Your profit

UMILL 1500 / 1800

Gantry-type milling machines for 5-axis machining

Umill for 5-Ax

1 **COMPACT DESIGN**
- Maximum precision with top dynamics thanks to extraordinarily stable gantry design
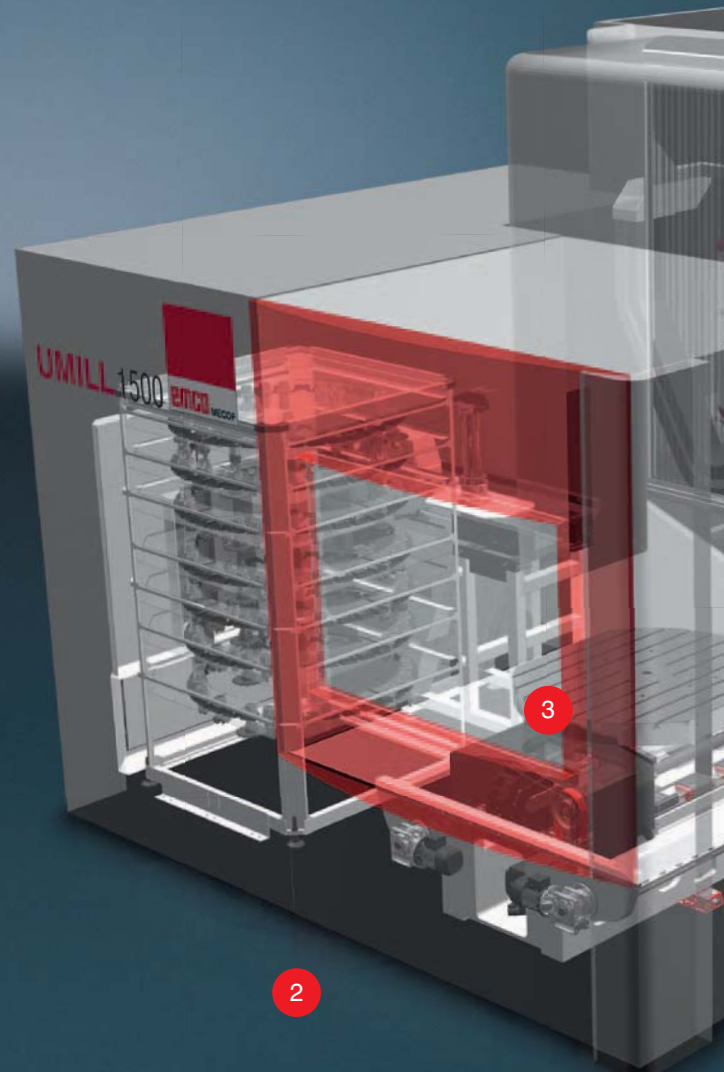
2 **NO FOUNDATION REQUIRED**
- Machine bed with inherent rigidity

3 **STABILITY & RIGIDITY**
- Machine bed, gantry and cross traverse based on FEM analyses

4 **5-AXIS MACHINING IN ONE SETUP**
- Milling
- Drilling
- Tapping
- Turning etc.

