Overview www.hermle.de











Contents.

01 Industry sectors	4
02 The machining centres	8
03 Technical highlights	36
04 Automation	44
05 Milling culture	52
06 Manufacturing	58
07 Assembly	62
08 Services	66
09 Worldwide	72

01 Industry sectors



Top speed! 2.5 t in 5 axes for all sectors.



Milling at its best: Hermle machines are often at the forefront when it comes to optimized results. The proverbial Hermle precision in combination with process consulting and project management has made us the most important machine partner in nearly all key sectors – ranging from large-sized complex components to microcomponents in the high-tech field. Versatile use, uncompromising results – simply Hermle.

01 Industry sectors

Hermle is at home in all sectors. For us, ensuring the highest precision and reliable machining is always paramount. Our machines are made for daily operation, whether as linked linear production cells or as standalone machines.

Automotive industry



Energy Technology



Motor sports and racing



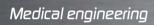
Aerospace technology



Optical Industry



Machine construction

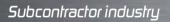




Tool and mould construction



Tool Technology









02 The machining centres



Precision power houses! From compact to gigantic.



The original is always the first. We are often copied but never equalled. Hermle remains the original and the best. We have been committed to 5-axis processing from our very beginnings. By the middle of the nineteen-nineties, we had recognised that this recipe for success was indeed the future. Since that time, we have continually refined and improved our technology and expanded our range of machines. Also a full stop is needed after the word future.





02 The machining centres

Ergonomics, compact dimensions, workshop suitability, precision, reliability, durability. These are no empty phrases for us. Every one of our machines is distinguished by precisely these properties. Even now, after many years of production.

Worm or torque drives are used in the C axes. The A axes can be fitted with one-sided or tandem drives, depending on workpiece weight and the required dynamics. Our MT models can not only mill but also turn in 5 axes simultaneously.

As a consequence of their axis design, and the integrated nature of the Rotary Tables, Hermle machines offer a large collision circle diameter. They can process very large workpieces relative to the machine footprint. All models can even considerably exceed the 0° to +/- 90° swivelling range.



02.1 HIGH-PERFORMANCE-LINE

THE BEST FOR YOUR MILLING NEEDS

With its HIGH-PERFORMANCE LINE, Hermle has been supplying high-tech sectors of the international market with highly precise and high-performance machining centres for several years now. Whether as stand-alone machine, automated system or connected manufacturing facility, our machines are second to none.





C 12

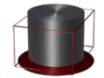
C 22

Traverse (mm):

350 x 440 x 330

450 x 600 x 330





Core: Ø 320 / H 265

Core: Ø 450 / H 370

Collision circle: Ø 610

^{*} For reasons of standardisation, the maximum machinable object is shown here at a swivel angle of 0° and -90°. All models in the C series achieve swivel angles of considerably more than 0° or 90°.



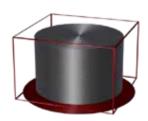


C 42 / C 42 U MT

Traverse (mm):

650 x 650 x 500

800 x 800 x 550



Core: Ø 650 / H 420

Core: Ø 800 / H 560

Collision circle: Ø 840







C 62 / C 62 U MT

Traverse (mm):

1000 x 1100 x 750





Core: Ø 1000 / H810



Core: Ø 1200 / H900

Collision circle: Ø 1290

02.2 PERFORMANCE-LINE

ADAPTIVE DYNAMICS WITH HIGHEST PRECISION

Hermle's PERFORMANCE LINE machining centres have all the high-precision capabilities of the HIGH-PERFORMANCE LINE, and the only concessions they make concern the range of equipment.





C 250

C 400

Traverse (mm):

600 x 550 x 450

850 x 700 x 500





Core: Ø 450 / H 355

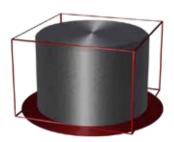
Core: Ø 650 / H500

Collision circle: Ø 770



Traverse (mm):

1050 x 900 x 600



Core: Ø 900 / H 600





The mega machining centre is capable of machining up to 2500 kg in 5 axes with a collision circle of up to \emptyset 1400 mm. It also uses high-tech spindles with high torque or high speed values. The C 62 requires no foundation and does not have to be disassembled before transportation.





