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MMV 2000

Travelling Column Machining Center

MILLING
EMCO-WORLD.COM



1 TOOL MAGAZINE

- Tool changer with 40 tools
(optional available with other sizes)

2 REAR MACHINE COMPARTMENT

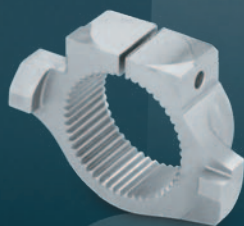
- Machine compartment partitioned by maintenance-free steel accordion way-covers

3 AXES

- Linear guides in X, Y and Z directions
- Linear scales in X directions



Machine with optional equipment



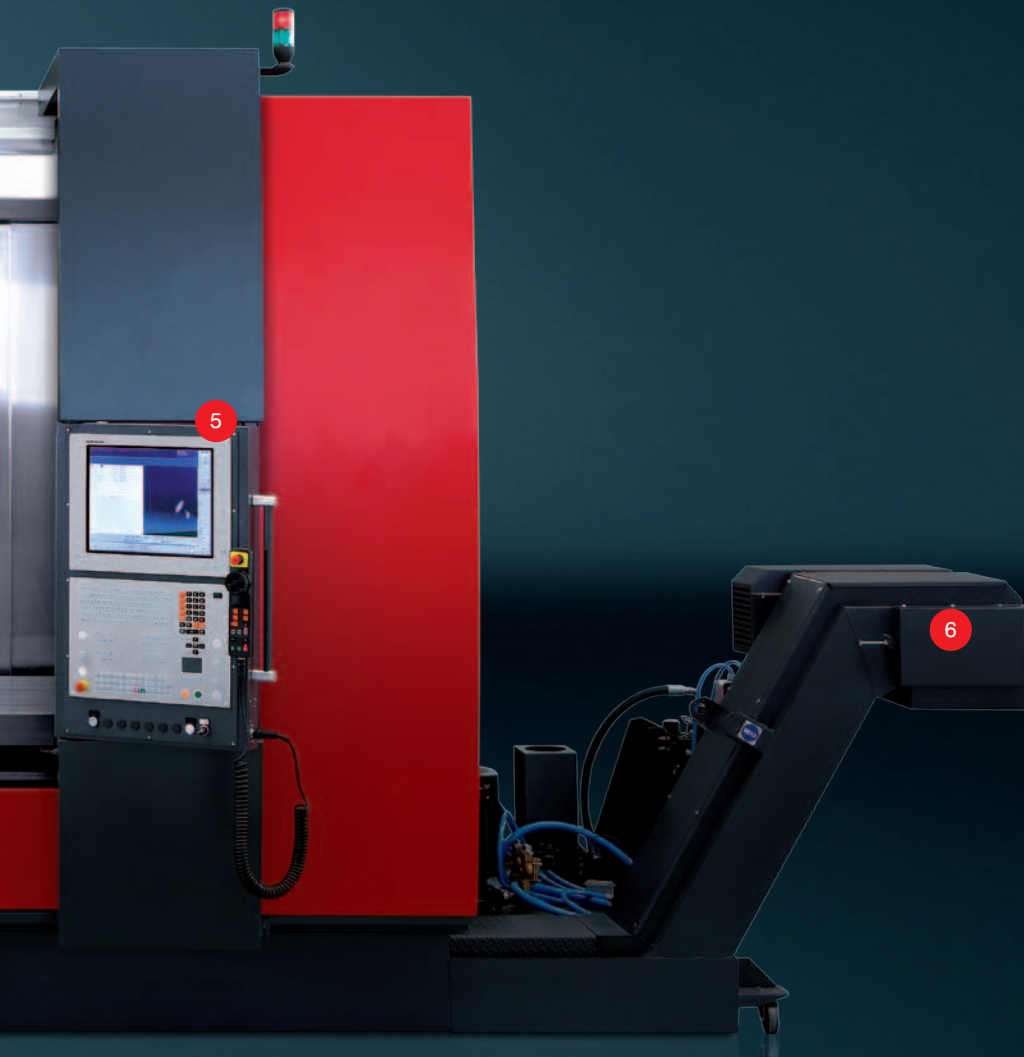
Drive connector
(Stainless steel)



