

# INSIGHTS

ISSUE 2 2018

## AUTOMATED

New automation modules

## ANIMATED

Hermle machining centres on film

## USER-BASED

Five industry reports



## Preface

Dear business partners and customers,  
dear members of staff,

2018 looks like it is going to be one of the best years yet for Hermle AG. The Group's incoming orders increased by 22 % in the first half of the year, while sales rose by 14 %. Hermle AG has profited from the current economic climate in the industry and successful product innovations in the areas of automation, digitalisation and the new C 650 machining centre. Detailed figures can, as always, be found on our website.

At the key industry shows – AMB in Stuttgart and IMTS in Chicago – Hermle showcased an extensive array of machine models and various automation solutions. Our digital modules, featuring the areas Digital Production, Digital Operation and Digital Service, attracted widespread interest and were presented in a special section. Hermle products were also on show at other national and international exhibitions and workshops throughout 2018. Our two machine series PERFORMANCE-LINE and HIGH-PERFORMANCE-LINE and their automation ensure we are well prepared to meet future requirements. The pace of digitalisation continues to increase.

Hermle has invested roughly €1.9 m in two new bending machines and a laser die-cutting system at its sheet metal production facility in order to meet increasing capacity demands. Construction work in the machining shop is now nearing an end. The last connections for the newly installed machines have been fitted. This means visitors can once again marvel at one of our production centrepieces during tours of the factory. Additional investments were made in the field of production to transform Hermle into a smart factory.

We hereby cordially invite you to our traditional Open House in Gosheim in the spring of 2019.

Finally, may I wish you and your families a very happy Christmas and a prosperous and healthy 2019.

Kind regards,



Franz-Xaver Bernhard  
Member of the board  
Sales, Research and Development

# HERMLE-LEIBINGER SYSTEMTECHNIK GMBH

## 20 YEARS OF ULTIMATE AUTOMATION

When Hermle-Leibinger Systemtechnik GmbH (HLS) – today a 100 % subsidiary of Hermle – was founded in 1998, machining centre automation technology was still in the experimental stage. HLS initially focussed on handling and feed systems and basic machining centre automation. However, the importance of robot technology and combining several machining centres to create a manufacturing system soon became clear. And it was not long before additional technologies such as cleaning, measuring and monitoring were integrated into the turn-keys. But, in particular, it was robot technology based on an ingenious platform strategy that allowed HLS to constantly move into new areas of activity and industries.

Well over 300 systems have since been installed with Hermle machining centres, including linear systems with up to five robot-controlled machining centres. Production machines from other manufacturers have also been incorporated into these complex systems.

## HS flex

### HANDLING SYSTEM HS FLEX – FURTHER STAGES OF EXPANSION IN PALLET HANDLING

The completion of a further expansion stage to create a multi-pallet system makes HS flex even more attractive. When combined with the Hermle Automation Control System (HACS), HS flex offers enhanced productivity and flexibility.

After a hugely successful launch in April 2017, the HS flex handling system, which can be adapted to the machine models C 12, C 22, C 32, C 42 of the HIGH-PERFORMANCE-LINE and to the C 250 and C 400 of the PERFORMANCE-LINE, has become a real model of success. And its popularity continues to rise.

The HS flex handling system has been presented at this year's Open House with a range of new features, especially for pallet handling. By changing the gripper, it is now possible to integrate various pallet systems such as EROWA MTS and ITS 148 in one system. HS flex enables optimum handling of pallets up to a maximum transport weight of 450 kg and even with pallet dimensions of up to 500 x 400 mm. Thanks to the new software functionality in HACS, it is now also possible to stack pallets in individual cases and thus store and offer an even wider spectrum of workpieces within the system.





## RS 2 Combi

### RS 2 COMBI ROBOT SYSTEM WITH INTEGRATED KANBAN STORAGE SYSTEM

A refined RS 2 Combi robot system which has been adapted to a C 32 U dynamic 5-axis machining centre was recently assembled and installed specifically for the Technology and Training Centre.

This robot system is a platform-based system with a built-on cabin and a 6-axis industrial robot designed for transporting a maximum weight of 240 kg. The customisable shelf storage systems house both gripper storage stations (for pallets and workpiece handling) and additional tool storage (for large/heavy milling and drilling tools) or various storage stations for pallets and/or workpieces on dies.

A kanban magazine for cubic and/or cylindrical workpiece blanks was integrated along with a conveyor belt for semi-finished and finished parts and a chute for reject parts. A setup station with an additional control panel has also been adapted. The robot system can be detached from the machining centre with a door system, so the operator has direct access to the working area of the machining centre (setting up or taking measurements), while the robot can serve other machining centres in parallel.

