EMCO

UMILL 630

Universal machining center
for 5-axis machining

/ COMPACT UNIVERSAL MACHINING CENTER

Equipped with a front table support, the Umill 630 – our new universal and vertical CNC machining center – is capable of milling parts featuring an edge size of 445 x 445 x 400 mm and a weight of up to 200 kg using highly precise and highly efficient, simultaneous 5-axis machining. Its compact design in cast iron and welded steel, optimised by FEM analysis, with direct drives in X-Y-Z and standard linear scales among its features, it guarantees the maximum in rigidity and thermosymmetry, the highest precision and an excellent surface quality of the workpiece. With its important technological and architectural innovations, the new Umill 630 creates optimum conditions for high-quality production.

Fan (Brass)

1 MACHINE BASE

/ The machine base consists of welded steel construction stabilised through heat treatment, optimised with FEM analysis
/ X, Y slide and Z-axis are cast iron
/ Linear scales in X-Y-Z as standard

2 WORK TABLE

/ Swivel-rotary table with torque motors on the C-axis, special worm gear with two drive motors in the B axis
/ Swivel range of the B-axis: +/- 100°
/ Front support included in the standard scope of supply
/ Both axes with absolute value sensor

3 SPINDLE

/ Motor spindle: 15000 rpm

/ Dirk Schuhmacher
Product manager

''By using high-quality European components, we focus on both the excellent technical values and the very high availability of the machine. What is more, our customer service – which has become well established on the market – is highly appreciated by our customers and immediately available at fair conditions.''

4 ERGONOMIC OPERATING PANEL

/ Available with Heidenhain or Siemens control technology
/ Height adjustable 90° swivelling operating panel
/ EMCONNECT available for Sinumerik 840D sl

