

**EMCO**



**HYPERTURN 65**

High-performance turn-mill centers



# HIGH-PERFORMANCE TURN-MILL CENTERS

The HYPERTURN 65 is a new development in the HYPERTURN range. Its smart modular design means it perfectly meets specific customer requirements. Two identical high-performance spindles set the basis for unlimited machining. Two turrets on the cross slide with optional Y-axis to ensure greater productivity. Each position on the tool turret can accommodate both stationary and driven milling/drilling heads.



Eccentric flange  
(Steel 42 Cr Mo 4)

## 1 MAIN SPINDLE

- / Integrated, water-cooled spindle motor
- / Spindle nose A2-6 (A2-8)
- / High drive power 29 (37) kW
- / High torque 250 (360) Nm
- / Large speed range 0 – 5000 (4000/3500) rpm
- / Bar capacity diameter 65 (76.2/95) mm

## 2 TOOL SYSTEM 1 / 2

- / 12-station tool turret
- / VDI30 (VDI40) quick-change system
- / 12 driven tool stations
- / Optional with BMT55P turret
- / Servo-controlled
- / Rigid tapping
- / Polygonal turning, etc.

## 3 Y-AXES 1 / 2

- / Travel +/- 50 mm
- / Stable, compact construction
- / Largely spaced guide ways
- / Wedge-style design

## 4 WORK AREA

- / Large spindle distance 1050/1300 mm
- / Optimum accessibility
- / Straight chip drop
- / Stainless steel covers and linings
- / Tailstock/steady rest function on lower turret

## 5 CONTROL UNIT

- / Ergonomically arranged on the right from the working area
- / Swivel action
- / Adjustable height
- / Side-to-side movement (version 1300)
- / SINUMERIK 840D-sl with 22" colour screen or FANUC 31iB with 15" colour screen
- / Comprehensive machining cycles
- / 3D simulation
- / USB and Ethernet interface

## 6 COUNTER SPINDLE

- / A2-6 (A2-8) spindle nose
- / Integrated, water-cooled spindle motor
- / High drive power 29 kW
- / High torque 250 (280) Nm
- / Large speed range 0-5000 (4000/3500) rpm
- / Incl. coolant-fed parts ejector
- / Optional with Ø 65 (75/95) mm through hole for shaft unloading

## 7 CHIP CONVEYOR

- / Hinged type conveyor belt
- / Ejection height 1200 mm
- / Integrated coolant tank 400/450 l
- / Turret pumps: 2 x 14 bar
- / Flushing pumps: 2 x 3.7 bar

## 8 AUTOMATIC WORK PIECE PICK UP DEVICE

- / Optional arranged on the right in the working area
- / Universally on Main- and Counter spindle applicable
- / Including along-integrated prefabricated part buffering belt



Machine with optional equipment

# HIGH-PERFORMANCE TURN-MILL CENTERS

The HYPERTURN as TRIPLETURN version has an additional 12-station turret. This serves as a „Joker“ on the one hand to reach a better productivity and on the other hand to increase the flexibility when machining complex parts in one clamping cycle. This means that generally three tools are in use simultaneously, which reduces part production time by up to 30%.



Shaft stub  
(Steel 16 Mn Cr 5)

## 1 MAIN SPINDLE

- / Integrated, water-cooled spindle motor
- / Spindle nose A2-6 (A2-8)
- / High drive power 29 (37) kW
- / High torque 250 (360) Nm
- / Large speed range 0 – 5000 (4000/3500) rpm
- / Bar capacity diameter 65 (76.2/95) mm

## 2 TOOL SYSTEM 1 / 2 / 3

- / 12-station tool turret
- / VDI30 (VDI40) quick-change system
- / 12 driven tool stations
- / Optional with BMT55P turret
- / Servo-controlled
- / Rigid tapping
- / Polygonal turning, etc.

## 3 Y-AXES 1 / 2 / 3

- / Travel +/- 50 mm
- / Stable, compact construction
- / Largely spaced guide ways
- / Wedge-style design

## 4 WORK AREA

- / Large spindle distance 1300 mm
- / Optimum accessibility
- / Straight chip drop
- / Stainless steel covers and linings
- / Tailstock/steady rest function on lower turret

## 5 CONTROL UNIT

- / Ergonomically arranged on the right from the working area
- / Swivel action
- / Adjustable height
- / Side-to-side movement
- / Sinumerik 840D sl with 22" colour screen
- / Comprehensive machining cycles
- / 3D simulation
- / USB and Ethernet interface

## 6 COUNTER SPINDLE

- / Integrated, water cooled spindle motor
- / Spindle nose A2-6 (A2-8)
- / High drive power 29 kW
- / High torque 250 (280) Nm
- / Large speed range 0-5000 (4000/3500) rpm
- / Incl. coolant-fed parts ejector
- / Optional with ø 65 (75/95) mm through hole for shaft unloading

## 7 CHIP CONVEYOR

- / Hinged type conveyor belt
- / Ejection height 1200 mm
- / Integrated coolant tank 450 l
- / Turret pumps: 3 x 14 bar
- / Flushing pumps: 2 x 3.7 bar

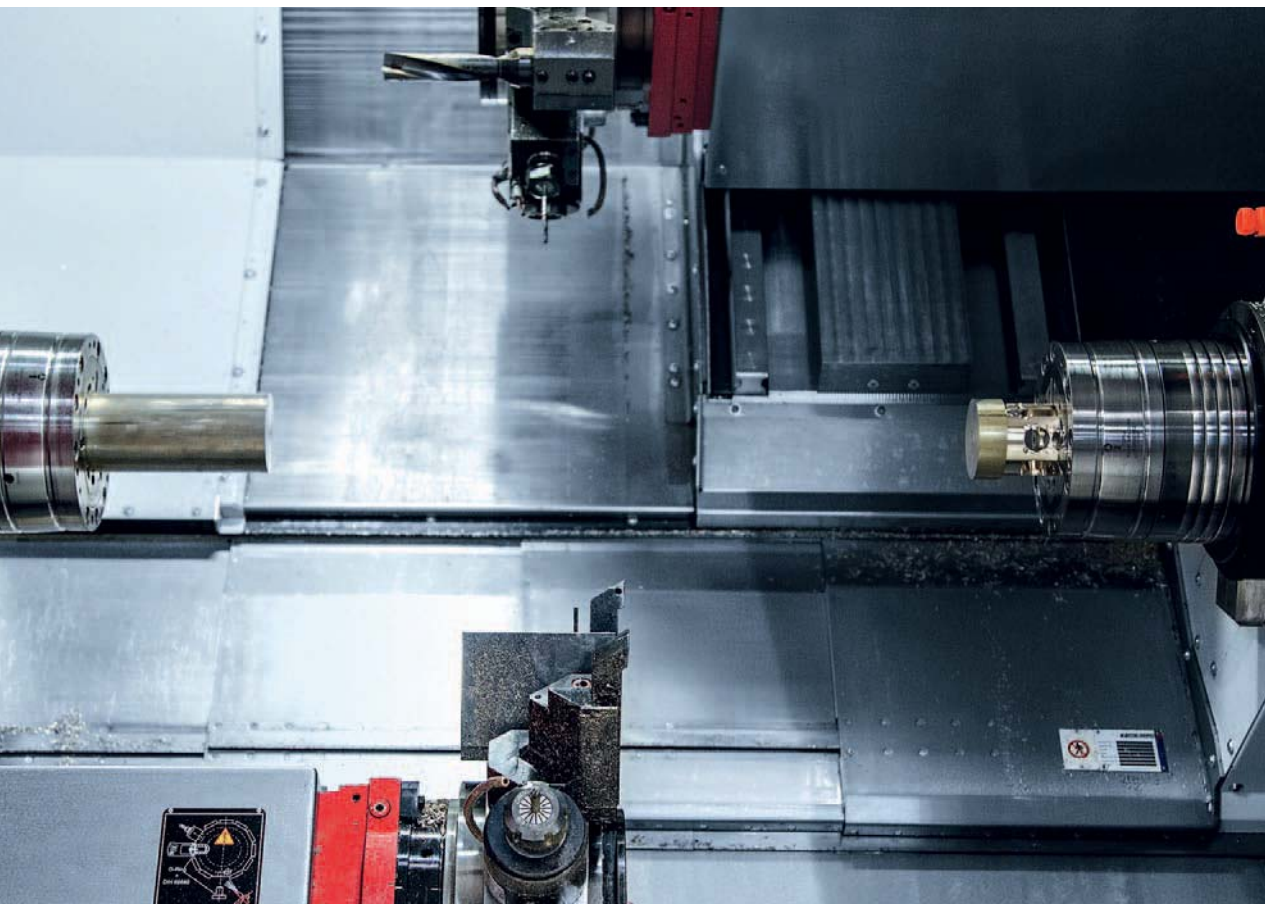
## 8 AUTOMATIC WORK PIECE PICK UP DEVICE

- / Optional arranged in the right in the working area
- / Universally on Main- and Counter spindle applicable
- / Including along-integrated prefabricated part buffering belt



