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Precise, quick, complete, stable

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Complete production in a single clamping cycle. The specialists at Weico Mechanical and Metal Engineering have seen how the MAXXMILL 500 has met and exceeded this expectation. A shorter production time and machining in a single clamping cycle result in greater efficiency and precision.

Weico Mechanical and Metal Engineering

Weico Mechanical and Metal Engineering has turned 16. Back in 1997, the year in which the company was founded, Christof and Hubert Weissteiner embarked upon specializing in three areas of activity, i.e. mechanical engineering, metal engineering and bridge refurbishment, in their startup. The two managing directors of the company which is headquartered in the Italian Southern Tyrol (region of Bolzano) and the 22 members of their team are focused on quality, innovation and precision. And this has been a success as the steady rise in new orders and volumes of work demonstrates. The metal specialists from Weico achieved a turnover of 3.4 million euros in 2011. In the same year they relocated to their newly built production hall in Feldthurns/Schrambach, in the Ziggler industrial estate, which is equipped with state-of-the-art machinery. Hubert and Christof Weissteiner regard the Mechanical Engineering Department as the core of the business. It offers an array of services covering all aspects of structural engineering, both of individual machine components and of complete installations. Batch sizes at Weico range from 1 to 1000. Using sophisticated milling and turning work on CNC systems, precision parts are created which are used both in large series machines, as well as in one-off production runs. The experts in Feldthurns draw upon their extensive expertise and experience in selecting the right materials for the needs of each job, as well as a suitable surface treatment. They attach importance to employing working practises which do not harm the environment and to making an effective contribution towards reducing environmental pollution.

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Requirements profile

- Complete machining with high quality and precision turning and milling
- Optimized potential to produce components of complex geometries
- Short machining time
- Good value for money

Weico Mechanical and Metal Engineering has lowered its machining times by using the MAXXMILL 500. The specialists from Southern Tyrol can offer their customers the benefit of even shorter lead-times and at competitive rates.

Investment in quality and reliability

The two bosses at Weico agree that technical and financial factors are inextricably linked, especially where machine tools are concerned. Hubert Weissteiner tends to adopt the view of the Technical Manager in the running of the factory. As he explains, „the quality that we achieve with the MAXXMILL 500, the flexibility of machining along five axes and the reliability are clear benefits that we have expected and that we have obtained.“ Christof Weissteiner‘s mind is more geared towards the economic and administrative processes. Looking back, he stresses how successful an investment it has proved to be.
„To start off with, our previous positive experience of Emco machines spoke volumes. We regard the customer service representative from Hallein as a dependable partner. And compared with similar products from other manufacturers that we viewed, the MAXXMILL 500 clearly offered the best value for money,“ he explained. Both men mention the high capacity utilization of the new machining centre. The MAXXMILL 500 is currently working at full capacity in regular one-shift operation. However, the order situation often dictates that it needs to be used over and above that too, in which case the staff work overtime. Cycle times of up to five hours are typical of parts currently being manufactured.

Machining turbine blades for Pelton wheels

Hubert Weissteiner demonstrates the example of blades for Pelton turbine wheels. „Coarse machining takes two hours. Finish-machining and smooth-finishing, which give the part its precision, take five hours. The blades are made from stainless steel (1.4301) with raw dimensions of 205x135x100. We were able to manufacture the turbine blades by investing in the MAXXMILL 500.

Flexibility with lots of options

Based on their intensive use of the machine in practise up to now, the two founders of the company feel fully vindicated in their choice. „It has enhanced our flexibility, both in that we can now choose from a wider range of cutting tools and can perform machining over five axes in a single clamping cycle. This machine has enabled us to achieve the short lead-times that our customers expect,“ points out Hubert Weissteiner, the engineer. And Christof, the „economist“, also highlights the competitive costs of the finished parts.
The specialists from Weico work with modular and flexible clamping devices in order to meet customers‘ wishes with speed and versatility. The option of the automatically closing machine door makes the operator‘s job easier, especially with short cycle times. Once the program ends, it opens automatically. It is closed at the push of a button.
An automatic safety switching strip provides a reliable safeguard against the risks of injury that the operators otherwise face.
The high-performance motor spindle in the spindle drive, with an output of 34.5 kW and a 110 Nm torque, permits a high volume of cutting, with a favorable impact on cycle times.
The choice of the sophisticated option of coolant feed through the spindle is based on generally precise cost/benefit considerations. Excellent results are achieved in the deep-hole drilling applications which are characteristic of Weico, with minimal wear to the cutting tools.

