starrag

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Starrag virtual showroom Vuadens
Visit our showroom in order to help you find the perfect solution to meet your needs

Ready-made flexibility
Bäringhaus & Hunger have integrated five new Heckert H50 machines into their production facilities in the past five years

MPS Microsystems – an innovative company
The ability to machine complex materials is one of the Bumotec s191H's assets

Specialism included as standard
The Heckert HEC 1800 offered Wagstaff, Inc., USA, the possibility of implementing customised solutions for a wide range of applications

Faster health check for machining centres

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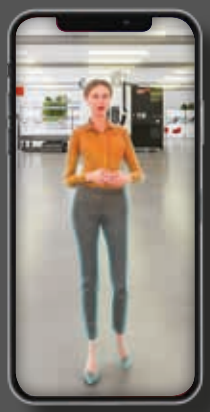

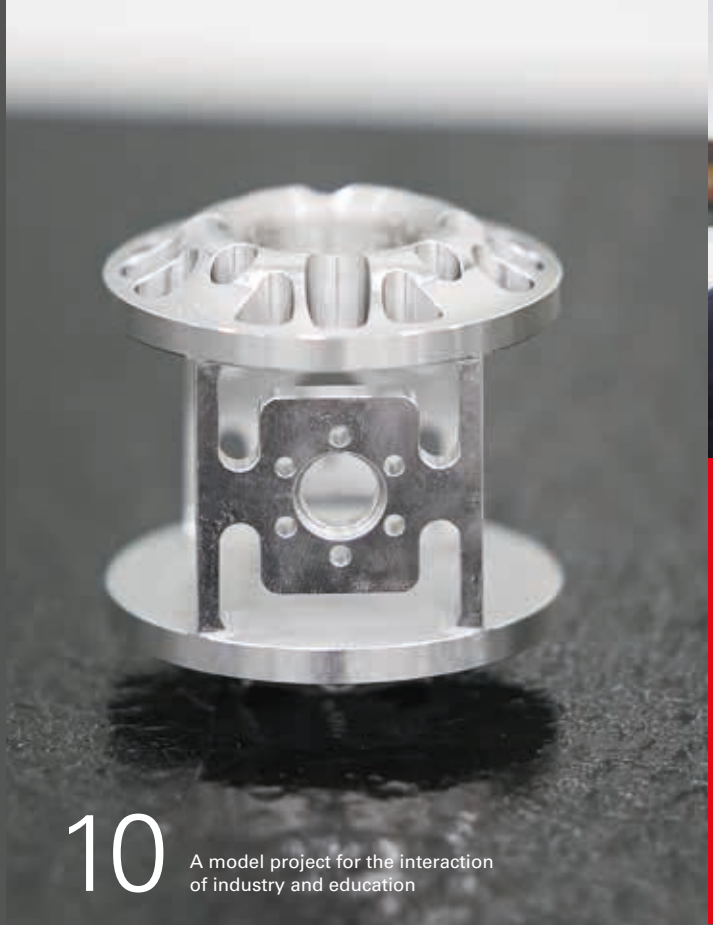

LEGAL NOTICE

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starrag

Engineering precisely what you value

Dörries

For those who aim for more.

35 %

shorter machining time

due to milling, turning and drilling operations in one clamping position

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Dr Christian Walti
CEO of Starrag Group

Dear reader,

This is now the fourth issue of our Star customer magazine to have been affected by the COVID-19 pandemic. This is because the crisis associated with the pandemic has had a catalytic effect that affects the main theme of this issue in particular: digitalisation. A concept that for years has been considered a megatrend, digitalisation has developed remarkably in the last two years.

Digitalisation now permeates the entirety of our day-to-day life – from private life to work in business and industry. This has positive aspects. Networked digital communication offers a wide range of opportunities by opening up new technical and organisational solutions.

That is why we, the Starrag Group, have taken the time to identify digitalisation's potential. We experimented and finally found ways to accommodate you in new ways. I am not talking about the online meetings that have now become commonplace or interactions via social networks. I am talking about our virtual showroom in Vuadens, which has enabled us to take a big step forward.

We are offering you – and anyone interested in the world of machining centres – the ability to engage with a very special online experience that you will not want to miss. Virtual effects merge with the real world and all the while users can benefit from access allowing them to talk to our experts directly. This means you can get to know manufacturing solutions using Bumotec and SIP machines that have been directly tailored to your needs without having to travel.

We have also made use of digitalisation in the service sector. Since the middle of the year, we have been offering online Fingerprint for Heckert machines built in 2017 or later. As part of online Fingerprint, Service technicians record important machine conditions via remote access. The check only takes an hour and by the next working day at the latest, you will receive a detailed overview of the mechanical assemblies' level of wear. This allows you to prevent unplanned, wear-related machine failures. Quality is assured, machine availability increases and workpiece costs are reduced.

But digitalisation has its limits. After all, we are human beings and by no means digital, virtual creatures. We are therefore all the more pleased that we can once again cultivate more personal relationships with you and that some customers have welcomed us back on-site to provide reports.

Take Bäringhaus & Hunger in Grünhainichen, for example: A contract manufacturer with cramped production conditions and that unfortunately no longer had space to expand – a situation that should be familiar to many. You can read about how the managing directors looked for solutions and found them in our compact, flexible Heckert H50 machining centres in the article "Ready-made flexibility". Their verdict: "Machines that enable us to produce the required quantities in the smallest possible space without compromise and in a process-secure manner."

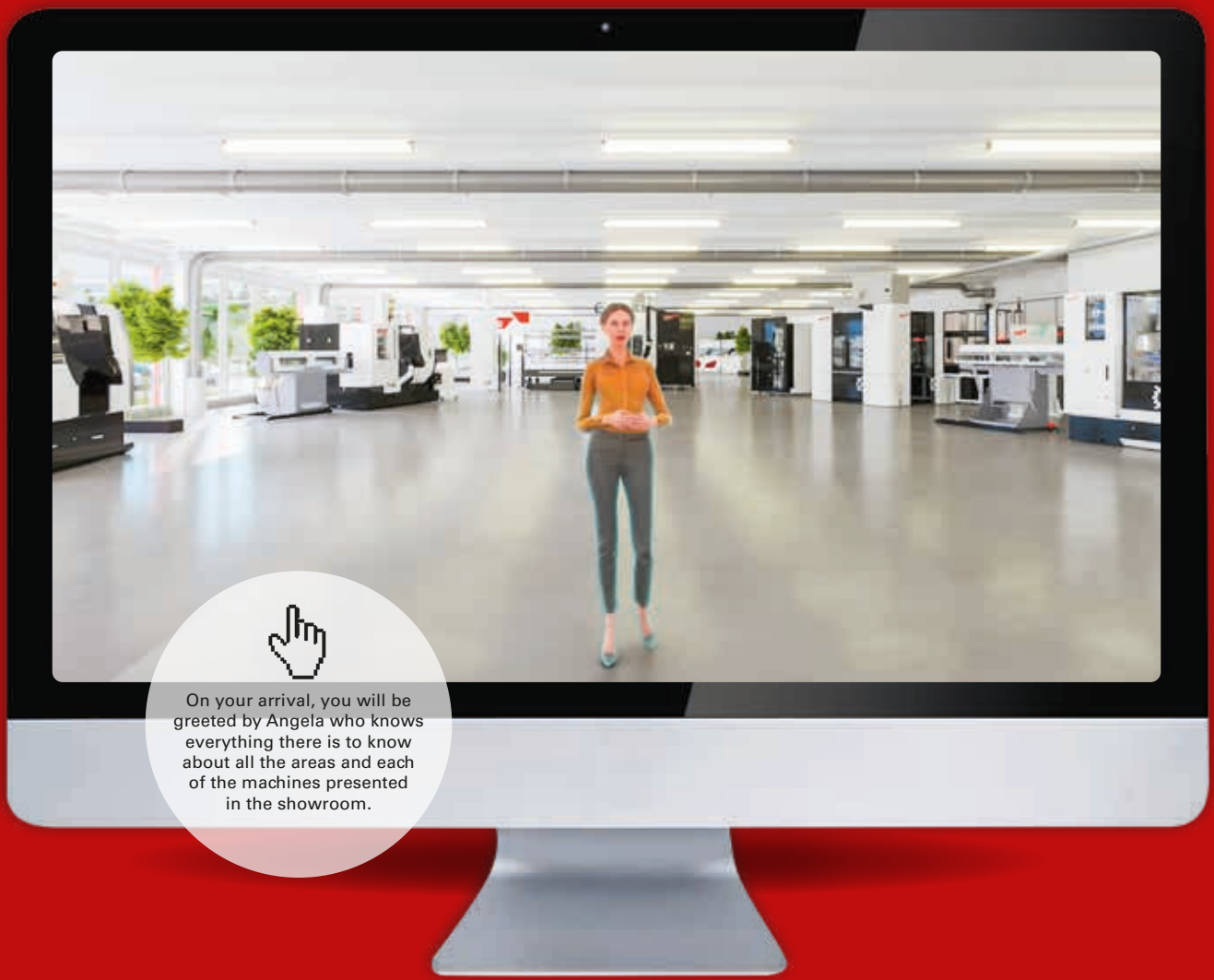
Another of our customers, Wagstaff Inc., covers their successful machining solution with only simple optional adjustments. The US company uses the flexible, modular Heckert HEC 1800 horizontal machining centre to machine complex aluminium workpieces. Wagstaff succeeded in halving production times, increasing machining quality and reducing set-up costs through complete, multi-sided machining in just one clamping position.