Machine with optional equipment

## TECHNICAL HIGHLIGHTS

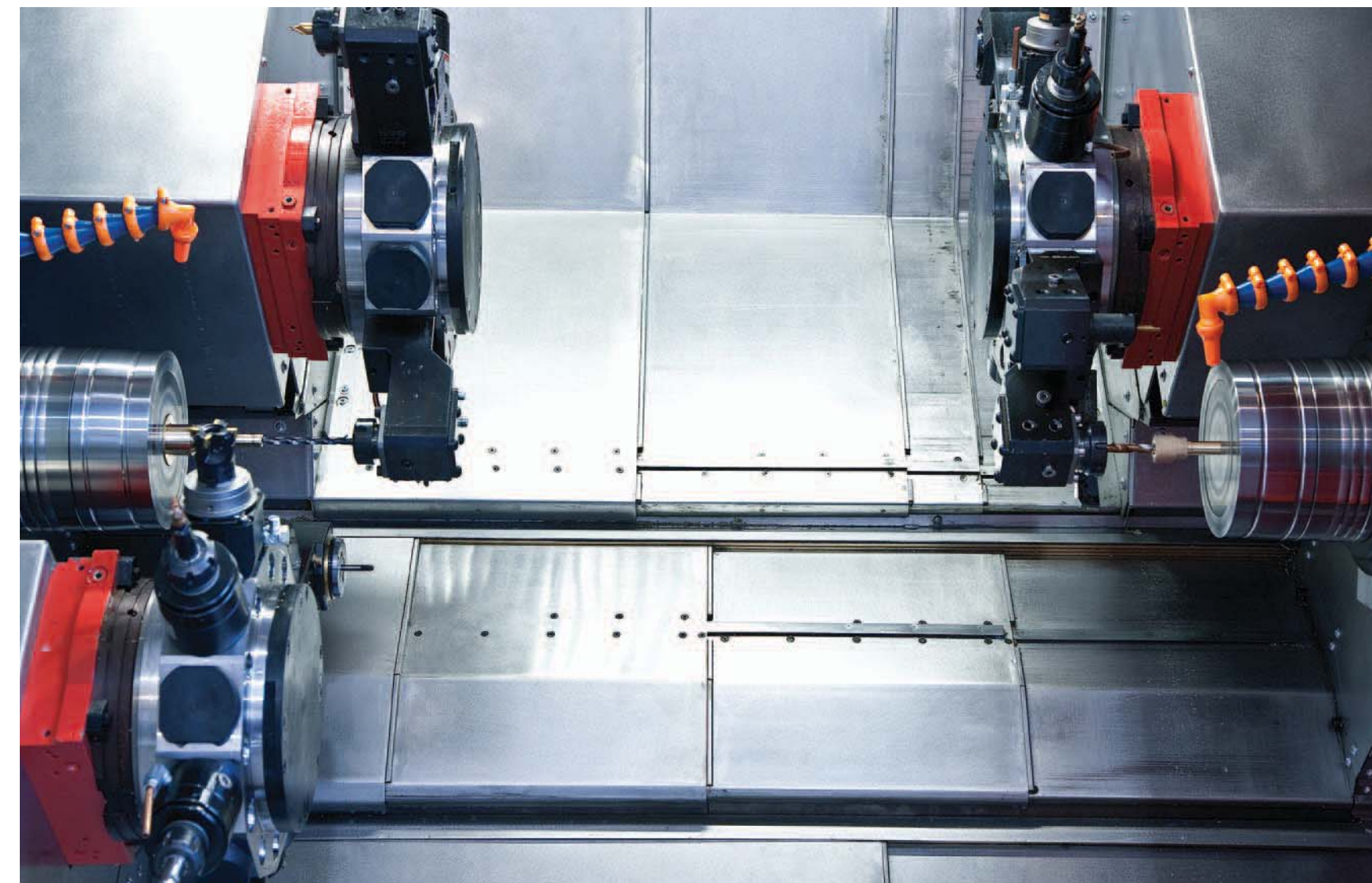


### WORK AREA HT65-DUOTURN

The HT65-Duoturn is available with two bed-lengths. Once with a distance between spindles of 1050 mm and once with 1300 mm. The shorter one is dedicated for shorter components, achieving shorter idle times. The longer version can be used to produce long shaft-type components using a steady-rest mounted at the turret but also using a full CNC-steady-rest instead of the lower tool turret. Also in case of machining deep holes at both ends of the components, the HT65-Duoturn is perfectly predestinated. Both turrets are mounted face-to-face. So long I.D. tooling can be used facing the main and counter spindle.

### HIGHLIGHTS

- / 2 high performance and water cooled spindle motors
- / 2x / 3x 12-times turret with VDI 30 / 40 quickchange system
- / Optional with BMT-turrets and direct drive up to 12 000 rpm
- / 2 / 3 Y-axes for processing of complex turned/milled parts
- / Bar stock feed up to  $\varnothing$  95 mm
- / Optimum chip flow and user-friendly work area
- / SINUMERIK 840D-sl or FANUC 31iB according to customers choice
- / Made in the Heart of Europe



### WORK AREA HT65-TRIPLETURN

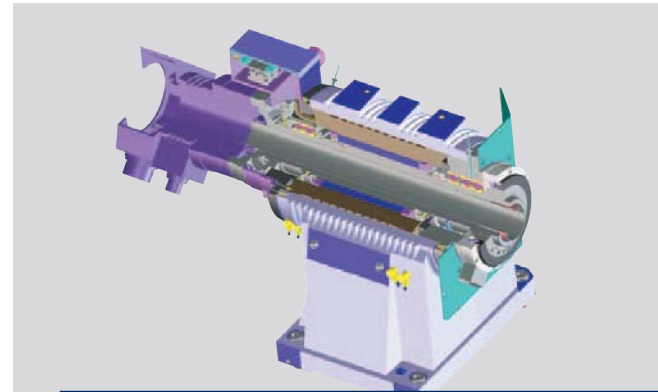
The HT65-Tripleturn offers the largest work envelope in its class with a distance between spindles of 1300 mm and large X-axis strokes. So the machine can not only be used for bar work but also to machine larger chucking components. Chucks up to a diameter of 250 mm can be used without limitations at the main and counter spindle. Also there is plenty of power available at both spindles to run chuck work.

# TECHNICAL HIGHLIGHTS



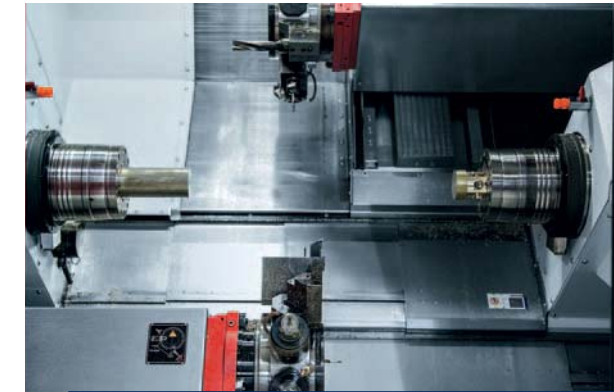
## LIVE-CENTER / TURRET-STEADY-REST

For complete machining of shaft work on the one hand in the main spindle and on the other hand in the sub-spindle, there are a live center and if needed also a turret steady rest available. So that long, slim workpieces can be manufactured precisely and without chatter marks.



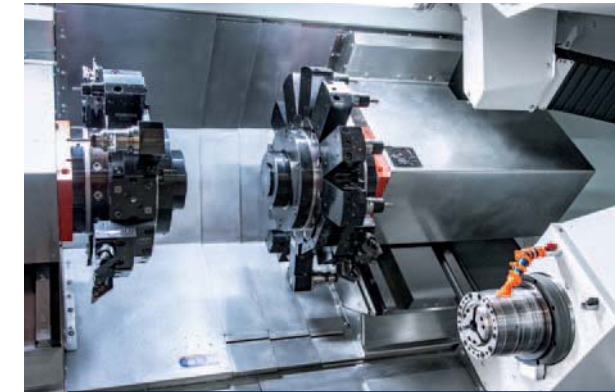
## INTEGRATED SPINDLE MOTOR (ISM)

The latest synchronous technology guarantees the highest dynamics and exceptional torque in a compact design. Liquid cooling in conjunction with automatic temperature control maintains a constant temperature for all spindle motors.



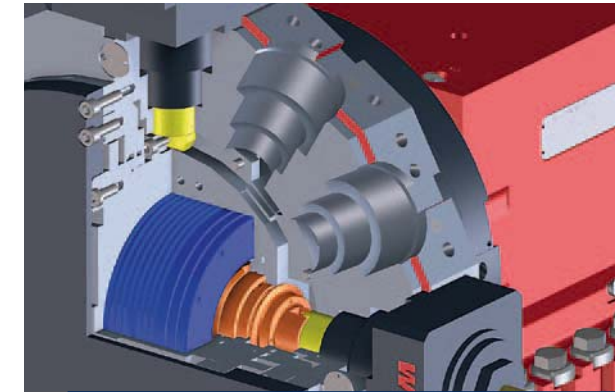
## TOOL TURRET

Fast 12-station servo turret with very short switching times for standardized VDI30 or VDI40 tools. All stations can hold driven tools for drilling, milling, and tapping. The operator is able to control the indexing speed with the override switch at any time.



