

# INSIGHTS

ISSUE **1** 2018

## OPEN HOUSE 2018

Always a good idea.

## 3 STEPS TOWARDS INDUSTRY 4.0

Digital modules - The smart all-round package.

## USER REPORTS

Hermle International.





## Preface

Dear business partners and customers,  
dear members of staff,

the trend towards digitalization, Industry 4.0, the smart factory and generative manufacturing was omnipresent during 2017. This was especially visible in the machine construction sector at the EMO in Hanover. Most of the exhibition stands included demonstrations of functions, software and whole platforms related to these aspects. Hermle is also paying close attention to this and has coined the expression 'digital components' as a generic term for all these software tools. With Digital Production, Digital Operation and Digital Service we provide a comprehensive digital components program that will enable you to equip your Hermle machining centres to face the requirements that the future may bring.

Of course, the digital components will play prominent roles in the up-coming Open House from the 18th - 21st of April 2018 where we shall be highlighting our Performance Line and High-Performance Line series. This is where we will be demonstrating interesting applications that specifically exploit the advantages of our machines. Linked to the latest tool and clamping technology, programmed with extremely varied software solutions - there will be demonstrations of new approaches for all kinds of sectors. Let us surprise you with some exciting novelties.

In addition, technical presentations, guided factory tours and over 40 additional exhibitors supplement the event program. Specialist staff from the Service, Automation, Training and Generative Manufacturing departments will be present to provide useful information and advice. Food and refreshments will of course be available throughout the day. You are cordially invited to visit us at the Open House and we look forward to interesting discussions.

Kind regards,



Franz-Xaver Bernhard  
Director of Sales, Research and Development



## ALWAYS A GOOD IDEA: SWABIAN TRADITION MEETS HIGH-TECH.

From 18 - 21 April 2018 over 1000 companies and numerous visitors from all over the world will be meeting up again at Gosheim. There they will be able to enjoy traditional Swabian cuisine in the form of 'Maultaschen' - ravioli-like filled pasta.

Delicacies of a more technical nature are the machining centres of our PERFORMANCE-LINE and HIGH-PERFORMANCE-LINE. More than 30 machining centres, some of them automated, will be demonstrating Hermle's performance spectrum during the Open House exhibition. At the same time, technical presentations, tours of the company and Hermle User Training will be providing visitors with insights into current sector developments and what goes on behind the scenes in our company. Live demonstrations of our digital components and the special display of tool technology, software and hardware round off our Open House programme.

Open House over 4 days - an ideal platform for getting to know Hermle and its products better.

### REGISTRATION

Please register at:  
[hermle.de/openhouse2018](http://hermle.de/openhouse2018)  
or simply scan the QR code

### OPENING HOURS

**WEDNESDAY - FRIDAY** 9:00 am - 5:00 pm  
**SATURDAY** 9:00 am - 1:00 pm

You need a valid ticket for the Open House event.

## C 650 MACHINING CENTRE



### HIGHLIGHTS

- More than **30 MACHINES**, some of them fully automated
- Hermle **USER TRAINING**
- Special display of **TOOL TECHNOLOGY, SOFTWARE** and **HARDWARE**
- **GENERATIVE MANUFACTURING** with Hermle's **MPA TECHNOLOGY**
- **DIGITAL COMPONENTS** live demonstrations

### TECHNICAL PRESENTATIONS (ONLY IN GERMAN LANGUAGE)

#### Wednesday, 18 April 2018

- |                     |  |
|---------------------|--|
| 10:00 am - 10:20 am | CGTech Deutschland GmbH<br>Quicker NC programs and longer tool lives   |
| 10:30 am - 10:50 am | E. Zoller GmbH & Co. KG<br>Process optimisation by integrating ZOLLER tool management with Hermle system solutions         |
| 11:00 am - 11:20 am | Renishaw GmbH<br>Integrated process check - Industrial 4.0   |
| 11:30 am - 11:50 am | Sumitomo Electric Hartmetall GmbH<br>Newly developed super hard cutting materials for machining titanium and exotic alloys |
| 14:00 pm - 14:30 pm | Hermle AG<br>Digital components  |

#### Thursday, 19 April 2018

- |                     |  |
|---------------------|--|
| 10:00 am - 10:20 am | JANUS Engineering AG<br>Automation of NC programming with JANUS SpeedMill  |
| 10:30 am - 10:50 am | botek Präzisionsbohrtechnik GmbH<br>Deep-hole drilling on machining centres: What is possible? What is required?       |
| 11:00 am - 11:20 am | Blum-Novotest<br>LC50-DIGILOG - laser measuring technology re-invented   |
| 11:30 am - 11:50 am | MAPAL Dr. Kress KG<br>c-Com: Increase in efficiency by collaborative digital data management in the machining industry |
| 14:00 pm - 14:30 pm | Hermle AG<br>Digital components  |

#### Friday, 20 April 2018

- |                     |   |
|---------------------|---|
| 10:00 am - 10:20 am | Hermle-Leibinger Systemtechnik GmbH<br>Automation solutions for Hermle products                                       |
| 10:30 am - 10:50 am | SolidCAM GmbH<br>Optimum use of machine and tool options by selecting and using state-of-the-art CAM strategies       |
| 11:00 am - 11:20 am | GDE-Werkzeuge GmbH<br>Reliable, precise machining of hardened and very hard-wearing steel, PM steel and solid carbide |
| 11:30 am - 11:50 am | BLASER SWISSLUBE GmbH<br>Liquid Tool - the cooling lubricant as a liquid tool   |
| 14:00 pm - 14:30 pm | Hermle AG<br>Digital components   |

