

**EMCO**



Universal machining center  
for 5-axis machining



**UMILL 750**

# COMPACT UNIVERSAL MACHINING CENTER

Equipped with a front table support, the Umill 750 – our new universal and vertical CNC machining center – is capable of milling parts featuring an edge size of 530 x 530 x 417 mm and a weight of up to 400 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, guarantees the maximum in rigidity and thermosymmetry and the highest precision and an excellent surface quality of the workpiece. With its important technological and architectural innovations, the new Umill 750 creates optimum conditions for high-quality production.



Distributor (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 B- and C-axes
- / Swivel range of the B-axis: +/- 100°
- / Front support included in the standard scope of supply
- / Axis with two absolute encoders

## 3 SPINDLE

- / Motor spindle: 15000 rpm



/ Vladimir Farkas  
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 available immediately at fair conditions.”*



## 4 ERGONOMIC OPERATING PANEL

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

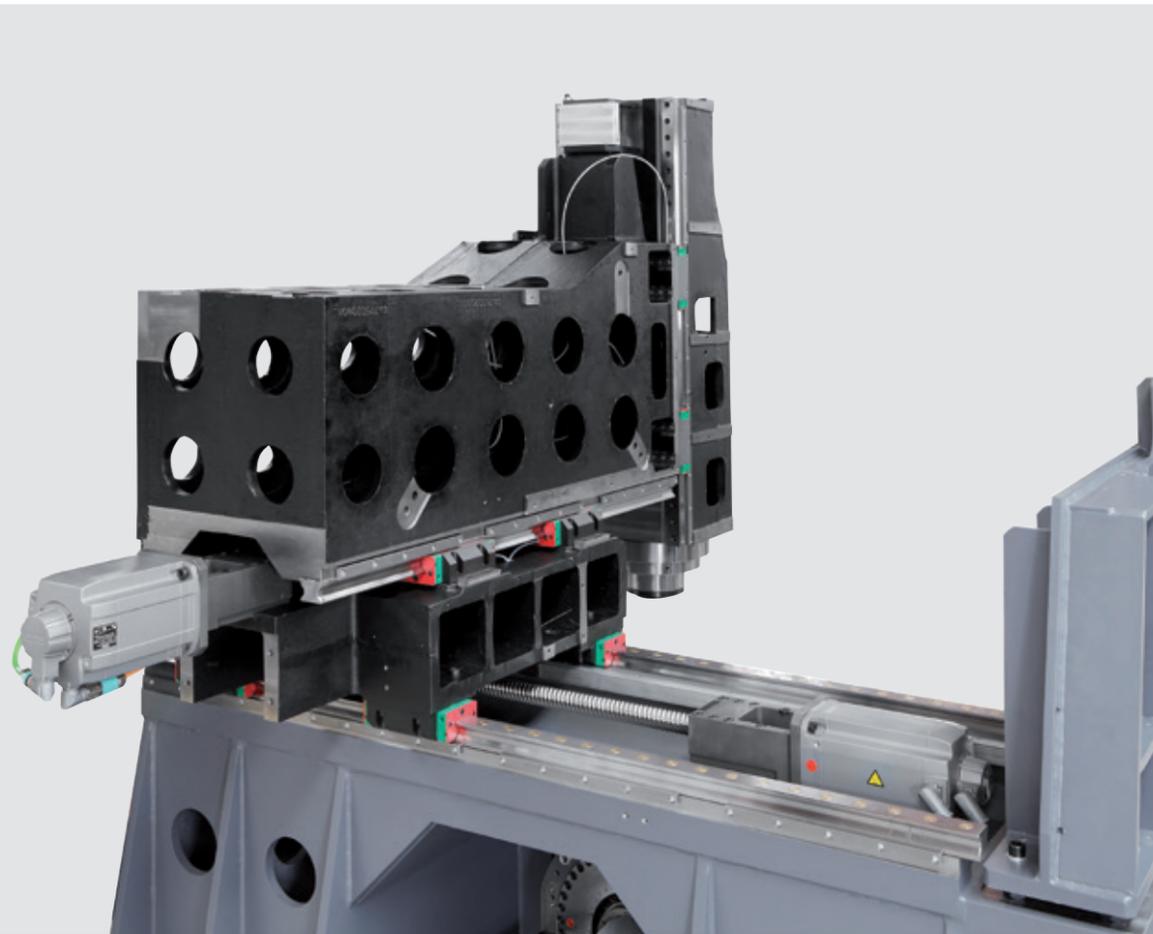
## 5 TOOL CHANGER

- / Tool changer with 40 tool stations
- / Tool changer with 60/90 tool stations available as option