#### STORAGE UTILISATION:

- 4 varying additional grippers
- 4 x (up to 6 x) fixture pallets 400 x 400 x 320 mm (W x D x H)
- 12 pallets with workpieces 400 x 400 x 360 mm (W x D x H)
- 6 pallets with workpieces 400 x 400 x 500 mm (W x D x H)
- 3 pallets with workpieces 400 x 400 x 420 mm (W x D x H)
- Kanban system with 35 workpiece chutes for blanks (cubic or cylindrical) from 20 x 20 x 20 mm to 100 x 100 x 100 mm
- 5 manual tools HSK 63 for oversized tools
- 200 x 450 mm length and 15 kg
- 4 die-plate pallets 530 x 630 x 260 mm (W x D x H) for 12 workpieces up to 100 x 100 x 100 mm
- 4 die-plate pallets 530 x 320 x 410 mm (W x D x H) each with 3 ITS-148 pallets



RS 2 Combi robot system with kanban, adapted to a C 32 U dynamic 5-axis machining centre



RS 2 Combi robot system with kanban system



Pallet storage, setup station (rear) and conveyor belt for workpieces

# COMPANY.



## ANIMATED HERMLE MACHINING CENTRES ON FILM

What characterises Hermle products? How exactly are our machines constructed and which assemblies are available? Which advantages do they offer? And who profits from them? Our clips show you everything. So why don't you take a look?

The new product animations showcase the emotional highlights of our machining centres and impressively demonstrate their advantages. Classified into three sporting categories, our machining centres attain peak performance in a virtual arena. But the animations are not only a visual experience, they also deliver vividly detailed product information: Hard facts – from initial creation and differentiated details up to the maximum workpiece.

### TECHNICAL. VISUAL. EPICAL.

Our ALL-STARS and GIANTS in the HIGH-PERFORMANCE-LINE as well as our RISING-STARS in the PERFORMANCE-LINE show what "better milling" with Hermle actually means – first-class quality. Our ma-

chining centres are beyond reproach in terms of technology quality and ability, so too are the animations. The visual quality of the images is simply brilliant. The animation is highly dynamic, innovative and futuristic. Surprising, the changes of perspective – and yet: always comprehensible. These clips take the audience on a journey into the very heart of our machining centres. This ensures they are not your run-of-the-mill explanatory film. They are an expression of the passion that drives us – an expression of Hermle's philosophy.

### SOUND ON! ROLL FILM!

Enter the world of emotional product visualisation and experience our quality for yourself at [www.hermle.de/en/machining\\_centres](http://www.hermle.de/en/machining_centres)

### THREE FILMS, ONE MESSAGE

**ALL-STARS** in the HIGH-PERFORMANCE-LINE C 12 / C 22 / C 32 / C 42

**GIANTS** in the HIGH-PERFORMANCE-LINE C 52 / C 62

**RISING-STARS** in the PERFORMANCE-LINE C 250 / C 400 / C 650 (coming soon)



**GIANTS**

**RISING-STARS**

**ALL-STARS**

# PRODUCTS.



## 3 STEPS TOWARDS INDUSTRY 4.0



### DIGITAL MODULES – THE SMART ALL-ROUND PACKAGE

The digital transformation is now becoming the focus of many different production operations. Hermle is there to provide support while you chart your individual course towards Industry 4.0 and the smart factory. We provide a comprehensive range of digital modules to boost your efficiency ratings, precision and productivity. Our Digital Production, Digital Operation and Digital Service components put your Hermle machining centres on a solid footing to meet what the future brings.

You can also find the brochures in the media centre on our website:  
[www.hermle.de/en/media/media\\_library/printed\\_documents](http://www.hermle.de/en/media/media_library/printed_documents)

#### ADVANTAGES AND FEATURES

- *Intelligent order management*
- *Transparent production processes*
- *Intelligent machine tuning*
- *Paperless manufacturing*
- *Thought-through technology cycles*
- *Remote or preventive maintenance*





With the new punch laser machine and two new bending machines for the large and small parts sector, Hermle is up-to-date with regard to sheet metal production

# PERFECTLY EQUIPPED FOR SHEET METAL PRODUCTION

## HERMLE INVESTS €1.9 M IN NEW MACHINES

All good things come in threes: We have put three new machines into operation to meet the increasing capacity demands. Come what may, Hermle is well prepared in terms of sheet metal production.

### PUNCH LASER MACHINE TRUMATIC 7000

One of our latest investments is the TruMatic 7000. The punch laser machine replaces the TruMatic 6000 and is roughly 20 % more effective than the predecessor model. In order not to disturb ongoing production processes, we installed the machine during the company holidays. Laser cutting, punching, bending, forming, deburring, tapping, marking, stamping – is there anything it cannot do? The fast part removal flap enables extremely short displacement paths, reduced removal times and maximum process reliability for laser cut parts up to 500 x 500 mm. The integrated bulge detection stops machining automatically as soon as the sheet metal starts to bulge. The smart punch monitoring minimises the risk of a punch breaking, monitors the last punch when changing a tool and uses a light barrier to check the hole centre. And these are just a few of the advantages that the TruMatic 7000 offers.