We also visited MPS Microsystems in Biel, a developer and manufacturer of high-precision mechanical microsystems. And we provide information about the Joint Lab in Shanghai, a model project for the interaction of industry and education, that Starrag founded together with the School of Mechanical Engineering and Shanghai Jiao Tong University.

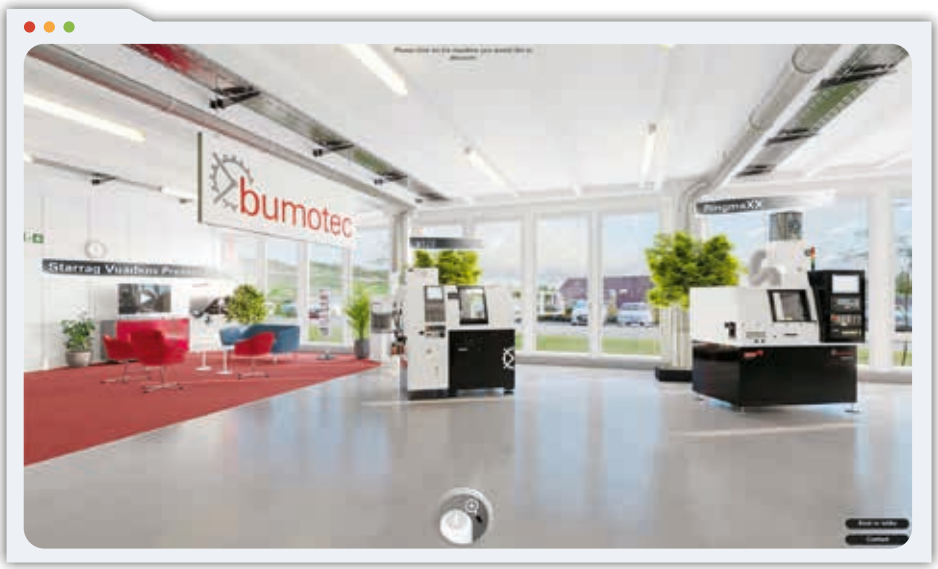
Whether you read our Star magazine in print or online, I hope you enjoy it and draw valuable inspiration from it.

Christian Walti

Starrag virtual showroom Vuadens

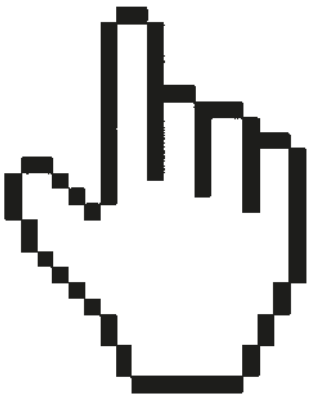


On your arrival, you will be greeted by Angela who knows everything there is to know about all the areas and each of the machines presented in the showroom.



Digitalisation, scanning and simulation have become watchwords in communication nowadays. This evolution began a few years ago, but it has grown apace as a result of the health crisis which we have been facing for the last eighteen months. Personal networking, business meetings and product presentations have all moved into online meetings via our computer screens. The exhibitions and other events which would have punctuated the course of the year have been continually postponed or simply cancelled.

https://showroomvud.starrag.com



Most businesses have a website, a YouTube channel, an account for LinkedIn, Facebook, Instagram and other social media, but we felt we needed go even further. We wanted to give trade fair visitors, our followers and prospective customers in the world of machining, a unique experience, where the sense of discovery and the desire to find out more would enable visitors to discover the solutions best suited to their needs, with a complete overview of our product range and the options available in terms of machining complex parts adapted to their professional context. This is how Starrag's virtual showroom in Vuadens came to be created.

On your arrival, you will be greeted by Angela who knows everything there is to know about all the areas and each of the machines presented in the showroom. If you are already familiar with our production site in Vuadens, you will recognise its characteristic architecture has been perfectly replicated and you will be surprised to see the number of machines installed in the showroom. If this is your first visit, you will have the opportunity to discover a space dedicated to the production of complex parts, machined with great precision in materials which are at times very difficult to work.

In any event, you will be able to obtain all the information you need concerning our machining centres, watch a large number of applications being demonstrated (we have up to 31 currently available), in order to help you find the perfect solution to meet your needs. The next step for you is to contact one of our experts to move from the virtual showroom to the real world. This will give you the chance to discover over 60 other typical applications of a similar kind, and enable us to customise our solution to take into account your particular needs. We aim to support you as you look for the best solutions in all aspects to ensure stable and efficient production, key factors in success for unrivalled productivity and, consequently, progressive and steady growth of your business market.

By choosing the field of expertise which applies to you, Angela will take you directly to those areas of the showroom which will peak your interest. For experts in the luxury goods sector, our machine range is particularly well suited to various parts for jewellery and watchmaking. In fact, bracelet links, movement parts, watch dials and gem-set rings, wedding bands, bracelets, pendants, or even clasps for leatherwork hold no secrets for our application engineers.

Thanks to our experience in the medical technology sector, you will be impressed by the possibilities which our solutions offer for the production of orthopaedic implants, surgical instruments, or components for dental techniques, whether for medium- to large-scale runs or for prototyping parts for research and development.

For specialists in aviation and micromechanics in general, precision is essential in this segment where a deviation of even one micron is not acceptable. The stability of production tools is therefore the crucial element sought after by all experts in this field of application. Bumotec machining centres offers unbelievable technical options, including all the useful operations in the most complex production

Our engineers have developed a range of machines which can provide the solution to the majority of the needs of different markets.

You will be able to obtain all the information you need concerning our machining centres, watch a large number of applications being demonstrated (we have up to 31 currently available), in order to help you find the perfect solution to meet your needs.

processes such as milling, grinding, deep drilling, gear hobbing, deburring or chamfering with great precision and impressive repeatability.

A space dedicated to SIP boring tools has been created to demonstrate the options on offer in terms of unbeatable extreme precision. World renowned for its ability to offer very powerful and durable machining centres, SIP boring tools has demonstrated, over nearly 160 years in business, that precision is a field of expertise based on experience gained over time. If you are interested in finding out how to achieve precision to the nearest micron, visit the SIP space in our showroom in Vuadens.

These needs are always based on the cost of production, precision, the quality of the finish, the stability of the production process and autonomy.

But finally, how can we excel in such varied fields and meet such wide-ranging needs? Our engineers have developed a range of machines which can provide the solution to the majority of the needs of different markets. These needs are always based on the cost of production, precision, the quality of the finish, the stability of the production process and autonomy. Our team of around twenty application specialists know how to turn our machining centres to your advantage to fully meet your expectations every day.

