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[E[M]CONOMY means:]

High precision for heavy weights. MMV 2000

Travelling Column Machining Center

MMV 2000

Travelling Column Machining Center for workpieces up to 2200 kg

[Spindle]

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

[Axes]

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

[Tool magazine]

- Tool changer with 40 tools

[Control]

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

[Chip conveyor]

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

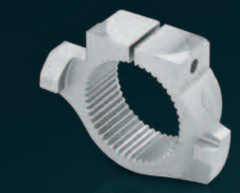
[Rear machine compartment]

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

Machine with optional equipment

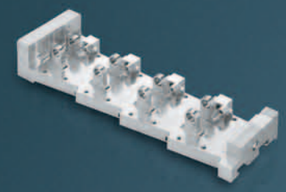
Travelling Column Machining Center for 3, 4 or 5 axis machining for small to medium lot sizes. Rapid travel up to 50 m/min with the utmost in precision. The super-structure is highly rigid, even for heavy work pieces weighing up to 2,200 kg.

[Workpieces]



Drive connector (Stainless steel)

Motor cycle bracing strut (Aluminum)



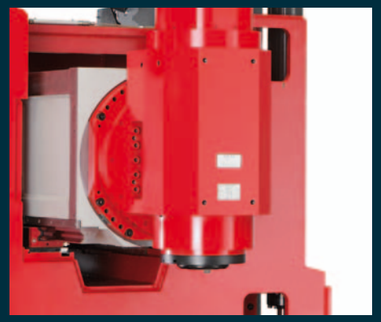
Mounting brackets for electrical components in aircraft (Aluminum)

[Engineering]

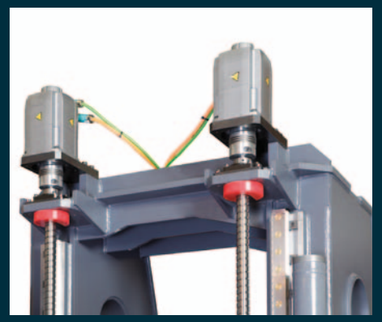
Highlights

- Flexible modular design
- Available as 3-, 4- or 5-axis version
- High-performance motor spindle
- Compact and attractive machine design
- Rigid design achieved through a closed box structure
- Solid machine base
- Rigid linear way system size 55
- Direct driven ball screws, quiet operation
- Rotary table and B-axis with torque motors
- Pneumatic weight balance, highly dynamic
- Simple and solid axis cover system
- Flexible configuration of tool magazine systems
- State-of-the-art control systems
  SIEMENS 840D sl
  HEIDENHAIN TNC 640
- Ideal value for money
- Made in the Heart of Europe

Tool magazine: Turret 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.

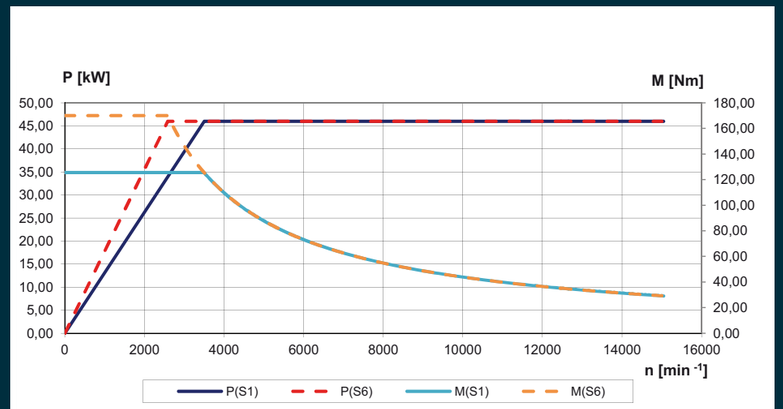


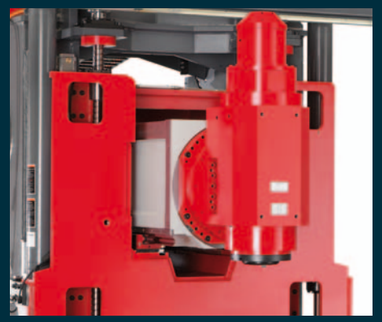
Milling spindle: The machine is equipped with a liquid cooled motor spindle with compelling performance specs. At spindle speeds of 15000 rpms, a power rating of 46 kW, and a torque of 170 Nm, the machine is also suited for heavy-duty machining. A motor spindle 18000 rpm is available with HSK A63.



