MILL E

800 / 1200



MIKRON MILL

EFFICIENT PRODUCTION IN UNIVERSAL APPLICATIONS

CARDAN JOINT ELEMENT

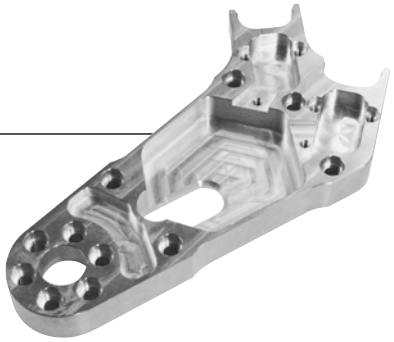


X22CrNi17

Aerospace

- Multiside machining on a dividing head
- High accuracy
- Machined from the solid

CUSTOM GRIPPER

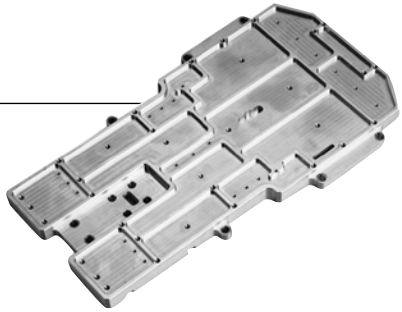


AlSi1MgMn

Machine tool industry

- Machined from the solid
- Thin wall structure
- Contour de burring

BASEPLATE



AlCu4Mg1, 5

Electronic industry

- Efficient multi-pocket milling
- Fast positioning
- High position accuracy
- Milling, drilling, boring and tapping

MOLD BASE

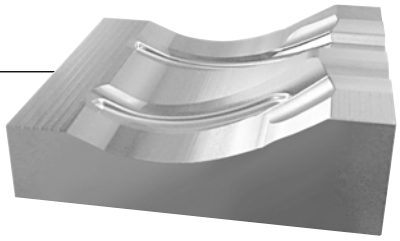


X153CrMoV12

Mold and die industry

- Efficient material removal
- High geometry accuracy
- Rigid tapping in steel

MOLD CORE



10Ni3MnCuAl (NAK80)

Automotive Industry

- Efficient material removal
- Excellent surface quality



Application sample: one setup machining
from the solid of a tool handling gripper.

EFFICIENCY REDEFINED



Best cover design for ergonomic operating and part loading

Two adjustable air blow hoses and two adjustable coolant hoses

Efficient chip evacuation through smooth inner cover design

Highest path accuracy ensured by state of the art numerical control

Safe machine setups thanks to a perfect all-around view to work area

Customizable chip and coolant management adapted to your need

Unique divided coolant tank system allowing user friendly maintenance (chip sump)

Further highlights

- Compact construction
- Best rigidity by high dynamics and maximum reliability
- Almost all options can be retrofitted
- Power drives on all axes (no vibration generating counterweight)
- Security level according to European standards
- High end numerical control
- Excellent price/performance ratio

A CORE COMPONENT

The MIKRON MILL E machines fill all preconditions for handling even the very stringent accuracy requirements of the high precision parts production. Top-performing on part accuracy requires from the machining center: High geometric + positioning + dynamic + thermal + referencing accuracy.



Lasting positionning accuracy
Linear optical encoders are the precondition for machines that must fulfill a high and lasting positioning accuracy by high machining speed. Indirect measuring systems, also coupled to ballscrew cooling or magnetic encoders are now more efficient under such requirements.

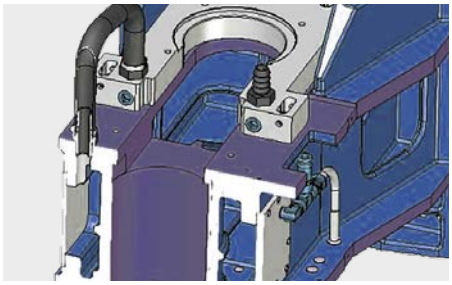
Compensates errors due to:
- Thermal drifts
- Friction variations
- Normal wear

We test positioning accuracy according to ISO 230-2 (2014).



Designed for dynamic accuracy
The structural stiffness and high gain position loop are the two main criteria in the design of a dynamic precision machine tool.

- Optimized static and dynamic stiffness based on FEA analyses
- High system reaction thanks to powerful drive algorithm
- High contour fidelity thanks to high look ahead
- Fast machining at specified accuracy thanks to contour path tolerance



Keeping accuracy also on long machining time
A stable thermal behavior on the tool center point despite a powerful cutting performance.

- Main heat sources isolated by cooling plates
- Liquid core cooled casting structure
- Intelligent thermal control



Machined and adjusted in lowest tolerances
The ultimate geometric accuracy of the final assembled structure is the basis for precision machining.

- Hand-scraped geometries
- Dished clamping geometry ensures a float-free hold



Simpler set-up with workpiece probe OMP 40-2
The infrared probe set into the spindle enables efficient set-up, recognition and measurement of the workpiece (Optional). It shortens setup time considerably.



Safe production with tool probe TS27R (optional)
Accurate tool set-up, safe broken tool monitoring – length and diameter of the tools can be measured precisely with the probe mounted on the working table.

OPTIMIZED TO PERFECTION

Body sculptured machine frame

The machine design, optimized thanks to state of the art simulation and analysis tools provide solidity throughout the machining center. The generously sized cast iron construction also stands out due to its excellent vibration absorption properties with high stability and rigidity, even under full load and in continuous operation. The result is a stable milling behavior which ensures a lasting quality of a high accuracy production process.