TECHNICAL DATA

Traverse X-Y-Z: 1200 - 1300 - 900 mm

Speed: 9000 / 14000 / 15000 /

18000 rom

Rapid linear traverse X-Y-Z:

50 m/min

Control unit: TNC 640 / 5 840 D 51

Swivelling rotary tables:

Tables with torque: 0 900 / 0 1350 x 1100 mm

Swivelling range: +/-130°
A axis speed: 15 rpm
C axis speed: 30 rpm
Max. table load: 2500 kg

C 62 U MT dynamic

Swivelling rotary table:

Table with torque: Ø 1200 mm
Swivelling range: +/-130°
A axis speed: 15 rpm
C axis speed: 400 rpm
Max. turning table load: 1500 kg
Max. milling table load: 2500 kg



The C 52 U and C 52 U MT with their swivelling rotary table variants can process workpieces of up to 2000 kg in weight in 5 axes simultaneously whilst maintaining the required precision; a great challenge for the machine dynamics, but no problem for a Hermle. Also available as a milling / rotating centre.



TECHNICAL DATA

Traverse X-Y-Z: 1000 - 1100 - 750 mm

Speed: 9000 / 14000 / 15000 /

18000 rom

Rapid linear traverse X-Y-Z:

60 - 60 - 55 m/min

Control unit: TNC 640 / 5 840 D 51

Swivelling rotary tables:

Tables with torque: 0 700 / 0 1150 x 900 mm

Swivelling range: +100%-130°
A axis speed: 20 rpm
C axis speed: 30 rpm
Max. table load: 2000 kg

C 52 U MT dynamic

Swivelling rotary table:

Table with torque: Ø 1000 mm

Swivelling range: +100%-130°

A axis speed: 20 rpm

C axis speed: 500 rpm

Max. turning table load: 1000 kg

Max. milling table load: 2000 kg



C 42/MT



The highly dynamic machining centre, refined and enhanced for 5 axes – 5 side machining. Features galore to ensure high precision cost effective part production. Wide range of automation solutions extends the application range many times over.

Workpiece dimensions Ø 800 x 560 mm



5-axis milling: max. 1400 kg 5-axis MT turning: max. 700 kg 5-axis MT milling: max. 1400 kg

Workpiece dimensions 800 x 800 x 550 mm



3-axis milling: max. 2000 kg



TECHNICAL DATA

Traverse X-Y-Z: 800 - 800 - 550 mm

Speed: 15000 / 18000 / 25000 /

42000 rpm

Rapid linear traverse X-Y-Z (dynamic):

45 (60) - 45 (60) - 40 (60) m/min

Control unit: TNC 640 / 5 840 D sl

Rigid clamping table:

1050 x 805 mm

Max. table load: 2000 kg

Swivelling rotary tables:

 Table with worm:
 Ø 440 mm
 Ø 800 x 630 mm

 Swivelling range:
 +/-130°
 +/-130°

 A axis speed:
 25 rpm
 15 rpm

 C axis speed:
 30 rpm
 25 rpm

 Max. table load:
 450 kg
 850 kg

 Tables with torque:
 Ø 440 mm
 Ø 800 x 630 mm

 Swivelling range:
 +/- 130°
 +/- 130°

 A axis speed:
 55* rpm
 25* rpm

 C axis speed:
 65 rpm
 65 rpm

 Max. table load:
 450 kg
 1400 kg

C 42 U MT dynamic Swivelling rotary table:

Table with torque: 0 750 mm
Swivelling range: +/- 130°
A axis speed: 25 rpm
C axis speed: 800 rpm
Max. turning table load: 700 kg
Max. milling table load: 1400 kg



The C 32 universal machining centre is a modular, building block construction which can be adjusted for any application. It is a true design marvel in a modified gantry construction. It sets the standard for 5-axis processing with numerous optional extras for process optimisation.



