

INSIGHTS

EDITION **1** 2024

GEN2.

Ready for tomorrow.

THIRTEEN TECHNOLOGIES.

The HERMLE technology component.

DIRECT FROM PRACTICE.

Customer reports.



Preface

Dear business partners and customers, colleagues and employees,

An eventful autumn is behind us and the holiday season is just around the corner. HERMLE AG has presented its machining centres and automation solutions to a broad specialist audience at numerous trade fairs such as AMB, IMTS, BIMU and MSV. Despite the currently very difficult economic situation, the mood was generally upbeat, a large number of visitors came to our stands and we were able to accept concrete inquiries and projects. The main focus was on the Generation 2 machines, the technology component on which we were able to demonstrate 13 different processing technologies and, of course, the extensive automation solutions. Nevertheless, the positive mood at the trade fairs does not disguise an ongoing reluctance to invest in all sectors, which has also affected HERMLE.

Irrespective of the current challenging economic environment, HERMLE anticipates demand for high-performance machining centres and automation solutions will grow in the medium term. For many industrial sectors, machining systems such as those from HERMLE are essential when it comes to increasing efficiency, actively confronting the shortage of skilled labour and overcoming new technological challenges. We offer individually configurable complete solutions from a single source, ranging from automated individual machines to comprehensive production solutions with complex robot systems and intuitive software. One current focus of development is the "Generation 2" project, involving the redesign of the entire electrical architecture of our machining centres and bringing all interfaces into line with the state-of-the-art.

In addition, HERMLE is pursuing an extensive programme of capacity expansion. In Zimmern our second production facility, the expanded mineral casting production and additional large-scale parts production have been completed. In our Headquarters in Gosheim, preparations are currently underway for a larger application centrer and a canteen for employees.

We would like to take this opportunity to thank you for the trust you have placed in us and for the excellent partnership-based relationship with you. We wish you and your families a Merry Christmas and hope you get off to a good and healthy start in 2025.

Kind regards,

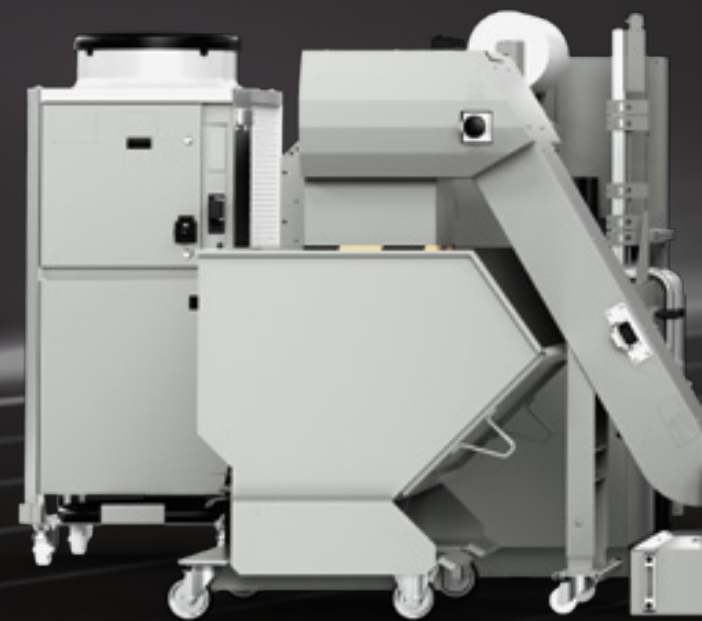


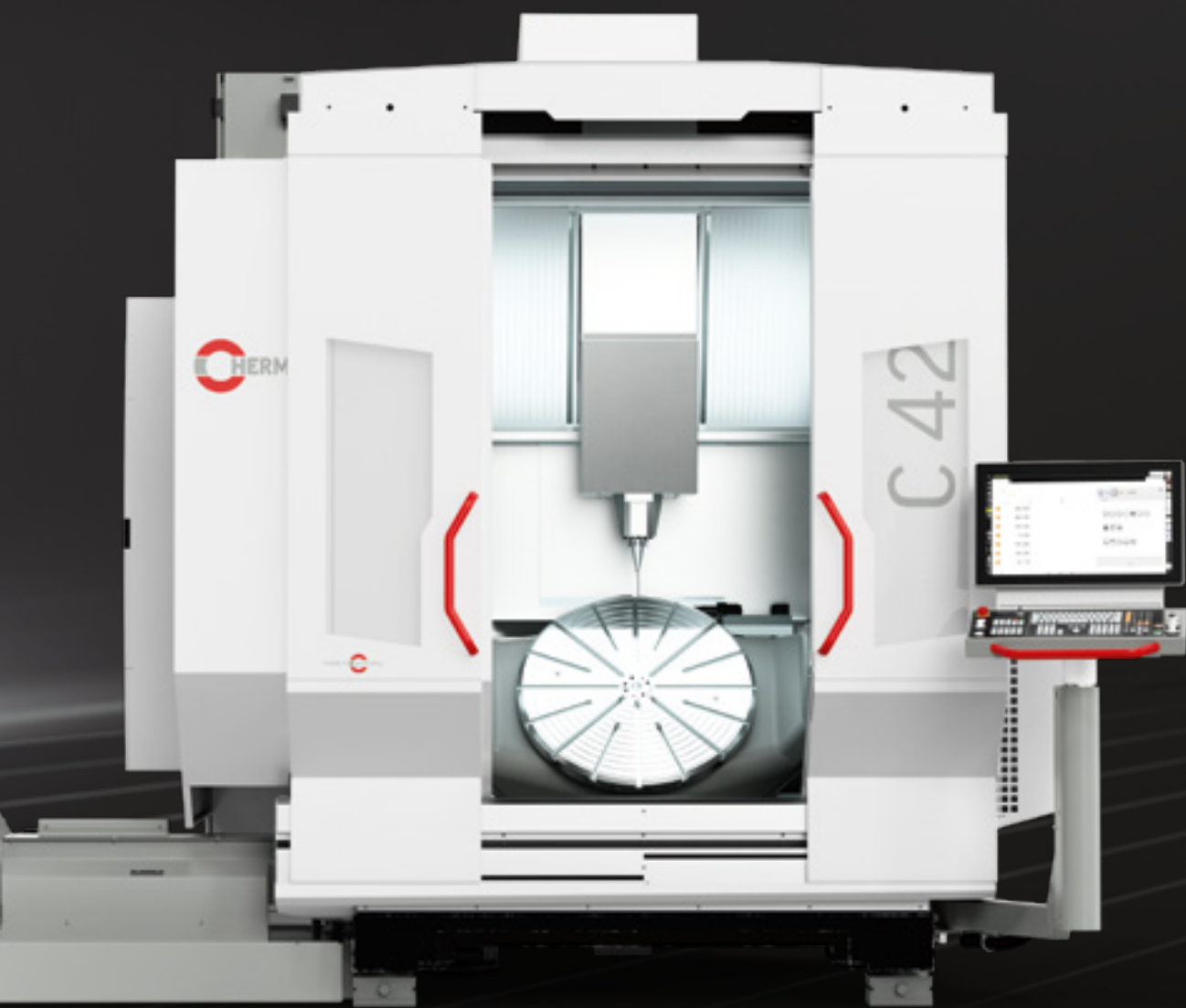
Ihr Franz-Xaver Bernhard
Director of Sales, Research and Development

WE'RE READY FOR THE FUTURE: WITH THE NEW MACHINE GENERATION.

