

MILL P 900



 **MIKRON MILL**

A member of UNITED MACHINING SOLUTIONS

HIGH-PERFORMANCE MILLING TRIGGERS YOUR SUCCESS

The vertical, three-axis MIKRON MILL P 900 is designed in a robust, portal structure with high static stiffness. It guarantees high quality parts for mold-makers in information and communications technology (ICT), automotive, home appliances and consumer goods, with the benefit of real roughing and finishing performance on the same machine.

Performant, stable and precise process

thanks to a symmetrical portal architecture allowing roughing and finishing in one machine setup.

Integrated Automation and chip

management to accelerate your productivity and efficiency.

Best surface quality and high positioning and contour accuracy

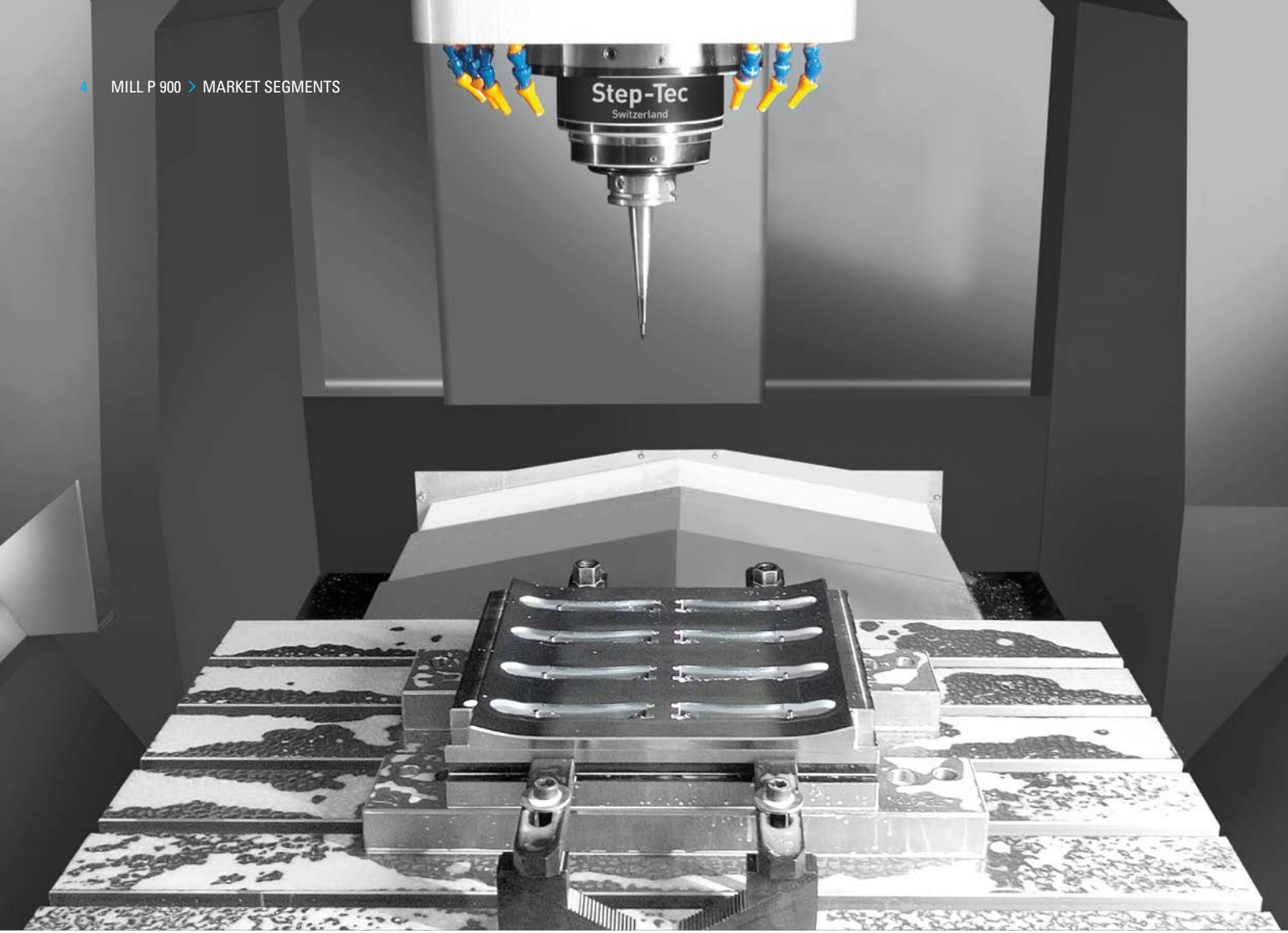
, thanks to this high-performance machine's polymer concrete base, thermal management and direct measuring on all axes.



