

EMCO



HYPERTURN 95/110

The new generation of
'multitasking machines'
for the highest levels of
productivity and flexibility



/ HIGH- PERFORMANCE TURNING AND MILLING CENTRE

The Hyperturn 95/110 was designed to enable further increases in productivity in mass production. Whether rod, shaft, flange, or cubic parts, the modular design of the Hyperturn 95/110 models covers a wide range of machining tasks. It is particularly suited to the series production of workpieces in the automotive industry, mechanical engineering, plain-bearing technology, and aviation.



Radial cam housing
(tempered steel)

1 MAIN SPINDLE

- / A choice of 2 spindle solutions: A2-8, A2-11
- / Main drive power up to 52 kW (A2-11)
- / High torque up to 2480 Nm (A2-11)
- / Large speed range up to 3500 rpm (A2-8)
- / Bar capacity diameter 95 mm (A2-8)
- / Liquid-cooled headstock
- / Stable and robust spindle bearings

2 CONTROL UNIT

- / Sinumerik 840D sl
- / USB interface on the control panel
- / EMCO diagnosis
- / Pivotal and mobile
- / 22" multi-touch display incl. IPC and EMCONNECT process assistant

3 MACHINE COVER

- / All-round protection
- / Optimum accessibility
- / Large work space opening
- / Suitable for loading from above
- / Chip conveyor and HD coolant pumps as standard



Machine with optional equipment

4 UPPER TOOL TURRET

- / 12-station tool turret
- / Max. turning diameter up to 650 mm
- / Completely covered guides
- / VDI40 quick-change system
- / BMT or CDI connection (optional)
- / 12 driven tool stations
- / Direct drive for driven tools (optional)
- / Servo-controlled - short indexing times
- / Both spindles in use

5 LOWER TOOL TURRET

- / 12-station tool turret
- / Max. turning diameter up to 650 mm
- / Completely covered guides
- / VDI40 quick-change system
- / BMT or CDI connection (optional)
- / 12 driven tool stations
- / Direct drive for driven tools (optional)
- / Servo-controlled - short indexing times
- / Both spindles in use

6 COUNTER SPINDLE

- / A choice of 2 spindle solutions: A2-8, A2-11
- / Up to 42 kW power with high torque up to 1040 Nm (A2-11)
- / Large speed range up to 3500 rpm and up to 30 kW power (A2-8)
- / Same connection for main and counter spindle
- / Partial hollow clamping
- / Liquid-cooled headstock
- / Stable and robust spindle bearings

STRUCTURE

1 MACHINE STRUCTURE

- / Torsion-resistant welded steel construction
- / Machine bed filled with polymer concrete
- / Roller guides in all linear axes
- / Large guide distances
- / Large guide rails

2 MILLING SPINDLE

- / Powerful milling spindle 21.5 kW
- / Wide speed range 0 - 7000 (opt. 12000) rpm
- / Water-cooled motor spindle with HSK-T63 (PSC63)
- / Internal and external coolant supply
- / Clamping in any angular position

3 TOOL TURRET

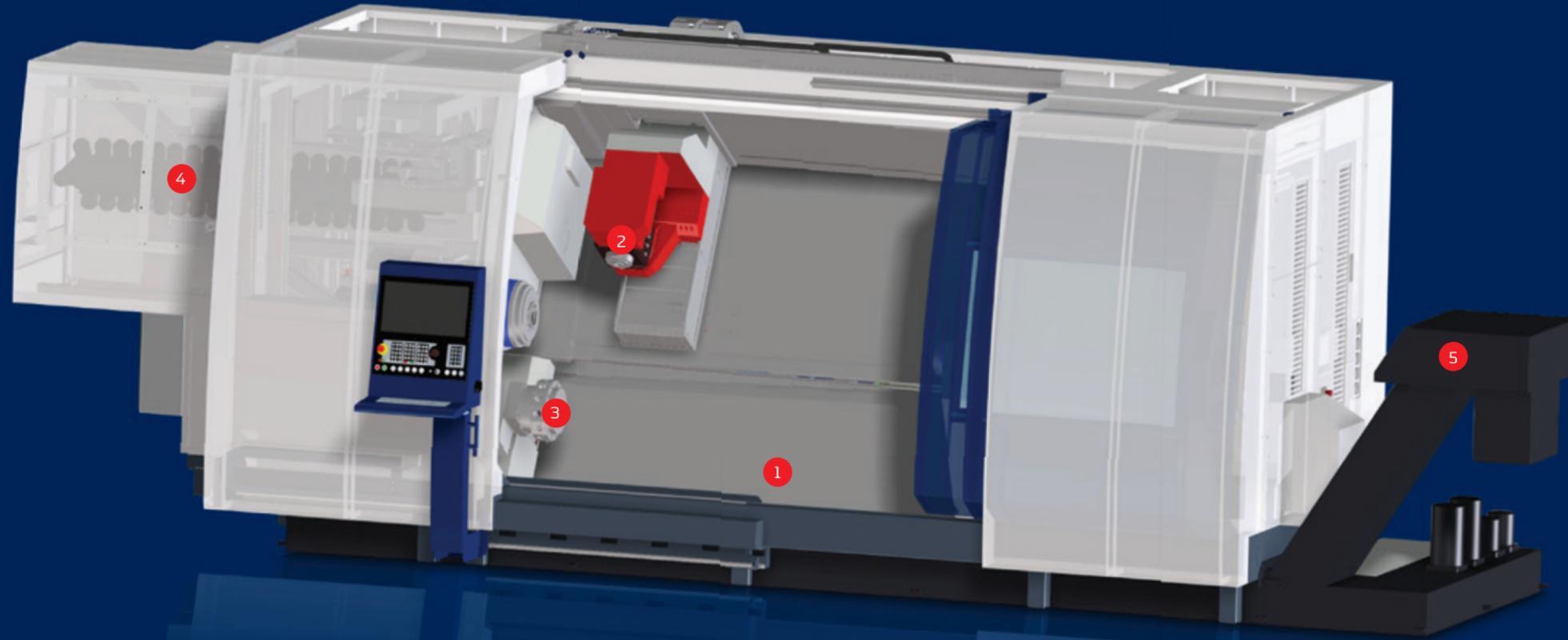
- / 12-fold VDI40 with quick-change system
- / All positions driven
- / Optional with BMT65 interface and water-cooled direct drive