Strong spindle head

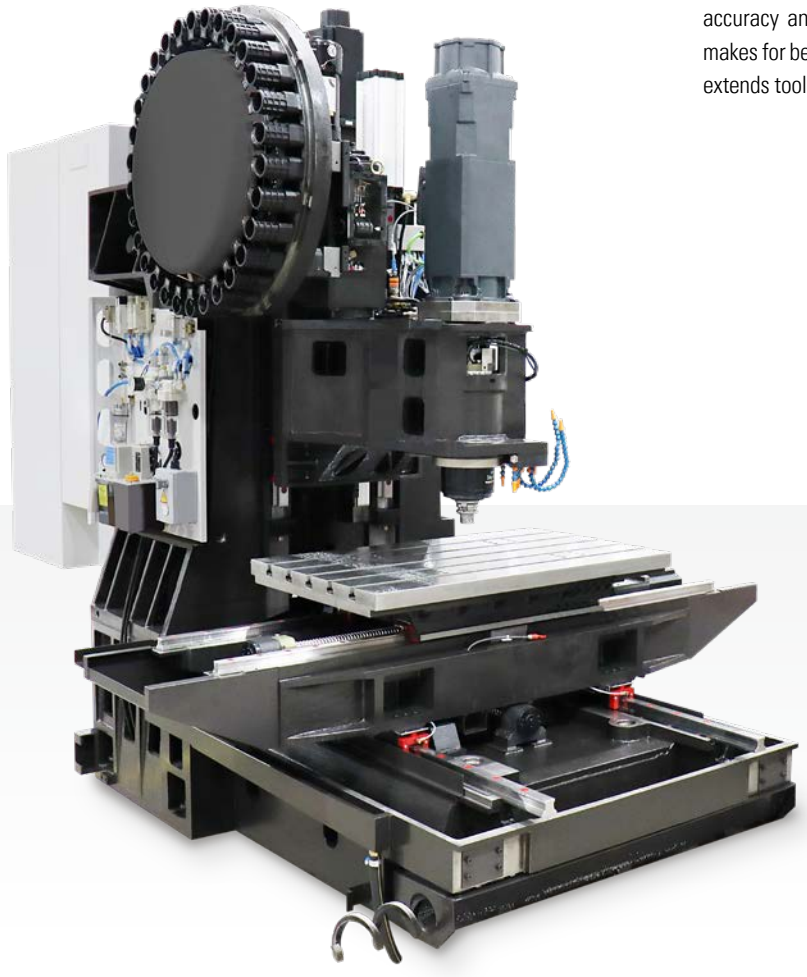
The widely supported and strongly constructed spindle head enables a high-powered milling/drilling operation on the Z-axis. A closed internal coolant circuit stabilizes and controls temperature drifts of the spindle head.

High-performance Spindles

The high-performance Spindles on the MIKRON MILL E series are designed to do heavy roughing and milling to best surface finish all at once. Thanks to a bearing design with three preloaded hybrid ball bearings in the front and a thermally robust hybrid cylindrical roller bearing on the back, you are guaranteed a super-rigid rotating system that enables milling with extra-long tools reaching into deep cavities. Ramp up your chip removal, thanks the feed rates made possible by his solution's absorption of high milling forces at the tool tip.

Perfect linear motions

Pre-stressed and double anchored ballscrews ensure the perfect linear motions – an important prerequisite for high workpiece precision. Linear guides with high rigidity and high load capacity ensure the smoothness in all displacements. Higher machining efficiency is generated through coexistent superior geometrical accuracy and surface quality of the machined work-pieces. The high rigidity makes for better vibration behavior with diminished vibration amplitudes and thus extends tool life. A central oil lubrication system ensures their highest durability.



EFFICIENCY AND FLEXIBILITY REDEFINED

- Quality you can rely on
- Completely designed and produced by MIKRON MILL which has dedicated all the know-how of its engineering crew
- The “carry-over” principle has been applied as far as possible, to maximize the component reliability
- Structural components have been optimized using newest numerical simulation assistance to reach an ideal solution

Quality you can afford

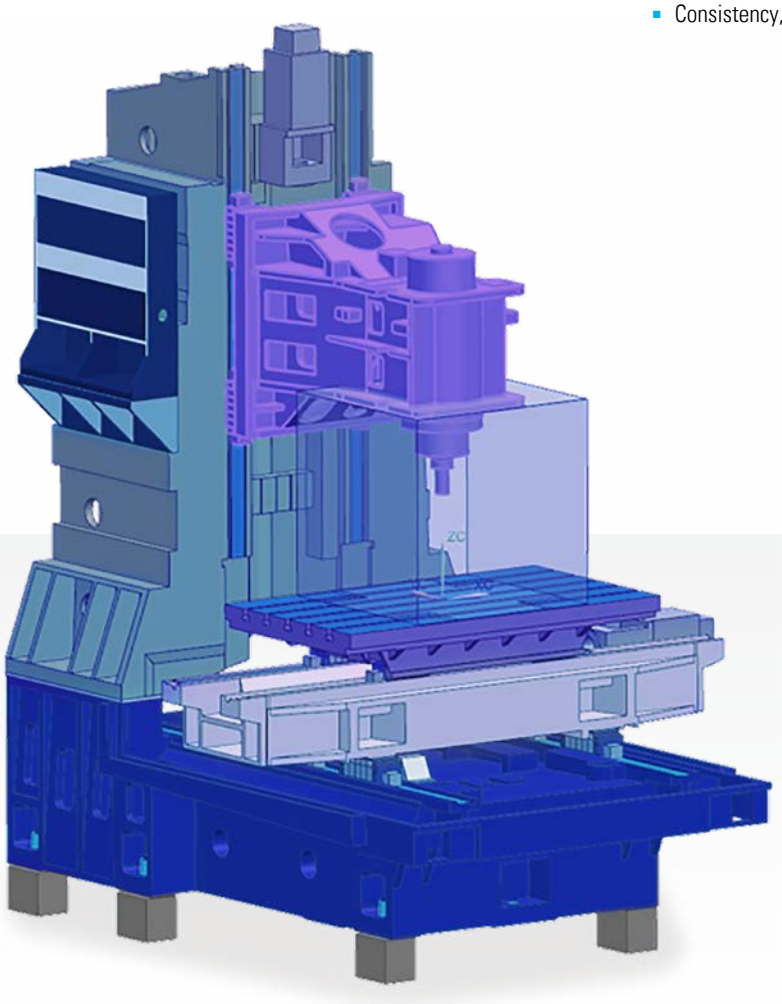
Conscientious cost control along the design phase led to a product that integrates the best of MIKRON MILL technologies in a modern, reliable milling machine affordable for a large customer field.

- Fast machining at specified accuracy
- Workshop oriented programming at the machine
- Conversational man-machine interface

Swissness inside

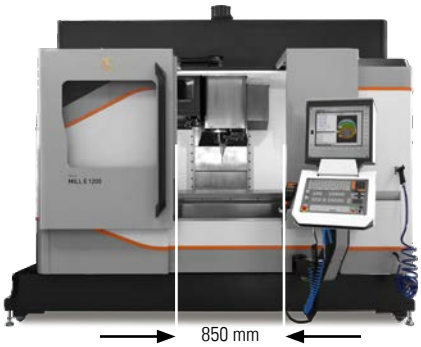
For over 100 years, machine tools from MIKRON MILL have proven their quality in their daily use by demanding customers. While the machines have undergone continuous development during this period, the Swiss principles of quality care have remained the same.