## 6 CHIP REMOVAL

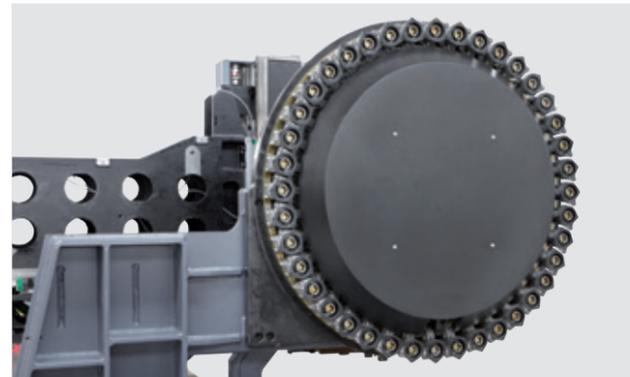
- / The chip removal can be handled by an optionally available hinge-type chip conveyer

# TECHNICAL HIGHLIGHTS



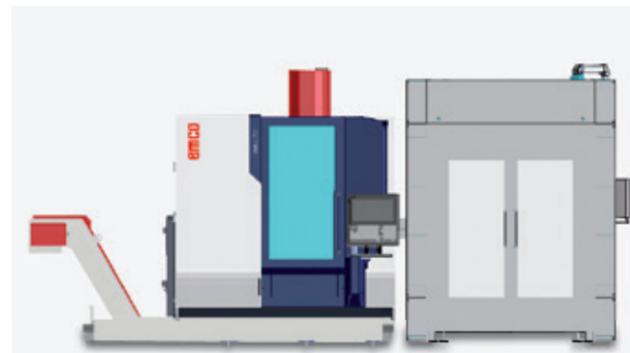
## DIRECT DRIVES

The direct drives in X-, Y- and Z-axis allow to reach high performances in acceleration ( $6 \text{ m/s}^2$ ) and in rapid motion speeds ( $50 \text{ m/min}$ ). In addition, this ensures maximum precision and high dynamics.



## TOOL CHANGER

The tool changer of the Umill 750 is a drum magazine for 40 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 sizes 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. The machine design is flexible designed for automatic loading from the side or front.



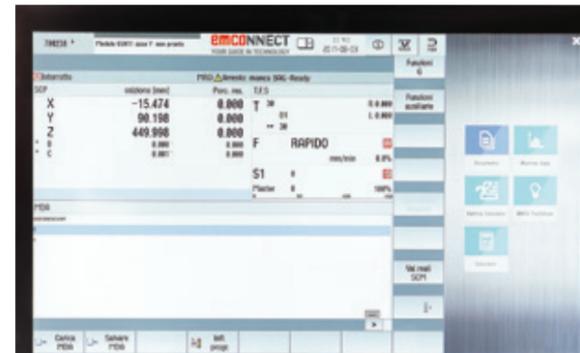
## SWIVEL-ROTARY TABLE

The swivel-rotary table has a large clamping area of  $750 \times 600 \text{ mm}$  ( $29.5 \times 23.6''$ ) and can bear loads of up to  $400 \text{ kg}$  ( $881.8 \text{ lb}$ ) thanks to the front table support. This makes it possible to simply machine workpieces with an edge size of  $530 \times 530 \times 417 \text{ mm}$  ( $20.8 \times 20.8 \times 16.4''$ ). 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  $\pm 100''$ , the B-axis provides a larger work area than most products from other manufacturers. The C-axis can be infinitely rotated by  $360''$ .



## SINUMERIK

The Sinumerik 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, direct measuring systems and front support, dimensions of  $750 \times 600 \text{ mm}$  provide high stability and precision
- / Wide swivelling range  $\pm 100''$
- / Standard linear scales in X-Y-Z
- / Cutting-edge control technology from Siemens or Heidenhain
- / EMCONNECT available for Sinumerik
- / 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 production environment must also be connected perfectly and safely in order to ensure efficient procedures during the production process. With EMCONNECT, the machine is optimally equipped for this purpose. The optional EMCONNECT Digital Services offer innovative online services for optimized machine operation. The user has always the control of the machine status. The automatic notification in case of malfunctions or standstill of the machine as well as the extended capabilities for remote maintenance, minimise downtimes.

