

The mold & die journal

Machine tools | Standards | EDM technology | Accessories | 85088

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The UK as partner country

Formnext 2026 gets off to a flying start with fresh impetus

The United Kingdom has been announced as the partner country for Formnext 2026 – with its strong manufacturing background and leading position in Additive Manufacturing, the UK boasts a powerful ecosystem of AM systems, software, and industrial applications. In addition, Formnext is starting the year with fresh impetus and ramping up its focus on key user industries such as orthopedics, aviation, and the automotive sector.

“The UK has long been a key global player in the world of Additive Manufacturing thanks to the close ties with the country’s robust manufacturing industry, and with established system manufacturers such as Renishaw as well as fast-growing companies such as Wayland Additive and many innovative start-ups,” says Sascha F. Wenzler, Vice President Formnext at Mesago Messe Frankfurt GmbH. According to Head of Additive Manufacturing UK (AMUK), Joshua Dugdale, “The UK plays a leading role in the global Additive Manufacturing ecosystem, with strengths spanning research, materials, machine development, software, and high-value industrial applications across aerospace, defence, energy, and healthcare.” Additive Manufacturing UK (AMUK) aims to bring together industry, academia, and government to support innovation, accelerate adoption, and increase the industrial use of AM technologies, positioning UK Additive Manufacturing capabilities on the world stage.

A greater focus on key user industries

In addition, Formnext will this year be placing a greater focus on key

user industries, such as orthopedics, aviation, and automotive, through targeted events at leading industry exhibitions. Christoph Stüker, Vice President Formnext at Mesago, explains: “In partnership with our exhibitors and stakeholders, our aim is to shine a light on the specific benefits and potential of Additive Manufacturing in these key industries to appeal to a broader user base.”

More news

On its 10th anniversary, Formnext 2025 welcomed a record 38,282 visitors, sending out a strong signal for a successful Formnext 2026. From Formnext 2026, there will be a new and improved hall structure, with the exhibition taking place across three levels in the future: in Hall 11.0, 12.0 and 12.1. “The new hall structure optimizes the space available to improve visitor flows, reduce walking distances, and create a more vibrant experience overall,” explains Sascha F. Wenzler.

More information:
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TABLE OF CONTENTS



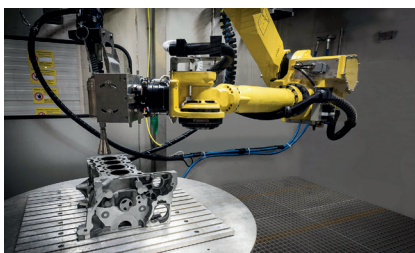
18 Four decades of reliable mold-precision and industry partnerships

M.R. Mold & Engineering, a U.S. leader in highly complex injection molds for Liquid Silicone Rubber (LSR) and thermoplastics, is leveraging a deep-rooted focus on niche applications and strategic global partnerships, particularly with standard component supplier HASCO, to navigate a demanding global manufacturing landscape.



34 Precision and process reliability redefined

In the high-precision world of mechanical engineering and tool reconditioning, every detail matters. For Fraisa GmbH, a leading provider in the field of cutting tools, defined edges and absolute process reliability are critical to success. To further secure their already established quality standards while simultaneously increasing efficiency and the level of automation, Fraisa sought a solution to specifically optimize their existing processes.



40 High-pressure water-jet deburring for reliable processes and clean components

Where components must be deburred reliably and leave the process with the required level of technical cleanliness at the same time, the right process design determines quality, cost-effectiveness and process reliability. For such requirements, BvL Oberflächentechnik offers water-based cleaning solutions in which high-pressure water-jet technology is used as part of a holistic system concept.

TECHNICAL ESSAYS

New oval slide retainer	13
Aluminium – high-performance milling solutions for a versatile material	14
HORN cooperates with Hector Children’s Academy	16
New innovative compact clamp with patented kinematics.....	21
High-performance flat guiding unit with maximum load capacity in minimal installation spaces.....	25
Axial thread rolling heads for large threads and high-strength materials	26
Open Letter: VDWF Calls for Concrete Measures to Stabilize and Secure Europe’s Tool and Mold Making Industry.....	28
New dimensions in cost-efficient part production	30
Kern technology center in French-speaking Switzerland.....	33
High-pressure water-jet deburring for reliable processes and clean components.....	40
New setting fixture for fine boring tools with large diameters.....	43
Optimal machine setting within one minute	44

USER REPORTS

Quality checked used machine impresses users from Switzerland	10
Four decades of reliable mold-precision and industry partnerships.....	18
Maximum efficiency for metal-plastic composite parts	22
Precision and process reliability redefined.....	34
Sandwich injection molding with 30% recycled material increases sustainability and design freedom	38

FAIR REPORTS

Formnext 2026 gets off to a flying start with fresh impetus.....	3
PLAST 2026: Growing number of new exhibitors	9
Formnext 2026 Starts with Tailwinds: A Strong Commitment from the Global AM Industry	36

COMPANY ANNIVERSARY

100 Years GROB: From a Munich workshop to a global innovation leader	46
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News	6-8, 45
Advertising Companies, Order card, Imprint.....	50

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MAPAL continues realignment in Germany



A bird's-eye view of the company headquarters in Aalen: MAPAL Dr. Kress SE & Co. KG continues its realignment in Germany and merges its seven locations into a single company

The MAPAL Group is consistently driving forward the strategic realignment of its organisation in Germany. Following the change of legal structure of the company headquarters to MAPAL Dr. Kress SE & Co. KG in June 2025 and the realignment of the corporate group as a process-driven organisation, the company is now taking the next significant step: On 1 May 2026, the German companies of the MAPAL Group will be legally merged into MAPAL Dr. Kress SE & Co. KG. With this measure, MAPAL is bundling its structures in Germany and creating the basis for standardised processes, clear responsibilities and more efficient workflows. The process-driven organisational structure introduced in 2025 forms the foundation for the subsequent

legal consolidation. The aim is to further streamline cooperation with customers and partners while at the same time strengthening the



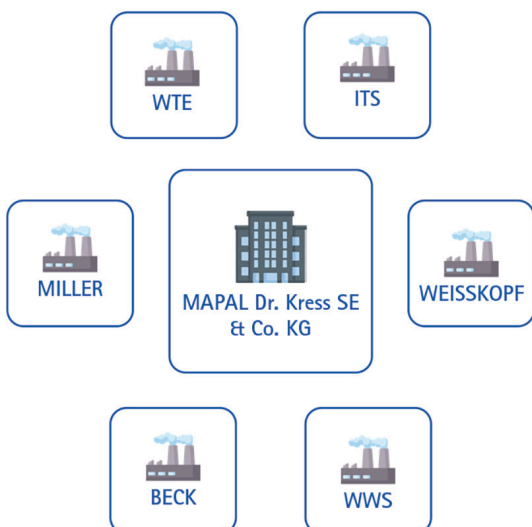
„We invest in structures, processes and employees in a targeted manner in order to make MAPAL competitive in the long term - as an independent family business with an international focus”, says Dr. Jochen Kress, President of MAPAL

organisation's performance in the long term.

“The merger is a logical next step in the transformation of our family business,” emphasises Dr Jochen Kress, President of MAPAL Dr. Kress SE & Co. KG. “We have consistently aligned our internal processes with the requirements of our customers. The legal merger now creates the necessary clarity and efficiency to provide optimum structural support for this alignment: We reduce organisational complexity and at the same time increase our speed of response with the aim of meeting our customers' requirements even better.”

As part of the realignment, the German companies MAPAL WWS, MAPAL ITS, Miller, August Beck, Weisskopf Werkzeuge and WTE Präzisionstechnik are merging with the corporate headquarters MAPAL Dr. Kress SE & Co. KG. All locations will remain as production plants with their respective product portfolios, thus ensuring continuity in production, expertise and customer proximity.

The merger of the German locations in graphical form: all seven German companies are being integrated into MAPAL Dr. Kress SE & Co. KG (Pictures: ©MAPAL)



VERSCHMELZUNG
1. MAI 2026



Own subsidiary for the Spanish market

ENGEL Spain strengthens customer proximity, service and access to technology in Spain

With the rebranding of its former sales partner Roegele as ENGEL Spain, injection moulding machine manufacturer ENGEL is expanding its direct presence in the Spanish market. Since 1 April, the company has been represented in Spain by its own subsidiary. For local plastics processors, this combines the continuity of a team established on the ground for decades with direct access to the technology, service and solutions portfolio of the global ENGEL Group – from injection moulding machines and automation to digital assistance systems. ENGEL now has its own subsidiary in the Spanish market.

Local continuity and global support structures

Since 1972, Roegele has supported customers in Spain in sectors such as automotive, packaging, medical and technical moulding, providing sales, service, training and consultancy relating to ENGEL injection moulding solutions. Building on this long-standing partnership, the injection moulding machine manufacturer is now taking the next logical step. With ENGEL Spain, customers will continue to work with the same trusted contacts and benefit from the same local market expertise. Service and application engineering expertise will be integrated even more closely into the corporate group's international network.

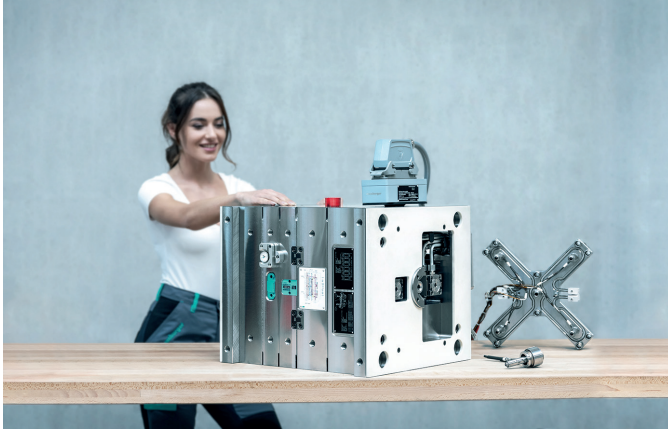
“The integration into the ENGEL Group strengthens our local presence in Spain and enables us to offer our customers even better service and technical support,” says Daniel Vizuete, Managing Director of ENGEL Spain.

Barcelona site to be expanded

ENGEL is making targeted investments in local structures, application engineering and service capacity in Spain. At the Barcelona site, a technical centre for training and a showroom are being established. This will strengthen ENGEL Spain's local technical support and shorten service response times. For customers, the combination of local presence and global connectivity will become even more immediately accessible.

“With ENGEL Spain, we are creating the conditions to support our customers in the Spanish market even more directly and to further develop our local presence in a targeted manner,” says Benjamin Lettner, VP Europe West & East. “In doing so, we are building on long-established customer relationships and an experienced local team.”





Despite the challenging economic climate, Meusburger has strengthened its position as a reliable partner for making moulds, dies, jigs and fixtures

Meusburger: Stability in a dynamic market environment

Meusburger Georg GmbH & Co KG, leading manufacturer of standard parts, looks back on a challenging yet stable financial year. Despite an economic climate characterised by rising costs and intense global competition, the company has further consolidated its position as a reliable partner for the mould, die, and jigs and fixtures industries. Targeted investments have laid the groundwork for continued sustainable growth and the extension of market share in the future.

A solid foundation

The past year presented the industry with major challenges worldwide. 'For Meusburger, the priority was to be a strong and reliable partner to customers in this dynamic environment through high quality and prompt delivery,' said Managing Director Stefan Kraxner. The standard parts manufacturer's broad product range, which serves over 20,000 customers across a wide variety of industries, provided an important foundation for stability. The Market Barometer Index, developed in-house by Meusburger, shows

that the packaging and medical technology sectors in particular have performed well. This stability enabled Meusburger to make the necessary investments to ensure its future competitiveness, thereby safeguarding its innovative strength and the quality of service it provides to its customers in the long term.

Digitalisation as a driver for acceleration

Meusburger uses digitalisation as a key driver for the simplification and acceleration of processes – both for customers and internally. The digitalisation strategy is based on two pillars:

1. Meusburger portal: As a central ordering platform, it enables customers to place orders easily and efficiently by bundling all relevant information and products in one place. With the Meusburger portal, the standard parts manufacturer is setting new standards for working with standard parts in mould and die making.
2. Internal automation: By automating existing background processes, Meusburger is able to offer

its customers even faster turnaround times, greater transparency and reliable product availability. The company remains committed to its core delivery promise: Ordered today, immediately dispatched.

Investments in efficiency and the highest quality

To ensure optimal service and high product quality in the long term, Meusburger has made substantial investments in its infrastructure and optimised its internal processes.

- » Bolstering production: By consolidating its locations and establishing a new hardening shop at the Wolfurt location, the company is increasing its manufacturing independence and ensuring that the quality of its products continues to meet the usual high standards.
- » Logistics efficiency: The modernisation of machinery and the overhaul of automated warehouses ensure that logistics operations remain efficient and that customers receive their orders with reliability and promptness.
- » Expansion of the hot runner division: The hot runner division will be further expanded in 2026. The aim is to strengthen Meusburger's position as a full-range supplier and to further increase expertise at the headquarters in Wolfurt.

Looking to the future with confidence

Thanks to its long-term approach, the company is looking to the future with optimism. For Meusburger, the focus for 2026 is on significant market share gains. The aim is to make full use of the synergies created and to capitalise on its own strengths in the market – to the benefit of customers.



(Pictures: Meusburger)

PLAST 2026: Growing number of new exhibitors



Plast 2026 is preparing for its twentieth edition, scheduled for 9-12 June 2026 at Fiera Milano, registering a positive performance despite the complex international geopolitical and economic scenario characterised by trade tensions and instability in global markets.

The Milan-based event demonstrates its resilience with the participation of over 160 new exhibitors to date compared to the previous edition, 30% of which are represented by international companies. This result takes on particular significance in a decidedly complex market context, which sees strategic sectors such as automotive undergoing a phase of transformation and adaptation to current global dynamics.

The ability to attract new exhibitors in this

scenario confirms the solidity and international appeal of Plast and underlines the sector's growing confidence in the Milan event as a reference platform for presenting innovations and developing commercial partnerships.

The organisation also aims to significantly increase the presence of international visitors with representatives from the main destination countries for Italian exports, thanks to buyer delegations organised in collaboration with ICE Agency and strategic agreements with important trade associations, both within the sector and representative of target markets. Free pre-registration for visitors has been available since March 2026.

The event will further enrich its offering with a programme of side events to be announced in the coming weeks.

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The GROB Quality Checked Used Machines Center in Mindelheim offers customers machines that are available at short notice in the usual GROB quality



A second life for machines with full GROB quality

Quality checked used machine impresses users from Switzerland

Short delivery times, tested quality, and maximum future security – it is precisely this combination that is convincing more and more companies when it comes to investing in modern manufacturing technology. The Quality-Checked Used Machines Center at GROB-WERKE in Mindelheim impressively demonstrates that high-end machining centers lose none of their performance even after their first use. A current example is the delivery of a G350 with pallet and tool automation to Swiss customer Distec – a quality checked used machine that is now being used in production as if it were new.



Distec opted for a used 5-axis universal machining center from GROB, including pallet and tool automation

The GROB Quality-Checked used machines center: Quality that deserves a second life

At the Bavarian machine manufacturer's Quality-Checked Used Machines Center, used GROB machines are professionally reconditioned so that they are available at short notice and at the same time meet GROB's high quality standards. "We refurbish used machines to the same quality level that our customers expect from GROB," explains Steven Nieberle, Head of International Sales at GROB. "Our machines are thoroughly cleaned by professionals, subjected to a detailed functional analysis, and then defective or worn components are replaced with original spare parts. Shortly before delivery,

the machine geometry is checked and corrected, and a quality check is performed on new machines.”