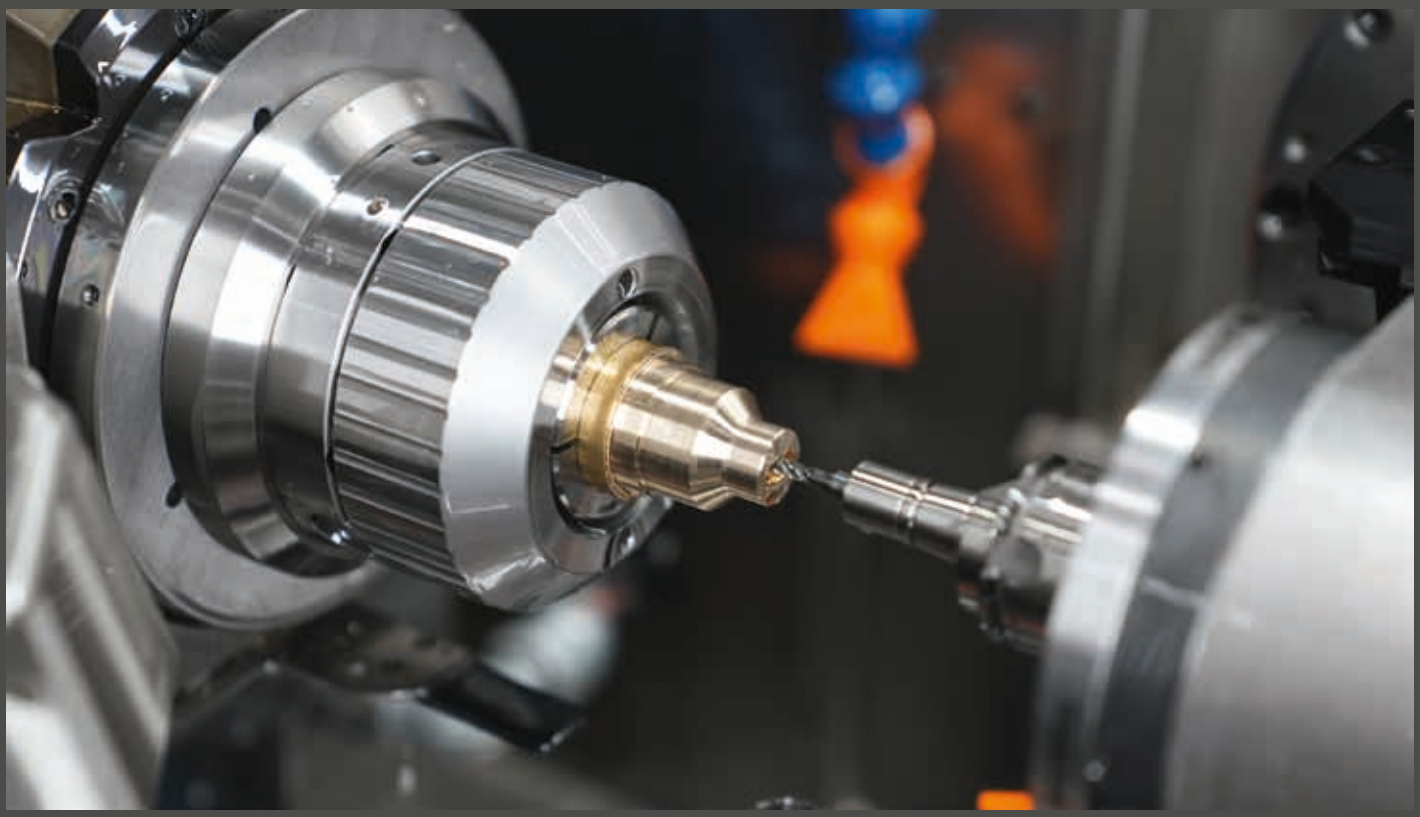
So, visit every corner of our showroom in Vuadens at the following address https://showroomvud.starrag.com, listen to explanations given by your showroom guide Angela, choose the applications which interest you on the video and don't hesitate to contact us with your requirements for your current and upcoming projects.

A model project for the interaction of industry and education

An innovative business relationship and shared ideas have led to the establishment of the Joint Lab of Starrag, the School of Mechanical Engineering and Shanghai Jiao Tong University (SJTU/ME-Starrag Joint Lab).

It is a model project for joint research and education. Along with the latest high-tech machines from Starrag, innovative technologies and software from Jiao Tong University are also on show here. By means of machine and technology demonstrations, test processing and small batch processing, the joint laboratory offers a more convenient, intuitive and effective on-site service for Chinese customers in the Aerospace, Energy, Transportation and Industrial markets. A model project for the interaction of industry and education – Joint Lab of Starrag, the School of Mechanical Engineering and Shanghai Jiao Tong University. The Tech Centre represents an important opportunity to demonstrate Starrag's wide range of machining solutions and to present Starrag's customer service. In 2014, Starrag (Shanghai) Co., Ltd. opened the Starrag Showroom

The NB 251 is the first machining centre of its kind in China.



in the Waigaoqiao Free Trade Area in Shanghai, with an area of 300 m². However, in light of the increasing demand from Chinese customers for special applications, Starrag Shanghai had to expand the possibilities of the Tech Centre.

In 2017, Starrag (Shanghai) Co., Ltd. and Shanghai Jiao Tong University (SJTU) signed an agreement to build the Joint Lab of Starrag, the School of Mechanical Engineering and Shanghai Jiao Tong University in the planned city of Lingang, Shanghai. The project commenced in 2018 and was completed in 2019. Liu Xin, General Manager of Starrag China, considers the Shanghai Tech Centre to be the Starrag flagship for Chinese users. "Here, you will find five of the machining centres on which Starrag can present its expertise, especially our latest high-tech processing technologies for aerospace, medical and other markets. The customers who have visited the Tech Centre were very impressed and their interest in Starrag's products and technologies have grown." Mr Liu has focused all his efforts on the exhibition centre.

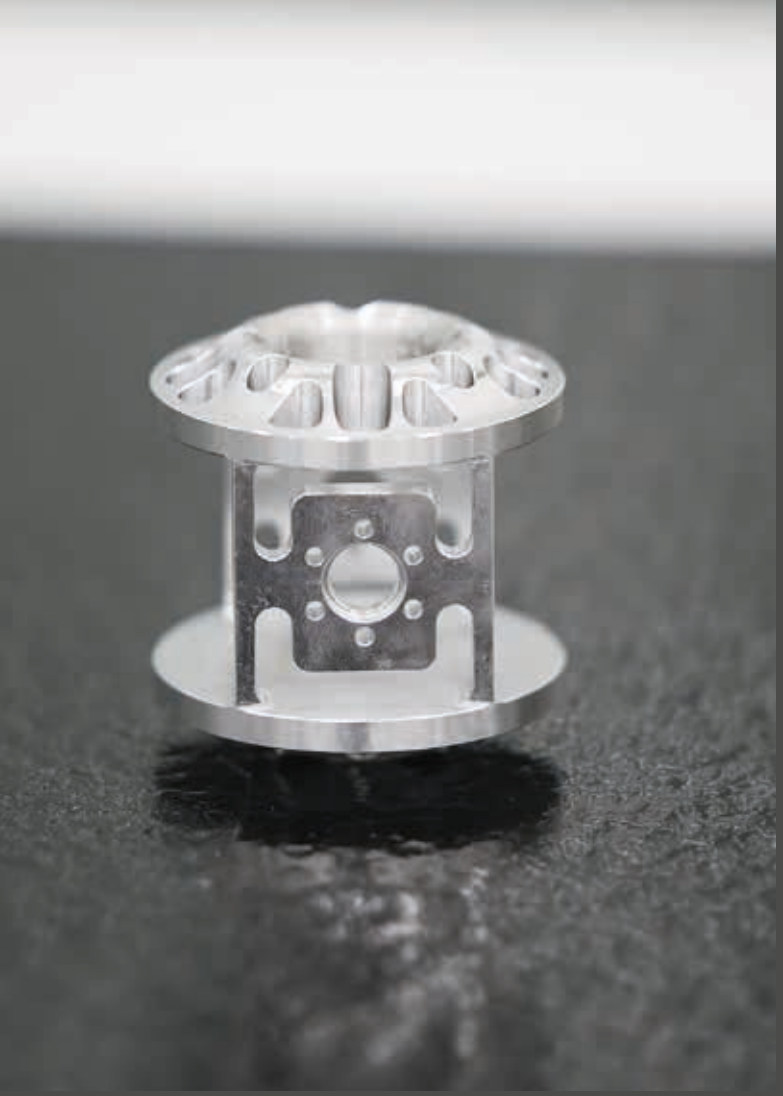
The five-axis turbine blade machining centre LX 051 and the five-axis blisk machining centre NB 251 are known for their high efficiency, ultimate reliability and considerable processing capacity and enjoy an excellent reputation worldwide. In particular, the NB 251 is the first machining centre of its kind in China. Starrag will use the demonstration machine to bring the technical advantages of the NB 251 to Chinese customers, such as

