
- Process improvements for high-feed cutting: Longer tool life and larger chip volumes during roughing
- High process reliability thanks to multi-machine operation
- CAM supported

### Solutions

- Indexable insert milling cutter NeoMill-4-HiFeed-90
- Standard portfolio from 16 to 200 mm
- CAM simulation
- Process design, technical consultation and support

### Customer benefits

- Powerful tools with a comprehensive range
- Close partnership
- CAM supported, support on site



### Dominik Gessner

Process optimisation  
Mechanical manufacturing,  
Krämer + Grebe GmbH & Co. KG

*"Tool price is no longer the decisive point nowadays but rather sound cooperative partnership and above all application engineering. To us, that's the be-all and end-all and ultimately a knock-out criterion for a supplier. I don't only want a tool but added value that I can apply in my processes."*

A typical Krämer+Grebe product:  
Chassis components are cast in this permanent mould casting.



## PROJECT DATA

**Segment:** Fluid power  
**Parts:** Control blocks, hydraulic valve housings in many versions  
**Lot size:** 1 to 200,000 pieces

## Controlling, regulating and moving fluids

### Product realisation

The SFB Group supports its clients during product development with its many years of manufacturing experience and constructs sample components, prototypes and pre-production parts. In its collaborative partnership with MAPAL, optimal process designs and turnkey solutions were developed for fluid power.

MAPAL offers a tool range tailored to the requirements of fluid power. Particular importance is attached to machining the main bore of hydraulic parts due to the especially low tolerances. MAPAL's tools include fine boring tools, tool clamping technology solutions and indexable insert tools. The close cooperation also involves the further development of processes. For extensive projects, MAPAL also assumes the planning of the entire machining process on request.



Left to right: Jochen Schmidt (Global Head of Segment Management, General Machining, MAPAL), Christian Linse (Head of Sales and Marketing, SFB Group), Ralf Wessel (Head of Purchasing, SFB Group), Bruno Hanselka (General Manager, SFB-Group), Christian Schmid (Area Sales Manager, MAPAL) and Florian Kutzner (Technical Advisor, MAPAL). ©Konradin/Rindle

The SFB Group relies on tools from MAPAL.





Project information

Requirements

- Many different versions
- Large variety of lot sizes
- High demands on accuracy, roundness, cylindrical form, straightness and surface finish
- Continuous process improvement

Solutions

- Fine boring tools
- Combination tools
- Precision tools and clamping technology
- Process design, technical consultation and support

Customer benefits

- Optimal process design
- Best accuracy and process reliability
- Efficient solutions for various lot sizes
- Technical advice and support
- Everything from a single source

Ralf Wessel

Head of Purchasing  
SFB Group



*"It is of course advantageous to work together with a turnkey solution provider. MAPAL's tools for fine boring, cast machining and aluminium machining in particular are indispensable for us."*



MAPAL custom-designed the combination tool.



Discover tool and service solutions now that give you a lead:

## BORE MACHINING

REAMING | FINE BORING

DRILLING FROM SOLID | BORING | COUNTERSINKING

MILLING

CLAMPING

TURNING

ACTUATING

SETTING | MEASURING | DISPENSING

SERVICES

FOLLOW US