TECHNICAL DATA

Traverse X-Y-Z: 650 - 650 - 500 mm

Speed: 15000 / 18000 / 25000 /

42000 rom

Rapid linear traverse X-Y-Z (dynamic):

45 (60) - 45 (60) - 40 (60) m/min

Control unit: TNC 640 / 5 840 D 51

Rigid clamping table:

900 x 665 mm

Max. table load: 1500 kg

Swivelling rotary tables:

Table with worm: 0 320 mm / 0 450 x 360 mm

Swivelling range: +/-130°
A axis speed: 25 rpm
C axis speed: 40 rpm
Max. table load: 300 kg

Table with worm: Ø 650 x 540 mm

Swivelling range: +/-130°
A axis speed: 25 rpm
C axis speed: 30 rpm
Max. table load: 600 kg

Table with torque: Ø 320 mm Swivelling range: +/-130°

A axis speed: 25/55* rpm C axis speed: 80 rpm

Max. table load: 200 kg

Ø 650 x 540 mm

+/-130° 25 rpm 65 rpm

600/1000* kg

*with tandem drive



Flexibility that leaves nothing to be desired. The C 22 is the solution – whether you need a 3-axis or 5-axis machine, programmed for single workpiece production in the workshop or fully automated and integrated into a turnkey project. It also offers great flexibility with table variants and setup options.



TECHNICAL DATA

Traverse X-Y-Z: 450 - 600 - 330 mm

Speed: 15000 / 18000 / 25000 /

30000 / 42000 rpm

Rapid linear traverse X-Y-Z (dynamic):

30 (50) m/min

Control unit: TNC 640 / 5 840 D 51

Rigid clamping table:

600 x 630 mm

Max. table load: 750 kg

Swivelling rotary tables:

Table with worm: Ø 320 mm / Ø 450 x 360 mm

Swivelling range: +/-135°
A axis speed: 25 rpm
C axis speed: 40 rpm
Max. table load: 300 kg

Table with torque: Ø 320 mm Swivelling range: +/-135° A axis speed: 25/55* rpm

C axis speed: 80 rpm Max. table load: 150 kg

*with tandem drive



The compact C 12 is a response to customer requirements for less installation area. The traverse paths of 350-440-330 mm provide an ideal basis for milling 5 sides or in 5 axes simultaneously. The tool magazine holds 71 tools in the double expansion level.



TECHNICAL DATA

Traverse X-Y-Z: 350 - 440 - 330 mm

Speed: 12000/15000/18000/

25000 / 30000 / 42000 rpm

Rapid linear traverse X-Y-Z (dynamic):

30 (50) m/min

Control unit: TNC 640

Swivelling rotary tables:

Table with torque: Ø 320 mm Swivelling range: +/-115°

A axis speed: 25 (55) rpm (dynamic)
C axis speed: 40 (80) rpm (dynamic)

Max. table load: 100 kg



The C 650 is based on Hermle's proven core expertise in 5-axis technology. Powerful and precise – it reliably meets the demands of the market



TECHNICAL DATA

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

Speed: 15000 / 18000 rpm

Rapid linear traverse X-Y-Z:

35 m/min

Control unit: TNC 640

Rigid clamping table:

1250 x 982 mm

Max. table load: 3000 kg

Swivelling rotary table:

Table with worm: Ø 900 x 750 mm

Swivelling range: + /- 115°
A axis speed: 25 rpm
C axis speed: 25 rpm

Max. table load: 1500 kg



The C 400 is based on Hermle's proven core expertise in 5-axis technology. Powerful and precise – it reliably meets the demands of the market







The C 250 stands for compact design with optimised working area especially for 5-axis machining. The C 250 also meets the challenges of many diverse industries in a 3-axis design.









make the output better, more precise and more readily available.



34

03 Technical highlights



Perfect! From the smallest screw to the control unit.



"Made by Hermle" means high levels of in-house production. It guarantees the quality and reliability of Hermle machines. Even after many years of work under the toughest production conditions.

03.1 Control unit

Hermle machining centres can be equipped with a wide range of control unit types. All control units provide diverse program functions. Hermle simplifies programming and operation still further with comprehensive extra features.