You may have already noticed: Three HERMLE machining centres are now available in GEN2 format. But what does this mean in detail. Let's start with what will remain unchanged in the future: the mechanics of HERMLE machining centres. This is the reason for the unsurpassed precision and long-term accuracy of the machines. The most important values will therefore be maintained at an extremely high level. Our dominance in the 5-axis area remains untouched.

But let's take a closer look at the components that we have revised and redesigned for the latest technologies. What particularly catches the eye here is the electrical architecture. Here the HERMLE engineers have adapted numerous software and hardware components. The result: The entire architecture has been given a makeover – for good reason. With the C 32, C 42 and C 650 GEN2, you are equipped to master the challenges of the future. In the future, the machines will have a ProfiNet communication bus, and many of the sensors will be switched to IO-Link. In addition, HERMLE has revised the entire drive system at Heidenhain machines and fitted it with the latest generation of converters. These components make the machines even more powerful and even more future-proof. The entire platform now offers state-of-the-art interface technology and diagnostic options for optimised service analysis to deal with faults.





Switch cabinet cooling

Converter generation

Digital sensors (IO-Link)

ProfiNet

Length measuring systems

Complete switch in the drive system architecture

Spindle portfolio

With C32 / C42

Max. tool length 350 mm

Tool measurement

Blum Digilog as standard

LC53 cheek version

Option cheek and fork version

(2 systems in the machine)

Option

ZM 30 additional magazine

Tray on the control panel

Control system

TNC7 / Sinumerik ONE

Spindle cooling

Cooling lubricant (CL) tank with FU lifting pump

CL modular system

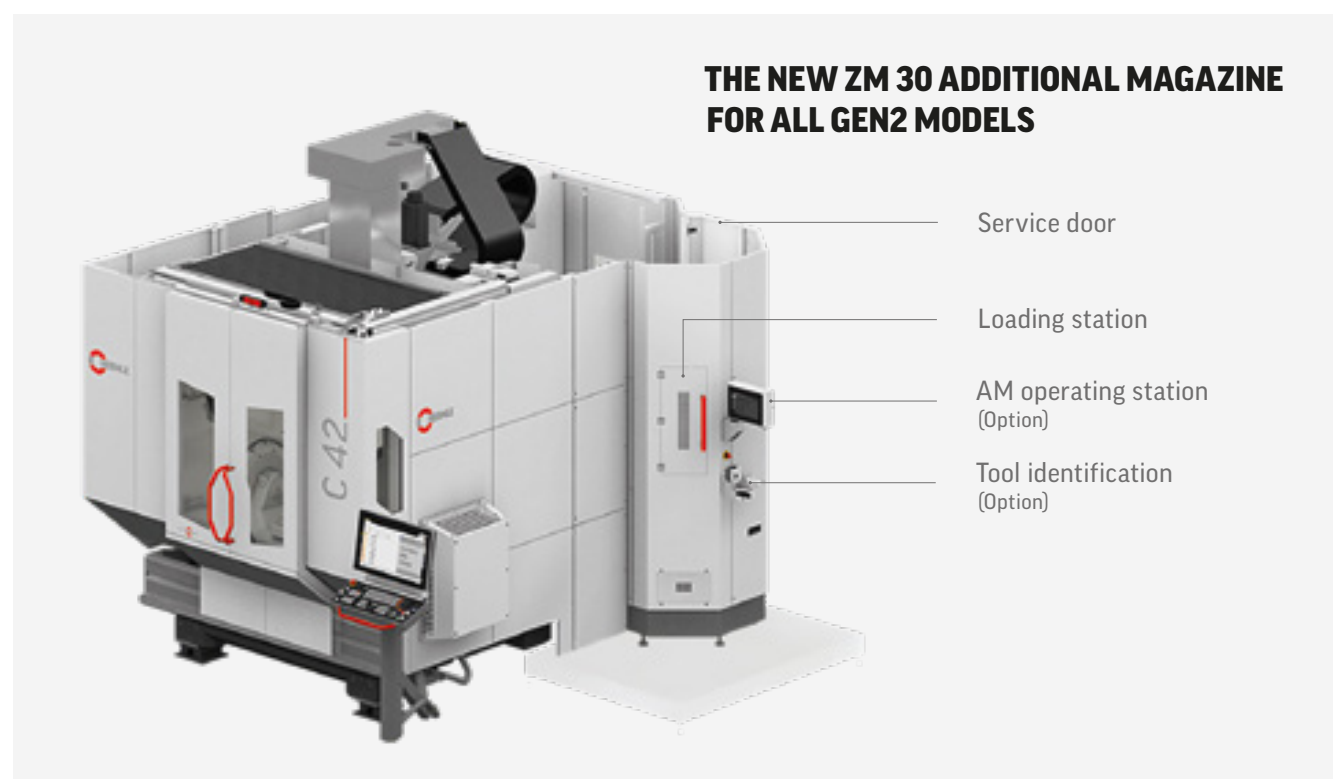
CL temperature controller

In addition, the Generation 2 machines in combination with the high-pressure systems offer optimised energy efficiency. This point was extremely important to HERMLE as a leader in the area of sustainability. That is why we have converted a large number of auxiliary units to frequency-controlled drives in order to support demand-based and energy-saving control. These developments have two major advantages: On the one hand, we as a company, together with our customers, are making a real, active contribution to climate protection. On the other, our customers save money due to lower energy consumption.

But we weren't content to leave it there. In addition to the electrical architecture and energy concept, our engineers and designers have modified the entire cooling lubricant management system. This optimisation improves CL filtration, thereby enhancing CL cleanliness and longevity. This creates significant added value for our customers in their everyday operations. Just like further adjustments to the GEN2 machine.

We have already talked about the new electrical architecture and the added value that it provides in terms of sensors and service, as well as the increased energy efficiency and the optimised cooling lubricant management. In addition, the GEN2 with its broad range of spindles and innovative tool

measurement – where HERMLE relies on the Blum Digilog process technology – creates further practical advantages for the user. As you can see: With our Generation 2 machining centres, you can bring on the future we're ready.



1 COMPONENT. 13 TECHNOLOGIES.

HERMLE machining centres are probably the most precise in the world. That at least is the opinion of our customers. But not only are they incredibly precise and reliable, they are also extremely versatile. For a simple overall overview, we have combined 13 different technologies in one component, the HERMLE technology component.

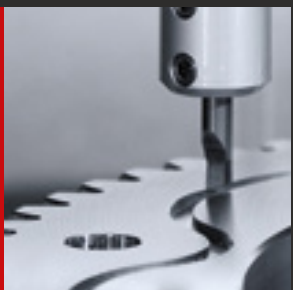
The existing manufacturing technologies include a variety of highly productive processes for the complete machining of complex components in just one clamping setup. These include contour broaching to produce narrow, deep cavities that function as sealing grooves and grinding to achieve high surface qualities and small tolerance fields.

You can read what makes this and other technologies so special in the infographic on this page. All HERMLE technologies have one thing in common: Precision, reliability and long-term accuracy. Thousands of companies in dozens of industries worldwide benefit from this – and the HERMLE technology component.



DRILLING

Drilling via the C axis with clamped spindle. Required torque for machining $T = 227 \text{ Nm}$. This means that the process cannot be implemented using the tool spindle.



