TECHNICAL DATA

MACHINE TYPE:	HSTM	300	500	1000	1500
Measuring Systems					
Linear axes		glass scale			
Rotary axes		ROD			
Tools					
Tool interface	HSK-A	63			
max. Tool diameter	mm	80			
max. length	mm	250			
max. Tool weight	kg	6			
Tool magazine	places	24/36			
Tool magazine (chain, option)	places	80			
CNC-System					
		Sinumerik 840 D			
		FANUC 31i			
Work Piece Spindle					
Torque	Nm	1050			
Speed	min^{-1}	180			
Coolant					
Spindle, low Pressure		40 l/min at 3 bar			
Cabin Flushing (option)		150 l/min at 3 bar			
Spindle, high Pressure (option)		38 l/min at 40 bar			
minimum Quantity Lubrication (option)		yes			
Chip Waste					
1 Chip conveyor in the front		yes			
Weight					
	kg ca.	14.500	16.000	20.000	24.000
Dimensions					
Length	mm ca.	4.400	5.150	5.430	6.400
Depth	mm ca.	2.800	2.800	2.800	2.800
Height	mm ca.	3.000	3.000	3.100	3.000

Subject to technical changes and further development.

HAMUEL REICHENBACHER
A member of the SCHERDEL group

CNC Turning-Milling Centres
HAMUEL
HSTM Series

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CNC Turning-Milling Centres

HAMUEL

HSTM Series

High Speed CNC Turning-Milling Centres
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 and automated work piece changing 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

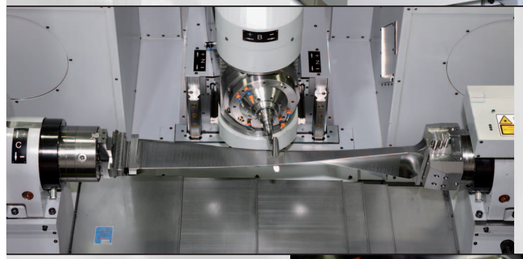
The machine is in different sizes available. Customization for your work pieces are possible. The modular concept allows easy adaptation to your specific requests. Blisks with diameter 850 mm are possible with a variant of the base machine.
Different opportunities to load the work pieces to the machine,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

HSTM 500
with robot

HSTM machine,
linear handling
with chain magazin



Manufacture of steam turbine blade

HSC machining of
turbine blades

HSTM work area

TECHNICAL DATA

CNC Turning-Milling Centres

HAMUEL

HSTM Series

MACHINE TYP:	HSTM	300	500	1000	1500
Milling spindle					
Spindle Speed	min^{-1}		16.000		
Nominal Spindle Speed	min^{-1}		3.800		
max. Power (S1)	kW		54		
max. Torque (S1)	Nm		136		
Work Piece Dimensions					
max. Work Piece legth without fixture	mm	500	700	1.200	1.750
Machining Area with B ± 45°	mm	300	500	1.000	1.500
max.Work Piece diameter	mm	360	360	360	360
with extented Y-axis	mm	–	–	560	560
max. Work Piece weight	kg	80	80	120	200
Main Axes					
X-Axis	mm	730	930	1.430	1.930
Y-Axis	mm	400	400	400	400
Y-Axis (option)	mm	–	–	600	600
Z-Axis	mm	570	570	570	570
B-Axis (rotary)	degree ±	95°	95°	95°	95°
A-Axis (Work Piece Spindle 1)		endless	endless	endless	endless
C-Axis (Work Piece Spindle 2)		–	–	endless	endless
U-Axis (Tailstock parallel to X)	mm	460	460	–	–
Position accuracy VDI/DGQ 3441					
X-Axis (P/Ps)	mm		0.009/0.005		
Y-Axis (P/Ps)	mm		0.009/0.005		
Z-Axis (P/Ps)	mm		0.009/0.005		
A-Axis (P/Ps)	degree		0.003		
B-Axis (P/Ps)	degree		0.003		
C-Axis (P/Ps)	degree		0.003		
Travel Speed					
X-Axis	m/min	40	40	40	40
Y-Axis	m/min	40	40	40	40
Z-Axis	m/min	40	40	40	40
B-Axis	min^{-1}	40	40	40	40
A-Axis	min^{-1}	180	180	180	180
C-Axis	min^{-1}	–	–	180	180