The Bumotec s191 is a classic machining centre of which six hundred units have already been sold worldwide.

its processing efficiency and quality. The aim is to work with Chinese customers to improve the production of blisks for aircraft engines with regard to the manufacturing technology, efficiency and accuracy around classes.

In addition to the LX 051 and NB 251, two machining centres of the Bumotec product range, namely the Bumotec s191 and Bumotec s181, have been exhibited on the premises. The Bumotec s191 is a classic machining centre of which six hundred units have already been sold worldwide. It is a very successful small turning and milling centre for the precise and efficient processing of workpieces for the aerospace, luxury and medical equipment sectors. Bumotec s181 is Starrag's new machining centre for the medical equipment industry with two workstations to significantly increase productivity.

The fifth machine is from the Heckert product range: the newly introduced horizontal four-axis machining centre Heckert H50 of the H series. The compact design considerably reduces the footprint of the processing machine, and the high rigidity ensures precise machining. "In addition to the exhibition, Starrag also offers its customers on-site test processing, the processing of small batch sizes and other services that are directly tailored to their needs. At the same time, the demonstration machine in the Tech Centre can be delivered directly to the customer as an inventory machine, ensuring that the delivery time for customers on-site is as short as possible. Thanks to the above-mentioned offers of the Tech Centre, many aerospace manufacturers have found effective and precise machining solutions for their production. "Actions speak louder than words, and the value of the showrooms is evident from this." Mr Liu adds that the SJTU/ME-Starrag Joint Lab has even more advantages. The SJTU/ME-Starrag Joint



Lab is Starrag's flagship project for customers and the basis for research at Shanghai Jiao Tong University. The faculty and students of Shanghai Jiao Tong University carry out research here and develop innovative software and processes that go on to help improve the performance of Starrag's machining centres.

Mr Liu believes that this is a significant collaboration between educational institutions and business that has exceeded all expectations. Each year brings with it many new successes and breakthroughs. Since the official opening in 2019, open days with various themes have been organised in the exhibition rooms every November, which provide the opportunity to present the results of the collaboration as well as the latest technological developments of Starrag.

Liu Xin, General Manager of Starrag China

"Each year brings with it many new successes and breakthroughs."

"This year's open days will take place as usual in November. The topic will be high-end smart manufacturing and automation. Starrag China, Jiao Tong University and their six partners EROWA, Hainbuch, REGO-Fix, Blaser, SECO and URMA will offer customers a host of new technologies." Mr Liu revealed the theme of the upcoming "annual show" in the exhibition rooms and extended his sincere invitation: "Welcome to our Tech Centre. It's worth the trip!"

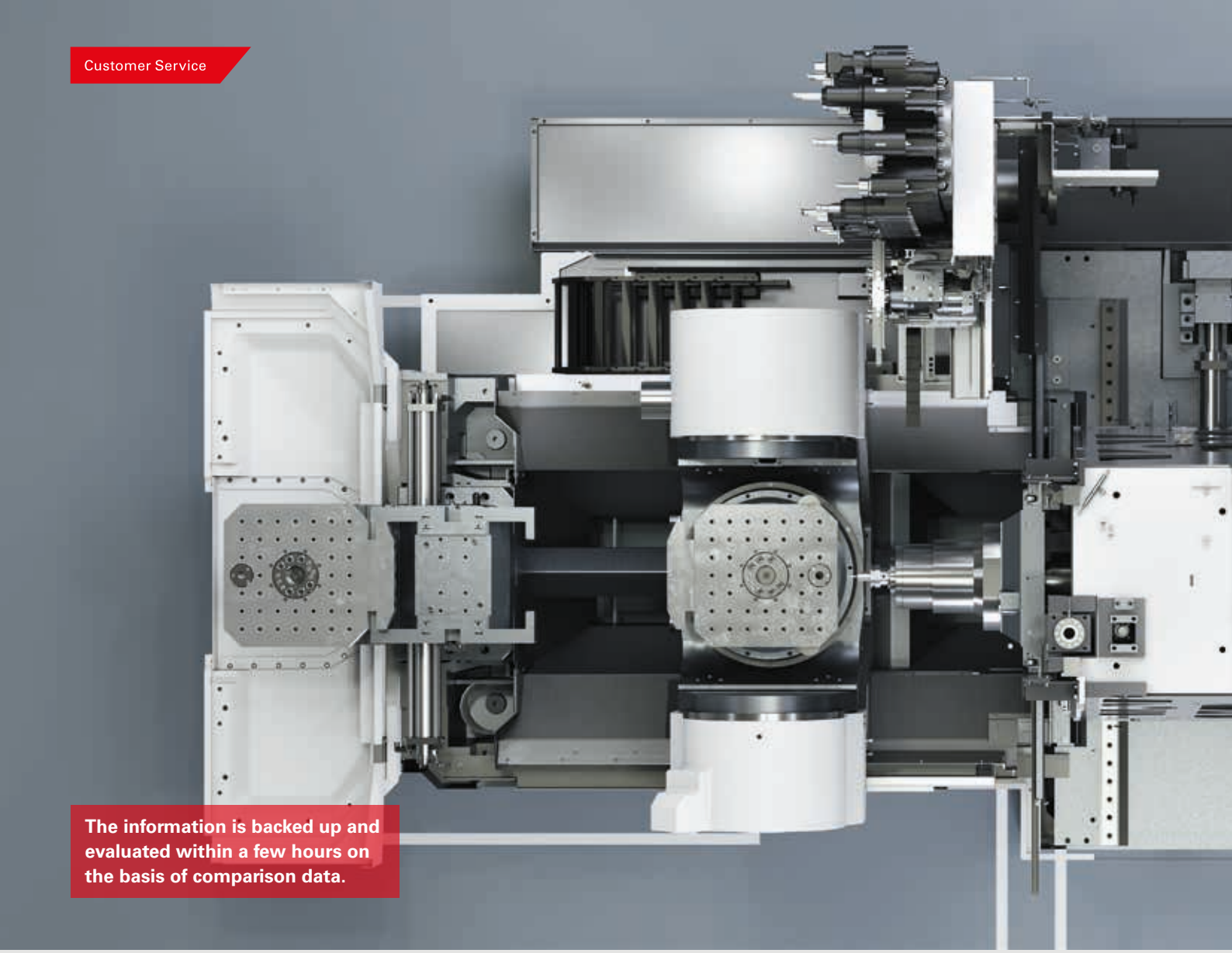
Faster health check for machining centres

Starrag's new online Fingerprint service provides a fast, qualified machine analysis.

In just one hour, service technicians can record important machine conditions via remote access, and by the next working day at the latest, the customer will receive a detailed overview of the degree of wear on the mechanical assemblies. This can help prevent any unplanned, wear-related machine failures. Quality is assured, machine availability increases and workpiece costs are reduced.

Anyone who cares about the "health" of their production machines – i.e. their availability and productivity – should have them checked regularly. Since the middle of 2021, Starrag has offered an online version of a very efficient instrument made just for this purpose – the Fingerprint. This digital tool, which perfectly complements Starrag's service offerings, is cost-effective, quick and, above all, revealing. The customer only has to take the machine out of production for one hour.