Motor cycle bracing strut
(Aluminum)

2000

Travelling Column Machining Center for 3, 4 or 5 axis machining for small to medium lot sizes. Rapid travel up to 50 m/min with the utmost in precision. The super-structure is highly rigid, even for heavy work pieces weighing up to 2,200 kg.



4 SPINDLE

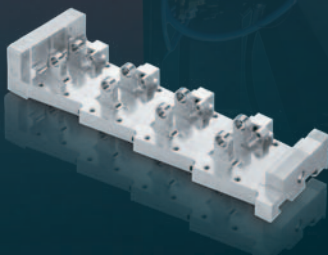
- Motor spindle with 15000 rpm (18000 rpm only for the HSK A63 version)
- High dynamic
- Water-cooled

5 CONTROL

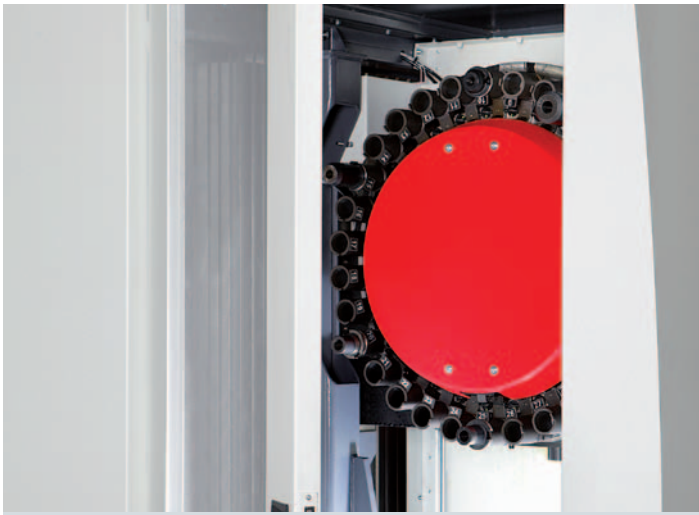
- State-of-the-art control systems
- SIEMENS 840D sl
- HEIDENHAIN TNC 640

6 CHIP CONVEYOR

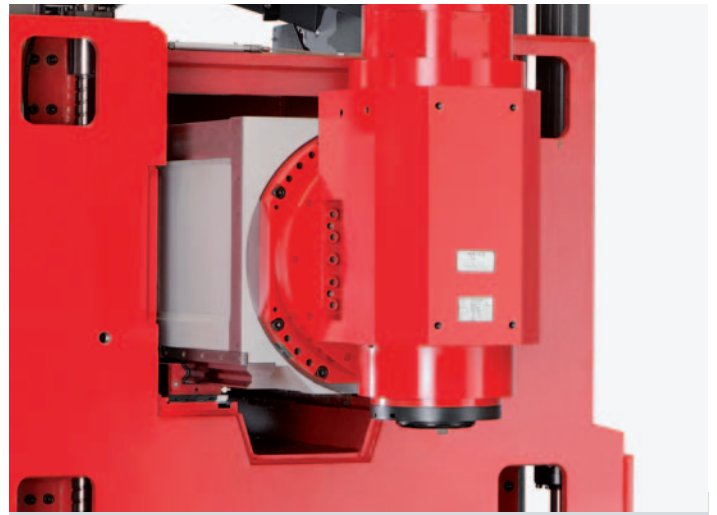
- Chip conveyor fitted as standard
- Chip removal to the right