4 TOOL MAGAZINE

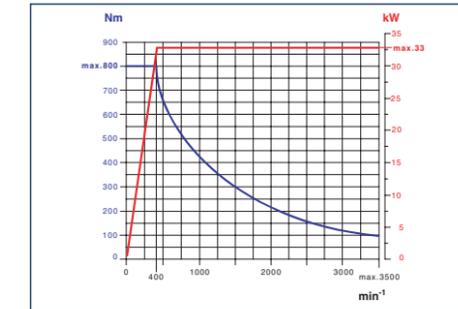
- / Integrated tool magazine for 40/80 places
- / Optimum access for inspection and manual loading of the magazine

5 CHIP CONVEYOR

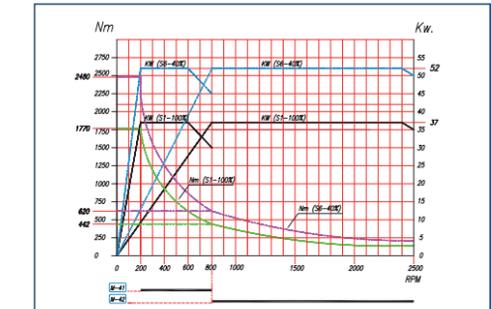
- / Hinged belt conveyor
- / Integrated coolant tank 690/740 l
- / Pumps for turret/milling spindle 2 x 14 bar
- / Pumps for flushing 2 x 6 bar
- / Optional paper belt filter and HP pumps up to 80 bar



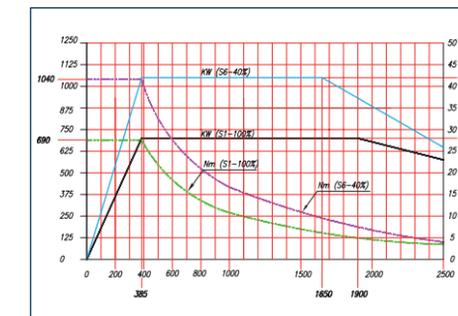
Power and Torque



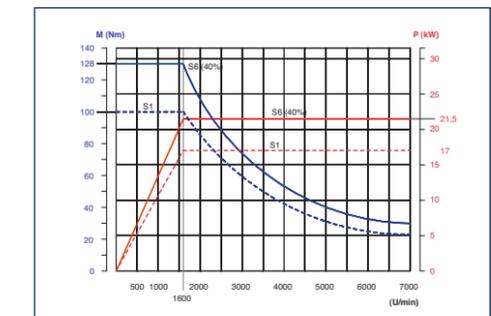
Main spindle A2-8 – counter spindle A2-8



