

HARD TURNING AND FINISH GRINDING

MIKROTURNGRIND SERIES



About Hembrug

Hembrug is a leading manufacturer and provider of high precision finish hard turning machines and hybrid machines with turn/grind capabilities. We do this with a team of committed and skilled employees from our head office in Haarlem, the Netherlands. Hembrug belongs to the Spanish machine tool manufacturer Danobat. Our machines include:

- Mikroturn® horizontal series
- MikroTurnGrind series
- Vertical-Mikroturn® series

The benchmark for more than 60 years

We have developed over 700 high precision turning solutions over 6 decades. We can, therefore, draw on a wealth of expertise for any machining challenge. Processes are developed and tested under actual working conditions in our Technical Center. You can be sure that what we develop and propose is feasible.

Advanced Maintenance Services

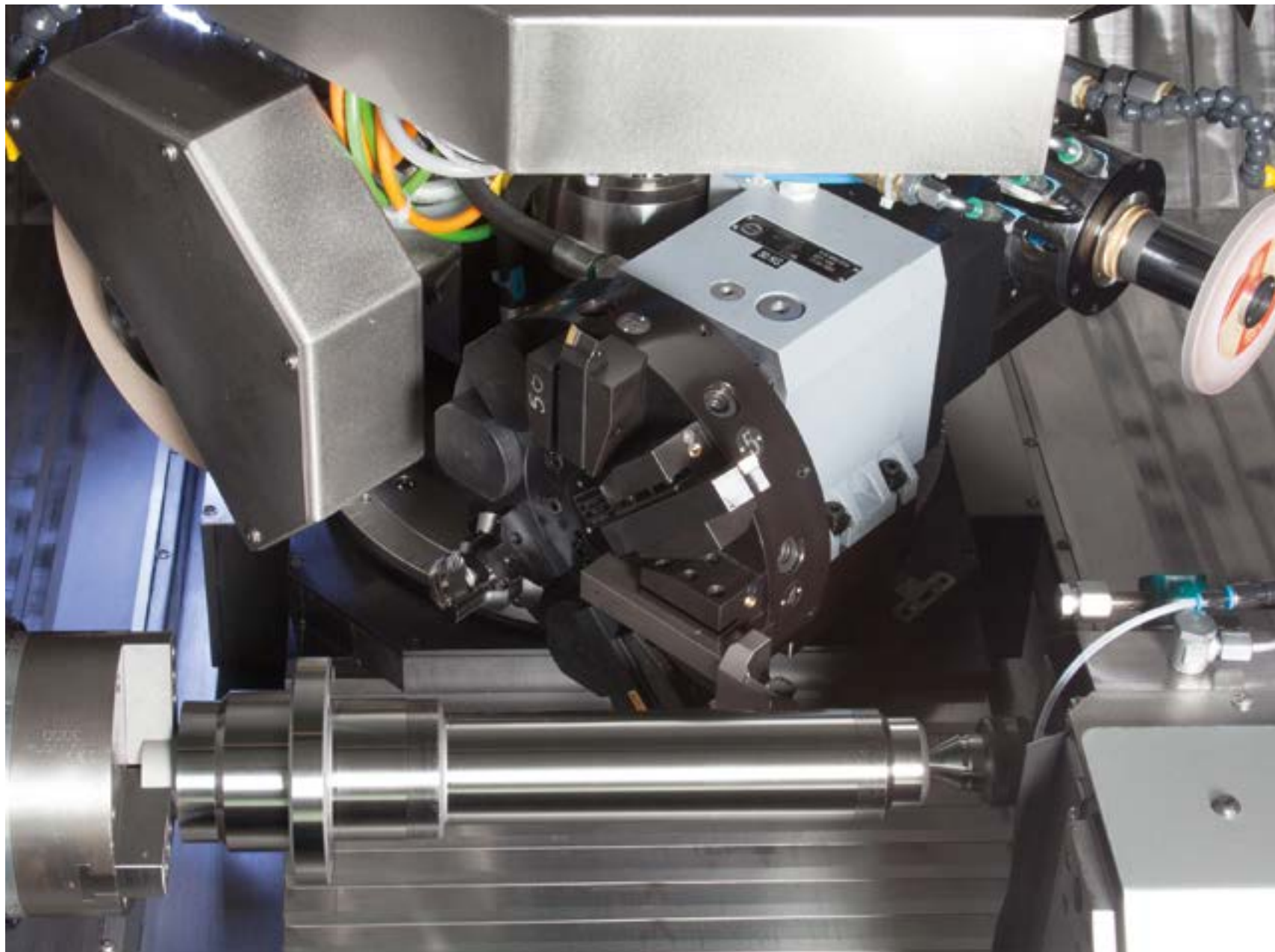
You will get prompt support wherever you are located. A worldwide network of service centers and engineering staff offer maintenance support tailored to the age of your machine. Spare parts stocks are sent to you from strategic locations, minimizing downtime.