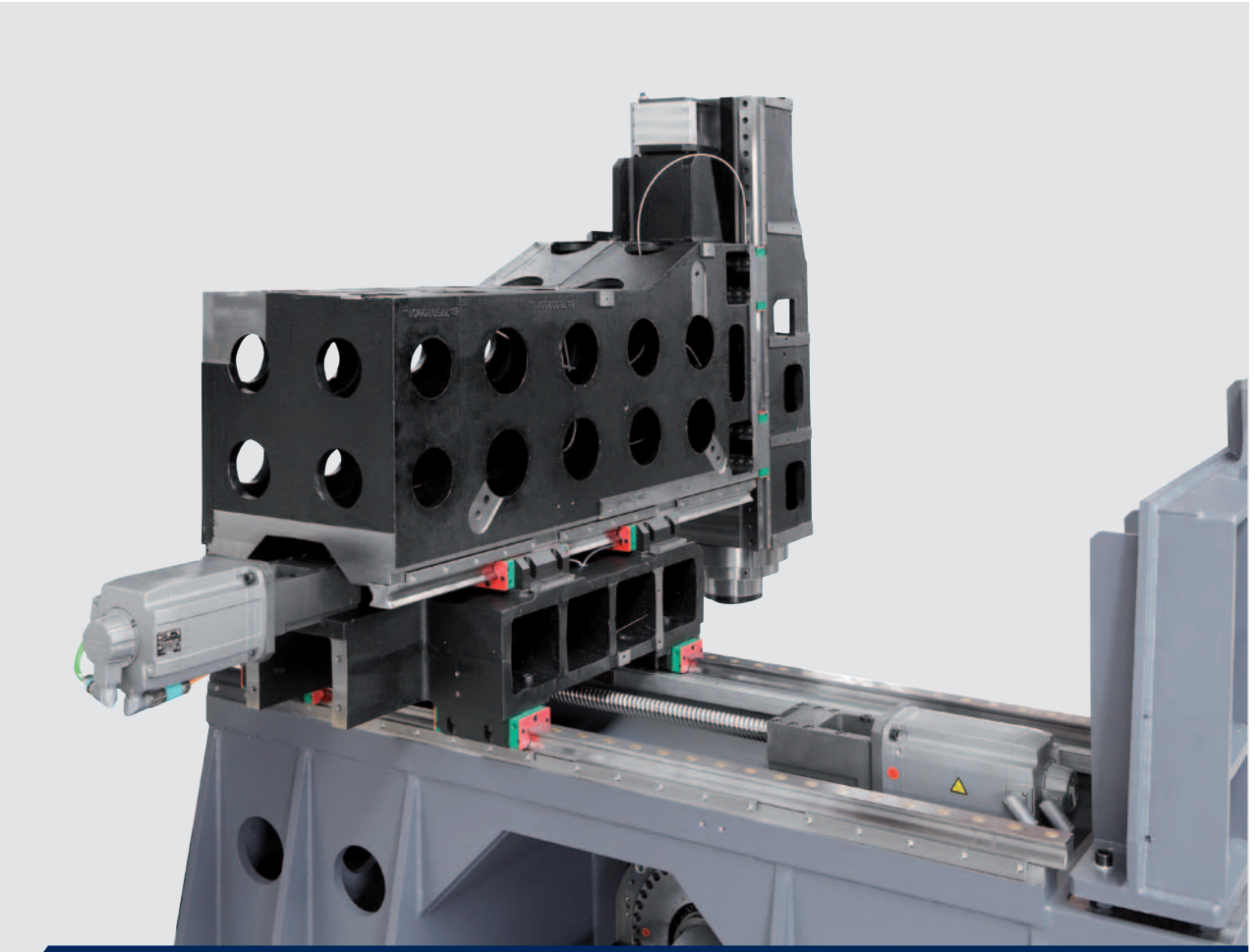
5 TOOL CHANGER

/ Tool changer with 30 tool stations
/ Tool changer with 60/90 tool stations available as option

6 CHIP REMOVAL

/ The chip removal can be handled by an optionally available hinge-type chip conveyer

TECHNICAL HIGHLIGHTS

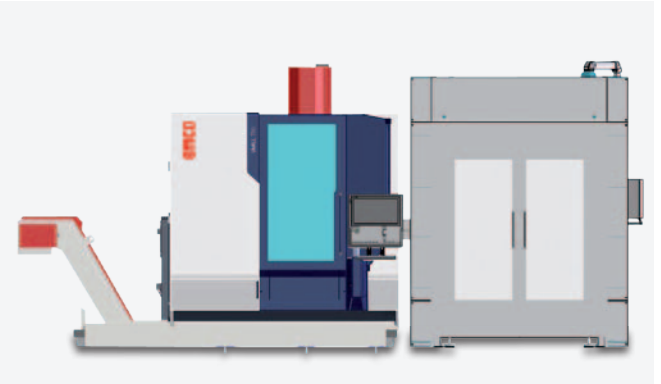


DIRECT DRIVES

The direct drives in X-, Y- and Z-axis allow to reach high performances in acceleration (6 m/s²) and in rapid motion speeds (50 m/min). In addition, this ensures maximum precision and high dynamics.

TOOL CHANGER

The tool changer of the Umill 630 is a drum magazine for 30 tools. A tool magazine with 60/90 tool stations is available as option. The tools are managed according to the variable tool station coding principle (random), which means that tools are always deposited in the first free magazine station for time reasons. Other tool changer stations are available upon request.



AUTOMATION

Different options, such as an automatic door opening function on the side of the machine, a rotary feedthrough in the table centre etc., make it possible to implement different automation solutions. Thanks to its flexible design, the machine can be loaded automatically from the side or from the front.

SWIVEL–ROTARY TABLE

The swivel-rotary table has a large clamping area of 630 x 500 mm (24.8 x 19.7") and can bear loads of up to 200 kg (440.9 lb) thanks to the front table support. This makes it possible to simply machine workpieces with an edge size of 445 x 445 x 400 mm (17.5 x 17.5 x 15.8"). The special shape of the table allows the spindle nose to move closer to the table center. Furthermore, it is prepared for the installation of a rotary coupling with 4 ways through the table plate.