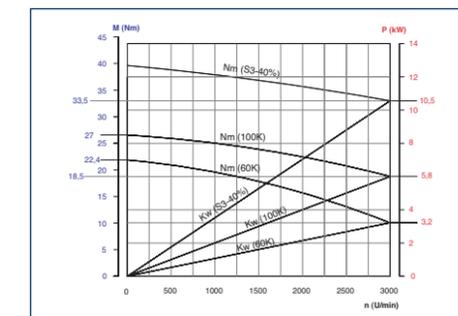
Main spindle A2-11



Counter spindle A2-11

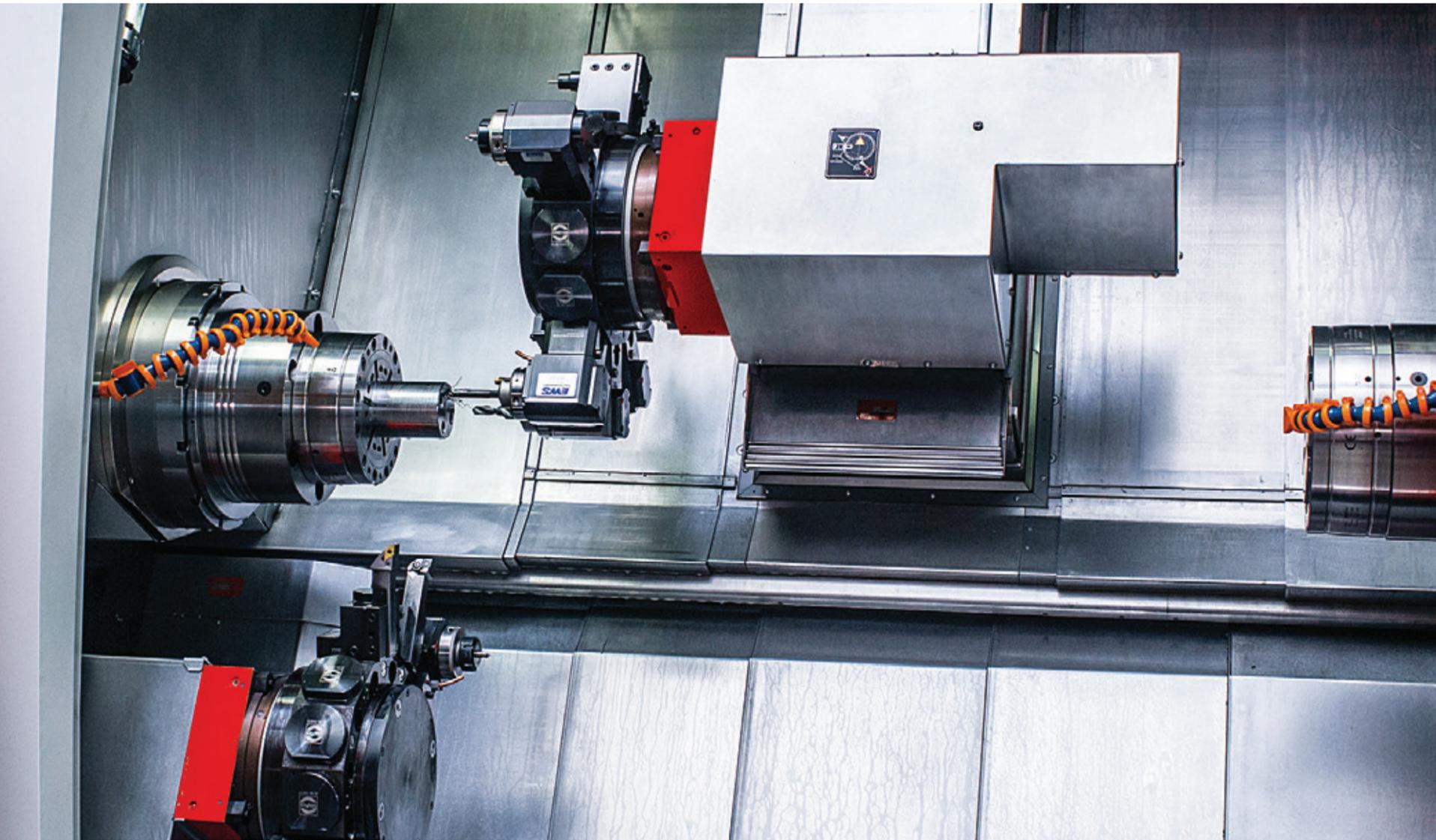


PowerMill milling spindle



Tool turret, upper/lower VDI 40

TECHNICAL HIGHLIGHTS



MODULAR SYSTEM

For complex, complete machining, a modular system with two bed lengths (1700 or 2300 mm), two spindle sizes, a milling spindle and a B-axis or two turrets is also available.

HIGHLIGHTS

- / 2x A2-8" water-cooled main and counter spindle
- / 2x A2-11" powerful main and counter spindle
- / 2x 12-fold tool turret with VDI 40 quick-change system
- / Optionally with BMT turret and direct drive up to 6000 rpm
- / Y-axes for machining complex turned / milled parts
- / Bar feeding up to \varnothing 95/110 mm
- / Optimum chip flow and user-friendly work area
- / Highest drive and control performance



