

**emco**



**Universal CNC turning  
center with milling  
drive and Y-axis**



**MAXXTURN 65 G2**

# COMPLEX TASKS SOLVED QUICKLY AND PRECISELY.

The new MAXXTURN 65 G2 has undergone an extensive redesign and, in addition to two powerful motor spindles, now also offers an optional BMT turret with direct drive. For the first time, three spindle sizes can be offered. A steady rest is available for shaft machining if required. While the proven two-part basic design has been retained, the integration of the chip conveyor has been optimized.



Distributor body  
(Stainless steel)

## 1 WORK AREA

- / Easily accessible workspace
- / Optimal chip flow
- / Guideways fully covered

## 2 MAIN SPINDLE

- / Water-cooled motor spindle
- / High drive performance
- / Thermoresistant construction
- / Large speed range
- / A2-6 (A2-8) spindle connection
- / Bar capacity Ø 65 (76,2/95) mm

## 3 TOOL TURRET

- / 12-station VDI 30 radial turret with 12 driven tool positions
- / VDI 40 radial turret available as an option
- / 12- or 16-station BMT turret with water-cooled direct drive available as an option
- / Swivel speed adjustable with override
- / Tapping without length compensation
- / Polygon turning, gear cutting operations, etc.

## 4 MACHINE COVER

- / All-round protection from chips
- / 100% coolant retention
- / Large safety glass window in door
- / Clear view of the work area
- / Built-in buttons for operator convenience

## 5 CHIP CONVEYOR (option)

- / Hinged type conveyor belt version
- / Ejection height 1110 mm
- / Level indicator and level monitoring
- / Emergency stop and maintenance switch
- / Coolant volume 250 litres

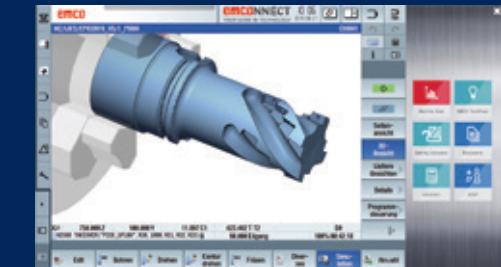
## 6 OIL SEPARATOR (option)

- / Mechanical separator
- / Pressure gauge for contamination display
- / HEPA after-filter attachment, filter class H13
- / Max. suction capacity: 1040 m<sup>3</sup>/h

## 7 FINISHED PARTS BELT (option)

- / Gentle parts deposit
- / Usable storage area 350 x 870 mm
- / Programmable by means of M-function
- / Chip button and coolant recirculation

## 8 CONTROL



### SINUMERIK ONE with OPERATE

- / Dialog programming SHOPTURN/SHOPMILL
- / 3D simulation for process verification
- / 22" MULTI-TOUCH screen
- / Ergonomically arranged
- / Height adjustable and tiltable
- / EMCONNECT process assistant as a basis for the SMART FACTORY (optional)



Machine with optional equipment

# CONSTRUCTION

## 1 MAIN SPINDLE

- / Dynamic direct drive
- / High drive power
- / Compact, thermostable construction
- / Large speed range
- / A2-6 (A2-8) spindle connection
- / Bar capacity diameter  $\varnothing$  65 mm (76/95)

## 2 MACHINE BASE

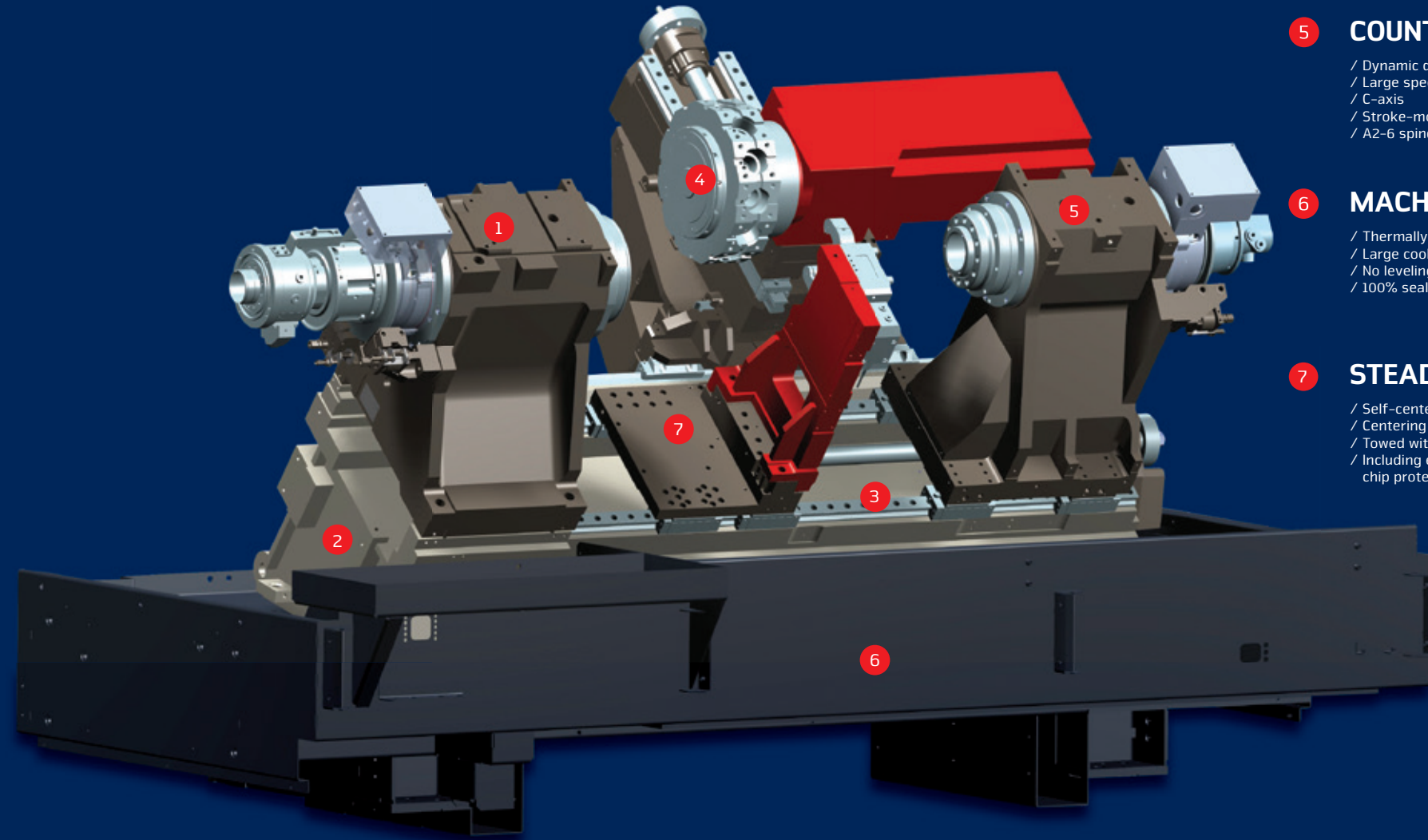
- / Extremely stiff welded steel construction
- / Compact structure
- / Very high thermostability
- / Filled with vibration-absorbing material