### EXHIBITORS

#### TOOL TECHNOLOGY

- ALESA AG
- BIG KAISER GmbH
- botek Präzisionsbohrtechnik GmbH
- Dieter Schätzle GmbH & Co. KG Präzisionswerkzeuge
- EMUGE FRANKEN
- FRAISA
- GDE-Werkzeuge GmbH
- Gühring KG
- HAIMER
- Hartmetall-Werkzeugfabrik Paul Horn GmbH
- Hoffmann Group
- Ingersoll Werkzeuge GmbH
- ISCAR Germany GmbH
- Kennametal Deutschland GmbH
- KOMET
- LMT Tool Systems GmbH & Co. KG
- MAPAL Präzisionswerkzeuge Dr. Kress KG
- Mitsubishi Materials
- MMC Hitachi Tool Engineering Europe GmbH
- OSG GmbH
- PokoIm Frästechnik GmbH & Co. KG
- Sandvik Coromant
- Schrenk GmbH
- SFI San Francisco Industrial
- Sumitomo Electric Hartmetall GmbH
- Wohlhaupter
- Zecha Hartmetall-Werkzeugfabrikation GmbH

#### SOFTWARE

- Autodesk
- Camtek GmbH
- CGTech/VERICUT
- CIMCO A/S
- CONCEPTS NREC
- infoBoard Europe GmbH
- JANUS Engineering AG
- OPEN MIND Technologies AG
- SOFLEX
- SolidCAM / Solidpro
- Tebis AG
- unicam Software GmbH
- Vero Software GmbH

#### HARDWARE

- Benz GmbH
- Blum-Novotest
- Carl Zeiss Industrielle Messtechnik GmbH
- DR. JOHANNES HEIDENHAIN GmbH
- E. Zoller GmbH & Co. KG
- Hermle Maschinenbau GmbH
- KELCH
- mGh Inprocess Messtechnik GmbH
- Renishaw GmbH
- Siemens AG

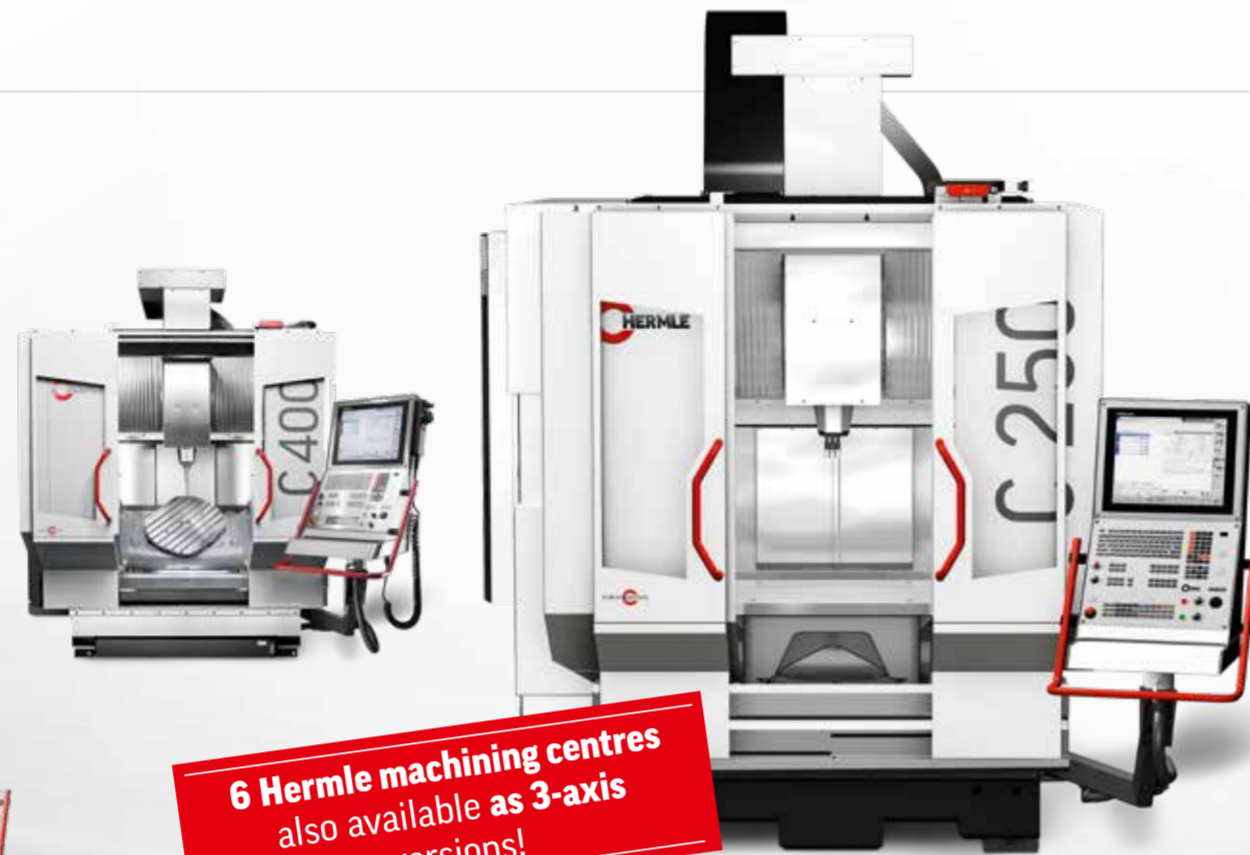


# PRODUCT RANGE

## THE PERFORMANCE-LINE.

NO-NONSENSE PERFORMANCE - NO-COMPROMISE PRECISION.