xis Machining

Umill 1500 and Umill 1800 machines have been perfectly designed for 5-axis machining operations such as milling, drilling, tapping and turning in one setup. Featuring a robust and rigid construction but yet providing high dynamics, these gantry-type machines convince with optimum results.
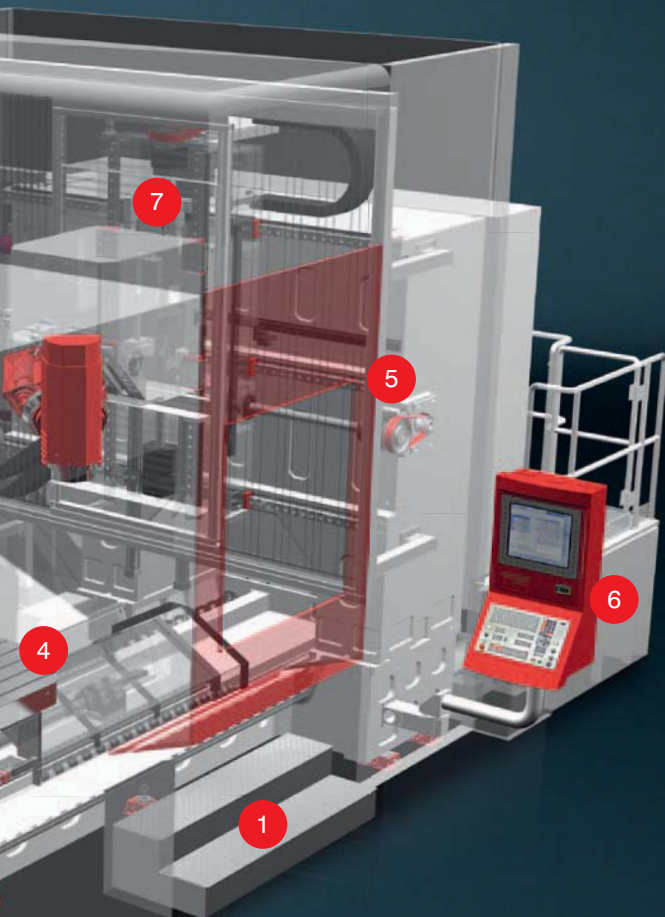
5 HIGH DYNAMICS & PERFORMANCE
- ■ Mechanical milling head: 38 KW / 600 Nm / 6000 rpm
- ■ Example: milling head with electric spindle: 45 kW / 300 Nm / 12000 rpm
  - further customised solutions on request
- ■ High rapid traverse speeds: up to 60 m/min
- ■ Acceleration of up to 6 m/s^2

6 CONTROL
- ■ Heidenhain TNC 640 HSCI or Siemens 840D sl

7 MAXIMUM MACHINE AVAILABILITY
- ■ Automatic temperature compensation (Z-axes thermal growth)
- ■ Automatic adjustment of the machine kinematics
- ■ Continuous and dynamic vibration adjustment
- ■ Dynamic collision monitoring
- ■ Remote maintenance and teleservices
- ■ Imbalance analyses (optional)
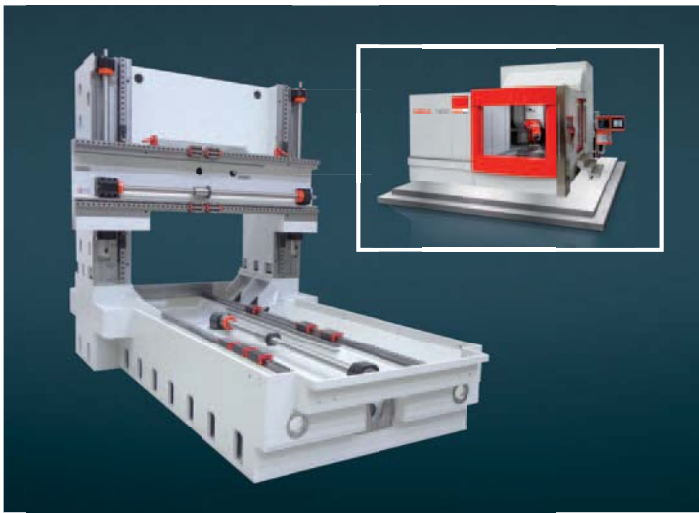
Design and ergonomics. Machine bed, gantry and crossbeam designed by means of FEM analysis and realized in cast iron. All axes featuring direct measurement systems.

Easily accessible work space. Large door openings for workpiece inspection and setup. Easy loading and unloading thanks to the loading door that provides free access from above and opens automatically.

Tool loading and unloading. Operators use the foot pedal to unload and load the tools, thus having their hands free for their activities on the machine.

Umill 1500 / Umill 1800:
Technical

Floor grid. The floor grid inside the work space facilitates unloading and loading as well as the setup. Workpieces are easily accessible from each side.

15° undercut. The milling head with 15° undercut allows for added value in complete machining in one setup.