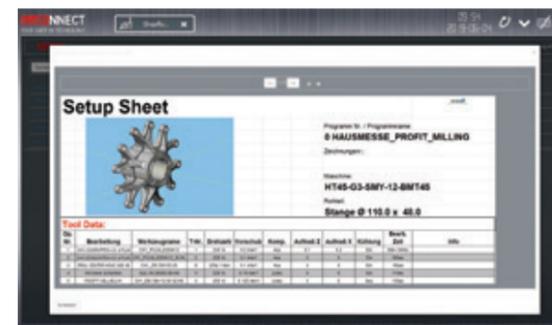
## Integration into control

EMCONNECT offers several possibilities of operation according to different situations. For quick access, apps may be used simultaneously in the side panel of 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 applications, data and documents. In this way, EMCONNECT makes an important contribution to a highly efficient processing at the machine.



## Comprehensive connectivity options

With the remote support, the web browser and the remote desktop, there are numerous connectivity options, even beyond the direct production environment. With the help of the integrated remote support, it is easily possible to carry out the remote diagnosis and remote maintenance. The optionally available OPC UA interface enables data exchange with the IT system environment and interaction with other machines for automation at shop floor level.

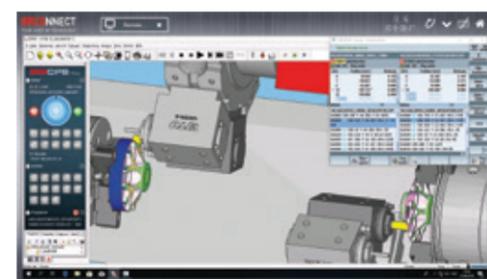
## EMCONNECT HIGHLIGHTS AND FUNCTIONS

- / 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 data
- / Future-proof**  
Continuous extensions as well as easy updates and upgrades

