



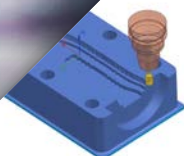
# IMPULSE

MAPAL TECHNOLOGY MAGAZINE | EDITION 78



Focus topic:

**DIE & MOULD**



**Dear business partners  
and readers,**

In this issue of Impulse, we are focusing on our newest business area: the die & mould sector. We were well aware that we were venturing into a competitive environment when we decided to enter this market segment. We had to offer a technological plus if we wanted to provide an advantage to our customers. Our comprehensive portfolio is the key. In addition to tools for milling, drilling and reaming, we can offer clamping technology and the entire tool logistics as well as regrinding and repair services. The advantage: our customers get everything from a single source.

Today, we can take a look at a market segment that has developed positively for us. The application reports in this issue attest strongly to the fact that MAPAL tools and services have proven themselves capable for the die & mould sector.

In addition to the favourable development in the die & mould sector, there was another also special event: my father, Dr Dieter Kress, celebrated his 80th birthday in May. As a visionary and entrepreneur, MAPAL grew from a small, local company in Aalen to an internationally active group under his leadership. Today, 5,000 employees work for MAPAL in 25 countries. He cultivated the spirit of an owner-operated family business where customers and employees are treated as partners. These values still define our DNA today.

My father shaped the industry significantly by taking a leading role in national and international associations and commissions. His exceptional social commitment to his hometown of Aalen was dear to his heart. He was honoured many times for his life's work.

The many birthday greetings he received attest to the fact that he is still held in high esteem in the machining industry as well as by our customers worldwide. Of course, he was very delighted by this. I have the honour of passing along his heartfelt thanks to all those who congratulated him.

Have a good read!

Yours,

Dr Jochen Kress



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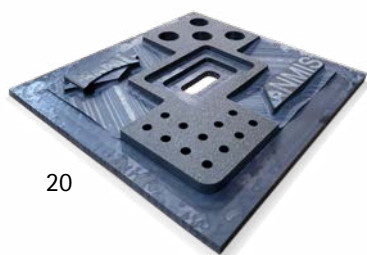
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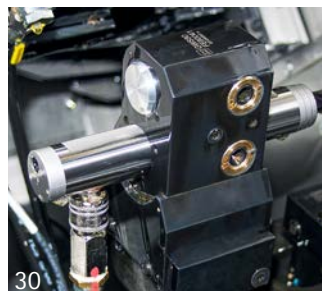


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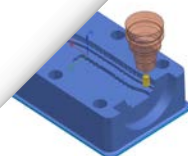
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# Dr Dieter Kress is turning

# 80.



*In 2018, Dr Dieter Kress received the Staufer Medal in gold. The picture shows him with Baden-Württemberg's Minister of Economic Affairs Dr Nicole Hoffmeister-Kraut (left) and his wife Ruth (right).*





Dr Dieter Kress celebrated his 80<sup>th</sup> birthday on 18 May. The passionate entrepreneur was at the helm of MAPAL for almost five decades. In 2018, he retired from active management, but still takes a lively interest in the developments at the company. "MAPAL is my baby, and I will never lose sight of it completely," he said once.

In 1969, at the age of 27, Dr Dieter Kress joined MAPAL Präzisionswerkzeuge Dr. Kress KG in Aalen, the company his father, Dr Georg Kress, had founded. In 1974, after obtaining a doctorate in engineering, he took over as president of the company, which was still fairly new and had 100 employees. With great foresight and personal commitment, Dr Dieter Kress managed the family-run business for 49 years as president. Under his guidance, the company

evolved from a regional tap drill manufacturer into an international company group in the precision tools industry. Today, MAPAL is represented in 44 countries and has more than 5,000 employees worldwide, roughly 1,700 of whom work at the headquarters in Aalen. In 2018, Dr Dieter Kress handed over responsibility to his son Dr Jochen Kress, who is now the third generation to lead the precision tool manufacturer.

Aside from his activity as an entrepreneur, Dr Dieter Kress also held a number of honorary posts. He was Member of the Board of the VDMA for many years, including as chairman of the trade association for precision tools from 2003 to 2009. He was chairman of the national and international standards commission, member of the university council of Aalen University

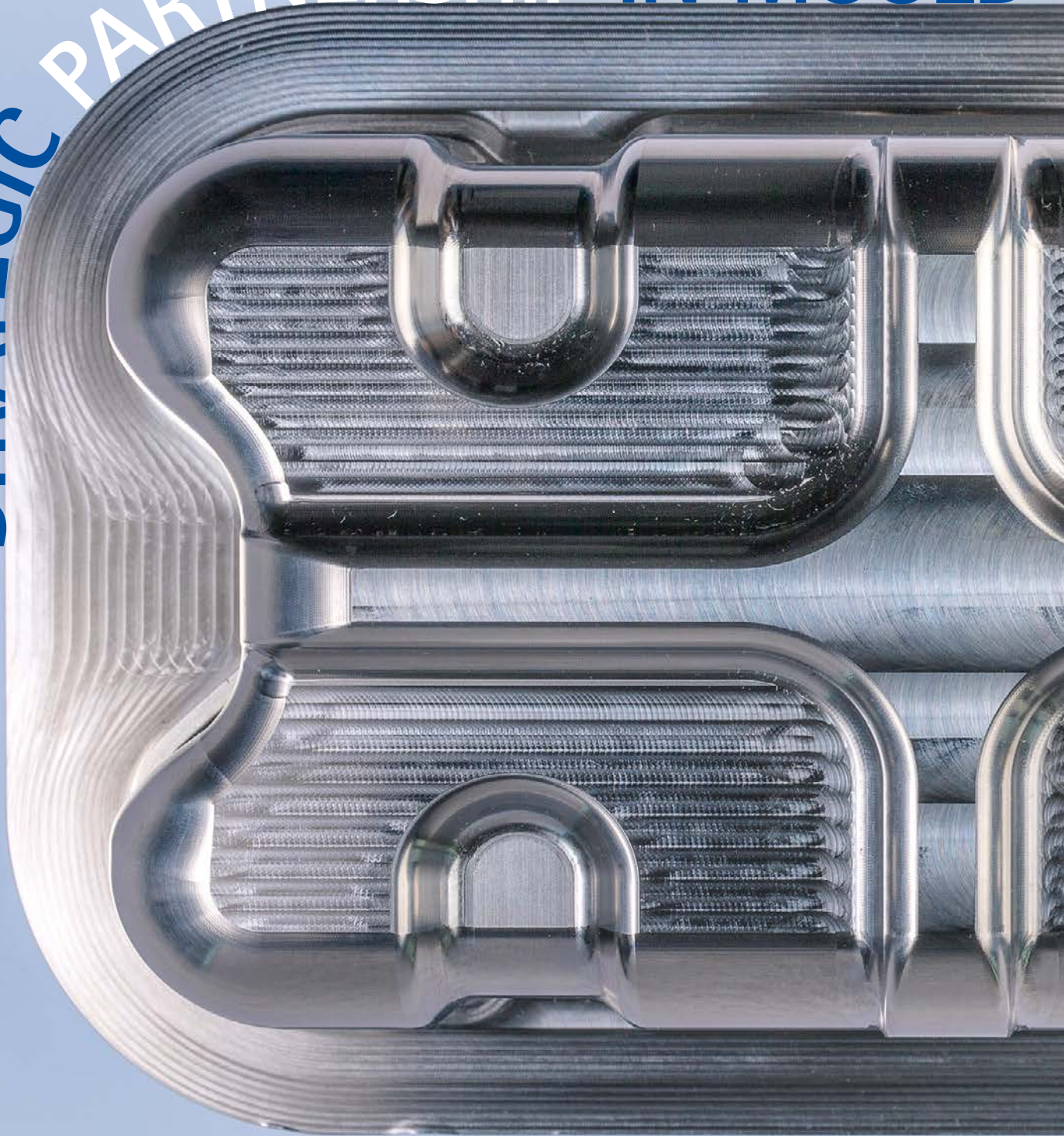
and a founding member of the P.E.G.A.S.U.S. association that supports company founders.

The entrepreneur received many awards for his achievements, for example the Cross of Merit of the Order of Merit of the Federal Republic of Germany and the Staufer Medal of the state of Baden-Württemberg in gold. He was also one of the first winners of the German Mechanical Engineering Award. Aalen University appointed him honorary senator.



Interplay of machine, tool and CAM strategy

# STRATEGIC PARTNERSHIP IN MOULD

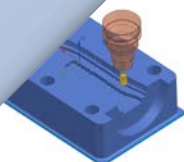




# MAKING



As the Die & Mould sector often involves one-offs and small series, standard tools are preferred here. In view of the almost infinite variety of geometry and design, users shy away from stocking a large and accordingly cost-intensive range of tool types. CAM programming is thus tasked with processing pending machining jobs using the stock of tools on hand. Compromises are often made at the expense of machine running times. In a joint project, MAPAL and the milling machine manufacturer Rödgers GmbH optimised the interplay between machine, tool and CAM strategy on a generic component. →



“We are continuously expanding our product range of tools with properties particularly suitable for mould making.”

*Dietmar Maichel, Global Head of Segment Management Die & Mould at MAPAL.*



“MAPAL is a leader in the area of high-performance tools with special properties especially adapted to customer requirement”, says Dietmar Maichel, Global Head of Segment Management Die & Mould at MAPAL Dr Kress KG. Therefore, the company focused on custom tools for a long time. In recent years, however, the proportion of standard tools available at short notice increased, as can be seen in the comprehensive product range for the die & mould sector: Of the 6,500 standard tools, about 5,000 are available from stock. They exhibit properties that are in high demand in mould making, such as the ability to machine extremely hard workpiece materials with narrow tolerances. The latter is crucial for attaining high accuracy with an excellent surface finish.