TRAVEL RANGE

With a travel range of +/– 100 mm, the B-axis provides a larger work area than most products from other manufacturers. The C-axis can be infinitely rotated by 360°.

SINUMERIK 840D SL

The Sinumerik 840D sl incl. Shopmill is an universal and flexible CNC system offering free contour programming, milling cycles for complex contours, fast reference point setting with touch probe systems, tilting of the working plane, cylindrical surface machining, 3D tool compensation and fast execution through short block processing times.

HEIDENHAIN TNC 640

The TNC 640 is a compact, adaptable control ideal for 5-axis simultaneous machining. With its flexible operating concept – workshop-oriented programmability in the HEIDENHAIN plain text dialog or external programming – and its scope of performance, it is perfectly suited for EMCO milling centers.

HIGHLIGHTS

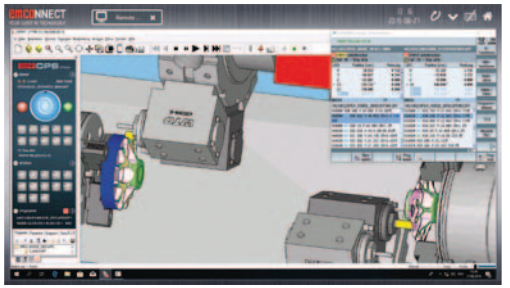
- / 5–axis simultaneous machining
- / Top thermostability
- / Top machining precision
- / Modern moving column concept with optimal accessibility
- / Solid swivel–rotary table with torque motors on the C–axis, special worm gear with two drive motors in the B axis, direct measuring systems, and front support, dimensions of 630 x 500 mm provide high stability and precision
- / Wide swivelling range +/– 100°
- / Standard linear scales in X–Y–Z
- / Cutting–edge control technology from Siemens or Heidenhain
- / EMCONNECT available for Sinumerik 840D sl
- / Extensive options such as 60 / 90 tool stations magazine
- / Optimal chip removal
- / Attractive price–performance ratio
- / Flexible for automation (front or side)
- / Made in the Heart of Europe

NETWORKS ARE CREATED INDIVIDUALLY. OUR SOLUTIONS AS WELL.

Staying in touch is important not only among human beings. Persons, machines and the whole framework of production must also be connected perfectly and safely in order to ensure efficient procedures during the production process. With EMCONNECT you have the key to optimized connectivity for a digital factory.
Perfectly integrated into numerical control, EMCONNECT enhances this type of system by its powerful functions for the modern generation of controllers (SIEMENS, HEIDENHAIN, FANUC).

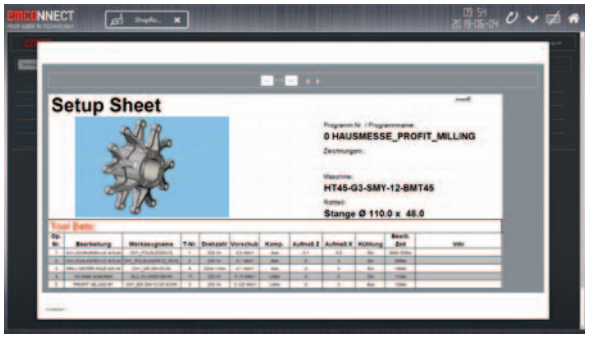
Integration into control

EMCONNECT offers several possibilities of operation according to different situations. For quick access, apps may be used simultaneously in the side panel for controlling.
In this way, you can always look at your familiar numerical control, the well-known centrepiece of the machine.