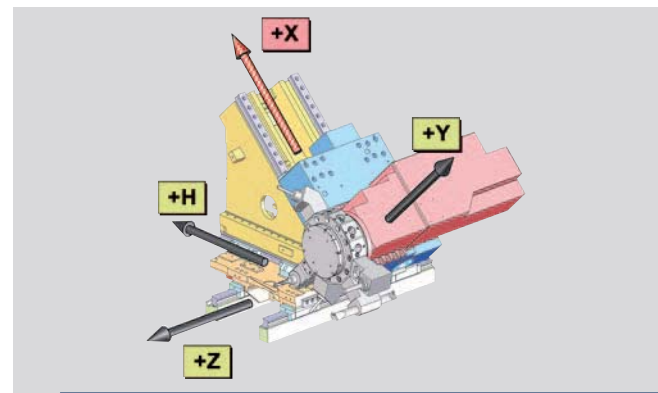
## BMT TURRET

The stable BMT-55P interface replaces the standard VDI quick change system. This allows coolant pressures of up to 150 bar to be implemented through the turret. Further advantages are in the accuracy and stability of the interface.



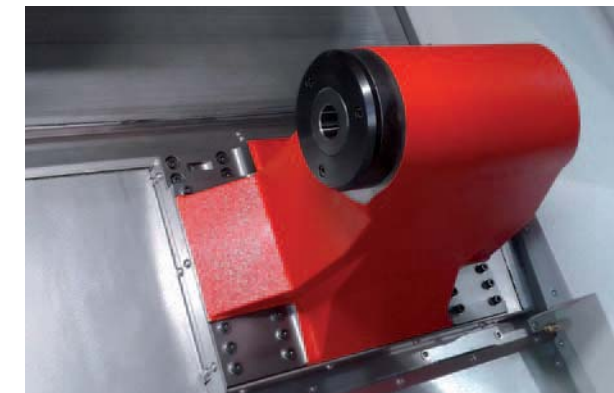
## DIRECT DRIVE IN THE BMT TURRET

For economical production of complex turned/milled parts with mainly milling share, there is optional the BMT-turret with water cooled direct drive. With max. 12000 rpm, 30 Nm and 10 kW, this turret offers optimal prerequisites for the complete machining.



## HIGH-PRECISION Y-AXIS

The HYPERTURN's Y-axis is designed to distribute the cutting forces over two guide planes. The result: outstanding rigidity for all turning and milling operations. The +/- 50 mm travel permits off-center milling and drilling.



## TAILSTOCK

For shaft-type application, the HYPERTURN 65 offers two tailstock-versions. On the one hand an universal, hydraulic movable tailstock for manually loaded machines and on the other hand an NC-tailstock for fully automatic loaded machines. With the advantage of very short idle times.



## 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.



## 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.

# NETWORKS ARE CREATED INDIVIDUALLY. OUR SOLUTIONS AS WELL.

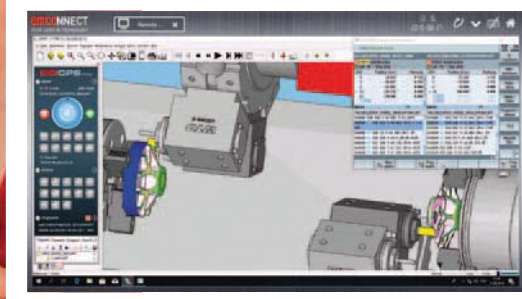


Staying in touch is important not only among human beings. Persons, machines and the whole framework of production must also be connected perfectly and safely in order to ensure efficient procedures during the production process. With EMCONNECT you have the key to optimized connectivity for a digital 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).



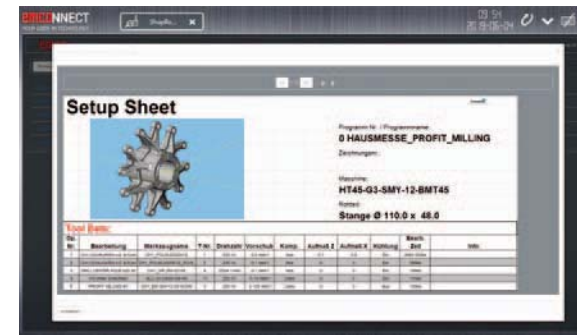
## Integration into control

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.



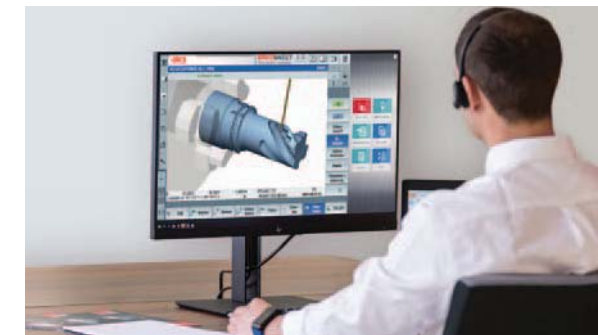
## An innovative concept

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

# THE EMCO GANTRY LOADER. INDIVIDUAL PROCESS OPTIMIZATION.

- 1 GANTRY LOADER
- 2 PALLET MAGAZINE (with 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

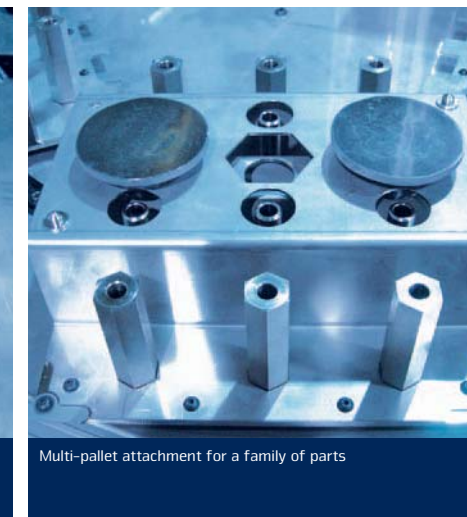
Blank-specific pallet attachments enable oriented loading of blanks into the machine and increase the parts stock for unmanned production. Changeover times are reduced or eliminated thanks to the perfect adjustment to the customer's parts.



4-station pallet attachment for tees



6-station pallet attachment for articulated brackets



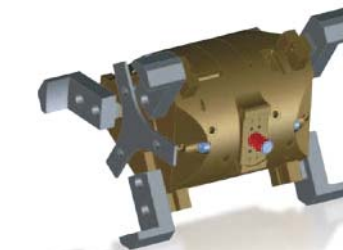
Multi-pallet attachment for a family of parts