CONTOUR BROACHING

Contour broaching is used, for example, to produce sealing surfaces. The tool cutting edge is always guided perpendicular to the tool path by the tangential control. The tool geometry is adapted to the workpiece contour.



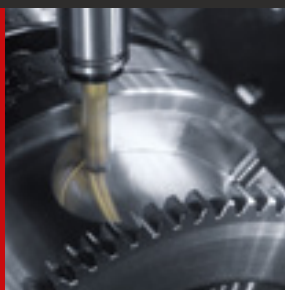
GRINDING

With the HERMLE machine kinematics, a wide range of grinding applications for optimum surface qualities can be achieved.



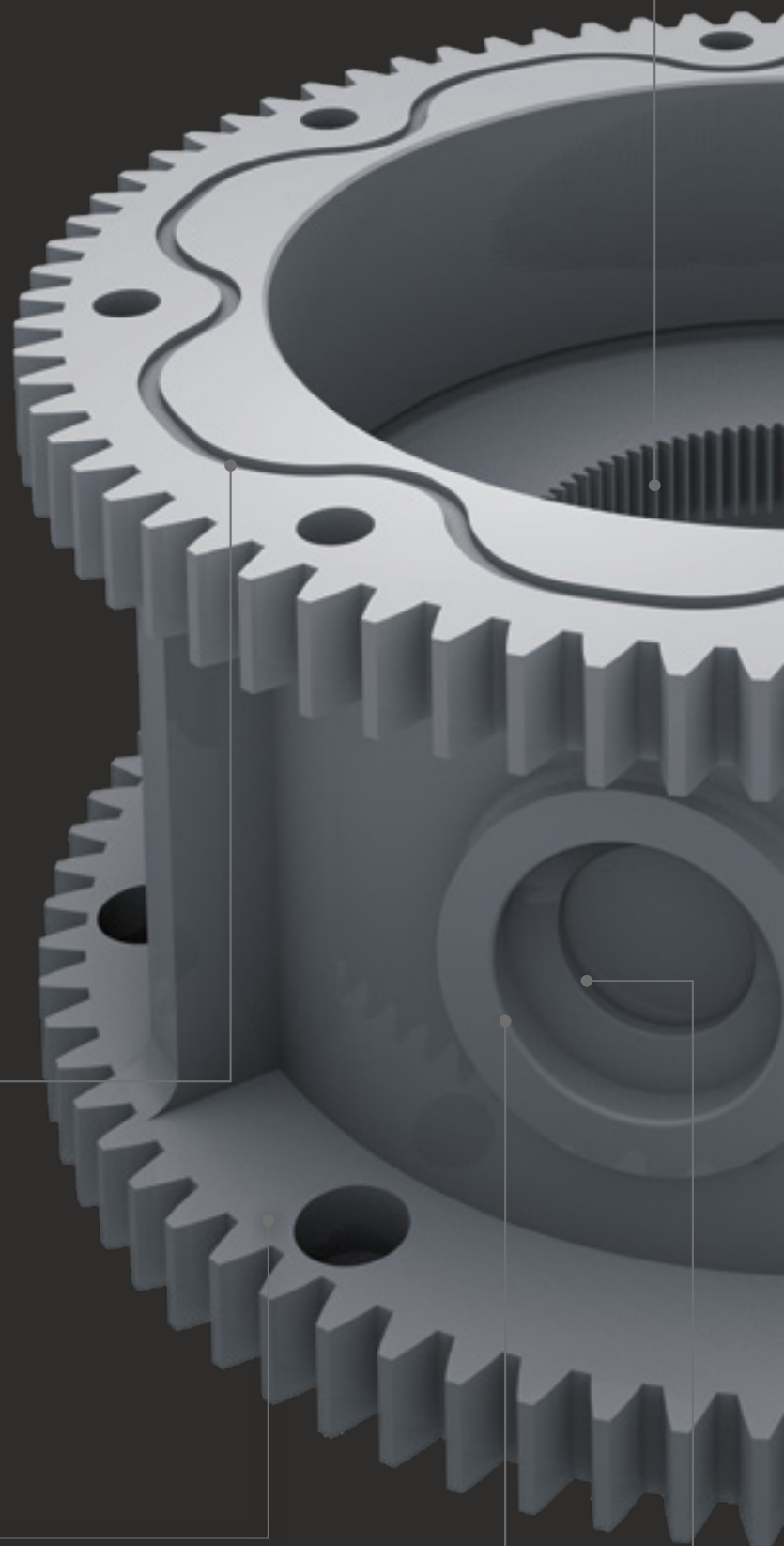
INTERPOLATION TURNING

Turning contours of any kind can be programmed with standard turning cycles and produced with interpolation turning.



CYLINDER JACKET MACHINING

Analysis and optimisation of process forces with TWS Production Modules. Constant tangential forces even under varying cutting conditions through feed adjustment during 5-axis simultaneous milling.



POWER SKIVING INTERNAL GEARING

Highly efficient manufacturing process for the production of external or internal gears, whether straight or helical.



ULTRASOUND MEASUREMENT

Ultrasonic measurement to determine the component thickness with the Hexagon RWP 20.50. Component thicknesses up to 20 mm can be measured. In this version, the component surface must be wetted with cooling lubricant.



DIAMOND POLISHING

Achieving high surface qualities with additional surface hardening. Components up to 60 HRC can be machined.



TURNING

Face turning, 4-axis simultaneous turning with feed rate.



TEMPERATURE MEASUREMENT

Tactile temperature measurement of the workpiece surface with the Hexagon RWP 20.50.



SYNCHRONOUS DEBURRING

Highly productive manufacturing process for deburring the front and back sides of gearwheels using a gear-independent universal tool.



REVERSE COUNTERSINKS

Countersinking holes backwards without turning the workpiece. Operation via speed and internal cooling lubricant supply.