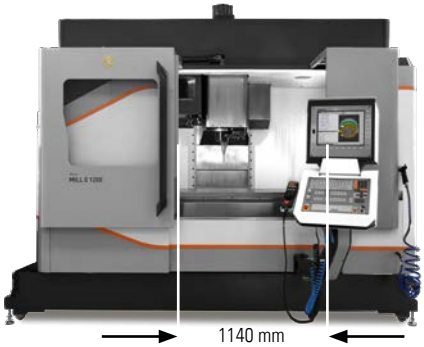
- Design-determined built-in accuracy
- Meticulous detail care
- Consistency, quality, reliability



ROOMY INTERIOR THAT OPENS NEW PERSPECTIVES…







MIKRON MILL E with its two sliding doors allowing direct and ergonomic access to the working table.

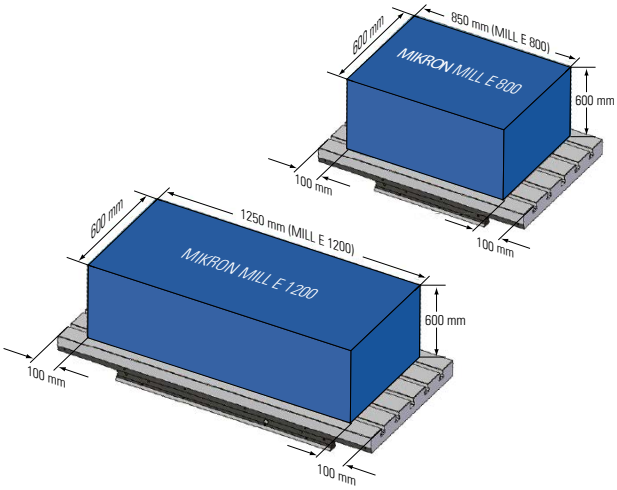
Better access to the work area

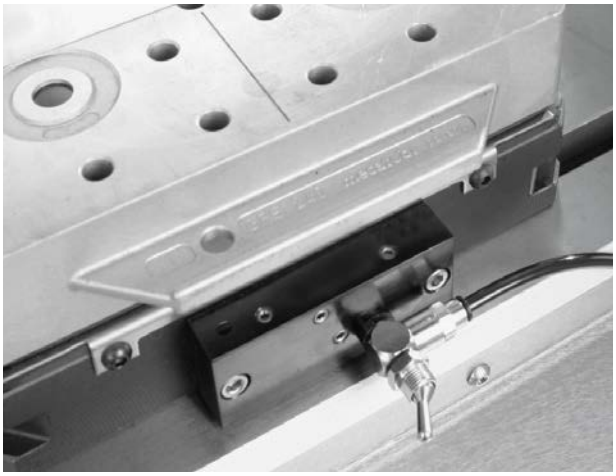
The MIKRON MILL E feature a unique "1+1/2" door principle. Safe working is guaranteed by the large screens of the smoothly sliding main door. The side panel ensures that once the door is slid open, there is an optimized access for big part loading or cleaning operations.

Integrated compressed air connection

The table has as standard equipment an integrated air supply that can be used to supply various part clamping systems. This feature adds flexibility to your choice of the right solution.

- Fits pneumatically operated zero point pallet clamping systems.
- Fits pneumatically operated part clamping systems.





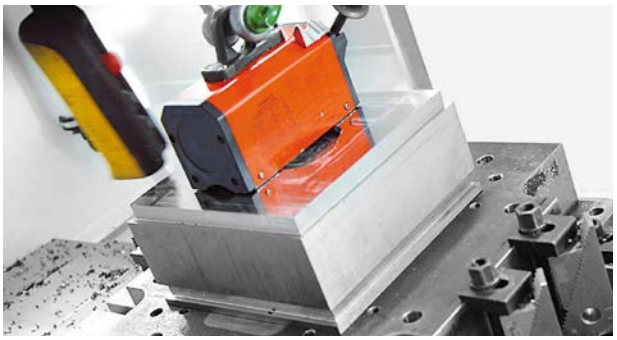
Machining capability over the full travel

The oversized table offers enough surfaces to safely clamp workpieces that have been machined. The dimension ensures that the workpiece can always be clamped. Directly machined in the cast iron, the numerous T-slots permit all imaginable part fastenings and ensure their quick alignment to the machine movements.

A GOOD ERGONOMIC WORKING ENVIRONMENT THAT ENHANCES EFFICIENCY

Easy crane loading for heavy workpieces

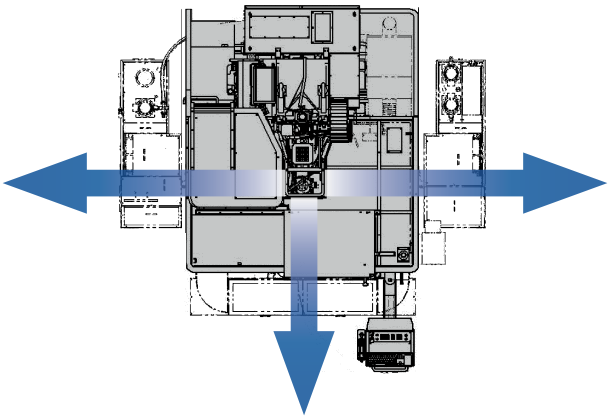
When constructing the cabin, great emphasis was laid on simple and safe crane loading, even with voluminous workpieces. The spacious machining area of every machine version is designed for efficient machining of large and unwieldy parts.



More confidence in what you are doing

Be faster on frequent part setups or program run-in without risks of collision damage.