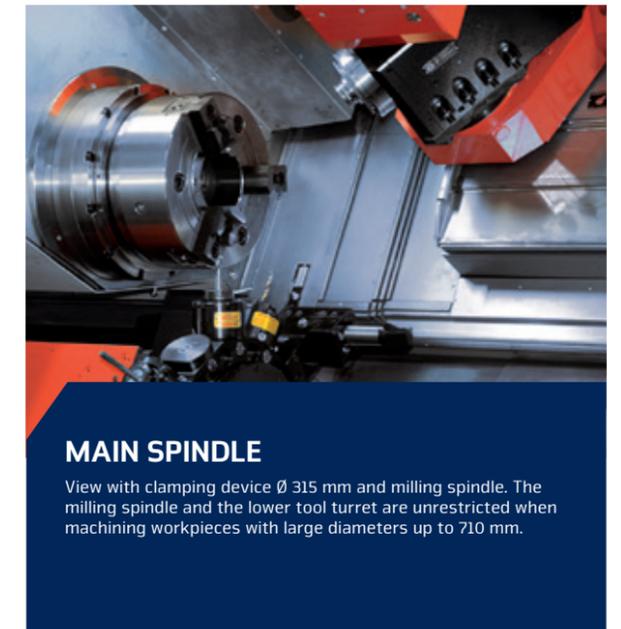
COUNTER SPINDLE

View with 6-position jaw chuck \varnothing 500 mm. The upper turret is replaced by a 21 kW liquid-cooled milling spindle in the B axis version. The B axis travel range is 210°. This is infinitely variable with a 0.001° resolution. In addition, the B axis can be clamped in any position and indexed in a 5° division.



WORK AREA

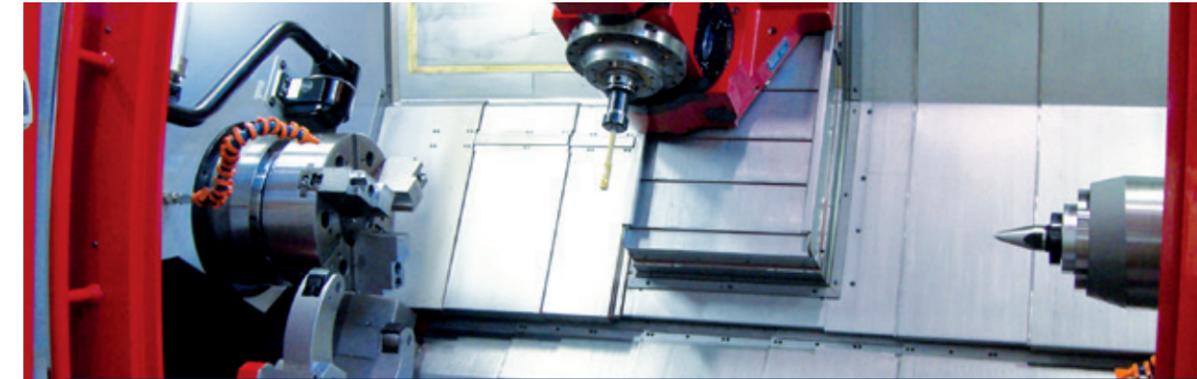
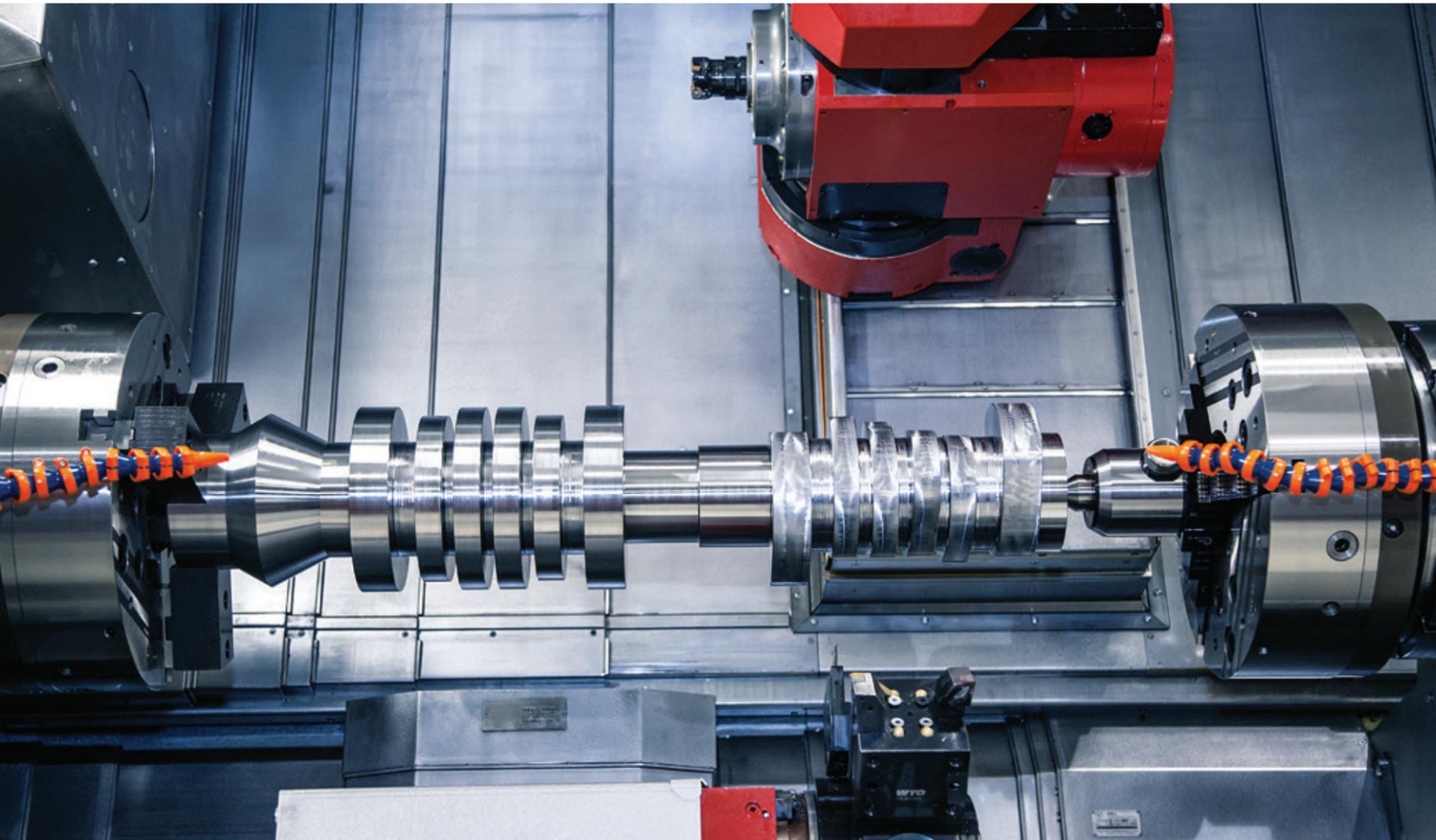
The work area provides the highest level of ergonomics with excellent accessibility to the individual components. Generous amounts of free space ensure optimal chip flow, even when machining complex materials. All guides are covered in stainless steel sheets to prevent damage.