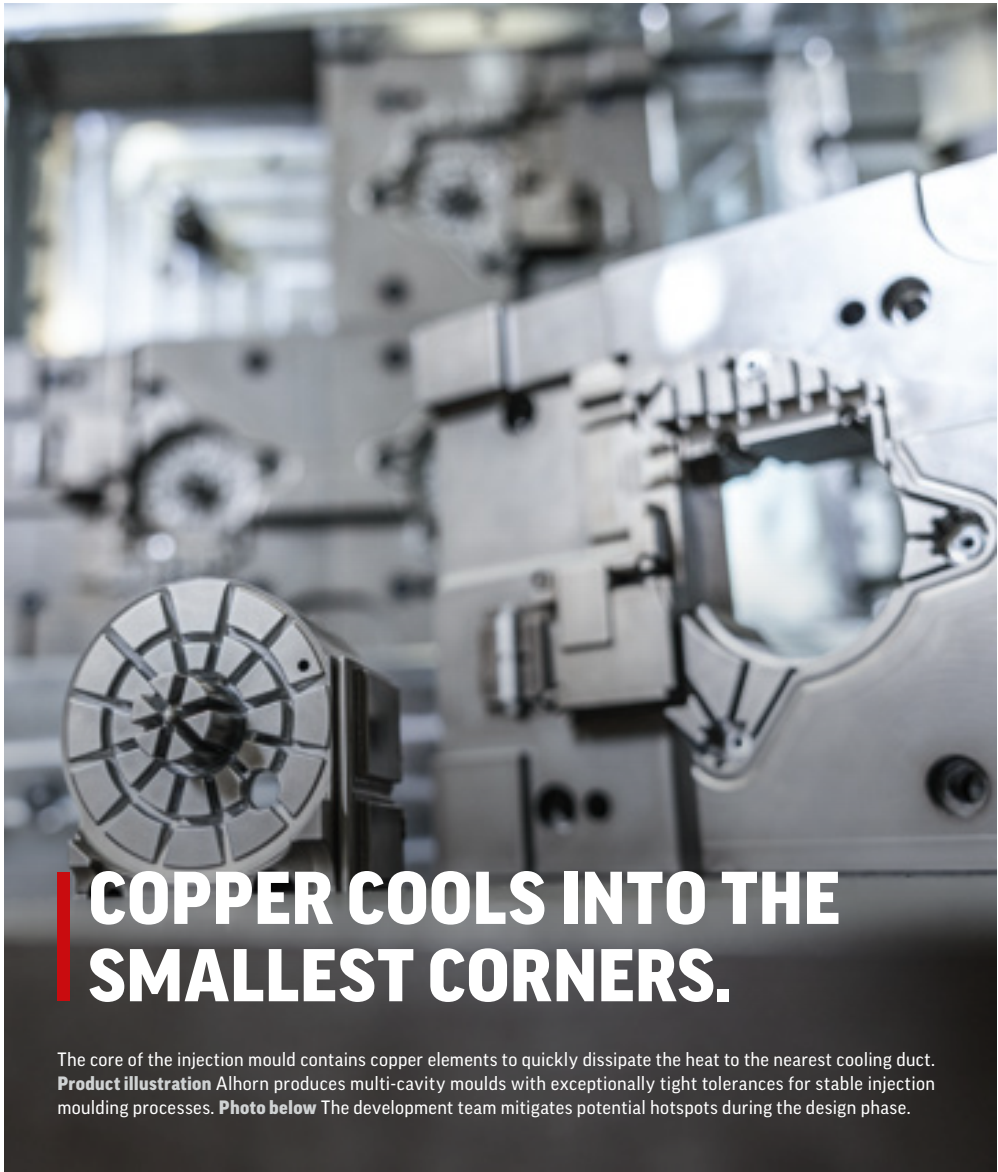
POWER SKIVING

Highly efficient manufacturing process for the production of external or internal gears, whether straight or helical. Production of the gearing with module 4 and 76 teeth in 11 minutes (complete machining including finishing).



USERS.

alhorn.de



COPPER COOLS INTO THE SMALLEST CORNERS.

The core of the injection mould contains copper elements to quickly dissipate the heat to the nearest cooling duct. **Product illustration** Alhorn produces multi-cavity moulds with exceptionally tight tolerances for stable injection moulding processes. **Photo below** The development team mitigates potential hotspots during the design phase.

Shorter cycles, more stable processes, sometimes the enabler – for Alhorn, HERMLE’s MPA technology is a big win. The toolmaker uses the generative service wherever there is no room for conventional cooling technologies.



When it comes to new technologies, toolmakers tend to be cautious. After all, they must ensure that their tools reliably produce millions of components. This is where Alhorn is different. “For us, it wasn’t a risk but a huge win,” explains Jörg Brammeier. The development manager is referring to the metal-powder application technology (MPA) of HERMLE Maschinenbau GmbH (HMG). Around four years ago, Brammeier learned about

the new additive manufacturing process that applies metal powder to a semi-finished product at supersonic speed – and can thus combine different metals in one component or produce contour-hugging cooling ducts. HMG offers the thermal spraying process as a service. The potential for integrating copper cores with tool steel, even in thin areas, presents significant opportunities for the tool- and mould-making industry. This allows heat to be dissipated from any hotspot – regardless of position, tool geometry or dimension. The copper extends up to the next cooling duct, effectively conducting heat out of the tool due to its ample diameter.

OPTIMISED TEMPERATURE CONTROL

This is exactly what Alhorn uses in its dies, in which the precision tool manufacturer at the Lübbecke site produces gearbox housings for window lifters. “The simulation indicated a hotspot at a point in the cavity that we were unable to prevent using conventional methods. To prevent rejects caused by unstable dimensions or subsequent distortions, we would have needed to allow the plastic part to cool down for longer. And this would ultimately have made the component more expensive and diminished our competitiveness,” explains Brammeier. Alhorn turned to HMG. HERMLE took a closer look at the CAD data and inspected the position of the copper layer. On this basis, HERMLE produced a semi-finished part, which Alhorn then finished internally – depending on the later contour, using hard milling, wire or die-sinking EDM. The company thus reaps the benefits of optimised cooling while retaining its expertise in component contouring.

A TIME GAIN FOR AUTOMATION

“Without the optimised temperature control, we would not have been able to produce the components in the required time and quality,” says Brammeier, spelling out the benefits. This is now the third project undertaken with HMG. Sascha Soldato, member of the Alhorn development team, adds: “We enjoy an open and cooperative partnership with HERMLE. As far as milling is concerned, we are always extremely satisfied, not least due to the quality of service. The same applies to the collaboration with the MPA experts”.

biersack.de



BIERSACK



DEEPLY ROOTED.

From left to right: Michael Biersack, Karl-Heinz Biersack, Hans Werner Hoppe, formerly HERMLE Sales, Manfred Pantel, HERMLE Sales. **Product illustration** The products of the Biersack Group go to the aerospace, medical technology and the semiconductor industries. **Photo below** The ZM 186 additional magazine is loaded with enough tools to cover unmanned shifts.

Reliable automation, precise and contamination-free manufacturing – the Biersack Group had specific requirements for its new machining centre. The contract manufacturer was impressed by the C 32 U HS Flex, which mills with perfect precision and is fully automated.



The history of Biersack began in 1948: Josef Richard Biersack founded the one-man business in Beilngries, Upper Bavaria. The story of Biersack and HERMLE began 20 years ago – with an oak seedling. Under the motto “Growing together”, HERMLE donated a young oak tree to around 500 contract manufacturers. “The oak has grown well since then,” says senior boss Karl-Heinz Biersack. Just like the company: Today, Biersack employs 125 people and produces high-precision mechanical components for high-tech industries. “In the last three or four years, contaminant-free production has become increasingly important,” says technical director Michael Biersack. “The semiconductor industry has high demands; even the slightest contamination can seriously disrupt its processes.” This is where HERMLE comes into play. The latest addition at Biersack is the C 32 U HS flex. The 5-axis machining centre also handles difficult to machine materials in short times with perfect accuracy. “We work with only selected aluminium and stainless steel alloys, to avoid cross-contamination,” points out Michael Biersack. “With this new acquisition, we can exclude contamination in our products. We know from our customers that HERMLE enjoys an excellent reputation. We were not disappointed – the manufactured workpieces are flawless.”

FULLY AUTOMATED SOLUTION

Thanks to HS flex automation, Biersack can use the C 32 U in three-shift operation, one of them with low supervision. “We chose the clamping systems so that the machine can also work overnight,” says Michael Biersack. The company uses the C 32 U to produce 25 to 30 different workpieces loaded on eight pallets. It is not only the pallet handling of the HS flex that enables automation, but also the ZM 186 additional magazine. With its 186 slots, it is particularly suitable for automated systems. The TNC7 from Heidenhain is used as the software solution for the C 32 and the HERMLE Automation Control System (HACS) for the HS flex. “Our employees have received comprehensive training from HERMLE,” says production manager Tobias Klinger. The intuitive user interface, for example, supports qualified employees when setting up workpieces and aligning clamping devices, while the integrated process monitoring prevents errors in the milling process. “For example, we mill vacuum-compatible sealing grooves and surfaces, which place high demands on machine precision,” says Michael Biersack. “HERMLE is committed to ensuring the maintenance of this quality, durability and precision for many years to come.”