Five steps to a manufacturer-tested GROB used machine

Every Quality Checked Used Machine from GROB undergoes a standardized five-point inspection program at the New and Quality Checked Used Machines Center:

1. Professional cleaning of the entire machine
2. 360-degree machine check including definition of the scope of revision
3. Replacement of worn or defective components with original spare parts by qualified personnel
4. Geometry check and correction according to GROB specifications
5. Comprehensive quality and precision check immediately before delivery

The result: Certified quality, tested precision, and a three-month warranty—including the option to view each machine in Mindelheim before purchase.

**The machine for Distec:
G350 – compact, powerful, future-proof**

The machine delivered to Distec is a 2011 G350 5-axis universal machining center with pallet and tool automation. During refurbishment, the motorized spindle was completely replaced and the AB axis was extensively overhauled, among other things.

GROB's 5-axis universal machining centers with horizontal spindle and continuously guided Z-axis are known for their:

- high stability
- Excellent chip removal
- Maximum dynamics and precision
- Ideal conditions for integrating automation solutions

This makes them suitable for both individual parts and automated series production.

Great excitement at Distec AG about the “new” GROB machine

The enthusiasm at customer Distec was clearly palpable when the GROB machine

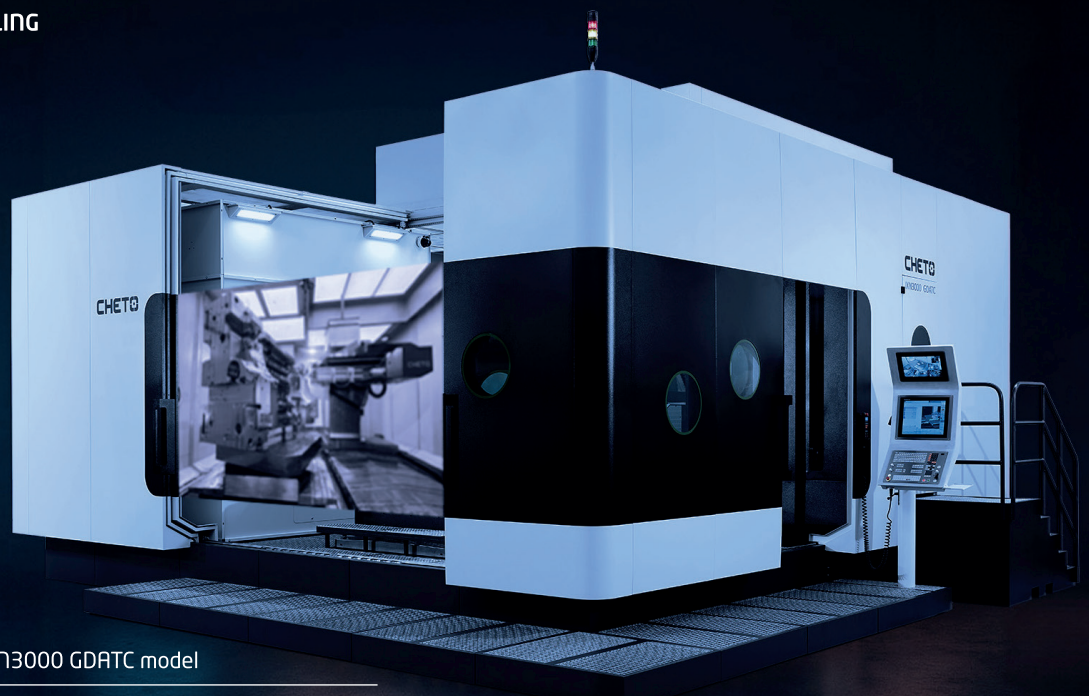
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Long awaited:
Great joy at
Distec over the
delivery of the
G350 from GROB

was delivered. After a long search for a replacement for the old 4-axis machining center, the choice fell on a used GROB machine. “We wanted to modernize our production and take it a step further, but for price reasons we didn't want to invest in a new machine at first,” explains Eugen Degonda, production manager at Distec. “On the GROB website, we then discovered exactly the machine we had been missing: the G350 including pallet and tool automation. The features, quality and price convinced us immediately.”

The new machine not only gives Distec more capacity, but also significantly more flexibility: “Instead of a 4-axis machine, we now have a 5-axis machine, which means we are optimally positioned for the future and much more flexible in terms of machining options,” Degonda continues.

Several technological advantages were particularly decisive: the horizontal spindle for ideal chip removal, the guided Z-axis for maximum stability, and the sufficient number of tool pockets for automated processes. “These are exactly the features we need in our production – the GROB machine fits

our requirements perfectly,” says Degonda happily.

The GROB machine opens up new perspectives for Distec: “If the G350 works well, we will definitely integrate more GROB machines into our production,” adds Degonda.

Why a used machine from GROB?

In addition to flexibility, reliability, technology, and manufacturer expertise convinced the Swiss customer. The combination of proven quality, original spare parts, and short delivery times makes a used machine from GROB an attractive alternative to a new machine.

At the New and Quality Checked Used Machines Center, customers benefit from:

- Certified quality
- Comprehensive function test before delivery
- Exclusive use of original spare parts
- Immediate availability
- Tested precision and reliability
- Personal inspection on site in Mindelheim

In addition to used machines, the GROB New and Quality Checked Used Machines Center in Mindelheim offers a selection of new machines that can be delivered at short notice. These can be individually adapted to the desired customer configuration prior to delivery. GROB customers can choose from a selection of pre-configured standard options.

Conclusion:

Investment security with GROB quality

The example of Distec shows that not everything has to be new: a manufacturer-tested used machine from GROB is more than just an alternative to a new machine. It is an economically attractive, technologically advanced, and future-proof investment.

Eugen Degonda sums it up: “We got exactly the machine we need – in genuine GROB quality. And we feel really good about it.”



The G350 in its
new home at
Distec AG

(Pictures:
GROB-WERKE
GmbH & Co.KG)

New oval slide retainer



(Picture: HASCO)

The proven HASCO slide range comprises numerous components and thus offers a comprehensive selection of dimensionally coordinated slides, slide units, modular slide systems and accessories.

The portfolio has been extended by a new slide retainer, Z1894/..., for reliable positioning with maximum maintenance efficiency. It offers an intelligent solution for the reliable and low wear fixing of slides in injection moulding tools. In combination with the optionally available slide holding plate, Z18940/..., the system can be adapted flexibly to different applications and mould concepts.

Reliable holding force under demanding conditions

Slide retainer Z1894/... guarantees reliable positioning of slides with a holding force of up to 22 kg – even at mould temperatures of up to 220 °C. A long-lasting locking roll ensures consistent function and minimum wear – even with frequent cycles and dynamic mould loads.

Maintenance-friendly through front assembly

A major characteristic of the new slide retainer is the simple installation area, which enables front assembly directly on the mould parting line. As a result, assembly and installation directly on the machine are made considerably easier, which reduces downtime and speeds up maintenance. With the unique range of slides and various locking elements, there are a variety of combination possibilities and solutions for many different individual applications.

The slide elements, manufactured with the highest precision, offer designers and mouldmakers many advantages, eliminating complex routine work through the use of these standardised components.

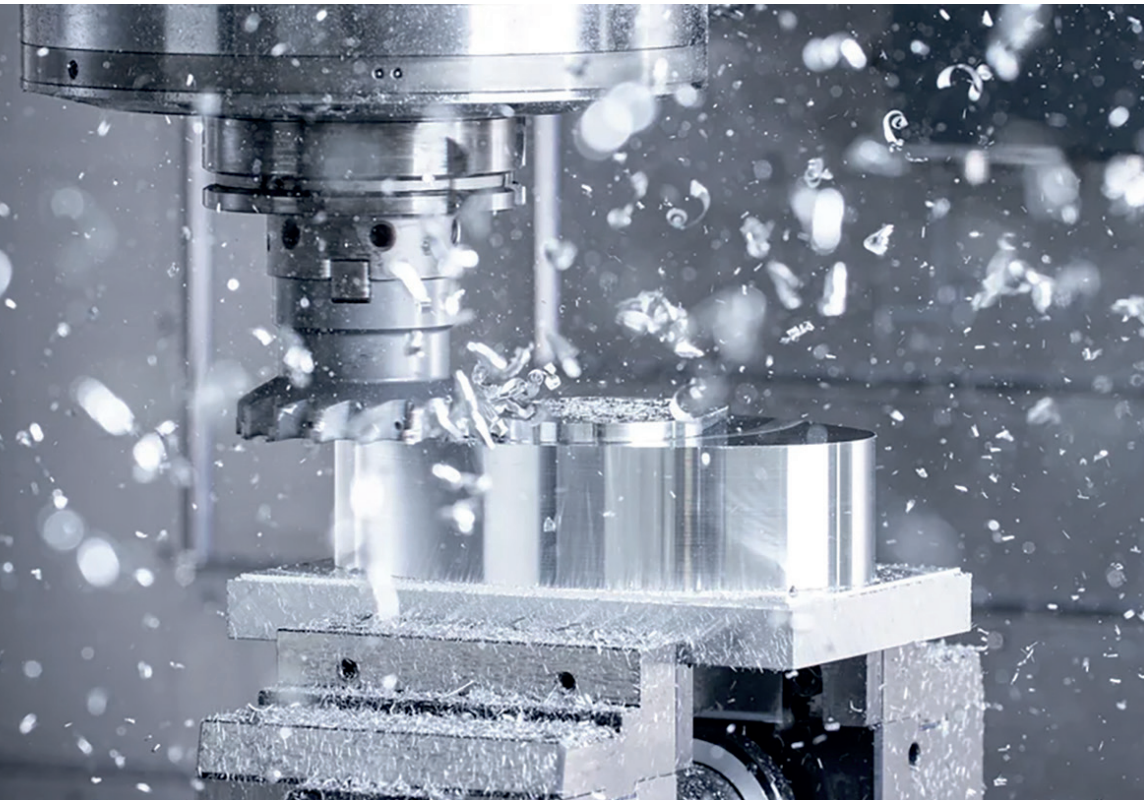
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Aluminium – high-performance milling solutions for a versatile material



(Picture: Horn)

Light, versatile, demanding – aluminium requires high-performance tools, stable processes and precise coordination of all parameters for series production. Whether in the automotive, medical, mechanical and plant engineering or electronics industry, aluminium alloys combine low weight with high strength, superior corrosion resistance and excellent recyclability. Despite its fundamentally good machinability, the material often presents users with challenges. Adhesion, built-up edges or bird's nesting can impair process reliability, particularly when milling. Precise coordination of tool geometry, grade, cutting data and coolant is therefore crucial for cost-effective machining. With its tool portfolio, Paul Horn GmbH offers numerous systems that enable economical machining.

The global importance of aluminium is reflected in the production figures. Over 60 million tonnes of the light metal are produced worldwide every year, with Asia and especially China playing a leading role. Aluminium is the third most common element in the earth's crust after oxygen and silicon, but it occurs exclusively in a bound state. Aluminium is

extracted industrially from bauxite using the Bayer process and subsequent molten salt electrolysis. The mechanical properties can be adapted using specific alloying elements such as silicon, magnesium, copper or zinc, which in turn directly affects machining behaviour.

Pronounced adhesion tendency

The material-specific properties are particularly evident when milling aluminium. Although the metal's low hardness and low melting point favour high cutting speeds, they also lead to a pronounced tendency towards adhesion. Without appropriate measures, built-up edges can form, nega-

tively impacting both the surface quality of the workpiece and tool life. Modern milling tools for aluminium are therefore characterised by sharp cutting edges, polished rake faces and special chip breaking geometries that support smooth chip evacuation. In addition, coatings with good anti-friction properties are used or, depending on the application, intentionally uncoated cutting edges are employed to maximise the tool's sharpness.

HORN offers a comprehensive range of milling tools for aluminium machining, ranging from solid carbide milling cutters and circular milling tools to PCD and MCD solutions. Single-edged or double-edged tools with large chip clearance pockets play a key role, particularly when milling at high metal removal rates. They enable elevated feed rates and cutting speeds without impeding chip flow. Typical applications include pocket milling, plunging and trimming of aluminium components at high material removal rates.

Polycrystalline diamond

Diamond-tipped tools are primarily used for more demanding tasks and long tool life. Due

to its high wear resistance and low adhesion tendency, polycrystalline diamond is ideal for milling of aluminium alloys, especially in high-volume production. The sharp cutting edges deliver high surface quality and stable processes, even when the cutting parameters are high. In addition to performing conventional turning operations, PCD has therefore become particularly well established in milling applications, for example in face milling of structural components or contour milling of complex geometries.

In recent years, Horn has consistently expanded its PCD portfolio and now offers not only PCD-tipped indexable inserts but also milling tools with a solid carbide, monobloc cutting head specifically designed for high-performance machining. These tools were first presented in a standardised range in 2024 and cover numerous applications, not only machining of aluminium but also other non-ferrous materials. The tool system enables high rigidity and excellent concentricity, which is directly reflected in surface quality and process stability.

New potential in high-performance machining

One example of this is the DG replaceable-head system with PCD cutting edges, which is based on an existing carbide system and has been expanded to include diamond-tipped cutting edges. Thanks to the modular design, different shank options in steel or carbide are available, making the system suitable for applications with large overhangs. Another highlight is a face milling system with precise concentricity and axial run-out characteristics. The rigidity of the system allows cutting values that push even high-performance milling machines to their limits and opens up new potential in high-performance machining.

For applications where a high-polish surface finish is required, such as in tool and mould making, cutting with monocrystalline diamonds is employed. This cutting material enables a milled surface quality that eliminates the need for subsequent polishing. It not only saves time, but also increases the reproducibility of component quality. The reliability of the process is a crucial advantage, especially for components whose surface will later be coated or chrome-plated.

Consistent quality over long service life

The increasing use of aluminium components, for example through new production technologies such as gigacasting in the automotive industry, underlines the importance of high-performance milling solutions. At the same time, the use of materials is changing, which places new demands on flexibility and precision. Modern milling tools must therefore not only enable high removal rates, but also ensure consistent quality over a long service lifetime. With coordinated tool concepts, innovative grades and application-specific geometries, these requirements can be met and the economical machining of aluminium sustainably optimised.



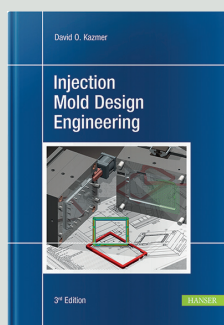
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TECHNICAL BOOK



David O. Kazmer
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Injection Mold Design Engineering

This book provides a structured methodology and scientific basis for engineering injection molds. The topics are presented in a top-down manner, beginning with introductory definitions and the big picture before

proceeding to layout and detailed design of molds. The book provides very pragmatic analysis with worked examples that can be readily adapted to real-world product design applications. It will help students and practitioners to understand the inner workings of injection molds and encourage them to think outside the box in developing innovative and highly functional mold designs.

The 3rd edition addresses these issues, in particular with a new chapter on mold manufacturing strategy to provide an overview of the most common machining and additive manufacturing processes with cost and time models to guide the manufacturing strategy; updated and simplified break-even cost models to assist in the mold layout design (number of cavities and type of mold) vs. 3D printing; a new section on environmental concerns include mold design for recycled resins; and updates to the International Tolerance standards, and the new technology and simulation sections.

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HORN cooperates with Hector Children's Academy

Since the 2012/13 school year, the Hector Children's Academy in Tübingen has been offering around 50 courses a year for particularly gifted children. These take place outside regular lessons at primary schools in Tübingen and, in some cases, in cooperation with companies. To ensure that these children continue to receive support beyond primary school, the Hector Children's Academy in Tübingen cooperates with a number of training centres in Tübingen, including the one run by Paul Horn GmbH.

The cooperation helps the children to expand and deepen their knowledge through practical learning and direct application

This cooperation helps the children to expand and deepen their knowledge through practical learning and direct application under the guidance of experts.

This year, primary school pupils from various schools in Tübingen once again had the opportunity to take part in the course "From raw material to finished aluminium dinosaur". Over four Thursdays, the participating chil-

dren designed and built a Tyrannosaurus Rex out of aluminium.