4-station pallet attachment for valve caps



20-station pallet magazine with customer-specific pallets



2 x 3-jaw double gripper head

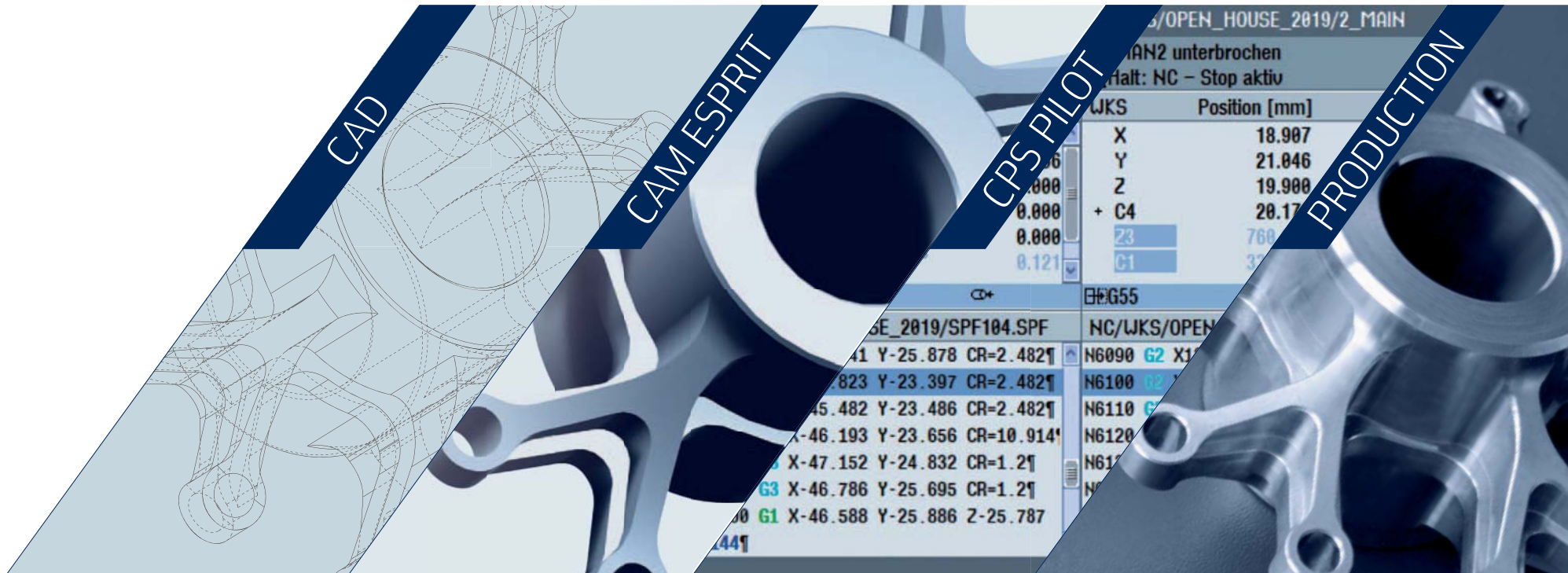


4 x 3-jaw gripper head



Shaft gripper head

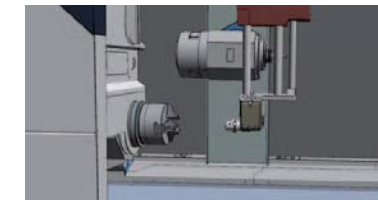
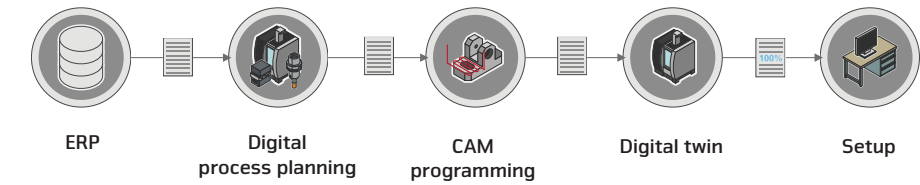
# VIRTUAL MACHINING PROCESS



Whoever wants to design scenarios for the future, needs as much information as possible from different sources. EMCO's Virtual Workflow enables you to simulate and optimise your processes. This helps you test processes and train skilled workers without any downtime.

- / From drawings to good parts in a fast and straightforward way
- / Continuous digital process chain in cooperation with an experienced partner

# A CONSISTENT PROCESS CHAIN AS A PREREQUISITE FOR DIGITAL PRODUCTION



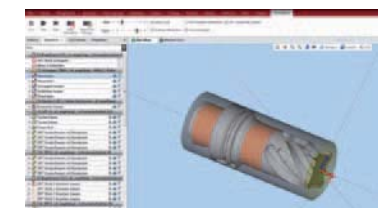
## CHECKitB4

- Quick and straightforward process validation of the machine, setup and tool data
- / Tools can be easily moved over the workpiece - without NC codes
- / Collision detection and identification of axis travel limits
- / No CAD/CAM skills required
- / Easy and innovative design of clamping situations and complete tools
- / Creation of blanks
- / Interfaces for connection to many CAM systems



## CPS PILOT

- The machine's digital twin ensures workshop-oriented programming during industrial engineering
- / 100% identical with the machine including its control and machine-specific parameters
- / Original virtual control (Siemens, Heidenhain)
- / Reliable collision detection and identification of errors prior to production
- / Interfaces for many CAM systems
- / Reduced risk and setup times
- / Maximized machine utilization



## CAM PROGRAMMING

- Program each and every EMCO machine:
- / Quick and easy programming of milling and multi-channel turning machines
- / Quick and easy learning
- / High-performance strategies for roughing operations
- / Knowledge-based machining with partially or fully automated programming
- / Data import from any CAD system
- / Certified post-processors

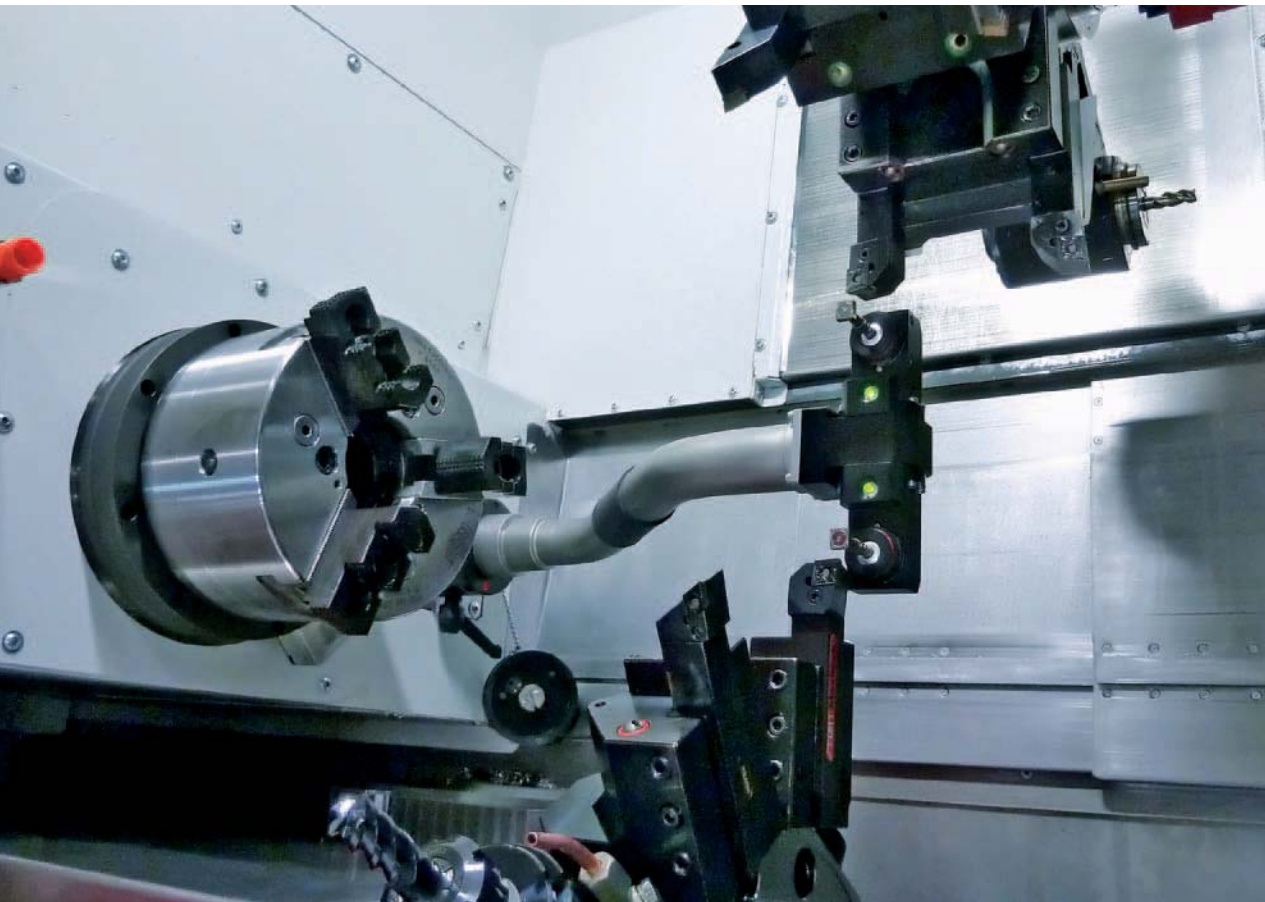


## PRODUCTION

- / Reduced setup costs
- / Reduced downtimes
- / Reduced repair costs
- / Ideal machine utilization



## OPTIONS



### TOOL MEASURING

The tool measuring arm equipped with two touch-probes enables fast and precise measuring of tools in the workspace. It is mounted manually in the bracket below the main spindle and returned to a storage tray after use.



### SPIN WINDOW

The optional spin window enables the optimal insight in the working area, also during machining with coolant. Due to its very fast rotating glass plate, the coolant is slung away immediately after impact and the window stays clear.



### PARTS CATCHER

The HYPERTURN 65's electro-pneumatic parts catcher is controlled using M functions. When needed, it traverses to the front of the work area and pivots to the spindle center. The finished part is removed from the clamping device and transferred to the catcher tray. The parts catcher then moves back to its initial position and the part is tipped onto a conveyor belt.



### FINISHED PART CONVEYOR BELT

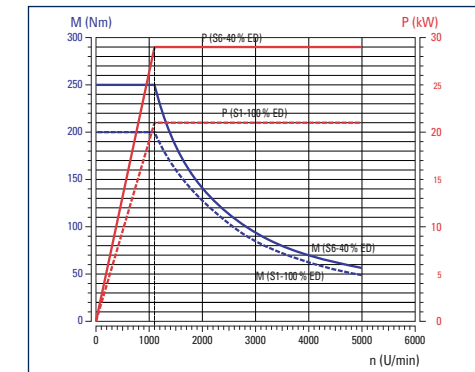
On the conveyor belt with in the machine casing, arranged lengthwise, with a storage surface of 1400 x 180 mm, the work pieces are put down damage free.