Our services include:

- Corrective and preventive maintenance
- Original spare parts
- Production optimization
- Retrofitting
- Advanced training and e-learning possibilities

Innovative solutions

About our MikroTurnGrind machines



This catalog represents a series of high precision, fully hydrostatic hybrid hard turning and finish grinding machines. The advanced design combines two fully proven processing methods into one machine, providing optimized capability and flexibility.

A MikroTurnGrind machine offers:

- Sub-micron workpiece tolerances in hardened steel up to 70 HRC
- Lower cost per workpiece. No need for a multi-step process or separate machines
- Minimal setup and changeover times
- A small footprint.
- Two techniques in one machine

Innovative solutions

Our Range



MikroTurnGrind 100 and 100 XLD

See this machine in action:



Hybrid horizontal turning and grinding machine

The MikroTurnGrind 100 and 100 XLD are designed to process small to large diameter workpieces, depending on the model. The quick-change grinding spindle can easily be removed and reinstalled in less than 10 minutes, using a zero point clamping system for enhanced flexibility.

ID Grinding spindle:

- Position and fixture: Below tool turret / zero point clamping system
- Speed (rpm): 30,000 / 60,000 / 90,000
- Wheel dimensions: t.b.d. application dependent

Options:

- Air, hydraulic, or magnetic operated clamping units
- Automation
- Tailstock
- Post process measuring system
- 8, 12, or 16 pos. tool changer
- Live tooling
- Tool setting system
- Grinding spindle
- Part probing system
- Dresser unit
- Chip conveyor
- High pressure coolant



MikroTurnGrind 100 for small to medium sized workpieces

MikroTurnGrind 100 XLD for medium to large sized workpiece



TECHNICAL CHARACTERISTICS

	100	100 XLD
Max. turning diameter	14.9 in	26.8 in
Max. turning diameter between centers	5.1 x 13.8 in	10.2 x 13.8 in
Spindle speed	4,000 rpm	4,000 rpm
CNC Control	Siemens Sinumerik One	Siemens Sinumerik One
Floor space	70 sq. ft.	75 sq. ft.
Positioning	Zero point clamping system	Zero point clamping system

Our Range

MikroTurnGrind 1000

Hybrid horizontal turning and grinding machine

The MikroturnGrind 1000 is a full-fledged hybrid hard-turn and fine-grinding machine equipped with a B-axis. The B-axis provides space for the turning turret and the OD and ID grinding spindle, allowing you to easily change operation type. Optionally, the machine can also be equipped with a milling spindle or CBN grinding wheel for performing high-speed grinding operations.