In this course, the pupils were introduced to various areas of learning, ranging from design and materials science to machining, component inspection and final assembly. The individual aluminium components were manufactured on a DMU 50 CNC milling machine and the learning units took place in the training centre of Paul Horn GmbH.

Promoting young talent is one of the pillars of Paul Horn GmbH's strategy for long-term success. In addition to vocational training and dual study programmes, the Hector Children's Academy is another important component of this strategy.

The Hector Children's Academies are the only nationwide organisation that offers particularly gifted and highly talented primary school children a specially developed support programme in addition to their regular school lessons, which goes far beyond the standard curriculum. Around 23,000 primary school children take part in the courses offered at 69 locations every year.

The courses offered by the Hector Children's Academies focus on STEM subjects (science, technology, engineering and mathematics). Talent and giftedness develop from a close interaction between aptitude and environment. A large proportion (50 to 70 percent) of the variance in intelligence in the population is determined by genetic factors. This means that non-innate influences such as encouragement can also contribute positively to the development and emergence of giftedness. In order for children with special talents and potential to achieve exceptional performance, it is also necessary – as in music or sport – to train intellectual giftedness with an appropriate degree of perseverance and diligence. The earlier a child's giftedness is recognised, the



HORN trainers are on hand to provide the children with advice and support

earlier training and support can begin.

Early learning opportunities are important for the development of special talents. However, individual support needs are not easy to implement, especially in everyday primary school life. Expanding the range of learning opportunities within the framework of enrichment is therefore an effective support approach that the Hector Children's Academy programme has adopted. Enrichment means that particularly gifted and highly gifted pupils receive additional learning opportunities tailored to their needs in addition to their school lessons. The development of particularly high abilities is specific to each area and depends on personal characteristics, such as the motivation and interests of the children.

The courses are designed to promote the children's interests and potential and to create intellectual and social challenges. The children should be able to deepen their subject-specific knowledge, develop new skills and unleash their creativity. The programme is constantly being refined based on findings from scientific studies, which also prove its effectiveness. The participating children benefit from this close exchange between science and practice through a range of courses that are optimally tailored to their needs.

Markus Horn, Managing Director of Paul Horn GmbH: "We have had extremely positive experiences with the participating children in



recent years. The young people show great interest in technology and in the company. It confirms our commitment to continuing to be part of this special programme in the future."

(Pictures: HORN/ Sauermann)



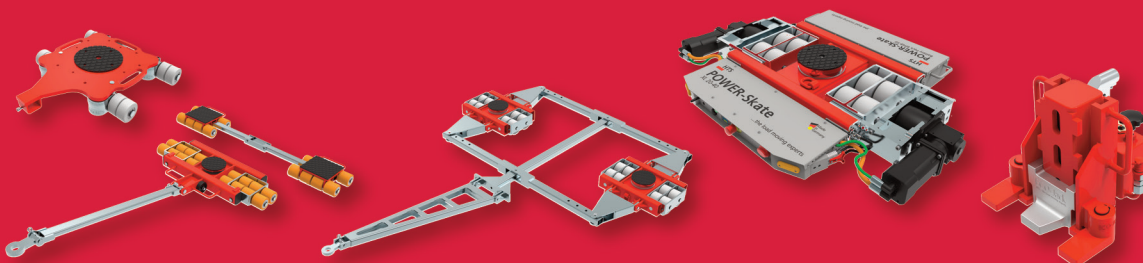
In addition to the dinosaur, the programme also includes the assembly of a wind turbine with electronic components

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Four decades of reliable mold-precision and industry partnerships

M.R. Mold & Engineering improves complex LSR and thermoplastic tooling with HASCO standard components

M.R. Mold & Engineering, a U.S. leader in highly complex injection molds for Liquid Silicone Rubber (LSR) and thermoplastics, is leveraging a deep-rooted focus on niche applications and strategic global partnerships, particularly with standard component supplier HASCO, to navigate a demanding global manufacturing landscape. Celebrating its four-decade history, the Brea, California-based company embodies a philosophy of technical expertise, customer-focused service, and operational integrity, supplying precision tools for clients in the USA, Australia and around the world.

Mastering a niche: complexity as a competitive edge

Founded in 1985 by Rick Finnie, M.R. Mold initially broadened its scope of products and services to encompass tools for thermoplastics but strategically refocused its efforts around the millennium on its core strength: liquid silicone injection molds. LSR injection molds demand a different know how and an absolute precision is necessary to some 1000s of a mm, added with M.R. Mold's own proprietary cold runner technology, provide the right mix for today's need for automation and 24/7 approach. This specialization was a deliberate choice to stand out in a crowded market.

"I learned from a lady at a conference to quit complaining, develop a niche, and market that niche," recalls Rick Finnie, who still runs

the company as its president. "And that is what we did".

Today, M.R. Mold's expertise spans the design and manufacture of molds for a vast array of materials, from high-performance, high-temperature engineering plastics like Ultem (PEI) and PEEK to general-purpose resins like Polypropylene and specialized materials like Teflon (PTFE). However, the defining characteristic is the geometric complexity of the parts.

M.R. Mold does not compete on sheer cavitation count or high-volume commodity tooling. Its competitive advantage lies in low-to-moderate cavitation, highly complex 3D geometries, (for example like a facemask) and tight-tolerance tooling, particularly for the medical sector. "We very seldom have simple geometries. In most cases the 3D geometry of the part is rather complex," Rick

notes, pointing out that parts often feature intricate, sculptured contours with no flat planes. "A complexity that demands superior engineering and specialized machining capabilities, including our 5-axis milling machine". Even fixturing and holding mold components for machining can be highly complex tasks.

Full-service model: from CAD to part production

With more than 30 highly skilled employees using cutting-edge technologies, M.R. Mold is in a position to consistently meet

The Technology Center at M.R. Mold allows on-site testing and prototyping of molds using advanced silicone and thermoplastic molding machines



or exceed its customers' expectations. Six of these employees have been with the company for more than 25 years, providing an invaluable knowledge base. The company produces complete injection molds to fit to a universal base. These sets are designed to integrate into M.R. Mold's universal base platforms, allowing customers to use a single base for numerous cavity inserts, a highly versatile and cost-efficient solution.

A cornerstone of M.R. Mold's value proposition is its Technology Center, equipped with six state-of-the-art molding machines, with both silicone and thermoplastic capabilities. This allows the company to test and sample every mold before shipping, allowing the company to demonstrate optimal processing conditions and functionality. The ability to produce parts on-site supports extensive prototyping and allows for rapid changes and adjustments, ensuring the customer receives a mold that is not just technically sound, but fully proven for their process.

In addition, M.R. Mold can provide complete solutions, demonstrating the best way to handle the liquid silicone process, which differs significantly from classic plastic molding, often involving unique cooling/heating cycles and customized ejection/de-molding strategies.

"That's an advantage for the customers working with M.R. Mold," says René Eisenring, President of HASCO America, "because they would not just have a tool that they take home and find out it's not working... The tool is actually presented and demonstrated, and necessary changes can be made right on site."

HASCO Partnership: ensuring global reliability and design efficiency

For more than 40 years, M.R. Mold has relied on HASCO's standardized components to guarantee the precision, reliability, and longevity of its complex molds. This long-standing partnership plays a decisive role in meeting the logistical and technical demands of a globally active tooling manufacturer.

Technical precision and component quality

M.R. Mold integrates a wide range of HASCO components into its molds, particularly in the crucial areas of guiding and movable mold parts. The company highlights the design of HASCO's leader pins and bushings with "the little stub or the rear guide on the back



Rick Finnie, M. R. Mold is convinced that HASCO guide elements enable plates to be aligned precisely

of the head of the pin", as Rick puts it. "That acts as a tubular dowel or, you know, acts as a dowel that aligns the plate behind it." This unique feature enhances alignment, tool life, and ease of assembly.

Locking and ejection systems from HASCO are also an integral part of M.R. Mold's tool designs. The use of Parting-Line Locks (mold closures) and guided ejection systems with what Rick calls the "the early return system (HASCO Z163 / Z164) to make sure that the ejector plate is in its home position", contribute to consistent process stability.

In addition, M.R. Mold benefits from HASCO's comprehensive portfolio of auxiliary items such as fittings and quick connectors. Having invented the quick connector decades ago, HASCO today remains a full-range supplier offering globally standardized systems that comply with all major international profiles, including the European, US and French standards.

Global service and logistical reliability

While M.R. Mold takes pride in its fully American workforce and local sourcing, the company's tools are delivered to customers around the world. This is where HASCO's international infrastructure provides a crucial advantage. With subsidiaries in key markets such as USA, Canada, Mexico, Europe, and China, HASCO ensures that identical German made components and expert support are available wherever M.R. Mold's tools are in operation. This local access guarantees fast response times for



Guided ejection pins Z163/Z164 from HASCO with Early Return system, maintaining precise and stable mold performance

maintenance and replacement, strengthening global customer confidence.

Supply chain reliability is another cornerstone of the partnership. The extensive stock maintained by HASCO America proved invaluable during periods of worldwide supply disruption. Even when individual suppliers faced challenges, M.R. Mold could continue production without interruption. This resilience underlines HASCO's commitment to reliable delivery performance and directly supports M.R. Mold's own promise of punctual tool shipments.

Design-to-manufacturing efficiency

M.R. Mold's engineering department, led by Rick Finnie with more than four decades of experience, makes extensive use of HASCO's digital services to streamline the design-to-manufacture process. Engineers download high-quality 3D CAD models of HASCO components directly from the rewarded HASCO web shop, allowing them to integrate standard parts seamlessly into their SolidWorks and Siemens NX environments. This significantly reduces design time by eliminating the need to manually model standard components. M.R. Mold's capability to run process-simulation to ensure quality, even before cutting into the steel.

Beyond geometry, the HASCO web shop also provides valuable real-time data on stock availability and delivery times. M.R. Mold's purchasing team uses these digital tools to simplify ordering and quotation workflows while simultaneously identifying specialized components, such as vented or non-turning

ejector pins, that can further enhance mold performance.

Partnership built on precision and trust

The collaboration between M.R. Mold and HASCO exemplifies how standardization, innovation, and global service can merge to create efficient, high-performance tooling solutions. With HASCO as a trusted partner, M.R. Mold continues to push the boundaries of precision moldmaking while maintaining the flexibility and reliability that its global customers depend on.

Market focus and global outlook

M.R. Mold maintains a strong focus on the medical industry, which accounts for approximately 85% of its business. This sector, covering everything from respiratory care to surgical components, offers stability regardless of economic fluctuations.

The company is actively pursuing growth, having recently invested in new high-speed milling and EDM equipment. While half of its tools stay in the U.S., the other half are exported to countries including Mexico, Canada, Central America, and Europe.

As a seasoned industry veteran, Rick Finnie emphasizes the importance of honest customer communication, often advising against unfeasible designs or unattainable tolerances, even if it means declining a quote. This integrity, coupled with M.R. Mold's specialized tooling and the reliable global support of partners like HASCO, solidifies the company's position as a premier, high-quality supplier in the global specialty mold market.

The M.R. Mold team, committed to integrity, precision, and customer-focused service in the global specialty mold market (Pictures: Hasco)



New innovative compact clamp with patented kinematics

A newly developed hydraulic compact clamp with horizontal stroke enables direct clamping in the smallest closed pockets, grooves and recesses for the first time. ROEMHELD has optimised the element so that it clamps even workpieces and fixtures in confined spaces with maximum clamping force and high repeat accuracy.

The innovation lies in the kinematics, which are unique worldwide and patented by : The clamping lever first moves horizontally to the point on the workpiece that is to be clamped. It then clamps vertically downwards. This movement sequence allows space-saving workpiece mounting with exact positioning. Previously, machinists often had to add additional clamping points to components for such clamping tasks and then remove them again in subsequent operations. The new compact clamp avoids the additional costs and extended process times associated with this.

It is particularly suitable for castings, dies, moulds and fixtures that need to be clamped in very narrow grooves, recesses or pockets. Typical applications include multi-sided machining of cast aluminium or grey cast iron workpieces.

Precise and powerful clamping in confined spaces

This new product is available in a space-saving plug-in design. It is offered with either a standard clamping lever or a blank that can be individually adapted to specific workpiece geometries. A quick-fixing mechanism allows for easy changing and increases flexibility for different clamping tasks.

With a clamping force of 6.5 kN at a maximum operating pressure of 220 bar and a horizontal stroke of 8 mm, the hydraulically double-acting clamping element offers high performance despite its minimal dimensions. The vertical clamping stroke is 4 mm – clamping is possible at any position along the entire stroke. This flexibility enables secure fixing even for workpieces with dimensional tolerances.

Process reliability through integrated controls

For maximum process reliability in auto-

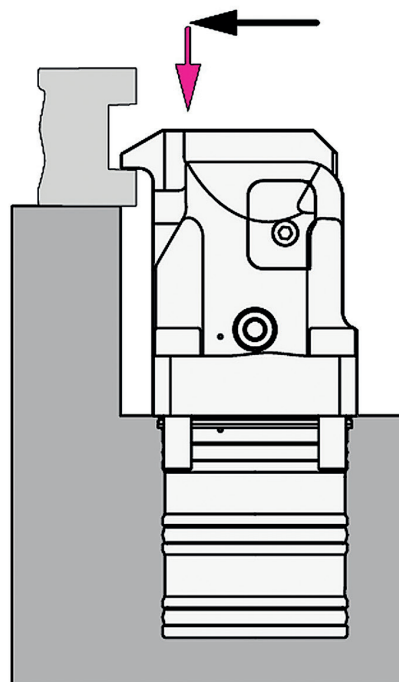
mated production environments, the innovation is available in three versions. In addition to a version without position control, variants with pneumatic clamping or unclamping control are also available.

Available immediately

The new compact clamp with horizontal stroke is available now. “With this clamping element, we are solving a problem that many manufacturing companies are familiar with,” emphasises Volker Schlautmann, Head of Value Stream at ROEMHELD. “The patented kinematics enable clamping operations that were previously not technically possible or only possible with considerable additional effort. At the same time, the installation position can be flexibly selected, and the plug-in version can be mounted without piping.”



The new compact hydraulic clamp with horizontal stroke developed by ROEMHELD enables direct clamping in the smallest closed pockets, grooves and recesses for the first time



The innovation lies in the unique, patented kinematics: the clamping lever first moves horizontally towards the workpiece and then clamps vertically downwards (Pictures: ROEMHELD)



The automation equipment with a sophisticated transfer system encloses the injection molding machine

Maximum efficiency for metal-plastic composite parts

Swoboda relies on vertical machines from the WITTMANN Group

With roughly 200 square meters of floor space, it is one of the largest and most complex production cells at this location. Millions of switchbox housing components are manufactured with this equipment every year. What makes the plant special is its high degree of automation.

We are visiting Swoboda CZ in Jihlava, Czech Republic, 120 kilometers south-east of Prague. The plant, which is part of the global Swoboda Group, specializes in complex metal-plastic assemblies, as Václav Dostal, Managing Director of Swoboda CZ s.r.o., explains to us. For the local team, the switchbox housing components are not a new product, but the production process has changed entirely. “The cost pressure has risen enormously”, says Dostal. “That is why we decided to invest in a new, fully automatic production cell.”

The development of this process can be clearly

traced by us during our company tour. For the two previously installed production cells are still up and running. They work semi-automatically. “With the new process, we have doubled our capacity”, says Dostal. With this product, Swoboda benefits from the global expansion of renewable energies. The Czech team is particularly proud of this project. Orders of this kind help them to reduce their de-pendency on the automobile industry.