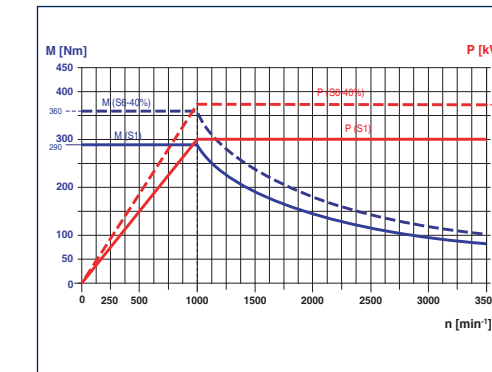
### BAND FILTER SYSTEM

For series production of turning/milling parts made of aluminum, brass, steel or grey cast iron offers a paper-band filtration unit. With it the coolant volume and also the life span of the cooling lubricant increases.

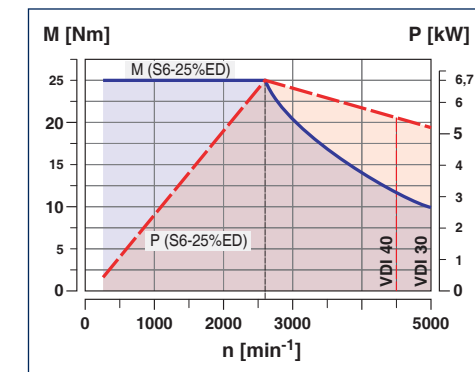
## PERFORMANCE AND TORQUE



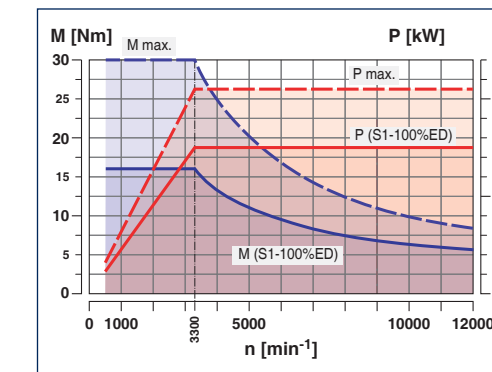
Main and counter spindle Ø 65/76 mm



Main spindle Ø 95 mm