MAIN SPINDLE

View with clamping device \varnothing 315 mm and milling spindle. The milling spindle and the lower tool turret are unrestricted when machining workpieces with large diameters up to 710 mm.

TECHNICAL HIGHLIGHTS

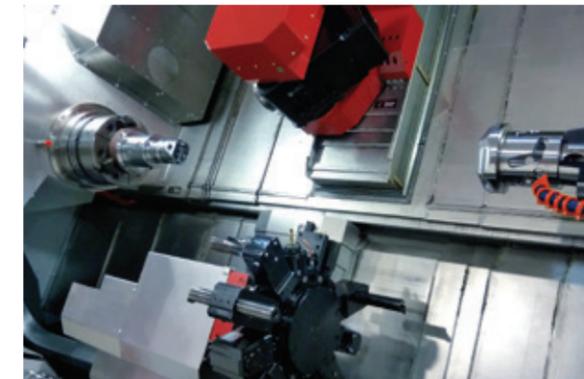


MODULAR MACHINE CONCEPT

The modular machine concept also enables the use of a tailstock in combination with an NC-controlled steady rest instead of the lower tool turret, depending on the customer's requirements. The steady rest can be hydraulically lowered of 250 mm if required.

HIGHLIGHTS

- / Main and counter spindle for complex complete machining
- / Milling spindle with HSK63 or PSC63 interface
- / Turret with VDI40 or BMT65 direct drive
- / Large work area for optimal ergonomics and a wider range of parts
- / Stable and precise C-axis for accurate contour milling & milling-turning work
- / Strong Y-axis with a large stroke
- / Dynamic B-axis with „PowerMill“ milling spindle for maximum flexibility
- / Full NC tailstock with integrated quill for complete machining of shafts



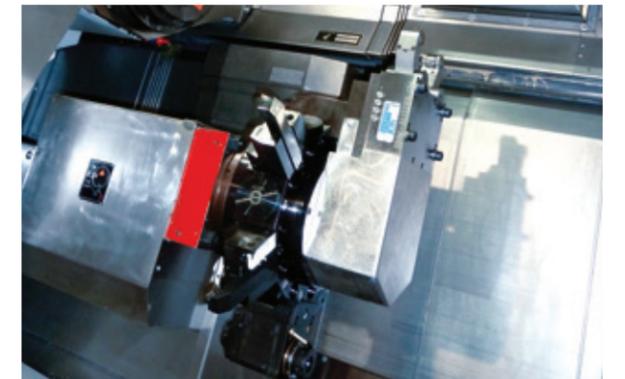
12-FOLD SERVO TURRET

Fast indexing 12 station tool turret for standardized VDI40 or CDI80 (CAPTO) tooling. All stations can be used with driven tools for drilling, milling and tapping operations. The turret indexing movement can be controlled by the operator at any time. The maximum turning diameter for the lower turret is 650 mm.



TOOL MAGAZINE

Tool magazine with 80 pockets integrated to machine layout.



TURRET STEADY REST

Hydraulically operated steady rest for diameter 8 – 125 mm to guarantee highest flexibility when machining shafts.