Heidenhain

Milling and turning using one control unit

Heidenhain TNC 640

- 19" TFT colour touch screen
- Keyboard unit with full keyboard, integrated trackball, USB and Ethernet interface
- Fully digital with HSCI interface and EnDat interface
- Programming in Heidenhain plain text or per DIN/ISO
- Standard drilling and milling cycles
- Touch probe system cycles
- Free contour programming
- Special functions for fast 3D machining
- Automatic calculation of cutting data
- Pallet management
- Software option Kinematic Opt (Measurement cycle for improving accuracy of rotational and swivelling operations)
- Tool management for all machines HTMC
- Further special turning cycles are integrated such as roughing, finishing, grooving and threading
- Easy to switch from milling to turning mode
- Incl. Dynamic Efficiency* Active Chatter Control (ACC), Adaptive Feed Control (AFC), trochoidal milling
- Incl. Dynamic Precision* Cross Talk Compensation (CTC),
 Active Vibration Damping (AVD), Load Adaptive Control (LAC)**

*Optional for C 250 / C 400 ** C 12, C 22, C 32, C 42, C 250, C 400

For further advantages and detailed technical data, please see the Heidenhain brochures.



Milling and turning using one control unit

Siemens S 840 D sl for models C 22, C 32, C 42, C 52, C 62

- 19" TFT colour flat screen
- Keyboard unit with full keyboard, additional panel with integrated trackball, key-operated switch and buttons, USB and Ethernet interfaces
- Complete and flexible diagnostics and service concept
- All inverter and control components are connected with each other by the Drive-Cliq-Interface
- Including shell transformation, 5-axis transformation, process-oriented measuring, 3D tool radius compensation and Spline-Interpolation
- Incl. software option Kinematic Opt (Measurement cycle for improving accuracy of rotational and swivelling operations)
- Tool management for all machines HOTS
- The S 840 D sl is also equipped for turning mode and can handle all integrated milling and turning processes
- Operating Interface OPERATE with ShopMill
- SINUMERIK MDynamics incl. Advanced Surface
- High Speed Settings CYCLE832

For further advantages and detailed technical data, please see the Siemens brochures.





03.1 Control unit

Hermle control tools



Hermle "Tool-Management-Control"

Simple Hermle tool management for Heidenhain controls.



Hermle "Information-Monitoring-Software"

The "Information-Monitoring-Software" is used to display the live status of machines and send events via e-mail.



Hermle "Operate-Tool-System"

Simple, Hermle tool management for the Siemens S 840 D sl.



Hermle "Wear-Diagnosis-System"

Machine status is continually monitored by the Hermle wear diagnosis system. It facilitates rapid machine diagnostics and status-oriented detection of maintenance tasks.



Hermle "Automation-Control-System"

Convenient order management software developed in-house by Hermle.

Hermle setups

Standard

Standard

- Standard setting.
- Switches back to the standard setting after a different setup has been used.

Heavy Duty Machining

Heavy duty machining

- For roughing in conjunction with high milling power.
- Greater machining performance possible thanks to reduced machine vibration (depending on the tool and the selected technology data).

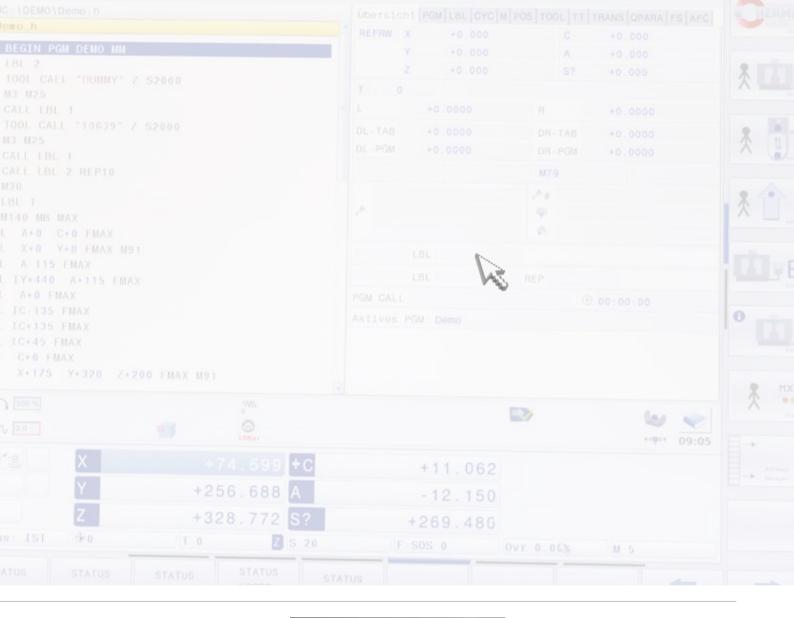
Heavy Duty

High Production

Production

 Quicker machining with programs which have many cycle calls or subprograms.