Reliable machining centre for customers who require absolute precision and long-term accuracy - the Hermle PERFORMANCE-LINE. Together with our fast and competent service provision: the perfect choice in a wide variety of sectors and applications.



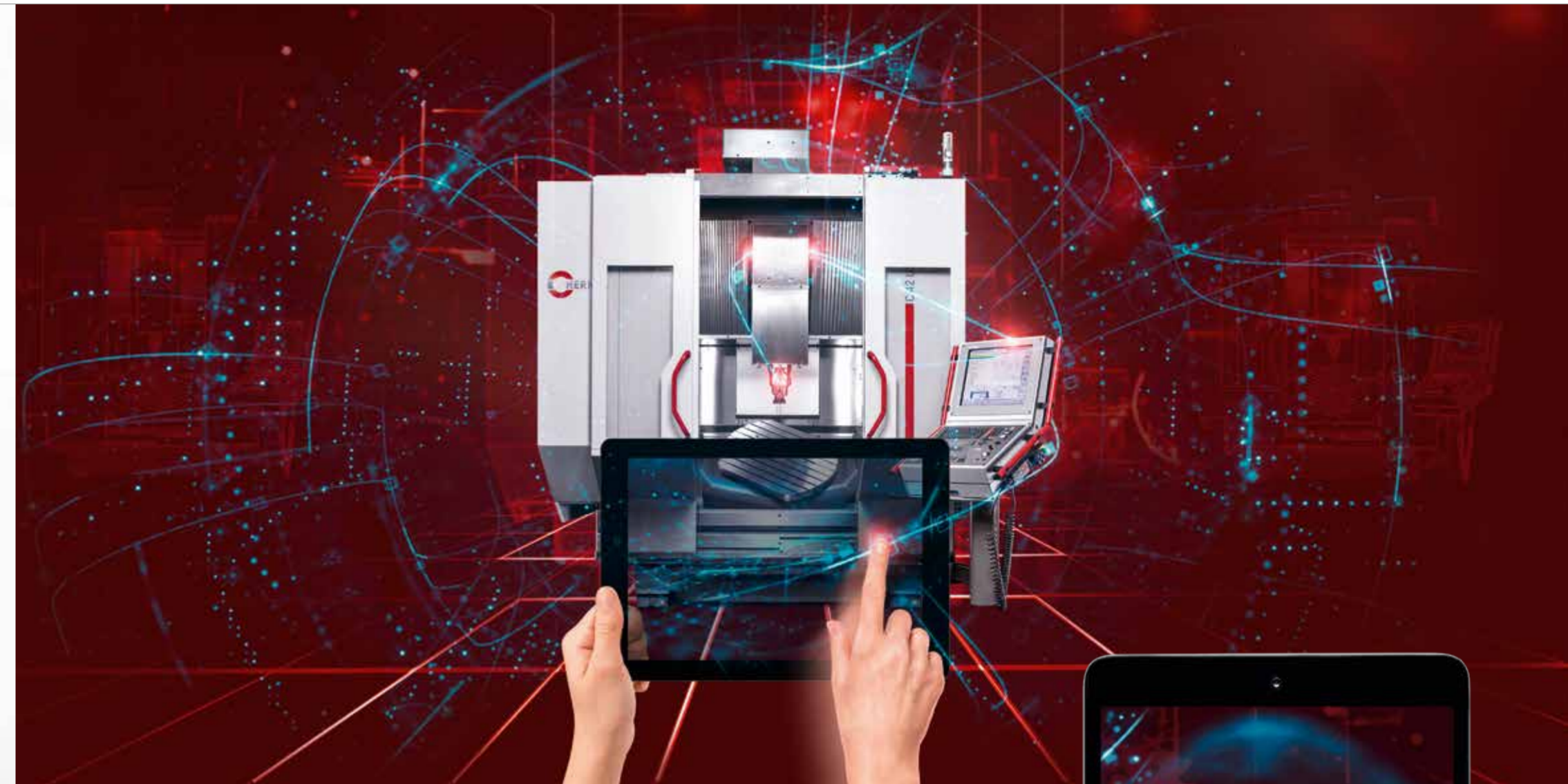
6 Hermle machining centres also available as 3-axis versions!

## THE HIGH-PERFORMANCE-LINE.

SECOND TO NONE.

With the six models in its HIGH-PERFORMANCE-LINE, Hermle has been supplying international high-tech sectors with extremely precise and high-performance machining centres for years. Whether as stand-alone machine, automated system or connected manufacturing facility, our machines are unequalled in their field.

Precision, long-term accuracy, reliability and dynamics at the upper limit, combined with the typical Hermle service standards - this is what the HIGH-PERFORMANCE-LINE stands for.



# 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 components 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 future requirements.



