

| MACHINE TYPE: | HSTM 300 | HSTM 500 | HSTM 1000 |
|---------------------------------------|-------------------|-----------------|-----------------|
| Measuring systems | | | |
| Linear axes | glass scale | glass scale | glass scale |
| Rotary axis | ROD-Geber | ROD-Geber | ROD-Geber |
| Tools | | | |
| Tool interface | HSK-A | 63 | 63 |
| max. Tool diameter | mm | 80 | 80 |
| max. Tool length | mm | 250 | 250 |
| max. Tool weight | kg | 6 | 6 |
| Tool magazin (Disk) | Places | 24/30/40 | 24/30/40 |
| Tool magazin (Chain) | Places | 80 | 80 |
| CNC-System | | | |
| Basis | Fidia C10 | Fidia C10 | Fidia C10 |
| Option | Sinumerik 840 D | Sinumerik 840 D | Sinumerik 840 D |
| Workpiece Spindle | | | |
| max. Torque | Nm | 1050 | 1050 |
| Speed | min ⁻¹ | 180 | 180 |
| Coolant | | | |
| Spindle, low Pressure | 40 l/min 3 bar | 40 l/min 3 bar | 40 l/min 3 bar |
| Cabine Flushing (Option) | 200 l/min 3 bar | 200 l/min 3 bar | 200 l/min 3 bar |
| Spindle, high Pressure (Option) | 75 l/min 40 bar | 75 l/min 40 bar | 75 l/min 40 bar |
| minimum Quantity Lubrication (Option) | yes | yes | yes |
| Chip Waste | | | |
| Chip conveyor | yes | yes | yes |

Subject to technical changes and further development.



CNC Turning-Milling Machines
HAMUEL
HSTM Series



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CNC Turning-Milling Machines

HAMUEL

HSTM Series



High Speed CNC Turning-milling machines HSTM-Type

The HSTM series is a CNC turning milling machine with a horizontal work piece orientation. Especially developed for cost-effective manufacturing of high-precision work pieces, such as turbine blades, blisks and impellers. The machine concept allows single-part and series production as well. Also other turn-milled parts with a high contour complexity can be machined. No clearance problems will arise with work pieces with a length up to 1400 mm and maximum diameter of 560 mm. The HSTM series is based on a horizontal machining centre. The whole unit is tilted forward by 45°. Therefore an optimized weight distribution and best view to work piece are the results. Surface quality (up to Ra=0,8 µm) and best accuracy are the precondition to fulfil the highest expectations of modern blade manufacturing technology.

Latest drive and control technology guarantees high productivity and flexibility. Rigidity is a further key element of the HSTM series and supports with all other factors the technology of High Speed Cutting (HSC).

The machine is built as a single machine body and all components are optimized for milling of work pieces in a horizontal orientation – especially turbine blades. Splendidly designed rotary axes with standard interfaces are the substantial characters for the highest productivity.

Availability for Production

The compact design of the machine allows a quick and trouble-free installation at the customer's site without any special requirements to the basement. Thus, a quick availability of the machine is given.