## 3 ROLLER GUIDES

- / In all linear axes
- / Preloaded
- / No backlash in any direction of force
- / High rapid motion speed
- / No wear
- / Minimal lubrication

## 4 TOOL TURRET

- / VDI quick change system
- / 12 driven tool stations
- / No alignment of the tool holder
- / Can be used on both spindles
- / 12- or 16-station BMT turret with direct drive (max. 12000 rpm) available as an option



## 5 COUNTER SPINDLE

- / Dynamic direct drive
- / Large speed range
- / C-axis
- / Stroke-monitored parts ejector
- / A2-6 spindle connection

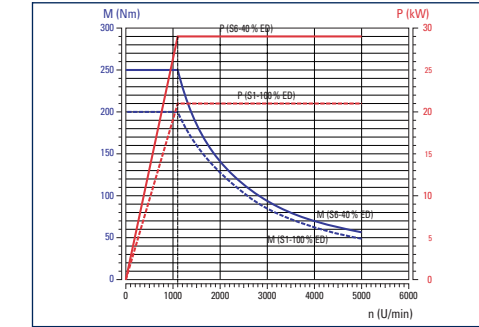
## 6 MACHINE STAND

- / Thermally isolated from the machine base
- / Large coolant container that is easy to clean
- / No leveling necessary
- / 100% sealed against coolant leaks

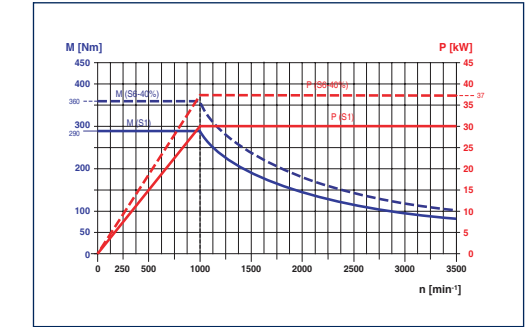
## 7 STEADY REST SLIDES

- / Self-centering steady rest
- / Centering range:  $\varnothing$  8-101 mm
- / Towed with Z-slide
- / Including end position control, chip protection and sealing air