The advantages are considerable: Without any need for extensive disassembly and assembly work, the customer receives a quick and meaningful analysis of the state of wear of the main components of the machine. The bottom line is that it assists with increasing machine



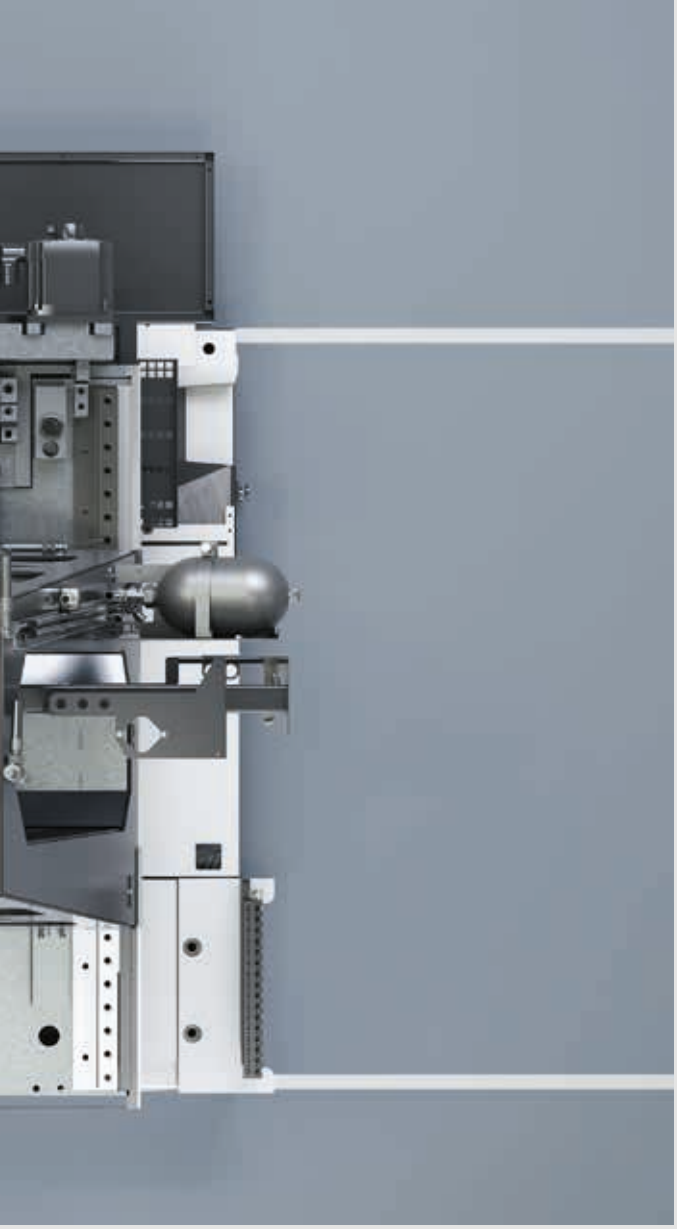
The information is backed up and evaluated within a few hours on the basis of comparison data.

availability and productivity, extending machine lifetime and lowering workpiece costs.

Christoph Wunderlich, Head of Customer Service at Starrag GmbH, Chemnitz, recommends that the online Fingerprint is carried out at regular intervals after a baseline survey with the initial commissioning – ideally quarterly, or at least every six months: "This allows continual changes and wear to be observed. A history of the machine's condition over its entire life cycle is also revealing, which can be a good argument for a later sale, for example." Of course, an unscheduled online Fingerprint is also possible. "This is ideal if, after a shock event – for example, a small crash during set-up – the customer cannot see any damage with the naked eye, but still wants to err on the side of caution," explains Wunderlich.

How does the online Fingerprint work? On the agreed date, Starrag Remote Service contacts the customer, who has already prepared the machine for the examination. Specifically, there should be an empty pallet on the machine and no tools should be loaded, to ensure that any risk of collision is excluded during the test runs. The machine operator enables access to the Fingerprint on the machine. Only once this is done can the service technician remotely access the machine from Chemnitz. The service technician starts a specially developed program, which processes various tasks. These include:

- Frequency response analyses on all processing axes for monitoring the drive mechanisms (ball screws, toothed belts) and for identifying resonance points.
- A vibration analysis of the work spindles to determine the bearing condition and wear.
- A circularity test for checking the passage of squares and the static friction.
- The measurement of the current consumption of all processing axes for the assessment of the wear condition.
- The degree of contamination and wear of the linear measuring systems as well as meter readings and temperature data are recorded.

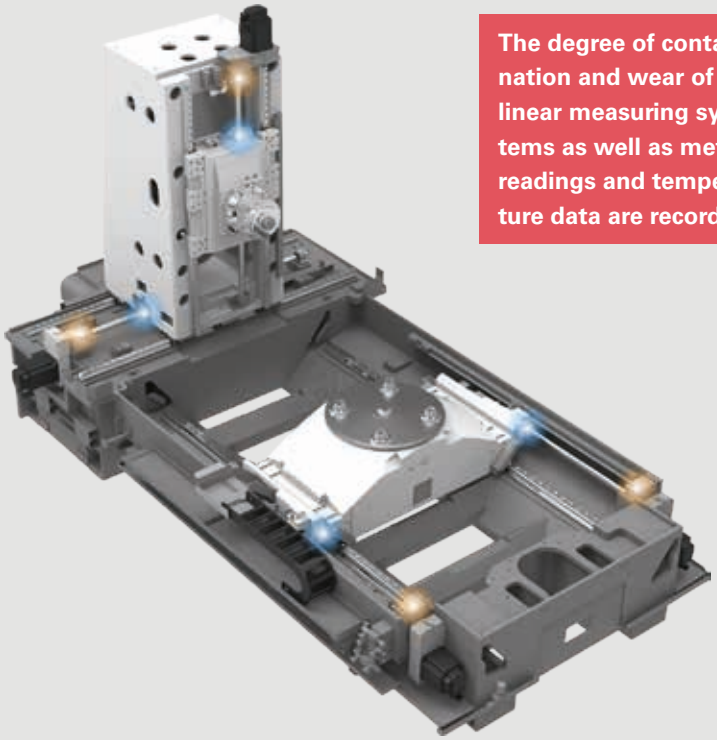


AT A GLANCE:
The advantages of the online Fingerprint

- Save on maintenance and resource costs
  - Plan repairs according to the degree of wear
  - Reschedule personnel during repair times
- Prevent unplanned machine failures due to wear and tear
- Increase machine availability
- Reduce workpiece costs

The information is backed up and evaluated within a few hours on the basis of comparison data. By the next working day at the latest, the customer receives a result report that breaks down all the conditions and, if necessary, includes suggestions on how to eliminate errors or information about maintenance work.

The online Fingerprint offer has been available since the middle of the year for all Heckert machines built in 2017 or later with Siemens operate control. It is gradually being rolled out to other Starrag brands too. The "on-site" Fingerprint is still available, where a service technician performs the described measurements and analyses on-site. Moreover, they can carry out further investigations, such as additional geometric and thermal measurements.