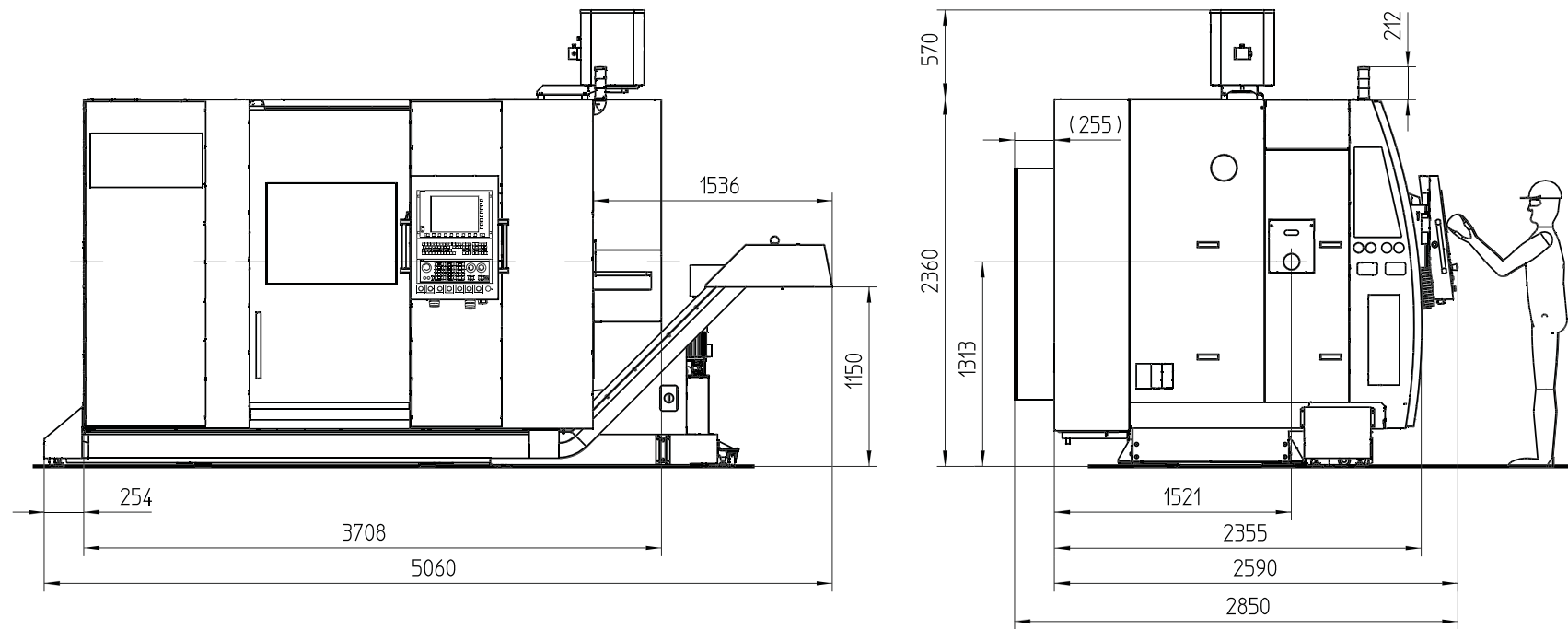
Tool turret - driven tools VDI 30/40



Tool turret - driven tools BMT55P

# MACHINE LAYOUT

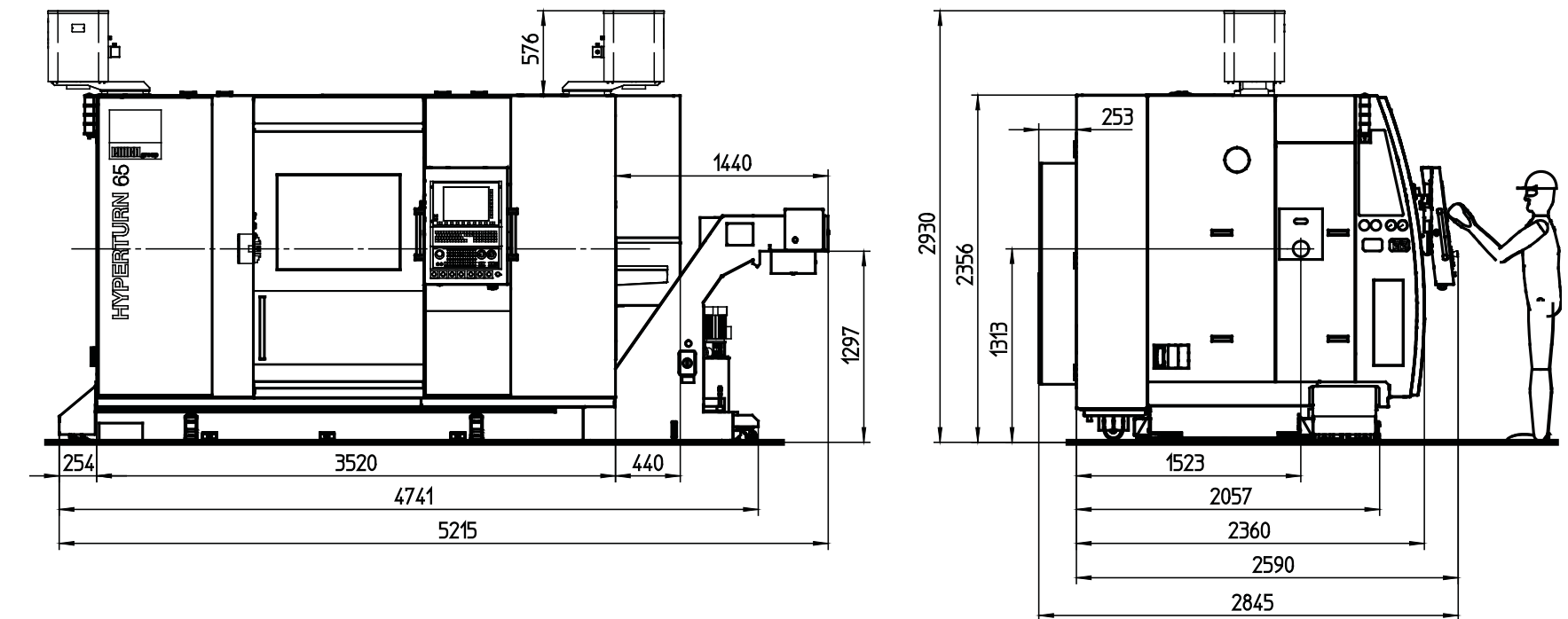
HYPERTURN 65-1000 Duoturn



Indications in millimeters

# MACHINE LAYOUT

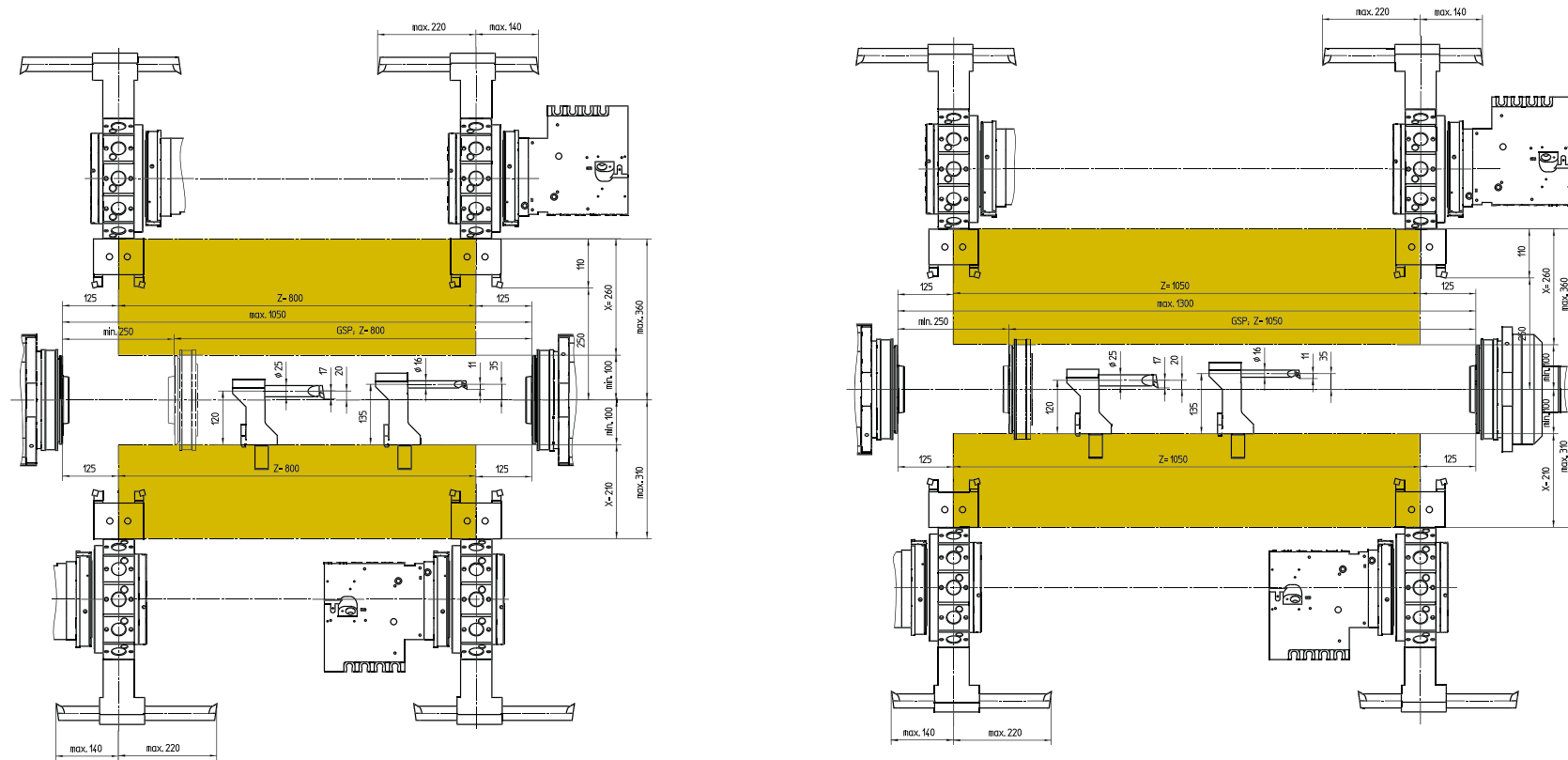
HYPERTURN 65-1300 Duoturn / Tripleturn



Indications in millimeters

# WORKSPACE

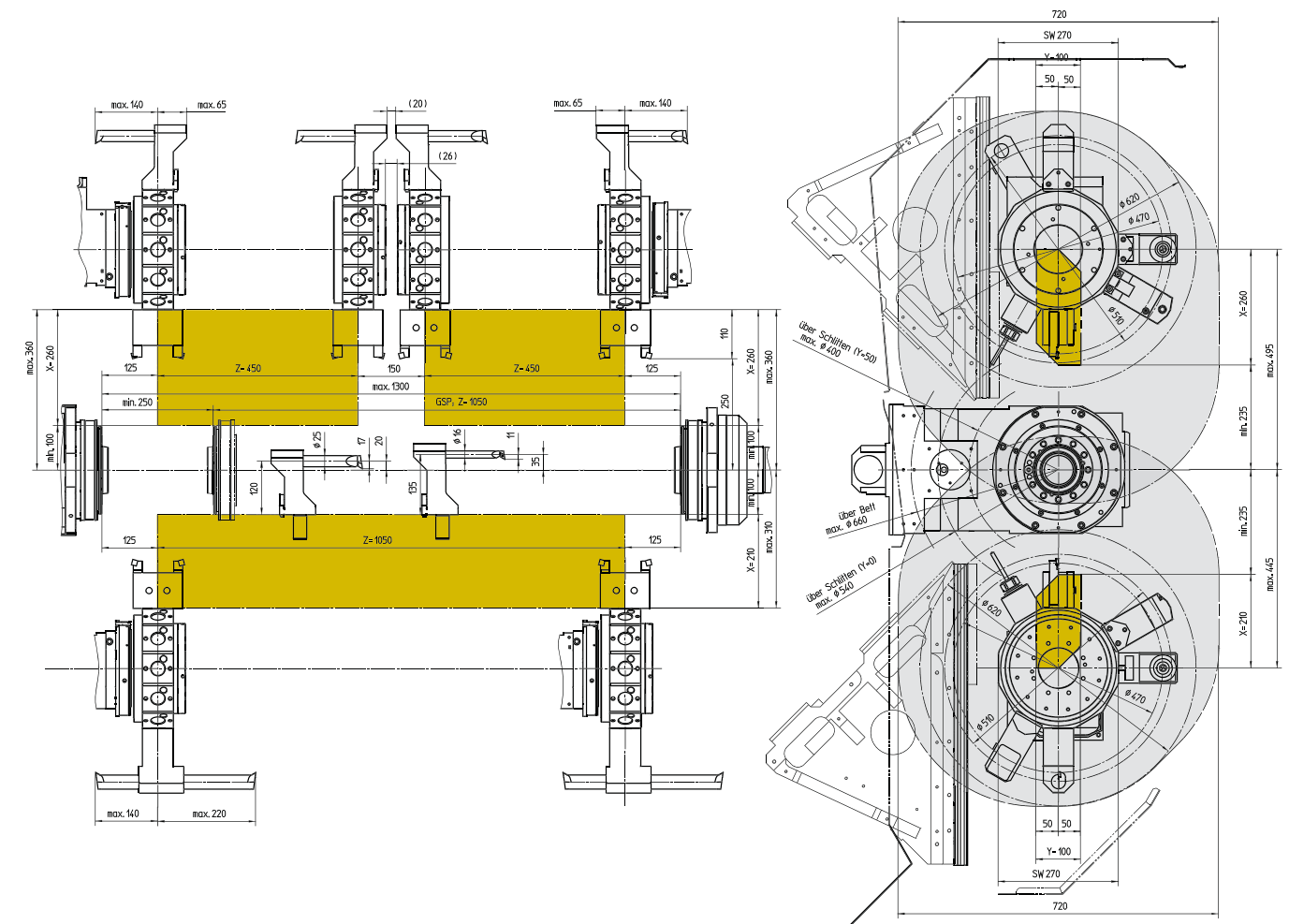
HYPERTURN 65-1000 / 1300 DT  
with VDI30 turrets