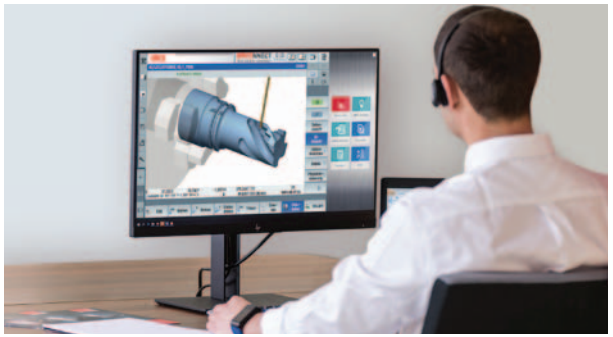
An innovative concept

These powerful apps may be used independently from the control, while in the background the machine is busy in the production process. With only one click, you can change at any moment between numerical control and EMCONNECT. This is possible with the help of an innovative and ergonomic control panel, equipped with a modern 22" multi-touch display, an industrial PC with associated keyboard and HMI hotkeys.



The control panel as central platform

With EMCONNECT, the control panel of the machine becomes the central platform for the access to all the operative functions. The user gets every type of support from the apps, which directly provide all the necessary uses, data and documents. In this way, EMCONNECT makes an important contribution to a highly efficient working method at the machine.



Comprehensive connectivity options

With the remote support, the web browser and the remote desktop, there are numerous connectivity options, even outside of the immediate production environment. With the help of the integrated remote support, it is easily possible to carry out the remote diagnosis and remote maintenance. If desired by you, the experienced support team from the EMCO helpdesk will connect itself directly with your machine and will thus be able to help you quickly and cost effectively in case of problems. In this way, it will be possible to reduce machines to a minimum all on-site service activities and costly downtimes of your machines.

EMCONNECT HIGHLIGHTS AND FUNCTIONS

- **Fully connected**
  Connection to all applications via remote control of the office computer and the web browser
- **Structured**
  Clear monitoring of the machine state and the production data
- **Customized**
  Open platform for modular integration of customer-specific applications
- **Compatible**
  Interface for seamless integration into the operating environment
- **User-friendly**
  Intuitive and production-optimized touch operation
- **Future-proof**
  Continuous extensions as well as easy updates and upgrades

