

EMCO



HYPERTURN 65 PM

High-performance turning/milling center for complete machining



HIGH-PERFORMANCE TURNING/ MILLING CENTER

More clearance, more power, more possibilities: with a spindle distance of 1400 mm, a powerful counter spindle which also allows 4-axis machining, a B-axis with a direct drive for complex 5-axis simultaneous milling operations and all proven, high-quality features of the Hyperturn series, the Hyperturn 65 Powermill is a powerful addition to every machine range.



Sprocket-wheel (Steel Ck 45)

1 MAIN SPINDLE

- / Integrated spindle motor (ISM) in synchronous technology - water-cooled
- / High drive power 29 kW
- / High torque 250 Nm
- / Large speed range 0 - 5000 rpm
- / Highly dynamic
- / Bar capacity diameter 65 (102) mm

2 MILLING SPINDLE

- / Powerful milling spindle 22 kW
- / Large speed range 0-12000 rpm
- / Water-cooled motor spindle with HSK-T63
- / Internal and external coolant supply
- / B-axis with zero backlash direct drive
- / B-axis position can be fixed in any position

3 TOOL MAGAZINE

- / 40/80/120-slot chain-type tool magazine
- / Ergonomically arranged up front
- / Easy to be manually loaded with tooling
- / Max. tool length 350 mm
- / Max. tool diameter 80 (120) mm
- / Max. tool weight 12 kg

4 COUNTER SPINDLE

- / Integrated spindle motor (ISM) in synchronous technology - water-cooled
- / High drive power 29 kW
- / High torque 250 Nm
- / Wide speed range 0-5000 rpm
- / Coolant feed internal for flushing
- / Automatic part ejector

5 UPPER Y-AXIS

- / Large working stroke + / - 120 mm
- / Short cantilever length
- / Pre-loaded roller guides
- / Large guide clearance

6 CONTROL

- / Ergonomically arranged
- / Can be rotated by 90°
- / Height adjustment: +/- 100 mm
- / Sinumerik 840D sl
- / 22" multi-touch display including IPC and EMCONNECT process assistant

7 CHIP CONVEYOR

- / Hinged type conveyor belt
- / Throw-off height 1200 mm

8 COOLANT SYSTEM

- / 980 l band filter system
- / 980 + 200 l coolant volume
- / 25 bar milling spindle process pump
- / 25 bar turret process pump
- / 3x 4.3 bar purge pumps

9 SMALL GANTRY

- / Integrated workpiece unloading device
- / Servo-controlled horizontal/vertical movements
- / Waste piece removal from the main spindle
- / Max. workpiece size: ø100 x 400 mm
- / Max. workpiece weight: 10 kg

10 ACCUMULATION CONVEYOR FOR FINISHED PARTS + STORAGE AREA

- / Storage area: approx. 420 x 1350 mm
- / Max. weight load: 130 kg



DESIGN

1 MACHINE BED

- / Single-piece machine design
- / Torsion-resistant welded steel construction
- / Filled with HYDROPOL® special concrete

2 ROLLER GUIDES

- / In all linear axes
- / Large distance between the guides

3 MAIN SPINDLE

- / Large speed range
- / C-axis for milling operations
- / Additional holding brake
- / KK 6 (8) spindle connection
- / Hollow clamping system with stroke monitoring

4 COUNTER SPINDLE

- / Large speed range
- / C-axis for milling operations
- / Additional holding brake
- / KK 6 (8) spindle connection
- / Full clamping system with stroke monitoring
- / Parts ejector with stroke monitoring and coolant feed

5 MILLING SPINDLE

- / HSK-T63 tool interface
- / Max. tool length: 350 mm
- / Max. tool diameter: 80 (120) mm
- / Max. tool weight: 12 kg
- / Max. coolant pressure: 80 bar

6 TOOL TURRET

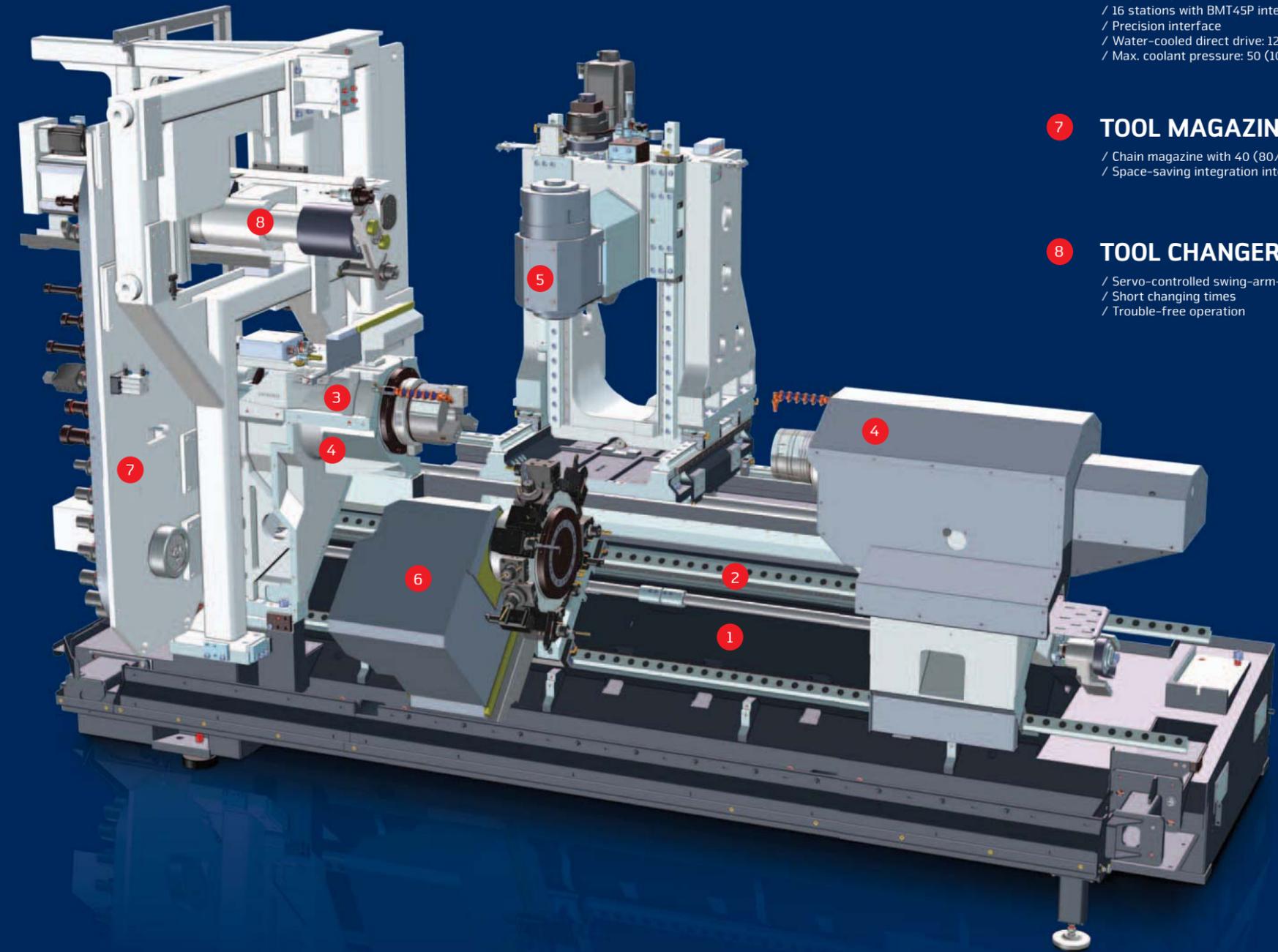
- / 12 stations with BMT55P interface
- / 16 stations with BMT45P interface
- / Precision interface
- / Water-cooled direct drive: 12000 rpm
- / Max. coolant pressure: 50 (100) bar