OD Grinding Spindle (Optional)

- Position and fixture: HSK 63 on B-axis
- Drive power (kW): 17
- Wheel dimensions: t.b.d. application dependent

ID Grinding Spindle (Optional)

- Position and fixture: HSK 80 on B-axis
- Drive power (kW): 6.5
- Wheel dimensions: t.b.d. application dependent

Options:

- Air and magnetic operated chucks
- Tailstock
- 8, 12, or 16 positions tool changer
- Tool setting system
- Part probing system
- Chip conveyor
- Automation
- Post-process measuring system
- Live tooling
- Grinding spindle
- Dresser unit
- High pressure coolant
- High-speed CBN grinding wheel

See this machine in action:



TECHNICAL CHARACTERISTICS

Max. turning diameter	14.9 in
Max. turning diameter between centers	5.1 x 13.8 in
Spindle speed	4,000 rpm
CNC Control	Siemens Sinumerik One
Floor space	70 sq. ft.
Positioning	Zero point clamping system



Innovative solutions

Our Range



MikroTurnGrind Vertical

See this machine in action:



Hybrid vertical turning and grinding machine

The MikroTurnGrind Vertical is a vertical hard turning and fine grinding machine for workpieces up to 39" in diameter. The machine utilizes a 46-position tool changer for storing the turning tools and grinding wheels. An automated system is used for change-out of the turning ram, grinding spindle and/or milling spindle. The receiver for the turning ram or grinding spindle consists of a Hirth coupling with proven long-term accuracy, reliability and robustness.

OD Grinding Spindle (Optional)

- Speed: on request
- Adjustable to: +/- 115 °
- Wheel dimensions: t.b.d. application dependent

Options:

- Air and magnetic operated chucks
- 46-positions tool changer for the turning tools and grinding wheel
- Part probing system
- Up to 4-position changer for the turning ram, grinding spindle or milling spindle with Hirth coupling
- Milling spindle
- Dresser unit
- Grinding spindle
- Chip conveyor
- Tool setting system
- High pressure coolant



TECHNICAL CHARACTERISTICS

Max. turning diameter	39.4 in
Max. turning height	11.8 in
Spindle speed	800 rpm
CNC Control	Siemens Sinumerik One
Floor space	197
Positioning	RAM in the Z axis by means of a Hirth coupling



Innovative solutions

Core Technology

Meet the highest demands

The MikroTurnGrind machines comprise state-of-the-art ultra-precision technologies. This enables you to machine the hardest and toughest materials with sub-micron accuracies.

Siemens or Fanuc control

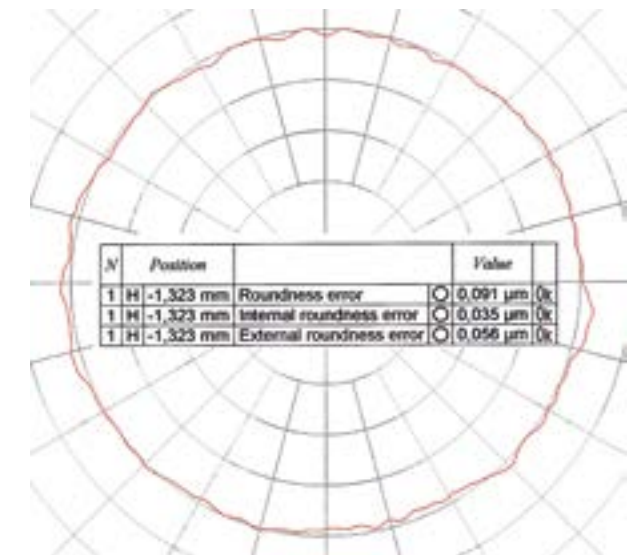
Siemens 840D SL or Fanuc 32i CNC control with 0.0000004" resolution.

Wear free hydrostatic guideways

High precision hydrostatic main spindle having run-out error $\leq 0.000001''$ and high dynamic stiffness. The high dynamic stiffness lays the basis for high surface accuracy and a good tool life.

Wear free hydrostatic main spindle

High precision hydrostatic main spindle having run-out error $\leq 0.000001''$ and high dynamic stiffness. The high dynamic stiffness lays the basis for high surface accuracy and a good tool life.