Ergonomic operation. Featuring two swivel joints, the operating panel can be pivoted into the work space.
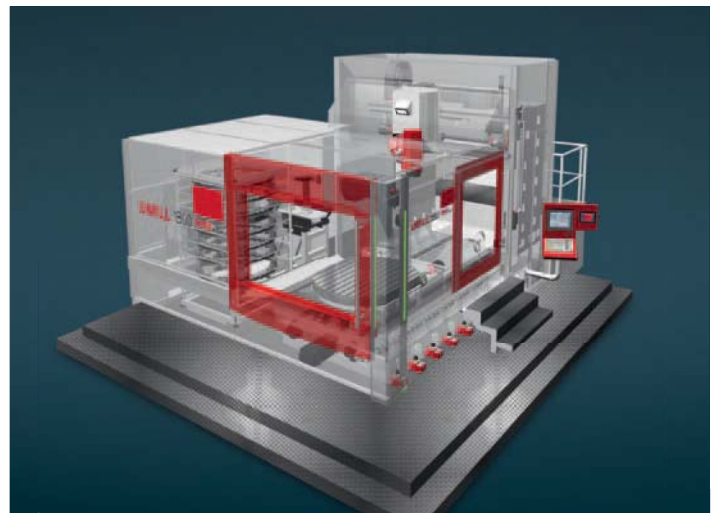
Closed work space. Less noise and dirt for a clean working environment. Optimum disposal of chips and coolant, the latter of which is recycled.

Highlights

Machine data management. The operating panel is used to manage the machine messages and information.

Highlights

- ■ Milling/turning operations in one setup for the complete machining of complex workpieces
  Umill 1800, Ø 2500 mm, 1250 mm height
  Umill 1500, Ø 1600 mm, 1100 mm height

- ■ Milling head with 15° undercut

- ■ Axis travel: 1800 x 2150 x 1250 mm;
  1500 x 1500 x 1100 mm

- ■ Automatic tool changing system including up to 203 pockets

tebis

DIE CAD/CAM-EXPERTEN

Tebis is a process provider offering completely integrated CAD, CAM, CAQ & PDM viewer solutions in order to support 2.5D to 3D, 3+2- and 5-axis NC machining for tool and mould making as well as for the development of complex 3D components. Tebis software is used in the following industrial applications: automotive engineering, aeronautics, energy, sports accessories and household.
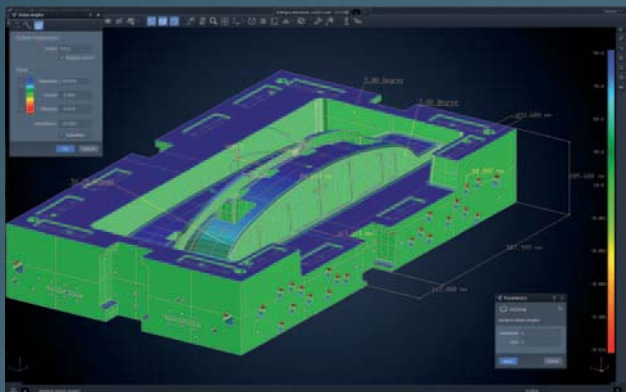
[CAD]

- 2D and 3D CAD software packages for the machining process
- CAD software packages for the manufacturing of electrodes
- Construction supported by parameterisation
- Direct data exchange interfaces (Catia, Nx, Solidworks, Creo, Parasolid, Nastran)
- Neutral data exchange interfaces (Vda, Iges, Step, JT)

[CAM]

- 3-, 3+2- and 5-axis milling of complex surfaces
- 2.5D milling and drilling of prismatic components, tools and shapes
- Automatic generation of NC programmes
- Templates for automatic programme creation
- Post processors attuned to the machine geometry
- Fully integrated simulation of the machining processes

[CAQ]

- Metrological review of the machining operations carried out using a probe
- Simulation of the NC measuring programme
- Direct alignment with the CAD model

[VIEWER NC]

- Digital solution for supporting the NC manufacturing processes in production
- Paperless process
- Upstream analysis of the CAD data
- Real-time simulation of the machining processes
- Editing of the NC tool paths
- Optimised for multiple clamping

[Technological Advantages]

- Perfect interplay between machine and NC control
- Maximum production efficiency
- Enabled post processors and virtual machine
- Optimised machining cycles with simulation capability
- Collision-free tool paths
- Maximum surface quality

The perfect solution for tool and mould making

Universal head with mechanical or high-speed spindle

Electric spindle. Compact design with high-performance electric spindle. Continuously variable universal head offering high dynamics for simultaneous machining in connection with the NC rotary table.