MANUFACTURE MORE FLEXIBLY WITH INTERLOCKING BLOCKS.

Milling machine operator Oleg Peters loads the pallets for automatic machining overnight. **Product illustration** The gearwheel is a component of the RotexTable, an addition for OP tables of Condor MedTec. **Photo below** The Condor Group is based in Salzkotten in the Paderborn district of North Rhine-Westphalia.



WITH AUTOMATION INTO NEW INDUSTRIES.

The mechanic from Eifel Mold and Engineering checks the work carried out on the HERMLE C 30 U. **Photo below** From left to right: Rick Hecker, proprietor of Eifel Mold and Engineering with his son and programming manager Eric.

Milling and automation from a single source – this was the demand of the Condor Group. The RS 1 robot system supplies two C 32 U 5-axis machining centres with workpieces, turning night into day – including die systems developed in-house.



In 2008, Rick Hecker, Chairman and CEO of Eifel Mold and Engineering, faced a harsh reality: the inability to compete with the lower costs of international competition.

The milling department works one shift. Nevertheless, the machines of the Condor Group in Salzkotten, North Rhine-Westphalia, operate around the clock. “We rely on automation,” explains Dominik Schulte. He runs the 70-person company together with his sister Ira Fecke-Schulte. The Group includes Condor MedTec and Condor Custom Solutions, which manufactures parts for medical technology, motor racing, electrical engineering, tool and special machine construction. To support automated production, Condor has operated two C 32 U 5-axis machining centres since 2022 that are connected via the RS 1 robot system. Thanks to the storage system with two racks that offer space for 16 pallets and fully automatic

gripper changes, the system can operate autonomously over prolonged periods. “Not only did we double our production capacity with the two identical machines, we can also keep the materials separate,” explains works manager Sebastian Ilsen. One of the C 32 U machines is assigned for aluminium, the other for stainless steel.

NO NIGHT SHIFT FOR THE EMPLOYEES

“Due to the shortage of skilled workers, it has become increasingly difficult to find the staff for two,

never mind for three shifts. But we have a lot to do,” Dominik Schulte adds. “With robotic systems, we can now manufacture 24/7 without putting a strain on our staff.” It was important for the company that it obtained its machining and automation solution from a single source. Both machining centres have a ZM 216 additional magazine, adding another 216 tools to the existing 36 in the machine. “We use a CAM system to control the machine and we are able to use the system to simulate new milling processes,” explains Sebastian Ilsen. “We also produce quantities of 1 overnight, with no personnel in attendance and absolutely reliably.”

HOME-GROWN IDEAS FOR LONGER RUNTIMES

To fix blanks in place for the robot, operators use either dies with mould cavities or universal dies, for which plates can be pushed against each other. “Neither solution was optimal for us,” explains Sebastian Ilsen. The milling team came up with a solution that provided the necessary flexibility and designed the Condor universal die. It consists of a perforated plate with a grid dimension of ten millimetres to which various 3D print parts can be attached. They make it possible to position blanks in many different sizes simultaneously. “It is a great benefit of the HERMLE system that we are able to machine many different blanks automatically.” And Dominik Schulte went on to say: “This is our first robot, but certainly not our last. In the future we will be relying on automation exclusively”.

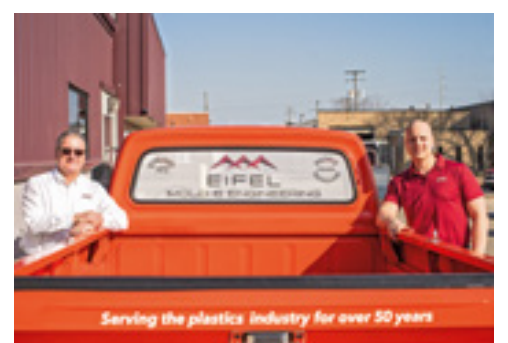
The plastic injection mould manufacturer saw top customers outsource orders due to higher profit margins and shorter delivery times. Eifel modernised the copy milling machines and invested in 3-axis standard machines in order to remain competitive, but that was not enough. The result: the largest investment in an item of equipment, more precisely, a C 40 from HERMLE. The hope behind the investment was clear: The 5-axis was to be a game changer. And that’s just what it became. Ken Merk, HERMLE’s Midwest regional sales manager, worked closely with Hecker at the time to find the perfect machine. “We knew that Eifel needed to streamline workflows and reduce outsourcing,” says Merk. “The HERMLE machines in which they invested not only proved to be helpful, but ultimately also brought in new customers.”

WEAKNESSES TURNED INTO ADVANTAGES

The usual weaknesses and pitfalls became competitive advantages. Foreign suppliers were unable to comply with the tight tolerances and undercuts for complex parts. Customers ultimately returned to Eifel Mold thanks to shorter delivery times and lower costs. Eric Hecker, programme manager and son of Rick Hecker, immediately recognised the added value of the HERMLE machines. “The two HERMLE machines saved the company from going under,” he says. “And the C 650 with automation will boost business. Anyone can mill well and make good dies, but quick time to market is what customers want.” Eifel Mold is now competitive not only in the automotive industry. With the C 650, you are flexible enough to enter new industries.

FANTASTIC MACHINING

Michael Nye, CEO of Eifel Mold, knew immediately that the benefits outweighed the risks. “The way the machine cuts is just fantastic.” Eifel Mold’s investment in HERMLE was not just about the machines and automation. Rick Hecker quickly realised that the investment in the installation and servicing of the machine and equipment paid off. “We have our first machine in over 16 years and the support from the HERMLE employees is phenomenal.” He and his team continue to drive their production forward so that they are not only competitive, but stand out from the competition.





From left to right: Mark and Karen Laisure, proprietors of M&L Precision Machining Photo below Laisure with employees in front of HERMLE C 400.

Since 1971, M&L Precision Machining has been manufacturing precision CNC parts for the medical, aerospace, defence and technology industries. Because they stand for maximum quality, they rely on HERMLE machines.

M&L Precision Machining is an ultramodern family-owned company based in Silicon Valley. On 60,000 square metres, M&L produces prototypes in both small and large production runs, where quality and customer satisfaction are the top priority. With an extensive range of processing machines, everything at M&L is designed to maximise efficiency. And it is in this product range that the company constantly invests. So as to ensure that customers always receive products and services of the highest quality. The company, based in Morgan Hill in the Bay Area, CA, has been able to continuously maintain this quality standard over the years, also with the help of HERMLE machines. And thus become one of the leading suppliers of high-precision CNC parts.



INVESTMENT. INNOVATION. INTUITIVENESS.

An immense advantage of the HERMLE machining centres – and M&L now has seven in use – is their intuitive operation. Learning to operate the machines, especially the HACS, was no problem for Mike Trimble, Director of Operations. “I only had to spend five minutes looking at it and everything made sense,” says Trimble. “If you make a mistake, it is detected automatically.” Immediate correction of any problems that may arise is crucial.

BY FAR THE BEST SERVICE.