### BENDING MACHINE TRUBEND 5230

As a replacement for the V 170, the new bending machine has been in use in our large parts sector since the summer. It is equipped with two bending aids that provide valuable practical assistance to the operator when bending heavy parts and prevent typical counter moments especially when machining thin sheet metal plates with long side lengths. They are characterised by a high carrying capacity (100 kg) and a large angle range of up to 30°. In addition, the new TruBend boasts a tool indicator, an hydraulic tool clamping system and a 6-axis backgauge, which allows complete freedom of application. It guarantees a stable gauge position for asymmetrical workpieces. Setup times are not required for gauge adjustments.

### BENDING MACHINE TRUBEND 7036

The TruBend 7036 replaces the outdated V 130. It is also equipped with a 6-axis backgauge. Thanks to its comfort support table, the comfort footrest as well as the sitting and standing aid, it is particularly ergonomic, as it enables fatigue-free working – even in a seated position. Its speed and efficiency make the new bending machine ideal for bending large quantities of small and medium-sized parts.

## TECHNICAL DATA:

### Punch laser machine TRUMATIC 7000

- Dimensions: 8,070/9,450/2,328 mm (W x D x H)
- Punching operation 1,200 rpm
- Max. sheet thickness 8.0 mm steel plate
- Max. workpiece weight 280 kg
- Max. punching force 220 kN (22t)
- Max. laser capacity 3,200 W
- Working range of the machine  
X axis 3,050 mm / Y axis 1,550 mm

### Bending machine TRUBEND 5230

- Press force 2,300 kN (230t)
- Bending length 4,250 mm
- User interface Touchpoint TruBend
- Max. operating speed 25 mm/s
- Dimensions: 4,150/2,055/3,200 mm (W x D x H)

### Bending machine TRUBEND 7036

- Press force 360 kN (36t)
- Bending length 1,020 mm
- User interface Touch control
- Max. operating speed 25 mm/s
- Dimensions: 1,805/1,330/2,380 mm (W x D x H)



## QUALITATIVE GROWTH THROUGH TECHNOLOGY INVESTMENT



From right to left Willi Gebert, Head of Administration, Strategy and Finances, Rolf Kälin, Responsible for Sales and Quality Assurance, both from Feusi AG, and far left Christian Simon, Regional Sales Manager Hermle (Switzerland) AG

By investing in cutting-edge CNC machining centres from Hermle AG, Feusi AG has been constantly enhancing its performance and competitiveness and is now able to machine complex milled parts simultaneously 24/7 with 5 axes.



The image shows a part of the "Hermle Boulevard" at Feusi AG, featuring the 5-axis machining centre C 400 U with workpiece magazine, the 5-axis machining centre C 22 U with pallet changer PW 150 and the 5-axis machining centre C 42 U/MT with rotary functionality

"With passion for precision" is the basic belief of the Swiss company Feusi AG. Paul Feusi founded the company in 1956 as a small precision mechanics workshop for the production of mechanical parts. Since then it has remained true to its original values of outstanding technology and quality. This is demonstrated by constant investment in state-of-the-art production technologies. With more than 50 years of experience, Feusi AG is a much sought-after partner for the flexible production of high-precision components for mechanical and process equipment manufacturing. "To be able to meet the most demanding requirements of our customers in a flexible manner, we rely on the high performance and maximum technical availability of our machinery," explains Willi Gebert, who is responsible for Administration, Strategy and Finances at Feusi AG. "Since 1994, this, along with other things, has led to us initially using universal milling machines and later CNC machining centres as well as 5-axis CNC high-performance machining centres from Hermle AG."

### FROM DEMONSTRATION MACHINE TO NEW ORDER

What began with the UWF 900 E universal milling machine was continued by Feusi with the C 22 U, C 42 U/MT as well as the 5-axis CNC machining centres C 250 U and C 400 U. The Swiss company uses them to process precision parts with edge lengths of just a few millimetres up to large mechanical engineering and chassis parts weighing several hundred kilograms – from prototypes to medium-sized production runs. "We have had excellent experiences with the precision, performance and reliability of the Hermle machining centres and the service and know-how of the Hermle specialists," says Rolf Kälin, who is responsible for sales and quality assurance at Feusi. Citing one example, he explains: "When we were under deadline pressure, Hermle provided us with a C 22 U demonstration machine to ensure we could supply the customer on time with impeller components of the required quality. This resulted in an order for the complete machining of larger impeller components measuring 750 millimetres in diameter, which is why we purchased the 5-axis machining centre C 42 U/MT."