3D Contour Tolerance max.

3D contour tolerance max.

- For 3D roughing with low machining performance.
- Very high machining speed, mainly for free-form surfaces.

3D Contour Tolerance min.

3D contour tolerance min.

- For very high demands of machining accuracy, mainly for free-form surfaces.
- Can also be used with conventional programs.

3D Path Smoothing

3D path smoothing

- For very high demands on the surface quality, mainly for free-form surfaces.

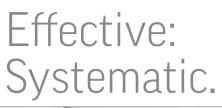














04 Automation



Our Promise. Milling at its best.



We can only succeed in the long run if we operate on the market with foresight. For this reason, we founded our automation subsidiary in the middle of the nineteen-nineties. This subsidiary rigorously pursues the further development of our solutions – from simple automation components to turnkey projects.

04.1 Automation

Everybody talks about automation, but it's much more than just a trendy word. We ourselves have changed from being a machine manufacturer to a process provider because we believe that the decisive criterion for automated efficiency is integration of the entire environment and periphery. In keeping with this philosophy, we are continuing what began with economical pallet changing and intelligent handling systems with highly advanced robot solutions. We have long been capable of converting machines into flexible manufacturing cells for over 15 years.







HS flex handling system



Pallet changer PW 850 with storage



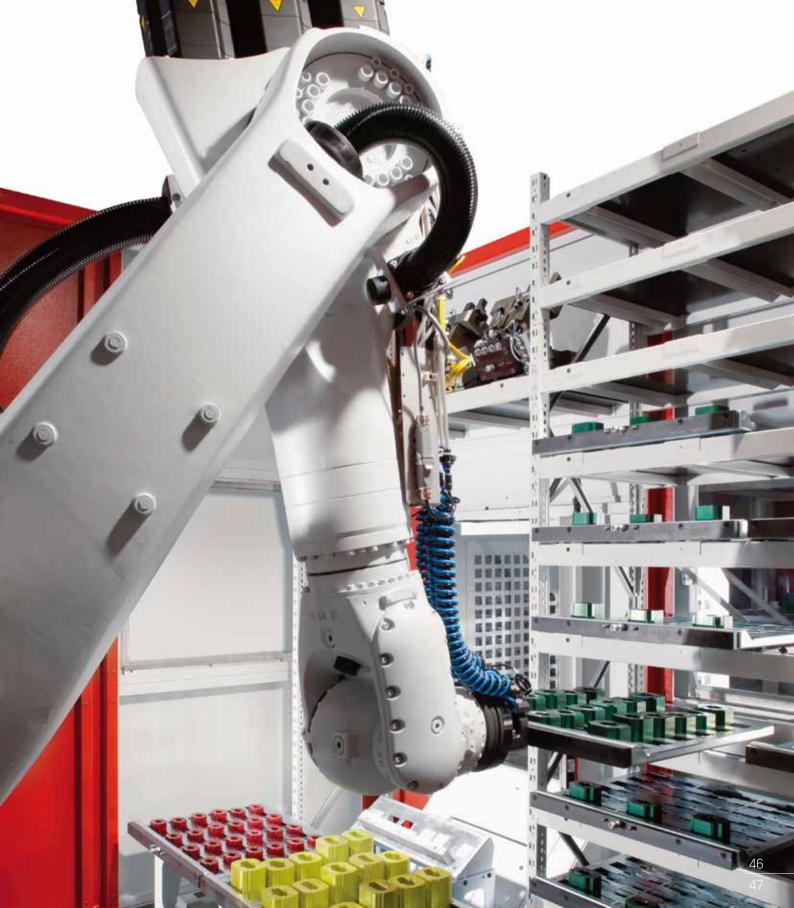
RS 05 robot system gripper



RS 05 matrix storage



Pallet storage from the pallet changer PW 150



04.1 Automation







Pallet changer PW 850



RS 05 robot system



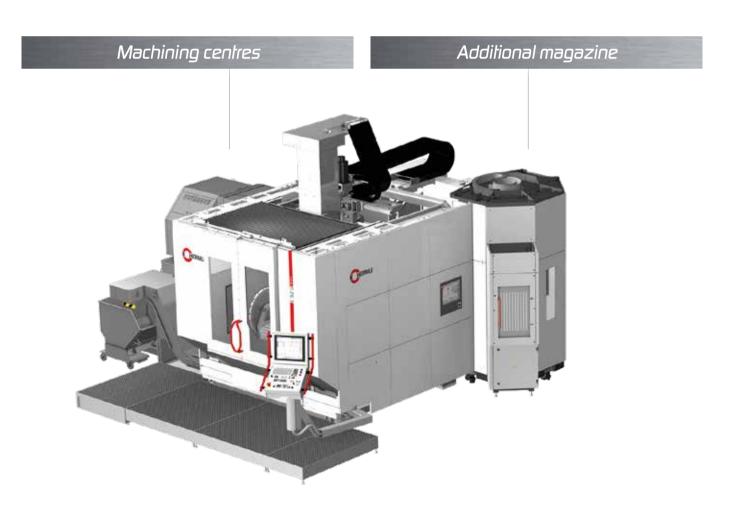
RS Linear robot system



04.2 Everything. From a single source.

Machining centres and automation solutions from a single source with high system expertise during planning, installation and maintenance:

- 3, 4 and 5-axis machining centres for which we ourselves manufacture and install all components including table units, tool spindles and entire sheet metal enclosures.
- Automation solutions from pallet changing systems, pallet storage, tool magazines and flexible manufacturing systems to custom turnkey solutions.