Main spindle roundness error of 0.0000035" measured on a 17-year old Mikroturn®. This proves the lasting accuracy thanks to the absence of metal contact between the moving parts.

Granite base and main spindle housing

Granite machine base with integrated vibration damping system provides great damping properties, and is corrosion free and free of any stresses.

Applications



The MikroTurnGrind® machines are highly flexible, enabling a wide range of workpiece types to be made. Available options let you customize each machine to meet any production requirement.

Apply turning in the MikroTurnGrind for:

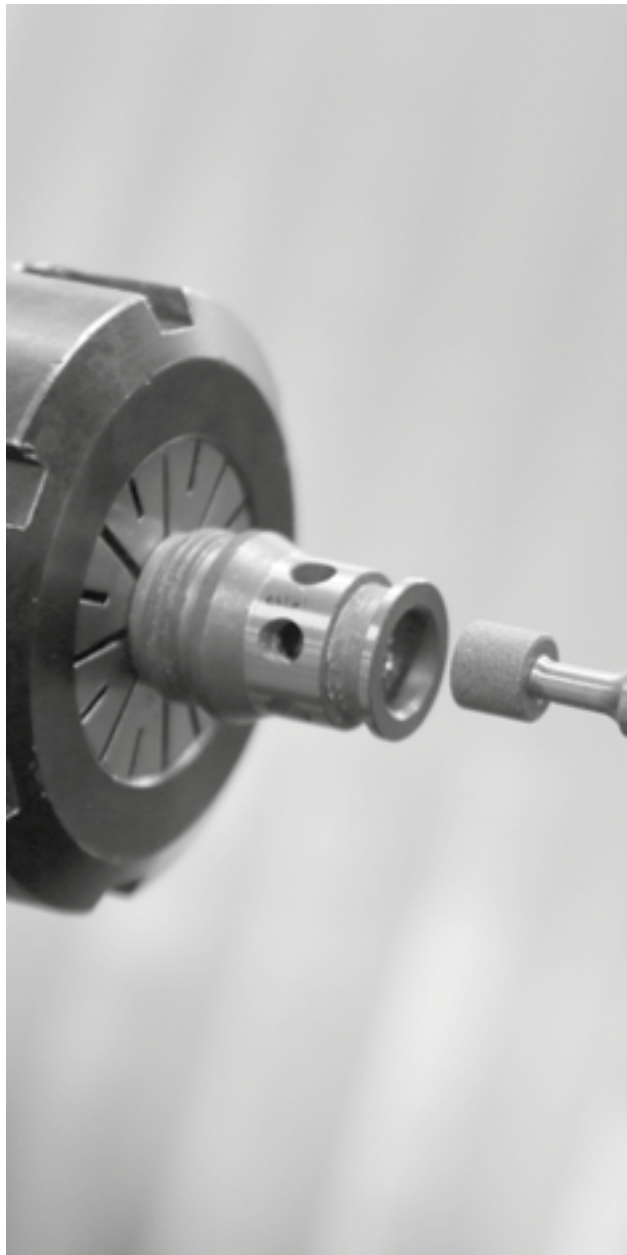
- Workpieces having complex shapes
- When a combination of OD and ID machining is needed
- High metal removal rates

Apply finish grinding in the MikroTurnGrind for:

- When a ground surface finish is required
- Wide surfaces or thin walled workpieces
- Large interrupted surfaces

Obtainable workpiece tolerances up to 70 HRC

- Form and size : ≤ 0.00008 inches
- Surface finish (Ra) : 4 - 16 microinches



Hydraulic pump shaft on the MikroTurnGrind 1000

- Pre-turning OD's, gear faces, and bearing journals
- Finish grinding of the seal diameter with a turn-free surface structure



Hydraulic sleeve on the MikroTurnGrind 100

- Pre-turning OD's and ID
- Fine grinding small ID



Bearing ring on the MikroTurnGrind Vertical

- Pre-turning OD and ID
- Fine grinding of the bearing surfaces



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