### ADVANTAGES AND FEATURES

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





## THE DYNAMIC DUO: MACHINING COMPETENCE AND 5-AXIS KNOW-HOW

from left to right Machine operator Alfredo Lapini, CAM programmer Fabienne Weiss, CEO Patrick Meyer and CAM programmer Markus Schwarz, all from Carbomill AG in Seon, Switzerland



Carbomill AG, a competence centre for machining fibre-composite materials, motorsports components, integral components for the aerospace sector as well as mould making, has extended its range of services and supply flexibility with the aid of a Hermle C 42 U.



The large working area of the C 42 U machining centre, with three axes in the tool (X-Y-Z) and two axes (C and A - 440 mm swivelling rotary table) in the workpiece for optimal tool deployment during 5-axis full / simultaneous machining of complex aerospace components

Over 10 years of many-faceted experience in developing, moulding and machining composite Formula 1 components, including tool making and manufacturing of clamping devices for special structural machining – that was the basis on which Patrick Meyer took the courageous step of setting up as an independent competence centre for services across mould making and jig construction, integrated milling and large component machining as well as product development for CFRP/GFRP and CAD/CAM in 2011. With the focus on these niche areas, his technology firm Carbomill AG in Seon, Switzerland, quickly established itself in an excellent position within the Swiss metal cutting services community. Carbomill's customers very soon realized what potential was available to them in all that know-how regarding composite structural components and their precision machining. In order to be able to cope with the increasing demand reliably and on schedule, the now four specialists at Carbomill face the dual challenge of staying at the technological cutting edge while at the same time increasing capacity. Patrick Meyer comments: "We were and still are receiving more

and more enquiries and orders for precision machining of highly demanding integrated components from the aerospace sector. On the one hand, this means working on both aluminium and titanium materials. On the other hand, integrated component manufacturing from solid material involves an extremely large amount of cutting work. As we have already had a great deal of success with a five-axis machining centre for large parts, we began searching for a five-axis machining centre with the capacity to manufacture components up to medium size from beginning to end in a single clamping set-up. In several cases we thought we had found the right supplier for us, only to have our initial euphoria dampened when we got down to the details regarding performance, reliability, the depth of the support and not least the service provision. But we cannot afford to make compromises in what we offer our own customers, and that is why we finally went for a C 42 U five-axis machining centre from Hermle. Hermle fitted the bill excellently from several points of view, and put together a perfect package. Their thought-through five-axis concept is tried and tested, guaranteeing absolute long-term accuracy, everyone we asked confirmed the high degree of availability, and we got the same kind of answer to our questions about the service."

### FIVE-AXIS, HIGH-END MACHINING SEVEN DAYS A WEEK

So the end of 2016 saw delivery of a C 42 U five-axis machining centre, equipped with a ZM 88 additional magazine for another 88 tools (making a total of 130 tools with the 42 tools in the standard magazine) and a 440 mm swivelling rotary table. With the generous machining and traverse paths of X = 800 mm, Y = 800 mm and Z = 550 mm, the large C axis swivelling range of +/- 130° (torque drive) plus the A swivelling axis with 55 rpm (tandem drive) and finally a maximum table load of 450 kg, the C 42 U machining centre is ideally suited for 5-side / 5-axis complete / simultaneous machining of highly complex integrated and structural components. To round this off, the 130 tools allow a broad range of applications using whole families of parts, so retooling work is reduced to a minimum. The tool spindle used here that rotates at up to 18000 rpm allows for optimal machining of the aluminium,

steel and titanium materials. The rotational speeds can be individually adjusted to suit the rough or finishing operations as required. In most cases the machining is performed 'dry', but for steel and titanium machining there is an 80 bar ICS system available (Internal coolant supply system). Additional features include a measurement device for tool measurement, tool breakage monitoring, touch probes, sealing air for the glass scales, linear axis dynamic version, HIMS base package (Hermle Information Monitoring Software) and the Heidenhain TNC 640 control system.



Underlines the good accessibility and operating comfort while working, operating and optimizing in dialogue with the machine



## SUCCESSFUL START-UP WITH 5-AXIS TECHNOLOGY

shows the three C 42 U five-axis machining centres already in operation on the left. The workpiece magazines on rails are in front of them, and on the right is the fourth C 42 U machining centre that is just being installed



A standing start in the highly specialized supply industry – in only a little more than a year, the Italian Weerg company has become an in-demand cutting technology service provider in Italy and elsewhere with the aid of Hermle machining centres.

Notwithstanding all the clichés, those who really know the country are aware that Italy is more than 'just' good food, good wine, fast cars, stylish fashion and la dolce vita. For the engineers and technicians amongst the Italians are bursting with creativity and dedication, especially when it comes to the construction of machines for working wood, metal and plastics – not for nothing does the Italian mechanical engineering industry regularly rank amongst the best in the world. But Italy doesn't restrict itself to its



A demanding steel workpiece that was fully processed on a C 42 U machining centre using 5-axis technology and just a few clamping operations

own version of high-tech products – it is also happy to avail itself of the high-performance potential of technological systems from other countries, as the young company Weerg S.r.l. shows. Weerg is located in Marghera, close to Venice. Its brief history started a good three years ago, when Matteo Rigamonti decided to change course radically. This meant first giving up his post of CEO and owner of a market leader in online printing services with around 500 employees, and successively selling his shares in that business. Satisfied with himself and content to leave the world of business to itself, he resolved to invest in a future-oriented, high-tech segment. So he began to search for commercial activities with growth potential. He and some of his closest ex-colleagues methodically worked their way through various sectors – such as the

hype areas of additive manufacturing / 3D printing, for instance, before finally deciding to plunge into the world of CNC high-end machining.

