# High-performance components gaining ground

GROWING DEMAND IN THE HIGH-TECH SECTORS



#### The transformative effect of machines

Machines are changing the way people think and act

Strong together: Competence Centre Mechanical Engineering

HSTM production in Dörfles-Esbach as of 2025

LIGNA 2025 – A review Crowned with success





Foreword by Christian Rohmert.

## Pooling innovations – Mechanical Engineering Competence Centre

Dear customers, business partners and colleagues

The integration of two locations into a joint "Mechanical Engineering Competence Centre" in Dörfles-Esbach opens up enormous potential for us, which we are now exploiting together. By combining our resources, we work more efficiently, benefit from each other's strengths and thus create long-term competitive advantages.

Nevertheless, this step is also an emotional challenge: for some of us, the relocation of the HSTM team from Meeder meant not only a change of surroundings, but also an integration into new specialist teams and thus a farewell to the familiar. Everyone experiences this differently: I still sometimes find myself driving off from home in the morning and realising that I need to go in the other direction. But together we will overcome this.

Discover other exciting articles in our latest issue: for example, how a highly specialised company uses state-of-the-art technology to process high-performance plastics for complex applications. This shows how technological excellence and precision are setting new standards.

A fascinating report takes you into the world of a manufacturer of wooden elements and wood products. The company impresses with its clever combination of hybrid materials for classy ceiling and wall elements, perfectly combining design and functionality. Then we look back on our extraordinary appearance at the LIGNA woodworking trade fair, where we were able to surprise and inspire the audience with Additive Manufacturing.

And we give the floor to our two colleagues in the international sales field service, who are responsible for customers in Switzerland and Austria.

I hope you will enjoy reading this issue,

C. Rolmat

Christian Rohmert
Sales Director HSTM
Reichenbacher Hamuel GmbH



Reichenbacher Hamuel GmbH
LIGNA 2025 – A review
Crowned with success.



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## Imprint Publisher

#### Publisher:

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#### Print:

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## LIGNA 2025 – A review

Crowned with success.

LIGNA 2025 has shown where the journey is heading: With visionary insights into the megatrends of the future, the trade fair in Hanover attracted 78,000 visitors from 156 countries. Once again, it was a real highlight for the international woodworking industry – and this for the 50th time.

Reichenbacher Hamuel was there and provided fresh impetus. Instead of playing it safe, the company took a risk and presented the "Go Hybrid – CNC reinvented" approach at the wood trade fair. Their mission was clear: to establish 3D printing as an integral part of traditional wood processing.

But how did the experts react? An exciting question.

Who would have thought that this topic would attract so much attention? Stand manager Florian Mauch admits that he had been a little sceptical during the preparations – but that the overwhelming response has surprised him and others in the team more than positively. "Basically, every visitor spent some time at the ECO HybriDX-LT system," he says enthusiastically. "With the machine, we were obviously able to convincingly demonstrate the advantages when it comes to quickly printing the fixtures for special components or the models for prototypes ourselves, for example. I actually had the impression that this system was the main attraction at our stand."

Curiosity had been aroused, but at the end of the day we have impressed the visitors with exciting ideas and approaches. Florian Mauch comments: "We provided impetus and, as far as I know, we were the only ones at the entire LIGNA who presented this technology." The highlight: a seat shell made of composite

With the trade nities. all wood-

material and wood – a textbook example of what is possible with this technology. The trade fair team agreed: almost all manufacturers who produce this type of seating furniture or a similar product have paid a visit to Reichenbacher. This shows that the flow of information preceding the trade fair – including the trade press and social media – was effective.

You never know exactly in advance who will drop by and what visitors are really interested in. However, the intention of all those responsible was clear: to present visions, to outline new paths – and they were obviously successful in doing so. The conclusion of the entire team around stand manager Florian Mauch and Alexander Kawalla-Nam, Head of AM Technology at Reichenbacher Hamuel: "We have brought this topic to the table in the right place and at the right time."



3D printing has found its place as an integral part of traditional wood processing.

In recent years, timber construction projects had taken centre stage at Reichenbacher Hamuel. This time it was different; nevertheless, many woodworkers dropped by – and they were impressed by the hybrid machine. It became clear that innovative technologies attract companies from a wide range of sectors.