THE RIGHT SOLUTION – FOR YOU

- Best surface finish
- Accuracy
- High chip removal
- Outstanding efficiency
- Polymer concrete machine base for best damping characteristics
- Thermostabilized machine body
- Renowned and stable Heidenhain and Fanuc control
- High-performance Spindle
- Ergonomic accessibility
- Easy to automate





MARKET SEGMENTS: TYPICAL 3-AXIS APPLICATIONS



Information
and communications
technology (ICT)



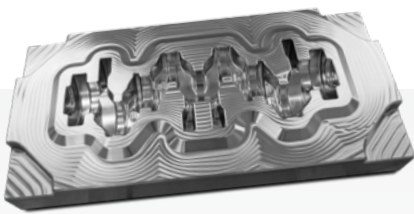
Electronic components



Packaging



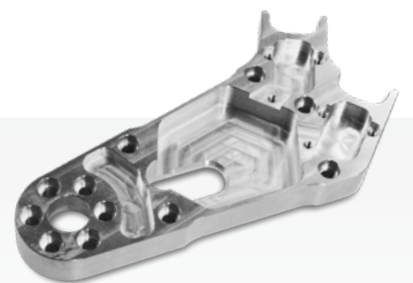
- Dynamic and Stable
- Space for performance



Automotive



Home appliances



General machinery

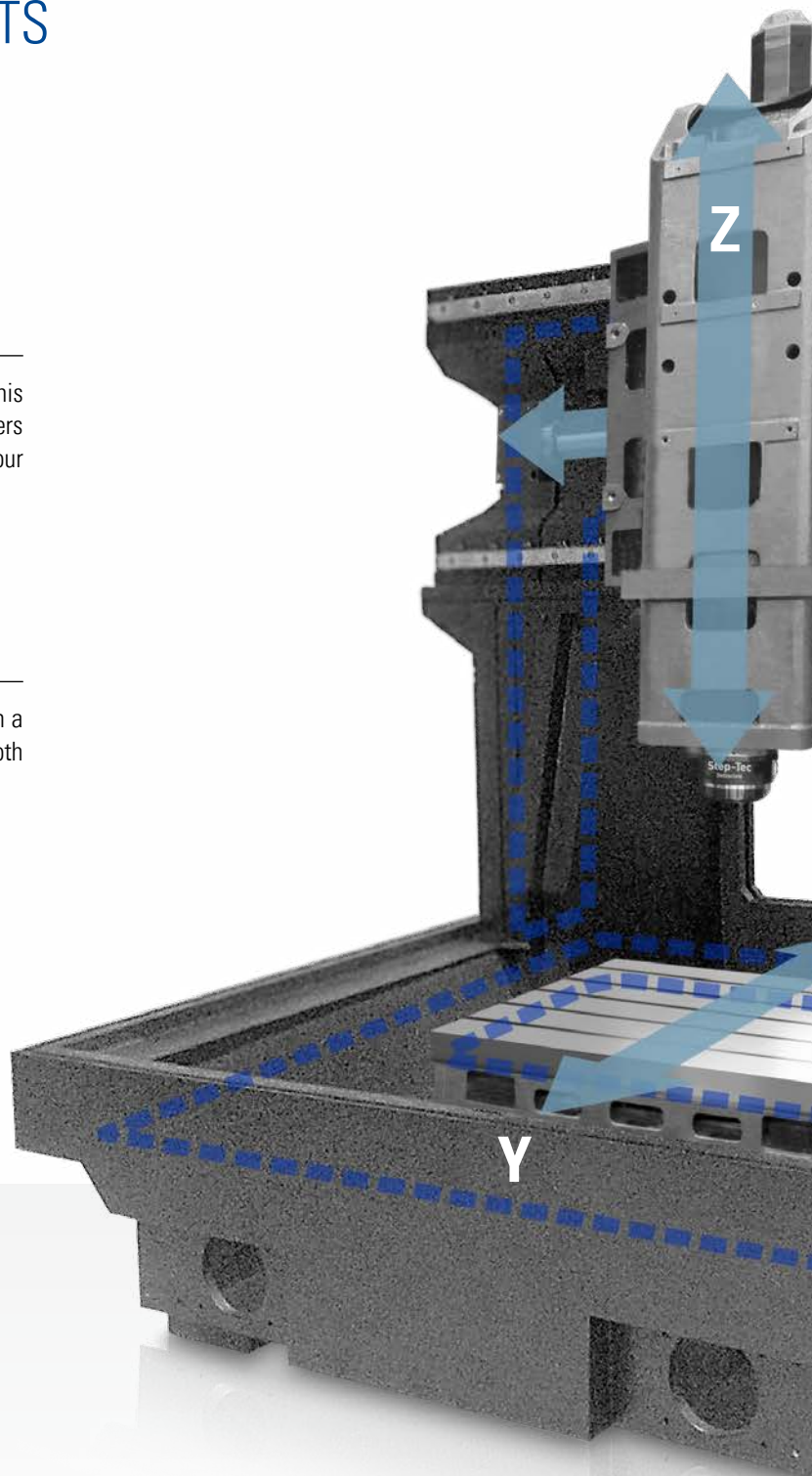
MILL P 900 CORE COMPONENTS

ROBUST CONSTRUCTION

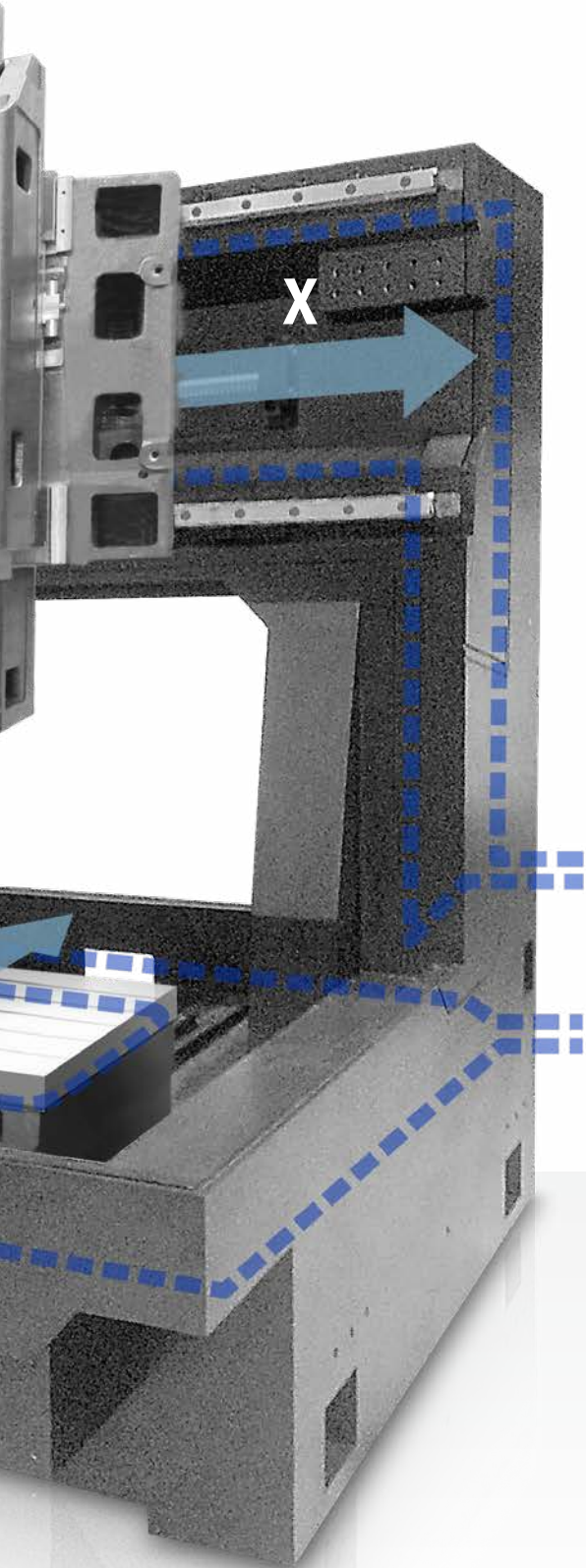
With its robust portal structure featuring high dynamic stiffness, this solution is especially designed for mold and die and part producers looking for best surface quality and very high positioning and contour accuracy.