#### COOPERATION WITH RÖDERS GMBH

“We were looking for an innovative machine manufacturer for a pilot project to create a mould”, Maichel reports. Karsten Wolff, MAPAL Regional Sales Manager for Northern Germany and Denmark, provided the contact with Röders GmbH in Soltau, Germany. Initial discussions were already very promising and led to a cooperation. In consultation with Röders, MAPAL constructed a generic component based on the core for an injection-moulded part. The geometry posed various technical problems for machining and set strict requirements regarding surface finish as well as putting very high demands on machining. The steel 1.2343 hardened to 50±2 HRC, which is prevalent in mould making, was selected as the workpiece material. With the CAM program Hypermill from OpenMind, MAPAL Component Manager Francesco Ingemi created an optimal milling strategy, defining the most suitable tool in the process.

#### TOOL AND MACHINE WORKING IN PERFECT HARMONY

“In the die & mould sector, the demands on precision and surface finish are particularly high”, explains Dr Oliver Gossel, Head of Machine Sales at Röders GmbH. And the demands continue to increase. Milling tools and milling machine must therefore be in harmony according to Dr Gossel: “Not only the cutting material properties, spindle performance and feed rate are important, but also rigidity against tool deflection, vibration dampening or zero point stability during machining, which sometimes run hours or even days, for example.” An important role is also played by high-precision measuring systems to control the axis position as well as the measurement of the tools.

For this pilot project, an RXP 601 DSH 5-axis milling machine was used at Röders technical centre. This machine model has proven itself as a robust and highly precise workhorse for many mould making companies. The NC program suggested by MAPAL was optimised together with the HSC specialists at Röders with the performance data and possibly high dynamic of the RXP 601 DSH in mind. The result was a milling strategy for accuracy and surface quality, where the secondary objectives of minimal tool wear and the shortest possible machining time were not neglected.

#### CUSTOM TOOLS: ROUGHING AND FINISHING MILLING CUTTER FOR HIGH FEED RATES

“A total of 16 different tools were used for machining”, Maichel recalls. Some are particularly noteworthy due to their unusual properties. A high-feed milling cutter OptiMill-3D-HF-Hardened was first used to remove



"This project was a good chance for both partners to get to know each other, both on a technical as well as a personal level"

*Dr Oliver Gossel, Head of Machine Sales at Röders GmbH (centre), with Karsten Wolff, Regional Sales Manager MAPAL (left), and Mario Wilkemeyer, Technical Centre Manager of Röders GmbH (right).*



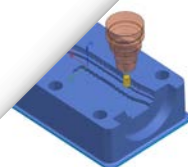
*The generic component developed together by MAPAL and Röders.*

large amounts of material. This six-edged milling cutter with a diameter of 16 mm roughed at a cutting speed of 170 m/min and a feed per tooth of 0.5 mm. It achieved a feed rate of over 10 m/min. Especially developed for roughing hardened parts with a hardness from 56 HRC, the OptiMill-3D-HF-Hardened is very forgiving when cuts are interrupted. The milling cutter also achieves high-quality surface finishes in finishing processes thanks to its innovative face geometry.

The OptiMill-3D-CR-Hardened five-edged corner radius milling cutter with a diameter of 10 mm is used to finish the upper area – face surface, contour and radius transitions. This milling cutter designed for stability with high radius accuracy is suitable for finishing workpiece materials up to 66 HRC. With high feed-rate values, it creates first-class to high-gloss surfaces.

#### CUSTOM TOOLS: SHOULDER RADIUS MILLING CUTTER AND FINISHING MILLING CUTTER WITH WIPER GEOMETRY

"The possible applications of the OptiMill-3D-CS shoulder radius milling cutter are innovative", Ingemi divulges. Thanks to its special geometry, available in teardrop and taper shapes, this milling cutter machines workpiece sides with a high material removal rate and reduces machining time. Compared to standard ball nose milling cutters, higher-quality surface finishes can be achieved with the same line interlace and machining time. The milling cutter geometry is even more of an advantage if there are larger line interfaces: The processing times can be reduced by up to 80 percent here, while the surface remains the same or improves. The high surface quality achieved also allows polishing efforts to be reduced noticeably. →



The NeoMill-3D-Finish radial indexable insert milling cutter is universally deployable for finishing hardened workpiece materials and applications. Its particularly wear-resistant and precision-manufactured indexable inserts with axial and radial wiper geometries enable high cutting depths and feed per tooth values, and thus high productivity. A solid carbide extension also makes low-vibration finishing possible at great depths.

Both tools require high feed rates for ideal operation, not only on straight pathways but also along curved routes. The Rödgers machine is particularly good at this due to its high dynamics with high values during acceleration. "Even after machining inner corners, where the speed has to be reduced to zero, ideal cutting values are achieved again in no time", Dr Gossel explains. Users thus achieve both very high tool lives as well as excellent milling results. "A very nice example of the desired synergy between machine and tool", Wolff notes.

### HOLISTIC PROCESS OPTIMISATION

"This project was a good chance for both partners to get to know each other, both on a technical as well as a personal level", Dr Gossel concludes. It showed that the entrepreneurial philosophies of both companies harmonise. Rödgers' objective is that the users can work with their machines as efficiently as possible. In order to provide optimal support here, Rödgers uses

most CAM systems available on the market. MAPAL doesn't just sell tools either. On request, they support their customers actively and competently with a well-networked team of technical consultants, market segment specialists, development engineers as well as CAM programmers.

The cooperation between the two companies was convincing, both during the definition of the machining strategy and in practice: The machining of the generic component took eight hours and twelve minutes at a continuous surface roughness of  $R_a$  0.09–0.12  $\mu\text{m}$ . "A variety of tools was used for the project's finishing steps", Dr Gossel highlights. "In practice, this is often refrained from as problems could occur due to 'shoulders' on the workpiece because of inadequate tool accuracy and machine rigidity or accuracy, for example due to thermal drifts." To avoid this, users willingly accept longer machining time. There were no risks of this kind in this project due to the quality of machine, tools and CAM programming. The selected strategy, which was ideal for the corresponding surface segments, resulted in short machining time.

Meanwhile, various joint projects are running to develop solutions for tasks from Rödgers' customers. A joint customer workshop is also planned for this purpose. ■



### RÖDERS RXP 601 DSH

*The Rödgers RXP 601 DSH 5-axis HSC milling machine has been designed to meet the highest accuracy requirements while at the same time providing high metal removal rates, especially when machining hard workpiece material. It features frictionless linear direct drives which, in combination with 32 kHz controllers in all axes, enable both highly dynamic and high-precision machining. An essential prerequisite for this is high-precision optical scales in all axes – when it comes to precision, no compromises are made. Due to its accuracy and dynamics, the machine can also be used for coordinate grinding. In addition, the Z-axis features a patented frictionless vacuum weight compensation, to avoid any reverse marking in the Z direction.*

*To ensure maximum thermal stability, the machine has a sophisticated temperature management system. The temperature of the medium flowing through all major system components is controlled with an accuracy of  $\pm 0.1$  K, or  $\pm 0.02$  K for certain applications. Another special feature is a dedicated control system based on PC technology, whose functionalities are precisely tailored to the specific tasks of HSC high-precision milling or coordinate grinding. Rödgers offers control system updates as a special feature, so that the machines will not become obsolete due to the controller. In the current release of the control system, the Racecut, significantly reduced machining times were achieved.*

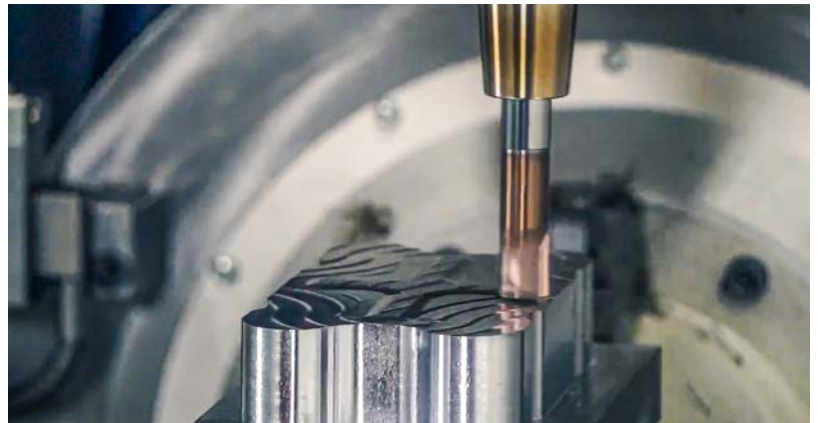


*With a solid carbide extension, the milling head of the NeoMill-3D-Finish finishing milling cutter can also be used for low-vibration finishing at great depths.*

*View of the working area of the Röders RXP 601 DSH while roughing the component.*



*The high-feed milling cutter OptiMill-3D-HF-Hardened is used for high-precision roughing of large amounts of material.*



*Thanks to its special geometry, the OptiMill-3D-CS shoulder radius milling cutter can be used for 5-axis finishes of workpiece sides with a high material removal rate, which reduces machining time.*



*The NeoMill-3D-Finish radial indexable insert milling cutter is universally applicable for finishing all kinds of workpiece materials and machining situations.*





SIEGFRIED WENDEL (CSO) |  
JACEK KRUSZYNSKI (CTO)

Siegfried Wendel (Chief Sales Officer) and Jacek Kruszynski (Chief Technical Officer) were granted joint power of attorney for the MAPAL Group. The members of the Executive Board make significant contributions to the successful development of MAPAL in their respective areas of responsibility. At the same time, their appointment as general authorised signatories is an expression of the high level of trust in their work.

# PARTICULARS

FRANK SUN |  
SALES DIRECTOR CHINA

Frank Sun took over as Head of Field Sales at MAPAL China in February 2022. His tasks include developing efficient sales strategies and supporting the field staff. The experienced manager wants to expand customer service and drive sales growth in line with MAPAL's strategy. Sun has a vast amount of expertise in product, market and customer management. He has been working in international companies in the manufacturing industry for more than 15 years and maintains good contacts with business partners in the automotive, aerospace, medical technology, energy, mould making, electronics and machine tool sectors.