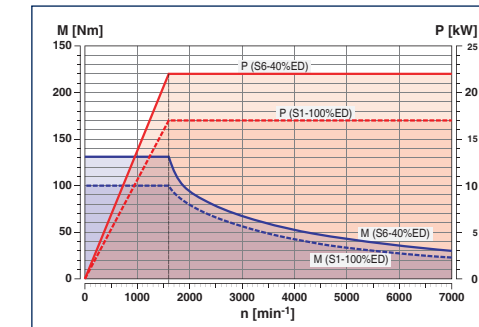
# PERFORMANCE AND TORQUE



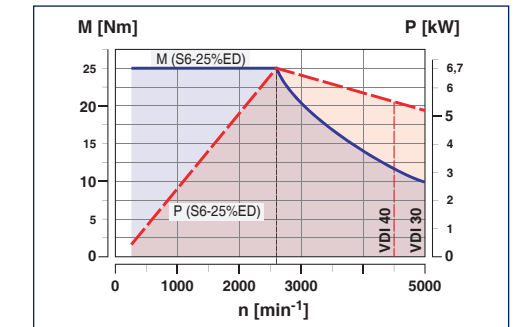
Main spindle  $\varnothing$  65/76,2 mm



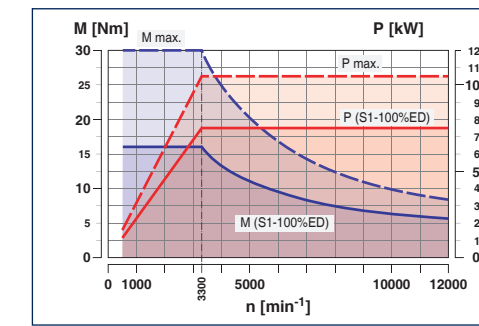
Main spindle  $\varnothing$  95 mm



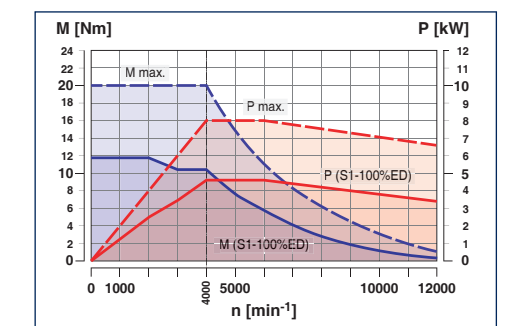
Counter spindle  $\varnothing$  45 mm



Tool turret - VDI 30/40 driven tools

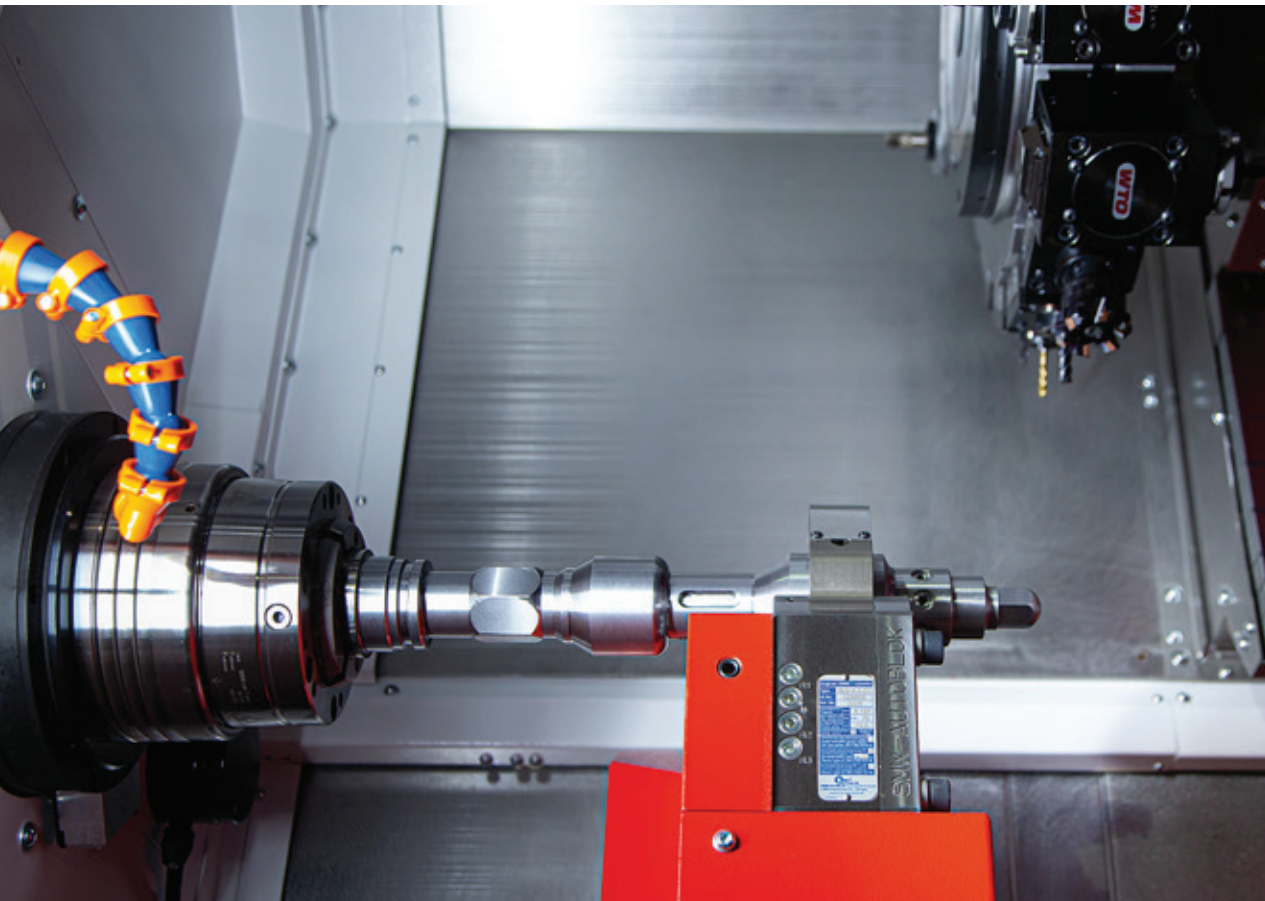


Tool turret with direct drive - BMT55P



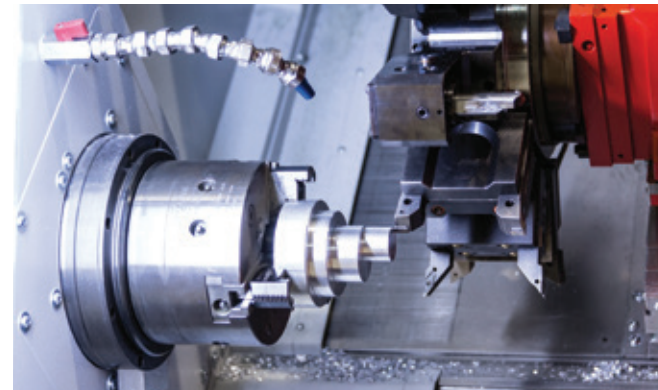
Tool turret with direct drive - BMT45P

# TECHNICAL HIGHLIGHTS



## WORK AREA

The generously dimensioned work area provides space for a large number of tools on the tool turret and, with an angle of inclination of 40°, ensures continuous chip flow even during low-manpower operations. An optional drag steady rest enables precise and safe machining of long shaft components. When not in use, it can be removed quickly and easily. The work area is optimally accessible, which also facilitates the setup for small batch sizes.



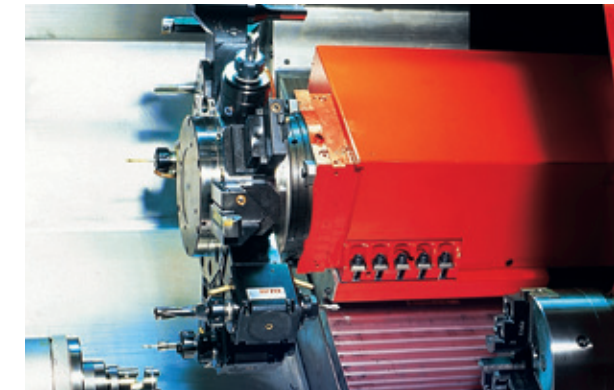
## MAIN SPINDLE

There are three spindle sizes to choose from. One is the 65 spindle with A2-6 and for larger bar parts once the 76 and the 95 spindle with A2-8. For complex milling operations, the spindle can be moved interpolating. The direct drive ensures extremely precise and dynamic positioning.