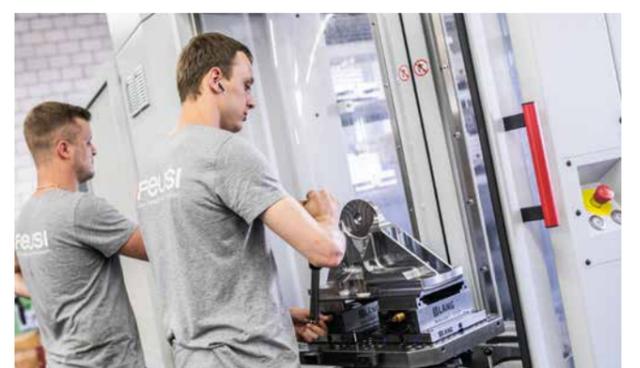
### INVESTING SHREWDLY IN PERFORMANCE AND AUTOMATION

This investment also paid off: The option of machining larger components resulted in further orders – both for the Swiss precision engineering company and for Hermle. With the aim of 24/7 production, Feusi added the high-performance machining centre C 22 U with the 11-fold pallet changer PW 150 for automatic 5-axis machining to its range of machinery. "We invested with foresight and will continue to do so in the future, without losing sight of profitability," explains Willi Gebert. Evidence of this philosophy can also be seen at Feusi AG in the recent investments in Hermle machining centres. The precision engineering company has successively purchased two CNC machining centres of both the C 250 U and C 400 U series. According to Rolf Kälin, this allows certain new workpieces to be machined on the one C 400 U and then produced in series automatically on the other C 400 U, which is additionally equipped with a pallet storage and an additional magazine for tools. Since these are

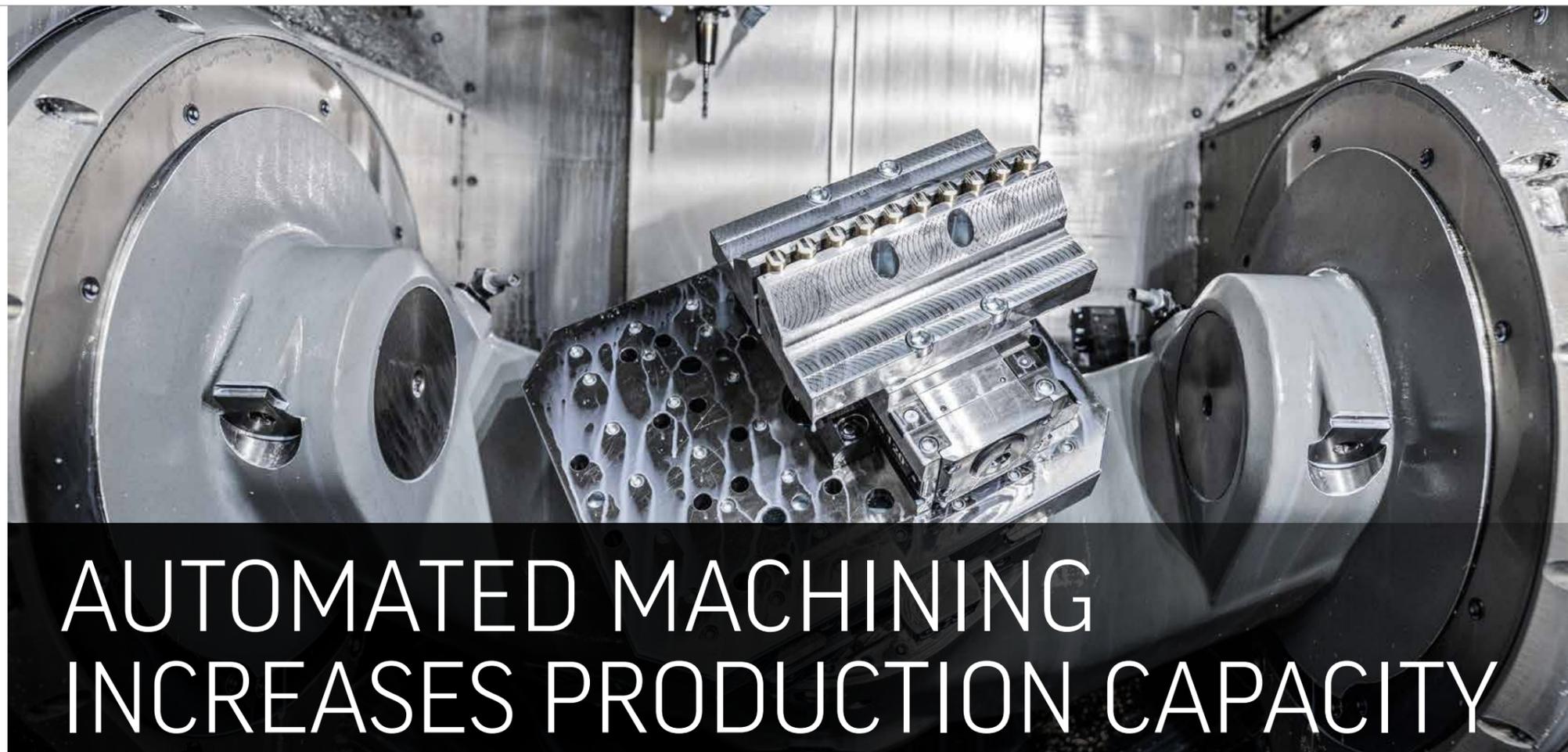
Hermle machining centres, which are very similar in terms of their design, operating concept and equipment, it is not difficult for operators to change from one to the next. The facilitated multiple operation results in further advantages which ultimately benefit the spindle running times and thus utilisation and economic efficiency.