7 TOOL MAGAZINE

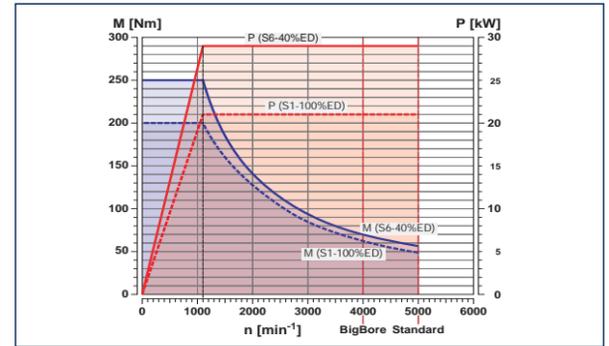
- / Chain magazine with 40 (80/120) tool holders
- / Space-saving integration into the basic machine

8 TOOL CHANGER

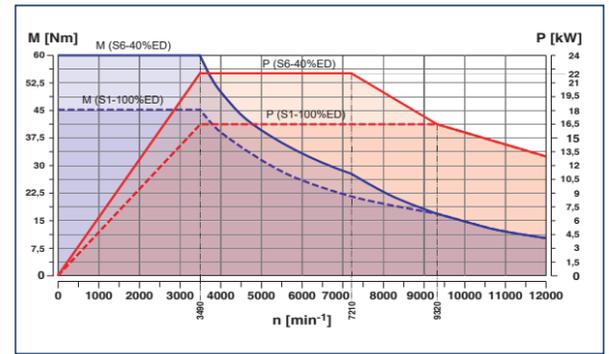
- / Servo-controlled swing-arm-type tool changer
- / Short changing times
- / Trouble-free operation