### TOMORROW'S BUSINESS OPPORTUNITY? 5-AXIS TECHNOLOGY ON THE HIGHEST LEVEL!

This decision was followed by the search for suitable equipment, i.e. machines, tools, workpiece clamping technology, programming systems and so on. In view of the way things started, it comes as no surprise that Matteo Rigamonti and Paolo Bertelli, Production Manager for CNC manufacturing at Weerg, trod some unfamiliar paths here, too, researching deeply into the area of machine evaluation with visits to trade fairs, manufacturers and reference projects. Matteo Rigamonti describes how they finally ended up with the Maschinenfabrik Berthold Hermle AG in Gosheim: "Italy and other countries produce excellent results in this sector, but the fact remains that Germany leads the high-end segment. We wanted to establish ourselves at the highest level right from the start, and we had heard nothing but positive things about Hermle machining centres. The combination of talking to Hermle Italia and a number of Hermle customers together with an interesting tender and a good cost-benefit ratio led to a clear decision basis, and we ordered the first machine in mid 2015 – a C 42 U five-axis machining centre." The newcomers started off with the standard version, including an 18000 rpm tool spindle, an HSK-A63 tool holding fixture, a swivelling rotary table measuring 800 x 630 mm, a tool magazine with 43 pockets, a Heidenhain iTNC 530 HSCI control unit, a tool measurement and breakage monitoring system, touch probes and other common accessories. They were thoroughly impressed with the results. Word spread about the excellent and reliable manufacturing performance of the start-up, and increasingly demanding orders from very various industrial sectors kept mounting up. So in 2016, the start-up ordered two further C 42 U five-axis machining centres. With an essentially identical configuration, each of the machining centres were supplied with a ZM 192 additional tool magazine comprising 192 extra pockets. Now these two machining centres have a total of 234 tools each



from right to left Paolo Bertelli, Production Manager and Matteo Rigamonti, founder of the Weerg Company headquartered in Marghera/Venice, and on the left Ernesto Molinari, CEO of Hermle Italia S.r.l. in Rodano/Milan, in front of one of currently four Hermle C 42 U five-axis machining centres

for highly complex 5-axis / 5 side complete/simultaneous machining. Production Manager Paolo Bertelli on the decision taken in favour of Hermle: "We have found that the positive impressions we obtained during the intensive evaluation phase, and especially the commitments that Hermle made, have been completely confirmed. The Hermle machining centres are in a class of their own, both in respect of the 5-axis concept and the whole machine concept, as well as regarding the constructional technology, the very high degree of precision, the reliability and not least the comprehensive service. For us, the C 42 U five-axis machining centres are exactly what we need as far as the usable working range and the precision with which workpieces from just a few millimetres to quite large sizes can be fully machined, and we shall be ordering more."





## PRECISION MILLING IN HOT RUNNER TECHNOLOGY

The C 22 U five-axis machining centre with the ZM 43 additional magazine for a further 43 tools (rear right), looked after by milling technician and programmer Stefan Heilek of GÜNTHER Heisskanaltechnik GmbH



GÜNTHER Heisskanaltechnik GmbH maintains quality standards and economic viability in the production of high-precision injection casting nozzles and complex hot runner manifolds with the consistent use of five-axis machining centres from Hermle.

Hot is good, hotter not necessarily better, and regulated hot runner technology is best of all! That is the simple recipe on which the success of the typical medium-sized company GÜNTHER Heisskanaltechnik GmbH and its hot runner technology is based, success that now spans over three decades and regularly keeps raising eyebrows in the injection moulding plastics processing sector. The plastics processing industries were quick to realise the advantages of hot runner technology, which explains the company's strong growth figures that continue to this day. This has included milestones such as the Hot-Runner-System 230 Volt (1990), 24 Volt-System (1995), the CADHOC-3D configurator for hot runner systems (2006) as well as the thick film heater and BlueFlow® hot runner nozzles (2010) that mark GÜNTHER Heisskanaltechnik GmbH's progress from a small garage operation to an internationally active enterprise with 250 employees. Part of the company almost from day one and now its sole CEO, Siegrid Sommer has witnessed its growth through various perspectives - in the design department, as Production Manager and then as a member of the executive board. She explains the company

philosophy as follows: "We have built up over 30 years of know-how in hot runner technology that ranges from development to production and on to the service coverage. We have always put great emphasis on maintaining highest standards of quality, and therefore we use our excellent production facilities to manufacture all components and systems apart from just a few supplied parts. We produce 18000 to 20000 nozzles and over 2500 manifold systems every year. We are extremely well set up for this with good 130 specialists and an up-to-date machine park. As about 35% of our production involves standard products made to order and around 65% is devoted to special items, we have to be able to deal with flexible output quantities that begin with a batch size of 1. That is only possible with qualified personnel and equipment that provides for maximum availability.

