[Technical data]

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MAXXMILL 500

Travel and tolerances	
Travel in X (without 100 mm extra-stroke for tool change)	650 mm (25.6")
Travel in Y	550 mm (21.7")
Travel in Z	500 mm (19.7")
Distance spindle nose - table (min – max)	150/650 mm (5.9"/16.9")
Movement B axis (tilting)	+/-100°
Movement B axis (table)	0 – 360°
Positioning accuracy P according to VDI 3441 *	8 µm
Positioning repeatability Ps according to VDI 3441 *	3 µm
Positioning accuracy B axis (tilting – with motor encoder)	+/- 10 sec.
Positioning accuracy C axis (table – with motor encoder)	+/- 10 sec.
Feed	
Rapid motion speed X-Y-Z axis	30 m/min (1181.1 ipm)
Max. rotational speed B axis	25 rpm
Max. rotational speed C axis	25 rpm
Max. feed force X axis	5000 N (1124 lbs)
Max. feed force Y axis	5000 N (1124 lbs)
Max. feed force Z axis	5000 N (1124 lbs)
Max. acceleration X-Y-Z axis	3 m/s²
Tilting table	
Clamping area	600 x 600 mm (23.6 x 23.6")
Table-floor distance	776 mm (30.6")
Slot number	5
Distance between two T-slots	100 mm (3.9")
Max. workpiece weight (equally distributed)	250 kg (551.2 lb)
Main spindle (mechanical spindle)	
Speed range	50 – 10000 rpm
Maximum spindle torque	70 Nm (51.6 ft/lbs)
Maximum spindle power	11 kW (14.8 hp)
Tool taper	ISO 40 DIN 69871
Pull stud	ISO 7388/2 type B
Drive	Direct with coupling

Main spindle (motor spindle)	
Speed range	50 - 15000 rpm
Maximum spindle torque	110 Nm (81.1 ft/lbs)
Maximum spindle power	34,5 kW (46,3 hp)
Tool magazine	
Number of tool stations	30
Tool changing type	With changing arm
Tool management	Random
Tool changing time (tool-tool)	1.6 sec
Max. tool diameter	80 mm (3.1")
Max. tool diameter (without neighbouring tools)	125 mm (4.9")
Max. tool length	250 mm *9.8")
Max. tool weight	8 kg (17.6 lb)
Total tool weight supported by the magazine	100 kg (220.5 lb)
Coolant tank	
Tank capacity	250 l (66.0 gal)
Standard pump pressure	2 bar (29.0 PSI)
Max. capacity at 2 bar	40 l/min (10.6 gal/min)
Pneumatic supply	
Min. pressure supply	5.5 bar (79.8 PSI)
Min. capacity required	200 Nl/min
Lubrication	
Spindle	Grease
Caged ball ways	Oil / central lubrification
Ball screws	Oil / central lubrification
Dimensions	
Total height	3000 mm (118.1")
Dimensions L x D	2880 x 3230 mm (113.4 x 127.2")
Weight	9200 kg (20,283 lb)

* Values measured at a temperature of 22°C, with the machine mounted on the floor. Machine, with linear scales - pitch compensated with laser, and motor encoders in the rotary axis.

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[Complete machining of aluminum castings in perfection]

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Maxxmill 500: vertical machining center for 5-axis machining

[Günter Friedrich GmbH Metallgießerei & Feinwerktechnik]

Founded in 1965 by father Günther Friedrich the company was taken over by his son Knut Günther Friedrich since 2001. In this family type business with 40 employees (4 trainees) the parents are still actively involved in helping developing the business.The business was established as „foundry with complete processing of workpieces“, and has stayed true to its roots.

As a foundry & precision engineering company, the customers of the company Friedrich are mainly from the tank truck design, the optics, the radiator and mining and the automotive industry.

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[Requirements]

- 5-sided complete machining of aluminum castings in a single process
- Flexibility in the size of the workpiece, if not all 5 sides need to be machined
- 5 to 200 units per month, with a batch total of more than 27000 per month
- Reliable accuracy and quality

Company founder and senior partner Günter Friedrich with his son Knut Friedrich

“We know our customers and their requirements very well and we can respond quickly to new market needs. The precision and quality is a must. The Maxxmill 500 meets all our expectations, while maintaining the required tolerances in shape and location”.

A family business with 40 employees.

As a grown family business with almost 50 years of experience the owner family Friedrich knows the requirements of the market very well and has built a customer base in different industrial sectors and countries - from Germany, Latvia, England, Italy, France and into the United States the company Friedrich provides a wide range of aluminum castings. To this experience comes the willingness and flexibility to continue to develop. The openness to new technologies and new machines is indicative for the 40-member team of Friedrich. This way for example the company Friedrich offers today even prototyping based on CAD-data.

Slag skimming off

Pouring into molds

Compressed sand casting cores

Picture from left: Dieter Friedrich von Emco, father and son Friedrich, Reinhard Fanninger, Product Manager

The challenge here lies in the processing of the orifices of the work piece in various angles, which can be accomplished with the Maxxmill rotary table in an area of 360°. With a tilting range of +/- 100° the B-axis offers a larger working range than most other manufacturers.

R. Fanninger, EMCO Product Manager

Tilting table of Maxxmill 500

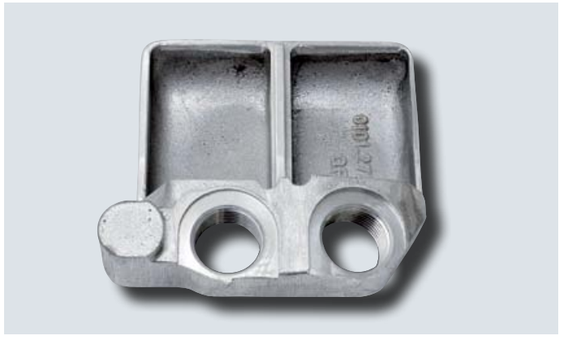
At Friedrich this flexibility in the applications is expected from the CNC-machine as well. With the demanded profile for complete machining of aluminum castings they discovered the Maxxmill 500 during a visit at a fair, a vertical milling center for 5-sided machining.

Multi-side machining creates capacity.

One of the staff members at EMCO, who incidentally also has name Friedrich, introduced the Maxxmill 500 to the Friedrich team, and Knut Friedrich quickly realized its amazing potential. EMCO and its milling machines are no strangers to the Friedrich family. Since 2006, an EMCO machine (MCX 1200) has been in the plant. Parallel to the offer a sample part was handed over to EMCO for creating a time study. After a successful completion of the bidding phase and a visit to the milling production plant in San Quirino, the machine and its equipment were determined: a Maxxmill 500 equipped with a Siemens 840Dsl control and a 10.000 rpm spindle has been running now since April 2011 in 1-2 shift operation. A new type of workpiece can be achieved thanks to the rapid multi-sided machining capacity. Not only the speed, but also the machine tilting table double the process speed, opening up new possibilities for production range capabilities. So now, significantly larger workpieces of up to 950 lengths can be machined, unless if 5-sided machining is required.

In order to mill thread with tubular openings, zero-points must be set. This operation is carried out manually. The first production year experience allowed Friedrich to decide the next step: to upgrade the machine with an automatic zero-point measurement system. The upgrade is not the only change that company wants to implement; they also want to further expand their existing machinery. This decision has been made not only due to the stellar performance of the machine, but also for the care and after-sales service.

”Decision-making workpiece“ for the EMCO Maxxmill 500 investment



Aluminium cover with two-threaded opening with different angles

Gear box cover