Vertical machine from WITTMANN supports efficient automation

In the course of developing the new produc-

Working together for maximum efficiency: Pavel Bohuněk and Marek Hejl from Swoboda CZ together with Michal Slaba from WITTMANN BATTENFELD CZ (from left to right)

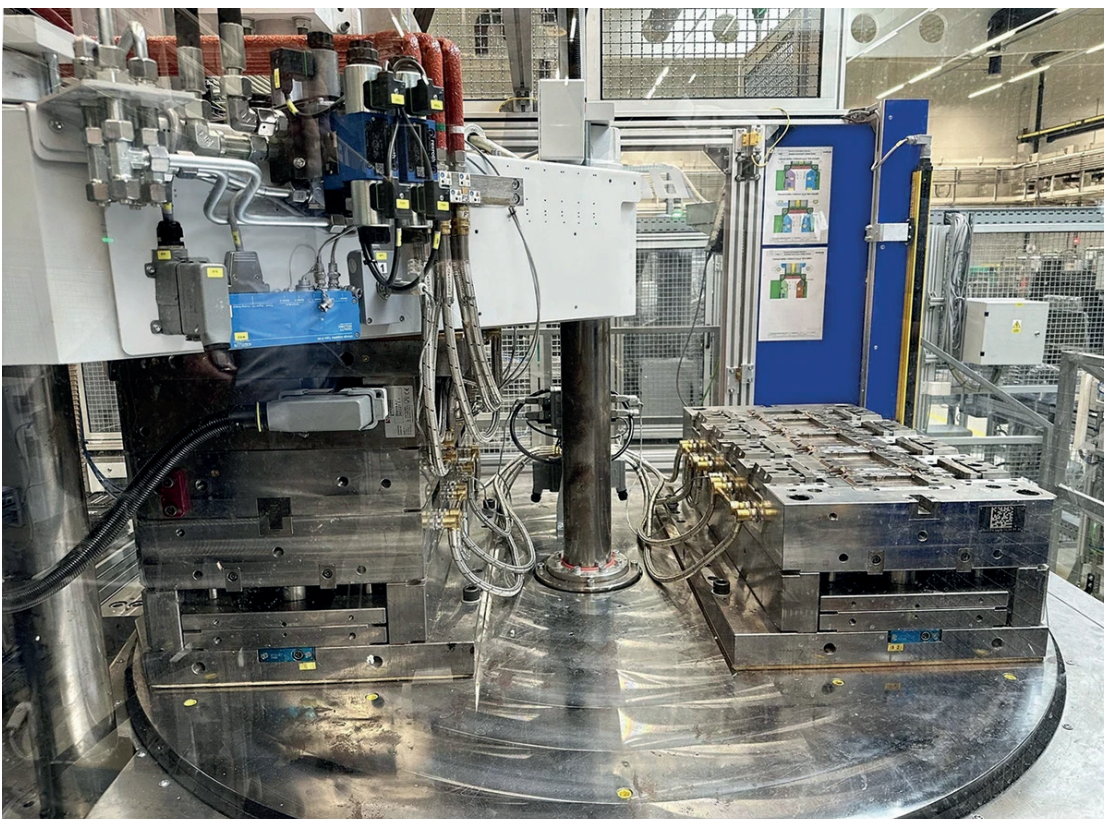
tion process, the automation concept was completely redesigned. However, some tried and tested features were left unchanged, such as leaving a large WITTMANN vertical injection molding machine with 270 tons clamping force standing at the center of the production cell, equipped with a two-station rotary table, plus temperature controllers also supplied by WITTMANN.

“The vertical machine models from WITTMANN offer a particularly high degree of convenience for our production staff”, says Production Manager Pavel Bohuněk, who then emphasizes that all the vertical machines on the shop floor have come exclusively from the WITTMANN Group. Some of these have already performed their reliable service for many years.

What does convenience mean for Swoboda? – Two things, Bohuněk explains. Firstly, it comes from the intuitive user interface of the WITTMANN machine control system, which enables even production staff with little experience to achieve a consistently high standard of parts quality, and to restart the process efficiently after a standstill.



Secondly, the Production Manager points to a structural specialty of the vertical machines from WITTMANN, included in the delivery as standard for all models with a two-station rotary table. “This concerns the supply of the temperature control media”, specifies Michal Slaba, Managing Director of WITTMANN BATTENFELD CZ: “The connections are placed above, so that a central rotary distributor can be dispensed with. This ensures exceptionally easy accessibility to the molds, which simplifies both automation and manual work, such as maintenance servicing.”



The temperature control media connections come from above, so that the injection molding machine does not need a central rotary distributor. This ensures very comfortable access to the molds

Sophisticated transfer system coordinates individual production steps

The mold bottom halves are positioned on the rotary table to produce the switchbox housing components. The large six-axis robot removes the finished parts from the cavities and simultaneously refills them with new inserts. “The challenge this part presents to us is the large number and diversity of the insert parts, which the automation system must handle safely”, says Dostal.

Another robot assists the large six-axis robot. It is responsible for pre-positioning the insert parts in frames. The parts to be over-molded include several signal pins, power pins and sockets. Some inserts are presented to the robot in trays. Some of the pins are punched and bent in-line via reel-to-reel systems. The impressive feature though is the transfer system inside the production cell. Via a rail system, the frames are transported to the clamping unit, where the multi-axis robot takes over the complete insert sets and places the pins and sockets into the mold cavities. They are then over-molded with white, fiberglass-reinforced plastic material.

The freshly injection-molded components are transported away from the clamping unit by the transfer system. They are passed to

camera inspection and DMC marking, deposited in trays and then leave the production cell. All empty frames and transport carriages are returned automatically to their starting points at the end of the cycle.

Setting benchmarks for other locations worldwide

The entire automation has been developed and built on site. Automation solutions from Jihlava are also in operation at other Swoboda locations around the world. The new production process for making switchbox housing components is exemplary. The complete automation of all process steps and the excellent repeatability of the WITTMANN injection molding machine have successfully increased the efficiency and made it possible to reduce the unit costs. Moreover, they ensure high process stability and consistency of quality standards. In the Czech Republic, WITTMANN and Swoboda are living a genuine partnership. Effective assets here are the short distances and good facilities of the Czech WITTMANN subsidiary with its own spare parts depot, training center and technical center. “When it comes to optimizing processes by boosting their efficiency, we are an important sparring partner for many of our customers”, Michal Slaba points out.

(Pictures:
WITTMANN)



Michal Slaba, Managing Director of WITTMANN BATTENFELD CZ (2nd from left) with the Swoboda project team: Martin Ohnút, Molding Process Engineer, Pavel Bohuněk, Production Manager, Václav Dostál, Managing Director, and Marek Hejl, Project and Technology Manager (from left to right)

High-performance flat guiding unit with maximum load capacity in minimal installation spaces

Meusburger presents an innovative new development: the high-performance flat guiding unit E 1080. This new guiding element has been specially designed for injection moulds with limited installation space and the highest requirements for precision and wear resistance. The E 1080 complements the wide range of tried and trusted flat guiding units from Meusburger, which serve as the ideal basis for precise and durable injection moulds.

Efficiency and quality 'Made in Austria'

Choosing the right mould guiding is crucial for the quality and service life of injection moulds. Durability, precision and a high load-carrying capacity play a central role here. Meusburger relies on in-house manufacturing at its main site in Wolfurt for the majority of its guiding elements, from material selection to the finished product. This approach enables seamless quality control using high-precision measuring machines and guarantees the best quality. Thanks to optimally networked logistics partners and fast order picking, Meusburger ensures the shortest lead times for all components. Quality pays off in the long term, as the right guiding reduces maintenance costs and minimises downtimes, which significantly improves cost-effectiveness over the entire life cycle of the mould.

E 1080: Uncompromising precision in a compact design

The new high-performance flat guiding unit E 1080 is Meusburger's answer to the challenge of having to accommodate high loads in a very limited installation space. The guiding unit features maximum load-carrying capacity in minimal installation spaces.

Your benefits at a glance:

- » Maximum compactness: Thanks to the ideal width-to-depth ratio, the E 1080 requires significantly less space. The vertical screw connection eliminates interfering screw holes, freeing up valuable space for cavities or cooling channels.
- » Uncompromising precision: The positive and frictional taper locking ensures precise positioning that is free of play, even in case of minor manufacturing inaccuracies.



The high-performance flat guiding unit E 1080 features maximum load-carrying capacity in minimal installation spaces (Pictures: Meusburger)

- » Extreme durability: The sophisticated guide relief area with large contact surface guarantees optimum distribution of the contact pressure. Large guide relief radii and an additional I-beam profile enable maximum wear resistance and a longer service life, even at mould temperatures of up to 300 °C.
- » Versatile application: In combination with the specially designed sliding plates E 1083, the high-performance flat guiding unit E 1080 is ideal for use in 3-plate moulds. With the introduction of the high-performance flat guiding unit E 1080, Meusburger offers its customers an innovative solution that enables a more compact mould design with maximum efficiency and process safety.



Find out more:
www.meusburger.com/flat-guiding-units

New Generation EVOline Axial Rolling Heads

Axial thread rolling heads for large threads and high-strength materials

The EVOline axial thread rolling heads from FETTE Werkzeugtechnik, a member of the LMT Tools family and market leader in the field of thread rolling systems, stand for short production times, high thread strength, outstanding service life, and maximum process reliability. The next stage of evolution is now here with the new generation. It has been specially developed for large threads in high-strength materials and offers an efficient alternative to conventional thread rolling machines. A practical example from the energy sector demonstrates its performance: up to 50% time savings and double output in unmanned operations.

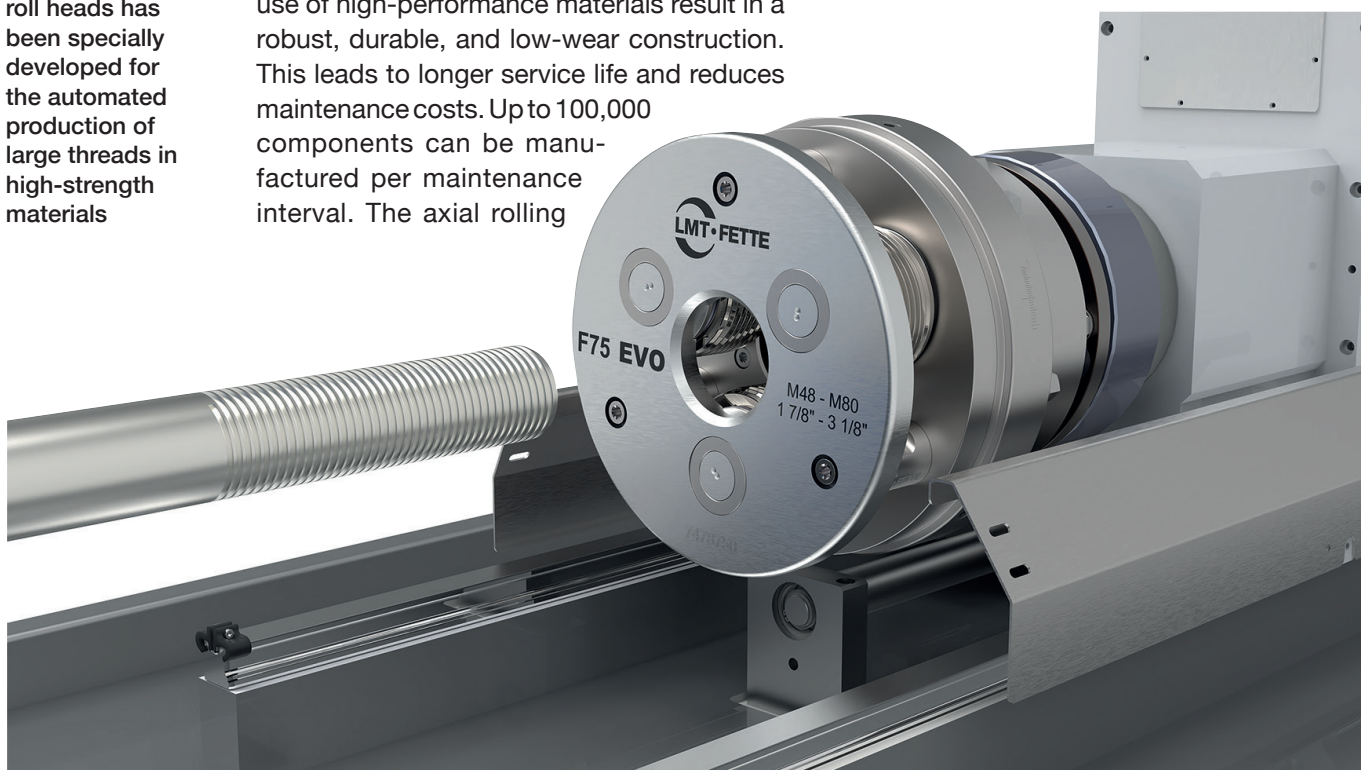
With the new generation of EVOline axial thread rolling heads, LMT Fette offers an efficient, maintenance-friendly, and economical solution for the reliable and automated production of large threads in high-strength materials. The product family comprises four sizes – F55 EVO, F65 EVO, F75 EVO, and F85 EVO – and is designed for high-strength steels up to 1,400 N/mm², hardness ranges up to HRC 44, thread sizes up to M100, and pitches up to 6 mm.

heads can be seamlessly integrated into existing machine environments and enable precise, fully automatic processes. Complete processing in a single line reduces handling and non-productive times, increases process stability, and boosts productivity. This gives the rolling heads a decisive advantage over conventional stand-alone rolling machines, which require time-consuming manual steps and high personnel costs. The result: a more efficient manufacturing process and sustainably lower costs per component.

The new generation of EVOline axial roll heads has been specially developed for the automated production of large threads in high-strength materials

Long service life with high productivity

The geometrically optimized design and the use of high-performance materials result in a robust, durable, and low-wear construction. This leads to longer service life and reduces maintenance costs. Up to 100,000 components can be manufactured per maintenance interval. The axial rolling





The innovative, optimized design and the use of high-performance materials ensure a long service life, high wear resistance, and easy maintenance (Pictures: LMT Tools)

Economic solution for automated series processes

“Rolled threads offer around 30% higher strength than cut threads, therefore making them the first choice for safety-related components. With the new generation of EVOLine axial rolling heads, we are consistently transferring these advantages to large threads in high-strength materials and creating an economical solution for automated series processes,” says Anita Tritschler, Global Product Manager for Rolling Systems at LMT Tools. Typical users are companies that require reliable and economical processes – particularly in energy generation and supply, construction and infrastructure, the oil and gas industry, and mechanical and systems engineering.

Manufacturing threaded bolts for wind turbines with the F75 EVO

An example from the wind power industry demonstrates how powerful the new generation of EVOLine axial rolling heads is. Threaded bolts with M64x6 threads on both sides and a thread length of 250 mm are manufactured from material in strength class 10.9 with a tensile strength of 1,000 N/mm². The starting point was a rolling machine embedded in a highly manual process chain. Time-consuming work steps, high handling costs, and a correspondingly high personnel requirement had a noticeable impact on manufacturing and unit costs. With the switch to the EVOLine axial rolling head F75 EVO, a fully automated, interlinked process with

simultaneous machining was implemented, including an AKEA feed unit and automatic workpiece loading. The result: around 50% less production time per component and double the output. “This practical example shows what is possible when the rolling process is integrated into a fully automated production structure. With the new generation of EVOLine axial rolling heads, the costs per component can be significantly reduced and competitiveness sustainably strengthened,” says Anita Tritschler.