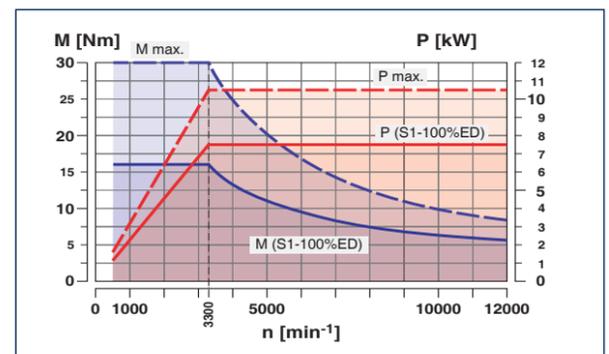
Power and Torque



Main and counter spindle \varnothing 65 mm

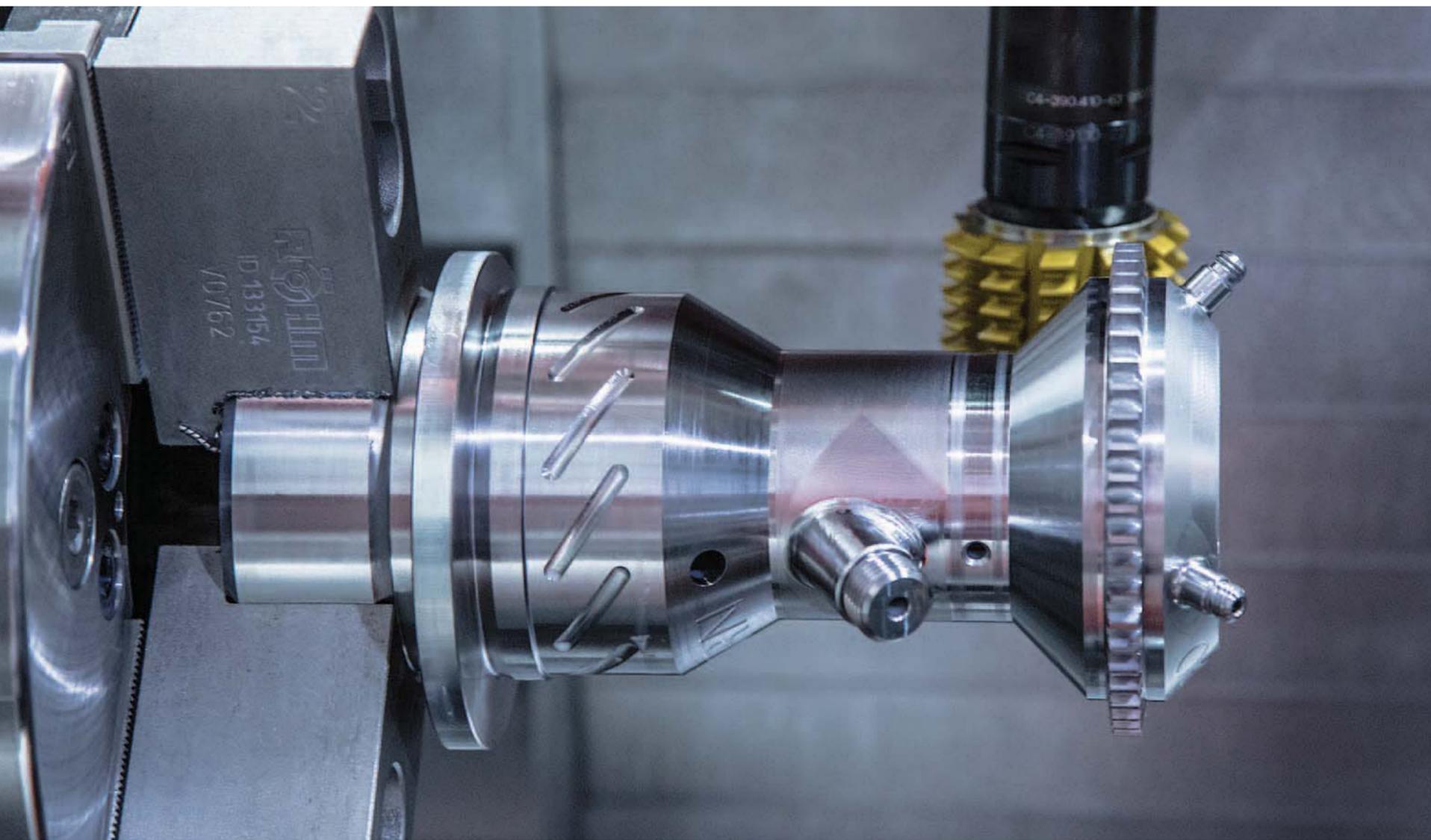


Milling spindle with max. 12000 rpm



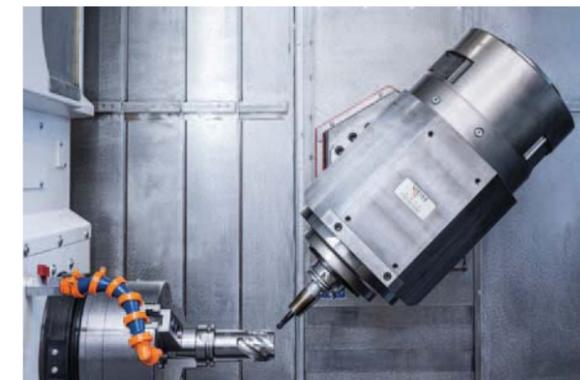
Direct milling drives in tool turret with BMT55P

TECHNICAL HIGHLIGHTS



MAIN SPINDLE

With an output of 29 kW and 250 Nm torque, the main spindle is powerful enough to machine from bar-stock up to a diameter of 65 mm and chuck parts up to a diameter of \varnothing 250 mm economically. A larger headstock with a bar capacity of 102 mm and a A2-8 spindle connection is available as an option.



MILLING SPINDLE

At 22 kW and 60 Nm and a max. speed of 12000 rpm, the HYPERTURN 65 Powermill supports state-of-the-art milling processes such as HSC or HPC. This means that complex turned and milled parts can be produced in an extremely efficient manner.



MANUAL TOOL CHANGING

Tools can be loaded into the tool magazines from the front. This avoids the need for the user to go to the rear of the machine. Also tool wear or break inspections can be handled in a timesaving way.



COUNTER SPINDLE

The moving counter spindle offers identical performance data to the main spindle. The mechanical disc brake is also included in the basic equipment level. Additionally, a stroke-monitored part ejector that is flooded with coolant is integrated into the spindle. This ensures a reliable, unmanned machining process.