Machine Size

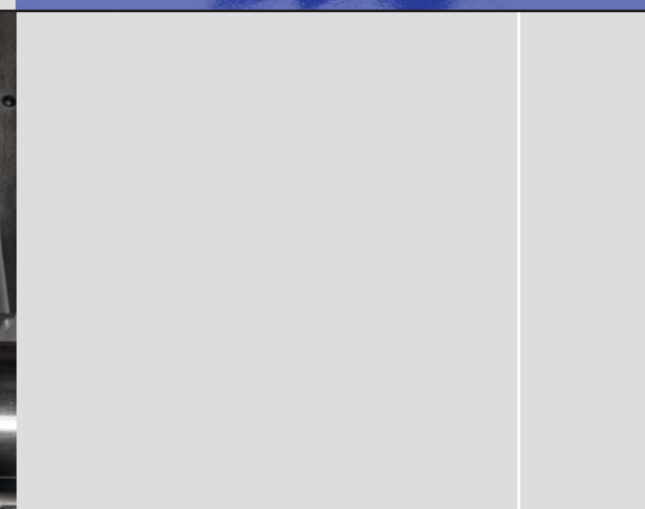
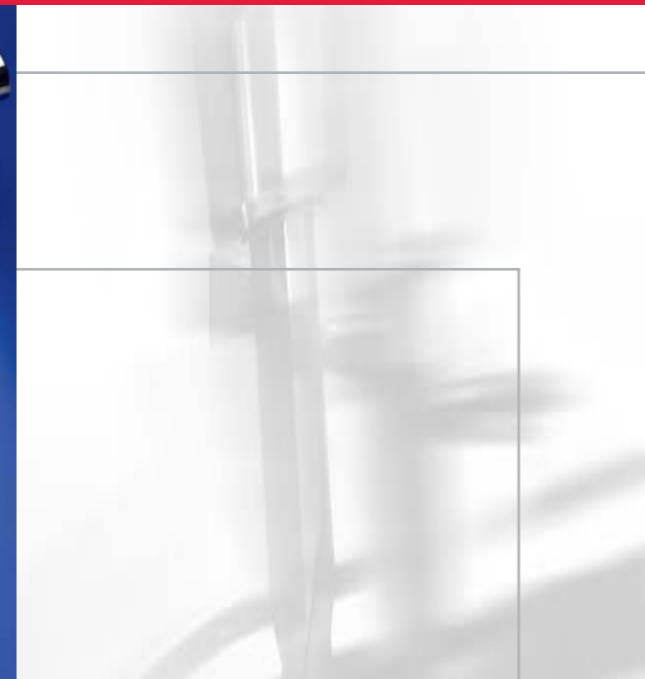
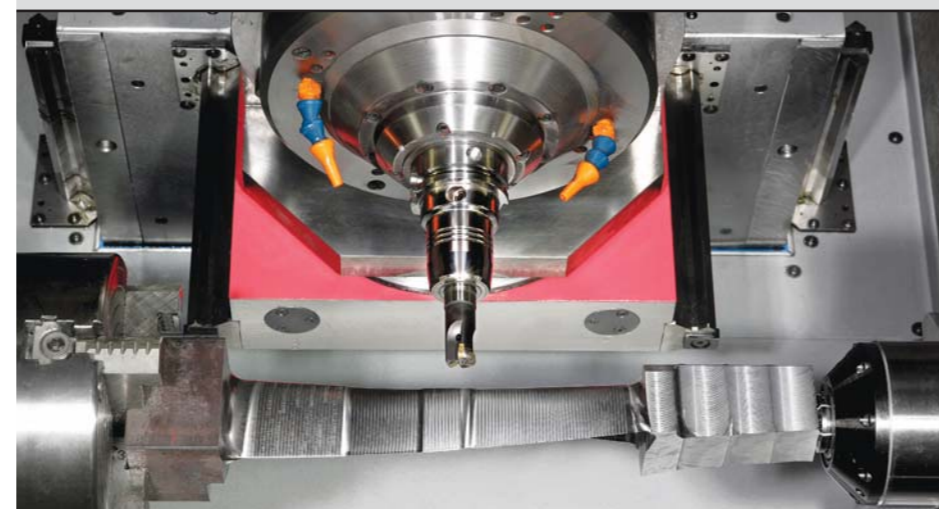
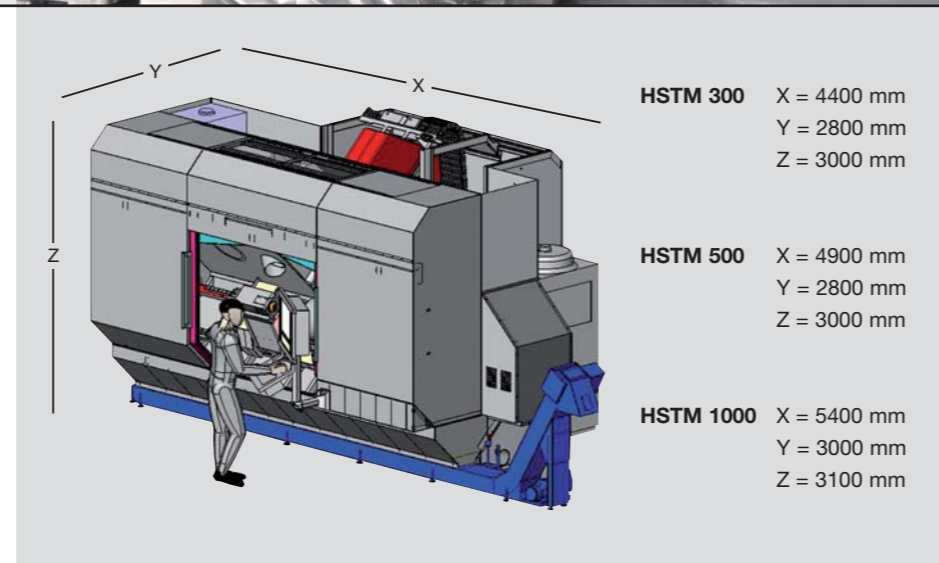
The machine is in different sizes available. Customization for your work pieces are possible. The modular concept allows easy adaptation to your specific requests. Blisks with diameter 850 mm are possible with a variant of the base machine.