NETWORKS ARE CREATED INDIVIDUALLY – OUR SOLUTIONS AS WELL



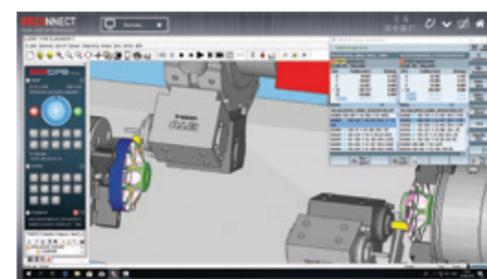
Staying in touch is important not only among human beings. Persons, machines and the whole production environment must also be connected perfectly and safely in order to ensure efficient procedures during the production process. With EMCONNECT, the machine is optimally equipped for this purpose. The 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

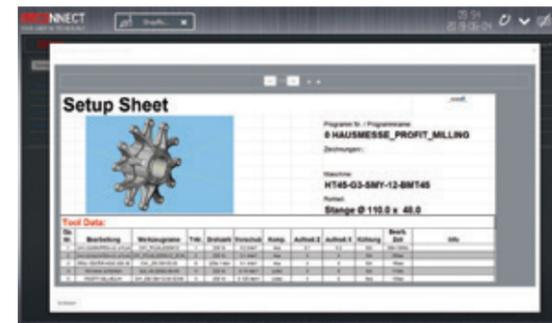
EMCONNECT offers several possibilities of operation according to different situations. For quick access, apps may be used simultaneously in the side panel of controlling.

In this way, you can always look at your familiar numerical control, the well-known centrepiece of the machine.



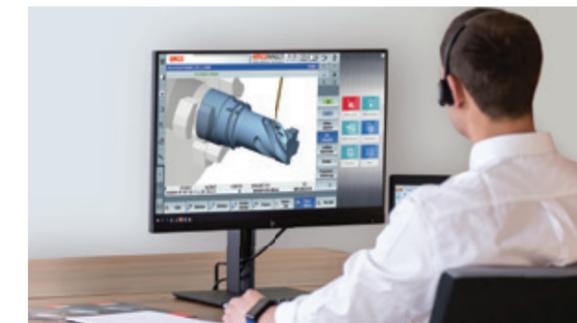
An innovative concept

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

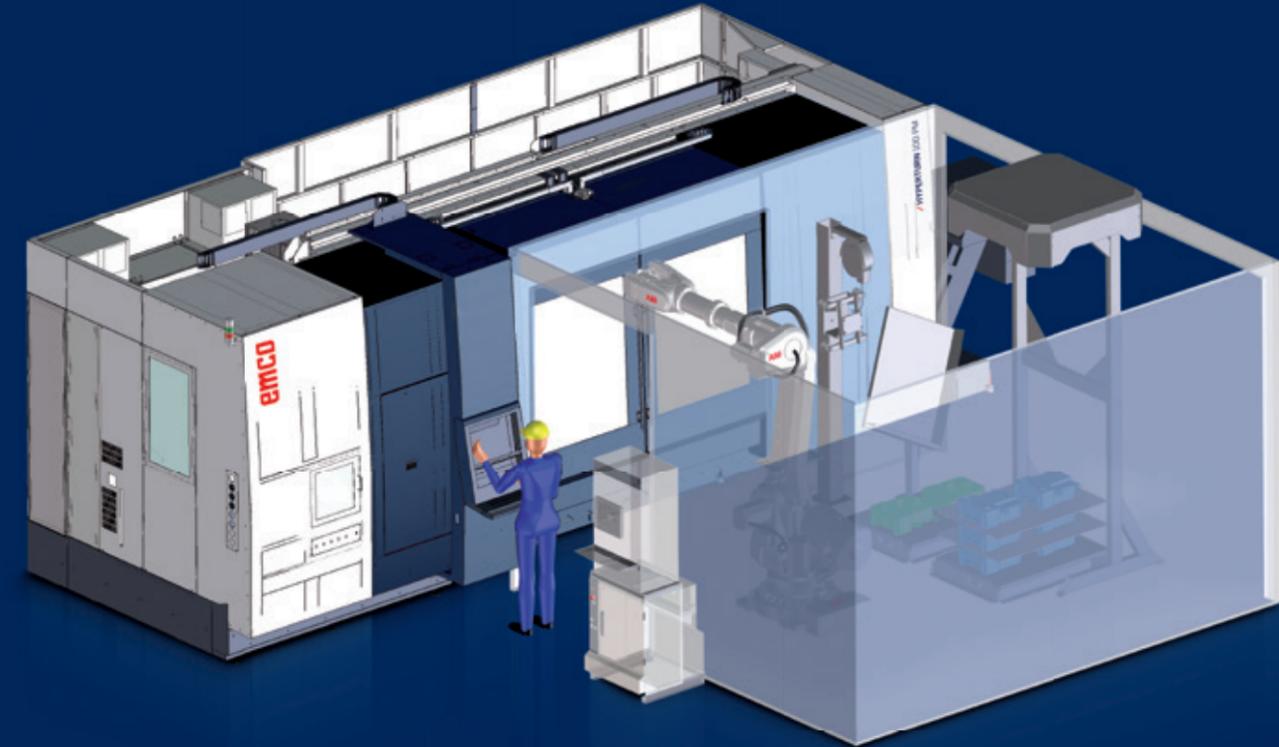
Standard-Apps

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



EMCO AUTOMATION SOLUTIONS: OPTIMIZATION OF PRODUCTION PROCESSES WITH HIGH-LEVEL FLEXIBILITY



ADVANTAGES

- / Fully automatic loading and unloading of the workpieces
- / Multi-channel Sinumerik control incl. user cycles
- / Seamless interplay between the machine tool and the loading device
- / Various possibilities of customer-specific adaptation
- / Possibility of integration of measuring station, signing station, cleaning station, etc.
- / Reduction of the set-up time thanks to the loading hatch
- / Worldwide service

NONSTOP RETURN ON INVESTMENT

EMCO solutions focus on customer-specific requirements.