### A SUCCESS FACTOR: QUALITY PRODUCTION UNDER ONE'S OWN AEGIS

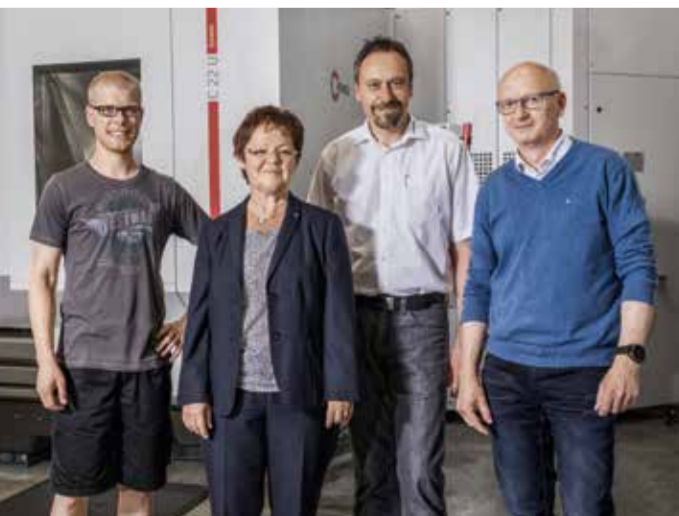
This is also one of the reasons why seven Hermle milling / CNC machining centres are to be found amongst the 35 CNC machine tools being used in multi-shift operation. The first Hermle machine commenced operation as early as 1990: a UWF 851 universal tool milling machine capable of 4-axis machining with the aid of add-on equipment. Production manager Hartmut Nagel comments on working together with Hermle on the basis of his long-term practical experience: "In the mid-nineties we had machining operations to perform that, unfortunately, could not be provided for by Hermle. Then, in 2000, we returned to Hermle after some negative experiences as far as availability and service are concerned. We purchased a C 600 U machining centre for 4-axis and 5-axis machining. This also had to do with new challenges arising from machining multiple nozzles which we were perfectly able to meet with the innovative kinematics concept of the C series." Thanks to the vigorous growth, another six Hermle five-axis machining centres followed in the subsequent years: a C 40 U, a C 30 U, a C 40 UP (with pallet changer), a C 42 U and finally the latest C 22 U. This means that almost the entire range hot runner components such as nozzles or plates and manifolds that are manufactured or finished by milling is covered by the Hermle machining centres. The working ranges in the X-Y-Z axes (three axes in the tool),

generous considering the compact size of the machining centre, as well as the absolutely free positioning of the integrated swivelling rotary tables in the C and A axes (two axes in the workpiece) allow for ideal tool deployment, e.g. for drilling deep holes. Whereas smaller manifolds used to have to be clamped in at least two positions, machined on all sides and then moved to special deep drilling machines, all that now happens as full processing involving a single clamping operation, whereby deep hole drilling can be dispensed with in many cases. Thanks to the C 22 five-axis machining centre, similarly



Selection of hot runner manifold systems and tool plates that are fully machined using five-axis technology on Hermle machining centres - on all sides and including deep drilling.

dramatic improvements and productivity boosts have taken place in nozzle production as well, as CNC milling manager Jürgen Golde explained: The high degree of accuracy and the 5-axis, 5-side/complete/simultaneous processing with a single clamping operation allows for the high-precision machining of the nozzle tips. Previously, we had to mill them on all sides using a dividing attachment, and then do the finishing by hand - now we just have to clamp the nozzle, work it and then it comes off the machine ready for assembly.



from left to right machine operator Jörn Koch, CEO Siegrid Sommer, CNC manufacturing manager Jürgen Golde, production manager Hartmut Nagel, all from GÜNTHER Heisskanaltechnik GmbH, in front of the C 22 U five-axis machining centre



## FROM FILING TO PRECISION MILLING



from left to right CEO Friedhelm Herhaus, milling technology group leader Christoph Schneider, Gruppenleiter Frästechnik and application technology operator Tom Herhaus, all from the machining services supplier HETEC GmbH

Manufacturing and finishing large and heavy tool, mould and machine components using high-precision five-axis machining - machining specialist HETEC from Breidenbach fulfils customer requirements with an accuracy of 1/100th mm using Hermle machining centres.

HETEC's claim of 'Performance is not a matter of chance' exactly expresses the machining services supplier's philosophy! And that philosophy was born out of Friedhelm Herhaus' experience: For too long he felt hampered in his desire to put his manufacturing knowledge and skill to practical use and to the customer's benefit. In such cases there is only one way forward: setting up one's own operation. Which is why Friedhelm Herhaus left his previous employer in the summer of 1998 and joined up with his brother Günter Herhaus to found HETEC OHG, initially in Bad Laasphe. Their goal was to provide specialist machining services for manufacturing individual components in tool and mould making as well as small batch production for other engineering companies - and at last to be able to do that at the cutting edge of what is technically possible. With the decision taken, production commenced with a milling machine which was soon followed by two machining centres, a wire-cutting plant and a 2D CAD/CAM system. As the business grew, brother Werner Herhaus joined the company as well, and in 2000 the HETEC GmbH was founded. Although the company has remained the same since then, the same cannot be said of what goes on inside it. The brothers each took responsibility for a specific area, and together they put the company claim into practice with a programme of investment in CAD/CAM systems, CNC machine tools, optimization of workflows

and remote monitoring of processes - so their customers could always rely on the company providing state-of-the-art manufacturing technology.