About LMT Tools

LMT Tools is one of the leading experts in the development and production of precision tools. The company's passionate commitment to precision ensures that its customers in the industry apply superior quality at the key interface between machine and workpiece. With more than 1,000 employees worldwide, LMT Tools combines its competencies in the brands LMT Fette, LMT Kieninger, LMT Onsrud and LMT Belin. LMT Tools serves the product lines of Milling & Threading, Rolling Systems, Gear Cutting and Advanced Tooling. As an international network of experts, LMT Tools develops tool solutions for machining high-strength steel materials as well as composite and plastic materials, enabling the group to provide customers with reliable, fast and high-performing solutions. An outstanding customer experience sets the focus for LMT Tools. Reliability and fast services create an uncomplicated and trustful business relation between its customers and LMT Tools. To ease machining is the company purpose of LMT Tools. Customers can focus on their own operations because they can easily rely on the performance of LMT Tools' machining solutions. This enables them to offer excellent products that are successful in the market. LMT Tools offers an extensive product range of standard and special tools, enabling the highest quality and performance for metal cutting and forming applications in various industries, like general machining, mold and die making, as well as transportation and drives, such as automotive, aerospace and wind energy.

For more information: <https://www.lmt-tools.com/en>

Open Letter: VDWF Calls for Concrete Measures to Stabilize and Secure Europe's Tool and Mold Making Industry

The Association of German Tool and Mold Makers (VDWF) is issuing an urgent appeal to the German government and the European Commission: Without immediate, effective political support, the future of tool and mold making in Europe is at stake — and with this key industry, so too are the entire manufacturing sector and hundreds of thousands of jobs.



The members of the VDWF Executive Board have signed the open letter, lending their names to it: Lars Neitzel (Managing Director, Pragma), Kathrin Schumacher (Managing Director, Weschu), Prof. Thomas Seul (VDWF President), Andreas Rauchenberger (Managing Director, TVB), and Anton Schweiger (Managing Director, Schweiger Tooling) (left to right)

highlights the sector's alarming economic situation and calls for targeted measures to safeguard competitiveness. Toolmakers are systemically important, but are suffering from sharply rising costs, unfair global competition, and, in some cases, a dramatic decline in both return on sales and production volumes, the letter states.

The association delivers a clear message to both policymakers: "The trend toward deindustrialization must not be allowed to continue! We appeal to you to safeguard the competitiveness of the tool and mold making industry through targeted measures."

VDWF Managing Director Ralf Dürrwächter emphasizes the urgency of the association's appeal: "The VDWF is committed to ensuring that tool and mold making, as a key industry, finally receives the political attention and support it deserves. This is the only way Germany can remain a technology leader and a hub for innovation."

China Invests, Europe Hesitates

For local toolmakers, heavily subsidized suppliers from China pose a serious threat. China has long recognized the industry's crucial strategic role and has implemented massive support measures. Germany and Europe are at risk of being left behind. The sector's critical condition is evident in the drastic decline in production volumes over the past few years

Tool and mold making is the backbone of industrial production. It is indispensable for the manufacture of parts made of plastic, metal, and many other materials for all areas of our daily lives — from mobility and medical technology to consumer goods and their packaging. Tools capture essential product and process knowledge.

The VDWF represents the interests of its more than 500 members from an industry dominated by small and medium-sized enterprises. It explicitly sees itself as a European association and counts companies from Austria, Switzerland, Slovenia, Sweden, Serbia, and Hungary among its network.

A Wake-up Call to Policymakers

In an open letter to Federal Minister for Economic Affairs and Energy, Katherina Reiche, and to the President of the European Commission, Dr. Ursula von der Leyen, the VDWF



The VDFW's open letter can be seen on billboards at 16 locations throughout Germany – each in the immediate vicinity of a Landtag (state parliament) building. All interested companies, not just VDFW members, are invited to support the petition and endorse the demands outlined in it. To sign online and view a current list of signatories, scan the QR code on the poster or visit vdfw.de/offener-brief

and the rising number of insolvency cases – just two of many warning signs pointing to an existential threat to the tool and mold making industry.

The association's specific demands include enforcing fair competition rules, greater financial relief, more comprehensive support measures, the protection of intellectual property, and expanded support for vocational training and continuing professional development.

Germany and Europe: Industrial Base at Risk

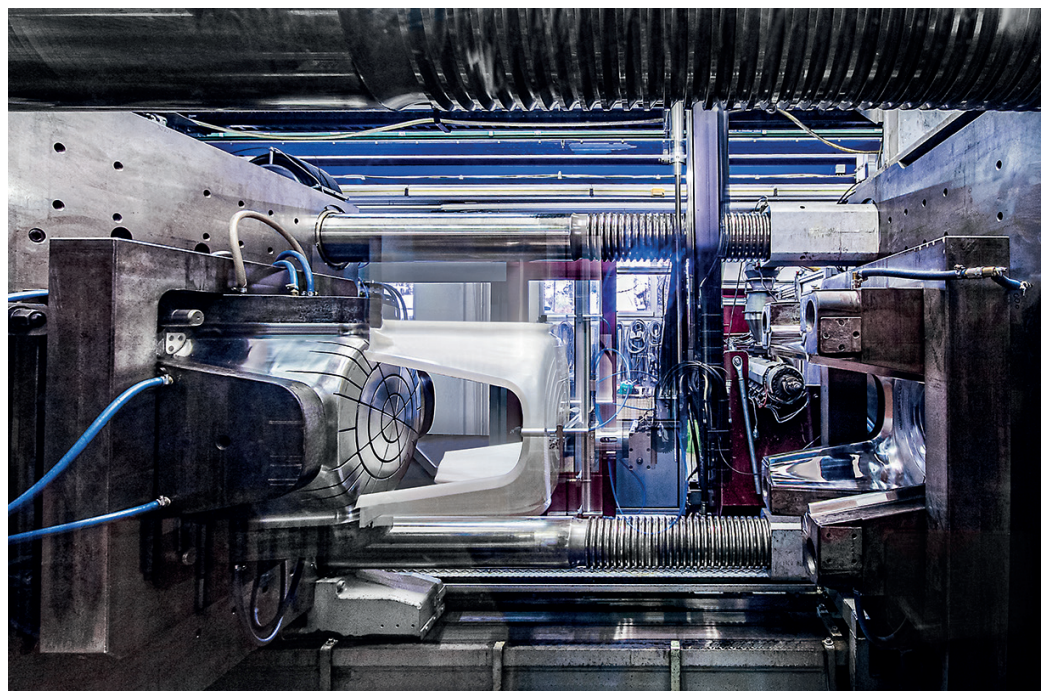
The letter makes it clear: If the tooling sector collapses, Germany and Europe will lose their industrial foundation, with serious consequences for production, innovation, and jobs. The VDFW calls for a constructive dialogue with policymakers to jointly develop sustainable solutions.

“Without targeted political support and a level playing field, we risk losing our industrial base and, with it, hundreds of thousands of jobs,” says VDFW Pre-

sident Prof. Thomas Seul, summarizing the situation. “We are ready. For innovation. For quality. For Europe,” the open letter states. Not only VDFW members, but all interested companies are explicitly invited to support the petition and back the demands outlined in it.

The option to sign online, as well as a current overview of the individuals and companies that have signed, is available at vdfw.de/offener-brief.

Tool and mold making is the backbone of industrial production. It forms the basis for the manufacture of parts made of plastic, metal, and many other materials for all areas of our daily lives (Pictures: VDFW)



ENGEL builds the world's largest injection moulding machine

New dimensions in cost-efficient part production

With the duo 12000 US, ENGEL expands the possibilities for the industrial production of large-format injection-moulded parts to previously unattained dimensions. The two-platen injection moulding machine enables the reduction of part costs for large-area components. At the same time, manufacturers can implement innovative product concepts and reduce assembly effort. This creates new design freedoms and additional opportunities to replace traditional materials such as metal or concrete with plastics. ENGEL thus creates the technological prerequisites for competitive and more sustainable solutions in mobility, infrastructure and industry.

The two-platen machine with a clamping force of 110,000 kN was specifically developed for parts with projected areas of more than 2.5 m² and was recently commissioned at the customer's site. It enables the cost-efficient production of very large-format components in an integrated production process. Through functional integration, a reduced number of parts and lower assembly effort, new degrees of freedom arise in design, lightweight construction and product design. New products require new production concepts. With injection moulding solutions of this scale, manufacturers can produce large-

format structures in a single production step. This reduces material usage, simplifies production logistics and thereby saves time and costs. In addition, it improves the CO₂ footprint over the entire product life cycle. ENGEL thus supports its customers in unlocking new dimensions of cost-efficient production and in implementing innovative, sustainable product solutions.

To enable large shot weights for large-area components, the system is equipped with two injection units operating in parallel. With screw diameters of up to 210 mm, they enable a shot volume of up to 65,000 cm³ and homogeneous filling of large projected areas.

The design with eight tie bars was selected together with the customer as the most suitable solution for its specific requirements. Machines of this size are also possible with four tie bars.

As the world's largest injection moulding machine, the ENGEL duo 12000 US enables the cost-efficient production of large-format injection-moulded parts in previously unattained dimensions, thereby creating the basis for new product concepts with reduced assembly effort and an improved CO₂ footprint



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The dimensions of the system illustrate the technical challenge: with a length of around 24 metres and a height of approximately 8.4 metres, it is among the largest industrial production systems in injection moulding worldwide. The total weight is 551 tonnes, the maximum mould weight 170 tonnes. In total, around 30 kilometres of cables were installed. The total installed power is approximately 2.4 MW with a total current of 2,900 A. Despite these dimensions, the machine remains compact thanks to the modular design principle of the duo series, thereby saving valuable floor space.

High vertical integration and comprehensive process expertise

Injection moulding solutions of this scale are developed exclusively on the basis of specific customer requirements. To realise these quickly and efficiently, ENGEL has an extensive modular system and an exceptionally high level of in-house manufacturing depth.

The in-house large machine technical centre enables customers to carry out extensive tests for technology and part development. Especially for large-volume components, shrinkage behaviour plays a decisive role. In this technical centre, ENGEL has the capabilities to carry out iterations and optimisations in order to ensure the required part quality.

Many years of experience in the construction of large machines

ENGEL has decades of experience in the development and realisation of large machines. In addition to the standard sizes of the duo series, several systems with clamping forces of 74,400 kN have already been successfully installed in the market.

A specially developed machine concept enables systems of this scale to be designed and manufactured efficiently. Thanks to global production structures, such machines can, if required, be manufactured not only in the large machine plant in Austria but also regionally in Asia.

Despite their dimensions, the large machines are characterised by exceptional precision. Through options such as injection compression moulding, the component dimensions can be defined with an accuracy of a few hundredths of a millimetre, a level of precision comparable to the thickness of a sheet of paper. This sensitivity, in combination with enormous force, opens up new possibilities in precision lightweight construction and in the functional integration of large-format components.

Gigamoulding enables new vehicle architectures

In the automotive sector, demand for such gigamoulding solutions for large structural components is increasing. Megatrends such as electromobility, autonomous driving, platform consolidation and CO₂ reduction targets are driving this development. Applications such as

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battery housings, underbody panels or hybrid inner door structures can be rethought through the new production possibilities. The objective is to reduce the costs of components. These enable functional integration, weight reduction and reduced assembly complexity. At the same time, they can contribute to stiff and safe vehicle architectures, as required for autonomous mobility concepts.

New possibilities in technical injection moulding

Large machines also open up new application potential in the field of technical injection moulding. ENGEL has already successfully established machines with clamping forces of around 11,000 tonnes in the market, among others for logistics and infrastructure products.

These include transport containers for the disposal of e-mobility batteries, large-volume infiltration boxes for rainwater management as well as water tanks with mould areas of nearly six square metres and shot weights of up to 109 kg. Especially for large water tanks, plastics offer clear advantages over concrete: the components are easier to transport and install, require less infrastructure and respond more flexibly to ground movements, while concrete structures may tend to crack under

soil movement. At the same time, such systems support municipalities and companies in adapting to increasing heavy rainfall events and regulatory requirements for water storage. With the help of ENGEL large machines, these products can also be manufactured cost-effectively and in new dimensions.

Technology driver for sustainable large-scale structures

With the duo 12000 US, ENGEL reinforces its position as a technology leader in injection moulding. The system is not only a record-holder in terms of size, but also serves as a platform for new technologies, material substitution and highly integrated component concepts. It enables more sustainable product solutions in mobility, infrastructure and industry and demonstrates the potential of gigamoulding for the industrial production of large-format structures. At the same time, the machine does not mark the technical limit of what is possible. Based on its development and manufacturing expertise, ENGEL is capable of realising even larger systems if corresponding customer requirements arise. The company thus opens up additional opportunities for plastics processors to produce new component dimensions cost-effectively and to further expand their competitiveness.

The large mould space enables flexible automation and the efficient production of complex large-scale components in integrated production processes (Pictures: ENGEL)





Since 2025, the performance of Kern Microtechnik's high-precision five-axis milling centers has been shown in real-time in French-speaking Switzerland. More precisely – in the Kern technology center in Glovelier, which is operated by the contract manufacturer Next Factory

Kern technology center in French-speaking Switzerland

Test Cuts, Presentations and Training on Kern Micro HD

Kern Microtechnik GmbH, Eschenlohe, offers its customers in large parts of Europe the opportunity to experience the performance of its high-precision five-axis milling centers live. This is now also possible in French-speaking Switzerland – in Glovelier, where the contract manufacturer “Next Factory” is based. As a Kern partner, he opened a new technology center in 2025, centered around a Kern Micro HD.

The internationally renowned companies Swatch, Rolex and Richemont are based in French-speaking Switzerland. But other companies in the watch and luxury goods industry, from medical and mechanical engineering as well as aviation are also located there. They all require high-precision parts, which Kern Microtechnik's machining centers are specialized in manufacturing. To be able to explain the highly complex technical processes in its own language, the Eschenlohe-based machine manufacturer has decided to establish a technology center in French-speaking Switzerland.

Since mid-2025, companies involved in the production of high-precision components have had the opportunity to experience the five-axis Kern Micro HD high-precision center live in Glovelier (canton of Jura) and to have

test cuts of their own parts. This is made possible by the contract manufacturer and service provider for process development “Next Factory” with its new Kern technology center.

(Pictures: Kern Microtechnik / Next Factory)



With the Kern Micro HD, NextFactory is able to mill highly complex components – such as the titanium watch case back with engraved decoration shown in the picture (left), or the cutting punch in hardened steel (right)

Precision and process reliability redefined

In the high-precision world of mechanical engineering and tool reconditioning, every detail matters. For Fraisa GmbH, a leading provider in the field of cutting tools, defined edges and absolute process reliability are critical to success. To further secure their already established quality standards while simultaneously increasing efficiency and the level of automation, Fraisa sought a solution to specifically optimize their existing processes. They found the answer in OTEC's Mass Finishing Technology. This collaboration demonstrates how remarkable results can be achieved through customized adaptations and technological excellence.



SF-DC-78 1/1
PLS in Fraisa
production

SF-DC-78 1/1
PLS
Automated
processing of
milling cutters

The Challenge

Long setup times and process optimization potential

Before partnering with OTEC, Fraisa faced specific challenges in surface finishing. The company, based in Willich and specializing in the ReTool process and the reconditioning

of milling tools, was using a DF 4 Tools machine. While this system was already delivering reliable performance and good results, there was room for further optimization. The focus was primarily on reducing setup times and achieving longer autonomous operation through a higher degree of automation. In a market where precision and efficiency are key factors for competitiveness, it was essential to further develop these aspects. Yves Krause, Team Leader of Process Technology at Fraisa, and his team sought a solution that was technologically advanced and could seamlessly integrate into their existing workflows. The goal was to establish a method that ensured consistently high quality while reducing time and cost efforts.



The Solution

Fraisa has been utilizing OTEC technology for around 25 years. The most recent implementation in early 2025, an SF-DC-78 1/1 PLS, marks another milestone in this long-standing and successful partnership. This machine was specifically selected and tailored to meet Fraisa’s demanding requirements. The integration of the OTEC solution into the existing process was carried out step by step in close coordination between Fraisa and OTEC. Crucial to the success was OTEC’s willingness to accommodate customer-specific requests and tailor the machine precisely to the user’s challenges. This flexibility, combined with quick response times and open communication, was a key aspect that Fraisa particularly values. OTEC delivered not just a machine but a holistic solution approach designed to address the specific challenges of tool reconditioning.