With a quick service request to two of HERMLE’s service technicians responsible for the area, a problem can be resolved in less than 24 hours. “The service is by far the best we have experienced in the industry,” says Trimble. The family atmosphere at M&L Precision Machining is as exceptional as the HERMLE service. They pride themselves on the family relationships they have built in the Bay Area with customers, suppliers and employees. And that in addition to Karen, CEO/CFO, and Mark, COO, other family members, including Ross, Vice President Sales & Procurement, Markie, Vice President Prototype Machining, John, Vice President of Manual Operations, and Harold, Vice President of Operations, are contributing their part to the company’s success. Harold Laisure emphasises that the use of the “latest, most modern and best machines” has prompted customers to ask what machines were used to achieve these incredible results. The answer: HERMLE. According to Laisure, they were “deeply impressed.”



From left to right: Stefan Bux, HPV HERMLE Vetriebs GmbH, and Florian Lukats, Head of Dept. hg medical GmbH. Product illustration Orthopaedic implants hold bone fragments together and accelerate the healing of the fracture. Photo below The dies store enough raw material to keep the C 12 U busy over the weekend.

So that it is able to deliver orthopaedic implants of the highest quality and on time, hg medical relies on almost two dozen 5-axis machining centres from HERMLE. The contract manufacturer benefits in several ways from its recent investment in robot automation.



Florian Lukats can tell when it is winter just by looking at the order books. He heads the milling shop at hg medical in Raisting, Bavaria. The contract manufacturer specialises in the medical sector. Demand increases during the winter for the products manufactured in three-shift operation: Orthopaedic implants for osteosynthesis. The small titanium or stainless steel plates bridge fractures and allow bones to knit together naturally in a shorter time. The company was launched in 2007 with two milling machines, two lathes and two employees. Today, roughly 190 people are employed in Raisting alone. The second plant in the USA, established in 2015, currently employs around 40 staff, a third plant is in the works. “We have 19 HERMLE machining centres installed in Germany and four in the USA, with a further five planned for the plant in Raisting,” says Lukats. Where the end customer is based is irrelevant as far as the requirements placed on the contract manufacturer’s parts are concerned – the licensing authorities are strict everywhere. Tolerances, surface and general quality must be at the very highest level. “When it comes to machining tolerances, we work within a range of a few hundredths of a millimetre,” says Lukats, highlighting a requirement that ultimately led hg medical to HERMLE. “HERMLE delivers the quality, precision and accuracy that we need. Especially with the 5-axis simultaneous machining of free-form implants.”

FIRST ROBOT IN OPERATION

Four additional HERMLE C 12 U RS 05 machining centres have been installed in the milling shop since the beginning of 2023. This is the first time that robots have taken over a work step that could previously only be done manually. “We previously milled the implants in one clamping setup. This left us with two support rods that had to be removed and the stubs ground down manually,” explains Lukats. To enable the C 12 U to mill away the small protrusion, a second clamping device and a gripper are required to move the component. The special feature: To work extremely precisely, the image is the negative of the bone plate. The plate comes out of the machine after 19 to 25 minutes and is ready for surface treatment and quality control. “We have high expectations when it comes to robot automation: It should save time and effort while maintaining or even improving overall quality. HERMLE has fulfilled these expectations,” says Lukats. When concluding, Lukats additionally highlights another distinct advantage of HERMLE robots: “Modern high-tech machines inspire people. The new technology is a motivational boost for our employees and helps fuel our growth.”





HANDLE HIGH DEGREES OF FLEXIBILITY IN A STANDARDISED MANNER.

The C 32 U can machine workpieces up to 650 millimetres in diameter and 420 millimetres in height. **Product illustration** The lightweight housings and attachment parts offer space for laser guidance systems, for example. **Photo below** The RS 1 robot system can be easily operated via a touch screen.

Euler Feinmechanik machines roughly 3,500 different items for its customers – with batch sizes ranging from 1 to 5,000. To handle this much variety, the subcontractor relies on automated HERMLE machining centres.



5-axis machining, CAM programming, automation – Euler Feinmechanik in Schöffengrund, Hessen, defined its requirements precisely. In 2016, the company restructured its entire milling department. Looking back, Leonard Euler says: “It was basically a completely fresh start on a greenfield site.” The milling department underwent a complete overhaul, with all the machines being replaced. 5-axis machining



was a must from the start, and the new system needed to be designed for autonomous operation. “Due to the size of our components, we decided on the C 22 U with the RS 05 robot system,” says Leonard Euler. Extensive training sessions at HERMLE’s headquarters in Gosheim and at HERMLE’s Technology and Training Centre in Kassel-Lohfelden enabled the Euler specialists to become well-versed in 5-axis machining and the TNC 640 control from Heidenhain. The HERMLE Automation Control System (HACS) was also on the teaching plan. The automation software controls the robot system. It did not

take long for the investment to pay off. “Thanks to the innovative solution, we became more productive and were finally able to offer 5-axis machining,” says the managing director with a smile. Something that has been recognised and appreciated by customers. The contract manufacturer mainly works with aluminium, but also brass, stainless steel and plastic.

FROM PROTOTYPE TO PRODUCTION

Euler now operates eight HERMLE machining centres, only one of which, the C 400, is not automated. “This allows us to gradually train up new employees to meet our high quality and geometry requirements. And at some point, they are also able to reliably run in and program a system such as the RS 05,” he explains. As a subcontractor employing 85 people, Euler Feinmechanik primarily operates in the fields of vacuum and medical technology, optics and defence. The latest addition to the milling department includes two C 32 U 5-axis machining centres, which are supplied with workpiece blanks by the RS 1 robot system. “Thanks to this solution, we have been able to maintain the necessary buffer so that we can always deliver the promised quantities on time,” says Leonard Euler. There’s an additional advantage: The complexity of tasks for machine operators has been reduced, as they no longer need to clamp components manually. Automation allows for totally unmanned production at night and weekends at Euler. The ZM 216 additional magazine, which supplement the 36 tools in the C 32 U with a further 216 tools make extended machining periods possible. Leonard Euler particularly appreciates the service provided by HERMLE: “Each machine is assigned a dedicated phone number that connects you directly to a competent technician. This has enabled us to solve many problems ourselves.”



PARTNERS IN PRECISION AND PERFECTION.

From left to right: Martina Müller, administration; Wolfgang Müller, proprietor; and the parents of the company founder, Ingrid and Andreas Müller. **Product illustration** MBM-Schnaittenbach workpieces feature high precision and perfect fits. **Photo below** MBM-Schnaittenbach has been machining with the C 250 since 2020.

Once HERMLE – always HERMLE. Wolfgang Müller relies on Hermle CNC machining centres in his small family operation. He has just acquired the second C 12 U, to significantly increase capacity. The next step will be getting into automation.



MBM-Schnaittenbach has a flat hierarchy and short reaction times. MBM stands for Metallbearbeitung Müller [Müller Metal Machining]. With headquarters in Oberpfalz, Bavaria, it specialises in parts about the size of a fist for special machine construction, electrical engineering, the semiconductor industry and medical technology. “Our customers come from the region,” explains the founder, managing director and proprietor Wolfgang Müller. “The punctual delivery of the workpieces is one of our main selling propositions,” adds his wife Martina. In special machine construction, MBM has repeatedly manufactured components in small quantities for a manufacturer of production systems for masks. At the beginning of the Corona pandemic, the customer suddenly needed eight times the regular quantities. “This exceeded our capacities,” says Wolfgang Müller, looking back. He brought HERMLE on board. “One week later we were able to put a C 250 into operation,” he recalls. In the weeks that followed, 16- to 20-hour days became the norm for him. “We were under enormous time pressure. But we were able to deliver to the machine manufacturer on time,” he says proudly.