### SEBASTIAN KRELLER | GLOBAL HEAD OF TOOL MANAGEMENT

Sebastian Kreller will lead the Tool Management Services division as Global Head of Tool Management from July 2022. In this role he will report to Siegfried Wendel, CSO of the MAPAL Group. Kreller has held a position of responsibility at MAPAL for many years, most recently as Head of TET Engineering & Processes. The mechanical engineer and General Management MA brings extensive experience in sales and project management from international service and capital goods projects to the table from previous professional positions. As Global Head of Tool Management, Kreller succeeds Frank Stabler, who took over the sales management of the DACH-HU region last year.

### UWE REIN | KLAUS SCHWAMBORN | ROGER STEINER

Uwe Rein, previously Managing Director of the Centre of Competence for solid carbide tools in Meiningen for sales and commercial functions, is taking on a new role within the MAPAL Group. Aside from his work as Business Development Manager Die & Mould, he will be responsible for the North-West Germany area as Area Sales Manager in the future. By taking up this position, he is succeeding Klaus Schwamborn, who will enter the active phase of partial retirement in June but will support Rein in his area during the transition phase until the end of 2022. Roger Steiner will consequently have overall responsibility for the Centre of Competence in Meiningen. Most recently, Steiner was the Managing Director responsible for production and technology.



*from left: Uwe Rein, Klaus Schwamborn, Roger Steiner*







Social responsibility in enterprise

# Why hydraulic chucks are more sustainable

If tools must be safely clamped while also providing good radial run-out, then there's no getting around shrinking or hydraulic chucks for the clamping devices. When choosing between the methods, technical aspects and personal preferences most often play a role. However, sustainability considerations should also be taken into account.

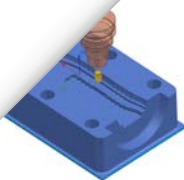
As a manufacturer of both shrink and hydraulic chucks, MAPAL compared both methods with respect to sustainability. The comparison is principally based on the areas of technology, economics and social issues as the classic pillars of sustainability. There are always overlaps, as technological progress often goes hand in hand with more economic efficiency.

Sustainability can serve as a deciding factor because the various clamping devices are readily interchangeable for many machining tasks. Applications where only shrink chucks are viable due to their innately smaller tool restrictions are becoming rarer. The newest generation of MAPAL hydraulic clamping technology under the brand name UNIQ allows the technologies to substitute each other showing exactly the same tool restriction as defined by DIN.

## MUCH LONGER TOOL LIFE

When it comes to sustainability, a big advantage of the hydraulic chucks is a much longer tool life. In the comparison, MAPAL investigated that they last at least ten times longer than a shrink chuck. What's more, they can also be reconditioned. If installation parts are replaced during servicing and the hydraulic oil is refilled, the chucks run like new again and are ready for another full tool life. While a shrink chuck clamps approximately 500 cycles, the current UNIQ hydraulic chuck models from MAPAL can reach 10,000 to 15,000 cycles. In this way, a hydraulic chuck, which is twice as high in terms of pricing, actually pays for itself – in particular because shrinking technology involves additional costs for a device.

Tools are clamped in shrink chucks by heating and cooling the connection. In this regard, the structure of the material changes every time, which leads to fatigue. The quality of the clamp lessens with every shrink procedure; radial run-out and rigidity keep deteriorating from the first use onward. By contrast, clamping with oil reduces microvibration during machining. Tool life and surface quality are therefore improved: Hydraulic chucks reliably generate better surface finish over their entire tool life. →





*Simple and straightforward handling is a further advantage of hydraulic clamping technology.*

### SHRINK UNITS ARE POWER GUZZLERS

A strong argument for switching to hydraulic clamping is the high energy requirements for shrinking. In its own factory, MAPAL ascertained that a shrink unit that is used in three shifts per day can consume between 10,000 and 12,000 kilowatt hours per year. This corresponds to the electricity consumption of five energy-conscious two-person households.

This energy consumption not only entails high energy costs but also emits a large amount of CO<sub>2</sub>. According to the statistical analysts at Statista, the current energy mix in Germany results in approximately 366 grams of CO<sub>2</sub> being emitted for each kilowatt hour. Each shrink unit therefore emits 3.6 tons of CO<sub>2</sub> into the atmosphere every year. Nowadays, this has an impact on the entire supply chain, where the sustainability of manufacturing is becoming increasingly important. Many first- and second-tier customers only want to source from suppliers that can prove that they are reducing their carbon footprint.

In addition to the tool life of a chuck and energy requirements of the device, time is also a factor when calculating return on investment. It takes at most two minutes to swap a hydraulic chuck, whereas six to eight minutes are needed for shrink chucks, depending on the size. If tools are changed often in manufacturing, this results in considerable labour costs. The space required in the tool-setting area for the shrink unit would also no longer be needed.

### SIMPLER AND SAFER

The social aspects of sustainability shed light on the topic from the user's perspective most of all. A product where the performance is obvious to the naked eye is likely more agreeable to users than one with a rusted sleeve. When it comes to handling and safety, there are even more arguments for switching to the hydraulic clamping technology.

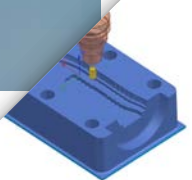
A shrink unit is not only cumbersome to handle but also a safety hazard. Almost every user has burned their finger once on a hot chuck during a busy workday. There is no such risk with hydraulic chucks. In general, they are very simple and straightforward to use – the tool only needs to be inserted and tightened. The workers benefit from processes that run more smoothly and require less reworking. The fact that a shrink chuck subject to material fatigue might be the cause for increasing tool wear or deteriorating surface quality is not always immediately obvious in practice.

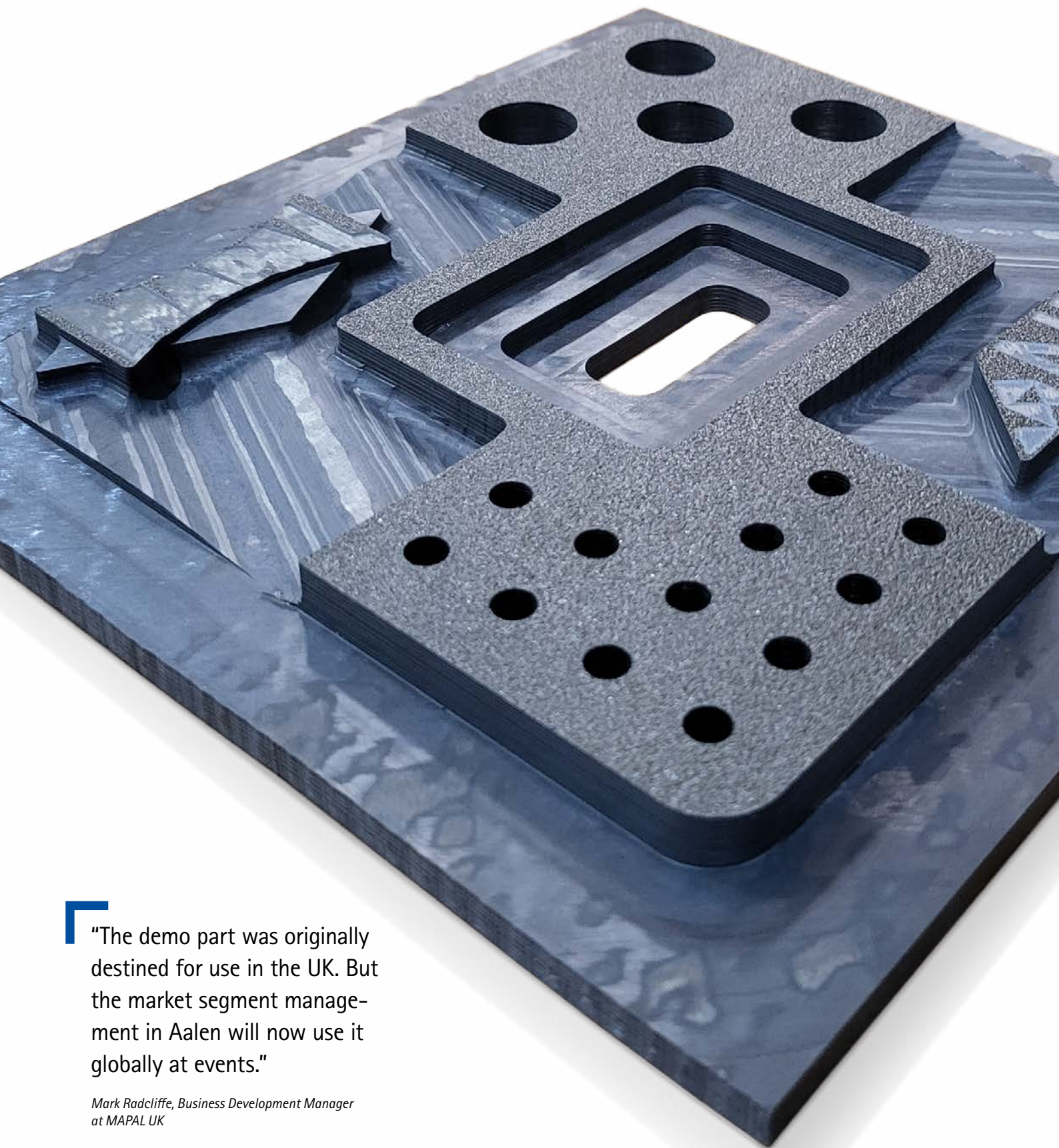
The comparison result is clear: If you want to manufacture responsibly, then you should consider switching to hydraulic clamping technology. For new purchases, hydraulic chucks are the first choice from a sustainability perspective. ■



*It only takes about two minutes to change a tool with a hydraulic chuck.*

*The UNIQ hydraulic chuck from MAPAL has at least a ten-times longer tool life than a shrink chuck and promises reliable machining results.*