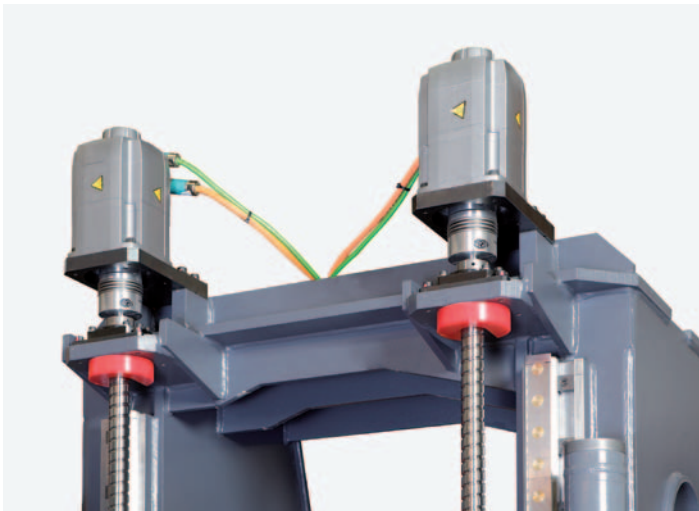
Mounting brackets for electrical components in aircraft
(Aluminum)



Tool magazine. Drum configuration with dual arm grippers for fast tool changes within 2 seconds. Random tool management reduces tool changing times to a minimum. Thanks to the lateral magazine door (2x in case of pendulum machining), it is possible to check and set up the tools in parallel with the machining process.



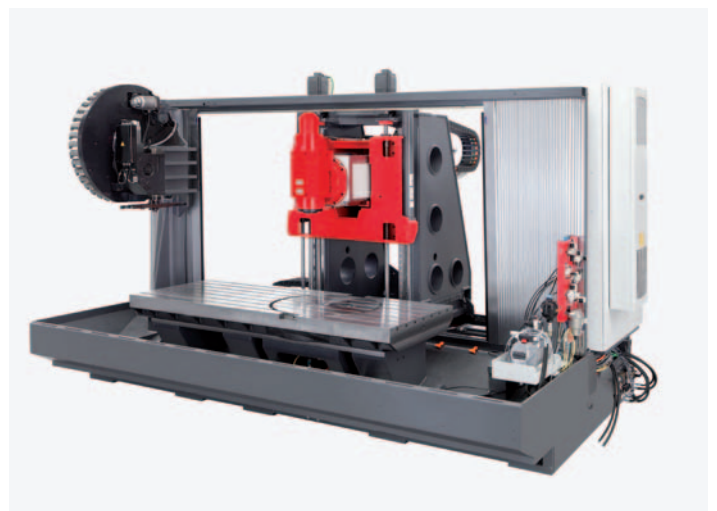
Milling spindle. The machine is equipped with a liquid cooled motor spindle with compelling performance specs. At spindle speeds of 15000 rpm, a power rating of 46 kW, and a torque of 170 Nm, the machine is also suited for heavy-duty machining. A motor spindle 18000 rpm is available with HSK A63.



Z-axis travel. In order to attain precision Z-axis rapid travel at speeds of 50 m/min, and due to its large mass, this axis is powered by two ball screw drives and two motors in a master-slave configuration.

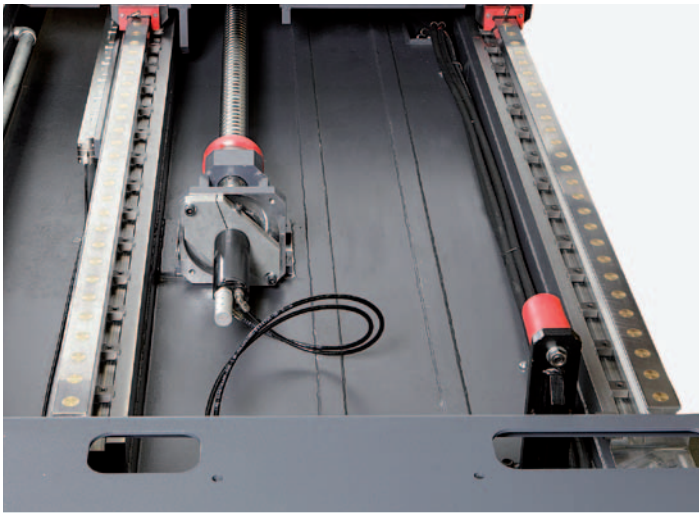


Y-axis. The Y-axis has a ram configuration. This design uses long way guides in order to attain the required rigidity.