Mechanical spindle. Powerful mechanical spindle with high torque and high rigidity for heavy-duty and multi-sided machining in one setup.
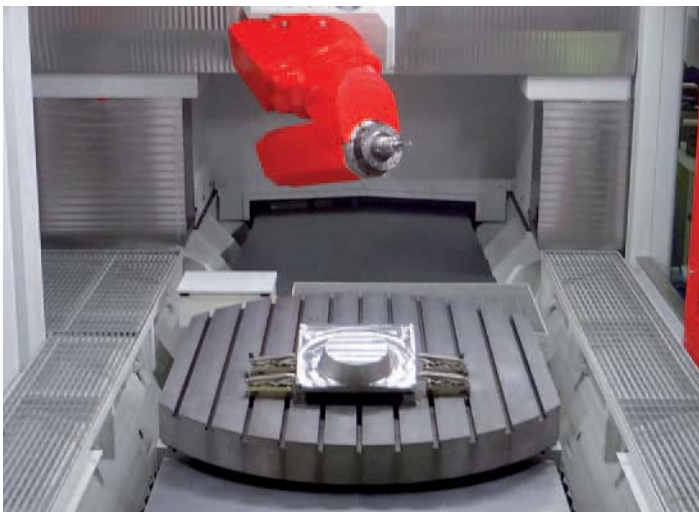
NC work table with torque drive. NC work table with torque drive for milling operations in the positioner and simultaneous operation. Designed for workpieces with a weight of up to 10 tons.
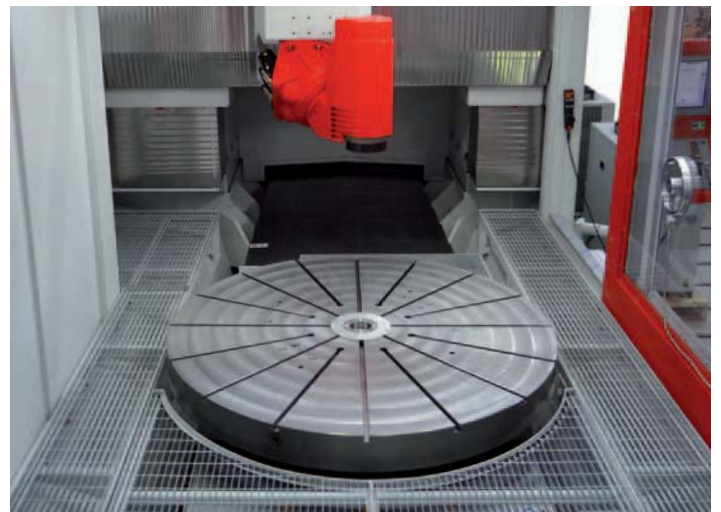
NC work table. NC work table with radial grooves for milling and turning operations. High-performance torque drive with high torques.