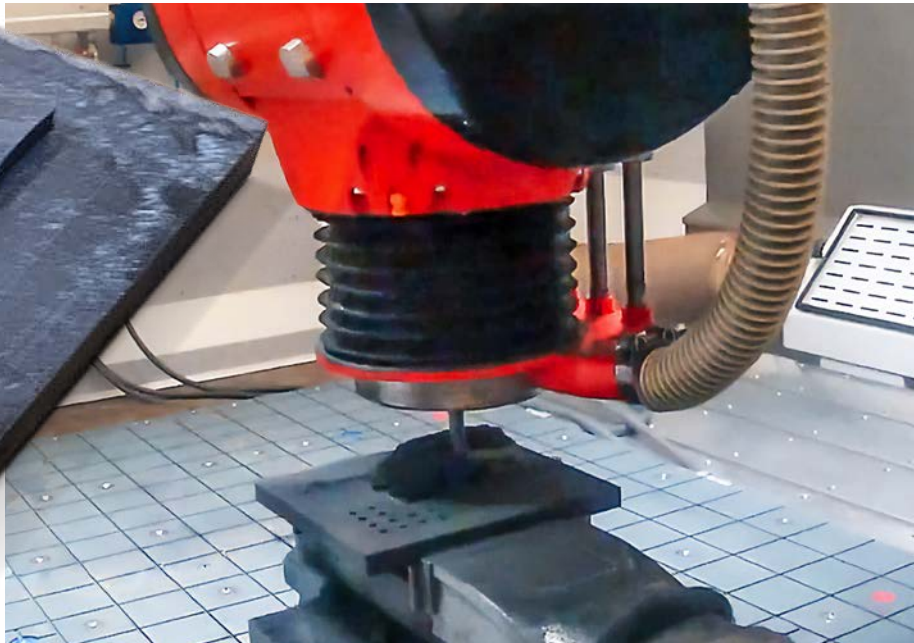


“The demo part was originally destined for use in the UK. But the market segment management in Aalen will now use it globally at events.”

*Mark Radcliffe, Business Development Manager at MAPAL UK*

Local cooperation project with global impact

# CFRP demo part for trade fairs and events



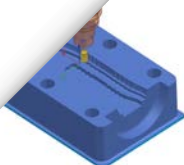
In a joint project, the National Manufacturing Institute Scotland and MAPAL bundle their skills and develop a generic component together, which is putting MAPAL's tool expertise in the area of CFRP machining to the test. The part, which was initially planned for local trade fairs and events, is now being used worldwide.

"Especially for trade fairs and conventions, we needed a fictional part to clearly illustrate the principal tools and processes related to CFRP machining", says Mark Radcliffe, Business Development Manager at MAPAL UK. "For projects like this, we like to make use of our good cooperation and partnership with universities and institutions."

The National Manufacturing Institute Scotland (NMIS) is a group of industry-operated research and development centres with a network of partners throughout Scotland. It offers its services to the manufacturing sector. For this purpose, the NMIS provides manufacturers access to innovative technologies and an international network of experts and employees from industry and science. After a first discussion, the NMIS's CFRP experts

designed a 3D model of the demo part, which illustrated the requested machining processes and tools to be demonstrated. One of MAPAL UK's partners provided the material. MAPAL provided the tools and optimal machining parameters. After the blueprint was ready, the fibre-reinforced composite part was machined at NMIS's Light-weight Manufacturing Centre.

According to Radcliffe, the result is convincing: "The demo part was originally destined for use in the UK. But the market segment management in Aalen will now use it globally at events." ■



# MAPAL do Brasil celebrates its 25<sup>th</sup> anniversary

From a sales office to a multi-award-winning production plant supplying customers in South and North America.



*The site in Ibirité*

If you want to serve both the South and North American markets, there is no getting around Brazil. In 1997 MAPAL strengthened its presence in this emerging market and founded a joint venture company with the then partners Sidney Pimenta Paiva and Otto Bilz. The response from customers, including local production plants of international automotive manufacturers, was extremely positive. The possibility of receiving personal advice and direct support for machining tasks was appreciated, especially as the sales and service office was soon to take on the first repair orders too, which were handled swiftly and professionally.

## MANUFACTURED IN IBIRITÉ

Today, 25 years later, the former sales office has become a production plant with around 120 employees. Since 2005, it has been a full member of the MAPAL Group. Sidney Pimenta Paiva, who has been responsible for operational management from the beginning, contributes significantly to the successful development of the

site. He managed the Brazilian subsidiary over more than two decades until his retirement in 2020. He was succeeded by Conrado Cuoto Diniz, who now runs the business as CEO together with Ana Maria Godoy (CFO). Many of the tools that MAPAL do Brasil sells are manufactured directly at its headquarters in Ibirité. In 1999, a quality management system is introduced, and the company is certified according to ISO 9001. This is the starting signal for on-site production. In 2000, construction work begins on a separate building with a 4,000-square-metre manufacturing hall in the industrial centre of Ibirité. In 2012, the area is expanded by 1,000 square metres to create additional storage capacity.

## MULTIPLE AWARDS

Well-known automotive manufacturers have repeatedly acknowledged MAPAL do Brasil for the good quality of the products and the reliability in order processing. In 2003 and 2011, the plant receives the FIAT Quality Award. In 2009 and 2013, FORD recognises the company as the

best supplier in the industrial material category. "A year later, we received a certificate of honour from FIAT for first place in the tool supplier performance evaluation", adds Cuoto Diniz. Today, the Ibirité plant works with internationally renowned machine manufacturers and enjoys a leading position in the development of machining solutions for drive systems. MAPAL do Brasil manufactures for the Brazilian market as well as for other countries in Latin and North America. Exports are mainly to Argentina, Chile and Peru as well as to Mexico and the USA, in close cooperation with the sister companies of the MAPAL Group based there.

## BROADLY POSITIONED

In addition to the automotive industry and suppliers, MAPAL do Brasil's customers also come from the aerospace, oil and gas industries as well as from machine and mould making. Frequent requests include micro-adjustable reamers, boring bars, custom tools, carbide, cermet, PCD and PCBN inserts and blades, PCD tools, solid carbide



**25 YEARS**  
1997 – 2022



*Proud of the work done:  
The team of MAPAL do Brasil*

tools, tools with ISO elements as well as engineering services for process optimisation and cost reduction, tool management solutions and systems for setting, measuring and dispensing.

### CUSTOMER SATISFACTION IS THE ULTIMATE BENCHMARK

The equipment and technology standard of the plant in Brazil corresponds to the uniform global level of the MAPAL Group. As at all MAPAL sites, the managers in Ibirité place huge importance on professional training and further education for their employees. A central component of the qualification is the international exchange with the head office in Germany as well as the sites across other countries. MAPAL do Brasil is proud of its successful work over the past 25 years. For the future, the team has resolved to continue this work with the same drive and passion. "Our focus is on reaching out to our customers. We want to meet their expectations and win them over with cutting-edge technology, innovations and our solution expertise", emphasises Diniz.

"To achieve this, MAPAL do Brasil relies on first-class quality management, continuous improvement of organisational processes and adherence to ethical values", explains the CEO. The customer is the company's top priority. "The customer is and remains our greatest asset." ■



Comparative test at Umformtechnik Radebeul with resounding success

# The overall process makes the difference

In the die & mould sector, it's usually difficult to directly compare precision tools from different manufacturers because there are always different parts with different requirements to be produced. When MAPAL was given the opportunity to take over the complete machining of a die at Umformtechnik Radebeul GmbH, the manufacturers were amazed at how much time could be saved.



*Flat areas for the die are finished with the MAPAL OptiMill-3D-CR corner radius milling cutter to quickly produce good surfaces. ©UFT*







Steffen Albrecht, Head of Tool Production at Umformtechnik Radebeul (right), and MAPAL Product Specialist Felix Wendler with the mould insert.



Close-up on a mould insert from Umformtechnik Radebeul. ©UFT

Umformtechnik Radebeul (UFT) is a specialist in forged aluminium. A particular strength of the company is thin-walled drop forgings with intricate geometry, which are in demand when high-quality products require more stability than cast aluminium can offer.

In total, the factory in Radebeul has existed for 120 years, during which ownership and business fields have changed repeatedly. The more recent history begins in 1957 with the construction of a drop forge, from which today's Umformtechnik Radebeul GmbH emerged. In 2001, the production structure was changed to aluminium forgings. The company, which in the meantime operated in parts as "Aluminiumtechnik Radebeul GmbH", took on its current form in 2006 with the areas of toolmaking, prototype production, parts machining and assembly.

In 2017, the Radebeul-based manufacturer was taken over by UKM Fahrzeugteile GmbH from Reinsberg. The companies' business areas complement each other. The UKM Group is a supplier to the automotive industry with a focus on the high-precision machining of metal components. UFT manufactures complex aluminium forgings for many different applications. At around 60 per cent, parts for motorbikes account for the largest share.

### MOTORBIKE FORGE WITH GREAT MANUFACTURING DEPTH

For motorbikes of major manufacturers, UFT produces, among other things, triple clamps, foot brake and foot shift levers, side supports, and footrest plates. In addition to the sometimes delicate shapes and complicated geometries, the demanding surface design is a challenge during machining. On top of two-wheeler parts, joints and connectors for awnings, ski bindings as well as hose couplings and other parts for fire engines are also produced in Radebeul. The company was also able to win over customers from the aerospace industry.

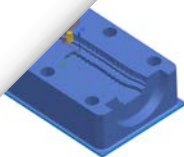
Typical order quantities are somewhere between 10,000 and 100,000 parts. However, small series and prototypes of high quality are a particular strength of the factory in Radebeul. UFT is characterised by short delivery times.

On a tour of the manufacturing halls, the extraordinary manufacturing depth is striking. The company's own tool shop manufactures forging tools, press brake tools, milling jigs as well as measuring and testing devices for UFT's forges. Prototypes are machined from blanks. A hardening shop is also located in the building, as is a mechanical manufacturing facility where the parts are given their final appearance and are also partly assembled. Only the surface treatment is carried out by partner companies in the immediate vicinity.