Pallet changer PW 100



Pallet changer P







Pallet changer PW 2000

Pallet changer PW 3000





Handling system HS flex

IH systems









W 850



RS 05 robot system



RS 1 robot system



RS 2 robot system



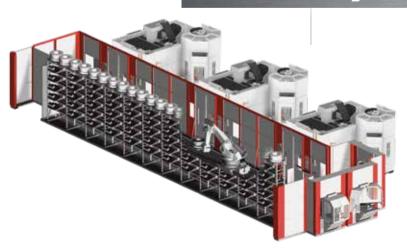
RS 3 robot system



system RLS 800



RS Linear robot system



Double or triple productivity. The RS 2 and RS 3 robot systems can naturally be adapted to encompass multiple machining centres with a wide variety of machining tasks. The storage systems are also completely and flexibly adjustable.



Basic system plus 1 machine



Basic system plus 2 machines . 90°



Basic system plus 2 machines . 180°



Basic system plus 3 machines

05 Milling culture



Swabia! From ingenuity to efficiency.



Ask an expert to name a precise and reliable machining centre and we know what they'll say. Over 25000 sold worldwide. Our almost proverbial Swabian innovative talent and closely knit sales and service network guarantee Hermle virtues on-site in all major countries of the world.







Production site and company headquarters in Gosheim, Germany



Shipping and logistics centre



Machine shipping

What a pity that some expressions become hackneyed, but we can say with complete justification: Wherever precision and quality come from, that's where Hermle comes from, too.

All Hermle machining centres are made in Gosheim – where the Swabian mountains are at their highest. At a site where precision mechanics and mechanical engineering have a long tradition.





Administration building at the company headquarters in Gosheim, Germany



Technology and training centre

06 Manufacturing



Hermle! 1000 employees, 1 demand.



The team that builds what are perhaps the best machining centres in the world demands the highest levels of skill and dedication. This begins with the production of each individual part. High precision in the μ range for the largest to the smallest parts.

06 Manufacturing

Our computer-controlled production systems with linked pallet stations are highly sophisticated, highly flexible and individually tailored to our solutions. We manufacture to the highest standards of quality – and, on demand, in 3 daily shifts.