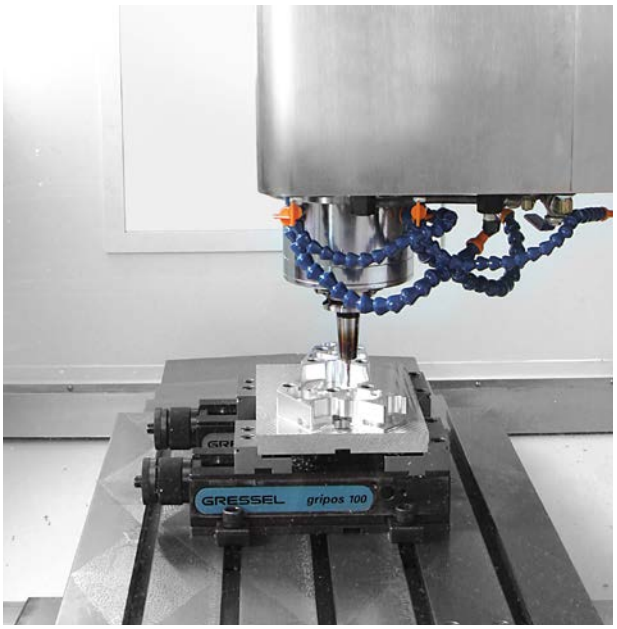
- Full 3 sided view
- Big sized windows
- Bright illumination of the work are





Maintenance of the large coolant tanks is facilitated, since each tank can be rolled out separately. Standard hand wash and air pistols support the cleaning of parts or machine elements.

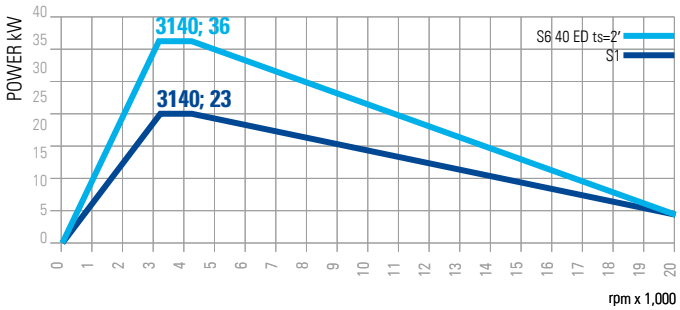
The outstanding feature of MIKRON MILL machining centers is their exceptional ergonomics. What is impressive about the concept is its unrivalled accessibility, which is not dependent on the machine's configuration.

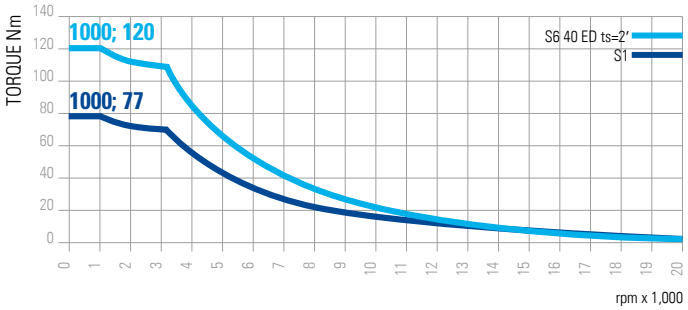


365 DAYS OF DYNAMIC MACHINING

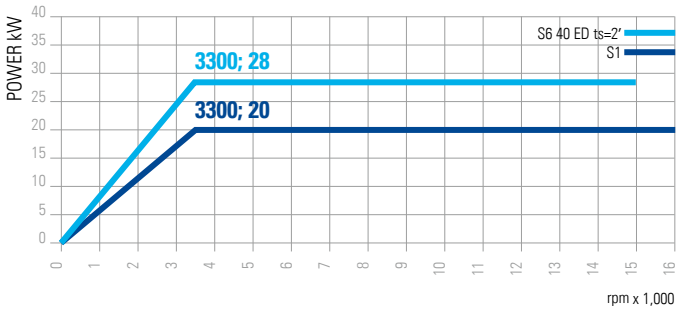
Since 1995, STEP TEC has developed, manufactured, sold and repaired motor-driven spindles for leading manufacturers of machining centers for milling, drilling and turning applications. STEP TEC manufactures fast, precise, high-performance integrated-motor spindles. These high-quality motor-driven spindles dramatically reduce machining times to achieve optimal workpiece quality.

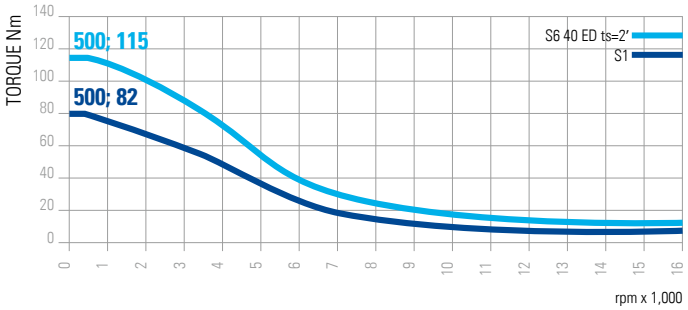
20,000 rpm / HSK-A63



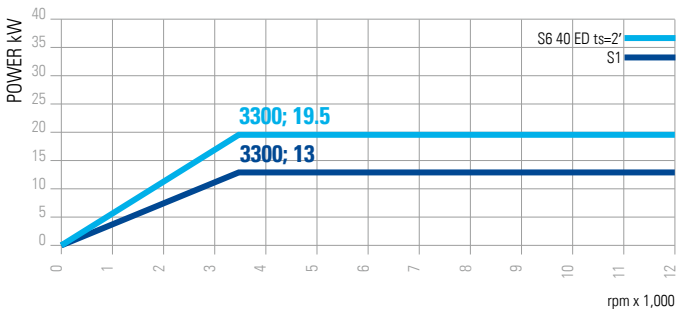


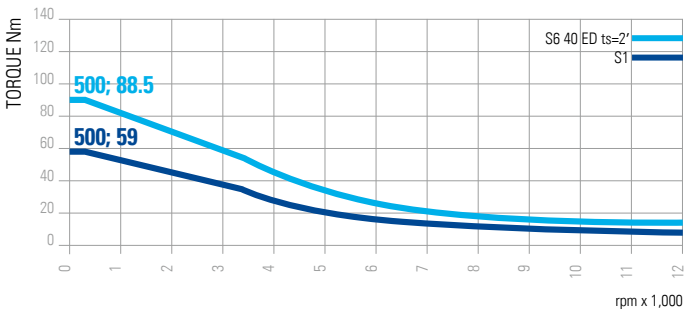
16,000 rpm / HSK-A63 / ISO/BT 40





12,000 rpm / ISO/BT 40





HIGH-EFFICIENCY MILLING AND EFFECTIVE PROCESSING

The high-performance Spindles on the MIKRON MILL E 800/1200 series are designed to do heavy roughing and milling to best surface finish all at once. With a bearing design with three preloaded hybrid ball bearings in the front and a thermally robust hybrid cylindrical roller bearing on the back, you are guaranteed a super-rigid rotating system that enables milling with extra-long tools reaching into deep cavities. Ramp up your chip removal, thanks the feed rates made possible by this solution's absorption of high milling forces at the tool tip.