POWER AT YOUR FINGERTIP

Experience the power of real roughing and finishing performance on a single machine. This machine range's one-touch process puts them both at your fingertip.



Fifty-year legacy
of machine design expertise



STABLE ACCURACY

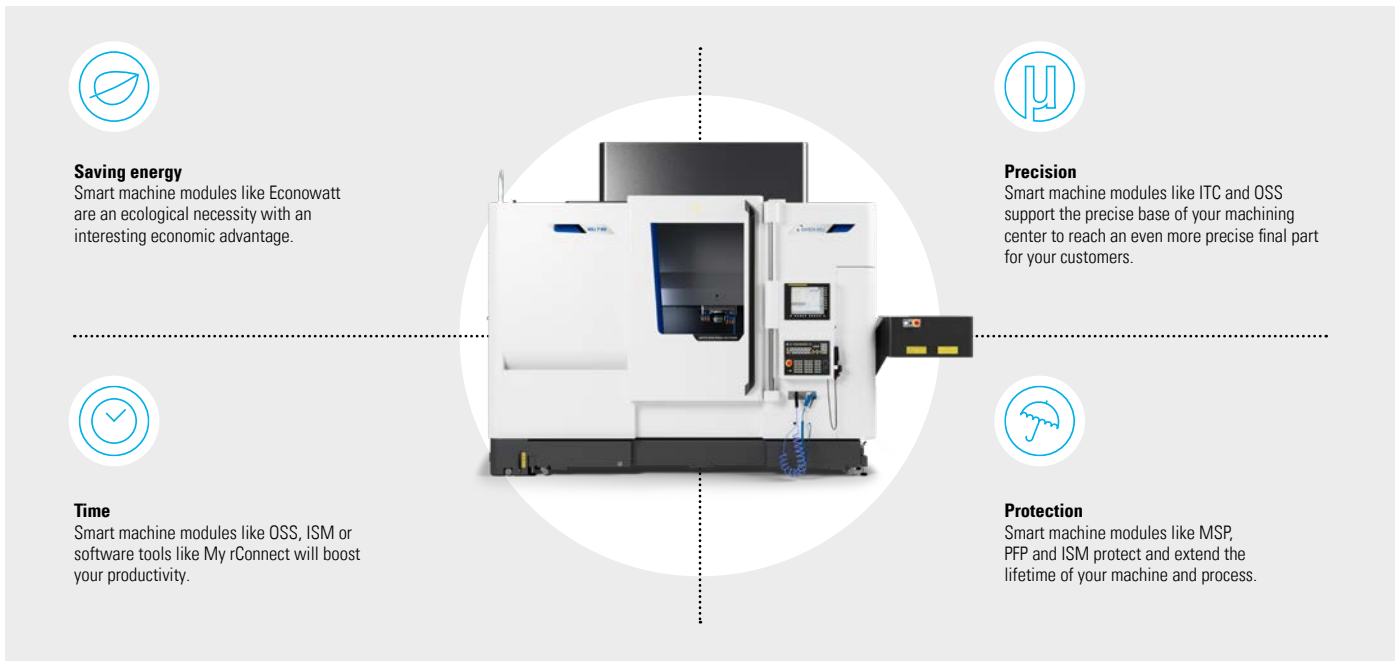
Experience the high precision that comes from long-term stability and robustness—even in hard Milling. This machine's symmetrical portal design, polymer concrete structure and high thermostability are your foundation for precision.