a small excerpt from the range of intricate workpieces made of St 52, CroNiMo 34, stainless steel or aluminium; here, complex chassis parts made of St 52



the operator-friendly setup station of the PW 150 pallet changer



## AUTOMATED MACHINING INCREASES PRODUCTION CAPACITY

WMF Group

the working area of the machining centre C 22 UP with the swivelling rotary table measuring 320 mm in diameter (axes A and C) for 5-axis complete/simultaneous machining of tool components in a single setup

Through its standardisation strategy and the C 22 UP machining centre from Hermle, the tool and mould making division of the WMF Group has managed to streamline die and tool production processes, thereby creating the scope for services for external customers.

Today, the WMF Group, which was founded in 1853 as Metallwarenfabrik Straub & Schweizer and has been part of the French SEB Group since 2016, represents the best in cooking, drinking and dining. More than 2,200 employees at the Geislingen headquarters and the nearby Hayingen plant alone are engaged in the development and production of high-quality cookware and cooking knives.

Many of these products are still manufactured through the primary and secondary forming of sheet metal blanks. The WMF Group manufactures most of the required tools in-house at its own tool shop in Geislingen. "For about 30 different knife models alone, we use between 100 and 150 die tools, each consisting of an upper and a lower tool made of hardened hot-forming steel," explains Hans Brühl, Part Production and Tooling Technician at WMF. To guarantee consistent high product quality, the mould makers have to rework the tools after roughly 3,000 strokes. This involves precisely milling and removing approximately 0.5 mm of material, a process that is possible up to fifteen times with the dies. "In the past, we performed all these milling and finishing operations on an HSC milling machine. However, this machine could only accommodate two dies at a time, which then had to be processed successively and in several time-consuming setups. As knife production in Hayingen increased, more dies

were obviously needed and this led to capacity shortages," says Brühl when explaining the situation at the time.

### DEMANDS: BEST SURFACES IN THE SHORTEST TIME

An evaluation process, which included a series of tests to assess contour accuracy, precision and surface quality and to determine whether the specification of significantly reducing machining time for refinishing had been accomplished, saw the 5-axis machining centre C 22 UP from Hermle come out on top. A machining process developed together with Hermle led to some extraordinary results: Not only was the desired reproducibility of contour accuracy and surface quality achieved, the machining time was also reduced considerably. Thanks to the equipment of the C 22 UP machining centre, featuring an 11-fold PW 150 pallet changer, it is now also possible to rework the dies automatically, in other words during the night and at weekends. This means additional capacity is now available for processing internal and external orders.

### PROVEN: TWICE AS FAST

The fact that the WMF Group's tool and mould making division was able to achieve new levels of productivity is due, on the one hand, to standardisation of the dies. On the other hand, a self-developed pallet and workpiece clamping system with 4-fold bolting directly to the pallet and the automation provided by the PW 150 pallet changer have allowed machining to become significantly more efficient. Axel Spadinger, Head of Tool Engineering & Making at WMF Group GmbH, says in summary: "We were able to reduce the machining time by 50 percent and more when refinishing the dies. Since this work is generally carried out at night and over the weekend, we can therefore use the C 22 UP machining centre very flexibly during the day for all other machining operations. Combined with our know-how in tool and mould making, we are thus in a position to meet external customer needs on time."