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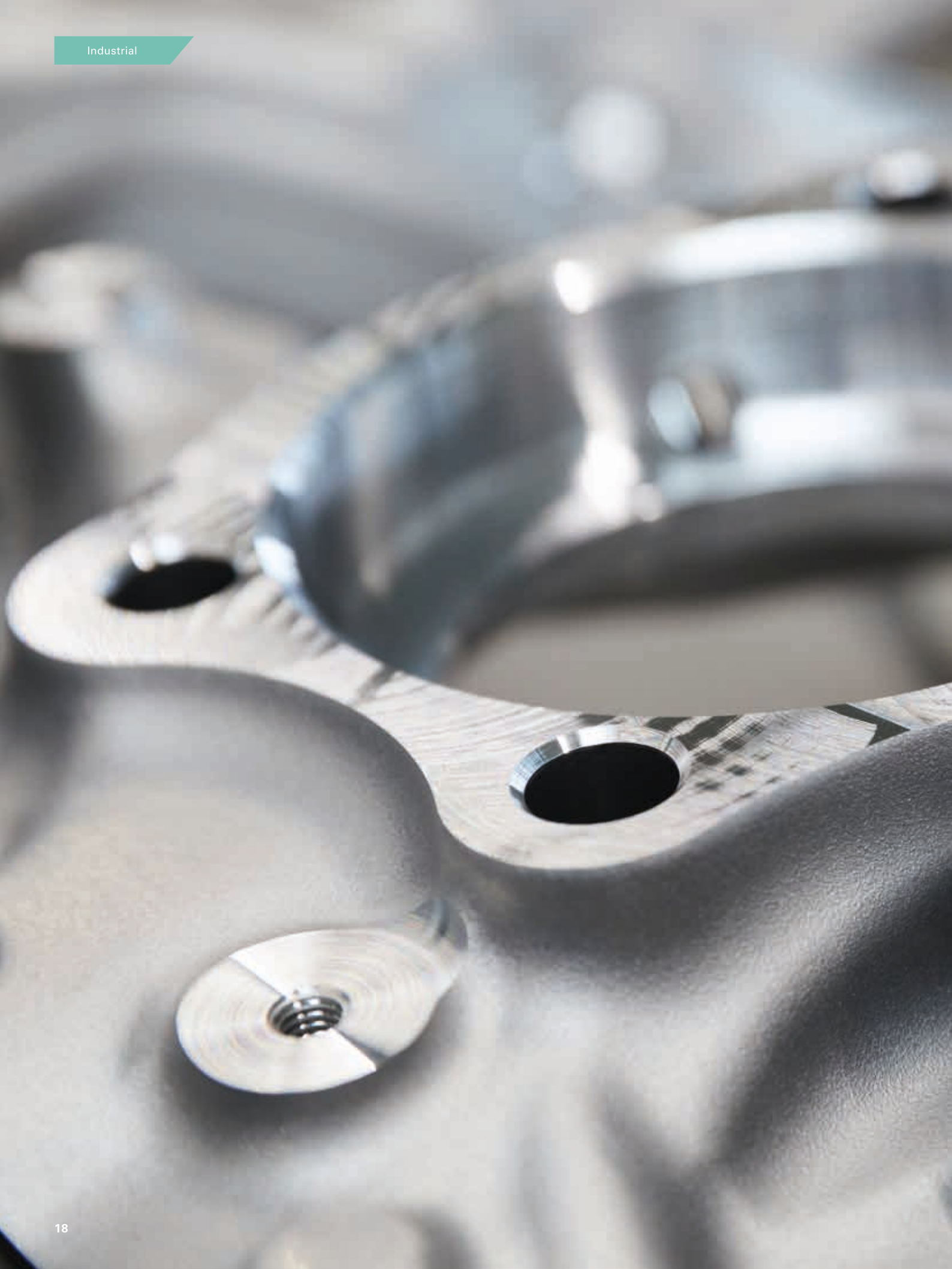

Ready-made flexibility

Grünhainichen is a tranquil municipality in Germany's Ore Mountains (Erzgebirge) region and one of the centres of Erzgebirge wood art. Throughout the world, Grünhainichen is associated with Wendt & Kühn, a company famous for its traditional wood carving, especially its unmistakable hand-painted angel figures. But there is another double name that the people of Grünhainichen are proud to have been associated with for decades: Bäringhaus & Hunger!

The Hunger family was already an exceptional phenomenon in the times of the German Democratic Republic (GDR). In contrast to everyone else in this mountain village, Reiner Hunger did not work in a paper mill or wooden toy factory; he worked in a metalconstruction company that provided maintenance and general overhauls of conventional milling machines. It was obvious that he remained true to metal working, even after 1990. He was encouraged to set up a company by a man named Gerd Bäringhaus. He came from Hagen in West Germany and had been a good friend of the family for many years. They had kept in close contact despite the Cold War. In 1991, directly after the reunification of Germany, Hunger was intending to seek his fortune in the heating industry. Bäringhaus, who was already the owner of a tool-making company, convinced him that it would be better for them to create a metal working company together from the ground up.

Starting out with wheel spacers

"The beginning of contract production was exciting and extremely unusual. The first order we received was from the tuning parts supplier D&W, who asked us whether we could produce wheel spacers for a wide variety of vehicles," recalls Matthias Hunger (50). The son of the company founder is now managing the family business with his younger brother Sebastian (42). Wheel spacers were actually the start of a long journey. The Saxony-based company delivered the pre-finished spacers as a complete package – packed and pre-assembled and thus ready for distribution to D&W.

"But it was a purely seasonal business, which did not put us at full capacity," recalls Matthias. "Typical hobby mechanics tinker around with their cars in the winter, and then drive them for show in the summer once they're freshly tuned. So we found ourselves standing around over the summer with CNC machines that we could not use."

Matthias Hunger (Managing Director Bäringhaus & Hunger GmbH) and Sebastian Höbler (Regional Sales Manager Transportation and Industrial)

> "Machines that enable the required quantities to be produced in the smallest possible space without compromise and in a process-secure manner."
>
> Sebastian Hunger

Machine utilisation on a knife-edge

After just a few weeks as a contract manufacturer, it became clear that seasonal purchasing behaviour by the customer and the desire for greater machine utilisation would be the driving elements of the family business. It was a conviction that has proved to be even more valid today than ever before. At the end of 1991, the company had just 3 employees working in just a few square metres of a rented workshop in a paper mill, developing new methods for efficiency from one day to the next. 30 years later, the company now has 120 employees and over 5,000 square metres of production space. "We have used up all our area capacity. Every patch of land between the road and the river that we could build on, we did," explains Matthias Hunger, when asked about further expansion. His brother Sebastian adds: "We are constantly living on a knife-edge. On the one hand, our machines are at full capacity, sometimes due to orders that ensure utilisation for years. However, we still have to be proactive in responding to inquiries and ensuring that we remain flexible."

It's a situation that many contract manufacturers may be aware of. But B&H is not complaining – instead, it is focused on finding solutions. "Despite the proximity to the Heckert plant in Chemnitz, we switched to Starrag with our machining centres only a few years ago. The new compact machines give us precisely what we need." Sebastian Hunger explains what that is: "Machines that enable the required quantities to be produced in the smallest possible space without compromise and in a process-secure manner. In addition to flexibility in the field of application, area productivity is the key to our success."

Sebastian Höbler (Regional Sales Manager Transportation and Industrial), Sebastian Hunger (Managing Director Bäringhaus & Hunger GmbH)

> "At Starrag, I get everything from a single source and we can be sure that it will be ready in time and that everything will work perfectly in the end." Matthias Hunger

Great value for money

Alongside the Heckert HEC 400D the company acquired in 2014, Bäringhaus & Hunger have integrated five new Heckert H50 machines into their production facilities in the past five years. It's not only the small footprint that they appreciate. As a contract manufacturer, it is highly advisable to put your contract-specific expertise into the clamping device and buy it together with the technology from the machine manufacturer. At least, that's how the Hunger brothers work: "We configure a ready-made machine and allow the technology, the clamping device and the existence of the CPK to be incorporated into the project. At Starrag, I get everything from a single source and we can be sure that it will be ready in time and that everything will work perfectly in the end," explains Matthias Hunger. Sebastian adds: "It is important to us that we get up and running with a standard machine. This gives us greater planning reliability because we can quickly expand, replace or switch to another workpiece at any time. With these conditions, we get great value for money from Starrag!"

Looking to tomorrow

Sebastian Hunger confirms that there is also a worrying shortage of skilled workers in the Erzgebirge region. "We are increasingly having problems finding young people who have commitment and ambition. The ideas that school leavers start their careers with today are completely different to what they were 15 years ago. But the few that we have been able to acquire for training or as young technician are really eager to work on our new Heckert H50. They find it easy to operate the clear HMI in conjunction with the large touchscreen and avoid the complex and usually cumbersome input on the older machines." With these conditions, the contract manufacturer has only

"With these conditions, we get great value for money from Starrag!"