TOOL MAGAZINE

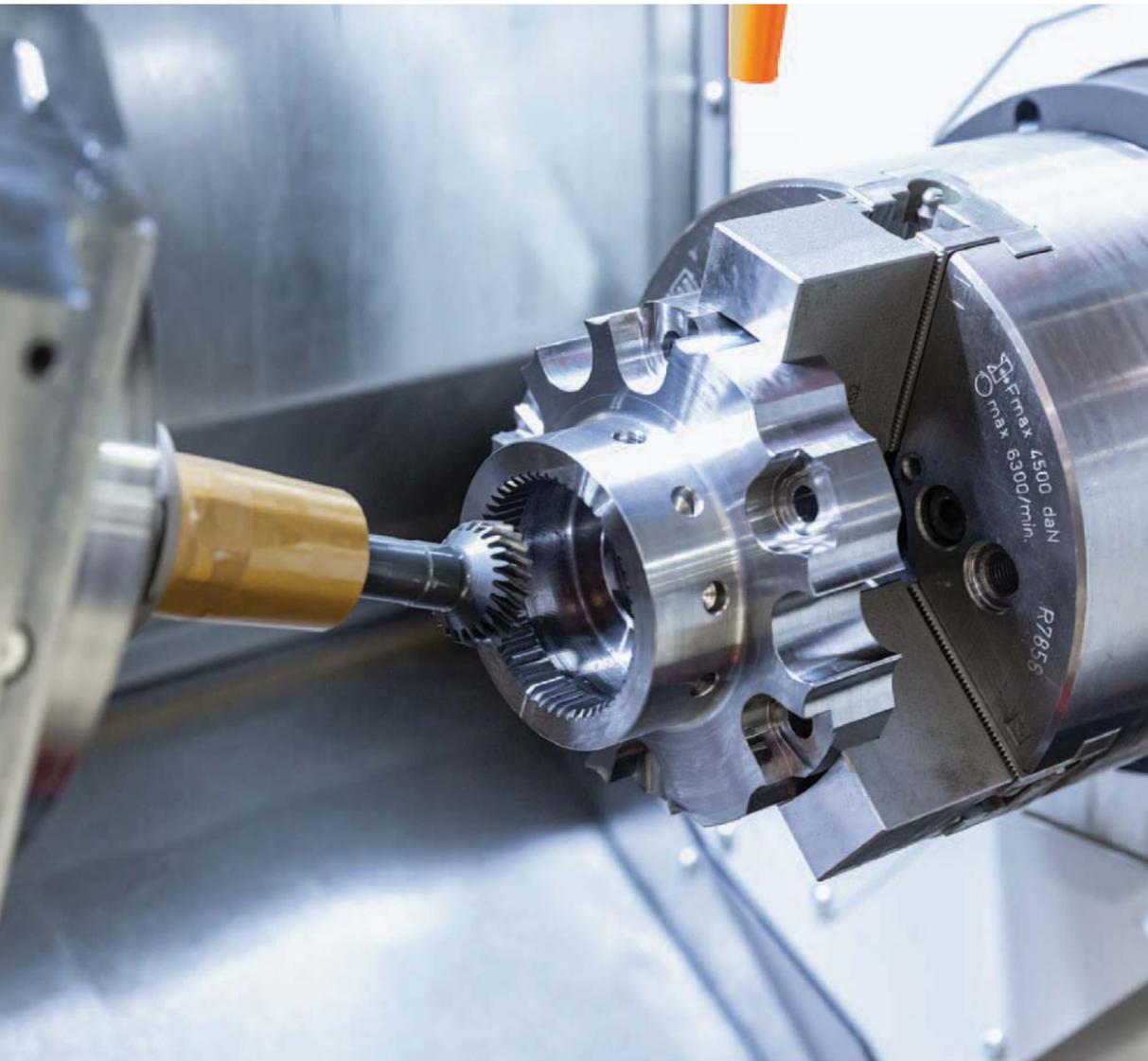
Depending on the version, the chain magazine can accommodate 40, 80 or 120 tool holders with HSK-A63 / HSK-T63 shaft. Easily accessible from the front, the magazine has been integrated in the machine housing without occupying too much space.



CONTROL UNIT

The Sinumerik 840D sl control unit is located on the right of the workspace on the HYPERTURN 65 Powermill in a sliding panel and can be swivelled in. This ensures maximum ergonomics for the set-up and running of the machine.

TECHNICAL HIGHLIGHTS



HOLDING BRAKE ON THE MAIN AND COUNTER SPINDLE

It is always the respective C-axis which is positioned for milling and drilling operations. Additionally, however, it is possible to clamp each spindle in any position.



CLAMPING STROKE CONTROL ON THE MAIN AND COUNTER SPINDLE

Thanks to the programmable clamping stroke control, the clamping positions of the two clamping cylinders can be easily taught in. As a consequence, handling works on the cylinders are no longer required. This leads in turn to shorter set-up times.



PARTS EJECTOR ON THE COUNTER SPINDLE

The parts ejector on the counter spindle is used to push the finished part into the collection tray. Reaching the front end position is monitored. What is more, the ejection tube is flushed with coolant to clean the clamping device / workpiece.



WORKROOM COVERS

Telescopic panels with force-guided shear kinematics guarantee jerk-free feed movements, even at high traverse speeds. The results: perfect workpiece surfaces and covers with an increased service life.



WORKROOM RINSING SYSTEM

Flexible coolant hoses on the main and counter spindle as well as additional rinsing nozzles in the workroom ensure an optimal chip flow.



MAINTENANCE CENTRE

The maintenance centre is located on the rear left-hand side of the machine. This is where the pneumatic unit and the hydraulic indicators are to be found. It is now possible to programme and determine the clamping pressures in the parts programme. The container for the central lubrication system has been incorporated into the lower area.

HIGHLIGHTS

- / High dynamics due to state-of-the-art spindle motor technology
- / All spindles liquid-cooled for optimum thermostability
- / High productivity due to short tool change times
- / Both tool systems can be used on both spindles
- / Bed design for maximum stability and oscillation damping
- / Excellent repeatability due to linear guides
- / Short set-up times due to ease of access to work area



MAGAZINE - COVER HOOD

If necessary, the cover of the tool magazine can be easily unlocked and opened. Thus, it is possible to check the tool changer and the magazine in case of need.

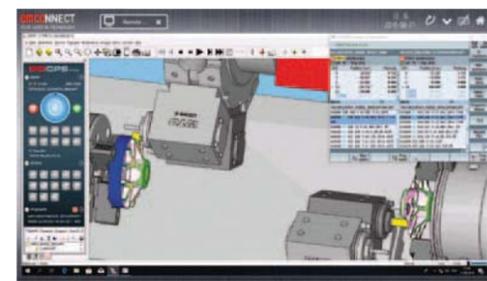
NETWORKS ARE CREATED INDIVIDUALLY. OUR SOLUTIONS AS WELL.

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).



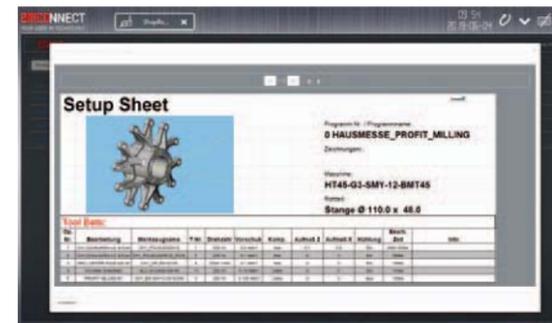
Integration into control

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 all on-site service activities and costly downtimes of your machines to a minimum.

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



/ Ing. Johann Brisker
Brisker GmbH

"All EMCO turning machines are automated with short bar or bar loaders, which frees up employees for other tasks and, as a consequence, increases productivity."