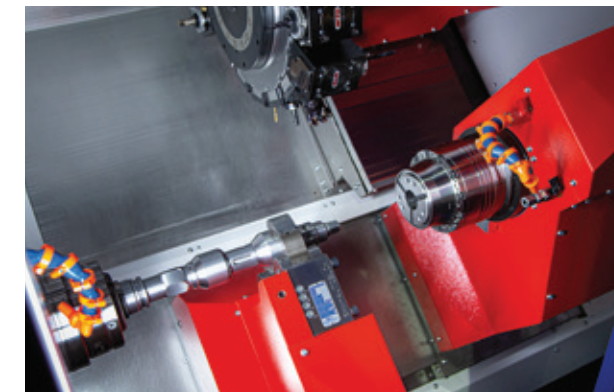
## COUNTER SPINDLE

The counter spindle is available for complete workpiece machining. Turning, milling and drilling operations can thus also be performed on the back of the workpieces. The concentric takeover of the workpieces offers another advantage: the possibility to maintain a very high level of accuracy with regard to the coaxiality, concentricity and angular position values.



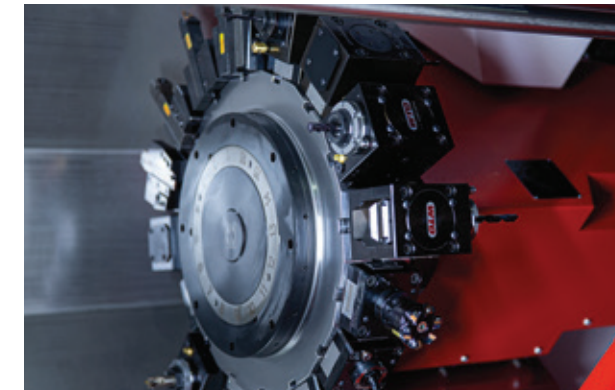
## TOOL TURRET WITH VDI QUICK-CHANGE SYSTEM

Fast 12-fold servo turret with very short switching times for VDI 30 or VDI 40 tools. The angle holders are equipped with ground alignment plates. This eliminates the need for time-consuming alignment of the tool holders. All stations are driven and the swivel speed is adjustable.



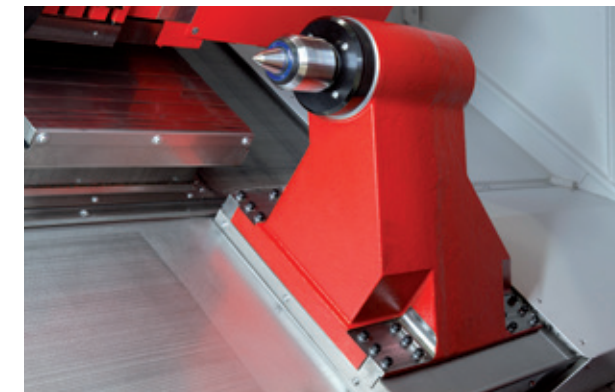
## STEADY REST

The hydraulically operated steady rest with a centering range of  $\varnothing 8 - 101$  mm sits on a sliding carriage which is dragged and positioned over the tool slide. It is hydraulically clamped into position by a clamping device. Equipped with chip protection and end position control, the steady rest is connected to the central lubrication system.