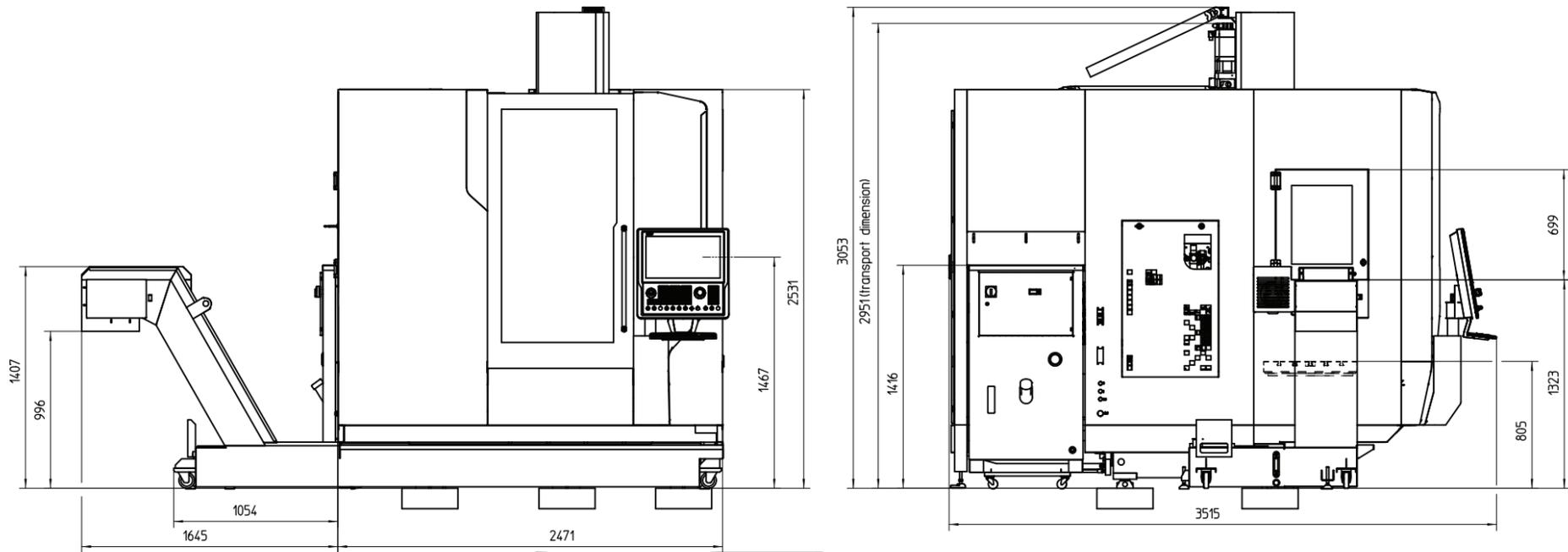
## Standard Apps

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

## Optional

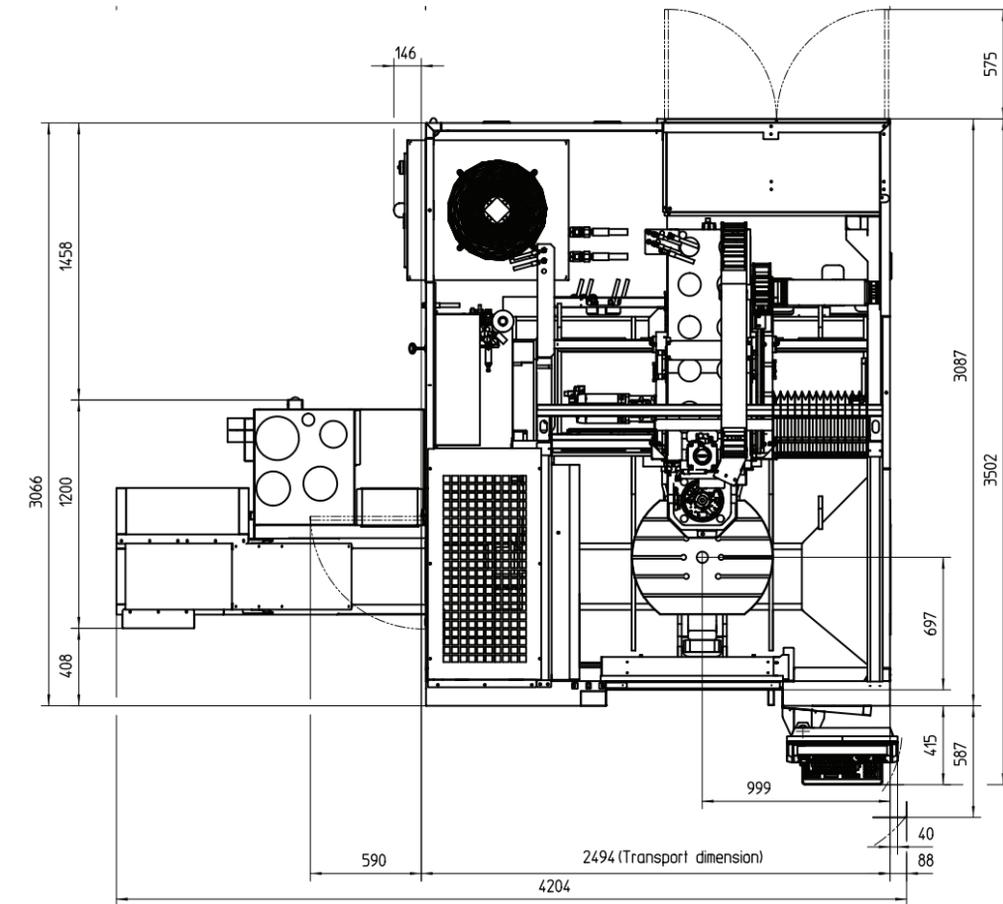


# INSTALLATION PLAN



Indications in millimetres

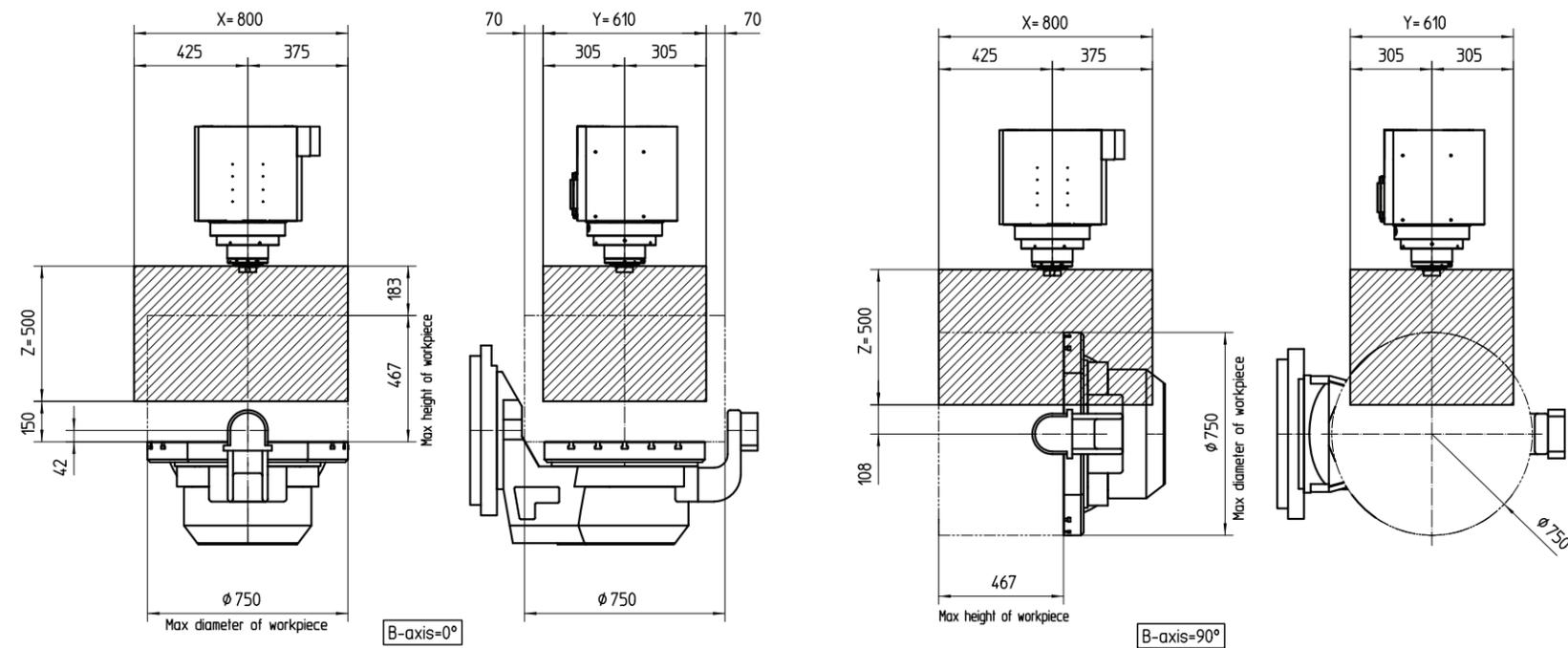
# INSTALLATION PLAN



Machine with optional equipment

Indications in millimetres

# WORK AREA



Travel



Workpiece dimensions

Indications in millimetres

# TECHNICAL DATA

## Travel and tolerances

|   |              |
|---|--------------|
| Travel in X   | 750 + 50 mm  |
| Travel in Y   | 610 mm       |
| Travel in Z   | 500 mm       |
| Distance spindle nose – table (min. – max. / motor spindle) | 150 / 650 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/s <sup>2</sup> |

## Tilting table

|   |              |
|---|--------------|
| Clamping area                               | 750 x 600 mm |
| Table-floor distance                        | 812 mm       |
| Slot number                                 | 5            |
| Distance between two T-slots                | 100 mm       |
| Groove wide                                 | 14 mm        |
| Max. workpiece weight (equally distributed) | 400 kg       |

## Main spindle (motor spindle)

|                        |                         |
|------------------------|-------------------------|
| Speed range            | 50 – 15000 rpm          |
| Maximum spindle torque | 100 Nm                  |
| Maximum spindle power  | 26 kW                   |
| Tool taper             | HSK-A63 (ISO 40, BT 40) |

## Tool magazine

|  |                      |
|--|----------------------|
| Number of tool stations                              | 40 (60/90)           |
| Tool changing type                                   | double-armed gripper |
| Tool management                                      | random               |
| Tool changing time (tool-tool) according to VDI 2852 | 5.4 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          | 250 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 l/min |

## Lubrication

|                   |        |
|-------------------|--------|
| Spindle           | Grease |
| Caged roller ways | Grease |
| Ball screws       | Grease |

## Dimensions

|  |                |
|--|----------------|
| Total height                           | 3060 mm        |
| Dimensions L x D without chip conveyer | 2590 x 3680 mm |
| Weight                                 | 9000 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 /

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