Sebastian and Matthias Hunger (Managing Directors Bäringhaus & Hunger GmbH)

taken a small step towards automation. Even if this has to be carefully considered due to the changing spectrum of parts, B&H is certain that the degree of automation will have to be gradually increased. In this regard, Matthias Hunger looks resolutely to the future: "We are already automating the turning processes and will soon begin to do the same for our milling machinery. With process times growing ever shorter and the already mentioned lack of personnel, it will otherwise be increasingly difficult to reliably utilise the machines."

Optimism as standard

Ultimately, it's certain that flexibility via reliable standard machines is the recipe for success at Bäringhaus & Hunger. Moreover, the impressively positive attitude with which the brothers run their company really helps. Sebastian Hunger sums it up as follows: "We are confident about the future. No matter whether we're confronted by the COVID crisis or electromobility – which is often depicted as a threat in our trade – we remain calm! So far, every cancelled order has caused us to reconsider and eventually make room for two new orders. That was our father's motto, and we trust in it now and will continue to do so into the future."

MPS Microsystems – an innovative company

In a resolutely high-tech environment, with a sleek modern aesthetic and atmosphere conducive to friendly, informal exchanges, a team of five from MPS Microsystems shared their enthusiasm and their initial experiences following the arrival of the Bumotec s191H machining centre to their workshops in Bienne.

The MPS group is a producer of components for the medical, automation and optical systems markets; they also work for the watch sector and for the science industries, in niche markets such as large telescope production. MPS Micro Precision Systems AG comprises four different entities: MPS Precimed, MPS Watch, MPS Décolletage and MPS Microsystems. The latter company recently acquired its first Bumotec s191H, now at its site in Bienne, which employs 200 staff.

Plant Manager Manuel Nercide, explained the company's philosophy to us. "Our design office takes the customer's requirements or an existing drawing, and uses this to develop or suggest a design for a reworked workpiece. Our production and assembly workshop then takes over to manufacture the components, before a complete finished product is delivered to our customers."

Historically, the company's main activity has been the manufacture of high-precision ball bearings. This activity, requiring expertise in precision down to 1/10th of a micron, has been retained and developed to guarantee the operation of the assembled systems. The standard products in the linear ball bearing ranges are available online on a dedicated web platform. For more complex products, close adherence to a relatively precise set of specifications is essential.

After in-house consultation, the Bumotec s191H was the obvious choice

Manuel Nercide: "With the miniaturisation of equipment, ensuring precision becomes an increasingly important factor, whatever the application may be. However, other requirements must be taken into consideration, such as the surface finishes obtained and the repeatability of the manufacturing process over time." One of the company's strengths is that the parts it produces are renowned for their reliability, precision and consistency. This is the result of the balance between skilled human resources and the production solution equipment.

Nicola Thibaudeau, CEO

"The MPS vision is to offer its customers high quality production of complex products with high added value."

MPS: a group offering a broad range of solutions adapted to different markets

Manuel Nercide: "The arrival of the Bumotec machining centre coincides with the development of our milling process requirements, which is something we have been doing in-house since 2016. The aim of this is to achieve a certain level of independence when it comes to suppliers, by being able to subcontract within the group's own entities."

By manufacturing a machined part from bar stock, and incorporating not only the turning and milling operations but also the grinding step, the Bumotec allows productivity to be improved by creating very high quality parts using a single clamping set-up. The result is significantly fewer rejects during production, shorter set-up times and an automated system which can be used to manufacture around the clock without any human intervention. The machine inventory at MPS already allows turning, milling and finishing operations to be performed, but on separate production equipment, and from blanks. In terms of investment, the aim was to provide added value compared to the solutions currently in use. Potential suppliers are selected after an analysis of requirements and of the work produced to date, alongside any forthcoming product developments.

Manuel Nercide: "The final choice is made jointly with the technical department and the machine operators. The Bumotec machining centre was chosen because it met every single one of our expectations in terms of both technical possibilities and the user-friendliness of the HMI. The manufacturing details, and Starrag Vuadens' specific expertise in scraping to ensure a high level of precision is achieved, were key. The excellent level of collaboration and the speed of the support provided throughout the project only served to confirm our choice."

Manuel Nercide,
Plant Manager

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Monitoring the project and the training of operators are fundamental factors

Milling engineer Lucas Vorpe went to Starrag in Vuadens to complete training on the Bumotec s191H. "The machine interface is so intuitive that I was able to program my first workpiece directly." The "test" component used to help MPS choose the selected machine supplier was a part used in the manufacture of telescopes. It is designed to be fitted on an actuator. The fibre optic is attached to this part located at the end of the assembled system, and allows it to be oriented. Depending on the size of the parabola, every telescope which scans the galaxy comprises between 200 and 1.000 actuators.

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"The target cycle time for the part was 30 minutes; the Bumotec s191H created it in almost a third of this time: twelve minutes."

Head of production, Michael Bazzan: "The target cycle time for the part was 30 minutes; the Bumotec s191H created it in almost a third of this time: twelve minutes." Michael Bazzan shared the team's excitement for the Bumotec s191H machining centre with us. "The Bumotec s191H really stands out in the production workshop. With a modern design and contemporary colours, this latest addition has one feature which immediately united the machine operators: the user-friendly interface. Simple to use, with clear information, the controls are highly intuitive." Producing from bar stock is also something very new for MPS. Thanks to the built-in bar loader, blanks no longer need to be prepared by machining their attachment systems prior to production.

A team motivated by its choice of new production solutions

Michael Bazzan: "Our productivity has increased now our production process no longer involves clamping workpiece after workpiece for machining, then using multiple fixtures to create the finishes. All the operations are performed in turn using the same clamping set-up, without any interruption."

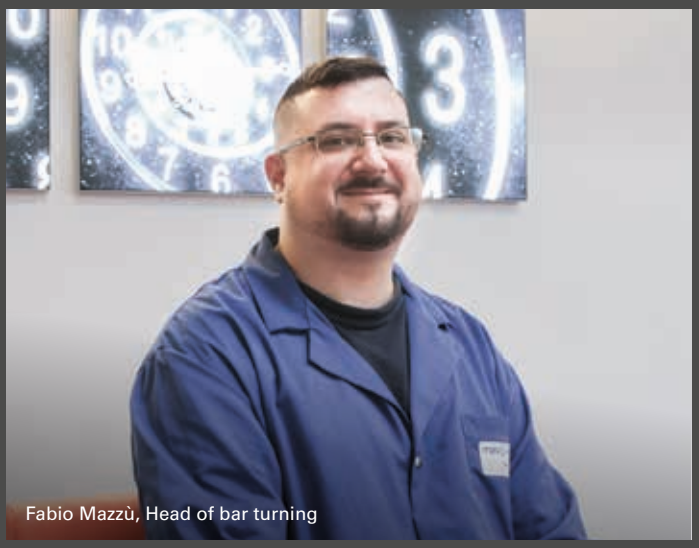
Fabio Mazzù, head of bar turning, milling and EDM, added "We can also leave production running overnight without supervision thanks to the function which manages the sister tools in the 60-position magazine." With this function, if a tool breaks during production, it is replaced with an identical tool stored in the magazine. There is no need to stop production and the tools are tested.

The ability to machine complex materials is one of the Bumotec s191H's assets

MPS Microsystems is an innovative company developing innovative solutions. One of the most high-tech projects with a global impact that the Bienne-based company has been actively involved with is the machining of components for an artificial heart. As Michael Bazzan explained to us, "this was an enormous technical challenge as the part we needed to produce for this project is a component made from carbon-filled peek with geometric and dimensional tolerances of just a few microns and exceptional surface finish requirements. The chosen Bumotec machining centre is perfectly adapted to this type of challenge." The machining of components on six faces using the retaking unit once again allows the entire part to be manufactured in a single clamping set-up.

