

INSIGHTS

ISSUE 2 2017

THE WHEEL OF TIME. WE KEEP
ON MILLING AND TURNING IT.

Hermle at the EMO 2017 in Hanover.

C 650

Hermle's C 650 machining centre completes the top end of the Performance Line series.

USER REPORTS

Hermle International



Preface

Dear business partners and customers, colleagues and employees,

we have made a good start to the year and have a firm base of orders on hand. Also, the foreign turnover recovered noticeably during the second quarter, and compared with the same period last year we are currently somewhat better placed in terms of turnover and results. You will always find detailed figures on our website.

Once again, our in-house exhibition in April was a great success, and we were privileged to welcome 2700 visitors from 1200 companies to Hermle. The newly developed HS flex handling system that can be adapted to six machine models of the High Performance Line and the Performance Line attracted a great deal of interest.

And now another major event is coming up: At this year's EMO in Hanover with its slogan 'Connecting systems for intelligent production!', Hermle will be presenting a large number of innovations. The 'flagship' will be a new machining centre for the Performance Line series, the C 650. This represents a consistent final step for this series. Of course we shall be giving our HS flex handling system its trade fair première, adapted to a C 42. In addition, a 'made by Hermle' RS 05 robot system adapted to a C 12 U dynamic 5 axis machining centre, as well as the C 250 5 axis machining centre that was presented last year, will be there. The stand also features a special area where we display our digital components for applications in the smart factory and in Industry 4.0 scenarios. Another focal point will be the components made with the aid of MPA additive manufacturing techniques.

We cordially invite you to visit our stand No. C 36 in Hall 12 and we look forward to sharing your interest in our products.

Kind regards,



Franz-Xaver Bernhard
Director of Sales, Research and Development

THE WHEEL OF TIME. WE KEEP ON MILLING AND TURNING IT.

HERMLE AT THE EMO 2017 IN HANOVER.

This year, the world's largest metalworking trade fair is using the motto: 'Connecting systems for intelligent production!' We will be presenting many innovations at our stand C 36 in Hall 12, including the new C 650 machining centre, which represents an appropriate high point for our Performance Line series.

As well as our trailblazing MPA technology for additive manufacturing, major emphasis will be put on our digital components for networked production. Come and see for yourself how Hermle is helping to create the future of intelligent production as a leading innovator.



**HALL 12
STAND C 36**

DIGITAL MODULES

NEW

Presentation of the digital components

HACS

The Hermle Automation-Control-System HACS as an intuitively operated order management system for your Hermle machining centres.



HIMS

Hermle Information and Monitoring Software (HIMS) as a central monitoring tool for your Hermle machining centres.



Remote Desktop

All the information you have on your office PC available directly at the machine.



Hermle Maintenance and Diagnostic System

The maintenance / diagnosis system allows for regular diagnosis of the machine's condition.

Hermle control functions

Enhancing machine productivity and improving process reliability. Increasing precision and surface quality while at the same time reducing machining time.

Hermle Setups

Add-in and programmable functions for direct intervention in milling processes for application-oriented optimization of surface quality, dynamics or precision.



Hermle Remote Maintenance

Avoiding service call-outs; fast response from qualified service technicians.