ons
sed Productivity

Tool magazine with a maximum of 203 pockets
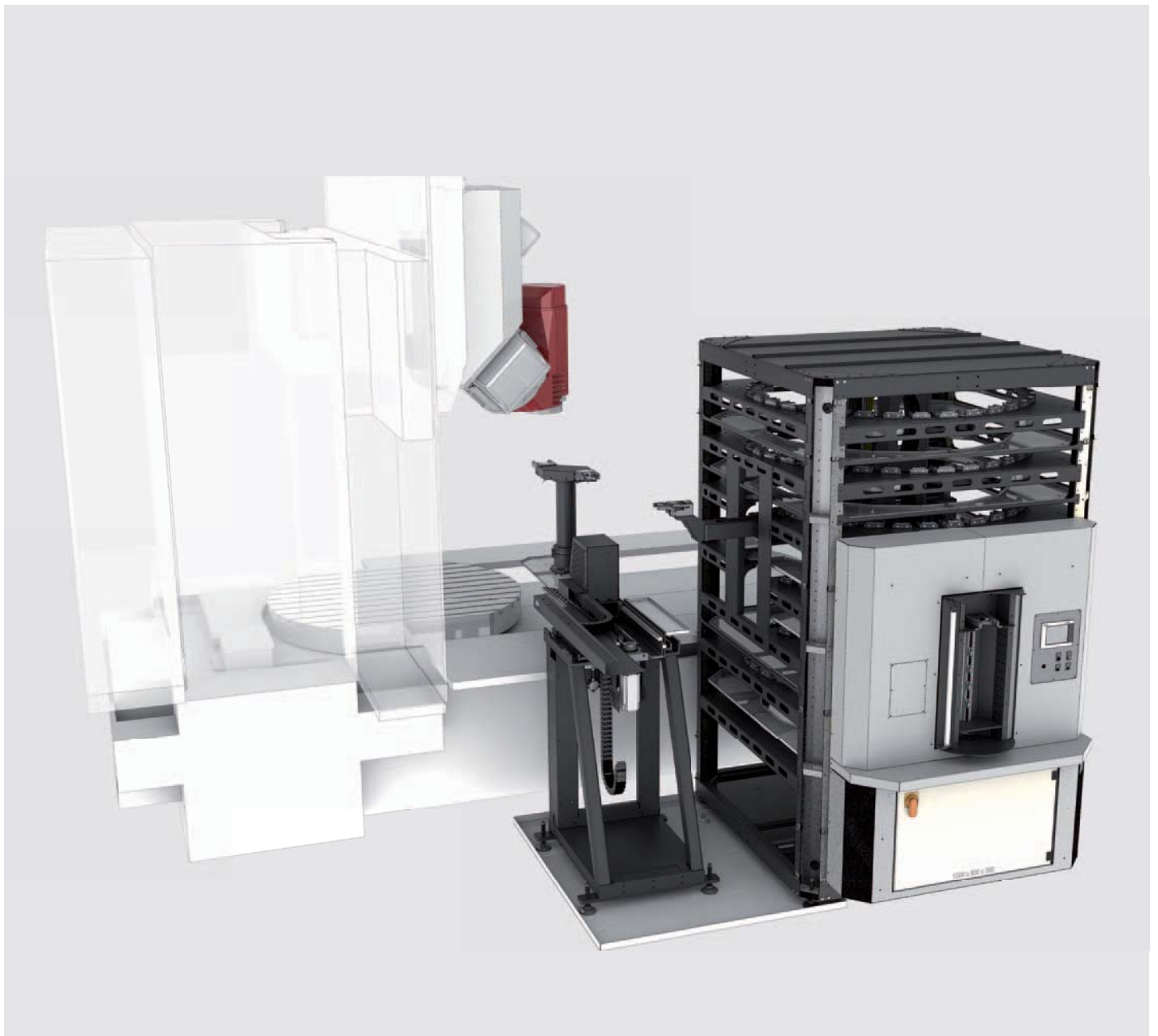
Placed outside the work space and separated from the machine base.
Our tool magazines are offered in different customised configurations. Tool management systems and tool monitoring systems are available as an option.

Modular Solutions
for Increased Productivity

One of the central factors in modern production is automation that meets the requirement for an increased degree of utilisation of machinery. Optimum productivity combined with minimised production times are the prerequisites for competitiveness and a rapid response to the market requirements.
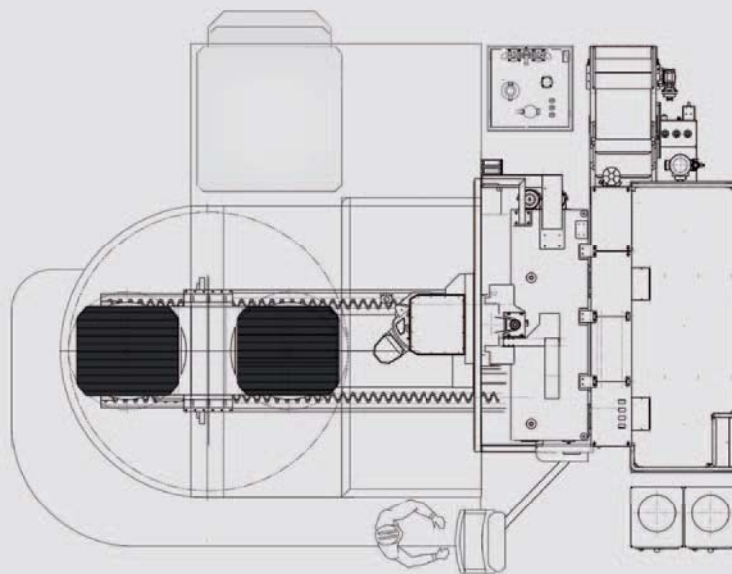
Umill 1500