Machine frame. The machine frame is a polymer-concrete bed. This ensures the required rigidity of the machine base, and also facilitates vibration dampening.

MMV 2000 Technical



Axis drives. Linear axes are equipped with linear guides. Long way-guides are used to attain the necessary rigidity. The drive is equipped with a ball screw drive with direct drive bellows coupling. The direct drive provides for highly dynamic axis travel, while also employing a low maintenance and smooth drive system. The X-axis linear scale is standard due to the long travel.



Control unit. The operator panel can travel and also rotate in the direction of the work space. This ergonomic design provides ideal working conditions for the operator.

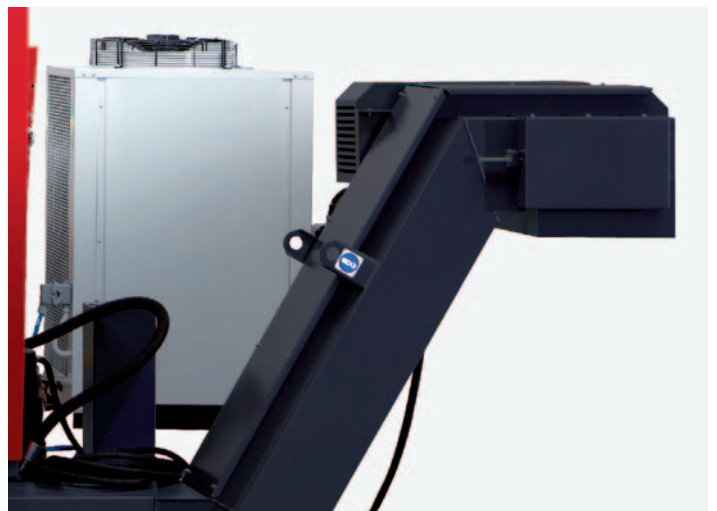
Highlights

Highlights

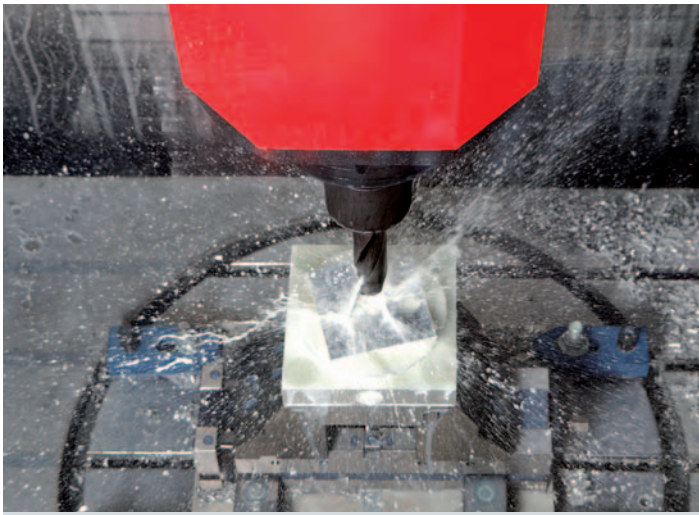
- Flexible modular design
- Available as 3-, 4- or 5-axis version
- High-performance motor spindle
- Rigid linear way system size 55 (X-Axes)
- Direct driven ball screws on the Y- and Z-axis, quiet operation
- Ideal value for money
- Rotary table and B-axis with torque motors
- Pneumatic weight balance, highly dynamic
- State-of-the-art control systems
SIEMENS 840D sl HEIDENHAIN TNC 640



B-axis. The B-axis is driven by a torque motor, therefore achieving highly dynamic axis travel within the pivoting range of +/- 120 degrees.