## BMT TURRET WITH DIRECT DRIVE

For the economical production of complex turning/milling workpieces with a predominantly milling component, a 12- or 16-position BMT turret with direct drive is available as an option. With up to 12000 rpm, this turret offers optimum conditions for complete machining. The stable BMT interface allows coolant pressures of up to 50 bar as standard and up to 150 bar as an option. Further advantages are the changeover accuracy and stability of the interface.

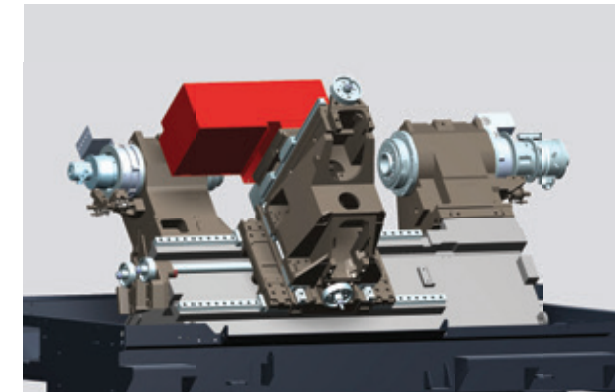


## TAILSTOCK

In order to support slim components, the MAXXTURN 65 G2 includes a fully automatic tailstock. It is hydraulically moved over a length of 500 mm. The centre with MT4 cone is directly included in the tailstock body. This ensures compactness and highest stability.

## HIGHLIGHTS

- / Powerful driven tools
- / Y-axis for complex milling operations
- / Counter spindle for complete machining
- / Flexible automatic tailstock
- / Steady rest for supporting shafts
- / Very compact machine layout
- / State-of-the-art control technology Sinumerik ONE incl. Shop Turn
- / Made in the Heart of Europe



## Y-AXIS CARRIAGE

The 90° offset machine base with the broad-based, prestressed guide rails ensures short overhangs and top stability for complete machining.

# 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.

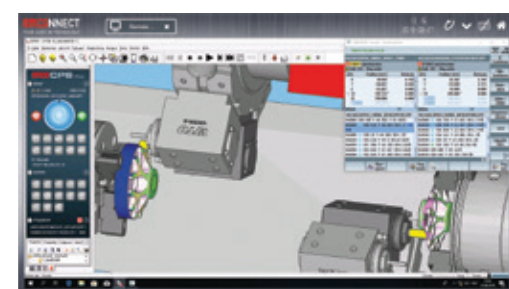
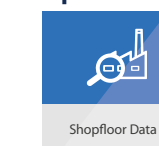
## EMCONNECT HIGHLIGHTS AND FUNCTIONS

- / 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



# 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

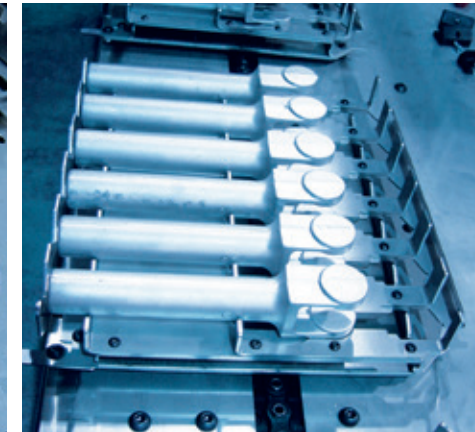
## AUTOMATIC RETURN ON INVESTMENT

### Workpiece magazine

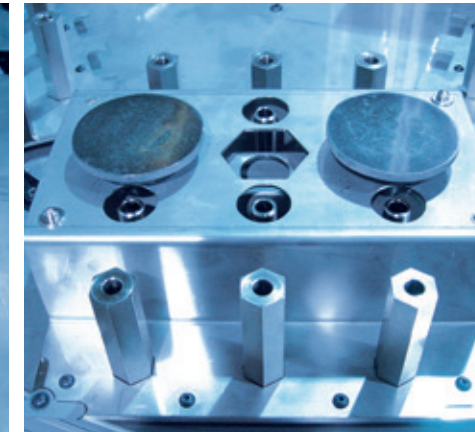
Blank-specific pallet attachments enable oriented loading of blanks into the machine and increase the parts stock for unmanned production. Changeover times are reduced or eliminated thanks to the perfect adjustment to the customer's parts.