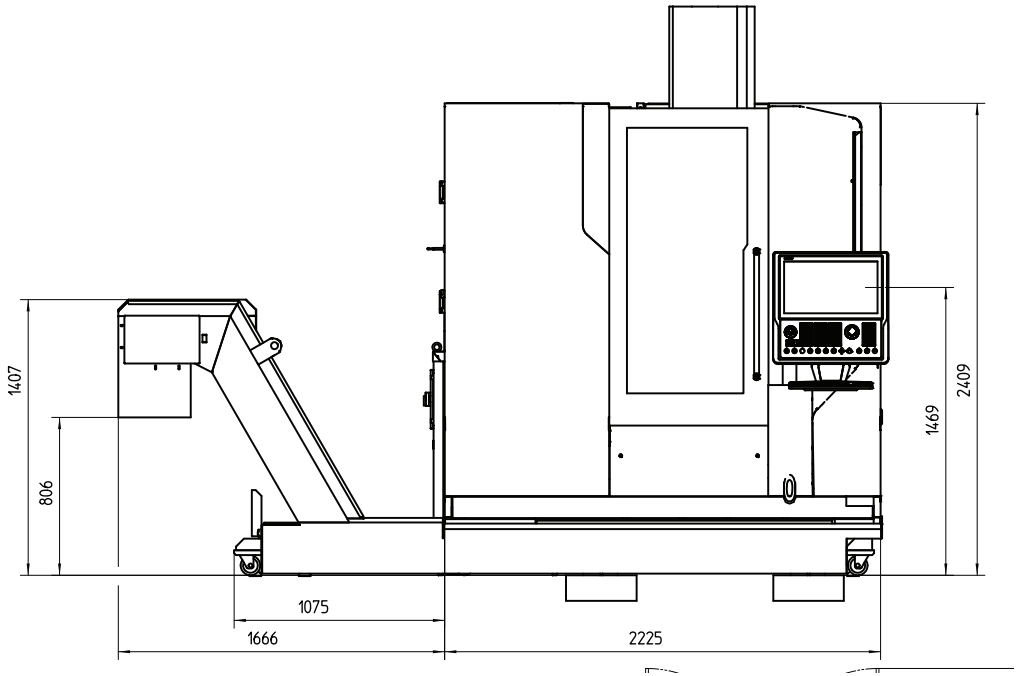
Standard-Apps

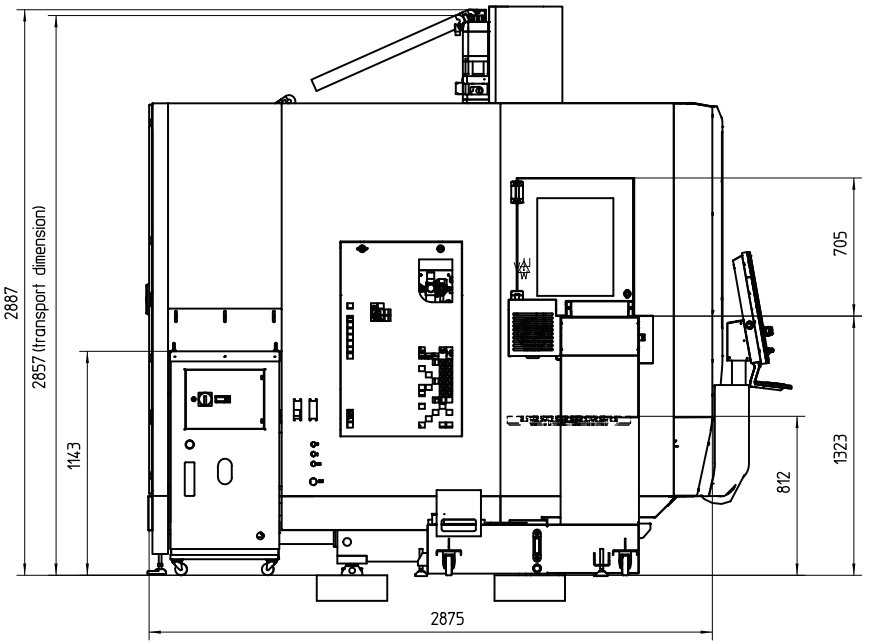
- Control
- Dashboard
- Machine Data
- System
- Remote Desktop
- Web Browser
- Remote Support
- Settings
- Cutting Calculator
- Calculator
- Notes
- Service
- Documents
- EMCO TechSheet
- GD&T
- File Import