The introduction of the OTEC SF-DC-78 1/1 PLS led to immediate and measurable improvements at Fraisa. The results speak for themselves and highlight the effectiveness of mass finishing technology.

• **Increased Process Reliability**

Fraisa was able to further enhance process reliability. The defined edge conditioning was standardized and developed into an even more stable and repeatable process. This ensures consistently high quality for the reconditioned milling tools.

• **Reduced Setup and Processing Times**

The previously time-intensive setup pro-

cesses were significantly reduced with the new system. Thanks to the minimal setup requirements of the OTEC machine, Fraisa was able to optimize auxiliary times. Combined with faster processing times, this resulted in a noticeable increase in overall efficiency.

• **High Flexibility in Application**

The new system offers Fraisa high flexibility to quickly adapt to different tool types and processing requirements. This is a decisive advantage in a dynamic market environment.

A Partnership for the future

The success story of Fraisa and OTEC is an impressive example of how technological innovation and a customer-focused approach can lead to outstanding results. Fraisa not only overcame its initial challenges but also consistently advanced its processes, particularly in terms of efficiency and automation. When asked whether he would recommend OTEC, Yves Krause, Head of Process Technology at Fraisa, responded with a resounding „Yes, 100%.“ His reasoning highlights OTEC’s strengths: „They manage to act in a timely, technologically advanced, and user-oriented manner.“

This strong endorsement underscores OTEC’s commitment to not just delivering machines but acting as a true partner, understanding their customers’ processes and improving them sustainably. The collaboration with Fraisa demonstrates that the right surface finishing technology can be a decisive lever for greater productivity and quality in mechanical engineering.

(Pictures: OTEC Präzisionsfinish GmbH)



formnext

International exhibition and convention
on the next generation of
manufacturing technologies
Frankfurt am Main, 17.–20.11.2026

Formnext 2025
(Picture:
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Mesago Messe
Frankfurt,
Marc Jacquemin)



Formnext 2026 starts with tailwinds: A strong commitment from the global AM Industry

Following last year’s 10-year anniversary and record visitor numbers, the outlook for Formnext 2026 at this stage of the year already looks bright. As of the beginning of March 2026, 527 companies from 34 countries had already registered as exhibitors for the world’s leading trade show for Additive Manufacturing (AM) and the next generation of modern production. These include the well-known heavyweights among the leading international AM companies as well as a wide range of start-up, specialized, and more experienced solution providers along the entire additive process chain.

An impressive 64.5 percent of the exhibitors registered to date hail from outside of Germany, with significant representation from the United Kingdom, China, France, Italy, Spain and the USA. According to Sascha F. Wenzler, Vice President for Formnext at event organizer Mesago Messe Frankfurt, “Despite an increasingly complex general economic climate, the world of AM continues to grow and still offers future-oriented business opportunities for stakeholders along the entire process chain.”

Leading international system manufacturers, such as 3D Systems, AMCM, Atlix (formerly

Trumpf Additive Manufacturing), BigRep, BLT, Carbon, Colibrium Additive, DMG Mori, DyeMansion, EOS, ExOne (with VoxelJet), Farsoon, Formlabs, HBD, HP, Lithoz, Meltio, Nikon, Renishaw, Ricoh, Siemens, Sisma, Stratasys, and XJet, for example, will all be attending Formnext in 2026 to present their innovations to international industry professionals. Global material sales for Additive Manufacturing also continue to rise each year, reflecting the ever-growing use of Additive Manufacturing in diverse user industries. This trend benefits specialized AM material suppliers, such as DWS, Headmade Materials, Höganäs, m4p,

Metalpine, and Polymaker, as well as international groups, such as Evonik, Linde, Sandvik, VDM Metals, and many more companies that will also be exhibiting at Formnext 2026. Service providers are another important growth driver in the AM sector. These are playing an increasingly important role, particularly for smaller companies wishing to harness the advantages of Additive Manufacturing, but for which the low volumes and high certification costs preclude an investment in their own systems. This trend will also be reflected at Formnext 2026 with specialized AM service providers, such as 3D-WERK Black Forest, 3Faktur, Alphacam, FITAG, FKM Sintertechnik, Materialise, Toolcraft and more all in attendance, as well as industrial companies, such as KraussMaffei, KSB and Oerlikon, which also offer their AM expertise to external users. In addition, globally leading manufacturers of desktop 3D printers such as Bambu Lab, Creality, and Prusa will showcase their latest innovations, which are increasingly being used in industrial companies, SMEs, and print farms. The 'prosumer' segment continues to gain importance, as it helps many users take their first steps into professional Additive Manufacturing and facilitates the transition to large-format, complex production solutions. The versatility of the AM world is also underlined by the many new exhibitors from 21 different countries that have already registered, including start-ups, corporations, and associations. The services represented range from automation, software, design, and new production technologies to post-processing, cleaning, and quality assurance. There are also several service providers among the new exhibitors. "The variety of new exhibitors underscores the dynamic of the entire AM sector," explains Petra Haarburger, President Mesago Messe Frankfurt. "It illustrates the relevance of a leading international trade show like Formnext in helping these often recently established companies to network, gain maximum visibility, and successfully gain a foothold in the industry."

This year, Formnext is supporting the continued growth of the AM industry by focusing on specific user industries such as automotive, mobility and transportation, construction and architecture and energy, oil and gas. "Additive Manufacturing has become an integral part of all these user industries. As part of the production and, in many cases, optimization of functional components, it is helping to make spare parts logistics and supply chain

management more efficient and also improves customer service," explains Christoph Stüker, Vice President of Formnext at Mesago Messe Frankfurt. "Because Additive Manufacturing is often complex, it usually requires the right solutions for the entire manufacturing process, including design, materials, AM manufacturing and post-processing. As the leading platform for Additive Manufacturing, Formnext provides a unique insight into these very solutions."

This year's partner country, the UK, will play an important role both in the exhibition with a host of innovative AM companies and the program of supporting events.

Outlook for Formnext 2026 (as at the beginning of March 2026):

- 17–20 November 2026 in Frankfurt am Main, Germany
- 527 registered exhibitors from 34 countries
- Percentage of exhibitors from outside Germany: 64.5%
- Strong interest from global AM industry
- New exhibitors from 21 countries offering innovations along the entire AM process chain

These figures demonstrate that Formnext 2026 will once again be the key international venue for inspiring new technological innovations, growing partnerships, and shaping the industrial future of the AM industry.

To learn more and register, visit:
formnext.com/exhibitors

Impression 2025
(Picture:
© Mesago /
Mathias Kutt)



High-end closures for luxury brands: Novassu trusts KraussMaffei

Sandwich injection molding with 30% recycled material increases sustainability and design freedom

French closure specialist Novassu manufactures premium closures for brands such as Chanel and Estée Lauder on a CXZ 250/1000-750 Multinject from KraussMaffei. The machine combines 2K sandwich and index plate technologies, enables recycled layers and ensures consistent quality with APCplus. The result is crystal-clear, sustainable closures with 30% recycled content – efficient, flexible, and highly precise.



Looking ahead to exciting new projects:
Hervé Dumurgier (Head of Sales, KraussMaffei Group France)
and Gérald Paris (Managing Director, Novassu)

Chanel, Givenchy, Estée Lauder, and Coty – Novassu manufactures all types of closures for the cosmetic lines of luxury brands. The company relies on the CXZ 250/1000-750 Multinject from KraussMaffei for production, which combines 2K sandwich and index plate technologies. The machine has a sandwich plate that offers the possibility to inject a layer of recycling material inside

skin material. It is also a flexible solution that allows easy switching between sandwich and standard 2K processes, as well as the use of monomaterial. The index plate allows the cavities to be rotated for overmolding and multilayer processes – a key feature that prompted Novassu to choose KraussMaffei injection molding machines.

Higher recycled content and greater design freedom

The current project uses sandwich injection molding: recycled material on the inside, new material on the outside. Novassu developed the crystal-clear cube cap itself and, in addition to contract manufacturing, also relies on its own design. The 2K closure contains 30% recycled material. Thanks to the machine's preparation for a third component, other creative effects, such as marbling through multicolor injection, are also conceivable.

At its site in Molinges, Novassu operates around 20 KraussMaffei machines from the

Managing Director Gérald Paris emphasizes: “We only invest in machines that offer us maximum flexibility – no off-the-shelf. Our business is continuously evolving, and we need a strategic partner who can also bring in experience from other industries.”

Precision and flexibility in one machine –
The new CXZ 250/1000-750 Multinject enables 2K
sandwich molding and index plate technology



CX and PX series (500-4,000 kN). 60 employees use these machines to produce components ranging from 10 to 100 millimeters in size. In addition to pure injection molding, Novassu also offers various finishing steps such as hot stamping.

Change from ionomer to classic thermoplastics

The raw material is crucial for cosmetic products: it must be FDA-certified, which makes the use of recycled materials challenging. Materials such as PET from beverage bottles, however, benefit from good recycling systems. Therefore, it makes sense to use them for parts that do not come into direct contact with perfume or cream.

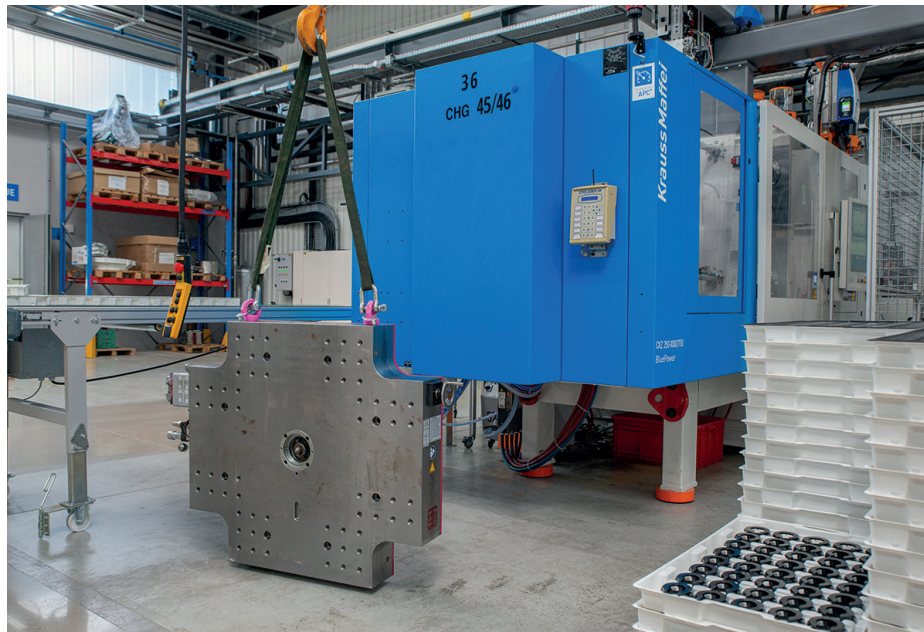
Novassu is currently shifting from ionomer to classic thermoplastics. Ionomer can only be recycled chemically, whereas mechanically recycling is possible with PET that is hardly contaminated. This change in material also opens up the possibility of using KraussMaffei's all electric PX machines. Since 2019 all machines have been equipped with the APCplus function, which automatically adjusts the switchover point and holding pressure according to the melt viscosity, ensuring a constant shot weight – particularly beneficial for recyclates, which often come in batches with varying properties.

“With APCplus, we’ve significantly reduced scrap and improved our product quality. This is a clear benefit also in terms of cost-efficiency“, adds Gérald Paris, Managing Director of Novassu.

Built for growth

Novassu plans to expand with additional injection molding machines in their new 3,000 m² hall and also wants to continue growing technologically. This is another area where the advantages of the partnership with KraussMaffei play a key role: the proven processes open up new design possibilities for Novassu and thus further areas of growth.

From Chanel to Givenchy – Novassu creates premium closures for the world’s leading luxury cosmetic brands (Pictures: KraussMaffei)



The CXZ 250/1000-750 Multinject features a sandwich platen, allowing recycled material to be injected as a core layer within skin material



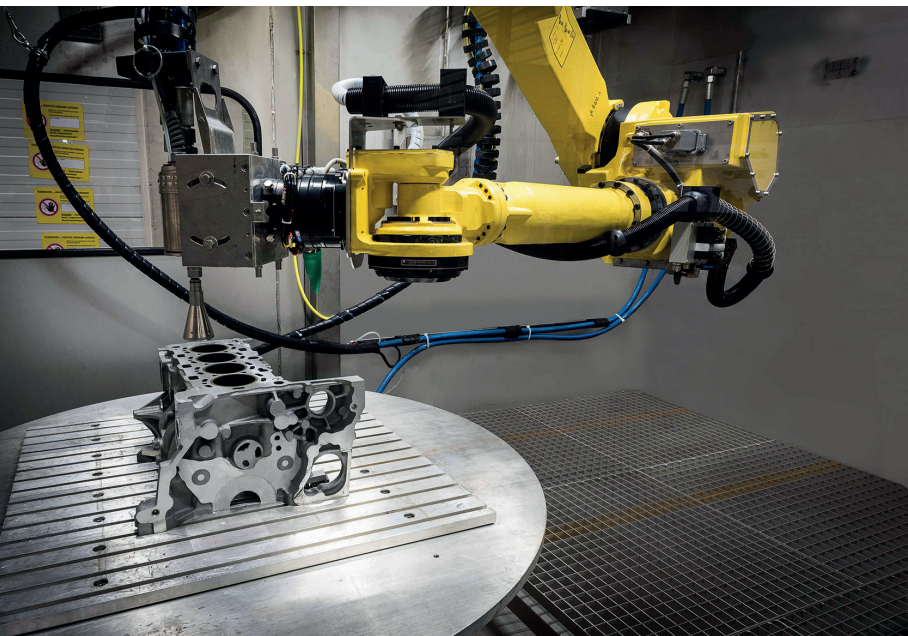
Leading cosmetics brands such as Chanel, Givenchy, and Estée Lauder rely on Novassu's expertise



High-pressure water-jet deburring for reliable processes and clean components

How defined deburring points, technical cleanliness and automated process chains can be combined within one system concept

Where components must be deburred reliably and leave the process with the required level of technical cleanliness at the same time, the right process design determines quality, cost-effectiveness and process reliability. For such requirements, BvL Oberflächentechnik offers water-based cleaning solutions in which high-pressure water-jet technology is used as part of a holistic system concept. This article shows what matters in practice when it comes to high-pressure water-jet deburring and how application-specific process solutions can be derived from it.



Robot-assisted high-pressure water-jet deburring for the targeted deburring and cleaning of complex components with bores, channels and functional areas

From burrs to quality: why deburring matters

After machining processes such as drilling, milling or turning, burrs often remain on components. What may initially appear to be only a minor material projection can lead to significant technical and economic consequences later in the process. But what exactly is a burr, how is it created and why is it undesirable? A burr is a body formed on the surface of a workpiece that protrudes beyond the workpiece

surface and impairs its function. It is caused by the interaction between tool and material during machining, with the result that material is not cleanly separated from the workpiece, but instead displaced, bent or left behind.

The causes are varied: process parameters, material behavior, tool geometry, cooling lubricant conditions, tool path and, not least, tool wear all have a direct influence on burr formation. In many processes, burr formation can be minimized, but not completely eliminated. That is precisely why burr formation is a systemic by-product of many machining operations and why deburring is a key quality factor.