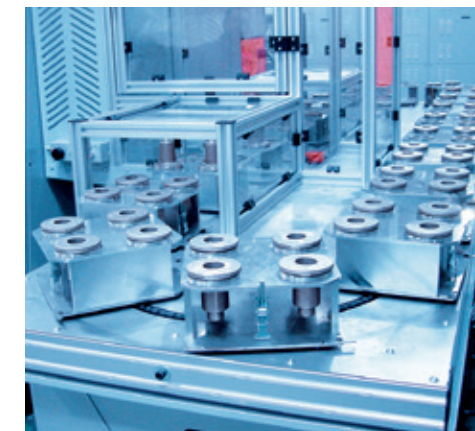
4-station pallet attachment for tees



6-station pallet attachment for articulated brackets



Multi-pallet attachment for a family of parts



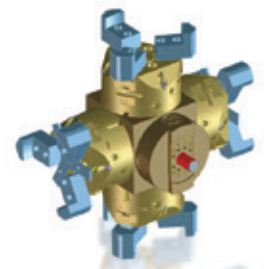
4-station pallet attachment for valve caps



20-station pallet magazine with customer-specific pallets



2 x 3-jaw double gripper head



4 x 3-jaw gripper head

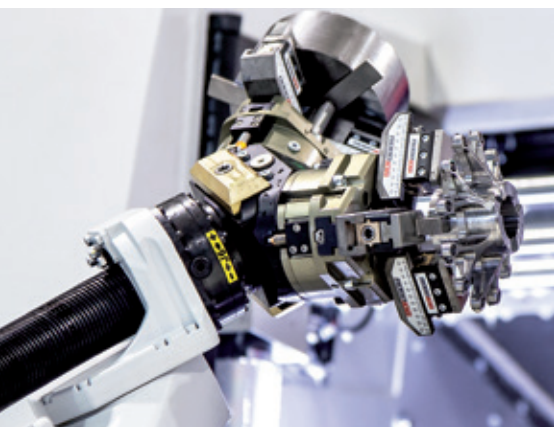


Shaft gripper head

# Turn-/Mill-Assist by EMCO

Compact standard automation for small and medium-sized batches for turning and milling machines.

More compact and more user-friendly than comparable solutions - characteristics that best describe the Turn/Mill-Assist for loading and unloading EMCO turning or milling machines. Depending on your range of parts and batch sizes, you can choose from among several models.



Compact, flexible all-in-one solution: MAXXTURN 65 G2 with Turn-Assist

/ Koren Peter  
Product Sales Manager Automation

*„The Turn-/Mill-Assist by EMCO is an automation concept tailored to the machining industry's requirements. I think that very short setup times and user-friendliness are decisive factors when it comes to profitable production.“*



## 1 OPTIMISED PROCESSES

With Turn-/Mill-Assist by EMCO, you will increase your profits and reduce the working hours by up to 70%.

- / Compact and space-saving solution
- / Graphically supported operation
- / Free access to the machine door
- / For small and medium-sized series
- / Very short configuration and setup times
- / No special knowledge about robots required
- / On-site installation and training



## 2 INTUITIVE, GRAPHICALLY SUPPORTED OPERATION COMBINED WITH CLEVER MECHANICS

Thanks to the very beginner-friendly control unit, the operator can quickly move into the implementation phase, thus increasing the processes' efficiency, profitability and flexibility to a significant extent.



## 3 SERVO-CONTROLLED STACKING TABLES

This model is equipped with two servo-controlled stacking tables which are capable of stacking larger quantities of both blanks and machined parts. This too is a contribution to longer unmanned production times during which your skilled workers can be entrusted with other activities.

✓ The EMCO short bar loaders.  
Universal and powerful.



## SHORT AND TO THE POINT.

The EMCO SL 1200 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.

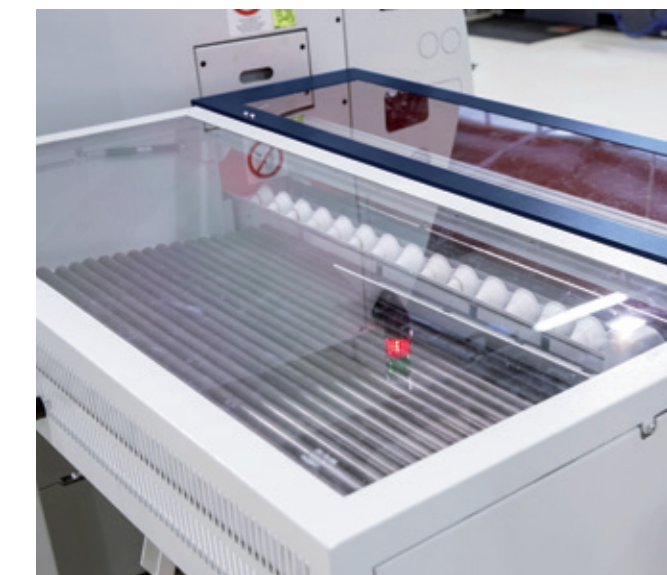
The technology. The EMCO SL 1200 can be used immediately as a "plug-and-play" solution. Their extremely small footprint enables processes to be automated even if space is tight. Apart from complying with the latest safety requirements, it is easy to operate and

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 SL 1200

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.