The PIN table of the OPUS was also very popular – a perfect solution for customers who do not want to have to handle a component twice, but want to manufacture it quickly and precisely in a single clamping operation. The exhibited clamping device, printed on the hybrid machine, met also with a favourable response. This gave the stand team an opportunity to impressively demonstrate how versatile clamping can be – from zero-point clamping systems to vacuum clamping. What's best: they could show how quickly you can find the right clamping device even for 3D or curved components.

The number of visitors was very satisfactory. The international expert visitors were a colourful mix: from Asia to North America, but of course also many from Europe. Austria, Switzerland, Scandinavia, France, Eastern Europe – and customers and interested parties from the Benelux countries were particularly well represented. We have even already received some promising enquiries for the hybrid machine. It is true that the acquisition costs are higher than for conventional CNC machines, but with two technologies in one system their technical complexity is also much greater. Milling in the well-known Reichenbacher quality, supplemented by 3D printing – economically sound and versatile.

The team's summary: "LIGNA was a great success and we have learnt that courage is rewarded – and we will continue to focus on this in the years to come."



The ECO HybriDX-LT system met with great interest from the visitors.



The PIN table at the OPUS was also very popular.



The trade fair team worked together well.





A bold theory? Definitely not, says plant manager André Leipold, because the ECO-8126-A CNC system marked the start of a whole new era in production at Brüninghoff in Heiden, North Rhine-Westphalia: the thinking in terms of processes and machining strategies.

In the past, the people in each sector of production had been doing their own thing. In concrete formwork construction, in carpentry, in timber frame construction: everywhere they used their own panel saws, sliding table saws and other systems. This was not in line with the philosophy of working in an innovation-driven and sustainable manner. Therefore, the beginning of a new era should be characterised by the bundling of all work steps in panel cutting. But which system technology was the most suitable one? "We wanted machines that could do everything, but that didn't even exist yet," says Brüninghoff project manager Jan Beckmann, who is in charge of factory planning in timber construction. "We don't build run-of-the-mill halls or buildings, but individual ones." He had the same expectations in terms of machine technology and quickly realised that almost all manufacturers opt out when it comes to panel sizes of 8 m x 2.50 m and weights of up to 800 kg, especially so when an adjacent horizontal storage area is required. "Good for us," emphasises area sales manager Hubertus Hünker, "because as a manufacturer of special machinery, we can respond precisely to the customer's needs."



Prefabrication of the wall elements.

The Brüninghoff Group is a major player in the construction sector and is well established with decades of expertise in combining different materials in the manufacture of timber elements and timber products. For example, the company built a residential tower in timber hybrid construction for J.P. van Eesteren B.V. in Amsterdam in 2019. Featuring a height of 73 metres and 21 storeys, it is the tallest timber housing project in the Netherlands to date. Apart from façade, ceiling and wall elements, the company primarily manufactures components in hybrid combinations. Brüninghoff has been operating its own plant for prefabricated concrete parts since 2023 and produces emission-reduced components, including composite ceilings combining wood and concrete. Thanks to the high degree of prefabrication, more than 3,000 flats can be realised each year using sustainable timber hybrid construction methods. In addition, more than 4,000 existing flats are undergoing thermal refurbishment while still being lived in.



Project manager Jan Beckmann and plant manager André Leipold.

Material storage, feeding, cutting, complete panel processing, stacking and a sustainable extraction system: all these aspects must be taken into account to ensure efficient prefabrication in a fully automated process sequence. This is a considerable challenge system technology has to face. Even more questions arose during concept development. Would a fully automatic picking system or a vacuum suction system be more suitable? Is an overhead crane required that can handle large dimensions and precisely picks the processed panels for stacking them in nine predefined positions? After all, the employees would then only have to transport these stacks to the element assembly and finishing department, where they are mounted and screwed onto the framework.

For Hubertus Hünker, one thing was certain: the solid ECO-8126-A floor-mounted portal system, which is equipped with a mobile processing table with a grooved HPL table surface and a soundproof cabin, meets all these requirements. This is because the technical equipment of this processing centre takes into account the enormous panel sizes and weights as well as the wide mix of materials – from chipboard to OSB, MDF, cement-bonded chipboard, gypsum fibreboard and plasterboard, HPL and three-layer panels through to laminated veneer timber and soft wood fibre insulation boards. Depending on the complexity of the processing, the machine has been designed to format around 140,000 square metres of panels in a multi-shift system. "Currently, we format 40,000 m² per year in one to two shifts," emphasises Jan Beckmann, "so there is still potential for growth."



Loading portal with raw panel storage.

The operator can lift nested plates from the removal table.