Optional Apps

- Shopfloor Data
- OPC UA

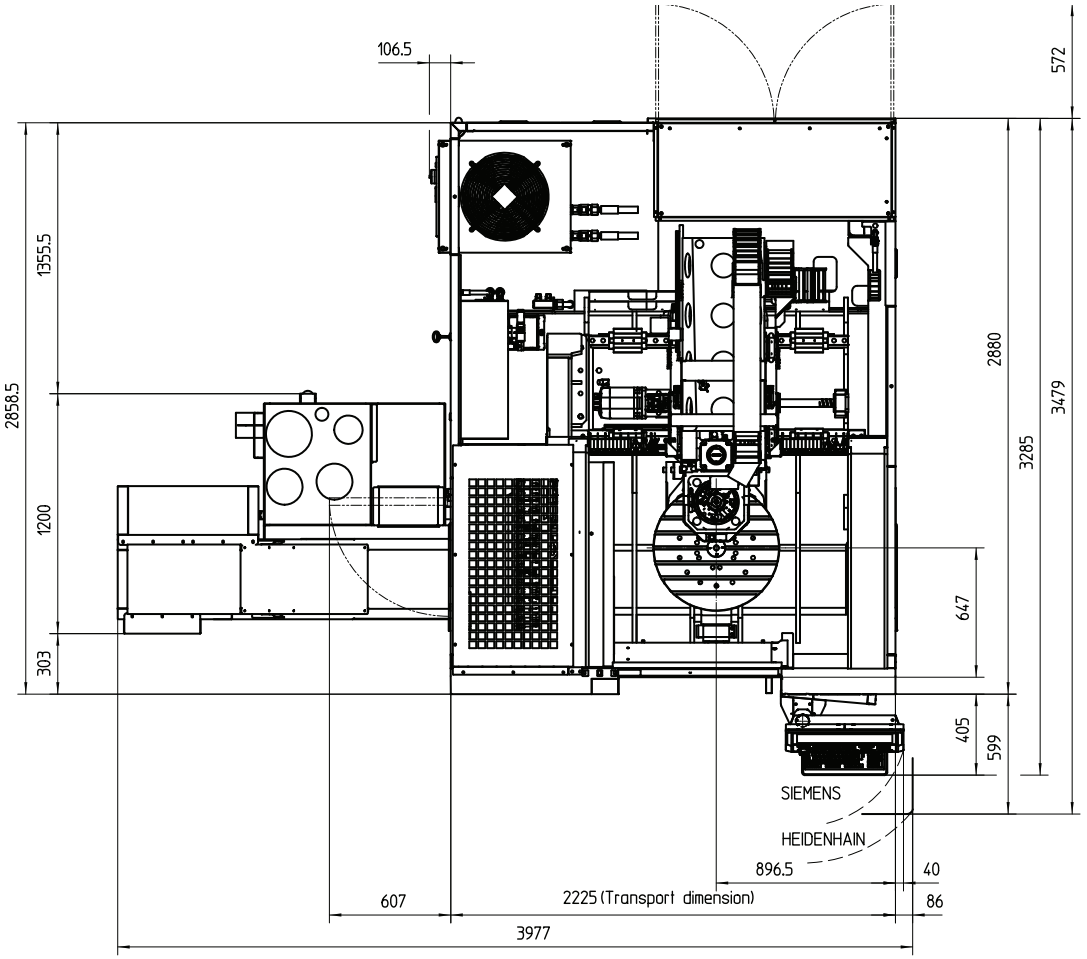
INSTALLATION PLAN





Indications in millimetres

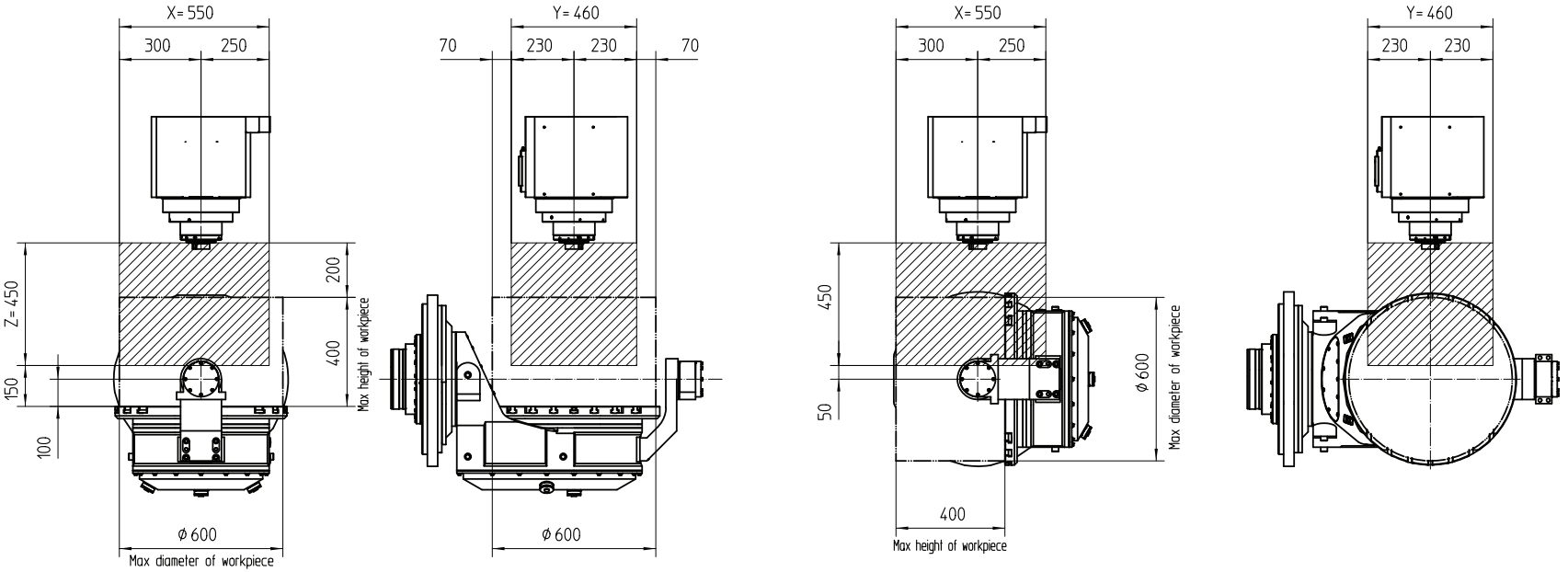
INSTALLATION PLAN



Machine with optional equipment

Indications in millimetres

WORK AREA



Travel

Workpiece dimensions

Indications in millimetres

TECHNICAL DATA

Travel and tolerances

Travel in X	550 + 50 mm
Travel in Y	460 mm
Travel in Z	450 mm
Distance spindle nose – table (min. – max. / motor spindle)	150 / 600 mm
Swivel range B-axis	+/– 100°
Range of rotation C-axis (rotary table)	+0/–360°
Positioning accuracy P according to VDI 3441 *	10 µm
Positioning repeatability Ps according to VDI 3441 *	4 µm
Positioning accuracy B-axis (tilting)	+/– 5 sec.
Positioning accuracy C-axis (table)	+/– 5 sec.

Feed

Rapid motion speed X-Y-Z axis	50 m/min
Max. rotational speed B-axis	50 rpm
Max. rotational speed C-axis	100 rpm
Max. feed force X axis	5000 N
Max. feed force Y axis	5000 N
Max. feed force Z axis	5000 N
Max. acceleration X-Y-Z axis	6 m/s²

Tilting table

Clamping area	630 x 500 mm
Table-floor distance	805 mm
Slot number	5
Distance between two T-slots	75 mm
Groove wide	14 mm