„The MAXXMILL 500 is ideal for contract manufacturers like Weico. It offers the required flexibility, can be adapted to suit the current workpiece and supports a wide range of applications.“

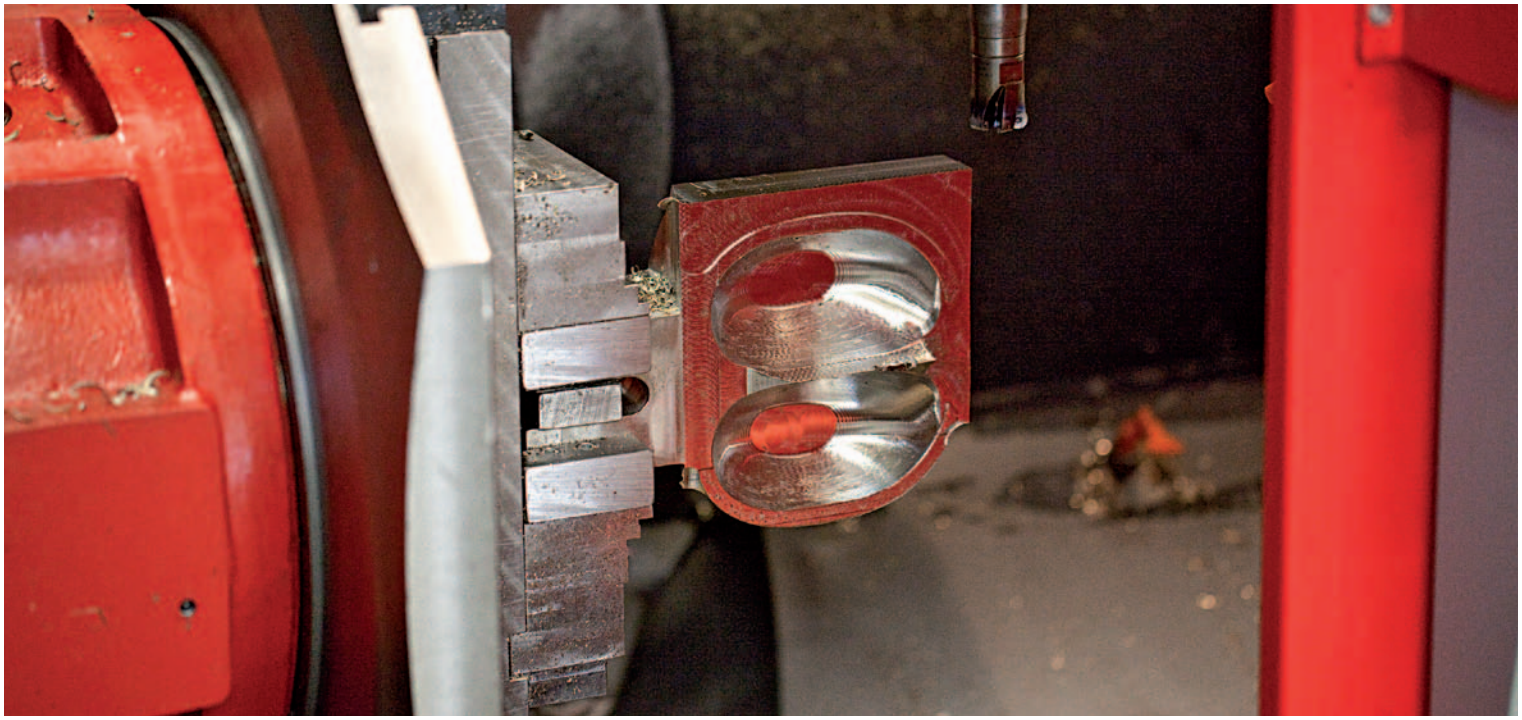
Hubert Weissteiner
Managing director

„As a contract manufacturer, our customer is afforded the necessary flexibility with our MAXXMILL 500 to produce the workpieces its customers require and with very quick turnarounds.