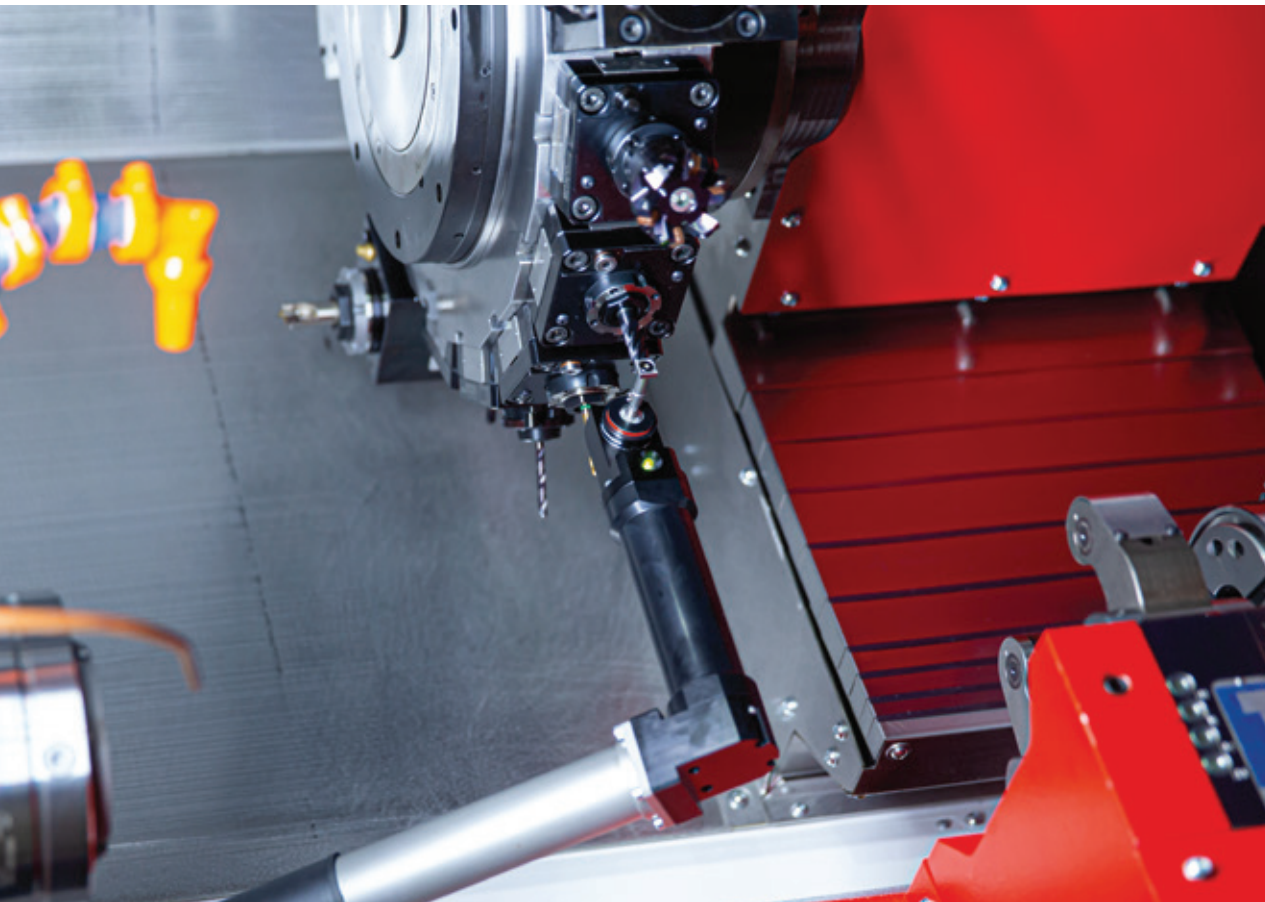
## THE BENEFITS

- / 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          | SL 1200         |
|-------------------------|-----------------|
| 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  |

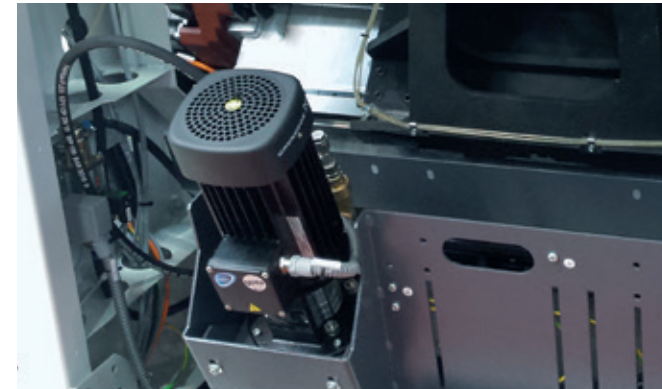


## OPTIONS



### TOOL MEASUREMENT

The optional tool measuring sensor in the work area allows for fast and precise tool measurement within the machine. It is manually mounted below the main spindle. After use, it is removed and placed onto a tray on the left-hand side of the machine casing.



### INCREASED COOLANT PRESSURE

A 14 bar coolant pump is available as an option and alternative to the 3.5 bar version. It completes the pumps in the basic machine. For maintenance purposes and to clean the coolant tray, the pumps can easily be swung out so that the coolant tray can be pulled out towards the front.



### AUTOMATIC WORKPIECE MEASUREMENT

With a radio measuring probe on the turret, certain features on the workpiece can be measured and precisely reworked while the process is still running. Extensive measuring cycles facilitate the application.



### FINISHED PARTS CONTAINER

The parts catcher automatically transports the finished parts to a container. The workpieces can be removed at any time for inspection. A safety flap prevents any risk of injury.



### FINISHED PARTS CONVEYOR

The finished parts catcher places the machined parts onto a collector belt. Since the belt is clocked, the parts – which are often very complex – are kept from falling on top of each other.