The EMCO short bar loaders. Universal and powerful.



SHORT AND TO THE POINT.

The EMCO SL1200 is the perfect solution for automatic feeding and loading of cut-to-length bars. The key advantages are a small footprint and rapid loading times resulting from shorter strokes.

The technology. The EMCO SL1200 can be used immediately as a "plug-and-play" solution. Their extremely small footprint enables processes to be automated even if space is tight. Apart from complying with the latest safety requirements, it is easy to operate and

moveable for service purposes. Besides, it can comfortably be incorporated into the production process using the machine control's programme input masks. Minimum setup efforts are required when switching over to other bar diameters.



EMCO SL1200

Space-saving and cost-effective bar loading magazine. Operation and programming could not be easier. May also be used for loading single items through the lathe's main spindle.



Material storage

The material storage surface with a length of 560 mm is arranged at the rear of the bar loader in a manner with no influence whatsoever on the space available. Depending on the diameter it is possible to store a different number of short bars.

THE BENEFITS

- / Small footprint
- / Easy to use
- / Short feed times
- / Fast, straightforward changeover
- / Option to load individual workpieces
- / Central diameter adjustment
- / The loader operates without oil
- / Ergonomic EMCO design

Technical data	SL1200
Bar diameter	Ø 8 – 95 mm
Max. bar length	1200 mm
Min. bar length	150 mm
Max. bar weight	45 kg
Material storage length	approx. 560 mm
Feed rate	0 – 60 m/min
Bar change time	approx. 15 sec.
Dimensions (L x W)	1700 x 1250 mm
Weight	approx. 500 kg

THE EMCO GANTRY LOADER. INDIVIDUAL PROCESS OPTIMIZATION.

- 1 GANTRY LOADER
- 2 PALLET MAGAZINE (20 stations)
- 3 GRIPPER SYSTEM



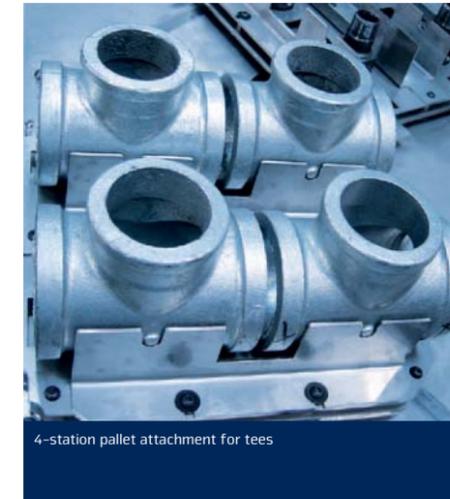
ADVANTAGES

- / 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
- / Varied possibilities of customer-specific adaptation
- / Possibility of integration of measuring station, signing station, cleaning station, etc.
- / Short spare time due to a loading hatch

AUTOMATIC RETURN ON INVESTMENT

Workpiece magazine

Blank-specific pallet attachments enable oriented loading of blanks into the machine and increase the parts stock for unmanned production. Changeover times are reduced or eliminated thanks to the perfect adjustment to the customer's parts.



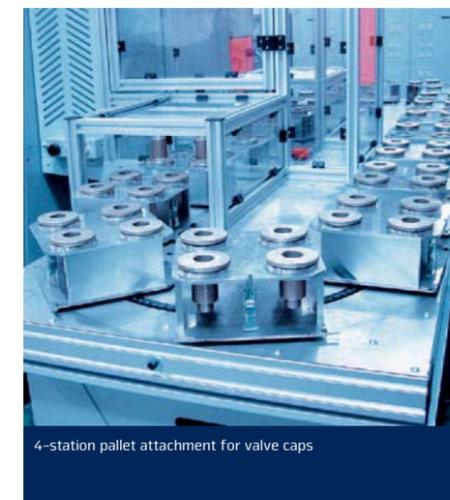
4-station pallet attachment for tees



6-station pallet attachment for articulated brackets



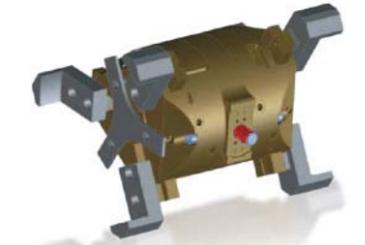
Multi-pallet attachment for a family of parts



4-station pallet attachment for valve caps



20-station pallet magazine with customer-specific pallets



2 x 3-jaw double gripper head



4 x 3-jaw gripper head



Shaft gripper head

OPTIONS



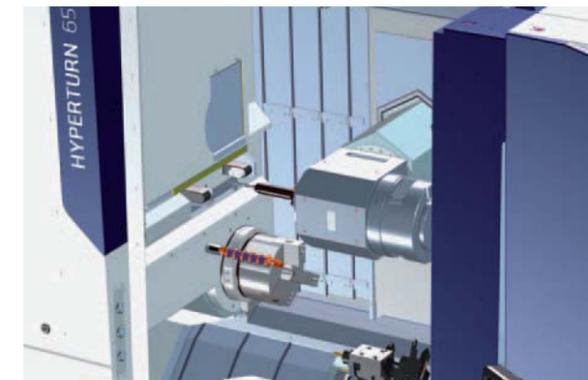
WORKPIECE PICK-UP DEVICE / SMALL GANTRY

Equipped with two NC axes and available as an option, the small gantry makes it possible to remove the finished parts from the counter spindle and the remaining bar material from the main spindle. The finished parts are carefully placed onto an accumulation conveyor. Max. part size: \varnothing 100 x 400 mm; max. part weight: 10 kg



FINISHED PART CONVEYOR

The Miniportal is used to place the finished parts onto a conveyor belt with a usable storage surface of approx. 420 x 1350 mm. Since the belt is clocked, the sometimes highly complex parts are kept from falling onto each other.



TOOL MEASUREMENT

With the laser measurement system arranged above the main spindle, the tools in the milling spindle can be measured in a contactless and process-reliable manner. This makes it possible to implement virtually unmanned production processes.