SPINDLE 20,000 min^{-1}

- Power (S6) 36 kW
- Torque (S6) 120 Nm
- Speed max. 20,000 min^{-1}
- Lubrication Oil-air
- Tool interface HSK-A63 DIN69063-1

STEP TEC MOTOR SPINDLE

- Precise high performance
- Through spindle coolant
- SEP Spindle Exchange program



SPINDLE 16,000 min^{-1}

- Power (S6) 28 kW
- Torque (S6) 115 Nm
- Speed max. 16,000 min^{-1}
- Lubrication Grease
- Tool interface HSK-A63 / ISO/BT 40

STEP TEC INLINE SPINDLE

- Lifetime lubrication
- Through spindle coolant
- SEP Spindle Exchange program



SPINDLE 12,000 min^{-1}

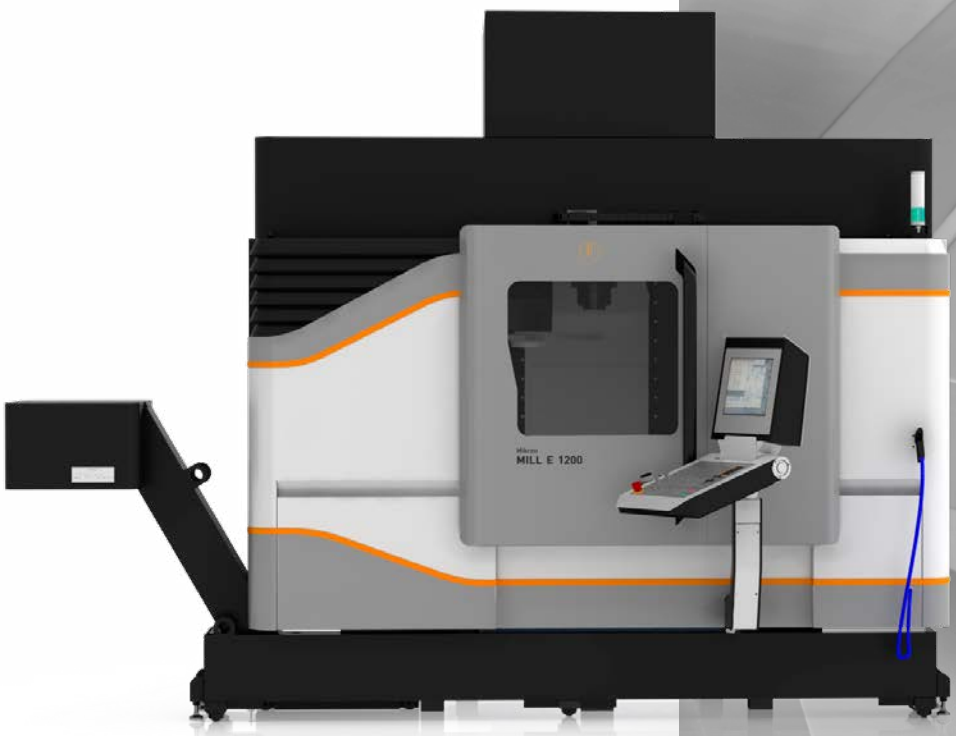
- Power (S6) 20 kW
- Torque (S6) 88 Nm
- Speed max. 12,000 min^{-1}
- Lubrication Grease
- Tool interface ISO 40 / BT 40 / CAT 40

INLINE SPINDLE

- Lifetime lubrication
- Through spindle coolant
- SEP Spindle Exchange program




MILL E 800


MILL E 1200



MIKRON MILL E

Expand your expectations, rally behind flexibility.

CLEAN AND EASY

The triple benefits of high flow flushing

- Ensures good lubrication of the cutting edge.
- Prevents premature tool wear and reduces the local heat transfer which enhances the machining accuracy.
- Avoids chip accumulation around the cutting process and facilitates their evacuation.

Always guaranteed by:

- 6 adjustable high flow coolant nozzles
- 2 adjustable air blow off nozzles

Cooling from all directions

The integrated nozzles located around the spindle eliminate any difficulties in adjusting single cooling jets on complex part geometries.

Through spindle coolant, 50 to 70 bar

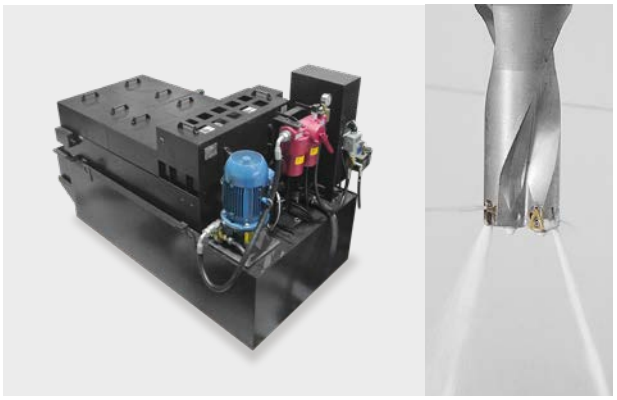
The coolant is guided under high pressure through the work spindle directly to the cutting edges. The advantages are higher cutting speeds, problem-free peck drilling, blind hole milling and extended service life of tools.

Smooth inner cover design

Great attention has been paid to the flow of chips in the working area. Sharply inclined side walls optionally combined with flushing systems direct chips straight to the evacuation channels. Chips are then efficiently transported out of the work area by chip conveyors.



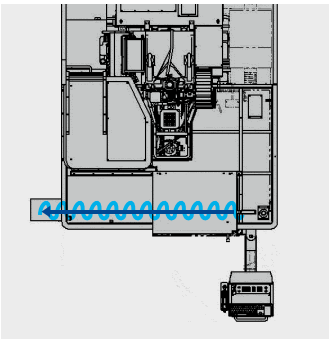




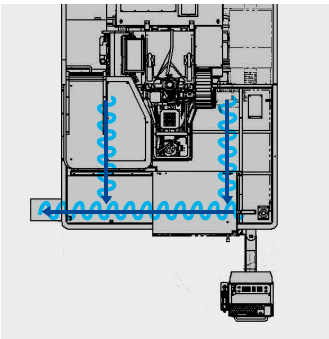


Standard hand wash and air pistols support the cleaning of parts or machine elements.