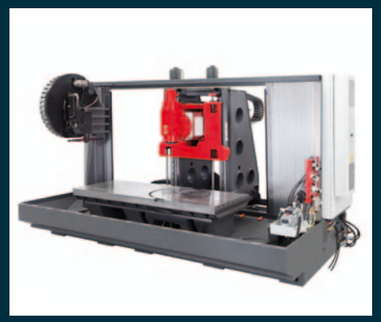
Z-axis travel: In order to attain precision Z-axis rapid travel at speeds of 50 m/min, and due to its large mass, this axis is powered by two ball screw drives and two motors in a master-slave configuration.

Power

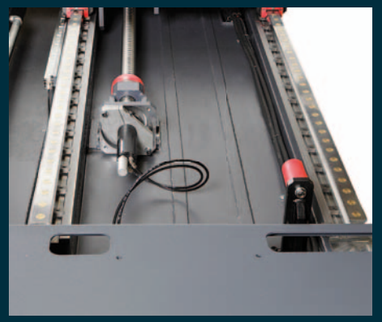




Y-axis: The Y-axis has a ram configuration. This design uses long way guides in order to attain the required rigidity.



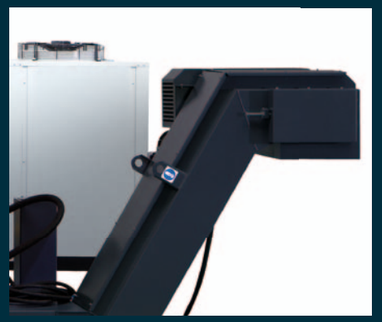
Machine frame: The machine frame is a polymer-concrete bed. This ensures the required rigidity of the machine base, and also facilitates vibration dampening.



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.

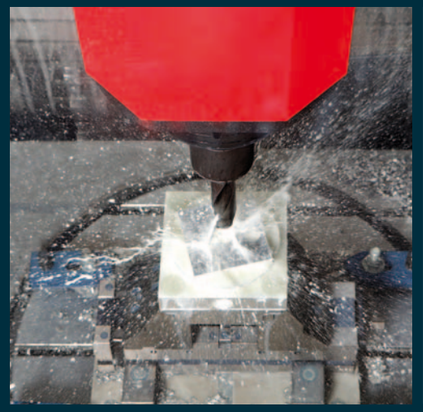
B-axis: The B-axis is driven by a torque motor, therefore achieving highly dynamic axis travel within the pivoting range of +/- 120 degrees.



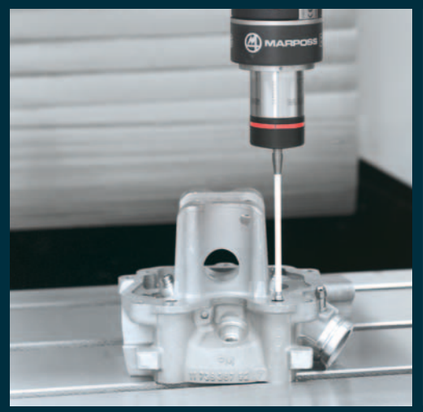
Hinge type conveyer: The chip rinsing system washes chips into the hinge type conveyer, which then automatically transports the chips from the machine into the customer provided container.

Options

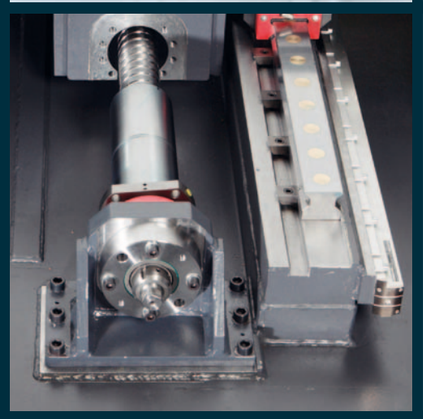
- Workpiece and tool measurement
- Coolant through the spindle
- Automatic doors
- Hydraulic device for clamping systems
- Linear scales in Y and Z direction
- Air cooled spindle
- Belt filter system
- Rotary union through the round table



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.