Umill 1800
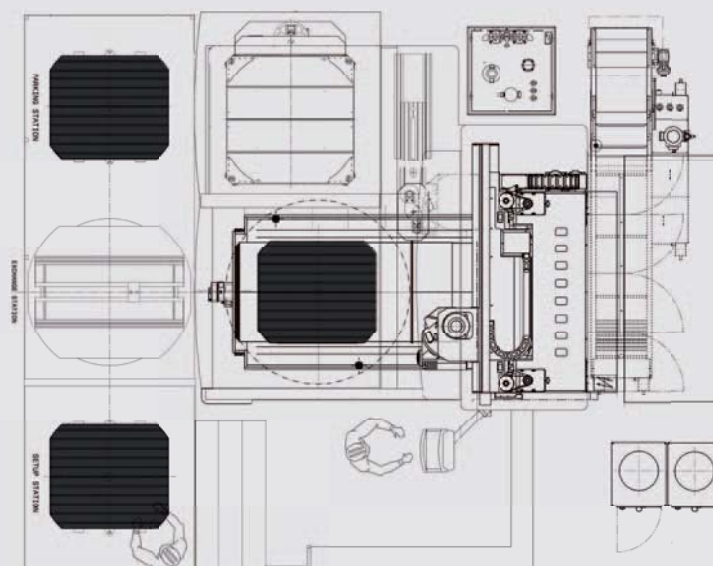
Productivity optimisation. Automatic pallet exchange systems improve the machinery`s productivity and reduce the idle time, which is mainly due to the fixturing of the workpiece. The Umill 1500 and Umill 1800 configurations offer several solutions to meet the requirements of each single customer. Our pallet exchange systems offer the best compromise between greater load capacity and smaller overall dimensions in the workshop, whilst ensuring shortest possible pallet exchange times.

Machine Work Space

Umill 1500
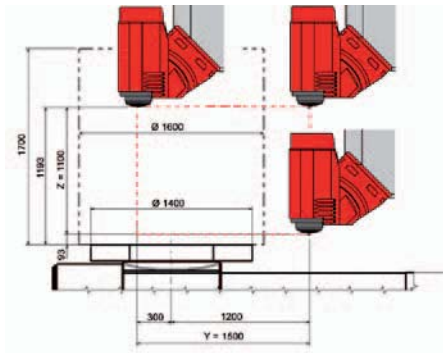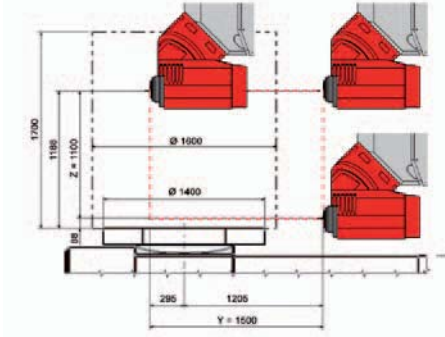
Umill 1800
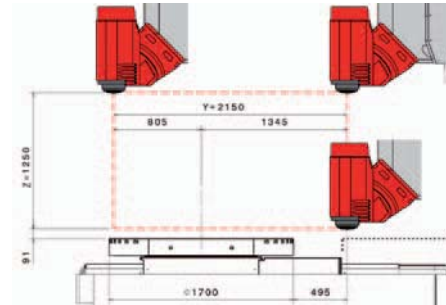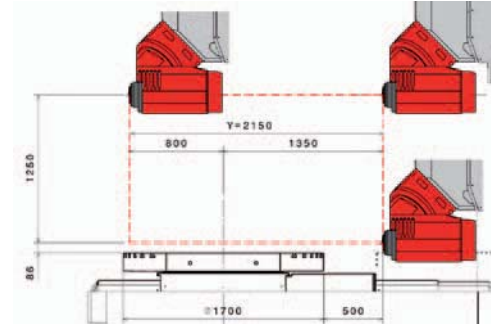
Machine Dimensions