OPTIONS



Front conveyor



Front and side conveyor



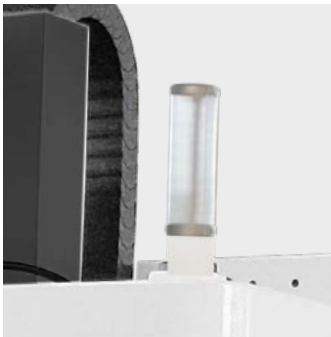
TSC band filter system
20 bar or 50 to 70 bar



Mist extraction unit



Oil/coolant separator



Beacon



Glass scales



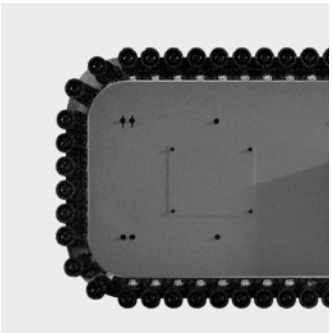
Infrared touch probe



TS27R table touch system



Laser tool measuring system



Tool magazine CT 60



Lift-up chip conveyor

ENHANCE YOUR PROCESS BEYOND PROGRAM AND MACHINE SETUP

This includes a range of modules collectively referred to under the generic term “smart machine” and that fulfill various functions. In order to make the milling process “intelligent,” various requirements have to be implemented.

1 is establishing comprehensive communication between man and machine, which makes available precise information that the operator requires to assess the milling process.
2 is supporting the operator in the optimization of the process, which considerably improves the performance.
3 is the machine optimizing the milling process, which improves process safety and workpiece quality—especially important in unmanned operation.

The facts

- Greater accuracy in shorter machining times
- Increase in the workpiece surface quality as well as the surface and shape accuracy
- Recognition of critical machining strategies
- Improved process safety
- Higher availability
- Better operating comfort
- Considerable increase in reliability in unmanned operation

- Produce your workpieces in a process-secure and precise manner.
- Increase reliability in unmanned operation.
- Boost the service life of the machine.
- Significantly reduce production costs.

Time
smart machine modules like OSS and software tools such as My rConnect boost your productivity.

Precision
smart machine modules such as ITC, OSS and ISM/ISM extended support the precise base of your machining center to achieve an even more precise final part.

Protection
smart machine modules such as PFP protect and extend the lifetime of your machine and tools.

smart machine construction kit system
Each of the modules fulfills a specific task. Just like in a construction kit, the user can selects the modules that seem to him to be the best option for improving his process.

HEIDENHAIN TNC 620 OFFERS QUICK AND RELIABLE MACHINING WITH HIGH CONTOUR FIDELITY

Heidenhain's Touch Numerical Control, the TNC made its mark in the demanding tool and moldmaking industry. It is recognized by experts as the numerical control offering best performances and programming comfort. The newest model, the TNC 620 once again merits this reputation.

User friendly human interface

The 15-inch TFT color monitor shows a clear overview based on graphic supports in any situation.

- Safer programming: each traverse command is drawn on the screen
- Faster programming: each cycle parameter is graphically illustrated
- Fast data transfer from programming stations.

Quick programming and part setups

TNC 620 features application-oriented setup functions that help to reduce non-productive time.

- Straightforward function keys for complex contours
- Field-proven cycles for recurring operations
- Re- using of programmed contour elements
- Workpiece presetting
- Workpiece misalignment compensation
- Easy machining under handwheel control



SERVICE + SUCCESS

Our Service + Success experts deliver end-to-end support with proactive expertise, digital tools, and hands-on service to ensure your machines perform at their best throughout their life cycle.



Secure your sustainable machining success
A huge network of highly-trained experts delivering preventive maintenance and advanced support

Grow your people skills
Performance oriented training academy with a human-centric and hands-on approach of knowledge transfer

Realize the full potential of your equipment
Advanced diagnostics, certification, upgrades, training, and financial solutions

My rConnect

Digital services for all your UNITED MACHINING machines, anytime, anywhere
My rConnect is your gateway to advanced digital assistance. Enjoy simple navigation and direct access to UNITED MACHINING support, for all connected and unconnected machines, regardless of their age.

Free standard features
- Asset overview
- Service case management
- Conferencing and communication
- Machine documentation

On-demand features
- Remote access
- Live data



SUCCESS PACKS: TAILORED SERVICE SOLUTIONS FOR EVERY NEED

Success Packs are three annual subscription levels designed to support your machines throughout their life cycle. Whether you aim to reduce downtime, prevent issues, or avoid unexpected repair costs, there's a plan to match your needs.

BRONZE

For full responsiveness
Fast reply services to ensure machines are swiftly back up and running

SILVER

For peak performance
Periodic maintenance services to keep your machines in optimal condition

GOLD

For guaranteed peace of mind
Extended warranty coverage to mitigate financial risks and focus on your core business



CHOOSE YOUR PACK

Speedy access Fast track for support	✓	✓	✓
Extended remote support 24/5 expert support through My rConnect	✓	✓	✓
Certified preventive maintenance Annual machine service performed under UNITED MACHINING standards		✓	✓
Core components diagnosis Annual checkup on the core machine components		✓	✓
Discounts Preferred prices for parts and labor		✓	✓
Extended warranty For up to five years			✓

TECHNICAL SPECIFICATIONS

WORKING RANGE

			MILL E 800	MILL E 1200
Longitudinal	X	mm	850	1,250
Transverse	Y	mm	600	600
Vertical	Z	mm	600	600

TABLE

Table size	mm	1,050 x 600	1,450 x 600
Max. weight on table	kg	1,000	1,500
Distance table-spindle	mm	150 - 750	150 - 750

FEED DRIVES

Feed	X, Y, Z	m/min^{-1}	15	15
Rapid speed	X, Y / Z	m/min^{-1}	40	40
Feed force	X, Y, Z	N	4,200	4,200

SPINDLE 100% ED, S1

12,000 rpm, ISO/BT 40 (S6)	kW / Nm	19.5/89	19.5/89
16,000 rpm, HSK-A 63 / ISO/BT 40 (S6)	kW / Nm	28/115	28/115
20,000 rpm, HSK-A 63 (S6)	kW / Nm	36/120	36/120