Max. workpiece weight (equally distributed)	200 kg

Main spindle (motor spindle)

Speed range	50 – 15000 rpm
Maximum spindle torque	110 Nm
Maximum spindle power	26 kW
Tool taper	HSK-A63 (ISO40/BT40)

Tool magazine

Number of tool stations	30 (60/90)
Tool changing type	double arm gripper
Tool management	Random
Tool changing time (tool-tool) according to VDI 2852	3,9 sec.
Max. tool diameter	80 mm
Max. tool diameter (without neighbouring tools)	125 mm
Max. tool length	250 mm
Max. tool weight	8 kg
Total tool weight supported by the magazine	130 kg

Coolant tank

Tank capacity	200 l
Standard pump pressure	2 bar
Max. capacity at 2 bar	40 l/min

Pneumatic supply

Min. pressure supply	6 bar
Min. capacity required	250 Nl/min

Lubrication

Spindle	Grease
Caged roller ways	Grease
Ball screws	Grease

Dimensions

Total height	2860 mm
Dimensions L x D without chip conveyer	2570 x 3840 mm
Weight	6000 kg

* Values measured at 22°C with the machine fixed to the ground. Machine with linear scales – distance compensation with laser and motor encoders in the turning axis.

beyond standard

EMCO GmbH / Salzburger Str. 80 / 5400 Hallein-Taxach / Austria / T +43 6245891-0 / F +43 624586965 / info@emco.at

www.emco-world.com