Umill 1500

4200 mm

7200 mm

6200 mm

Umill 1800

5000 mm

6500 mm

8250 mm
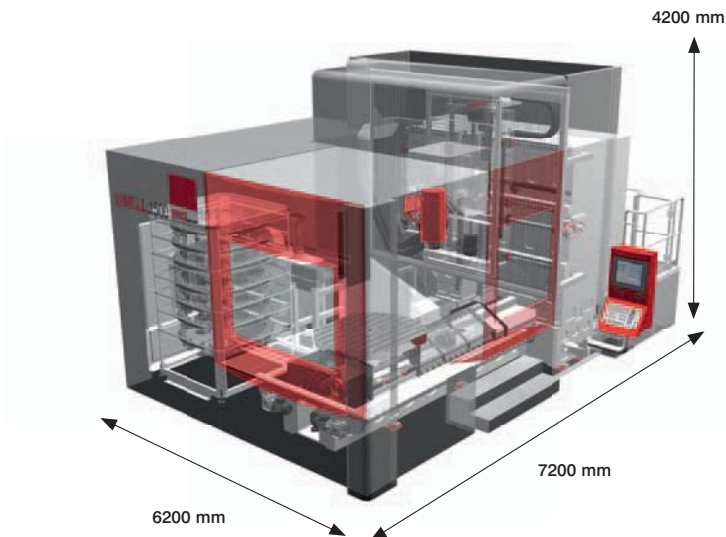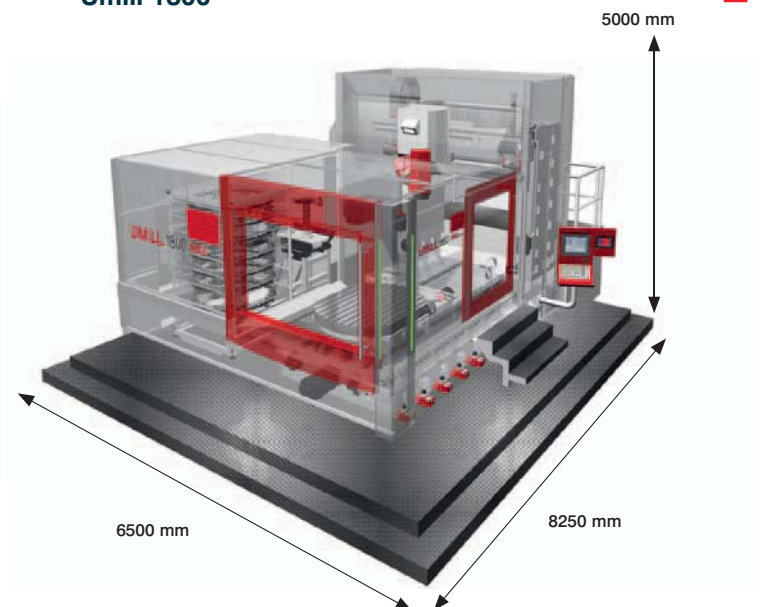
Figures in millimetres

Designed by MECOF for a maximum of ecology and emconomy.

The responsible handling of resources as regards machine tools is a strict approach of MECOF in terms of a long-term investment. Be it during the development, design engineering or manufacturing of the machines, emphasis is always placed on the reasonable, sparing use of raw materials and energy forms. In doing so, savings are achieved simultaneously in two areas:

1. Reduction of the machine tool`s standard consumption, i.e. depending on the requirements, power units are either switched on or turned off, plus the connecting lines are minimised.

2. Reduction of the variable consumption: this is reflected in the weight-optimised axes, the energetic recovery system, an increase in the production of good parts and the reduction of the process chain by complete machining.

By implementing these sets of measures, which are continuously developed and optimised, MECOF achieves intelligent savings for the benefit of our environment and customers without compromising quality and flexibility.

[**Drive system with energy recovery**]

Kinetic energy is converted into electric energy and fed back into the mains.
Savings of up to 10%

[**Compact hydraulics with pressure accumulator**]

Thanks to its accumulator charging system, the pump only runs when required. If the pressure accumulator is full, the pump switches over to closed loop circulation.
Savings of up to 90%

[**Roller guides**]

Extremely low friction losses due to rolling friction. High dynamics and minimum lubricant consumption at the same time.
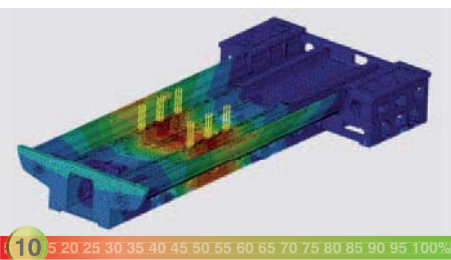**Savings of up to 50%**

[**Structure-optimised mechanics**]

Based on the FEM analysis, relevant components are optimised in terms of rigidity whilst their weight is reduced at the same time.
Savings of up to 10%