CNC STEADY REST

Several steady rests are available for shaft machining. Small shaft parts can be supported with a turret-mounted steady rest. A CNC steady rest featuring a centring range from 25 to 280 mm is available for large shaft parts.



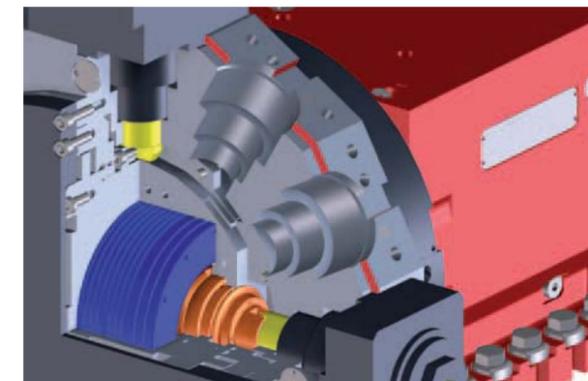
OIL MIST SEPARATOR

The mechanical oil mist separator cleans the aerosols which are generated in the workroom during the machining process. High separation efficiency and an air flow of 1000 qm/h improve the indoor air quality.



BAND FILTER SYSTEM WITH HIGH-PRESSURE COOLANT PUMPS

A coolant pressure of 25/40/60/80 bar can be set as necessary. This enables coolant-fed drilling and milling tools to be used to their best advantage.



BMT TURRET

Available as an option for simultaneous machining on the main and counter spindle, the BMT turret with water-cooled direct drive comes with a maximum of 12000 rpm, 30 Nm and 10 kW. It is the ideal basis for economic series productions.



CLEANING NOZZLE

For cleaning the clamping devices, the covers and the entire work area. This option includes a cleaning nozzle with flow and jet adjustment as well as a solenoid valve, a key switch and a spiral hose.

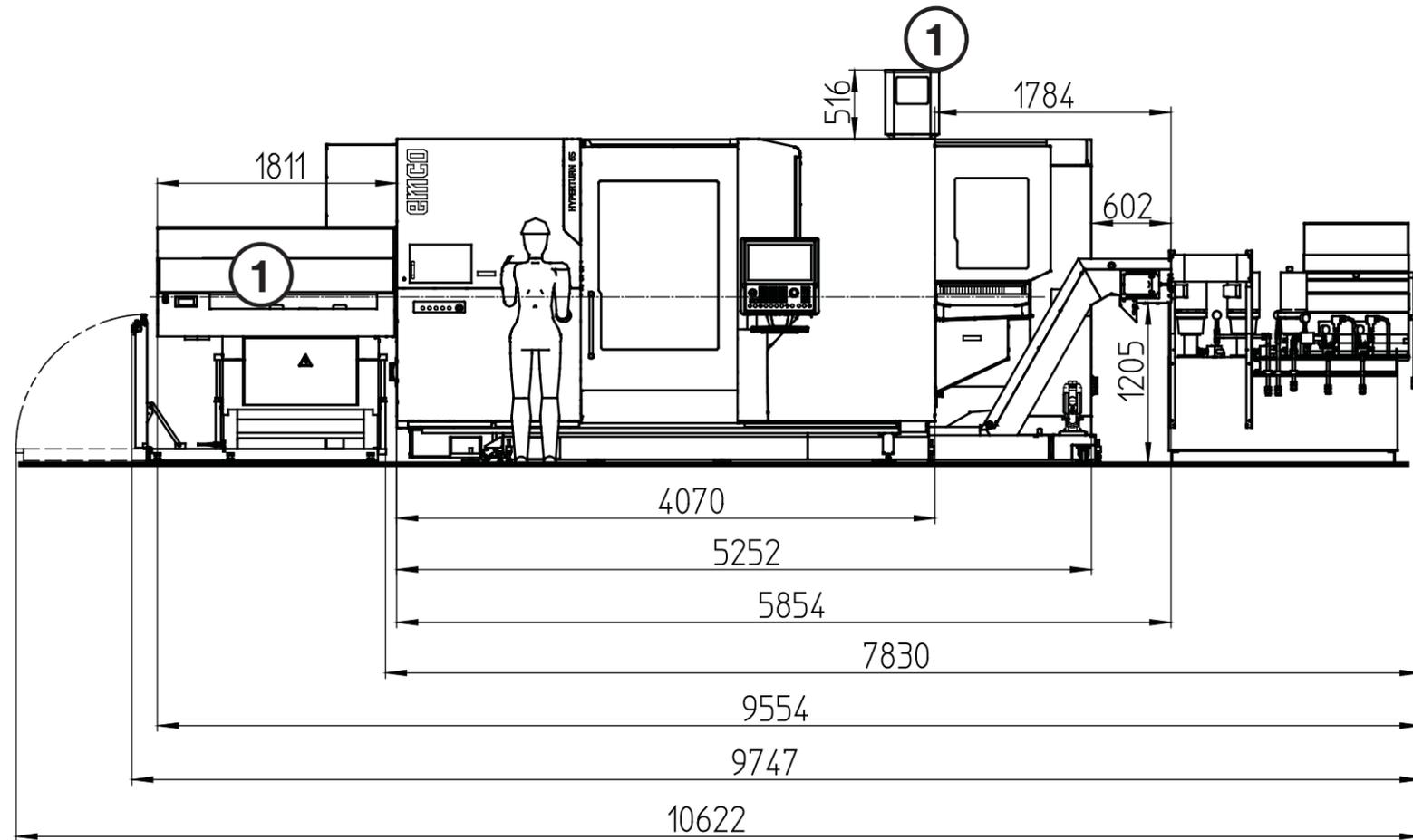


AUTOMATIC DOOR

Offering maximum comfort for manual workpiece loading, the fully automatic machine door is also the prerequisite for automatic, robot-assisted loading.