At UFT, 15 of the total 170 employees work in toolmaking. "They are all trained cutting machine operators", says Steffen Albrecht, Head of Tool Production at UFT, explaining the efficiency of this area. Occasionally, tools are also produced for external customers, but the majority are intended for internal use. UFT has around 500 finished forging tools in stock at any given time, and with every new part more are being added. For the spare parts market of some customers, the tools have to be kept in stock for up to 15 years.

The toolmakers mill the forging tools out of blocks of tool steel. Felix Wendler, Product Specialist Die & Mould at MAPAL, used his many years of personal contact with the manufacturers to encourage them to try out new tools for their machining. Because at UFT, they were quite satisfied with the existing cutting tools.

This did not immediately change, even when a ball nose milling cutter from MAPAL was tested. "The milling cutter from MAPAL was no worse, but also no better than the one we already had", states Albrecht. Even an improved version of the milling cutter from MAPAL could not persuade the toolmakers to jump ships. "That was certainly also due to the fact that we are already working at a very high level", explains Albrecht. Felix Wendler knows all too well that exact comparisons are difficult in the die & mould sector: "Normally, only one part is made at a time. The →





*Felix Wendler (MAPAL, left) and Steffen Albrecht (Umformtechnik Radebeul), who has found his new favourite tool with the OptiMill-3D-HF-Hardened.*

*Achieves good preparatory work right in the roughing stage: The 35 mm high-feed milling cutter NeoMill-4-HiFeed-90.*

same part isn't made again immediately, so it cannot be tested by machining it on another manufacturer's tools." Only comparisons of particularly critical work steps can provide clues, where the experience of the manufacturers is also taken into account.

### COMPARATIVE TEST UNDER IDENTICAL CONDITIONS

However, MAPAL was still to be given a real chance to prove itself. According to Albrecht, it is very rare for UFT to produce two identical parts, but when it came to forging tools for the manufacture of footrests for a large motorbike manufacturer, two dies had to be produced at the same time. In the case of very sensitive orders, production uses exchangeable inserts to be able to run the process without major disruptions. UFT produces 20,000 footrests per year. A die can handle about 10,000 parts before it needs to be replaced.

This provided the perfect opportunity to test the tools of two manufacturers against each other under identical conditions – with the same connections and on the same machine, a Hermle C40. In addition, it was a demanding part with complex machining. When the die is machined, less than half of the material remains at the end. To produce all the contours, relatively small tools sometimes plunge deep into the material.

"We decided to let MAPAL machine a part completely from start to finish in order to determine what the tool manufacturer is actually capable of", says Albrecht. "In terms of testing conditions, it couldn't have been better." Wendler took advantage of the freedom granted and worked out a machining strategy. In order to match geometries and avoid problems with tolerances and tool restrictions, he oriented himself to

the tools previously used and selected 18 suitable tools from the MAPAL portfolio to compete against them.

MAPAL sent its high-feed milling cutter NeoMill-4-HiFeed-90 into the race against the proven classic round-insert milling cutter. The result amazed the manufacturers in Radebeul: The machining time could be reduced by 28 percent. "It was a big wake-up call when we realised that we could save so much working time and, consequently, money on a single part", admits Albrecht.

### IT ALL DEPENDS ON THE RIGHT PREPARATORY WORK

Felix Wendler explains why it is so important to be able to machine on a part right from the start: "If the customer roughs with the existing tool and only allows us to take over afterwards, the conditions that a competitor's tool has created prevail from the get-go. But if we start machining with our tool and our strategy from the beginning, we may already have completely different conditions to build upon with our finishing tool. This makes a completely different approach possible. Seeing the whole process from the raw block to the finished part is more expedient."

In order to create the best conditions for the subsequent machining steps, Wendler used a 35 mm milling cutter instead of the previous 52 mm cutter. Production Manager Albrecht was very surprised about this: "I was sceptical because with that size difference I didn't think the small tool could work faster." But Wendler had his reasons. The 52 mm milling cutter is simply too large for the existing SK40 machines, and the potential of the larger tool cannot be fully exploited. The smaller NeoMill-4-HiFeed-90



high-feed milling cutter he chose, on the other hand, was able to run exactly the cutting data needed. With less cutting width and cutting depth, work was faster in the end.

There was also another factor that contributed to the time savings in the process. The smaller diameter of the milling cutter allows for closer contour machining, leaving less residual material in the corners. This reduces the effort required for further machining. According to Wendler, this is crucial: "Shorter times can hardly be achieved in finishing alone, because the machine is the limiting factor for most users. So I try to create the best conditions already during roughing to gain time overall."

Thanks to the extremely positive outcome of the project, UFT wants to expand cooperation with MAPAL and tackle further machining work together. "With MAPAL, we have a partner who

knows what it is doing. Unfortunately, that's becoming rarer and rarer", Albrecht praises. "Having a permanent contact person who can help or give tips if we ever have a problem is a good basis for cooperation."

Based on a list of the tools used to date, the die and mould making specialists from MAPAL have drawn up a standard portfolio consisting of 60 tools with which UFT can handle practically all tasks that arise. MAPAL can deliver the majority of tools for the die & mould sector to the customer within 24 hours. Custom tools are manufactured upon request. Wendler has calculated that there are savings with MAPAL tools, even if the previous tool consumption is assumed. However, the aim is to further reduce costs by reducing consumption with the new tools.

### THE WORKERS HAVE THEIR FAVOURITE TOOL

One milling cutter from MAPAL has become the favourite of machine operators within a short space of time: the OptiMill-3D-HF-Hardened, an extremely powerful solid carbide roughing tool that can be used from soft mild steel to 68 HRC hard powder metallurgical tool steel. "If a tool can actually make the operator beg to be allowed to use it, then we're really on to something", Albrecht comments. There are reasons why the tool

is so well received: It's quieter than its predecessor, cuts more smoothly and is therefore more pleasant in terms of volume alone. Operators know up to which tool life they can work with the tool without hesitation before they have to listen more closely during machining.

Another joint project under discussion is the introduction of the UNIBASE-M tool dispensing system, which could be used not only by the UFT tool shop but also by the mechanical finishing department right next door. Tools from MAPAL are also used there, but it is also possible to store third-party tools in the system. The tool stock can be monitored and kept in line with requirements via the digital tool management system e-Com. The adaptive system ensures that as few tools as possible are stored, but that the customer is always fully capable of action – after all, production should run smoothly. ■

*As Head of Tool Manufacturing, Steffen Albrecht has access to around 500 forging tools that are stored for UFT's production in Radebeul.*



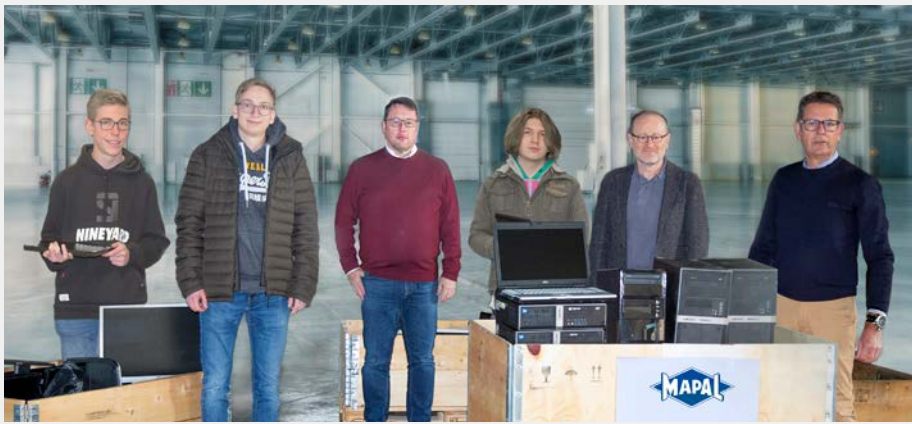


# MAPAL helps Ukrainian refugee children

MAPAL has collected IT equipment to the value of a complete truck load at its locations in Germany to donate to Ukrainian refugee children. This included computers and laptops as well as other hardware - all fully functional but no longer in use in the company. Employees also followed the management's call and donated their no longer used IT equipment from private property.

The collected material has been forwarded to MAPAL's Polish subsidiary in Poznan. In Poland, Ukrainian and Polish teachers want to enable refugee children to learn again as quickly as possible through online offers. Employees and trainees from the IT department at the Aalen site had checked the equipment in advance and prepared it for reuse. The colleagues in Poznan are handing over the IT equipment to the individual learning initiatives and ensuring it reaches the Ukrainian children and young people directly.

"We handed over the IT equipment to the Krotoszyn County Centre for Family Support," reports Aleksander Zielonka, Managing Director of MAPAL Poland. "The county centre works with several local non-governmental organisations and institutions in supporting the many Ukrainian refugees and ensures that the important aid reaches the children quickly and directly." ■



Loading a part of the IT equipment for shipment to MAPAL Poland: (from left to right) Benedikt Schenk, IT specialist trainee, Philipp Rottenbiller, IT specialist trainee, Dr Erwin Schuster, Vice President Business Processes and IT, Lukas Stigler, IT specialist trainee, Jacek Kruszynski, CTO, and Andreas Enzenbach, Vice President Marketing and Corporate Communications.



Have taken over the distribution of the IT equipment: Andrzej Piotrowski, Director of the County Centre for Family Support, and his staff members Sylwia Dzierla and Alicja Figura with Aleksander Zielonka, Managing Director of MAPAL Poland.



# IN BRIEF

## SITES IN MEXICO DIN ISO 9001 CERTIFIED

In April 2022, both Mexican MAPAL sites in San Pedro Garza García and Querétaro were certified in accordance with DIN ISO 9001:2015. "The certification represents a major milestone in MAPAL Frhenosa's development and forms the basis for future growth", says General Manager Luis Teran. All sites in North and South America are now DIN ISO 9001:2015 certified like MAPAL's production sites in Europe. Gernot Blöchle, Head of the Quality Management Department, applauds the great commitment of the Mexican colleagues and is delighted about the successful audit: "The certification of both sites in Mexico attests to the high standard of quality that we set in the MAPAL Group."