"The new plant enables us to supply both, our own timber construction department with all the necessary components, and the plant for prefabricated concrete components with sometimes very complex concrete formwork," explains André Leipold. "We receive CAD-generated panel lists in BTLx format from the various units, which we then import into our cutting software." Error-free work preparation is crucial here: the way in which a panel is processed, in which order and with which tool – all of this must be precisely defined. The use of label and inkjet printers for part labelling is also defined. Usually, the components of the same project are combined in nesting, but parts for other applications can also be taken into account. Nine variable stacking positions ensure optimum availability. The stacking sequence is very important here, as the staff in the subsequent element assembly department must be able to access the required panels quickly. Responsibility for this demanding task lies with the employee who creates the nesting patterns. Even if stacks appear untidy, they follow a well-conceived order of removal.

Consequently, a powerful machine is not the only decisive factor for an appropriate machining strategy. Suitable software and programming are also required, including a well-planned extraction concept. At Brüninghoff, waste, such as gypsum and wood, is correctly sorted in the extraction plant and briquetted; wood waste is thermally utilised. "I have one more recommendation," says Jan Beckmann: "It's not enough just to use computer-savvy employees – an overall concept like this requires extensive expertise, including CNC training and knowledge of tool technology and programming. This is the only way to fully utilise the efficiency of the system."



Reichenbacher Hamuel GmbH Interview

### Welcome to the team

New colleagues in the sales field team for Switzerland & Austria.

Our field staff are true technology enthusiasts – passionate, competent and creative. They are keen on tackling the challenges of special plant construction with impressive expertise and a healthy dose of passion for innovative solutions.



#### Interviewer

What has attracted you to the mechanical engineering industry?

**Johannes Reiser:** After completing my training as a precision mechanic, I was keen on deepening my experience in mechanical engineering.

**Serhat Kabatas:** My enthusiasm for machines and technology began during my school days and caused me to focus my studies on mechanical engineering and electronics.

I: What do you like about your role in sales and the special systems offered by Reichenbacher Hamuel?

**JR:** Every time I visit a company, I get new impressions and inspiration. I am particularly impressed by the high degree of individuality and attention to detail in our machines. In my private life, too, I appreciate it when products meet my expectations exactly.

**SK:** The close cooperation with customers is a constant source of inspiration for me. It motivates me to offer tailor-made solutions that are technologically excellent and perfectly suit the needs of our customers.

I: Was there a time when you faced a tough situation in sales, and how did you handle it?



**JR:** It is important to first gain a thorough understanding of the work processes at the customer's site. Often, the problems are complex or the customer's expectations are technically unrealistic. Patience and communication are crucial: after a thorough analysis, all the experts work together to develop tailor-made solutions.

**SK:** When a customer faced budgetary limitations, a detailed needs analysis highlighting long-term benefits such as increased efficiency and cost reduction helped make the investment attractive to the customer.

#### I: What are the trends for the future in the industry?

**JR:** Artificial intelligence (AI) offers great potential – from intelligent databases in plant development to autonomously operating machines. This requires effective system monitoring. However, this also poses challenges in the area of cybersecurity, as attacks on equipment could increase.

**SK:** Automation and digitalisation, particularly through Industry 4.0, will continue to grow in importance. Interlinked machines, preventive maintenance and AI systems will improve

efficiency and flexibility. In addition, the focus is increasingly shifting towards sustainability and energy efficiency in order to ensure environmentally friendly production processes.

#### I: How do you relax in your spare time?

**JR:** After the birth of my second child, there was little time left for me. Before, I had been a passionate cyclist – always with the goal of having sore muscles the next day. That felt even more efficient and made me more balanced. Today, I do this more moderately with my family.

**SK:** I am into sports – paddling, football and swimming are my great passions. They help me clear my head and recharge my batteries.

#### I: Do you have a personal motto that guides you?

**JR:** Get out of your comfort zone. Break new ground, even when faced with obstacles. You grow through challenges, even if it hurts sometimes.

**SK:** Nothing is impossible! We can achieve anything with the right attitude, commitment and determination.

## Smart hybrid manufacturing

#### Clamping devices for tomorrow.

There are increasing demands on clamping devices in the composite industry: they need to be flexible, lightweight and highly functional. Rapid prototype development and customer-specific adaptations are becoming more and more important, particularly for small and medium-sized series.