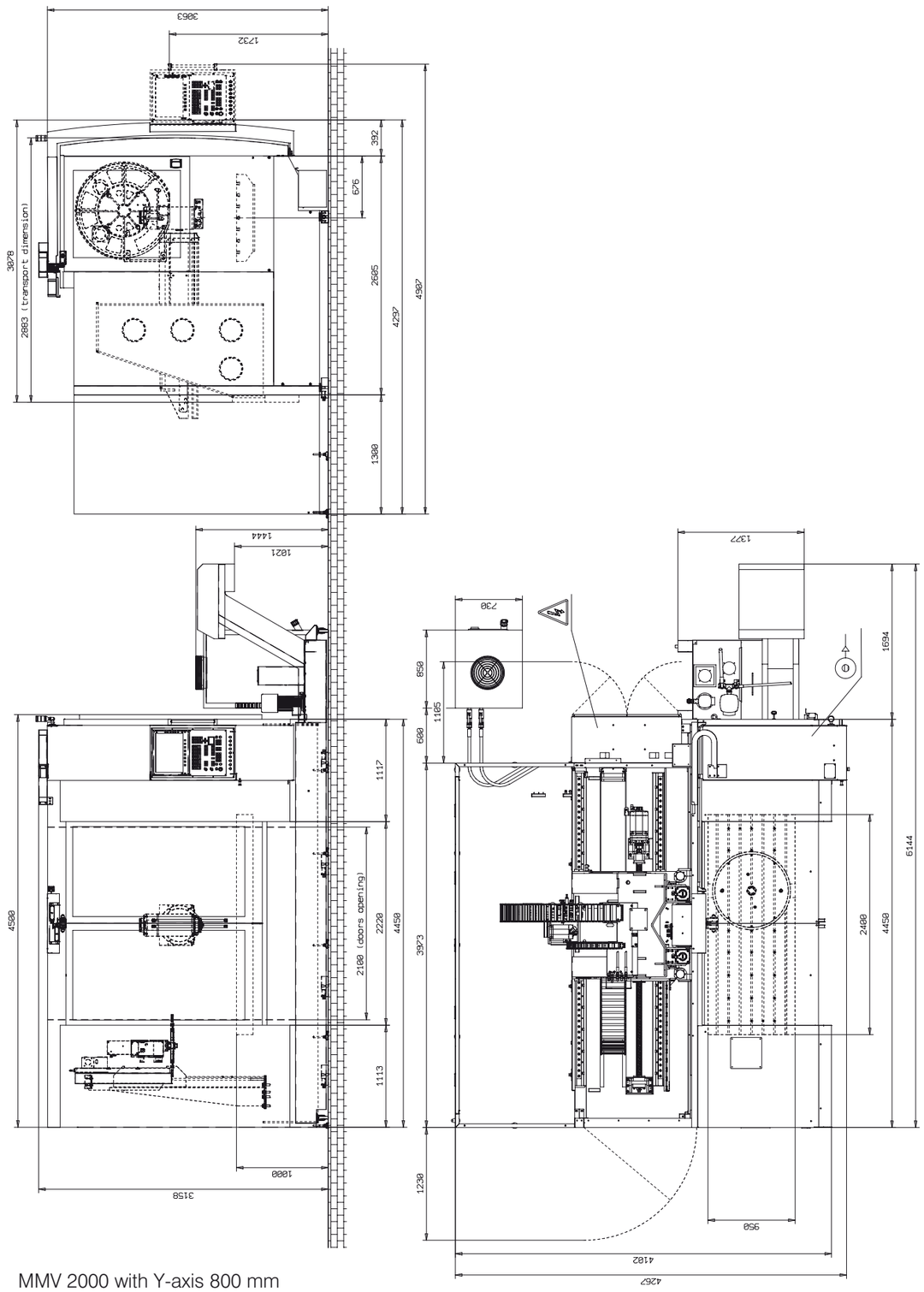


Measurement systems
Tools measurements to reduce setup times during tool changes, as well as work piece measurements to verify dimensions or to find zero locations. The work piece measurement is radio.



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.

Machine layout and work area



MMV 2000 with Y-axis 800 mm

[Technical Data]

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MMV 2000

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
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/s²
Coolant system	
Coolant pressure	2 bar (29 PSI)
Outlet at spindle	4 nozzles
Pneumatic supply	
Supply pressure	6 bar (87.0 PSI)
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)

TÜV AUSTRIA ZERTIFIZIERT EN ISO 9001 ZERTIFIKAT NR. 20 100 20419 TÜV AUSTRIA CERT GMBH

www.emco-world.com

EMCO GmbH
Salzburger Str. 80 · 5400 Hallein-Taxach · Austria
Phone +43 6245 891-0 · Fax +43 6245 86965 · info@emco.at