- Thermostabilized body
- Cooling system for Spindle
- Thermal-controlled drive motors
- Cooling loop inside table

X	Y	Z
900	600	450

THE NEW DIMENSION IN MODERN PRODUCTION

This includes a range of modules that are 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.



smart machine construction kit system

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

- 1 Establishing comprehensive communication between man and machine, which makes available precise information that the operator requires to assess the Milling process.
- 2 Supporting the operator in the optimization of the process, which considerably improves the performance.
- 3 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

BEST SURFACE FINISH FOR BOTH ROUGHING AND FINISHING

The high-performance Spindles from STEP TEC are designed to do heavy roughing and Milling to best surface finish all in one. 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.

Incorporated into the **HPC190** line is the well-proven OptiCool principle that keeps the front bearing area cool while the extra heat barrier cooling loop keeps the motor heat away from the Spindle nose. That results in a thermally balanced Spindle thus assuring a high level of precision, repeatability and surface finish.

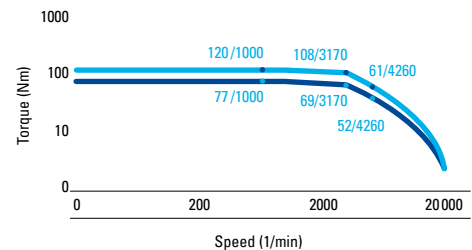
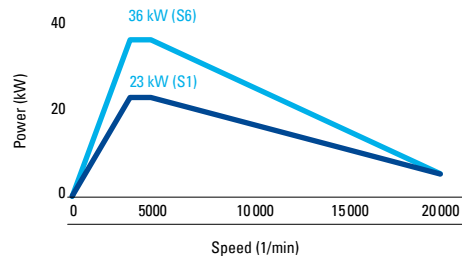
Spindle HPC190

Power (S6)	36 kW
Torque (S6)	120 Nm
Speed max.	20,000 rpm
Acceleration	2.5 s
Lubrication	Oil - air
Tool interface	HSK-A63 DIN69063-1

- Direct Lubricating System (DLS) oil-air bearing lubrication through outer race
- Fully digital Spindle equipped with every conceivable sensor to support smart machine integration
- Through-Spindle cooling featuring rotary unions fed by all known liquid and gaseous media
- Machine and Spindle Protection (MSP) crash-proof system to protect your machine and Spindle



— S1
— S6 40% ED ts=2 min.



The 36,000 rpm **HVC150** Spindle is the optimum solution for mold and die machining. It reaches a superb surface finish thanks to its great axial stability. Due to the specially chosen bearing arrangement with two hybrid ball bearings in the rear instead of the common roller bearing system, this Spindle stands out with very low dynamic axial growth. This precision bearing arrangement offers the best in repeatability for machining operations.

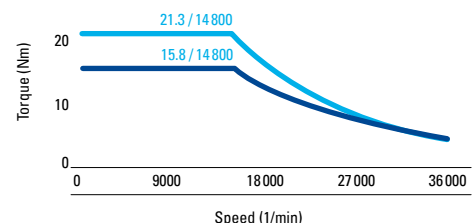
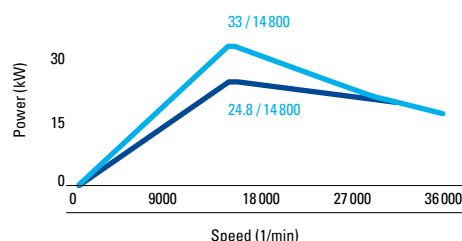
Spindle HVC150

Power (S6)	33 kW
Torque (S6)	21.3 Nm
Speed max.	36,000 rpm
Acceleration	2.5 s
Lubrication	Oil - air
Tool interface	HSK-E50 DIN69063-1

- Good thermal stability through OCS
- Excellent weight/performance ratio
- Integrated intelliSTEP functionality



— S1
— S6 40% ED ts=2 min.