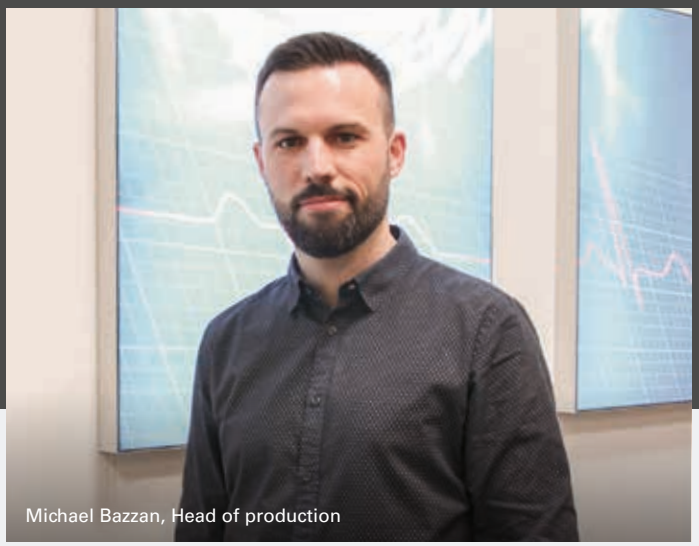
Michael Bazzan: "In concrete terms, we are at the industrialisation stage for this artificial heart project, and the components to be produced are very challenging. The Bumotec s191H allows us to overcome these issues."

In the medical industry, the traceability of components and their documentation are very widely referenced, particularly when it comes to implants of any kind. The procedures are usually quite long and costly. Limiting the number of operations



Fabio Mazzù, Head of bar turning

> "The collaboration with Starrag Vuadens has enabled us to take a huge step forward in the process to internalise key competencies."



Michael Bazzan, Head of production

Lucas Vorpe, Milling engineer

performed on different complementary production units, and therefore using a single fixture for machining, also allows these procedures to be shortened and simplified and their costs reduced. Michael Bazzan gave a concrete example of the simplification of the work flows: "With a component created on three complementary production units, we have to prepare three different fixtures and three set-up files, along with three procedures and three tasklist operations, whereas during production with the Bumotec s191H, one single set-up file has to be prepared with a single file of tasklist operations. Obviously these are much larger, but they are simpler to manage as we have just the one document to monitor."

For future projects with the Bumotec s191H, the main materials to be machined will be titanium, stainless steel, aluminium, and the carbon-filled peek mentioned previously, plus of course, ceramic if a demand for this arises. Fabio Mazzù: "The power of the spindle which rotates at 40,000 rpm brings benefits both in terms of surface finish quality and cycle time, something which our current inventory of machines cannot provide as their spindle speeds are limited to 20,000 rpm."

Proficiency in key competencies such as milling

This investment in the Bumotec s191H is part of a program to gain in-house proficiency in key competencies, as Nicola Thibaudeau, CEO explained: "For us, control of the milling process is a necessary key competency for successfully creating increasingly complex parts and ensuring a higher return. The collaboration with Starrag Vuadens has enabled us to take a huge step forward in the process to internalise key competencies."

The MPS vision is to offer its customers high quality production of complex products with high added value. Today's markets are highly reactive. Manufacturers need to be able to change production very quickly, in line with demand. Each change in production needs to be accompanied by the shortest possible set-up time to maintain a high level of productivity. To a greater extent than is the case today, production runs may be for very small volumes of increasingly complex parts. The production tools will have to reflect this trend. Here again, the Bumotec s191H is sure to deliver on its promises.

"The Starrag machine can easily process complex workpieces with edges up to 3,000 mm in length and weighing as much as 8,000 kg."

Specialism included as standard

"Many machinery suppliers offer expensive custom solutions – but with the Heckert HEC 1800 and simple optional adjustments, Starrag gave us a machine that enables us to create complex customer-specific solutions for a wide range of applications", says Michael Wagstaff, CEO of Northern Kentucky Operations at Wagstaff, Inc.

Wagstaff, Inc. has been providing solutions for the aluminium production industry for 75 years. Although the company is a veteran presence in aluminium casting, they are constantly innovating new continuous casting technologies that enable bars with various different cross-sections to be produced with increased speed and uniformity.

James Kuntz, Wagstaff's Hebron, Kentucky USA Plant Manager wanted to locate a new CNC machining centre to streamline the process of machining support blocks. The blocks are key components that guide their respective continuous casting bar during the casting process. "We looked at lots of machines… but we couldn't find one capable of handling the wide range of parts for our systems."

Kuntz contacted a colleague who directed him towards Starrag machines. "The Heckert HEC 1800 was the only machine to offer a sufficiently large working area for us to produce our parts. Despite all our research, we didn't find another machine that even comes close to offering what the Heckert HEC 1800 does."

Wagstaff continuous casting systems can simultaneously produce 1 to 160 round-bar blanks with a diameter between 110 mm and 1,223 mm in each pass. The rectangular bars can be cast in many sizes and diameters, reaching over seven meters in length and weighing over 40 tonnes. The Starrag machine can easily process complex workpieces with edges up to 3,000 mm in length and weighing as much as 8,000 kg. In response to these machine engineering requirements, the Heckert HEC 1800 horizontal machining centre has been designed in a flexible and modular way to ensure optimal results for many sizes, weights and alloys during machining.

Ambitious goals and promising results

Kuntz says that integrating the Heckert HEC 1800 into Wagstaff's production facility has significantly reduced the time it takes to produce customer-specific

support blocks. "The machine saves time and can work without supervision. What's more, the workpieces are ready for assembly after machining without the need for further processing. We're particularly pleased with the machine's reliability, which makes it extremely efficient. The Heckert HEC 1800 has been operating at over 95% capacity for several months, so it's almost working continuously."

Michael Wagstaff, CEO of Wagstaff Northern Kentucky Operations says, "We usually produce batches of four to six aluminium support blocks for our customers. These support blocks need clamping in sizes up to 762 mm × 2,286 mm × 381 mm – that's our typical workpiece. It used to take ten hours to produce workpieces like these, but we wanted to reduce that to four and a half." Kuntz justifies the objective with recorded progress from Wagstaff's production environment, "We're now at five hours and have fewer and fewer manual tests to perform during the process. We're getting better and better, and are confident that we'll have reduced our production time by 55% as planned very soon."

In reference to metal type, hundreds of different alloys have already been processed on Wagstaff casting systems. Many new and existing alloys for general and aerospace applications are continuously being tested for future use in Wagstaff's industry-leading research and development lab.

"We are confident that we'll have reduced our production time by 55% as planned."

Michael Wagstaff, CEO of Northern Kentucky Operations at Wagstaff, Inc. and James Kuntz, Plant Manager Wagstaff Hebron, Kentucky

"The Heckert HEC 1800 is completely unfazed by this high-strength aluminium, meaning we can meet our customer's requirements efficiently and effectively."

Wanted: a big and powerful solution

"We place very particular demands on our machining centres, which explains why it took so long for us to find the right one. But the Heckert HEC 1800 already met so many of our machining needs … we only had to make one small optional adjustment to cover our entire portfolio of applications", says Kuntz. Wagstaff had originally planned to use five-axis machining, but the Heckert's working area made it possible for workpieces to be extensively machined with one less axis and without having to be re-clamped. As a result, Wagstaff improved machining quality and shortened production set-up times.

The Heckert HEC 1800 offers a wide range of work spindle options, process-optimised solutions for tool and workpiece handling, and innovative process control and monitoring systems. Wagstaff notes, "We chose a 15,000-rpm motor spindle and torque values that suited our applications. This spindle was the right choice for us to deliver the necessary torque when deep-hole drilling and contouring the aluminium blanks."

"Exactly", says Kuntz, "we have a customer who needs his support block to be manufactured from blanks made of 7000-series alloys. The Heckert HEC 1800 is completely unfazed by this high-strength aluminium, meaning we can meet our customer's requirements efficiently and effectively."

Ultimately, however, it wasn't just the machine's selling points that won over Wagstaff. "We were drawn to Starrag because of its global team of support staff who wholeheartedly stand by their products. The company is more than a supplier to us – we consider Starrag a partner. That's very important to us."

starrag

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