FROM THE GARAGE TO THE OPEN COUNTRYSIDE

In 2009, Wolfgang Müller set up his own business. The first acquisition was a HERMLE UWF 851, built in 1991. “I bought the machine second hand and it is still running perfectly,” says Müller in praise of the machine. It is only used sporadically because most of the workpieces are now machined on the C 250 and the two 5-axis machining centres. “The dimensional accuracy is still tip top,” says Wolfgang Müller. He had the machine completely reconditioned a few years ago. “I like it very much that HERMLE also offers prime service for old machines and that the spare parts are still available.” MBM does its milling almost exclusively on Hermle machines. “I learned to appreciate the machining centres while I worked at my old employer.” That’s why the company expanded its machine park in 2018 with the first C 12 U. The second C 12 U has now been in operation for several months. The new acquisition is identical in design to its twin – the only difference between the machining centres is in the control unit. “That was my first contact with the Heidenhain TNC7”, emphasises the managing director. “The HERMLE technician gave me a few tips, the rest was learning by doing.” To improve his work-life balance, he is currently thinking about automation. “We will be manufacturing numerous series for a new customer, and the RS 05-2 robot system would be ideal for this for small pallets and parts,” reasons Wolfgang Müller.





ULTRA PRECISION – MADE IN WISCONSIN.

Mark Plesnik, Vice President of Owens Industries, Inc., headquartered in Oak Creek, Wisconsin. **Photo below** For many years now, Owens Industries has been producing ultra-high-end components using HERMLE 5-axis machines.

In today's manufacturing industry, it is all about gaining real competitive advantages through finding niches and optimised processes. Owens Industries in Wisconsin, known for its ultra-high precision, relies on the best machines.

Anyone who is committed to maximum precision must face this challenge every day. Owens Industries does exactly that – and has therefore recently purchased two more HERMLE C 400 milling machines from the Performance Line. This is because the company is receiving increasingly demanding and complex orders. The latest acquisitions are the third and fourth C 400s that Owens has purchased in the last two years, bringing their HERMLE line-up to a total of eight machines. Owens Industries, Inc. was established in 1944. Since the 1980s, the company based in Oak Creek, Wisconsin, has been providing world-class CNC precision machining and manufacturing highly complex custom parts. The company prides itself on delivering top-notch quality to its customers and turned to HERMLE for exactly that reason, to, as Mark Plesnik, Vice President of Owens, puts it, "invest in the best equipment possible".



CONSCIOUS DECISION FOR HERMLE

"When I looked at HERMLE and talked to some other people, it quickly became clear to me that it was one of the best machines on the market," says Plesnik. According to him, Owens primarily supplies the aerospace industry, but also the de-

fence, medical, commercial and energy industries – to name but a few. As components have become smaller and more complex, Owens used HERMLE machines to exceed its customers' already high expectations. HERMLE USA Regional Sales Manager Cullen Morrison says Owens is a perfect fit for HERMLE machines due to the demand for high precision and tight tolerances. "The continued investment in HERMLE machines will indeed help Owens maintain its place at the top," adds Morrison. Plesnik agrees: "I can no longer imagine working with any other machine". At this point, Plesnik once again reflects on the development of investments in HERMLE and mentions the continuous improvements in rigidity and the ability to maintain tight tolerances on a wide range of materials – including titanium, high-nickel alloys and aluminium. In addition to the outstanding quality of the machines, Plesnik mentions HERMLE's unparalleled service – especially when it comes to maintenance and repairs. "HERMLE has everything you would expect from a German company," says Plesnik. "Considering it is a 5-axis simultaneous machining centre, it is very low-maintenance. The HERMLE team was generally phenomenal." This naturally pleases Cullen Morrison, who is confident that Owens Industries will maintain its position as an industry leader – thanks to the team and technology.



THE NEW MACHINE'S NAME IS ALBERTA.

Lukas Albert checks the fit of the workpiece. **Product illustration** P&S Maschinenbau specialises in small and micro production runs. Typical batch sizes are between one and ten. **Photo below** Lukas Albert is one of two specialists who operate and program the C 32 U HS flex.

Extend spindle running times, make use of night hours – P&S Maschinenbau relies on automation. The company will use it to produce workpieces for its own machines for cutting and grinding, but will also manufacture high-precision special components for customer orders.



Zenz came to Cham around 30 years ago. Over time, Wally, Sofie and many others moved in. Most recently Alberta. P&S Maschinenbau produces high-precision parts for medical technology and special machine construction as well as its own developments, for example for separating hard metal, in the Oberpfalz region of eastern Bavaria. Walter Peter and Max Stahl established the company in 1996. This was the beginning of a successful company that now has 100 employees. In 2022, the eleventh HERMLE machining centre, a C 32 U HS flex, was acquired. The HS flex handling system guarantees a high degree of automation and makes unmanned shifts possible.

IN TIP TOP CONDITION

"Our series 40 from HERMLE is 23 years old now and still accurate to within a hundredth of a millimetre. That's incredible," says Max Stahl. "We maintain our machines, carry out regular inspections and program them properly." But something else is crucial for the high precision in production: qualified employees. But good personnel are rare. Therefore P&S Maschinenbau now relies on automation. "We want long spindle runtimes, but our employees should not have to work until midnight to achieve this," says Max Stahl. The HS flex allows the user to prepare pallets for the 20 storage locations. It takes care of the loading and unloading of the machining centre. "It allows us to manufacture small batch sizes flexibly and fully automatically. This is a perfect match with our high-mix, low-volume approach." This is assisted by the additional magazine, which adds 216 tools to the 36 in the C 32 U.

TRADITION MEETS INNOVATION

"What I particularly like about HERMLE is the clear product line," explains Max Stahl. "For example, HERMLE offers a comprehensive solution for 5-axis machining – from small to large. The training period is minimal and the precision is top-notch." However, there was a challenge with the new acquisition: "We manufacture on the fly, but we have seamless time recording in the company",. Manfred Pantel, from the HERMLE field sales office in Bavaria, says: "The machine logs everything, we just had to make the data available." Max Stahl is satisfied: "Now we have an overview of all the runtimes and we know what the machining times were for individual parts". And why is the new HERMLE now called Alberta? "Lukas Albert is one of the two operators and programmers on the C 32 U HS flex," explains production manager Alexander Roeder. "He does a great job. So we named the machine Alberta in his honour."





SUCCESS THROUGH MACHINE CLONES.

All HERMLE machines at Precupa now have an internal cooling lubricant supply. **Product illustration** Generation of a core retainer plate, from raw material to finished component – with five-sided machining in one clamping setup. **Photo below** Thomas März, with his milling team.

Precupa combines precision mould making with plastic injection moulding. One of the core competences in production is milling. This is where the toolmaker relies on HERMLE, or more precisely: the entire Performance Line.



Thomas März decided to take the plunge when Precupa, his employer at the time, was looking for a buyer for the company in 2014 due to a lack of successor. "I'd thought long and hard about what needed to be done to make the whole thing even better," recalls the current owner and managing director. The business officially changed hands in 2015. März immediately purchased the first 5-axis machining centre – a C 400 U from HERMLE – and restructured the business. The result: larger and better production areas. The core business has basically remained the same: Manufacturing precise injection moulds for the consumer goods and furniture industry, medical technology and the electronics sector. In contrast, the business volume has grown significantly. "We reserve fixed machine hours for our customers. This provided us with sufficient stability from the start to facilitate boosting up and expanding the business," explains März. This worked out so well that just two years after the acquisition, he was faced with the question of how to manage the surge in orders. His answer: "Duplicating machines: Die sinking and wire eroding machine and an HSC electrode milling centre times two."