Burrs can severely impair the function and safe handling of a workpiece: sharp burrs

Using water as the process medium, resource-saving and economical cleaning solutions can be implemented in closed water circuits



increase the risk of injury for operators, reduce fit accuracy, interfere with sealing surfaces, impair guides and bearing seats, and may break off and clog valves, channels or bores as chips. This is particularly critical for precision components such as hydraulic parts, battery trays, gearbox housings or cylinder-head components. Deburring is therefore not a cosmetic finishing step, but a production-critical process step. Accordingly, the range of available methods is broad. In addition to manual deburring using hand tools,



industry also uses brushing and grinding methods, vibratory finishing, thermal deburring, electrochemical deburring and high-pressure water-jet deburring. This article focuses on high-pressure water-jet deburring because it combines deburring and cleaning in a single process step and demonstrates its strengths particularly well in complex geometries, at defined deburring points and wherever high cleanliness requirements apply. Wherever burrs must be removed reliably and chips and adhering contaminants must also be flushed out of bores, channels and functional areas, this process offers particular advantages.

Why high-pressure water-jet deburring is convincing in many applications

High-pressure water-jet deburring uses the kinetic energy of a precisely guided water jet to break off burrs at defined points while also removing chips and adhering contamination. The technical basis for deburring with a high-pressure water jet always includes a high-pressure unit to generate pressure, a high-pressure tool or nozzle system to shape the jet, and a handling system to create the relative movement between component and nozzle.

The operating pressure demonstrates the wide range of the process. In many cases, pressures between 300 and 800 bar are used. However, there is no standard pressure; instead, the process is designed specifically to suit the component, material, burr and cleanliness target. Pressures may start as low as 100 bar and reach up to 3,000 bar in special systems. The process is also suitable for a broad range of materials. Typical materials

include steel, aluminum, cast parts and forged parts. What matters is not the material alone, but the combination of material, burr root, accessibility and required cycle time.

In addition to deburring, high-pressure water-jet technology is also suitable for paint stripping and for removing stubborn residues. Wherever the substrate must be protected while defined layers or contamination are removed reliably, water-jet technology plays to its strengths. In railway maintenance, for example, paint can be removed from wheelsets using high-pressure water-jet technology in preparation for crack testing, without the risk that existing cracks will be concealed by abrasive blasting methods used for paint removal before crack inspection.

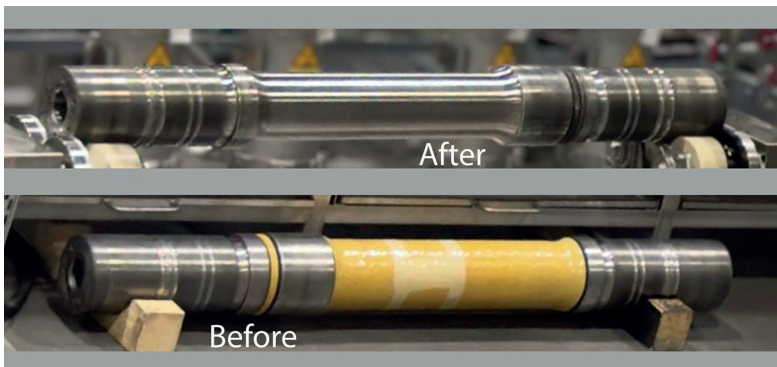
Where the process excels and what matters in practice

In addition to protecting the material, high-pressure water-jet deburring is especially attractive for complex geometries. Lance systems with rotating nozzles are used for bores and channels. For defined locations, robot-controlled systems can guide the component precisely to the nozzle – or the nozzle to the component. This is a key advantage in practice: deep bores, blind holes and undercuts are often difficult to access, but can be reached much more effectively with water-jet technology.

Compared with thermal or chemical deburring methods, the process works without significant heat input and without aggressive media. This avoids distortion and chemical residues. In contrast to mechanical deburring or brush deburring, there is also no direct

Holistic system concept: deburring, pre-cleaning and final cleaning, filtration, drying and automation are optimally coordinated both technically and economically

Precise paint stripping of a wheelset axle in the railway sector with consistently high quality using high-pressure water-jet technology



contact between the deburring tool and the component. This protects the component and reduces tool wear, even though pumps, nozzles and filtration naturally remain maintenance-relevant.

A major economic advantage is the combination of deburring and cleaning. The water jet not only removes the burr itself, but also detaches chips, dust, coolant residues and other contamination from the component surface and from inside the component. Depending on the cleanliness requirements, either no additional cleaning is needed after deburring or only a final cleaning stage is required.

Another strong argument in favor of high-pressure water-jet deburring is its environmental performance. Water as a medium is fundamentally environmentally friendly and can be recirculated effectively in many applications. Where process water is operated in a closed loop, this creates real potential for greater resource efficiency and lower costs.

To ensure that the advantages of the process can be used reliably over the long term, filtra-

tion plays a central role. High-pressure units in particular are highly sensitive to particles in the process water. For precisely this reason, a carefully designed multi-stage filtration and water-treatment concept is not an accessory, but an integral part of reliable high-pressure deburring.

As powerful as high-pressure water-jet deburring is, the decisive factor for process success is always the right process design. Not every burr profile can be handled optimally with high pressure alone. That is exactly why an application-specific system concept is essential, one in which deburring, cleaning, filtration, drying and automation are meaningfully coordinated. The process shows its particular strengths wherever complex geometries, high cleanliness requirements, automation capability, as well as resource conservation and environmental sustainability are all required together.

BvL as a system partner for integrated deburring and cleaning solutions

This is exactly where BvL Oberflächentechnik GmbH positions itself: at the interface between deburring, cleaning and automation. As a family-run system partner for water-based industrial cleaning and paint-stripping systems, BvL does not develop isolated individual processes, but holistic system concepts. Depending on the component, burr profile, material, cleanliness requirements and cycle time, these range from pre-cleaning and high-pressure water-jet deburring through to final cleaning, filtration, drying, cooling and automation. The result is integrated process solutions in which deburring, cleaning and handling are coordinated in an optimal technical and economic way.

For high-pressure water-jet deburring, BvL offers the Geyser product line. This platform is designed for deburring and cleaning and can also be configured for paint stripping if required. It combines variable pressure ranges, robot systems for maximum flexibility, interchangeable water tools, and upstream and downstream cleaning processes. At the Technical Center in Emsbüren, different cleaning, drying and deburring systems can be tested using original components in order to design the system type, process, automation and drying specifically for the application.

More information:

<https://www.bvl-cleaning.com/de/reinigungsanlagen/geyser>

(Pictures:
BvL Oberflächen-
technik GmbH)

New setting fixture for fine boring tools with large diameters

With the UNISET-V basic plus, MAPAL is filling the gap between simple mechanical and expensive CNC setting fixtures. The new tool setting fixture combines precision, robustness and practicality especially for large fine boring tools and is available in spring 2026.

At EMO 2025, MAPAL presented a manual setting fixture tailored to the specific needs of small and medium-sized enterprises in the form of the new UNISET-V basic plus. This fills a crucial gap between simple mechanical setting solutions and CNC systems while continuing to guarantee full precision and high stability.

The device from MAPAL's UNISET range was designed as a response to demand from the automotive industry. In the electromobility industry in particular, large, heavy tools are often used to machine components like stator housings. These tools require extremely sensitive setting for high-precision fine machining.

However, in some cases users do not have the suitable setting technology and cannot achieve the potential precision on the tool side. Existing solutions such as the MASTERSSET from MAPAL soon reach their limits when working with tools with large dimensions (from 200 mm). At the same time, CNC setting fixtures are not cost-efficient for many small and medium-sized enterprises. Consequently, in the UNISET-V basic plus, MAPAL has developed a new device that offers impressive cost-effectiveness and functionality.

Robust design for precise setting of tools with guide pad technology

The UNISET-V basic plus is designed for setting tools with a diameter of 100 to 400 mm, a maximum measuring length of 750 mm and with spindle connections HSK63, HSK100 and SK50. Tool weights of up to 45 kg are possible. Using reducing adapters, HSK32 to HSK80 can also be mounted. As the UNISET-V basic plus housing is based on a stable welded design, high mechanical stability is guaranteed. This is a key advantage in production environments.

As a stationary bench-top device with a height of 1.3 metres and a weight of 179 kg, the UNISET-V basic plus does not necessarily need to be placed in a setting room. It can be set up anywhere it is needed on a stable surface. For instance, it can be placed next to the machine where the tools being set are applied.

The UNISET-V basic plus enables micrometre-precise setting of cutting edge overhang and back taper for reaming and fine boring tools. It is operated using a two-button principle, where the cutting edge is set via a guide pad.

The UNISET-V basic plus is primarily targeted at small and medium-sized companies that have previously done without precise setting technology. However, the UNISET-V basic plus is also the right choice for larger companies seeking process reliability and high precision when setting tools with large diameters and high weights.



The UNISET-V basic plus can be placed anywhere on a stable surface. With the new development, MAPAL is filling the gap between simple mechanical and CNC setting fixtures

The UNISET-V basic plus is ideal for ultra-precise setting of guide pad tools with a diameter of 100 to 400 mm and a maximum measuring length of 750 mm (Pictures: ©MAPAL)



WiAssist app from WITTMANN now with plasticizing module

Optimal machine setting within one minute

An over- or undersized screw may impair both processing efficiency and parts quality. Therefore, the WITTMANN Group has upgraded the WiAssist app by adding a new module. This module calculates the material's dwell time inside the plasticizing unit, thus simplifying the selection of the screw size.



The right choice of plasticizing unit is vital for both efficiency and quality standards. By calculating the dwell time, the WiAssist app from WITTMANN simplifies this process

WiAssist supports injection molders in selecting and setting up their injection molding machines. As an app, the digital assistant is always available at hand via smartphone and saves users from laborious calculations.

Screw within the optimal range

The essential feature is the material database contained in the app. After the material, shot weight and cycle time have been entered, the app calculates in a few seconds the relevant process parameters, such as cooling time, internal mold pressure, injection pressure, screw speed and – as a new feature – also the melt's dwell time inside the plasticizing unit. This additional function makes it possible to select the optimally suited injection molding machine for a given mold in less than one minute – for instance where injection molding machines with different screw sizes are available in a large machine fleet.

The new screw module can be used for

3-zone screws from the WITTMANN Group. Here, the app calculates the optimal dwell time and gives recommendations for the appropriate screw diameter and metering stroke as well. A clear graphic display shows which values are within the optimal range, which ones are only partly suitable and which ones are not at all suitable.

Careful selection of the plasticizing unit is vital, because the screw has an immediate effect on parts quality and processing efficiency. If the screw diameter is too small, this shortens the dwell time, and the material is melted insufficiently. But if the screw is dimensioned too large, this lengthens the dwell time, with the possible result of thermal damage to the material and faulty parts as a consequence.

Troubleshooting included

The WiAssist app offers a total of five functions:

- Querying material properties
- Assistance with the selection and setting of injection molding machines
- Calculation of process parameters
- Troubleshooting
- Direct contact with WITTMANN

The troubleshooting module includes an extensive database with frequent injection molding faults, possible causes and problem-solving suggestions.

Via the contact button, users can either send an email to WITTMANN or contact the service hotline directly by telephone.

This makes the WiAssist app a valuable assistant for all machine setters and process optimizers who work with injection molding machines from the WITTMANN Group.

(Picture: WITTMANN)

Email is a thing of the past: Meusburger optimises the ordering process in the portal

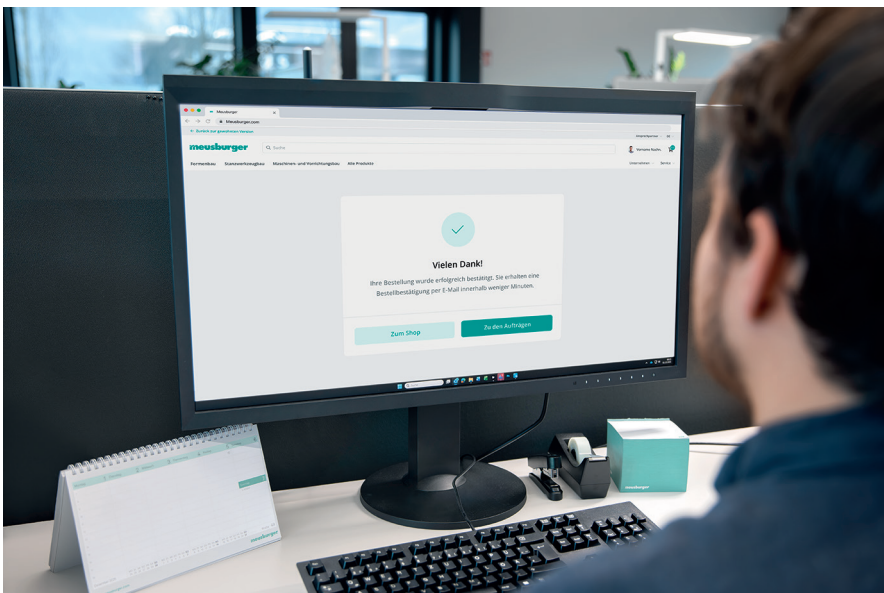
With its portal, Meusburger offers a fast, centralised and transparent solution for mould and die procurement. The leading manufacturer of high-precision standard parts makes it possible for customers to simplify the ordering process: they can order online, configure customised solutions and keep track of their orders at all times. This time saved in the ordering process accelerates the entire value chain and so guarantees customers shorter lead times for their projects.

The Meusburger portal drastically simplifies the ordering process. Instead of putting together long emails, customers can add items to the shopping cart in seconds by importing Excel files. This reduces the room for error and saves valuable time. Additionally, the portal offers the option of saving parts lists for specific projects. Time-consuming searching through old email attachments is therefore no longer necessary. Ordering an already received offer or requesting a new offer is also possible with just a few clicks. A particular highlight in the portal are the wizards and configurators, such as the plate configurator. These guide the user in just a few steps

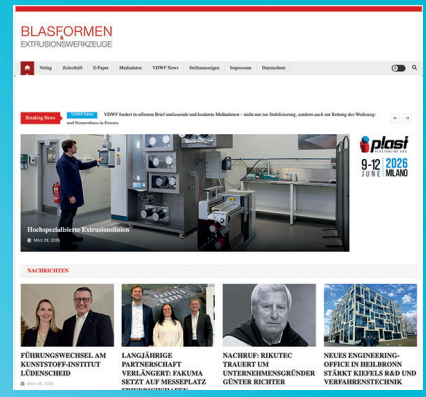
to the exact plate required. All the necessary options and dimensions can be configured immediately.

The Meusburger portal impresses with its clarity and transparency:

- » Complete price transparency: After logging in, the customer can see the net prices of all products at a glance.
- » Rapid document creation: Customer receipts are available just a few minutes after the order is placed.
- » An overview of everything with 'My account': Customers can check their order status, track deliveries and easily arrange returns at any time.
- » Personal contact: The details for the account holder's personal contact are stored directly in their account.
- » Mobile-friendly: Thanks to its responsive design, the portal is ideal for use directly in the workshop via a mobile device.
- » Easy handling: Meusburger offers explainer videos that clearly show how customers can import items from an Excel file, add entire parts lists or request a quote: www.meusburger.com/portal-ordering



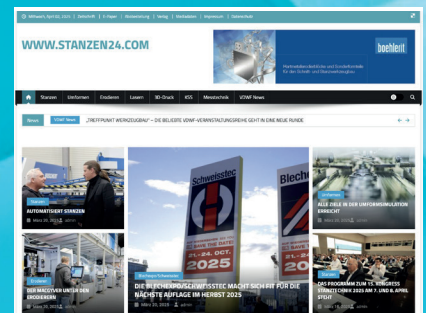
With its portal, Meusburger offers a fast, centralised and transparent solution for mould and die procurement (Picture: Meusburger)



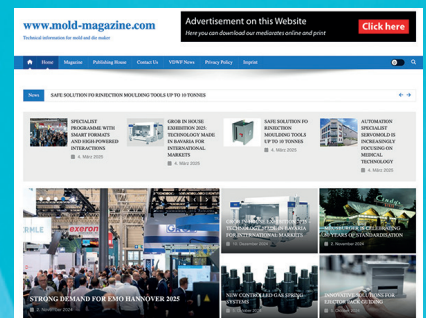
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100 years of GROB: From a Munich workshop to a global innovation leader



Ernst Grob

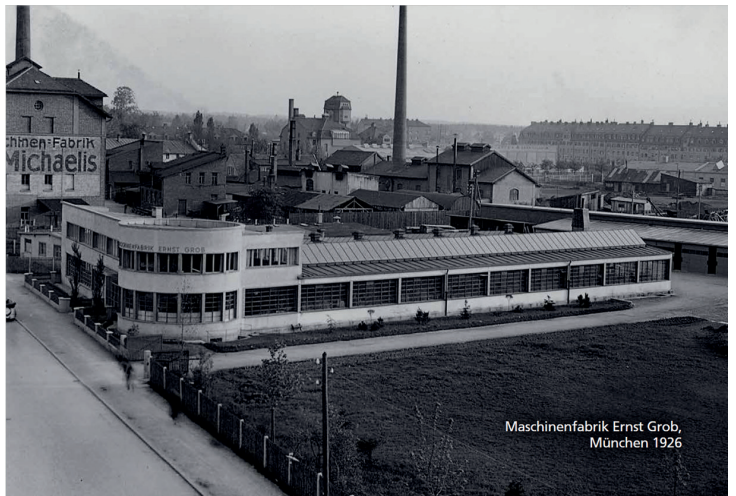
What began in 1926 as a small tool and machine factory in Munich is now a global company with production sites on three continents, subsidiaries around the world, more than 9,000 employees worldwide, and a clear vision for the industry of tomorrow: GROB celebrates 100 years of company history.