The perfect implementation of customer-specific requirements shortens production times. The compact installation dimensions of 8900 x 7200 mm optimally match the conditions in production. The robot head change with various grippers, the flexible self-centering solution for different parts, the combination of parts through the tool turret and the B-axis extend the system and meet the demand for high productivity. Pallet scanners for blanks enable oriented loading of the blanks into the machine and increase the autonomy for unattended production.



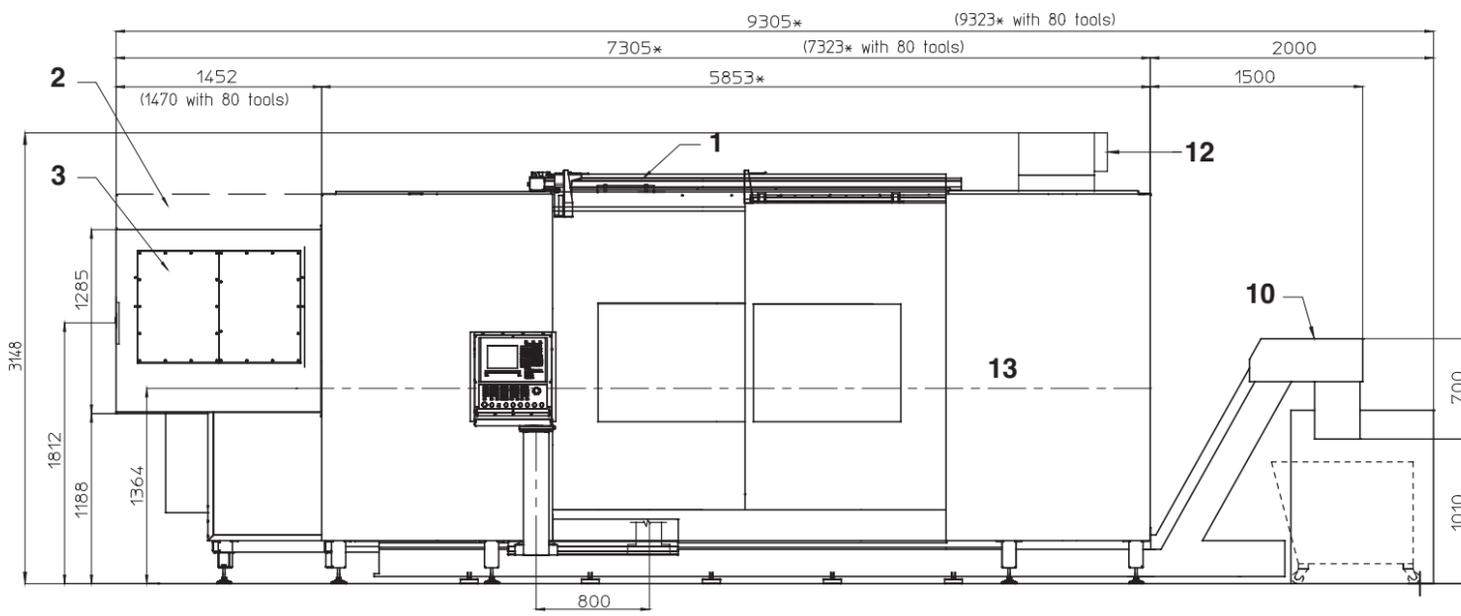
In cooperation with ABB, the robot IRB6700 / 245 kg, the pallet system FLEXLOADER FP800 with 2D / 3D camera and the completion of the system from the baking station with automatic changeover are the basis for a perfect result that meets the customer's requirements.



The very short set-up times, the optimal software solution and the user-friendliness with highest safety are the decisive factors for a profitable production.