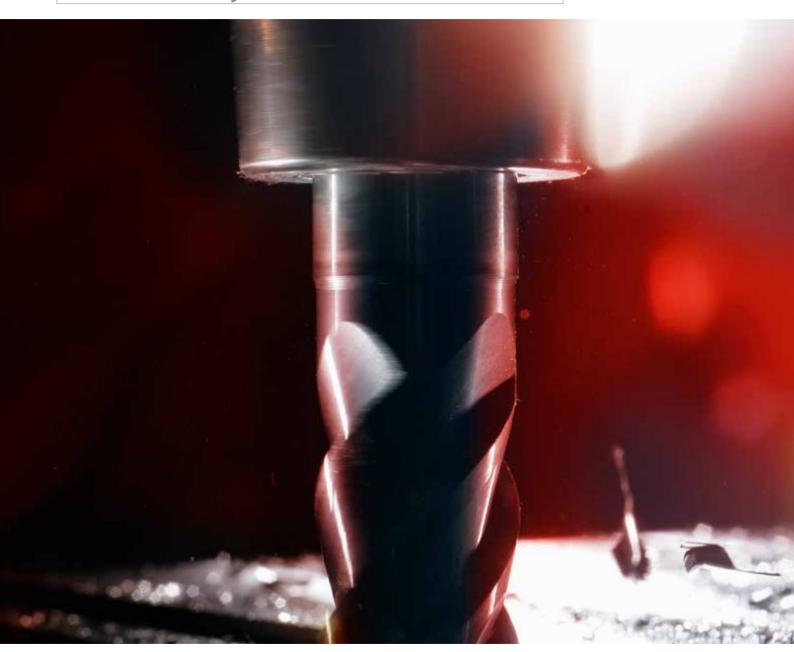




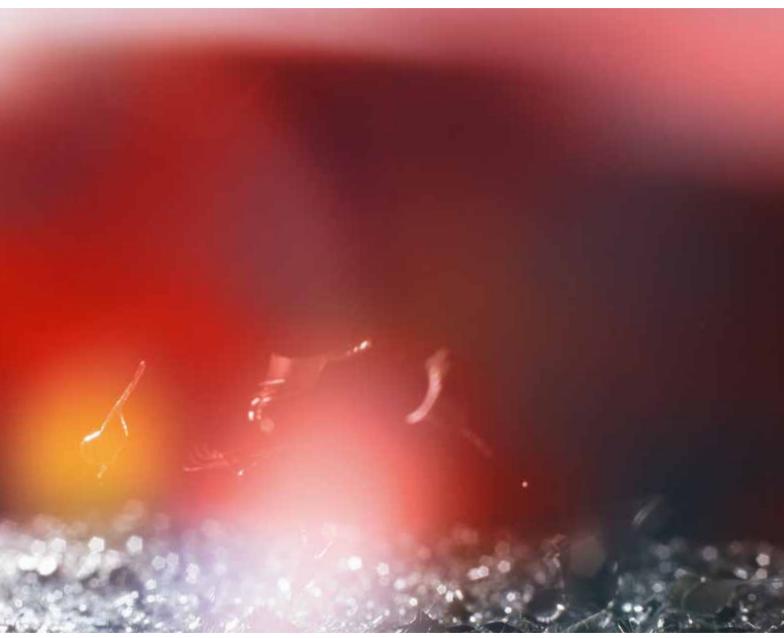




07 Assembly



Precise! Whether small or large.



All elements, from components a few millimetres in size to machine beds of up to 17 t, are united to create high-precision machining centres in the Hermle assembly department. They are thoroughly tested and ready for shipping within a few days.

07 Assembly

Every one of our machines is constructed completely by an assembly team in which every single person feels personally responsible for the result. Intensive working groups coupled with cyclical assembly and production line techniques enable us to create solutions that emphasize our standards of quality, which our customers cannot help but notice.