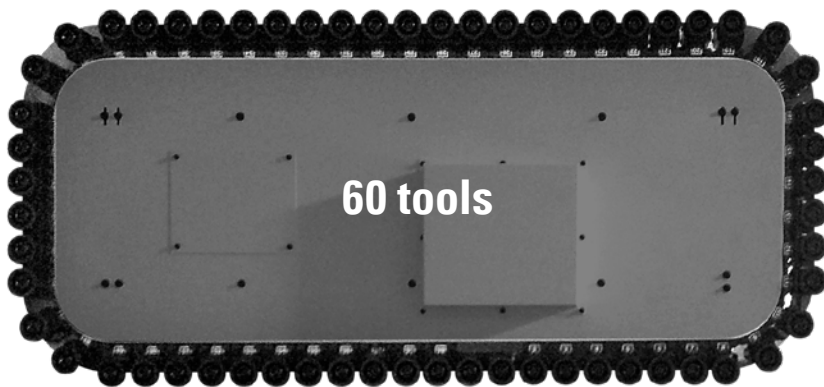
CHOICE OF SOLUTIONS TO MEET YOUR NEEDS

Tool magazine for every need

- Disc-type, chain magazine or tool tower type
- Capacity of up to 60 tools with a magazine internal to the machine's standard footprint
- Touch probe orientation
- ATC – Tool tower capacity up to 215 positions



- Ergonomic and user friendly
- Ensure productivity and process reliability
- Parallel machining and tool loading
- Easy tool loading possibilities thanks to an ergonomic tool loading door



WET OR DRY – CLEAN MACHINING

Customer benefits

- Optimum chip flow to steep and smooth cabin walls
- Wash-down nozzles for all corners to prevent chip accumulation
- Large and strong chip augers to transport high volume of chips



ADAPTED CHIP MANAGEMENT



- **Solution for high-volume aluminum Milling chips** with slat band lift-up chip conveyor and coolant unit with fine filtration
- **Solution for high-volume steel Milling chips** with scraper lift-up chip conveyor and coolant filtration unit

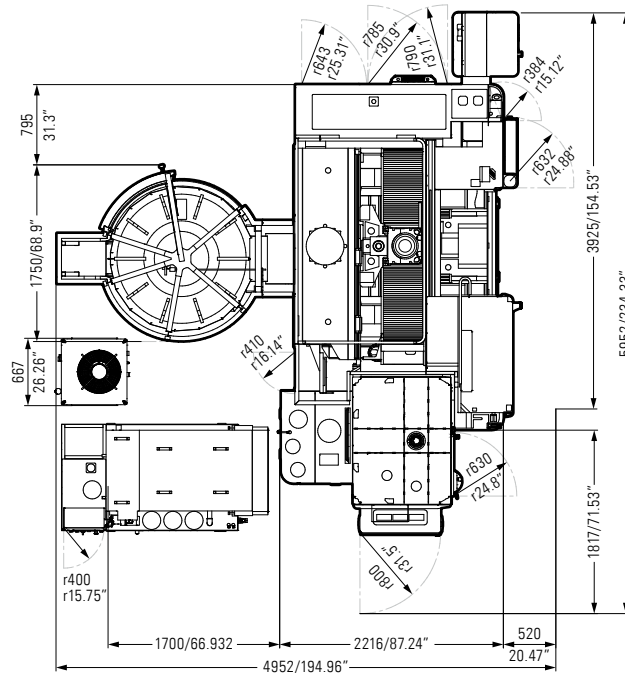
Options

- Through-Spindle coolant
- Wash-down system
- Coolant thermal control
- Oil skimmer