ADDITIVE MANUFACTURING

Components and more from Hermle's additive technology

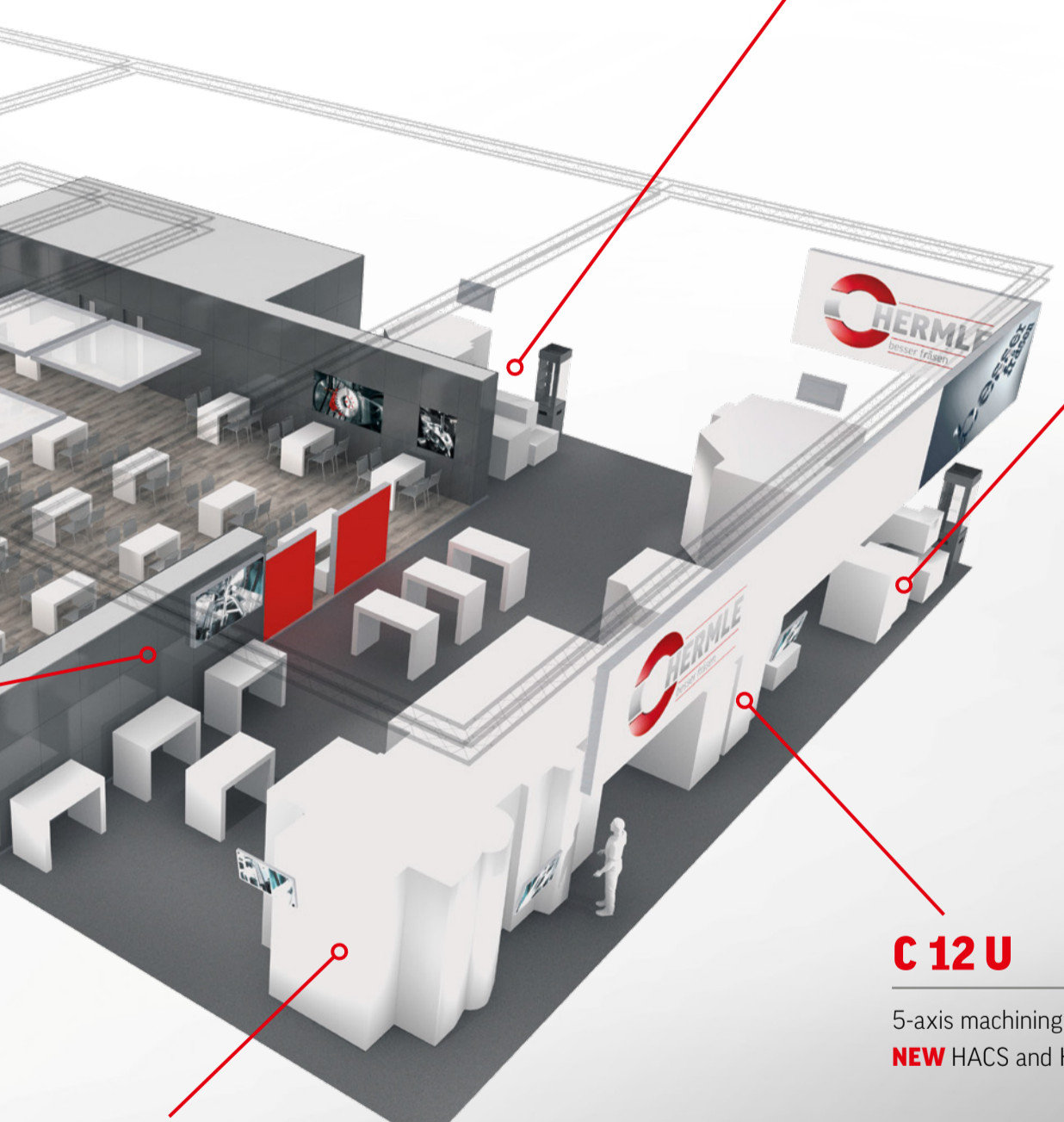
MPA technology

Hermle's MPA Technology - our portal to the world of additive manufacturing.

Discover the potential of Hermle's metal powder application technique. Additive manufacturing and 'better milling' are coming together!



Just **scan the QR code** and watch the **film about the MPA technique** on our YouTube channel.



C 250

5 axis machining centre

NEW touchscreen

NEW HACS and HIMS

NEW remote desktop



C 650 **NEW**

5 axis machining centre

NEW touchscreen

NEW HACS and HIMS



C 12 U

5-axis machining centre equipped with RS 05 robot system

NEW HACS and HIMS



C 42 U

5-axis machining centre equipped with HS flex handling system

NEW with two storage modules

NEW touchscreen

NEW HACS and HIMS



PRODUCTS.

C 650

THE C 650 MACHINING CENTRE
SUPPLEMENTS THE TOP END OF THE
PERFORMANCE LINE SERIES.



The Hermle company has developed the C 650 to extend its Performance Line series upwards, and now provides three machine models for economical 3 and 5 axis machining. The Performance Line is positioned below the High Performance Line consisting of models C 12, C 22, C 32, C 42, C 52 and C 62, and it very nearly matches their performance capabilities. The only differences are to be found in the accessory diversity, the price and of course the naming.

Like the C 250 and the C 400, the C 650 uses a modification of Hermle's tried-and-tested gantry-type design, with a mineral-cast machine bed. The integrated, rigid clamping table can cope with workpieces up to a maximum of 3000 kg (1050 x 900 x 600 mm) in the 3-axis version, making it ideal for toolmaking and mould construction. The swivelling rotary table of the 5-axis version can accommodate workpieces up to 1500 kg (\varnothing 900 x 600 mm), allowing for highly precise machining.