Early innovation: Precision as a foundation

The young company's technological aspirations were already evident in its early years. In 1933, GROB developed its first thread milling machine – a milestone that marked its entry into machine tool manufacturing. Just a few years later, another breakthrough followed with the development of its own process for chipless metal forming. The resulting thread rolling machines were ahead of their time: efficient, gentle on materials, and highly precise. This early ability to rethink processes became a recurring theme in the company's history.

Special-purpose machines and transfer technology: custom work for large-scale production

With Burkhart Grob taking over responsibility in 1952, the second generation began a phase of



Maschinenfabrik Ernst Grob,
München 1926

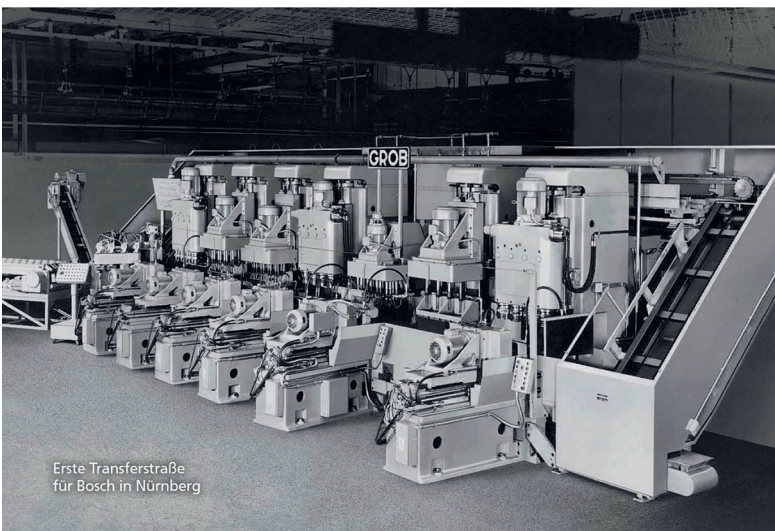
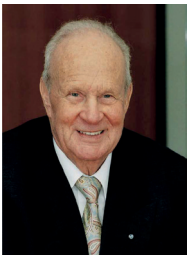
consistent technical specialization. The focus was on special machine tools for large-scale production – highly economical, robust, and precisely tailored to customer processes. In the 1960s and 1970s, GROB set standards in transfer machine construction. Multi-way and multi-station machines and flexible transfer strokes enabled unprecedented productivity for the first time. In 1970, three years after the site opened, the first completely independently developed transfer line was realized in Mindelheim – a clear commitment to the company's own engineering expertise.

The step towards the universal machine: flexibility as a principle for success

With the technological changes of the 1990s, GROB recognized early on the growing need for flexible manufacturing solutions. The introduction of highly dynamic machining centers with a compact design and, later, the use of linear motor drives marked the transition from rigid lines to modular concepts.

In 1998, GROB presented the BZ 600L, one of the first machining centers with linear motors – a decisive step toward high-speed machin-

Burkhart Grob



Erste Transferstraße
für Boshch in Nürnberg

ing. Another milestone followed in 2004 with the market launch of the modular G-series. The idea: a consistent machine concept that combines maximum flexibility, high precision, and industrial robustness. The response was enormous – within a few years, several thousand machines were installed worldwide.

CSO Christian Müller sums up the principle that GROB still lives by today: *“The best machine is the one that adapts to the customer – not the other way around.”*

Automation, digitalization, and Industry 4.0

Parallel to mechanical innovation, GROB is pushing ahead with the integration of automation and digitalization at an early stage. Flexible manufacturing systems, interlinked production solutions, and proprietary automation components are systematically refined. The GROB-NET4Industry production control system creates a proprietary Industry 4.0 platform that intelligently networks machines, processes, and data. Automation solutions such as pallet rotary and pallet linear storage systems, robot cells, and driverless transport systems are increasingly making GROB a full-range supplier.

Christian Müller explains: *“Our machines think for themselves today – but they always make decisions in the interests of the operators.”*

Electromobility: From machine manufacturer to system provider

A particularly formative chapter in recent history began in 2016 with the strategic entry into electromobility. GROB expanded its portfolio far beyond classic machine tools and developed complete plant and system solutions for electric motors, battery cells, battery modules, and fuel cells.

Hairpin technology, needle winding, stator and rotor production, battery cell assembly, and cell-to-pack technology make GROB one of the leading suppliers for industrial e-mobility production.

CEO German Wankmiller emphasizes: *“We don't just build machines – we create production systems for the mobility of tomorrow.”*



Additive manufacturing and new technologies

With the development of the GMP300 liquid metal printing machine, GROB is opening up another field of innovation. Additive manufacturing complements conventional machi-





ning and series production – especially for functional components, prototypes, and new materials. GROB remains true to its philosophy: new technologies are only brought to market when they are suitable for industrial use, economical, and process-reliable.

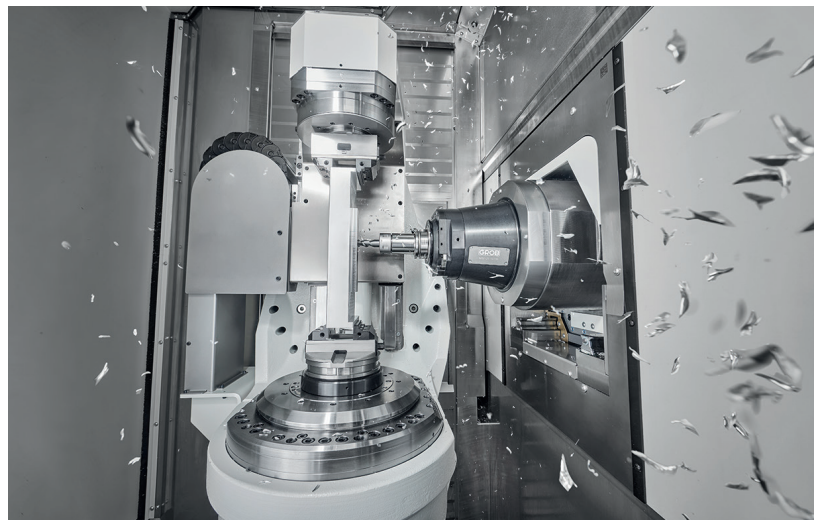
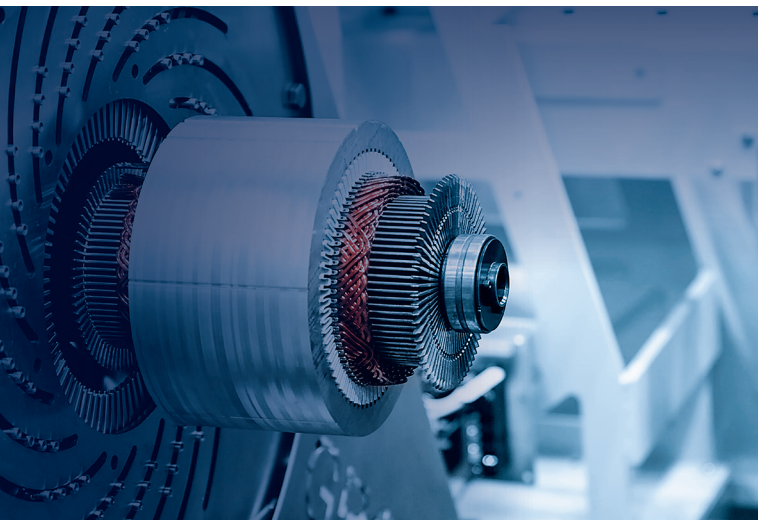
German Wankmiller sums it up aptly: “What we build is more than technology – it is trust in our own engineering skills.”

Technology with purpose

Despite all the high-tech solutions, people remain at the heart of GROB. Training, in-house vertical integration, and engineering expertise are conscious decisions. They ensure not only quality, but also independence and innovation, even today.

Burkhard Grob put it aptly during his lifetime: “My greatest experience, which shaped my entire life, was my father’s relationship with his employees. It was characterized by a deep sense of responsibility towards them. He was not only the boss, but always had an open ear for them, combined with a broad understanding of their problems and needs. His way of dealing with them ultimately led to the success of the company and the well-being of the employees.”

This philosophy is deeply rooted in GROB’s history as a family-owned company. The company has been family-owned since its founding in 1926 – and since 2016, Christian Grob has been at the helm as the third generation. At the same time, the fourth generation, represented by Florian Grob, is already actively involved in the company and is being prepared step by





General management

step for its future responsibilities. This means that GROB is already well positioned for the future. What has been passed down over decades is more than just responsibility for technology and markets: it is a deeply rooted understanding that entrepreneurial success is inextricably linked to responsibility for people.

Supervisory Board Chairman Christian Grob puts it this way:
“Running a family business means thinking in terms of generations – making decisions that are not only right today, but will also stand the test of time tomorrow. Responsibility does not end at the factory gate, it begins there.”

Internationalization as a consistent path to growth

Parallel to its technological development, GROB systematically expanded its international presence. What began as the export of individual machines developed into a global production and service network. With subsidiaries, production sites, and technology centers in Europe, North and South America, and Asia, GROB has always strived to be close to its customers. Internationalization was never an end in itself, but rather an expression of customer proximity in practice: understanding local market requirements, responding quickly, and ensuring global quality standards. Today, GROB stands worldwide for reliable partnerships, intercultural competence, and the ability to roll out complex production solutions internationally – supported by the same precision and innovative strength that have characterized the company since 1926.

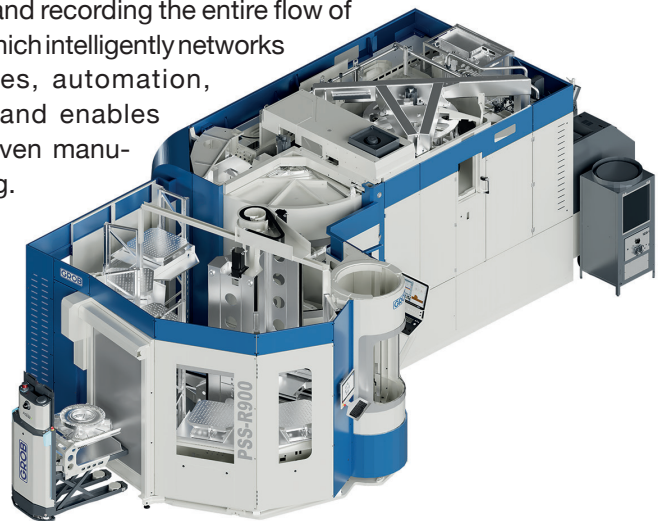
The anniversary year as a stage for technological milestones

GROB is deliberately using its anniversary year to look ahead to the future and underline its claim to be an innovation leader with several technological premieres:



- GP1350 5-axis portal milling machining center: Precise machining of even larger parts with maximum rigidity, dynamics, and process stability.
- GRC-M60 robot cell: Flexible, scalable automation solution for efficient machine utilization and future-proof production processes.
- MES/MOM system “GROB COSERA”: Powerful process control system for managing and recording the entire flow of parts, which intelligently networks machines, automation, and IT and enables data-driven manufacturing.

(Pictures: GROB-WERKE GmbH & Co. KG)



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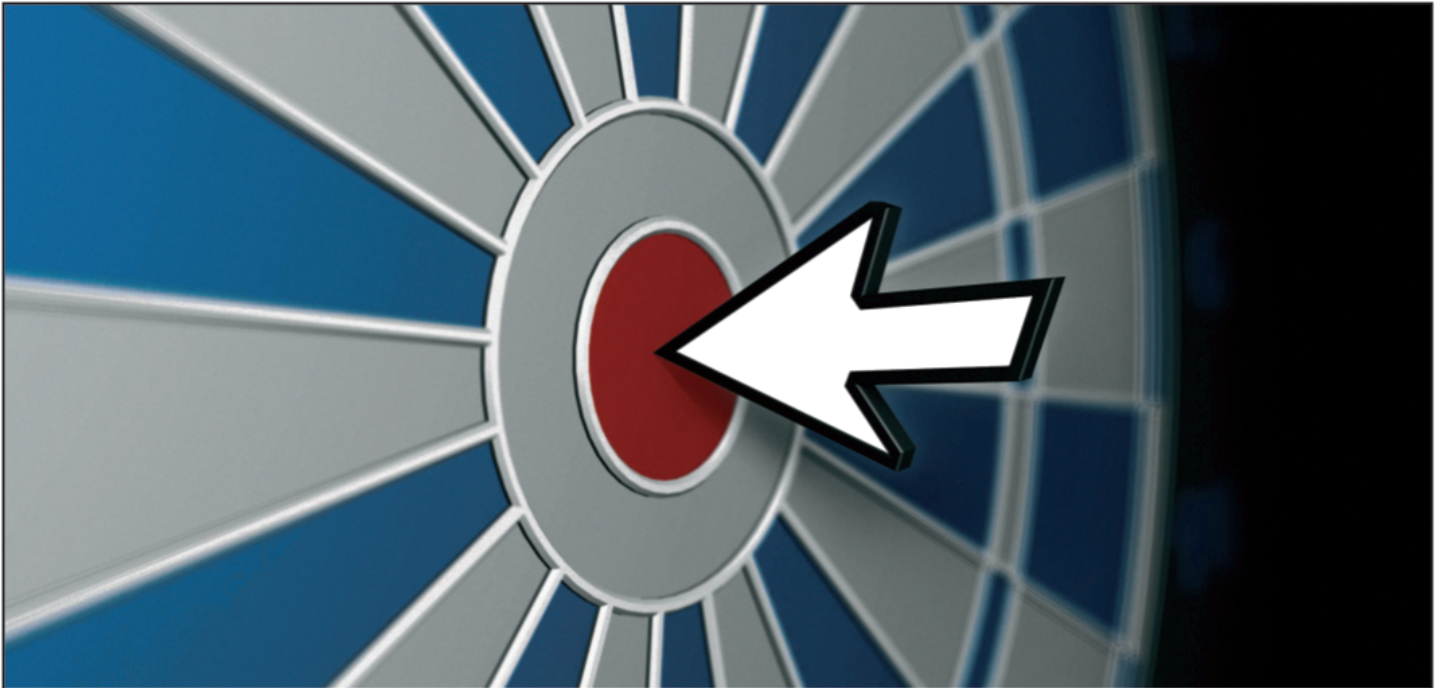
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