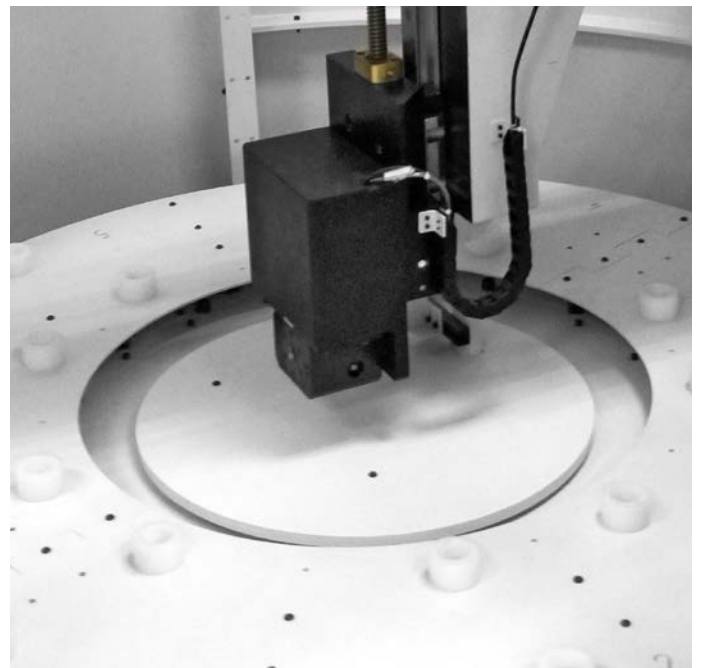
LOWER YOUR COSTS, INCREASE PRODUCTIVITY WITH AUTOMATION

Take your productivity to new levels while reducing your costs with our superior Automation solution. The pallet magazine (WPC) generously dimensioned door allows optimum pallet access for loading light parts by hand and heavy parts by crane. Larger windows allow a good view into the pallet area, and pallets are managed by using the machine control.



Configuration as System 3R

Pallet Automation	5 Delphin 400 x 400
Pallet changing time	30 s
Max. payload	200 kg



Ergonomic door design for easy loading of parts up to 200 kg

Step-Tec
Switzerland

Automation from the back,
full access on the front



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

AXIS TRAVEL

Longitudinal X	900 mm (35.43 in)
Lateral Y	600 mm (23.62 in)
Vertical Z	450 mm (17.71 in)

TRAVEL SPEED

Rapid traverse X	30 m/min (1,181 ipm)
Rapid traverse Y	30 m/min (1,181 ipm)
Rapid traverse Z	30 m/min (1,181 ipm)

TOOL SPINDLE (40% ED, S6)

20,000 min-1, HSK-A63 S6	36 kW / 120 Nm
36,000 min-1, HSK-E50 S6	33 kW / 21.3 Nm

WORK TABLE

Pallet/clamping surface	Chuck Delphin 400 x 400 mm (15.75 x 15.75 in)
Max. table load	1,000 kg (2,204 lbs)

TOOL MAGAZINE

HSK-A63 tool holder	DT 30 / CT 60 / ATC 120 / ATC 170 / ATC 215
HSK-E50 tool holder	DT 30 / CT 60 / ATC 120 / ATC 170 / ATC 215

AUTOMATION

Pallet size / Number	Delphin 400 x 400 mm / 5 piece (Delphin 15.75 x 15.75 mm / 5 piece)
Maximum additional load	200 kg (441 lbs)

WEIGHT

Machine	12,000 kg (26 455 lbs) with CT60
Pallet changer	1,455 kg (3,207 lbs)

CONTROL

Heidenhain	TNC 640
Fanuc	Fanuc 31i-B

OPTIONS

Automation

Pallet size / Number	Delphin 400 x 400 mm (15,74 x 15,74 in)
Max. additional load	200 kg (441 lbs)

Measuring system

Hexagon M&H LTS35.65
Touch probe M&H

Chips and coolant management

Lift-up chip conveyor - scrapper
Lift-up chip conveyor - Slat band
Band filter system 20 bar
Band filter system 50 to 70 bar
Wash down system
Oil skimmer
Mist extraction unit
TSC - Through Spindle Coolant
Rotating windows

Smart Machine Module

ISM Intelligent Spindle Monitoring
ITC Intelligent Thermal Control
OSS Operator Support System
PFP Power Fail Protection
MSP Machine and Spindle Protection

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.