The traverse path in the stainless-steel-clad working area comprises 1050 x 900 x 600 mm with a vertical table clearance of 775 mm and a door aperture of 1050 mm. Ideal parameters for simple and safe crane charging.

The C 650 has an integrated tool magazine for 42 tools. Two additional magazines with 50 or 88 extra magazine pockets are available as options. The control panel of the C 650 is also designed to swivel easily to the magazine loading location, so the operator can enter the tool data directly into the tool table in the control system. The 200 mm high platform, adapted to the loading point, provides puts the operator in an optimal, ergonomic position to load and unload the tools.

The C 650 is equipped with the Heidenhain TNC 640 control system as standard, providing access to the full programming capacity of this proven system. The control panel has a large (19") colour TFT touchscreen such as will be standard on all Hermle machines from now on. Optionally, the C 650 can be equipped with the ergonomically adjustable comfort control panel instead. The control system includes Hermle's own tried-and-tested setups that give the operator ideal support for managing all kinds of milling operations.

In addition, the various Hermle digital components such as HIMS (Hermle Information Monitoring Software) and HACS (Hermle Automation Control System) are available as options for the C 650.

For servicing, the Hermle Maintenance Diagnosis System is available for continuous monitoring of the machine's condition. It facilitates rapid machine diagnostics and status-oriented maintenance planning.

Options for individual and economical usage extend the range of applications for the C 650. For example, magazine pockets, different cooling and chip removal systems, extractors, tool breakage monitoring, tool measurement systems, touch probes and precision packages can be adapted.

AN OVERVIEW OF THE MOST IMPORTANT SPECIFICATIONS

Traverse path X-Y-Z: 1050 - 900 - 600 mm

Rapid traverse linear X-Y-Z: 35 m/min

Linear acceleration X-Y-Z: 6 m/s²

Speeds: 15000 / 18000 1/min

Swivelling rotary table

Machining table: \varnothing 900 x 750 mm

Swivelling range: +/- 115°

Drive type of C axis: worm

Speed A axis: 25 1/min

Speed C axis: 25 1/min

Table load max.: 1500 kg

Rigid clamping table

Clamping surface: 1250 x 982 mm

Table load max.: 3000 kg

Control unit

TNC 640

PRODUCTS.



WORKPIECE DIMENSIONS

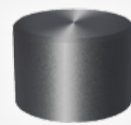
- unlimited crane loading from above to beyond the table centre
- tool spindle moves into the tool magazine, leaving a completely clear and accessible working area