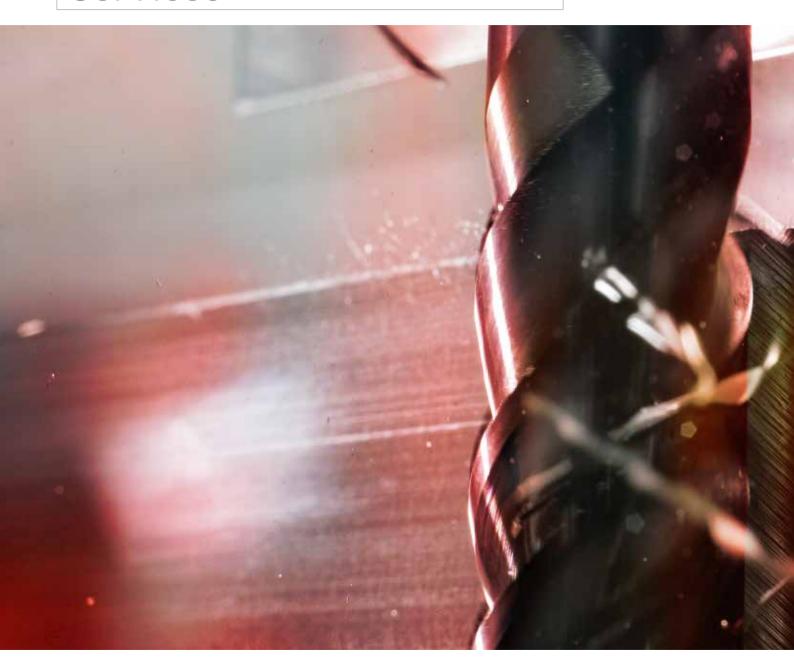








08 Services



Delighted to help! Swift to respond, whenever you need us.



Germany – a service wasteland? Not in our case! The Hermle team realised many years ago that service is a more than just a friendly, but uninformed voice in a call centre. For this reason, we have continuously and purposefully expanded our range of services over the years and will continue to do so.

08 Services

Spare part replacement within a few hours for new or old models, rapid assistance from our service team and extremely practical training programmes are as self-evident to us as sales consulting where it is needed most. But this is no reason to rest upon our laurels. Our motto – those who stop improving today will not make the grade tomorrow.



















08 Services

We provide comprehensive advice on milling, programming and handling of our products. This is the core competence of Hermle application technicians, who are experts in machining processes and who are quick to assist and advise our customers and provide specialist theoretical and practical support.















09 Worldwide

You can find our sales and service network in over 40 countries on 6 continents with competent on-site service available. That is one of our success factors for long-term and cooperative customer relationships.

Our motto: Direct sales and local service – nothing else will do! Hermle works for its international customers to provide direct, on-site consultation, sales, training and expert service.





Hermle + Partner Vertriebs GmbH Gosheim, Germany www.hermle.de



Hermle Belgien Belgium www.hermle-nederland.nl



Hermle-Leibinger Systemtechnik GmbH Gosheim, Germany www.hermle.de



Hermle Nordic Odense branch, Denmark www.hermle-nordic.dk



Hermle Maschinenbau GmbH Ottobrunn, Germany www.hermle-generativ-fertigen.de



Hermle Southeast Europe Sofia, Bulgaria www.hermle.bg



Hermle (Schweiz) AG Neuhausen am Rheinfall, Switzerland www.hermle-schweiz.ch



Hermle Ĉeská Republika, Organizacni slozka. Czech Republic www.hermle.cz



Hermle WWE AG Neuhausen am Rheinfall, Switzerland www.hermle-vostok.ru



Hermle Machine Company LLC Franklin/WI, USA www.hermlemachine.com



Hermle Österreich Vöcklabruck branch, Austria www.hermle-austria.at



Hermle ChinaShanghai Representative Office and

Beijing Representative Office, China www.hermle.de



Hermle Italia S.r.l. Rodano, Italy www.hermle-italia.it



Hermle Vostok 000 Moscow, Russian Federation www.hermle-vostok.ru



Hermle Nederland B.V. JD Horst, Netherlands www.hermle-nederland.nl



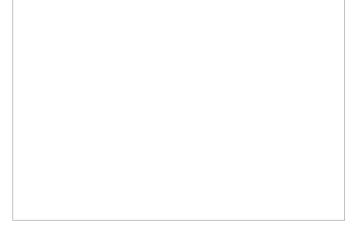
Hermle Polska Warsaw branch, Poland www.hermle.pl



Maschinenfabrik Berthold Hermle AG Industriestrasse 8 - 12 78559 Gosheim, Germany

Phone +49 (0)7426 95-0 Fax +49 (0)7426 95-1309

> info@hermle.de www.hermle.de





The machining examples used in this leaflet are published with the explicit and kind permission of our customers. The information in this brochure only contains general descriptions and/or performance features that, in a concrete application, may not always apply in the form described or represented here or may have changed due to further development of the products. The performance features desired shall only be binding if they have been expressly agreed upon in writing at the time of the contract. The machines illustrated may include some options, accessories and control unit alternatives.

Subject to technical modifications, 07/18/0verview/2500/EN/ST