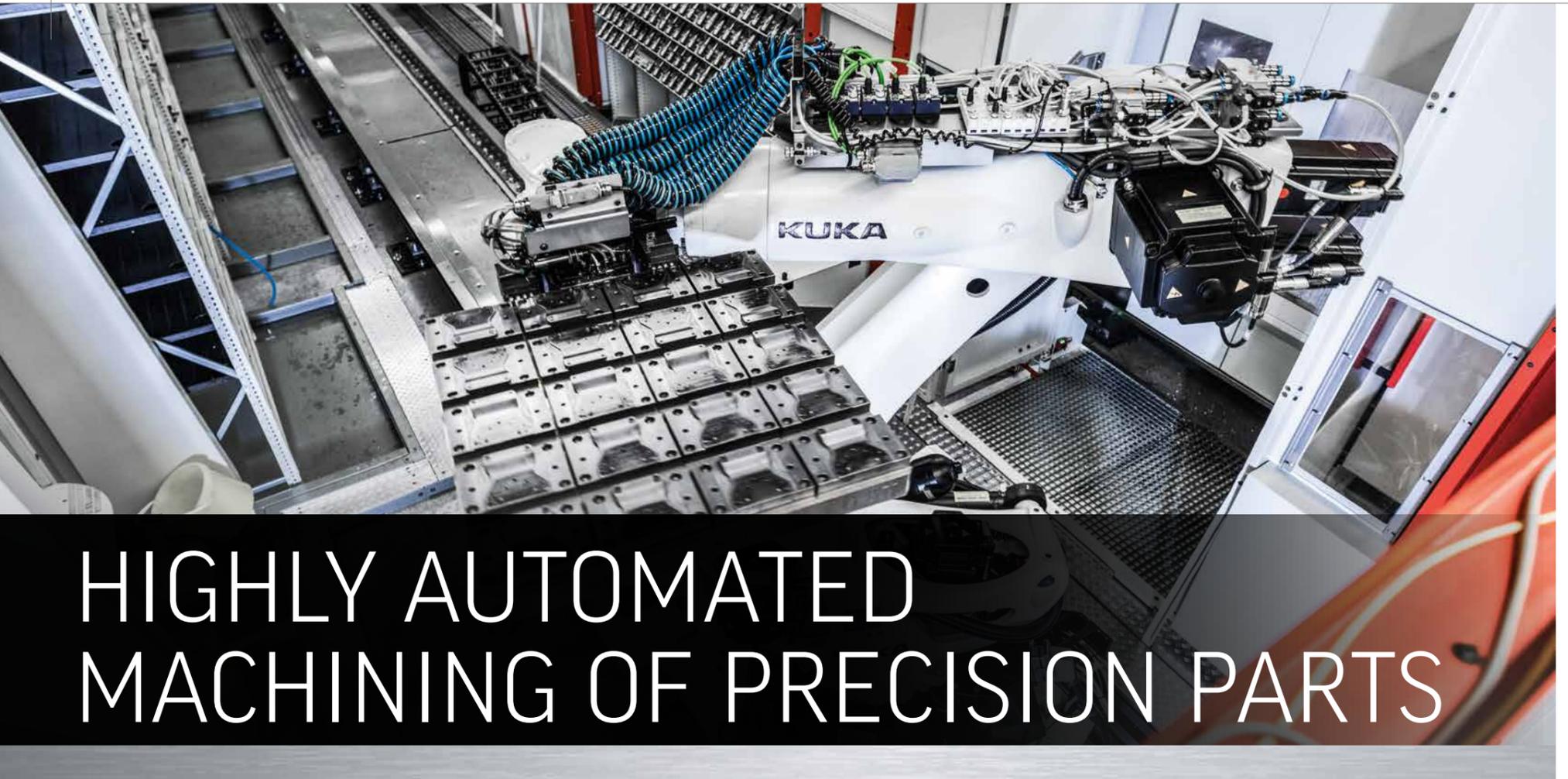
From left to right Axel Spadinger, Head of Tool Engineering & Making, Hans Brühl, Part Production and Tooling Technician, and Günter Schulz, machine operator, all from the tool and mould making division of WMF Group GmbH in Geislingen/Steige



Like no other company, the WMF Group represents the best in cooking, drinking and dining and supplies the finest kitchen utensils. The C 22 UP machining centre from Hermle is at the very heart of the metalware manufacturer's die and tool shop.



the PW 150 pallet changer of the C 22 UP machining centre; in the foreground is the (rotatable) setup station for loading the pallets/workpiece fixtures with workpieces or for removing the finished parts



## HIGHLY AUTOMATED MACHINING OF PRECISION PARTS

### *Kappler*

the robot handling a pallet with multiple clamping system for 20 identical workpieces

Thanks to a flexible manufacturing cell from Hermle, consisting of three 5-axis CNC high-performance machining centres C 42 U and a robot system RS 2-L with a double magazine for 180 workpiece pallets and 200 additional tools, the precision technology specialist Kappler GmbH & Co. KG is venturing into new dimensions of productivity.



from left to right Dipl.-Ing. (FH) Rainer Gottschling, Managing Director, Sven Faas, Planning/Programming/System Support, and Alexander Roeth, Technical Plant Manager, all from Kappler GmbH & Co. KG, in front of the flexible manufacturing cell

#### PROCESS AUTOMATION OF THE HIGHEST ORDER

The extensive range of machinery includes eight 5-axis CNC high-performance machining centres from Hermle: four C 30 U series machining centres and a further four C 42 U series machining centres, one of which is used as a stand-alone unit. The other three are connected by a robot system RS 2-L and a double magazine for 180 workpiece pallets as well as 200 additional tools to form a fully integrated flexible manufacturing cell. Including the machining centres already equipped with additional tool magazines, 800 tools are available in the overall system. In the magazine for the workpiece pallets, there are pallets upon which clamping devices for one or several workpieces are clamped. Depending on the machining times of the individual workpieces – between 15 minutes and eight hours – the flexible manufacturing cell performs its tasks autonomously across one or more shifts. Since the loading of blanks and the removal of finished parts is carried out parallel to the primary processing time, 24/7 operation is possible.