3-AXIS



1050 x 900 x 600 mm
max. 3000 kg

5-AXIS

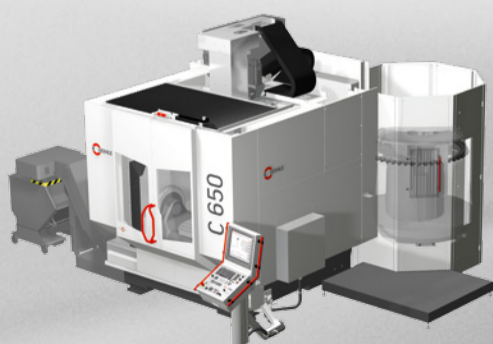


Ø 900 x 600 mm
max. 1500 kg
Collision circle: Ø 1100 mm

ADDITIONAL MAGAZINES

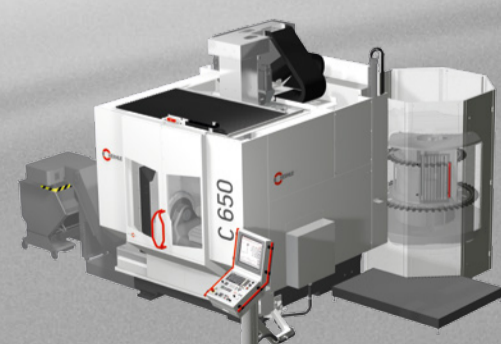
ZM 50

Magazine pockets 50



ZM 88 K

Magazine pockets 88



Max. tool weight: 8 kg

Maximum tool diameter: Ø 80, with corresponding side pocket assignment Ø 125 mm

Max. tool length: 350 mm



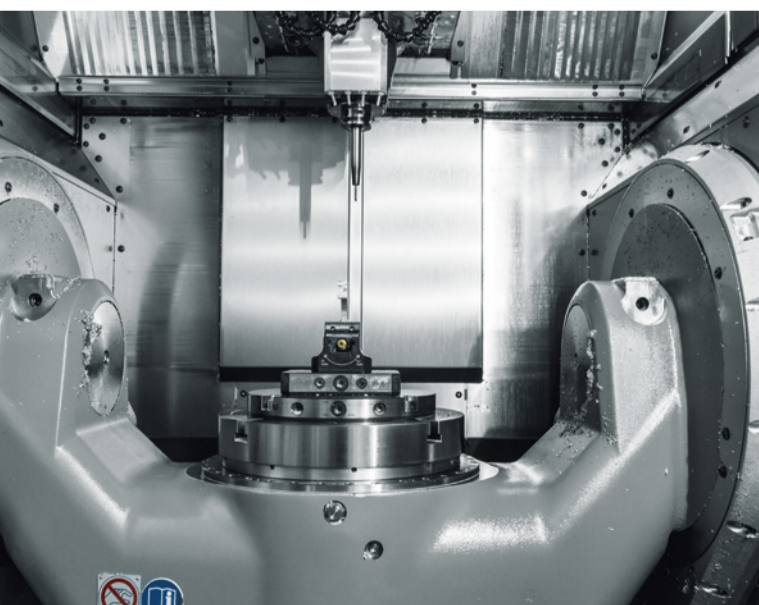
5-AXIS MAXIMUM PRECISION



From left to right Meopta - optika Mechanics Division Director Milan Ryšavy and Mechanical Engineering Manager Radomír Svoboda, and on the right Hermle Ceska Republika field sales executive Martin Skukalek

With an export quota of 100% for high-precision parts, Meopta - optika s.r.o. sets standards as a provider of technology for the optical, precision engineering and many other sectors.

Meopta - optika s.r.o. was founded under the name of Optiko-techna in 1933 in the Czech town of Přerov, to develop and manufacture optical and opto-mechanical products. The product range initially covered enlarger lenses and glasses, binoculars and cameras, and subsequently expanded to include periscopes and optical systems for military applications. Today Meopta is a global player in the binoculars, telescopic sight and spotting scope sector for private use, performance sports (biathlon), strategic optical and opto-electronic subassemblies for the semiconductor industry, digital projection, medical applications and optical systems for armed specialist units. Since its founding, the company has been focused on technologies for the machining of optical glasses, applying thin optical metal layers, precision assembly and adjustment of devices, as well as the precision machining and surface treatment of mechanical components.



Working area of the Hermle C 22 U high-performance five-axis CNC machining centre with working range X = 450 mm Y = 600 mm and Z = 330 mm, together with the 320 mm diameter swivelling rotary table and pallet holding fixture

PRECISION MECHANICS FOR INTERNAL APPLICATIONS AND FOR CUSTOMERS

Around 25% of the company's sales are generated by binoculars for private and sports use; 8% are generated in the military market, and over 60% in the contract manufacture of components and subassemblies for the electronics/semiconductor industry, measurement technology, medical applications and measuring devices, as well as high-precision parts for mechanical and apparatus engineering. Meopta - optika's Mechanical Division, headed by director and engineer Milan Ryšavy, makes components for in-house production operations as well as handling contract production of components and subassemblies on behalf of customers. Milan Ryšavy explains the thinking behind the Mechanical Division's machinery portfolio: "For five-axis/five-side complete and simultaneous machining we rely on high-performance five-axis CNC machining centres from Hermle. We use them because they are state-of-the-art in five-axis machining, because we are able to cover a broad range of parts with the available machine sizes, and because the automation of Hermle machining centres is customisable." Hermle's C 22 U is ideally sized to manage our workpiece range covering several thousand parts. Together with the two larger C 40 U and C 42 U high-performance five-axis CNC machining centres, as well as the C 20 U and the older C 600 U, we are able to handle any workpiece size that might occur, as well as producing in lot sizes from 1 up to about 800.