INSTALLATION PLAN

Installation plan HT65 PM with band filter system and short bar loader

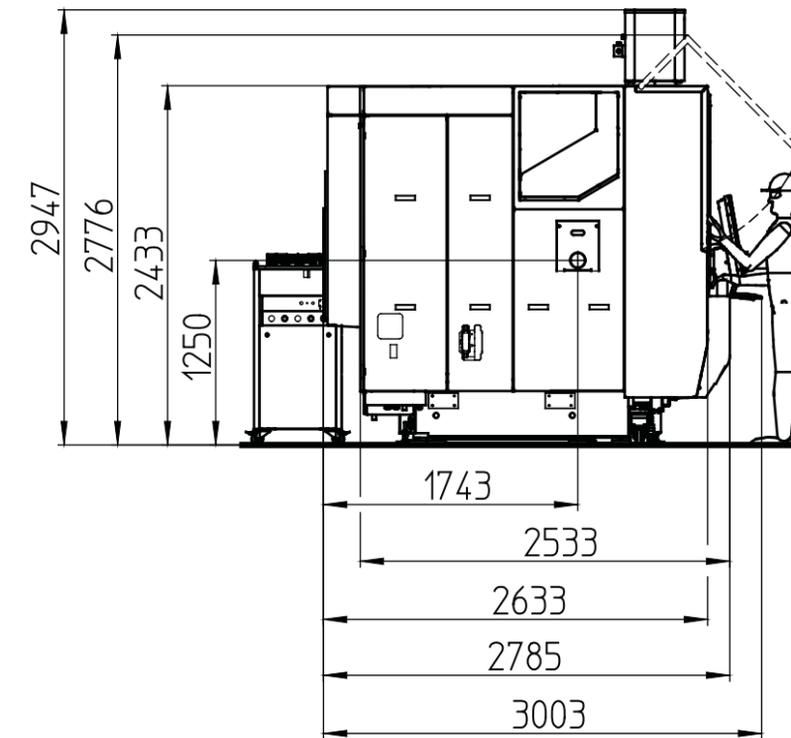


Indications in millimetres

1..Option

INSTALLATION PLAN

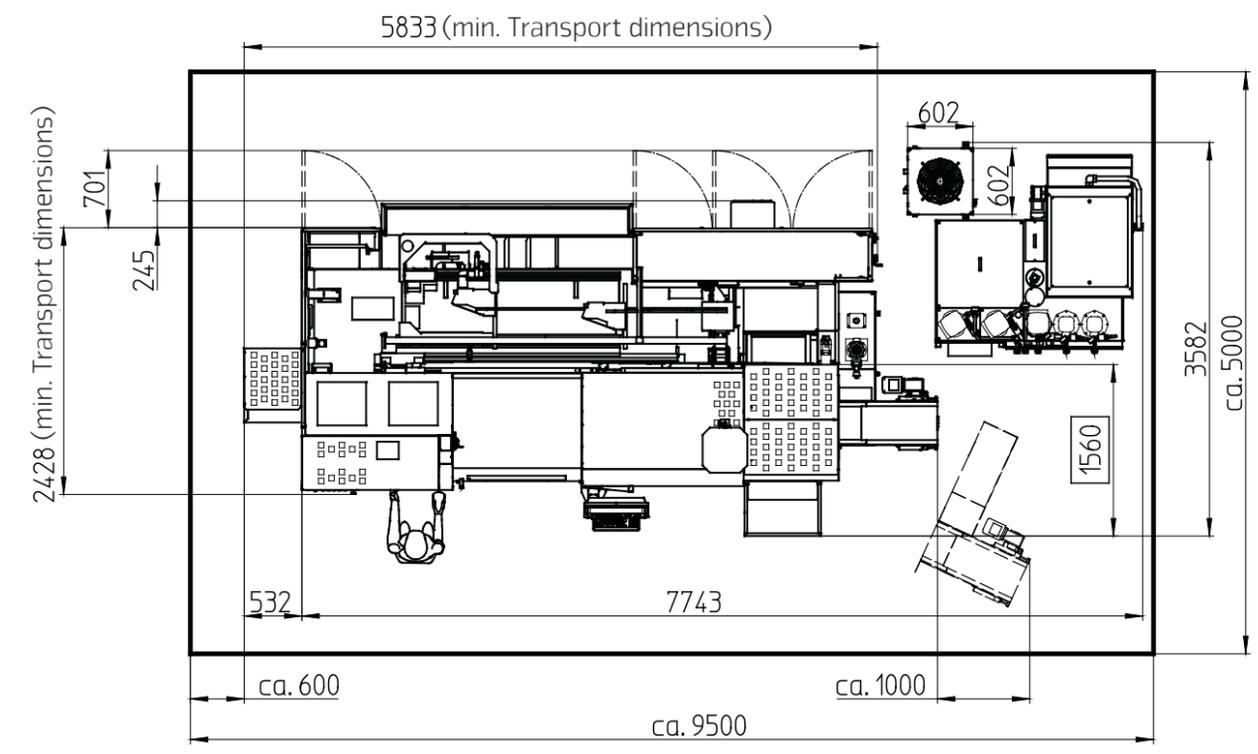
Installation plan HT65 PM with band filter system and short bar loader