Indications in millimeters

# WORKSPACE

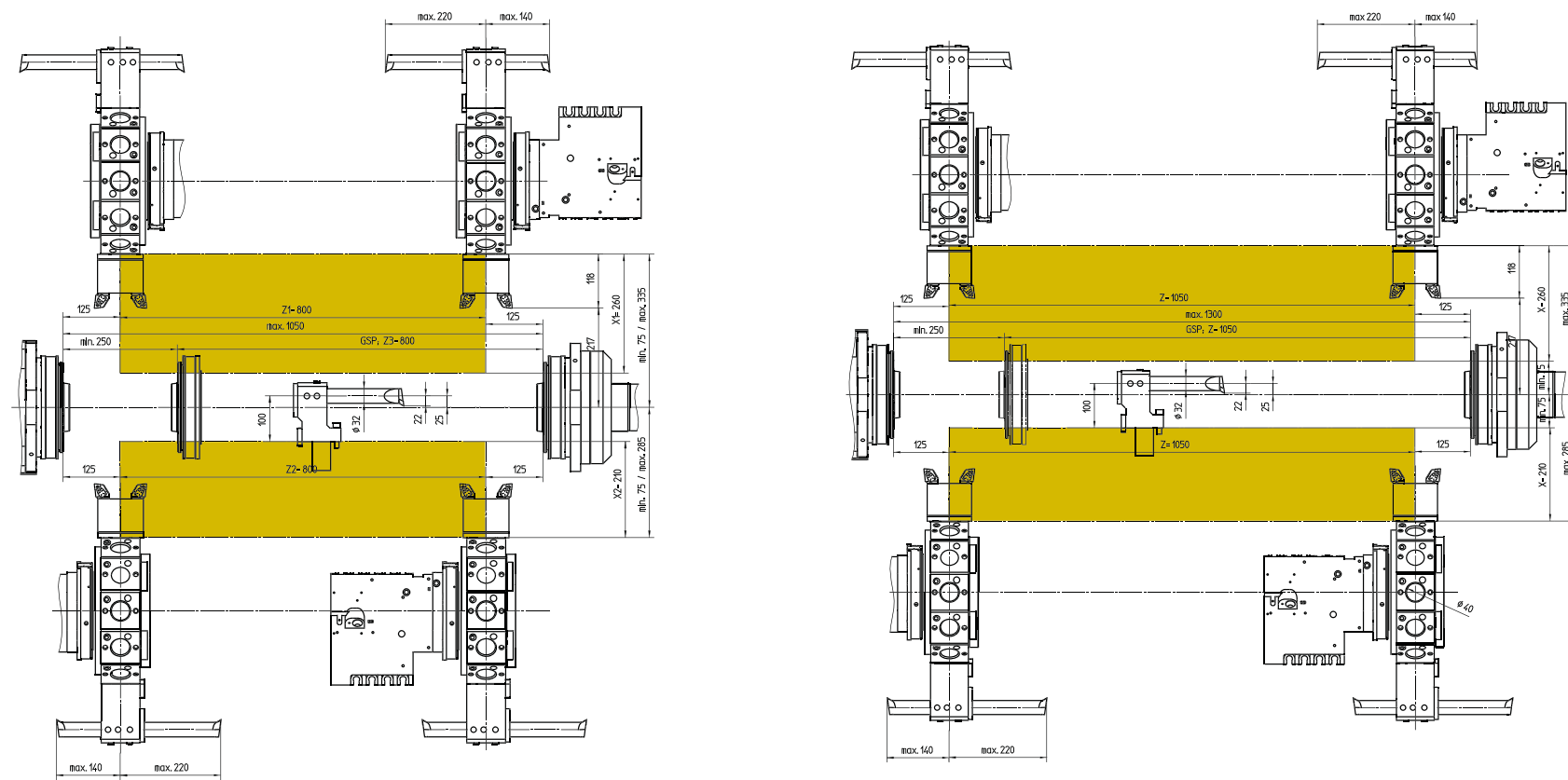
HYPERTURN 65-1300 TT  
with VDI30 turrets



Indications in millimeters

# WORKSPACE

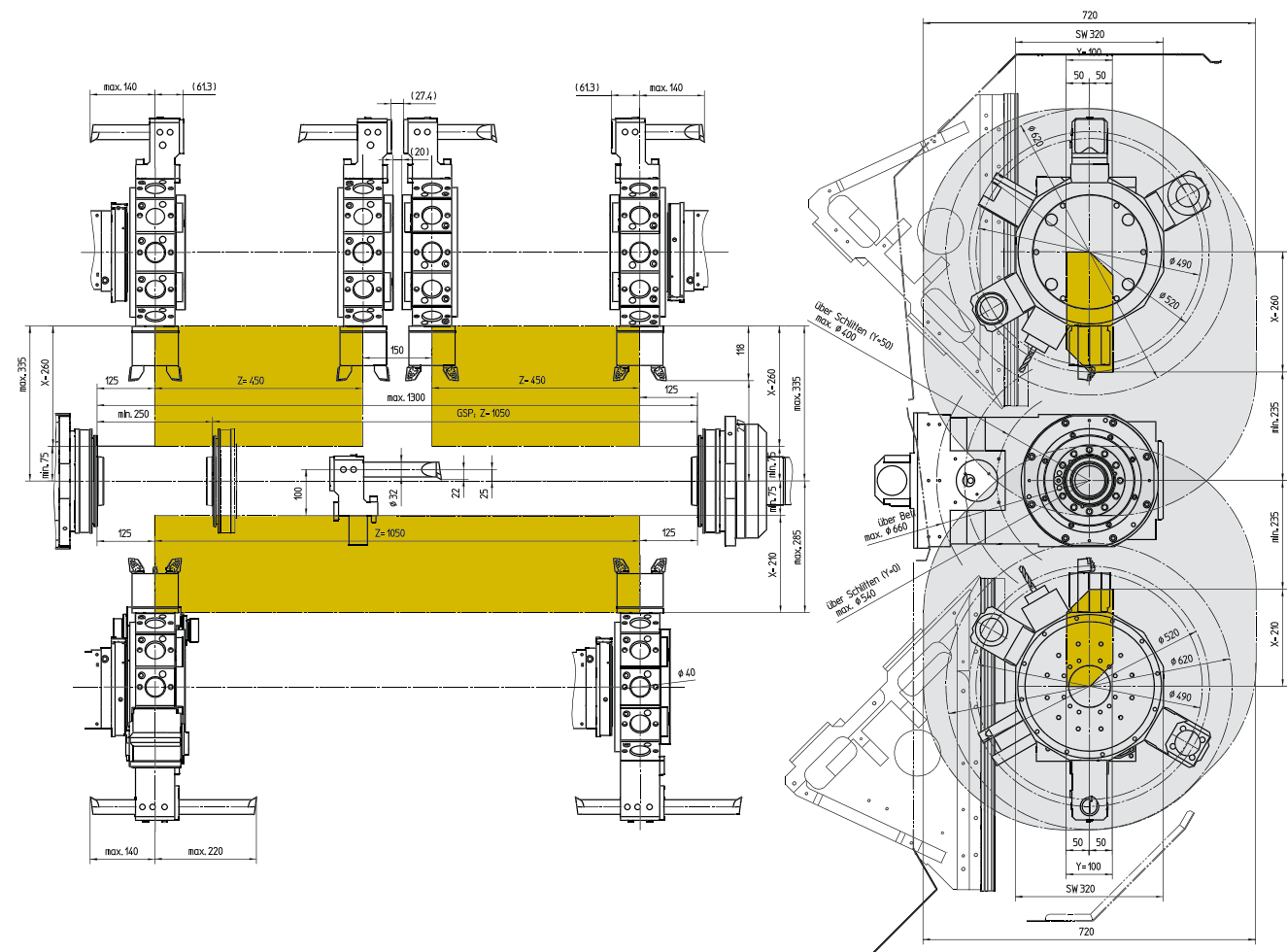
HYPERTURN 65-1000 / 1300 DT  
with VD40 turrets



Indications in millimeters

# WORKSPACE

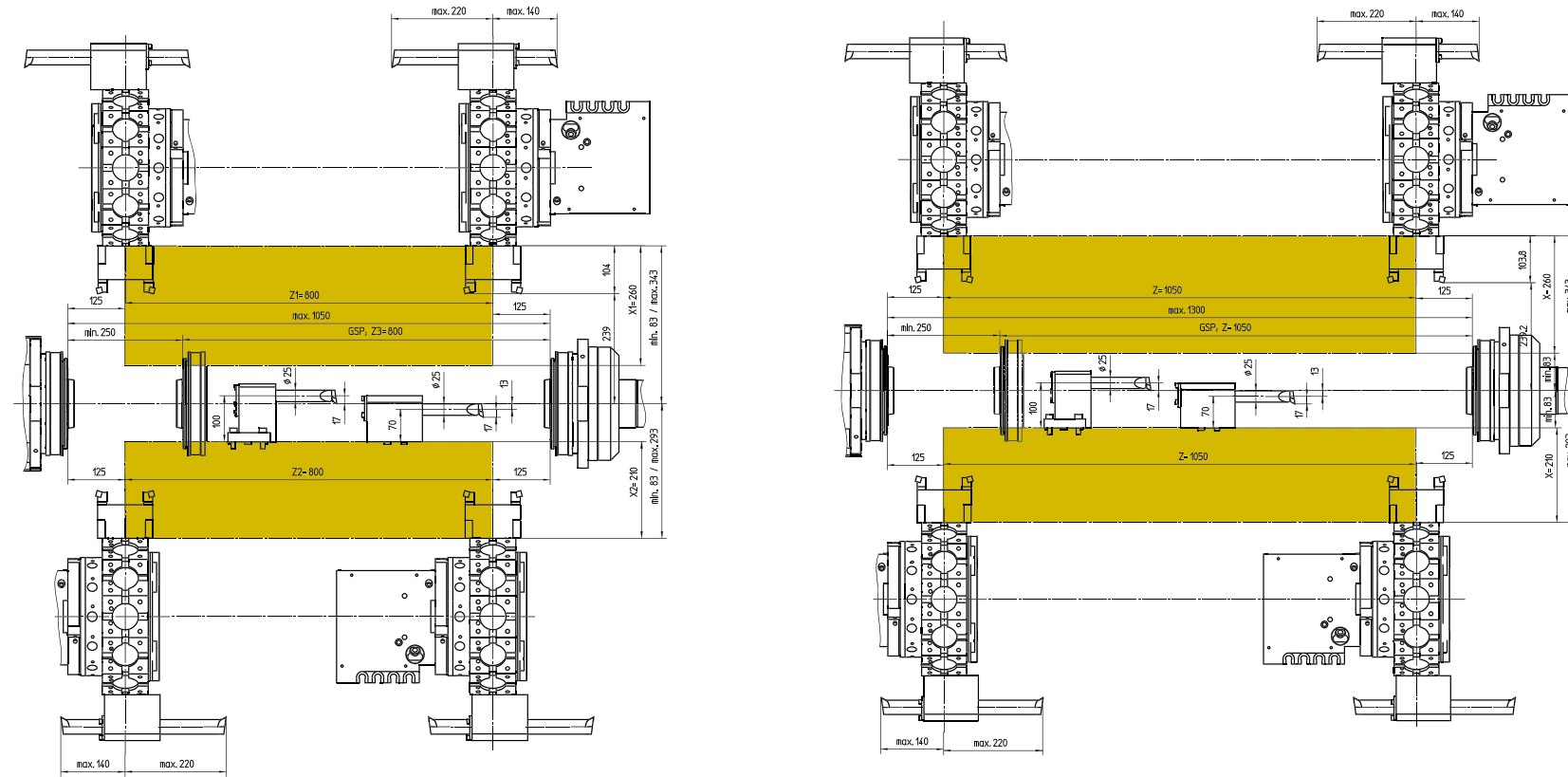
HYPERTURN 65-1300 TT  
with VDI40 turrets