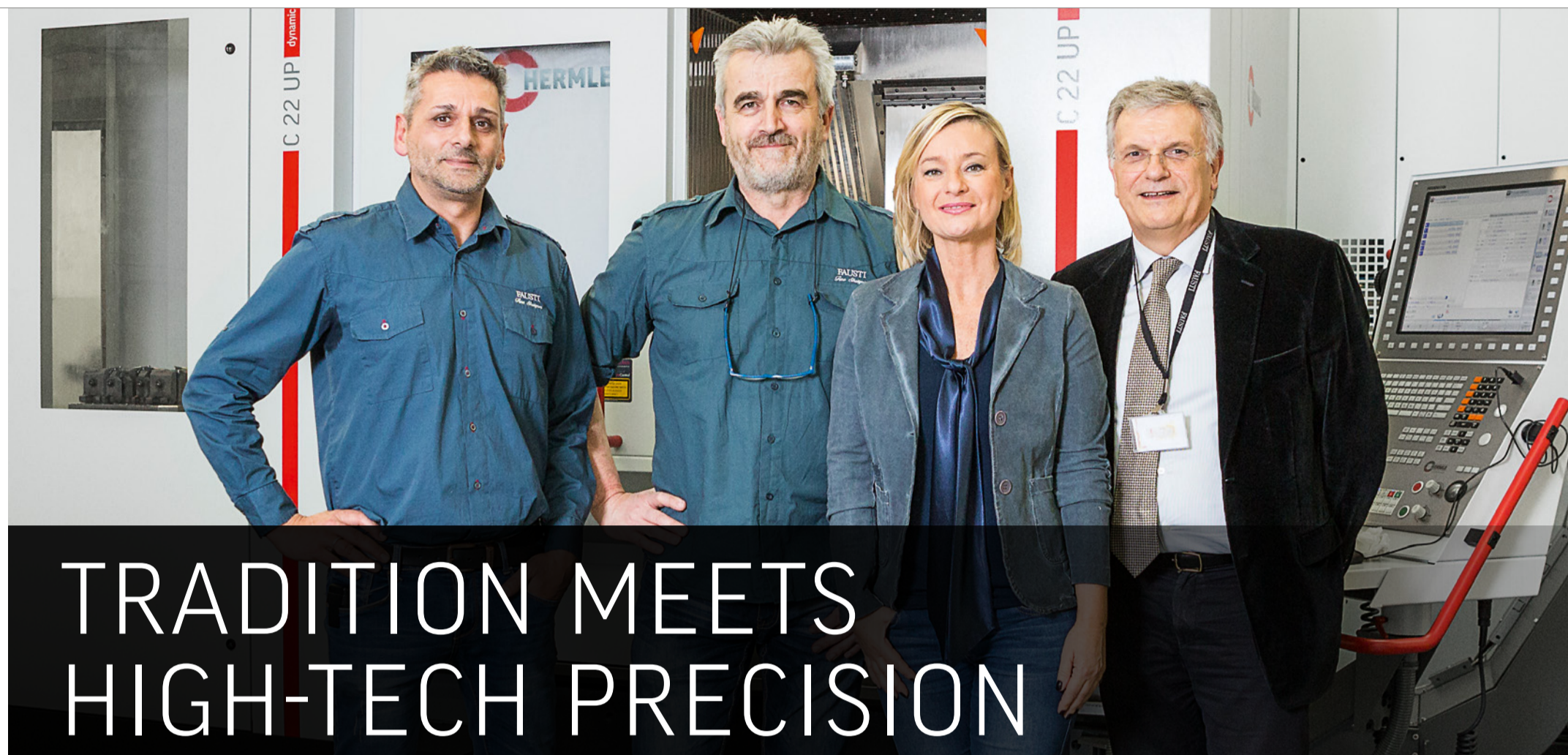
THE RIGHT MACHINE FOR EVERY MACHINING JOB!

The C 20 U as well as the C 22 U and the UP variant handle most of the industrial component production. In fact, the C 22 UP is sometimes run for a week at a time producing entire component families comprising 160 medical technology workpieces, each entailing run times of an hour and more. By contrast, the C 42 U is used mainly for the flexible machining of single parts and prototypes. Milan Ryšavy sums up: "We see the Hermle machines as the basis of our high-precision machining operations. Apart from the components we make for in-house use, almost all our output is



Pallet changer PW 150 of the C 22 UP machining centre featuring a total of 18 pallet pockets in the complete system, configured for pallet size 320 x 320 mm with max. pallet weights up to 2 x 150 kg

exported - meaning we are in a constant struggle against global competitors. In view of that, it is certainly good to know that we are running high-end, high-precision, reliable machining centres capable of precise workpiece reproduction which are really user-friendly and easy to operate."