Indications in millimetres

MACHINE LAYOUT

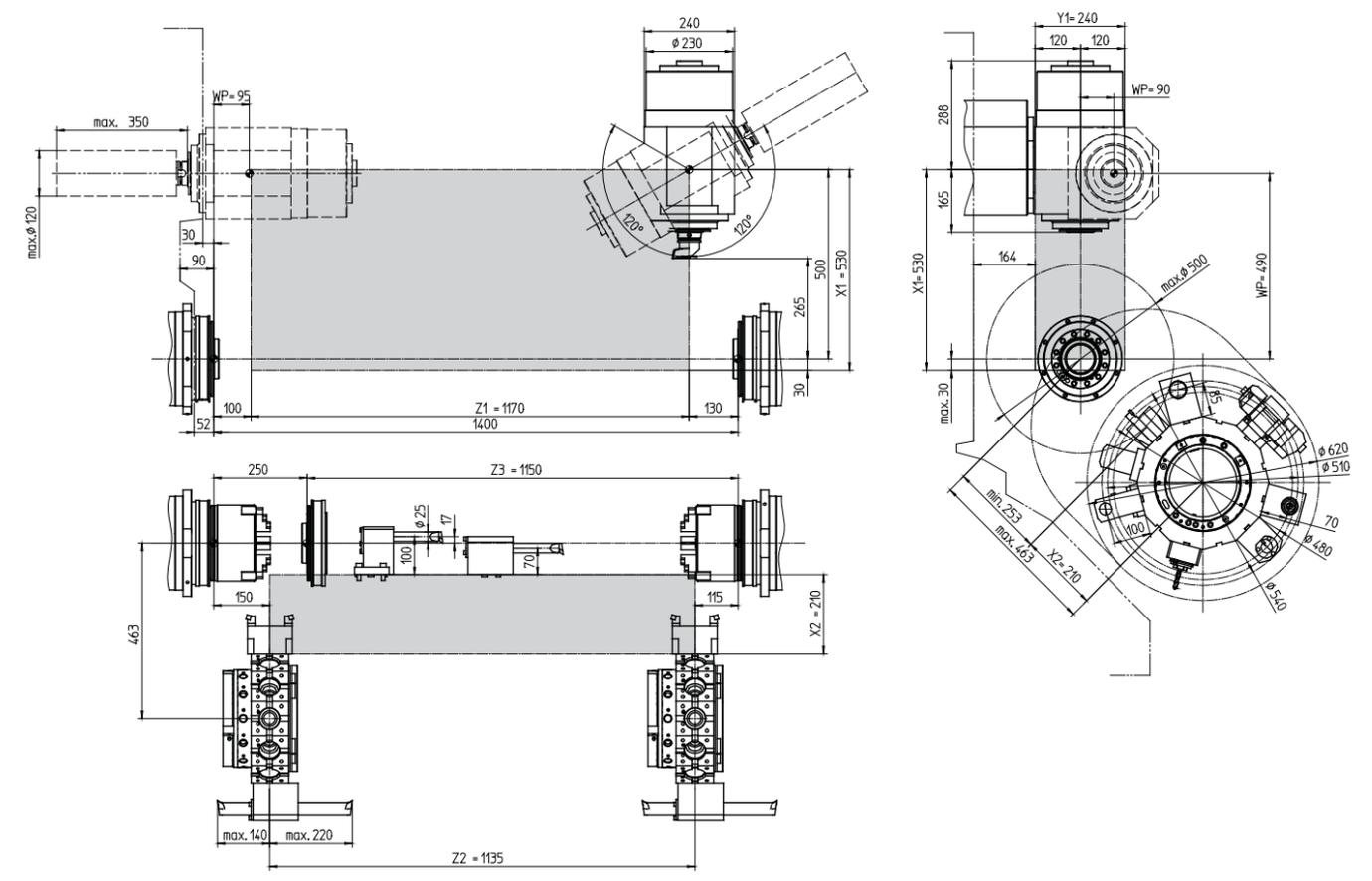
Machine layout HT65 PM with cooling unit and band filter system



Indications in millimetres

WORK AREA

Work area HT65 PM with 12-station BMT55 turret



Indications in millimetres

TECHNICAL DATA

Work area

Swing over bed	500 mm
Distance between spindle noses	1400 mm
Maximum turning diameter	500 mm
Max. part length	1100 mm
Max. bar-stock diameter	65 (102) mm

Travel

Verfahrweg X1 / X2	530 / 210 mm
Traverse path Z1 / Z2	1170 / 1135 mm
Traverse path Y	+/- 120 mm
Traverse path counter spindle Z3	1150 mm

Main spindle

Speed range (infinitely variable)	0 – 5000 rpm
Maximum torque	250 Nm
Spindle nose DIN 55026	A2-6
Spindle bearing (inside diameter)	105 mm
Spindle bore (excluding draw-back rod)	∅ 73 mm

Counter spindle

Speed range (infinitely variable)	0 – 5000 rpm
Maximum torque	250 Nm
Spindle nose DIN 55026	A2-6
Spindle bearing (inside diameter)	∅ 105 mm

C-axes

Resolution	0,001°
Rapid traverse	1000 rpm

Drive power

Main spindle (AC integrated-spindle motor)	29 kW
Counter spindle (AC integrated-spindle motor)	29 kW

Milling spindle – Powermill

Speed range	0 – 12000 rpm
Maximum torque	60 Nm
Maximum drive power	22 kW
Type of tool shank	HSK-T63

B-axis

Travel range	240°
Holding torque of clamp	1600 Nm
Interpolating drive torque	332 Nm

Tool magazine

Tool storage capacity	40 / 80 / 120
Max. tool diameter	∅ 80 (∅ 120) mm
Max. tool length	350 mm
Max. tool weight	12 kg

Tool turret with BMT-interface and direct drive

Number of tool positions	12
Precision interface	BMT-55P
Tool cross-section for square-shank tools	20 x 20 (25 x 25) mm
Shank diameter for boring bars	40 mm
Tool indexing time	0,5 sec.
Speed range of driven tools	0 – 12000 rpm
Torque of driven tools	30 Nm
Drive power of driven tools	10 kW

Feed drives

Rapid speed X1 / X2	30 m/min
Rapid speed Z1 / Z2 / Z3	30 m/min
Rapid speed Y1 / Y2	12 m/min
Feed force X1 / X2	5000 N
Feed force Z1 / Z2	8000 N
Feed force Y	7000 N

Coolant system

Tank capacity	980 + 200 l
Coolant pumps for the tool systems	2 x 25 bar
Scavenge pumps for the work area	3x 4,3 bar

Power consumption

Connected load	63 kVA
Compressed air	6 bar

Dimensions / Weight

Height of center above floor	1250 mm
Overall height	2440 mm
Required space L x D (without chip conveyor)	5833 x 2428 mm
Total weight	15000 kg

Safety devices CE compliant

beyond standard /

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