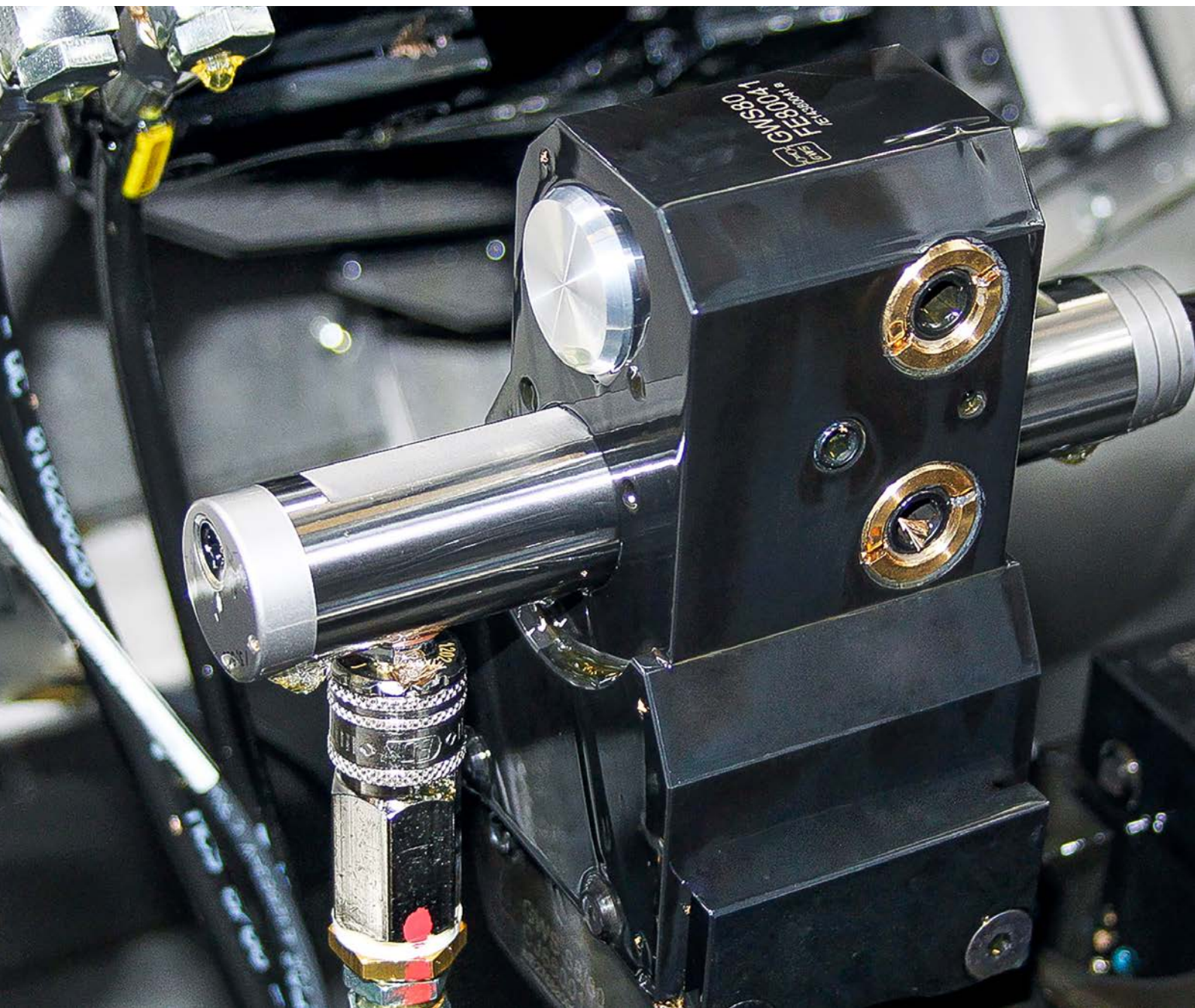


## TECHNOLOGY DAYS IN POLAND A BIG SUCCESS

The latest MAPAL technologies, new products and innovative machining solutions from the various market segments were the order of the day at the MAPAL Technology Days in Poland that took place from 1 to 3 April 2022. The invitation was taken up by around 30 customers and interested parties, who engaged in constructive dialogue and in-depth discussion following the introductory presentations. The event was a complete success, as Marcin Wawrzonkowski, Technical Director of MAPAL Poland, reports: "In particular, our solutions for the hydraulics and aerospace industries drew a lot of interest and resulted in meetings at the customer's own locations."

# ADAPTED HYDRAULIC CHUCK AS A PROBLEM SOLVER

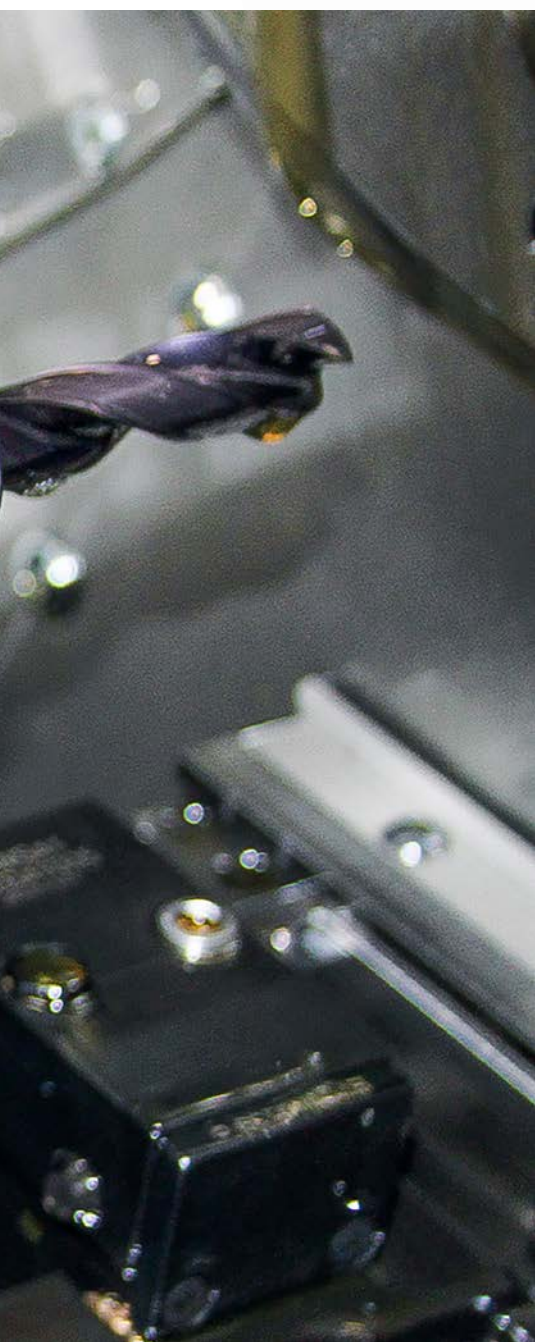
Simple, fast, safe and reliable – how the Swiss lathe manufacturer TORNOS is optimising the application performance of its multi-spindle lathe with the help of MAPAL hydraulic chucks.



*A custom HydroChuck hydraulic chuck from MAPAL in the working area of a MultiSwiss multi-spindle lathe from Tornos.*



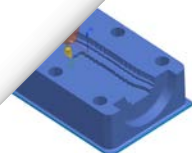
*In detail: The custom hydraulic chuck, a reducing sleeve and the drilling tool that is to be clamped by it. Hydraulic chucks of one type have the same dimensions. Reducing sleeves in graduations of 1 mm can be used.*



If sophisticated precision turned parts are to be fully machined in a process reliable manner, the basic components lathe, tools, tool clamping as well as the workpiece feed and clamping have to work in perfect unison. Nobody is more aware of this than the well-established Swiss company TORNOS SA in Moutier, which has dedicated itself to the development, manufacturing and servicing of automated lathes and later CNC lathes since its foundation in 1914. The current product range testifies to the innovative strength and performance of TORNOS's 600 employees worldwide, of which 330 work at the parent plant in Moutier: The bar turning machine CT 20, the Swiss-type automatic lathes Swiss DT and Swiss GT, the highly productive Swiss-type automatic lathe EvoDECO, the multi-spindle lathe MultiSwiss, and the SwissNano specialist machines for micro and nano precision parts. On thousands of lathes, delivered around the world and used every day in industry, manufacturers and suppliers produce precision parts of the highest quality for medical technology, clock, micromechanic, electronic and automotive devices as well as assemblies and mechanical components. On the single- and multi-spindle lathes, precision parts of every conceivable degree of complexity can be machined from bars with a diameter of 4 to 32 mm. The multi-spindle lathes have up to eight spindles, nine CNC axles and 31 tools. Due to increasing component complexity in particular, caused by the integration of more and more functions and the simultaneous miniaturisation of workpieces, machine tool manufacturers frequently face big challenges, which they respond to by consulting outside specialists.