#### 24/7 PRECISION MILLING IN THE MICROMETRE RANGE

“Hermle’s highly stable gantry-machine design and kinematics with three axes in the tool and two in the workpiece come into their own in the field of precision manufacturing. Together with the electrical heat compensation and sealing air for the scales as well as additional switch cabinet cooling, we achieve outstanding accuracy in a range of 3 to 4 µm,” explains Alexander Roeth, Technical Operations Manager at Kappler. “In addition to the high level of accuracy, the design and equipment of the machines, the excellent accessibility and simple operation as well as fast tool changes and thus minimum downtime clearly speak in favour of Hermle.” A further feature also helps to maintain the high level of accuracy: Kappler regularly uses the Hermle ball milling cutter test program to check and calibrate the positioning functions. “Thanks to the 5-axis technology and high degree of automation, we are able to manufacture components effectively and efficiently in one to two setups with the desired and, above all, reproducible level of preci-

sion. This enables us to offer our customers ultra efficient high-end manufacturing technology for their function-integrated components,” concludes Rainer Gottschling.



the perspective top view of the flexible manufacturing cell with the magazine area for workpiece pallets (left and rear), the magazine for the 200 tools on the right in the sub-area, the connection of a machining centre C 42 U on the right at the front and the robot in the middle, which, as a multifunctional system, is responsible for handling both the workpiece pallets and changing the tools



the working area of a 5-axis CNC high-performance machining centre C 42 U with swivelling rotary table measuring 800 x 630 mm in diameter and a clamping device clamped on a pallet for the 5-axis machining of a workpiece

The term “contract manufacturer for mechanical engineering and tool construction” does really not do justice to the actual range of services offered by Kappler GmbH & Co. KG. The precision technology service provider guarantees 3, 4 and 5-axis machining capabilities for components of all shapes and sizes, from just a few millimetres up to 3,000 mm in X-length. All this has developed from a company founded in 1934 that originally produced moulds and tools for making shoes. Company founder Friedrich Kappler began contract manufacturing and expanded the firm’s portfolio to include tools for the production of spectacle frames. From the 1980s onwards, the service provider also focused on the contract manufacturing of components and assemblies for loading and automation systems and, at the end of the 1990s, also started processing higher-quality optical components for the semiconductor industry and parts for the aerospace industry. Simultaneous machining plays a major role in this. Kappler is well equipped for single part and prototype processing as well as for larger production runs with flexible order and batch management.



## SPEEDLINE DELIVERY SERVICE FROM RAW MATERIAL TO FINISHED PART



on the left the operator/supervisor of the Hermle machining centre Mr Engler, in the centre Lothar Marks, founder and Managing Director, and on the right his son André Marks, Managing Director, all from Marks GmbH based in Eisenberg/Germany

Marks GmbH, a contract manufacturer and specialist supplier for mechanical engineering and tool construction, commands a special place in the German market due to its range of services. They include raw materials, precision flat steels, P-standard plates and 3-axis pre-milled or 5-axis finished active parts on Hermle machining centres, including all deep hole drilling work.

The portfolio of Marks GmbH, based in Eisenberg, Germany, includes tool and stainless steels, aluminium and non-ferrous metals, blanks, pre-milled or corner-radii-finished blanks as well as CNC-produced active parts milled and machined on all sides. Company founder Lothar Marks soon realised: Customers often require special materials or blanks in very small quantities. Marks offers them the necessary support and assumes complete preliminary and final processing according to drawings and CAD data.

### A PRACTICAL SERVICE CONCEPT

"We saw raw materials to the customer's brief and ensure short delivery times," claims Lothar Marks. The remaining pieces can be viewed online the next day, complete with information about dimensions, quantities and prices. 24 hour delivery is guaranteed. Further services provided by the company include high-pressure water jet cutting, pre-milling and the complete 3D machining of workpieces. "Thanks to our fast and reliable service, our customers are also able to meet their ever shorter deadlines," says Marks. For this purpose, the contract manufacturer has invested in an efficient range of machinery. It consists of several automatic saws, large part milling machines and two CNC machining centres C 1200 V from Hermle AG for the 3-axis machining of mould plates, mould frames and active mould parts. The company additionally boasts two 5-axis CNC high-performance machining centres – also from Hermle – of the C 60 U and C 42 UP series. Marks uses the C 42 UP to process more complex workpieces of medium size and weight in a highly automated fashion for up to 23 hours a day.

### FROM SAWING TO 3D COMPLETE MACHINING

Employees can use the C 60 U for traverse paths of X-Y-Z = 1,200-1,300-900 mm as well as a table load of up to 2,500 kg and for high-precision machining of components, including deep-hole drilling. It is equipped with the swivelling rotary table measuring 1,350 x 1,100 mm in diameter and standard equipment featuring a 70-piece tool magazine and the workpiece holder HSK-A 63. The tool spindle has a top speed of 18,000 rpm, an 80 bar



left The pallet change system of the highly flexible 5-axis CNC high-performance machining centre C 42 UP for "round-the-clock" complete production of mould plates, mould superstructures and active parts for the mechanical engineering and tool construction industry right The 5-axis CNC high-performance machining centre C 60 U for large parts.

high-pressure cooling lubricant unit. Furthermore, the system offers electrical heat compensation, sealing air for the glass scales, tool measurement and breakage monitoring, touch probes and a Heidenhain iTNC 530 HSCI control unit.