TOOL MAGAZINE

DT 30	BT 40 / HSK-63	pce.	30	30
CT 60	BT 40 / HSK-63	pce.	60	60
Max. tool length		mm	300	300
Max. tool diameter		mm	80 / (125)	80 / (125)
Max. tool weight		kg	8	8

CONTROL

Heidenhain	TNC 620	TNC 620

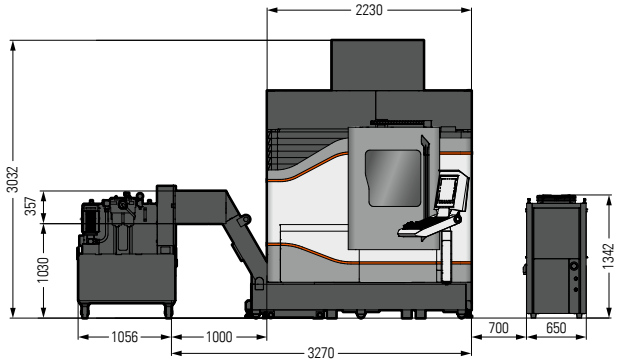
MACHINE WEIGHT

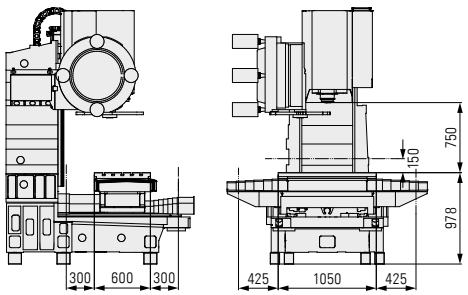
	kg	7,000	7,700

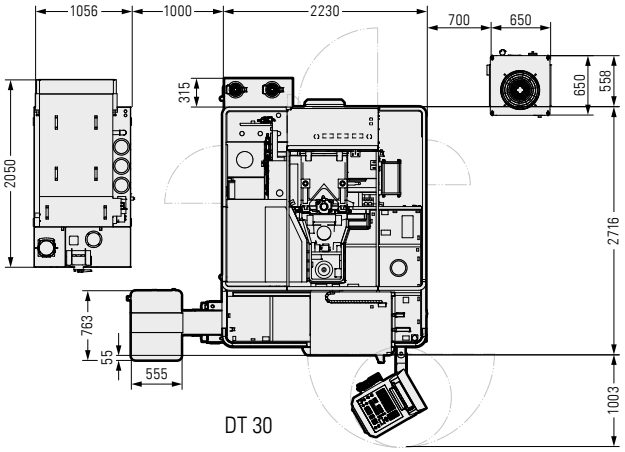
SMART MACHINE

	Heidenhain	ITC, ISM, ISM EXTENDED, OSS, PFP	ITC, ISM, ISM EXTENDED, OSS, PFP
		ISM/ISM extended option only with 20K Spindle	ISM/ISM extended option only with 20K Spindle

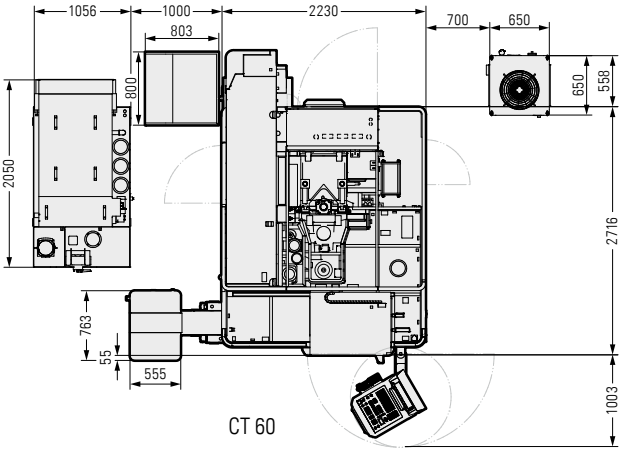
MILL E 800





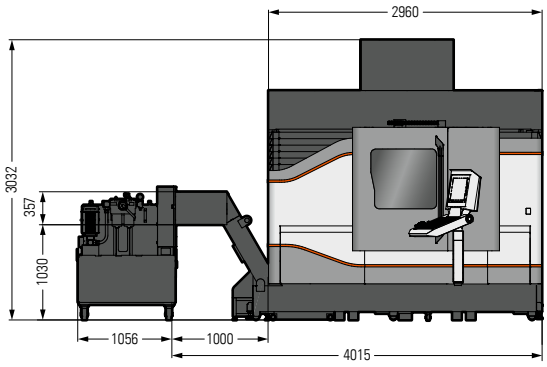


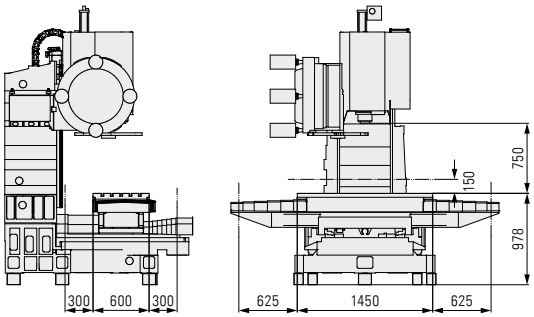
DT 30

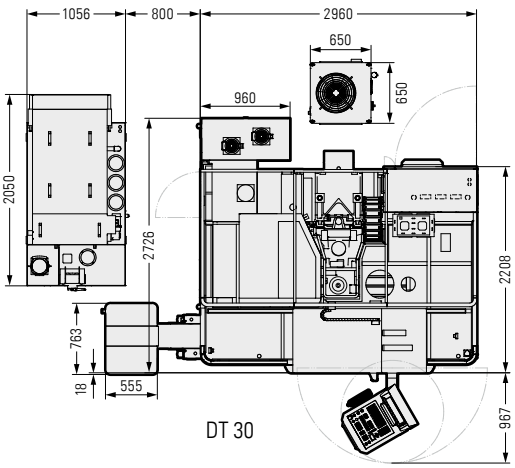


CT 60

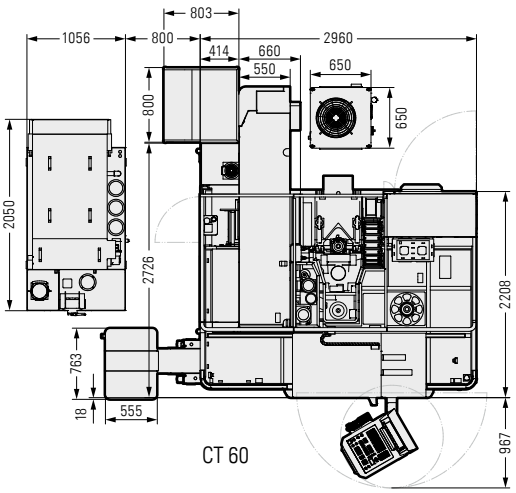
MILL E 1200







DT 30



CT 60

MIKRON MILL

MIKRON MILL is a global expert in vertical milling and the inventor of high-speed milling. Renowned for dynamic precision and free-form accuracy, our automation-ready machines deliver top performance in complex applications. MIKRON MILL stands for innovation, agility, and lasting value.