Different opportunities to load the work pieces to the machine, such as front loading, top loading or from the side, up to full integration in manufacturing systems with automatic loading systems can be realized.

Milling Spindle

The Motor-Milling Spindle offers a high potential to machine difficult materials. High spindle speed for Aluminium, or strong spindle power with lower spindle speed for Titanium are available in the same Motor Spindle.

All kind of cooling and lubrication systems are integrated. So you will find outer cooling, high pressure, Minimum Quantity Lubrication through the spindle or outside of the spindle. An exhaustion system for cleaning the cabin air is also available.



TECHNICAL DATA

CNC Turning-Milling Machines

HAMUEL

HSTM Series

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|--|-------------------|-----------------|------------------|-------------------|
| Milling spindle | | | | |
| Spindle Speed | min ⁻¹ | 16.000 | 16.000 | 16.000 |
| nominal Spindle Speed | min ⁻¹ | 3.700 | 3.700 | 3.700 |
| max. Power in S1 | kW | 54 | 54 | 54 |
| max. Torque in S1 | Nm | 136 | 136 | 136 |
| Work Piece Dimensions | | | | |
| max. Work Piece length without fixture | mm | 30 - 500 | 30 - 700 | 200 - 1200 |
| max. Work Piece diameter | mm | 360 | 360 | 560 |
| max. Work Piece weighth | kg | 80 | 80 | 120 |
| Main Axes | | | | |
| X-Axis | mm | 830 (-160/+670) | 1030 (-160/+860) | 1530 (-150/+1380) |
| Y-Axis | mm | 400 (-200/+200) | 400 (-200/+200) | 600 (-300/+ 300) |
| Z-Axis | mm | 570 (- 30/+540) | 570 (- 30/+540) | 570 (- 30/+ 540) |
| B-Axis (Rotary) | degree | 190° (-95/+ 95) | 190° (-95/+ 95) | 190°(- 95/+ 95) |
| A-Axis (Rotary) | degree | endless | endless | endless |
| with fix Base | degree | endless | endless | endless |
| U-Axis (Tailstock axis, parallel to X) | mm | 460 (-45/-505) | 460 (-245/-705) | 840 (-365/-1205) |
| Tailstock Guide range | mm | 80 | 80 | 80 |
| Positioning accuracy VDI/DGQ 3441 | | | | |
| X-Axis (P/Ps) | mm | 0.02 / 0.01 | 0.02 / 0.01 | 0.02 / 0.01 |
| Y-Axis (P/Ps) | mm | 0.02 / 0.01 | 0.02 / 0.01 | 0.02 / 0.01 |
| Z-Axis (P/Ps) | mm | 0.02 / 0.01 | 0.02 / 0.01 | 0.02 / 0.01 |
| A-Axis (P/Ps) | degree | 0.02 / 0.01 | 0.02 / 0.01 | 0.02 / 0.01 |
| B-Axis (P/Ps) | degree | 0.02 / 0.01 | 0.02 / 0.01 | 0.02 / 0.01 |
| Travel Speed | | | | |
| X-Axis | m/min | 40 | 40 | 40 |
| Y-Axis | m/min | 40 | 40 | 40 |
| Z-Axis | m/min | 40 | 40 | 40 |
| B-Axis | min ⁻¹ | 40 | 40 | 40 |
| A-Axis | min ⁻¹ | 180 | 180 | 180 |