Indications in millimeters

# WORKSPACE

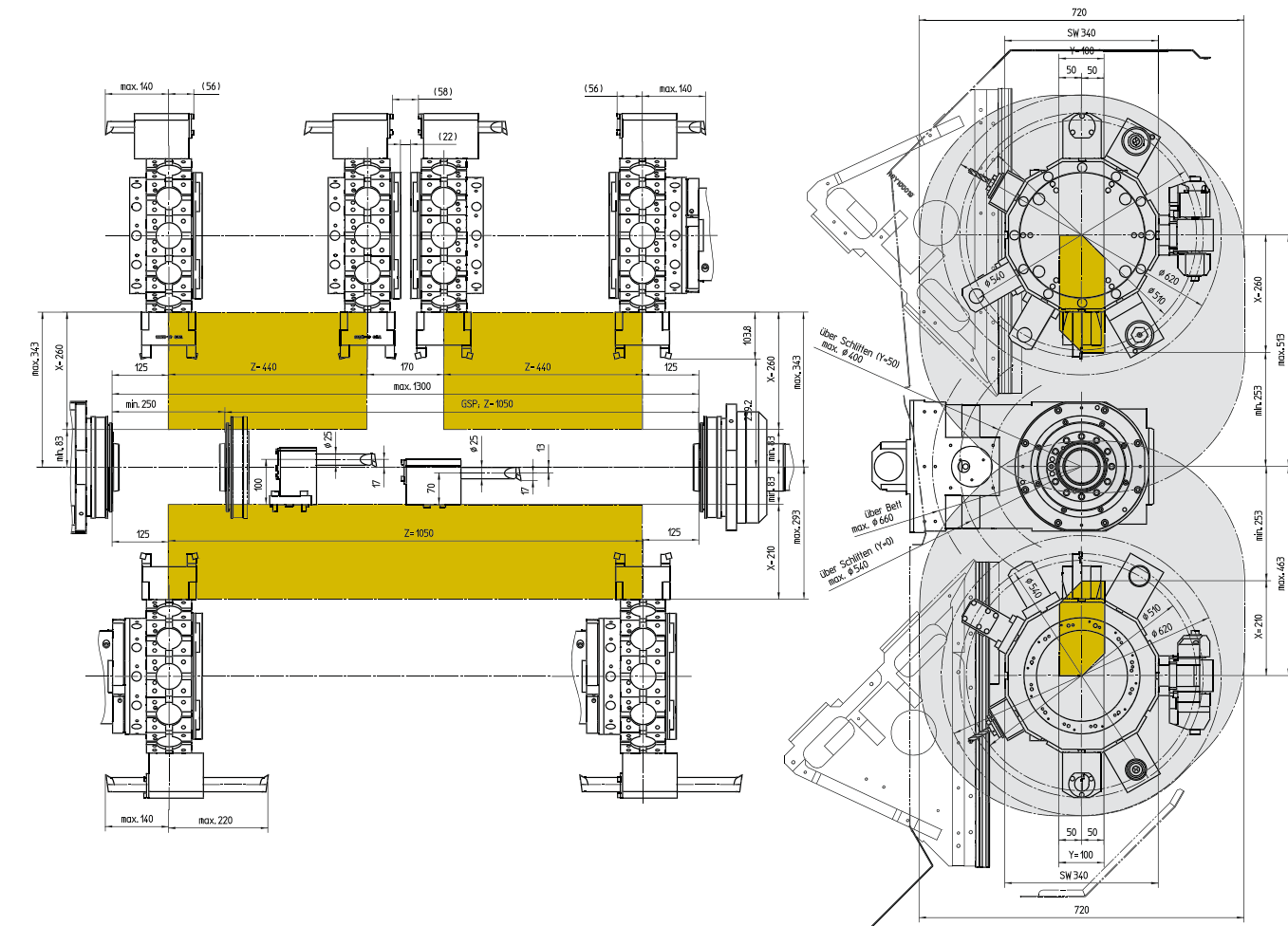
HYPERTURN 65-1000 / 1300 DT  
with BMT55P turrets



Indications in millimeters

# WORKSPACE

HYPERTURN 65-1300 TT  
with BMT55P turrets



Indications in millimeters

# Technical Data

## Work area

Swing over bed	660 mm
Swing over cross slide	540 mm
Distance between spindle noses	1050 / 1300 mm
Maximum turning diameter	500 mm
Max. part length	750 / 1000 mm
Max. bar-stock diameter	65 (76,2 / 95) mm

## Travel

Traverse path X1 / X2 (HT65 DUOTURN)	260 / 210 mm
Traverse path X1 / X2 / X3 (HT65 TRIPLETURN)	260 / 260 / 210 mm
Traverse path Z1 / Z2 (HT65-1000 DUOTURN)	800 / 800 mm
Traverse path Z1 / Z2 (HT65-1300 DUOTURN)	1050 / 1050 mm
Traverse path Z1 / Z2 / Z3 (HT65 TRIPLETURN)	450 (440) / 450 (440) / 1050 mm
Traverse path Y-axes	100 (+/- 50) mm

## Main spindle

Speed range (infinitely variable)	0 – 5000 (4000/3500) rpm
Maximum torque	250 (250 / 360) Nm
Spindle nose DIN 55026	A2-6 (A2-8)
Spindle bearing (inside diameter)	105 (130/140) mm
Spindle bore (excluding draw-back rod)	Ø 73 (86/106) mm

## Counter spindle

Speed range (infinitely variable)	0 – 5000 (4000/3500) rpm
Maximum torque	250 (280) Nm
Spindle nose DIN 55026	A2-6 (A2-8)
Spindle bearing (inside diameter)	Ø 105 (130/140) mm

## C-axes

Resolution	0,001°
Rapid traverse	1000 rpm

## Drive power

Main spindle (AC integrated-spindle motor)	29 (37) kW
Counter spindle (AC integrated-spindle motor)	29 kW

## Tool turret with VDI interface and direct drive

Number of tools stations	2/3 x 12
VDI shaft (DIN 69880)	30 (40) mm
Tool cross-section for square-shank tools	20 x 20 (25 x 25) mm
Shank diameter for boring bars	32 mm
Tool indexing time	0,7 sec

## Driven tools

Speed range	0 – 5000 (4500) rpm
Torque	25 Nm
Drive power	6,7 kW
Driven tools	2/3 x 12

## Turret with BMT-interface and direct drive

Number of tool positions	2/3 x 12
Precision interface	BMT-55P
Tool cross-section for square tools	20 x 20 (25 x 25) mm
Shank diameter for boring bars	40 mm
Tool change time	0,5 sec.
Speed range of the driven tools	0 – 12000 rpm
Torque of the driven tools	30 Nm
Driving power of the driven tools	10 kW

## Feed drives

Rapid speed X1 / X2 / X3	30 m/min
Rapid speed Z1 / Z2 / Z3 / Z4	30 m/min
Rapid speed Y1 / Y2 / Y3	12 m/min
Feed force X1 / X2 / X3	5000 N
Feed force Z1 / Z2 / Z3	8000 N
Feed force Y1 / Y2 / Y3	7000 N
Feed force Z4 (counter spindle)	9000 N

## Tailstock

Traverse path	800 / 1050 mm
Max. contact force	8000 N
Inner cone for live-centre	MT 4

## Coolant system

Tank capacity	400 / 450 l
Pump power	2 / 3 x 2,2 kW

## Power consumption

Connected load	50 kVA
Compressed air	6 bar

## Dimensions

Height of center above floor	1300 mm
Overall height	2360 mm
Required space L x D (with chip conveyor)	5060 / 5300 x 2850 mm
Total weight	approx. 9500 kg

## Safety devices CE compliant

beyond standard /

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[www.emco-world.com](http://www.emco-world.com)