Year of foundation 1908
Head office Biel, Switzerland

Dynamic precision and ergonomic automation define the MIKRON MILL DNA. Frictionless torque motors enable ultra-smooth 5-axis movement for outstanding surface finishes.

Customers seeking fast ROI benefit from the efficient and affordable MILL E series. The MILL P machines deliver above-average productivity with high performance and automation. Our iconic MILL S/X series represents the peak of high-speed milling, offering unmatched surface finish, precision, and cycle time for complex parts. Optional grinding functionality expands application possibilities. Smart features like OSS, Automated Machine Calibration (AMC), and Econowatt make complex part production easier, even for skilled operators.



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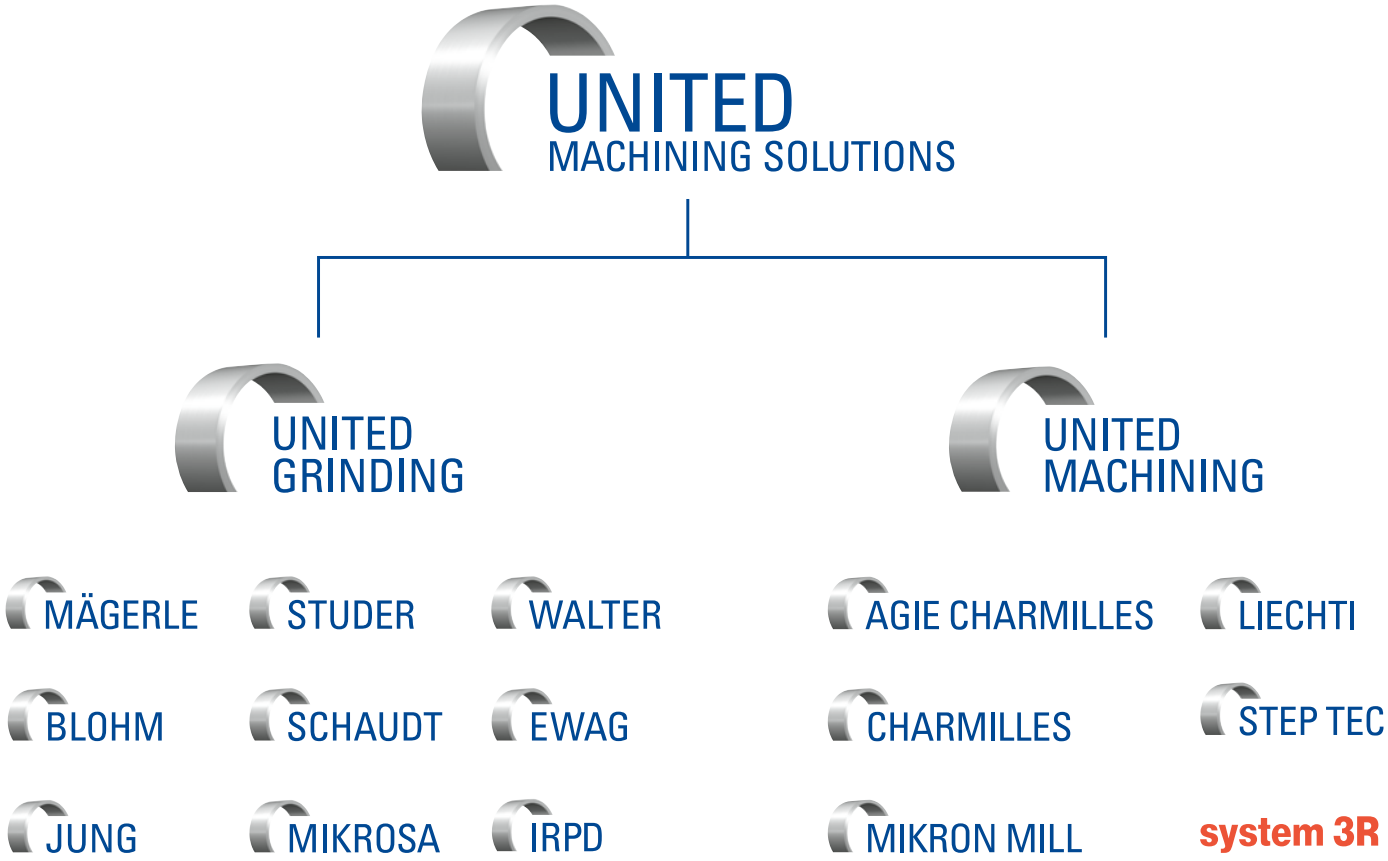
UNITED MACHINING SOLUTIONS

UNITED MACHINING SOLUTIONS is one of the largest machine tool manufacturers in the world. With around 5,000 employees at over 50 global production, service and sales locations, UNITED MACHINING SOLUTIONS is close to its customers and highly efficient. The group is organized into two divisions: UNITED GRINDING and UNITED MACHINING.

UNITED GRINDING includes the brands MÄGERLE, BLOHM, JUNG, STUDER, SCHAUDT, MIKROSA, WALTER, EWAG and IRPD. Its technologies include surface and profile grinding machines, cylindrical grinding machines, machines for tool machining and machine tools for additive manufacturing.

The UNITED MACHINING division includes the brands AGIE CHARMILLES, CHARMILLES, MIKRON MILL, LIECHTI, STEP TEC and SYSTEM 3R. It includes machines for EDM (Electrical Discharge Machining), high-speed milling and laser technology as well as spindle production and automation solutions.

«We want to make our customers even more successful»



MIKRON MILL

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