ABOUT US

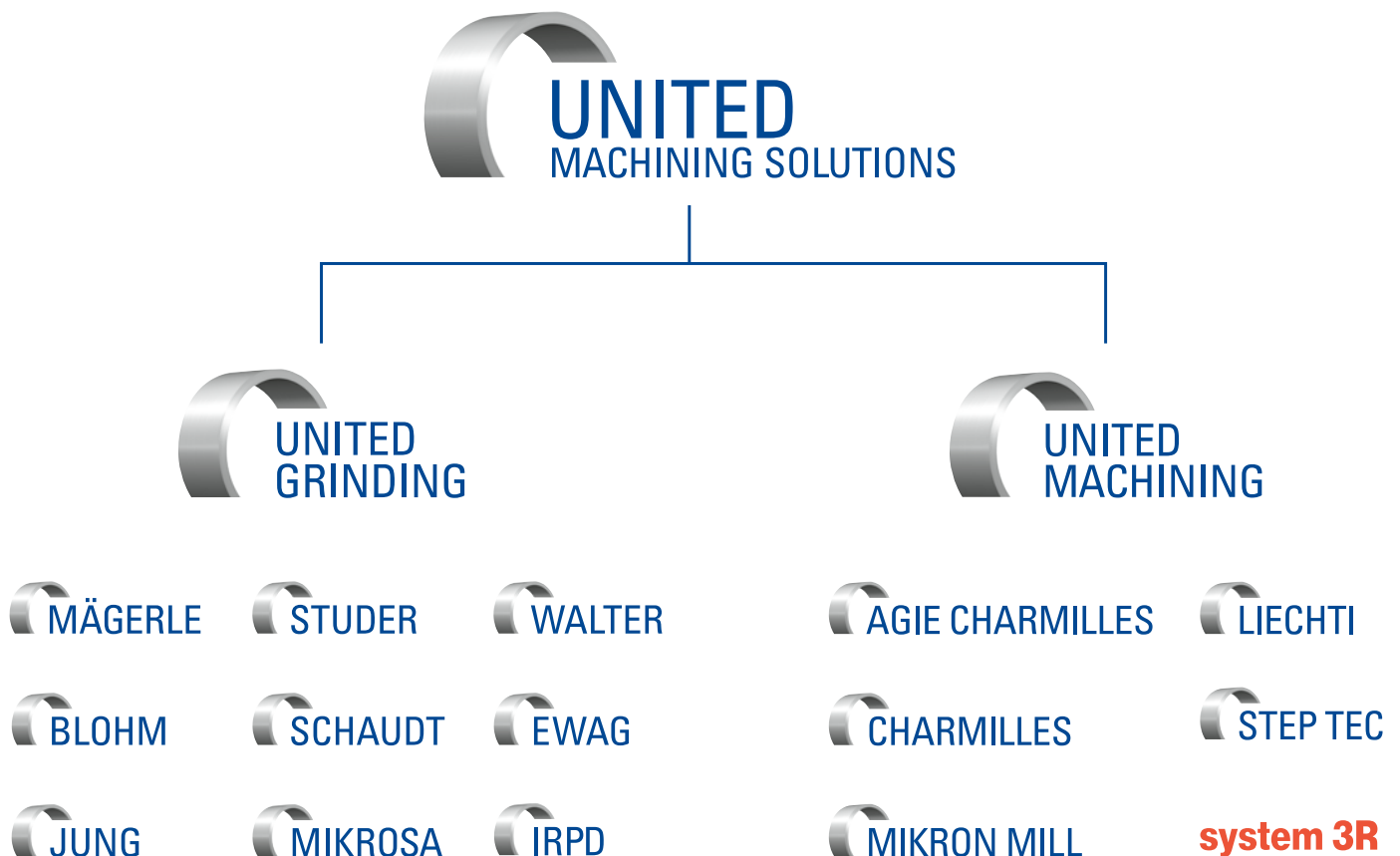
UNITED MACHINING SOLUTIONS

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»





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