TRADITION MEETS HIGH-TECH PRECISION

FAUSTI®

From left to right Oscar Bertoni - Production, Giordano Belleri - Production, Giovanna Fausti - CEO Fausti and Ernesto Molinari - Director of Hermle Italia S.r.l.

Using an innovative combination of traditional craftsmanship and five-axis machining centre technology, the Italian family-owned Fausti company fabricates high-quality hunting weapons.

With many years of training and working on the manufacture of hunting weapons and the passion of an enthusiastic huntsman, Stefano Fausti decided to set up a small workshop in 1948 with the aim of developing and manufacturing weapons himself. Stefano Fausti managed to pass on his hunting genes to his three daughters, who share his passion both for hunting and for the technology of hunting weaponry, and wisely included them in the business operations of the company. There are now 40 employees who together manufacture around 5000 hunting weapons annually. Fausti has definitely moved on from the 'workshop' level, and is now an industrial manufacturer who nevertheless succeeds in combining the attributes of design, technology, craftsmanship, production efficiency, quality and attention to detail. Giovanna Fausti's comment on this: "As our order books got fatter and fatter, we were faced with the prospect of entering the world of industrial manufacturing and investing in correspondingly high-performance machine tools. We went for the best in order to make sure of being able to maintain the required high quality of our products and still remain cost-efficient with small-batch runs. In the late nineties, that meant Hermle machining centres and industrial CNC

manufacturing. Previously, we had already used high-quality milling and drilling machines from other suppliers. But we were persuaded to change by Hermle's performance ratings, the control and operating concept, the high degree of precision, and not least by the company's well known and high standards of service."

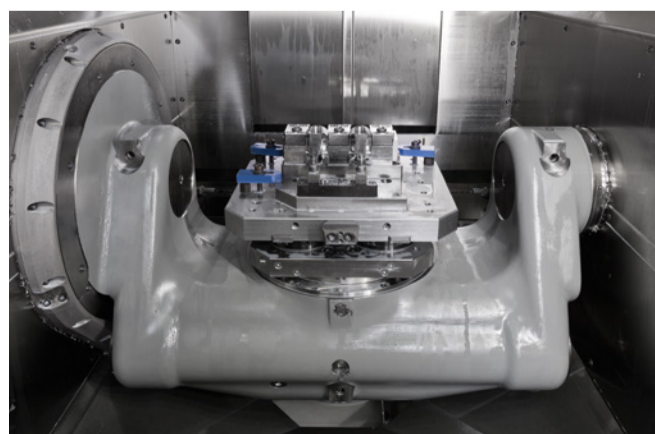
FROM STEPWISE CNC PROCESSING TO 5-AXIS / 5-SIDE FULL PROCESSING

The Hermle era began with a C 600 U, which was followed by a C 40 U five-axis, high-performance machining centre, and then in 2014 by a type C 22 U five-axis machining centre with the PW 150 pallet storage and changing system, and an identical system in 2015. These last two machining centres with automatic workpiece deployment are another indication as to how important the current international business has become - with an export share of 90%, it is thirsting for more production capacity. In addition, the highly developed 5-axis technology opens up the way to new machining strategies that ensure long-term efficiency and quality in the manufacture of components such as lock casings, locks, double locks etc., most of which are part of patented weapon systems. Giovanna Fausti explains: "Previously, we used forged blanks for many components. These had to be machined successively in separate stages on different machines. Frequent re-clamping often led to accumulated inaccuracies, and of course that had negative effects on the quality, productivity and compatibility.

HIGH-QUALITY COMPLETE MACHINING SAVES COSTLY AND TIME-CONSUMING REWORKING.

As each C 22 U machining centre with pallet storage and changer has 6 pallets (x 4 workpieces) with 24 workpieces in circulation, up to 48 workpieces can be machined in a single process run per shift, so quite large batches can be produced automatically. In conclusion, Giovanna Fausti adds: "Thanks to the high degree of flexibility provided by the two C 22 U machining centres and the two stand-alone C 600 U and C 40 U machining centres, we can

manufacture series parts and customized parts to highest quality levels, as required and most importantly, with optimal scheduling. And these parts can be passed on directly to the assembly department. The Hermle machines and their high availability rates have made a major contribution to our having been able to transition from artisanal to industrial hunting weapon production. That was the only way open to us for penetrating new markets and



Working area of a C 22 U high-performance five-axis CNC machining centre featuring the 320 mm diameter NC swivelling rotary table and a changing pallet with multi-clamping fixture on the zero point clamping system mounted in the table



Left Front view of the PW 150 pallet storage and changing system setup station that is docked onto the C 22 U machining centre right Model Senator sidelock side by side, 28 gauge shotgun

developing new products, while still putting a great deal of store by the combination of the traditional and the modern."