### HETEC'S USP: LARGE SCALE PRECISION MACHINING

This strategy has remained in place to this day, whereby the business has evolved more and more towards high-accuracy machining and production of very complex tool and mould making components as well as large scale base tools. This required investment in five-axis machining centres, and in order to meet the exacting customer requirements with sustainable reliability, HETEC has included five-axis machining centres from Maschinenfabrik Berthold Hermle AG in its portfolio since 2009. This began with a type C 40 machining centre, which was followed by a C 30 U. As soon as they became available, the next deliveries were of C 60 U and C 50 U series large machines, then came a C 400 U for smaller items and lately another large unit, a C 52 U. Friedhelm Herhaus explained: "We have always received very good and fair advice from Hermle and we are delighted with the 5-axis concept, with the performance, the very high degree of precision, the accessibility, the excellent and fast service as well as the cooperation in all phases of a project and subsequently."

As a graphic illustration of this, he pointed out that to date, the C 40 U machining centre purchased in 2009 has already clocked up over 30000 spindle running hours - and it is still using the original spindle! Not to mention the fact that the precision values recorded in a measurement log from 2016 simply repeated those that had been recorded seven years previously!

### PRAGMATIC AUTOMATION MADE TO ORDER

It is worth mentioning that despite the broad range of applications in the areas of full processing of and finishing work on complex tool and mould components, the Hermle machining centres manage all that just with the standard tool magazines. One reason for this is that HETEC has developed its own tool/magazine management system that allows all the machining centres (each of which has the same HSK-A63 tool holding fixture, by the way) to be tooled according to the order and the work to be done. Altogether this involves around 2000 'sharp' tools, each provided with a chip, including around 250 different milling tools and around 300 for drilling and thread cutting. This means that the tools can be changed 'blind', as it were, i.e. deployed as required and with drastically reduced changing and equipping times. With the installation of the new C 52 U five-axis machining centre, the decision-makers went another step further by ordering the HIMS ('Hermle Information Monitoring Software') base package for the first time. This involves a display of the life status and transmission of the information by email as required. This fits perfectly to HETEC's manufacturing and (remote) monitoring strategy: single-shift normal operation and otherwise (monitored) automatic operation. With a working range of X-Y-Z 1000-1100-750 mm and the 700 mm swivelling rotary table with a load-bearing capacity of 2000 kg, the C 52 U machining centre is ideally suited to highly complex simultaneous/full/finishing machining of extremely intricate tool and mould components or base plates.