[**High-efficiency motors**]

High profitability is guaranteed by the use of energy-efficient motors (IE2) in the coolant preparation area.
Savings of up to 10%

[**Clocked chip conveyor**]

Optimum use of the chip conveyor depending on the machining process is possible thanks to the programmable pause times.
Savings of up to 95%
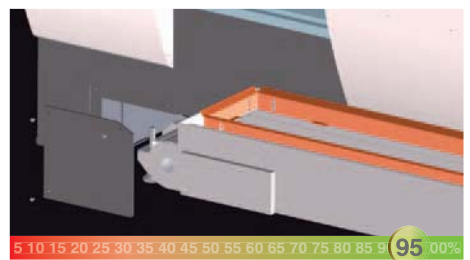
[**Intelligent standby concepts**]

Reduced consumption by automatically switching off ancillary units and machine space/screen illumination after a defined period of inactivity on the control panel.
Savings of up to 50%

[**Virtual machine**]

A significant reduction of the setup and positioning times on the machine allows for sophisticated simulation and programming software.
Savings of up to 85%

[**Intelligent energy management**]

Easy-to-operate input screen for activating the individual energy saving functions.
Savings of up to 70%

Umill 1500 / Umill 1800:
Technical Data

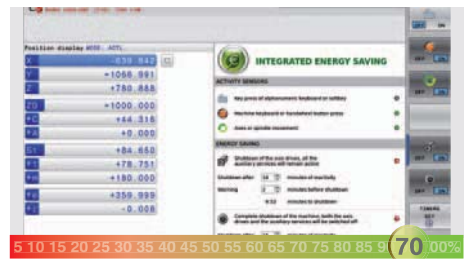|	Umill 1500	Umill 1800
Linear axes		
Cross travel in X	1500 mm	1800 mm
Longitudinal travel in Y	1500 mm	2150 mm
Vertical travel in Z	1100 mm	1250 mm
Feed rate	60 m/min	60 m/min
Numerical control		
Heidenhain	TNC 640 HSCI	TNC 640 HSCI
Siemens	840D sl	840D sl
Workpiece/tool cooling system		
External cooling	28 l/min; 6 bar	28 l/min; 6 bar
Internal cooling	20 l/min; 40 bar	20 l/min; 40 bar
Mechanical milling head		
Power (S1 / S6)	38 / 48 kW	38 / 48 kW
Torque (S1 / S6)	600 / 750 Nm	600 / 750 Nm
Speed	6000 rpm	6000 rpm
Tool taper	ISO 50	ISO 50
Undercut	15°	15°
Milling head with high-speed spindle E58		
Power (S1 / S6)	45 / 58 kW	45 / 58 kW
Torque (S1 / S6)	300 / 372 Nm	300 / 372 Nm
Speed	12000 rpm	12000 rpm
Tool taper	HSK 100-A/T	HSK 100-A/T
Undercut	15°	15°
Milling head with high-speed spindle E61		
Power (S1 / S6)	50 / 63 kW	50 / 63 kW
Torque (S1 / S6)	100 / 125 Nm	100 / 125 Nm
Speed	20000 rpm	20000 rpm
Tool taper	HSK 63-A	HSK 63-A
Undercut	15°	15°
Options		
Tool changer	88 / 122 / 203 pockets	88 / 122 / 203 pockets
Rotary table for milling operations		
Size	ø 1400 x 1200 mm	ø 1700 x 1400 mm
Max. load capacity	4500 kg	10000 kg
Drive	Torque motor	Torque motor
Max. torque	3000 Nm	6000 Nm
Max. speed	20 rpm	10 rpm
Rotary table for milling and turning operations		
Size	ø 1400 mm	ø 1800 mm
Max. load capacity	3500 kg	5000 kg
Drive	Torque motor	Torque motor
Max. torque	3000 Nm	4000 Nm
Max. speed	260 rpm	250 rpm

Mecof S.r.l.
Via Molino 2 · 15070 Belforte Monferrato (AL) · Italy
Phone +39 0143 8201 · Fax: +39 0143 823088 · info@emco-mecof.it

EMCO MECOF Deutschland GmbH
Gottlieb-Daimler-Str. 15 · 74385 Pleidelsheim · Deutschland
Phone +49 7144 8242-0 · Fax +49 7144 8242-10 · info@emco-mecof.de