Hybrid manufacturing technology offers completely new possibilities here, as the combination of CNC machining and 3D printing permits more efficiency, greater versatility and higher customisation in the production of clamping devices. The workflow involves the additive manufacturing of a basic structure made of thermoplastic fibre composite material, followed by precise CNC finishing. Our hybrid systems have been specially designed to optimally implement this innovative manufacturing process.

#### Innovation drivers in operating equipment manufacturing

When it comes to clamping devices, quality and functionality are paramount: they must be stable, dimensionally accurate and resistant to media fluctuations. Their numerous advantages:

- Efficient production of high-precision components.
- Complex geometries become a reality.
- Component optimisation through integrated functional surfaces, damping elements and passive tensioning mechanisms.
- Rapid tooling: fast production even for single items.
- Use of technical thermoplastics and, for increased mechanical performance, carbon or glass fibre reinforced materials (CF/GF).
- Targeted material build-up reduces material consumption.



The HybriDX-LT combines industrial 3D printing with precise 5-axis machining.

#### The added value of hybrid manufacturing

This approach revolutionises the manufacture of high-quality, environmentally friendly clamping devices:

- Reduces production time by up to 70% and saves costs through less material waste and shorter set-up times.
- Permits simple, individual adaptation without expensive special tools, creates tailor-made solutions and reduces weight through CF/GF reinforcements without compromising strength.
- Facilitates maintenance and repair through modular reproduction or on-site adaptation.
- · Offers a high degree of design freedom for complex geometries.

#### Increased digital resilience

The modular design with interchangeable functional units allows quick adaptation to new product variants without the need to remanufacture the entire component. Thanks to digital processes, a device can be manufactured directly from a CAD file at the touch of a button, with 3D printing and CNC finishing running automatically. Physical stock is unnecessary, as the components are available as digital files and can be produced quickly as needed. The "digital warehouse" replaces expensive storage space and permits agile manufacturing with minimum capital commitment.



The use of hybrid machine technology enables devices to be produced identically worldwide. This allows for quick response times and high resilience to supply bottlenecks and geopolitical risks. Modularity, digital workflow and global availability make hybrid manufacturing a strategic element for future-proof production concepts, especially in the composite sector, where flexibility and adaptability are crucial.

With smart hybrid manufacturing: tomorrow's clamping devices set new standards in efficiency, functionality and material diversity.



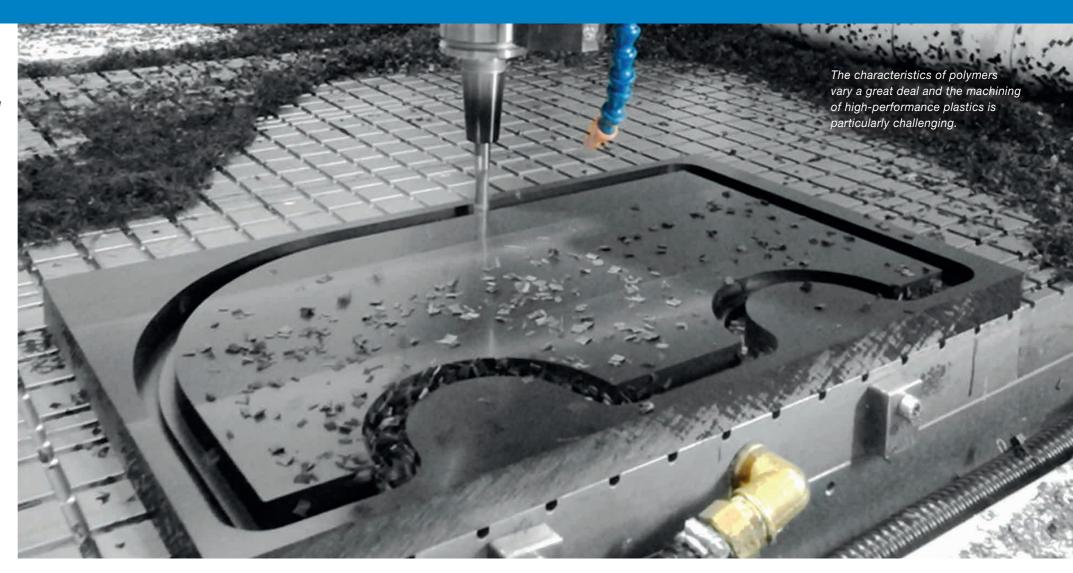
## High-performance components gaining ground

Growing demand in the high-tech sectors.