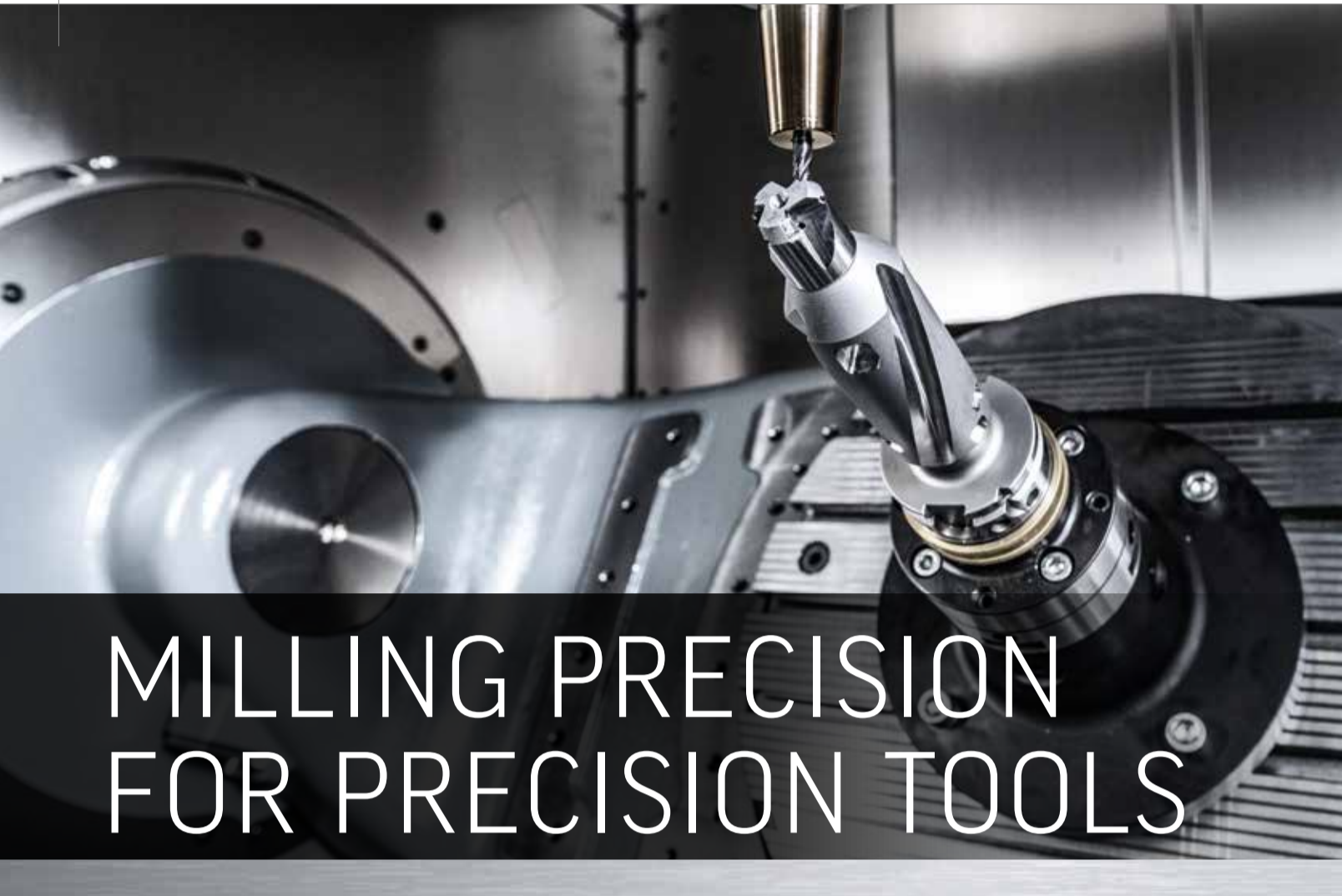


left The new C 52 U five-axis machining centre right Working area of the C 52 U with the 700 mm swivelling rotary table capable of bearing 2000 kg; equipped here with a large scale base tool being finished in 5 axis operation



# USERS.

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



## MILLING PRECISION FOR PRECISION TOOLS



Working area of the C 42 U five-axis machining centre with generous traverse paths of X = 800 mm, Y = 800 mm and Z = 550 mm, with the 440 mm swivelling rotary table (C and A axes) for optimal tool deployment and workpiece positioning for hard and final milling of standard and special tools

For high-accuracy, economical manufacturing of precision tools with batch sizes starting at 1, the Wilhelm Bahmüller company uses a type C 42 U five-axis machining centre from Hermle in its precision tools division.

'Bahmüller - Invest in Success' - both the name and the claim stand for highly innovative, top-of-the-scale precision machining for both development and production of special machines and tools. The internationally active Bahmüller Group has around 330 employees and an annual turnover of 70 million euros. A large part of this involves the precision tool division. In co-operation with manufacturers across the globe, this division is devoted to the development, production and selling of precision tools, tool clamping technology and cutting process solutions. This means that the tools are used on modern, high-performance machines requiring high degrees of reliability regarding concentricity, attenuation properties and changing compatibility.

Or to put it another way: Some of the precision tools used by a manufacturer or supplier of precision tools are not only manufactured according to their specifications by the Plüderhausen specialists, but provided as process-enabled complete packages.

### SEARCHING FOR PARTNERS WITH THE AID OF THE 'BENCHMARK TOOL'

Hans Binder, Manager of the precision tool division at Wilhelm Bahmüller Maschinenbau-Präzisionswerkzeuge GmbH, adds: "We have been gathering competence and specific know-how as well as experience in the development and production of precision tools for over five decades. With our 30-strong specialist unit, we feel we are well set up to exploit the steadily growing market for high-performance special tools, and to this end we have invested heavily in state-of-the-art five-axis machining technology." Before actually making the investment, the company conducted an intensive evaluation phase in which potential machine and technology suppliers were contacted and confronted with a specially developed 'benchmark tool'. This included high-precision milling of insert seat / cassette seat surfaces on special tools for exact and secure holding of indexable inserts or cassettes fitted with indexable inserts. Requirements such as this and reliable final / hard machining of heat-treated / hardened tooling steels with HRC 60 proved to be too much for some candidates. In contrast, milling trials on a Hermle five-axis machining centre C 42 U returned first-time success: After a short start-up phase, four out of five milling tests produced acceptable samples of the desired quality!

This was what led to the purchase of the C 42 U five-axis machining centre. To cater for the very high precision requirements, it was supplied with the following extras: Precision package I (X-Y-Z axes) and II (A-C axes), electrical heat compensation, sealing air for the glass scale, tool measuring system, touch probes, ZM 50 tool magazine and larger cooling lubricant tank. With the long traverse paths of X-Y-Z 800-800-550 mm and the 440 mm swivelling rotary table, together with the total of 92 tools, the C 42 U machining centre was able to master all relevant machining of standard and special tools.



top, from left Hans Binder, manager of the precision tools business division, and on the right Matthias Deuschle, programming/operating, in front of the C 42 U five-axis machining centre below The new C 42 U machining centre with a ZM 50 additional magazine tool / special tool version on the premises of Wilhelm Bahmüller Maschinenbau-Präzisionswerkzeuge GmbH at its headquarters in Plüderhausen

## DATES

<b>TECHNISHOW, NETHERLANDS</b>
20 MARCH 2018 - 23 MARCH 2018
<b>MECSPE, ITALY</b>
22 MARCH 2018 - 24 MARCH 2018
<b>CCMT, CHINA</b>
09 APRIL 2018 - 13 APRIL 2018
<b>MECHANICAL ENGINEERING, BELARUS</b>
10 APRIL 2018 - 13 APRIL 2018
<b>HERMLE AG OPEN HOUSE, GOSHEIM</b>
18 APRIL 2018 - 21 APRIL 2018
<b>METALLOBRABOTKA, RUSSIA</b>
14 MAY 2018 - 18 MAY 2018
<b>INTERTOOL, AUSTRIA</b>
15 MAY 2018 - 18 MAY 2018
<b>RAPIDTECH, ERFURT</b>
05 JUNE 2018 - 07 JUNE 2018
<b>MACHTOOL, POLAND</b>
05 JUNE 2018 - 08 JUNE 2018
<b>ANNUAL GENERAL MEETING, GOSHEIM</b>
04 JULY 2018

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### USA

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