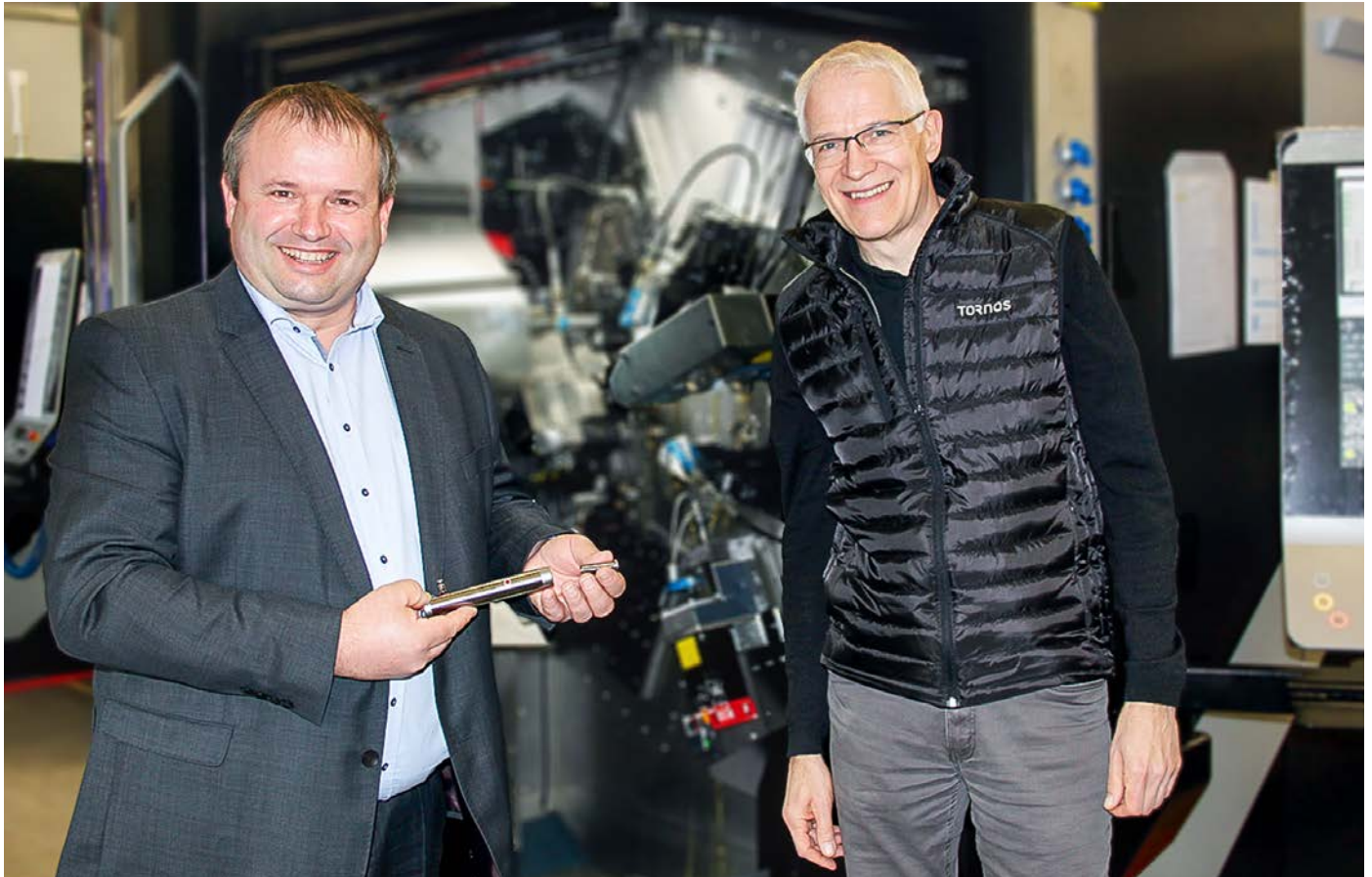
### PULLING TOGETHER

The successful collaboration between TORNOS SA and MAPAL Fabrik für Präzisionswerkzeuge Dr. Kress KG provides a very good example of an interdisciplinary cooperation between a machine manufacturer and a partner for original equipment with and continuous delivery of tooling solutions – here tool clamping technology in particular. When the standard tool clamping system used in the multi-spindle lathe MultiSwiss had problems extending hydraulic chucks for machining purposes, the construction and application engineers sought advice from the tool and clamping technology specialists at MAPAL. Andreas Mollet, MAPAL Regional Sales Manager Switzerland, describes the situation: "As a supplier of both tool and clamping technology, we can provide comprehensive solutions as a partner in this area. Our Centre of Competence for Clamping Technology in Ehrenfriedersdorf, Germany, is able to supply both standard and custom solutions. In this case, extending the standard hydraulic chuck system in use did not turn out to be practical because of the basic setting and positioning of the hydraulic chuck in the machine, among other things. This led to time-consuming retrofitting. Inaccuracies when changing positions also affected the reproducibility of machining precision." →





The custom hydraulic chuck and a drilling tool with a cylindrical shank; the connections located at the back to improve accessibility can also be seen.



Standing in front of a MultiSwiss multi-spindle lathe (left to right): Andreas Mollet (MAPAL Regional Sales Manager Switzerland) and Michel Rion (Process Engineer at Tornos SA).

### THE SOLUTION: A SPECIAL HYDRAULIC CHUCK

After the HydroChuck hydraulic clamping technology product range was presented, which also includes hydraulic extensions, intense discussions took place to achieve an optimal solution. Due to other requirements regarding handling, setup, positioning, changeover accuracy, limited space in the working area, accessibility and more, the decision was made not to opt for a standard hydraulic extension but to develop a completely new hydraulic chuck. The extensions are designed to clamp tools with smooth cylindrical shanks – directly and without a reducing sleeve – in the clamping diameter and can be positioned freely on the machine side. This makes axial tool extension possible. It has an outer diameter of 25 mm and a clamping diameter of

12 mm, whereby this can be decreased to 2 mm with a reducing sleeve. This proved to be an ideal solution to the problem. Once position fixation in the connection of the machine is complete, the hydraulic chuck provides an exact reference point for all six to eight spindles of a MultiSwiss multi-spindle lathe. This was not the only thing that impressed Michel Rion, Process Engineer at TORNOS SA: "With the custom hydraulic chuck from MAPAL, we now have an optimal solution that meets our requirements in every respect. The extended hydraulic chucks are very easy to handle, setup and positioning is much quicker than before, accuracy is ensured after a change, and we have observed even higher and more reproducible machining precision. Also worth mentioning is that by relocating the connections from the side to the back, very good accessibil-

ity is available for all unproductive set-up tasks despite the extremely limited space in the working area, which increases machine availability even more." With this successful deployment of custom hydraulic clamping technology, MAPAL has once again proved itself capable of initially equipping a machine – a lathe this time. Naturally, lathe that are already in use can also be retrofitted. ■



# LIVE AND IN COLOUR

MAPAL at events and trade fairs  
taking place until the end of  
September 2022

In-person events are back on the calendar in 2022. The MAPAL team is looking forward to discussing products and solutions related to the machining process at the following trade fairs and events taking place until the end of September:

27 June – 30 June 2022	<b>ITES 2022</b>	Shenzen   China
10 August – 12 August 2022	<b>Vietnam Manufacturing Expo</b>	Hanoi   Vietnam
13 September – 17 September 2022	<b>AMB</b>	Stuttgart   Germany
27 September – 29 September 2022	<b>INNOFORM</b>	Bydgoszcz   Poland

## Outlook: 6 and 7 July 2022: Technology Days at MAZAK Leipzig on exciting topics

6 July – 7 July 2022	<b>Technology Days</b>	Leipzig   Germany
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MAZAK and MAPAL are planning two one-day events together for customers in central and eastern Germany which will take place at MAZAK Leipzig at the beginning of July. The focus is on milling with indexable insert tools as well as solid carbide tools for drilling, reaming and milling. MAPAL will present both topics by combining theoretical presentations with live presentations at the MAZAK showroom. "These partner events are very valuable

to us because we are able to explain our solutions in detail and then put them to the test in real life using MAZAK's machines", says Sven Frank, Global Head of OEM Management. "Our cooperation and coordination with the managers at MAZAK is excellent. We look forward to offering specific added value to the event participants."

## REVIEW:

### MAPAL as an exhibition partner at open-house events of machine manufacturers:

3 May – 5 May 2022	<b>HELLER</b>	Open House
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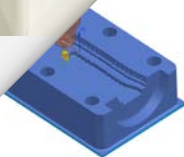
"New developments, new technologies and also new markets were the focus of the discussions at the HELLER Open House. A special eye-catcher was HELLER's give-away: a nutcracker that was machined live with our tools", Sven Frank, Global Head of OEM Management

3 May – 6 May 2022	<b>GROB</b>	In-House Exhibition
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"During the four days of the In-House Exhibition, we were able to hold intensive discussions and also establish contacts with new customers. All in all, there were a lot of interested visitors in Mindelheim", Roman Kutzner, Area Sales Manager/Business Development Manager Austria/Hungary

11 May – 13 May 2022	<b>CHIRON</b>	Open House
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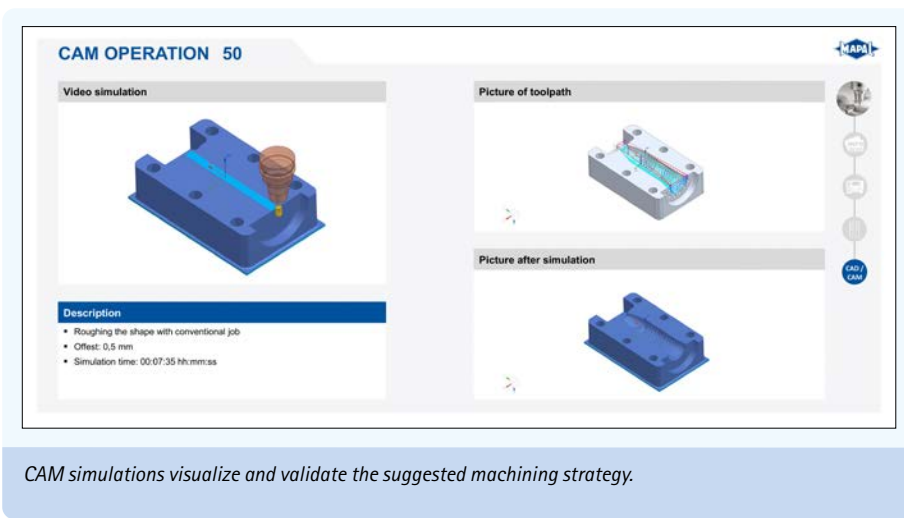
"Participating in the Chiron Open House was a complete success. We were able to gain interesting starting points for future projects from the discussions. The event was very well attended over the three days with around 1,200 visitors", Christian Braun, Area Sales Manager



How the TET-CAM team is bringing project planning to another level

# A turn of events

Since 1 April 2022, a newly formed team of CAM programmers in the Technology Expert Team (TET) in Aalen is developing machining strategies for parts and simulating various machining situations with CAM software. This is particularly valuable for the die & mould sector and the aerospace industry.