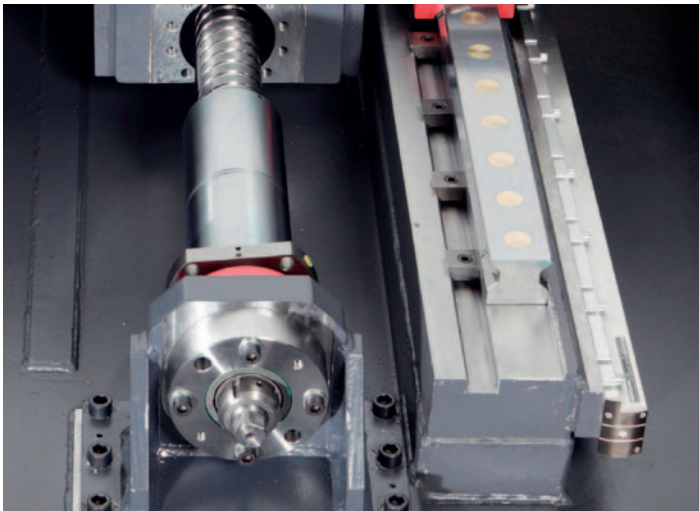
Hinge type conveyor. The chip rinsing system washes chips into the hinge type conveyor, which then automatically transports the chips from the machine into the customer provided container.



Coolant through the spindle. The spindle can be optionally flooded with high-pressure coolant (25 to 70 bar [362 to 1,015 psi]). This ensures reliable chip removal from holes and pockets and reduces cycle times for this type of machining.



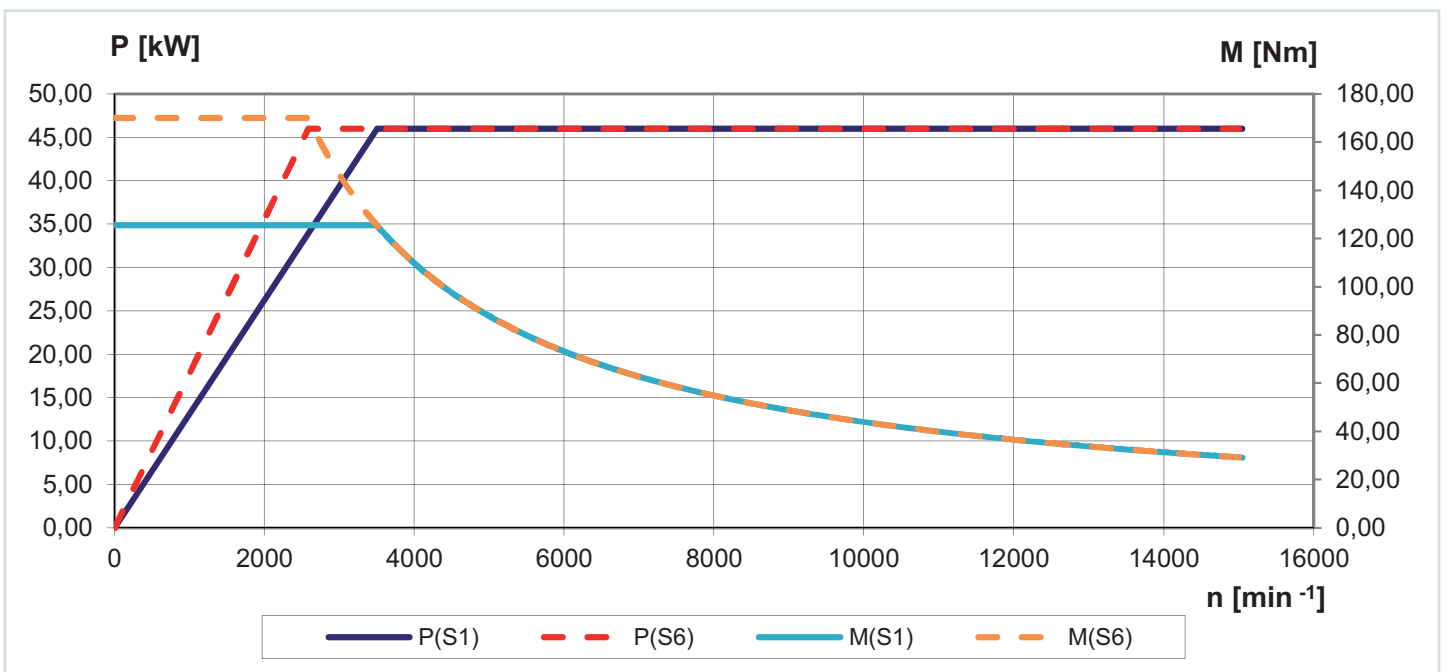
Measurement systems. Tools measurements to reduce setup times during tool changes, as well as work piece measurements to verify dimensions or to find zero locations. The work piece measurement is radio.