The steadily growing demand from high-tech industries for complex, large-format components made of high-performance polymers shows no signs of abating. No matter, if it is plastic casings for MRI or X-ray machines in medical technology, or packaging for the transportation of sensitive products in the aerospace industry – the production of these sophisticated components requires enormous specialist knowledge in order to meet the high standards of dimensional accuracy and surface quality.

It takes enthusiasm and know-how to make a name for yourself in the field of machining plastics, as the processing of high-performance plastics, such as PEEK, PTFE or PVDF, in particular, poses a number of challenges. These include the selection of suitable tools and the development of processes taking into account the unique properties of these plastics. Moreover, it is crucial to ensure efficient cooling during the machining process in order to keep the temperature of the workpiece and tools in the optimum range and avoid deformation or damage.

This expertise is an integral part of the DNA of Aberle Kunststoffverarbeitung GmbH from Lossburg. Since 1989, the specialists from the Black Forest have been producing prototypes, individual items or small series from a variety of plastics with their versatile, redundant machinery for customers from the medical technology, automotive, mechanical engineering and semiconductor industries, 90 percent of whom come from Germany.



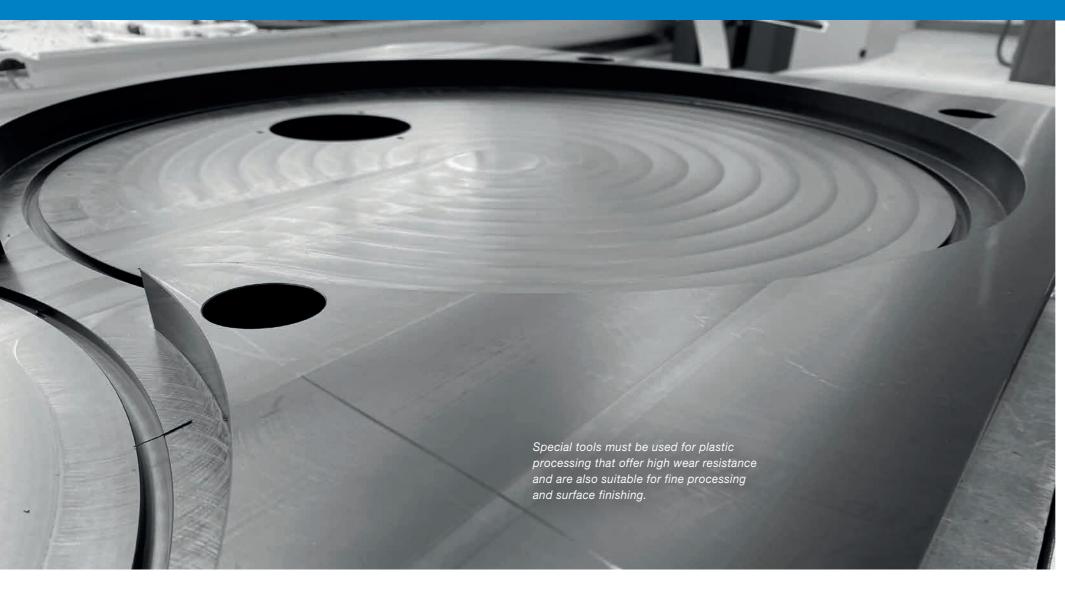


Marco Aberle, who runs the company together with his father, emphasises, "Extensive experience is essential for the machining of all types of polymers with machine tools. The mechanical properties of plastics vary greatly depending on temperature and load speed, which makes the selection of the right machining parameters complex, and optimum chip removal must also be ensured." He also refers to the use of 5-axis simultaneous technology, which makes the production of complex 3D parts and free-form surfaces possible in the first place. The five independent motion axes allow components to be processed from different perspectives and directions in a single pass, thus eliminating the need for re-clamping. Apart from significantly reducing processing time, this is also essential for maintaining high precision and quality standards.

What had been missing for a long time was the ability to produce large-format workpieces. For two years now, this has been a thing of the past thanks to the VISION-I-H 5-axis. The system has a working area of  $3,700 \times 1,600 \times 700$  mm (L x W x H) and offers completely new possibilities. Area Sales Manager Florian Mauch remembers: "Aberle was looking for a system that would precisely reach the accuracies of their machine tools, but at the same time have a significantly larger workspace than the machines previously used. This is exactly what the VISION accomplishes: it transfers precision, speed and high-quality surface finish to large-format components."