MACHINE LAYOUT

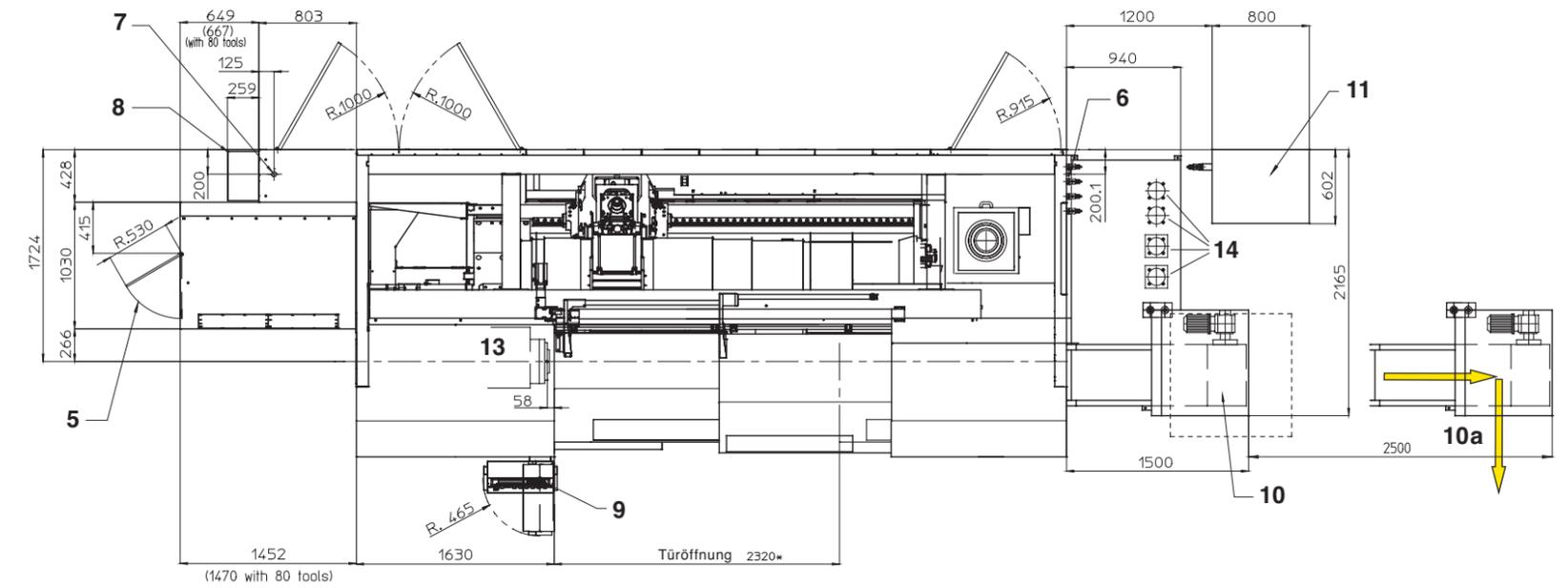
Machine layout HT95/110 PM



Indications in millimetres

MACHINE LAYOUT

Machine layout HT95/110 DT



Space for operation
maintenance:
app. 12000 x 4200 mm

Indications in millimetres

TECHNICAL DATA

Work area

Swing over bed	720 mm
Distance between spindle noses	1700 / 2300 mm
Max. turning diameter	710 mm

Travel

Travel in X1 with B-axis / X2	+540/-10 (340) / 300 mm
Travel in Z1 with B-axis / with tool turret / Z2	1300/1900 (1340/1940) / 1340/1940 mm
Counter spindle travel	1360/1960 mm

Main spindle

Spindle range	3500 (400) / 2500 (200) mm
Max. torque	580/800 / 1770/2480 Nm
Spindle connection DIN 55026	A2-8 / A2-11
Spindle diameter in front bearing	160 / 190 mm
Spindle diameter in rear bearing	140 / 170 mm

Counter spindle

Spindle range	3500 (400) / 2500 (200) mm
Max. torque	580/800 / 690/1040 Nm
Spindle nose DIN 55026	A2-8 / A2-11
Spindle diameter in front bearing	160 / 190 mm
Spindle diameter in rear bearing	140 / 170 mm

C-axis

Angular resolution	0,001°
Rapid traverse speed	1000 rpm

Drive Power

Main spindle (AC hollow spindle motor)	24/33 / 37/52 kW
Counter spindle (AC hollow spindle motor)	24/33 / 28/42 kW

B-axis

Travel range	210°
Max. detent torque for clamping	3600 Nm
Max. torque	100 / 128 Nm (75 / 105 Opt.)

Tool magazine

Tool magazine stations	20 / 40 / 80 mm
Max. tool diameter	80 (120) mm
Max. tool length	250 mm
Max. tool weigh	5 kg

Tool turret with BMT interface and direct drive

Number of tool stations	12
Precision interface	BMT-65P
Tool cross section for square tools	25 x 25 mm
Shank diameter for boring bars	40 mm
Tool change time	0,5 sec.
Speed range of driven tools	0 – 6000 rpm
Torque of driven tools	80 Nm
Drive power of the driven tools	28 kW

Feed drives

Rapid motion speed X1 / X2	30 m/min
Rapid motion speed Z1 / Z2	30 m/min
Feed force X1 / X2	1640 N
Feed force Z1 / Z2	1640 N
Feed force counter spindle	1640 N

Coolant system

Tank volume	690 / 740 l
Coolant pressure	14 bar
Feed rate 14 bar / 6 bar	10/60 l/min

Power consumption

Connected load	63 kVA
Compressed air connection	6 bar

Dimensions/weight

Height of center above floor	1364 mm
Overall height	2890 mm
Dimension (with chip conveyor) L x D	8705 / 9305 x 3160 mm
Total weight	18000-22000 kg

Safety devices CE compliant

beyond standard /

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