Glass scales. Due to its length, the X-axis is always equipped with glass scales. Y and Z axis can be equipped with glass scales on demand.

Options

- Workpiece and tool measurement
- Coolant through the spindle
- Automatic doors
- Hydraulic device for clamping systems
- Linear scales in Y and Z direction
- Air through the spindle
- Paper filter systems
- Rotary joint through the rotary table



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Technical Data

Travel

Travel in X – axis	2000 mm (78.7")
Travel in Y – axis	800 mm (31.5")
Travel in Z – axis	750 mm (29.5")
Minimum distance spindle nose – table	0 mm (0")
Maximum distance spindle nose – table	750 mm (29.5")

Table

Length	2400 mm (94.5")
Width	950 mm (37.4")
Slot size	18 mm (0.7")
Number of slots	7
Slot spacing	125 mm (4.9")
Maximum table load (equally distributed)	2200 kg (4850 lb)

Rotary table

Diameter	800 mm (31.5")
Maximum table load	1500 kg (3300 lb)
Drive	Torque Motor

Main spindle

Speed range	50 – 15000 / 18000 rpm
Torque	125 Nm (S1) (92.1 ft/lbs) 170 Nm (S6-40%) (S1) (92.1 ft/lbs)
Spindle power	46 kW (61.7 hp)
Tool taper DIN 69871 / option	ISO40 / BT40 / HSK A63
Pull stud	ISO 7388/2-B
Drive type	Motor spindle

Tool magazine

Number of tool stations	40 (80)
Changeover principle	S - Arm
Tool management	random

Tool magazine

Max. tool diameter	75 mm (2.9")
Max. tool diameter (with empty location)	125 mm (4.9")
Max. tool length	380 mm (15.0")
Max. tool weight	8 kg (17.6 lb)
Max. tool magazin weight	160 kg (352 lb)

Feed drives

X / Y / Z rapid motion speeds	50 / 50 / 50 m/min (1970 / 1970 / 1970 ipm)
Acceleration in X-/ Y- /Z-axis	2 / 4 / 4 m/s ²

Coolant system

Coolant pressure	2 bar (29 PSI)
Outlet at spindle	4 nozzles

Pneumatic supply

Supply pressure	6 bar (87.0 PSI)
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Lubrication

Guides	Automatic central lubrication with grease
Feed spindles	Automatic central lubrication with grease

Dimensions/weight

Overall height	3160 mm (124.4")
Dimensions w x d	6144 x 4297 mm (242" x 169.2")
Total weight of machine	22000 kg (48.510 lb)