USERS.

Read the complete article at www.hermle.de
in the Media / User reports section.

DATES

EMO, HANOVER
18/09 – 23 SEPT. 2017
MSV, CZECH REPUBLIC
09 OCT. 2017 – 13 OCT. 2017
FAKUMA, FRIEDRICHSHAFEN
17 Oct. 2017 – 21 Oct. 2017
SOUTH-TEC, GREENVILLE/SC/USA
24 OCT. 2017 – 26 OCT. 2017
METAVAK/GORINCHEM/NETHERLANDS
31 OCT. 2017 – 02 NOV. 2017
DUBAI AIR SHOW, DUBAI
12 NOV. 2017 – 16 NOV. 2017
FORMNEXT, FRANKFURT
14 NOV. 2017 – 17 NOV. 2017



REPRODUCIBLE PRECISION



From left to right Atul Mohkhedkar (General Manager – Tools Production) - Seco Tools India (P) Ltd., Swapnil Patil (Product Manager – Hermle), Terrence Miranda (Managing Director), Shardul Itkalkar (General Manager-Service), Subra Miranda (Business Manager) all four of Phillips Machine Tools India Pvt. Ltd.

Even under difficult climatic conditions, Hermle machining centres deliver to specifications. Seco Tools India uses 5-axis, high-performance CNC machining centres from the C 22 U, C 30 U and C 50 U series to manufacture very precise basic supports and components for the cutting tool programme in Pune in the State of Maharashtra.

With a population of around one billion, the state of India belongs to the so-called BRIC group of nations, and in that context it is regarded as one of the most politically stable and still positively developing markets. That alone would be reason enough for a manufacturer of metal cutting tools and tool systems to pay close attention to this region. But Seco Tools' management anticipated the great potential of the Indian market, especially regarding its large pool of qualified people, a great deal earlier, and founded Seco Tools India in Pune as long ago as 1988. With a definite orientation towards exports, this is where Seco produces high-quality tools and components for the world market to Seco standards. As is also the case in other Seco facto-

ries, this is done mainly on Hermle machining centres. Atul Mohkhedkar, Head of Production at Seco Tools India, explains: "The decision in favour of Hermle machines was easy to make, as we were already convinced about the high performance capabilities, the precision, the reliability and good service on the basis of our experience from other Group companies. We put our trust in Hermle machining centres right from the start, and still do: Currently, we have several C 22 U, C 30 U and C 50 U 5-axis machining centres in operation. The good partnership has now lasted for many years, while we have been steadily extending the capacity of the Pune location and what we have to offer there year by year."

However, there is something else behind the success story of Seco Tools India and Berthold Hermle AG that is not so obvious, as production specialist Atul Mohkhedkar continues: "In our company, significant fluctuations in temperature of 10° Celsius or more can occur within 24 hours. This has to do with the regional climate and happens despite the countermeasures taken. As Hermle machining centres have a special polymer concrete machine bed and because the machine concept and the selection of components, as well as the control software (e.g. temperature compensation), are designed for optimal temperature stability, the machines maintain their precision and process-related capabilities. Even under extreme conditions, we always work within the specified tolerance range of 4 to 30 µm to deliver Seco quality and we remain flexible in terms of variability and batch numbers." The tried-and-tested Hermle service organisation is there to ensure that these Hermle machines – and of course those of the other Indian customers – can continue working with their customary reliability, efficiency and precision. "With the competence of trading company Phillips Machine Tools India, customers and other interested parties have a local point of contact. Maximilian Waizenegger, the responsible Sales Manager Hermle AG, concludes: "Phillips provides support with sales, consultancy, training and supplying spare parts, so together we can offer a coherent supply and service package that is tailored to the local market requirements."



Above Female machine operators are also employed; SECO Tools India is playing a leading role in their employment across the country. below Several 5-axis machining centres C 22 U in tool production.

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