Anton Kranabetter
Sales Manager for EMCO Maier

„The MAXXMILL allows us to produce precision parts of the high standard of quality required and to offer our customers competitive rates.“

Christof Weissteiner
Managing director



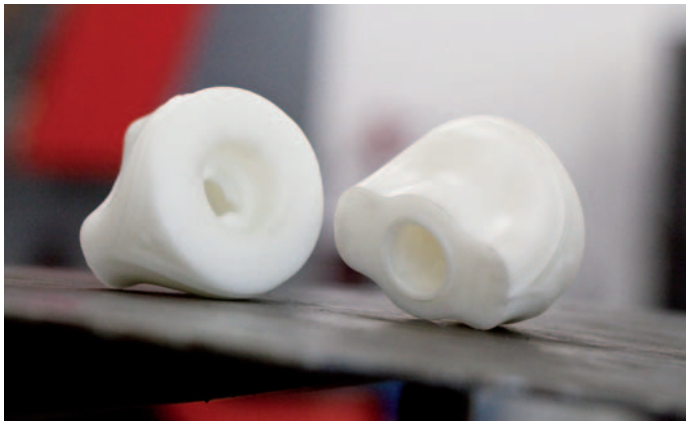
View of the working area of the MAXXMILL 500 during the production of the Pelton turbine blades

Efficiency for SMEs

MAXXMILL 500 users can manufacture complete workpieces with edge lengths of 500 x 500 x 475 mm along five axes, efficiently and with precision, and in a single clamping cycle. Machining on five sides without having to reclamp brings about financial and quality-related advantages for small and medium-sized enterprises. Small or medium-batch series, ideally between 15 and 300 units, can be manufactured efficiently and to a high standard of quality. The tool magazine holds 30 tool stations ready for use.

The variety of options offered by the MAXXMILL guarantees that customer and application-specific special wishes can be combined with the price benefits of a standard machine: it can optionally be fitted with glass scales, with a chip conveyor or with a high-pressure coolant feed through the spindle.
Weico went for the model of machine with the high-performance spindle (34.5 KW), with a chip conveyor and with high-pressure coolant through the spindle.
There are two basic versions of the machine available for vertical five-axis milling: firstly, the model in which two rotary axes are only positioned or a maximum of one rotary axis can be interpolated with two linear axes, and, secondly, the model for simultaneous machining in which all five axes are controlled at the same time.
The spindle can also be selected in accordance with specific requirements: either a mechanically driven spindle with a maximum of 10,000 revolutions per minute and a torque of 70 Nm, or a motor spindle with a maximum of 15,000 revolutions per minute and a torque of 110 Nm.
The MAXXMILL 500 can be programmed with control technology from the leading technology producers Siemens or Heidenhain. The arrangement of the control panel is ergonomically favorable for rotation and tilting.
A rather ideal feature of the MAXXMILL 500 is embodied by its claim: „Made in the Heart of Europe“ – through this commitment, Emco shows that it agrees to be bound by the technical, ecological and social standards which apply in Europe.

Weico Mechanical and Metal Engineering, the company which was founded by Hubert and Christof Weissteiner in 1997, markets itself as **young and innovative.** The brothers, Hubert and Christof, were born in 1970 and 1972 respectively, are trained engineering mechanics and obtained their master craftsman‘s qualifications together in 1995. They embody the creative entrepreneurial traits of digital natives. Having been brought up and trained with modern CAD technology and IT communication, they integrated not only high-tech mechanical and metal engineering, but also the very latest control technology and automated quality controls into their corporate concept right from the very start.
In addition to the core area of **mechanical engineering,** Weico also offers advice and individual solutions for discerning developers and architects in its **Metal Engineering** department – from planning to production and on to the assembly of metal structures, whether they are made from steel, stainless steel or aluminum. Weico uses innovative access technology, which is the only one of its kind in Italy, in the **Bridge Refurbishment** and Inspections department.The underside-view equipment for refurbishment work on bridges is manufactured by the specialists themselves. They use it to create a wide range of access solutions for various bridge systems and requirements.



Molds from the „Pasta Nobile“ dough machine

[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)	+/- 20 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)

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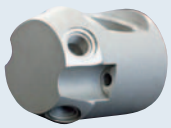
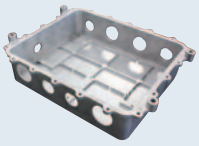
Highlights of the MAXXMILL 500

- 5-axis machining in a single clamping cycle
- Very high thermostability
- Top machining precision
- Mechanical or motor spindle
- Compact machine design
- Cutting-edge control technology from Siemens or Heidenhain
- Very attractive price
- Made in the Heart of Europe

exemplary workpieces



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