From the left: Managing Director Marco Aberle and machine operator Tino Beister in front of the VISION-I-H 5-axis CNC system.

#### Cover Topic: Aberle Kunststoffverarbeitung GmbH





Careful planning, monitoring and inspection of the entire production process is required to ensure that the components meet the customers' high quality requirements. This includes choosing the initial material, conducting regular visual inspections or using in-process measuring systems while machining, as well as dimensional measurements, surface inspections and strength tests at the end of the process.

The characteristics of polymers vary a great deal and the machining of high-performance plastics is particularly challenging, as some of them have lower heat transfer properties, for example, which causes heat to accumulate in the workpiece and results in deformation or damage. There are also considerable differences in terms of hardness, toughness, melting point and thermal conductivity, and the shrinkage or elongation of the material due to the machining process must also be taken into account when programming. It is therefore little wonder that 16 of the around 50 employees at Aberle alone work at CAD/CAM workstations, incorporating all these parameters into the programming.

Furthermore, it is important to use special tools for plastic processing. The VISION-I-H has an automatic chain changer for no fewer than 81 tools, including carbide milling cutters with special coatings that offer high wear resistance, diamond-coated tools for particularly hard plastics, polishing tools for fine machining and surface finishing, saw blades for cutting plastic sheets or pipes to size, and engraving tools. Marco Aberle explains: "As we mainly manufacture individual parts, we need a large number of different tools, which are all calibrated in advance. This saves us a lot of time during the setting process, as we avoid constant breaking-in and test cuts." High-performance polymers even require special cutting-edge geometries, such as sharp cutting edges or positive rake angles, which help to control chip formation. "The right tools, a stable machine structure and optimum machine settings, such as spindle speed, feed speed and cutting depth, are essential for consistent results," Florian Mauch adds.









Flexibility and innovation are essential for companies in an increasingly competitive world. The formation of competence centres offers the opportunity to pool expertise, drive innovation and develop tailor-made solutions – even when product requirements vary. Such a step strengthens the market position and ensures lasting success.

It was realised at the beginning of 2025, and since then, the entire mechanical engineering division has been based in Dörfles-Esbach. This has brought together at a single location the development and production of Reichenbacher's innovative 5-axis machining centres and of Hamuel's high-precision HSTM (HighSpeedTurnMilling) systems. Until then, the distance between the locations had meant that the specialist departments were sometimes understaffed or overstaffed depending on the current market situation. By consolidating all activities in the new competence centre, the company now benefits from significantly improved resource planning and shorter response times.

Rico Bertzick, Key Account Manager HSTM, emphasises: "Of course, everything is coming together only gradually, but the advantages are already becoming apparent today, as we now have expanded capacities at our disposal. To date, we have had expertise in mechanical and electrical design, PLC programming, application technology, work preparation and assembly at both locations. Although the teams had previously been responsible for different machine products, it is our goal to apply their expertise to all series in the future. This allows us to respond much more flexibly to market changes, to better compensate for future fluctuations through cross-product collaboration, and to offer our customers shorter delivery times."

It will still take some time to complete the training and implementation process at the competence centre "Mechanical Engineering" at Dörfles-Esbach. However, it is already obvious today that there are no longer any overcapacities or undercapacities in "individual product groups". The mechanical engineering team works closely together, as all series are basically 5-axis systems that are simply used in different areas of application. However, this is precisely where requirements vary considerably: systems for manufacturing turbine blades and turbo-compressors, for example, must be extremely stable, highly precise and dynamic. In contrast, the systems for stairs or timber construction products are much more individualised and tailored to the respective customer. Nevertheless, the knowledge of the individual specialist departments is fundamentally based on similar principles.

The HSTM system is a niche product that has been developed specifically for machining turbine blades and blisks. Thanks to this focus, the series meets the highest standards of precision and surface quality – essential criteria in modern turbine technology. Worldwide, there are only few companies that have the necessary expertise for such demanding applications – target markets include China, India, Japan, South Korea, the USA, Mexico, Canada and Europe. Customers in these countries are either directly attended to by our sales department here or by our partners on site.

The relocation of the HSTM production meant that a total of 17 colleagues had to shift their place of work to Dörfles-Esbach. What's more, a competence centre has also been opened in Meeder – this one for contract manufacturing and component production. There all high-quality parts, both large and small, as well as components will be manufactured in the future, including the sophisticated components for all 5-axis systems from Dörfles-Esbach.





CNC-technology at its best

#### Reichenbacher Hamuel GmbH

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