A NEW ONE EVERY TWO YEARS

In the course of these developments, he acquired a second C 400 U, which went into operation in

2018. The only difference: The second machining centre was preconfigured with an internal cooling lubricant supply (ICS). "We were not familiar with the system beforehand. However, we were so impressed by it that we had the ICS retrofitted directly to the first machine," says März enthusiastically. Seeing as the supplied coolant is ejected directly from the tool tip under high pressure, it effortlessly flushes away chips resulting from the cutting action – even from deeper holes. This ensures that the milling process at Precupa is not only faster but also safer and more precise. The purchase of identical machines was the perfect solution for him – for the time being anyway. Since the third HERMLE machine already joined the company in 2020: März responded to new market demands with the acquisition of a C 250 U. "We were receiving lots of orders for smaller injection moulding tool components. The C 250 U is slightly more compact – that makes us faster." When Precupa also received orders for larger spin-off and stack moulds, a machine with a larger working area was needed. "The required plates were too large to be machined completely on the C 400 U," explains März, who ordered a C 650 U from Gosheim in 2022. "We can always rely on HERMLE machining centres," concludes März. This also applies to the good service, which is a decisive factor in promoting customer loyalty to the Gosheim-based engineering company. "If my company only has one 5-axis milling machine, I have to be sure that it will not break down," says the managing director. März is still totally satisfied: "My HERMLE contact knows where we are headed. And if we require assistance or encounter any problems, we voice our concerns, and they are promptly addressed."



MAXIMUM VERTICAL INTEGRATION IN MICROCHIP PRODUCTION.

One of the few Ramgraber series machines: The spin rinse dryer is almost ready for the first "wash cycle". **Product illustration** The rotor of the spin rinse dryer holds the transporter carriers with the individual silicon wafers. **Photo below** From left to right: Zlatko Velagic, CNC machine operator, Holger Koch, managing director and owner of Ramgraber and Robert Obermeier from HERMLE Sales.

The European semiconductor market is growing steadily. This has a direct impact on suppliers such as Ramgraber, which manufactures equipment for wet chemical processes and for cleaning wafers. The company relies on a high level of vertical integration.



Microchips are essential to ensure technological progress. Semiconductors, the production of which requires a great deal of expertise and precision, are correspondingly much sought after – especially by equipment manufacturers for wet and drying processes. One of them is Ramgraber, based in Hofolding, near Munich. In its facilities, the microchip manufacturer etches, structures, strips, electroplates, washes and dries its substrates. The few series products that Ramgraber has in its range include rinse and spin dryers. "In the end, this is a cleaning machine for silicon wafers," explains Managing Director Holger Koch. The partially and fully automated production systems for wet processes reach completely different dimensions. These are in demand in the semiconductor industry as well as in the medical and solar sectors.

WET CHEMICAL PROCESSES FOR HIGH-TECH INDUSTRIES

Ramgraber not only assembles the systems, but also manufactures many components in-house. "In theory, we can do almost everything ourselves. We only engage freelancers or contractors during peak periods to provide support in areas such as stainless-steel processing or switch cabinet construction," explains Koch. The equipment manufacturer's machinery is correspondingly expansive and has featured a HERMLE C 400 U since 2019. After realising its predecessor had seen better days, Koch decided to move into the world of 5-axis technology. "This enables us to manufacture nearly all the components in one clamping setup, thereby significantly reducing throughput times," he claims enthusiastically.

ALL-ROUNDER AND DEADLINE KEEPER

"Gearwheels, spray bars, some toolmaking," is Koch's answer to the question of which parts are produced on the HERMLE. The range of materials being machined is correspondingly broad: Plastics, various stainless steels, titanium and aluminium – for example for mounting plates or bearing housings. During the corona pandemic, Koch improvised: He had components that could not be delivered milled to avoid facing delays of his own. In addition to versatility, he pays particular attention to availability and accuracy. "The dimensions may only deviate by hundredths of a millimetre, sometimes only by micrometers. The C 400 U can do this," says the managing director. Additionally, he likes the HERMLE approach to customer service: "If something is defective, we receive a complete package of spare parts. The technician is always on-site within 24 hours, replaces what needs to be replaced and everything else is returned. So I can be sure that the machine will be working again the day after next at the latest". The overall package is just right, says Koch.





THE LEGACY OF THE INDIAN EDISON.

Model of the Benz motor car from 1886, manufactured with a HERMLE. **Product illustration** Wheel hub for Benz motor vehicles. **Photo below** 9-cylinder radial engine.

UMS was founded by Gopalaswamy Doraiswamy Naidu, the Indian Edison, who was enthusiastic about the precision of HERMLE machines back in the 1950s and 1960s and actively used them. The UMS Group now consists of various technology companies – several of which rely on HERMLE machines: from injection moulding to precision engineering to mechanical engineering.



UMS Technologies Private Ltd is a part of the UMS Group founded by Late Shri G. D. Naidu, known as the Edison of India. He is credited with producing the first electric motor in India. His contributions were primarily industrial in nature, but also extended to the fields of electrical engineering, mechanics, agriculture and automobile manufacturing. Naidu, the Miracle Man, also developed an independent four-stroke internal combustion engine – despite having only a primary school education. The company he founded is now broadly based.

FROM MIRACLE MAN TO MINIATURISATION

UMS Technologies is a versatile precision engineering company that produces replicas of the famous Benz Motor Car of 1886 as well as 3-, 5-, 7- and 9-cylinder radial engines and two-cylinder boxer motors for model aircraft. UMS has sold more than 200 Benz motor cars since 2014 and more than 2,000 model aircraft engines since 2009. For this purpose, the company purchased a HERMLE C 32 U in 2023. Simply for the simple reason of increasing the precision in the quality of aircraft engine components. There's an additional



advantage: All 5 sides of the Benz patented components can now be machined in a single clamping setup. But why HERMLE? Very

simply: On the one hand, the reputation of the Gosheim-based company extends as far as India, and on the other, other companies in the group have already had excellent experiences with HERMLE – for example Gedee Weiler.

MILLING MACHINES FOR MILLING MACHINE CONSTRUCTION

Gedee Weiler manufactures high-precision manual lathes and CNC lathes. The Indian high-tech company bought the first C 600 U in 2006. To date, this has been followed by a C 40 U, a C 30 U and a C 42 U from HERMLE. Due to the high reliability and precision of the machining centres, the quality of our own machines has continuously increased.

CUTTING-EDGE TECHNOLOGY FOR INJECTION MOULDING

Last but not least, this experience convinced GPlast, another company in the group. The expert for injection moulds and aluminium die-casting moulds also invested in HERMLE technology in 2023, more precisely: in a C 32 U.

A GENIUS AS A PIONEER

G. D. Naidu would have been truly delighted with the precision of the HERMLE machines, they are convinced of this at UMS. Sir C.V. Raman, Indian physicist and Nobel Prize winner, was also convinced of the talent of the UMS founder: "G. D. Naidu is a great educator, an entrepreneur in many fields of engineering and industry, a warm-hearted man full of love for his fellow human beings and the desire to help them in their difficulties".

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