"In order to meet our demands for more comprehensive delivery capability and extensive adherence to delivery dates, we rely on the maximum performance and availability of our machinery," says Lothar Marks. "When we finally met up with Hermle in 2006 through customer contacts at a trade show, it was the beginning

of a fruitful cooperation based on trust. How effective and efficient the four machining centres actually are can be seen from the fact that only two qualified employees are needed per shift for their operation and support.

# USERS.

Read the complete article at [www.hermle.de](http://www.hermle.de)  
in the Media / User reports section.

## DATES

**INTEC, LEIPZIG, GERMANY**

05.-08.02.2019

**EXPO, MONTERREY, MEXICO**

05.-07.02.2019

**TECMA, MEXICO CITY, MEXICO**

05.-08.03.2019

**MTMS, BRUSSELS, BELGIUM**

27.-29.03.2019

**MECSPE, PARMA, ITALY**

28.-30.03.2019

**METALWORKING, MINSK, BELARUS**

09.-12.04.2019

**CIMT, BEIJING, CHINA**

15.-20.04.2019

**MACHEXPO, ASTANA, KAZAKHSTAN**

25.-26.04.2019

**OPEN HOUSE, GOSHEIM, GERMANY**

08.-11.05.2019



## 5-AXIS MILLING OF PRECISION PARTS FOR THE TOOL CONSTRUCTION INDUSTRY



The Hermle machining centre at µ-Tec GmbH in Chemnitz, consisting of a 5-axis machining centre C 42 UP and a PW 850 pallet changer with front sided setup station PW 850

The service company µ-Tec GmbH relies on high-performance machining centres from Hermle for the automated 5-axis precision machining of tool, mould and machine components as well as complete injection moulding tools.

The fastest possible time to market is crucial for guaranteeing success and competitiveness in today's world. The resulting deadline pressure is felt in particular by tool and mould makers. Tools are becoming more and more complex yet still have to be changed and optimised at short notice prior to the market launch. As a service provider, Heribert Quast and Michael Klink saw this as an opportunity to support potential customers in the fields of tool, electrode, prototype and precision parts manufacturing and manufacturers of plastic parts. In 1997, they founded µ-Tec GmbH in Chemnitz/Germany.

### MACHINING CENTRE AND AUTOMATION FROM A SINGLE SOURCE

After a somewhat turbulent start, µ-Tec GmbH is now well established. Normally, around 30 qualified employees are involved in the production of individual parts, prototypes, samples and small series in two-shift operation. Depending on the actual machining step and running times, this variety often requires setup processes and program changes. To keep all these processes under control, µ-Tec relies, on the one hand, on the Segoni-PPMS product planning and management system, and, on the other hand, on a comparatively high degree of automation through workpiece handling using robots and pallet changers.

"We saw the need to become even more involved in automated 5-axis machining in order to make maximum use of our capacities, and so we looked for a partner who could supply both the machining centre and the automation from a single source," explains Heribert Quast, who is responsible for technology and manufacturing. "Compared to other manufacturers, Hermle impressed us throughout the selection process with its solid manufacturing knowledge."

### PERFORMANCE, PRECISION AND 5-AXIS KNOW-HOW

After an intensive analysis of the current and future range of parts and requirements, the decision was taken in favour of a 5-axis CNC high-performance machining centre C 42 UP with a PW 850 pallet changer. This machine offers all the prerequisites for universal, flexible 5-axis simultaneous machining in one or just a few setups – from roughing and finishing to hard milling and finishing after surface treatment. In order to be able to carry out these machining operations properly and in a manner that is

gentle on the machine and tools in two-shift operation, plus an unmanned third shift, those responsible ordered additional controller functions and machining setups. They allow µ-Tec to adapt the machine dynamics according to accuracy, surface quality and machining speed requirements as well as the machine behaviour to the respective machining task. The combination of the machine concept, featuring three axes in the tool (X, Y, Z) and two axes in the workpiece (C, A), with the high degree of accuracy and reliability guarantees high-precision and reproducible machining quality. And this ensures the service provider the highest level of performance for its discerning customers.



**top** the large working range of the C 42 UP with traverse paths of X-Y-Z = 800-800-550 mm and the swivelling rotary table measuring 800 x 630 mm in diameter for clamping interchangeable pallets; in this case equipped with a universal grid plate to accommodate various workpiece clamping devices **bottom** from left to right, Heribert Quast, Managing Partner, Matthias Taubert, Production Manager, and Nico Richter, machine operator of the 5-axis CNC high-performance machining centre C 42 UP, all from µ-Tec GmbH in Chemnitz

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