Structural parts, moulds or dies that are machined from the solid put different demands on the machining strategy than MAPAL's classical bore machining. In projects related to the die & mould sector and the aerospace industry, the development of machining strategies is very important. 2D drawings and work plans are of little significance there. The machining strategy and optimal tools have to be defined and then visualised and validated via smart CAM simulations for the customers.

CAM programmers provide support here. They are part of the TET project planning in Aalen where they have formed their own team since 1 April. "With the market entry in the die & mould sector, there was a big demand to provide our tools together with a machining suggestion", explains Dietmar Maichel, Global Head of Segment Management Die & Mould. "We are happy to have found such expert support in the form of the TET-CAM team." Lars Ziegler, Head of the TET-CAM team, adds: "Without the technical support of CAM software, it is difficult to visualise the milling paths of structural parts or moulds with angles or free-form surfaces." The TET-CAM team's support is not limited to certain market segments, but the commonalities with the die & mould sector and the aerospace industry are the biggest.

The six leading CAM software systems are implemented at MAPAL. The approach is both iterative and cooperative. The machining strategy is defined in close consultation with the customer, technical consultants on site, specialists from the market segment and development, and the TET-CAM team. "Sharing experiences and customer proximity have always been characteristically MAPAL. This has also been beneficial for this approach which is relatively new to us", Dietmar Maichel and Lars Ziegler point out. "In the die & mould sector in particular, the customers deploy CAD/CAM systems and have a great deal of experience in this area. We don't want to call this expertise into question with our offering, but rather give new impetus and show alternatives." The benefits for the customers do not end with the procurement: The CAM specialists together with MAPAL's R&D Centre in Aalen are also available for optimisation that cannot be tested on site during a project without stopping production. ■





MAPAL precision tools for Portugal

# ÁLAMO Ferramentas: Technology partner and expert in the die & mould sector



MAPAL is represented in Portugal by the company ÁLAMO Ferramentas. Managing Director Rui Moreira founded the sales agency in 2009 to concentrate exclusively on promoting the sale of the MAPAL tool and service range. Other products, such as dosing pumps, are offered on a smaller scale. The company is based in Marinha Grande and employs nine people to serve clients throughout the country. A second office is located in Oliveira de Azemeis.

ÁLAMO Ferramentas' customers come from many backgrounds. In addition to companies in the automotive industry, general machine engineering and the aerospace industry, the commercial agency primarily serves companies from the die & mould sector, which has a long tradition in Portugal. Manufacturing high-quality dies and moulds began in the 18<sup>th</sup> century with the manufacturing of glass products. With the advent of polymers and their industrialisation in the 1940s, mould making for glass evolved into mould making for plastics. Using the existing expertise in this area, many new companies broke into the Portuguese market, benefiting from the great expansion of this new industry. There

are currently around 600 companies operating in the die & mould sector in Portugal, most of which are small and medium-sized enterprises. Portugal is the eighth largest manufacturer of moulds in the world and number three in Europe, behind Germany and Italy.

## NEW PRODUCTS FOR THE DIE & MOULD SECTOR

ÁLAMO Ferramentas has been supporting its customers in the development of efficient and resource-saving manufacturing processes for years now. The entire MAPAL tool portfolio is used for this. If required, the experts develop customised machining concepts for the customers and

support them in optimisation tasks. "We strive to achieve optimal results and select tools that meet the high demands of our customers", emphasises Moreira. MAPAL and ÁLAMO Ferramentas work hand in hand together, particularly in the die & mould sector. "Aside from the tools typical for mould making, such as ball nose, corner radius and high-feed milling cutters, the drills from the ECU drill series are in high demand in the sector", reports Moreira. These drills can be used to machine different workpiece materials. Drill reamers from the MEGA-Drill-Reamer series, which are used for both drilling and reaming, are also frequently used. With the support of MAPAL, ÁLAMO expanded its range of end milling cutters. The new products are based on standard products from MAPAL, but are optimised with mould-specific features, for example for machining corner radii or for relief cutting. The first series of these tools, with machine workpiece material hardnesses of up to 48 HRC, was an instant success. In the meantime, end milling cutters for workpiece materials up to 58 HRC are also available. The tools in the OptiMill-Uni-HPC-Pocket and OptiMill-Tro series



*The ÁLAMO Ferramentas team (from left to right):  
Ana Nunes (Administration),  
Rui Moreira (Managing Director),  
João Nascimento (CAM Expert Sales),  
António Santos (Technical Consultant Region South),  
Wesley Reis (Mechatronics Expert Sales),  
Marco Vieira (Technical Consultant Region North),  
André Bastos (Technical Consultant Region Central)*

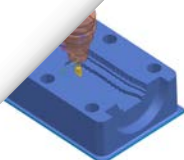
are also popular, as are drills from the Tritan series and HighTorque Chuck hydraulic chucks. "With these products, our customers achieve optimal results. They prove our high level of competence in the die & mould sector. We're very proud that the customers appreciate this", emphasises Moreira.

### UNRIVALLED RANGE OF SERVICES

ÁLAMO Ferramentas has also expanded its range of services and introduced a CAD/CAM service for its customers two years ago. "More often than not, offering this service is actually a door opener, because there is no competition in this area in Portugal", reports Moreira. The experts at ÁLAMO Ferramentas plan the machining strategy for the entire part and define both the tools to be used and their cutting parameters. Based on the simulation, the customer immediately recognises the time required to complete a part and can decide at an early stage whether machining the part is worthwhile for them. "The feedback we get from customers about this service is very positive", says Moreira.

### GOOD PERSPECTIVES

Market researchers predict good growth prospects for the Portuguese die & mould sector. The use of products made from plastics and recycled materials continues to increase in all areas of life. This means that, more than ever, innovative machining concepts and efficient manufacturing processes are needed. ÁLAMO Ferramentas wants to continue to offer its customers economic added value and help them stand out from the competition. MAPAL's sales representative is expanding capacity at its headquarters in Marinha Grande. The company has acquired a new hall there. "Once the construction work is completed, we will move our office there and set up a technical centre with a demo CNC machining facility and a training area for customers", Moreira reports. ■



# SPONSORSHIP OF THE „MARKTSPIEGEL WERKZEUGBAU“ COOPERATIVE

Marktspiegel Werkzeugbau eG provides transparency and industry knowledge for die and mould making.

MAPAL Dr. Kress KG has been a sponsor of the Marktspiegel Werkzeugbau cooperative since 1 March 2022. „The Marktspiegel Werkzeugbau supports die and mould makers in German-speaking countries with transparency and knowledge and thus provides valuable, very competent support for market and company analysis,“ emphasises Andreas Enzenbach, Vice President Marketing and Corporate Communications at MAPAL Dr. Kress KG. „With our sponsorship, we are doing our part to ensure that companies from the die and mould making industry can expand their industry knowledge and increase their competitiveness in an uncomplicated and well-founded way via the cooperative.“ ■









„The Marktspiegel Werkzeugbau provides valuable, very competent support for market and company analysis. With our sponsorship, we are doing our part to ensure that companies from the die and mould making industry can expand their industry knowledge in an uncomplicated and well-founded way.“

Andreas Enzenbach,  
Vice President Marketing  
MAPAL Dr. Kress KG



# Product Overview: Clamping Chucks for Cylindrical Shanks

Application Suitability and Products Available from Stock

	Shoulder milling, high-feed and profile milling	Trochoidal milling	Drilling, reaming, finishing
MAPAL recommendation	 <p><b>UNIQ Mill Chuck, HA</b></p> <ul style="list-style-type: none"> <li>Thermal stability tested at over 200 °C for very long milling cycles</li> <li>Tool life at least 10 times longer than with shrink-fit technology, up to 5 times longer than with comparable hydraulic clamping technology</li> <li>Maximum radial rigidity and performance thanks to bionic design</li> </ul>	 <p><b>Mill Chuck, HB</b></p> <ul style="list-style-type: none"> <li>Location bore with 3 µm radial run-out accuracy</li> <li>Decentralised coolant bores along the tool shank</li> <li>Axial tool positioning defined by using a spring system</li> </ul>	 <p><b>UNIQ DRearM Chuck, 4.5°</b></p> <ul style="list-style-type: none"> <li>Original dimensions of a shrink chuck (DIN contour with 4.5°)</li> <li>Tool life at least 10 times longer than with shrink-fit technology, up to 5 times longer than with comparable hydraulic clamping technology</li> <li>Very fast tool change</li> </ul>
Suitable	 <p><b>HighTorque Chuck, short heavy-duty design</b></p> <ul style="list-style-type: none"> <li>Thermal stability tested up to 170 °C</li> <li>Great flexibility when used with reducing sleeves</li> </ul>		 <p><b>HydroChuck</b></p> <ul style="list-style-type: none"> <li>Very good vibration dampening</li> <li>Radial run-out accuracy up to 3 µm</li> <li>High flexibility due to wide product range</li> </ul>
Alternative	 <p><b>ThermoChuck</b></p> <ul style="list-style-type: none"> <li>Made of high-temperature resistant quality steel for a long tool life</li> <li>Flexible application possibilities thanks to wide product range</li> </ul>	 <p><b>Weldon Chuck</b></p> <ul style="list-style-type: none"> <li>Balancing quality of G 2.5 at 25,000 rpm</li> <li>High level of torque transmission and radial rigidity</li> </ul>	 <p><b>ThermoChuck, Standard</b></p> <ul style="list-style-type: none"> <li>Made of high-temperature resistant quality steel for a long tool life</li> <li>Flexible application possibilities thanks to wide product range</li> </ul>

Additional dimensions are available upon request. The product range is supplemented by chucks for special applications, such as slim designs for machining operations with critical contours.

The clamping technology competence catalogue contains the complete range of products and is available for download on the MAPAL homepage.