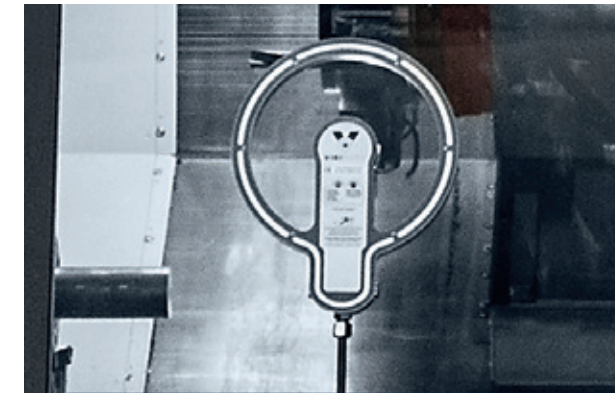
### CHIP CONVEYORS

Instead of the coolant trough in the basic machine, a slat-band chip conveyor can be offered as an option. It reliably conveys chips of various types out of the machine's working area. This enables low-manpower operations.



### BELT FILTER SYSTEM

If required, it is possible to install an optional 600-litre belt filter system with 25 bar high-pressure coolant pumps. It increases both the cooling emulsion volume and the coolant's service life.



### SPIN WINDOW

The optional spin window allows for a perfect view into the work area, also during machining with coolant. Thanks to the spinning pane, the coolant is slung away immediately after the impact. Thus, the pane remains perfectly clear.



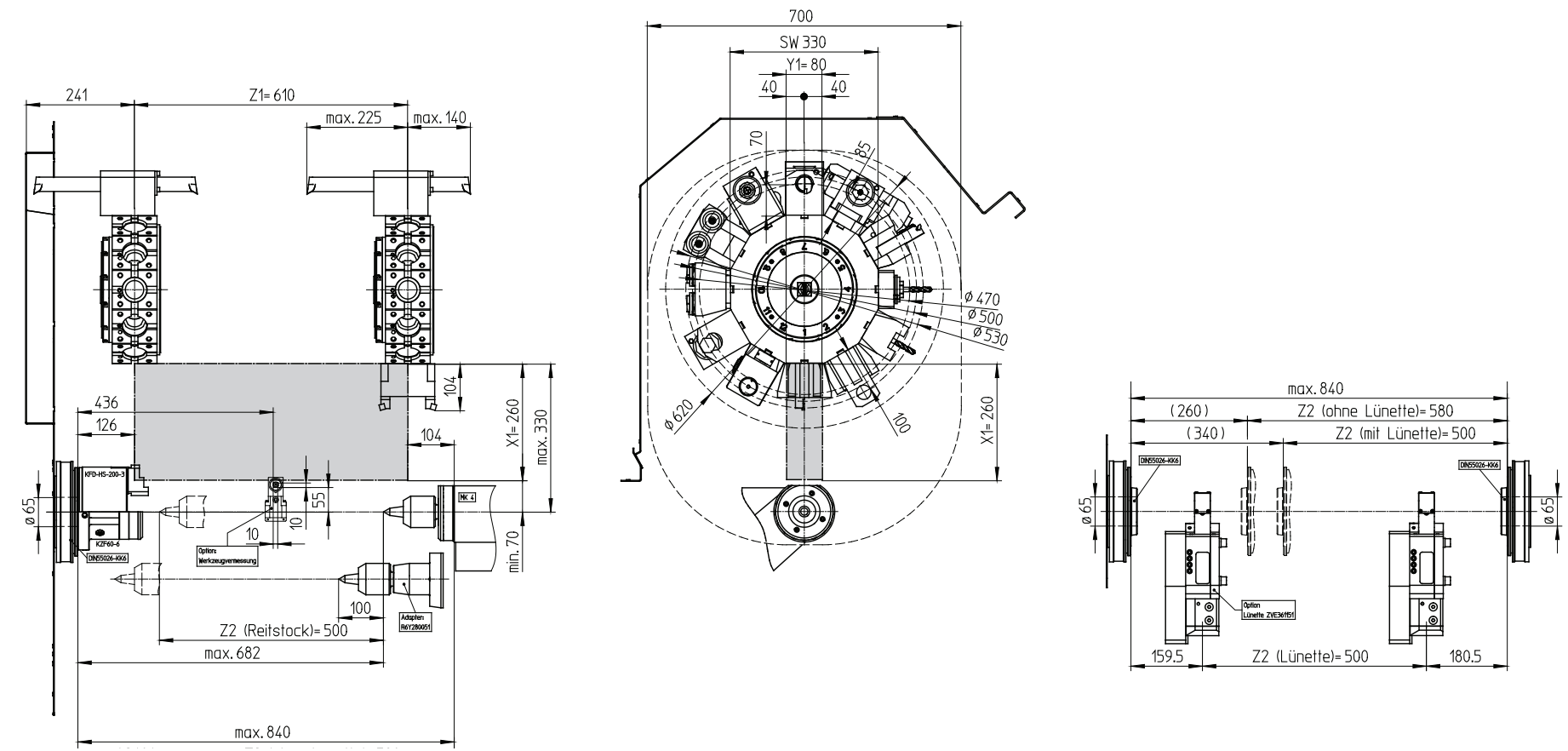
### TOOL MEASURING ARM STORAGE

Protected storage area for the measuring sensor and the adjustment gauge.



# WORK AREA

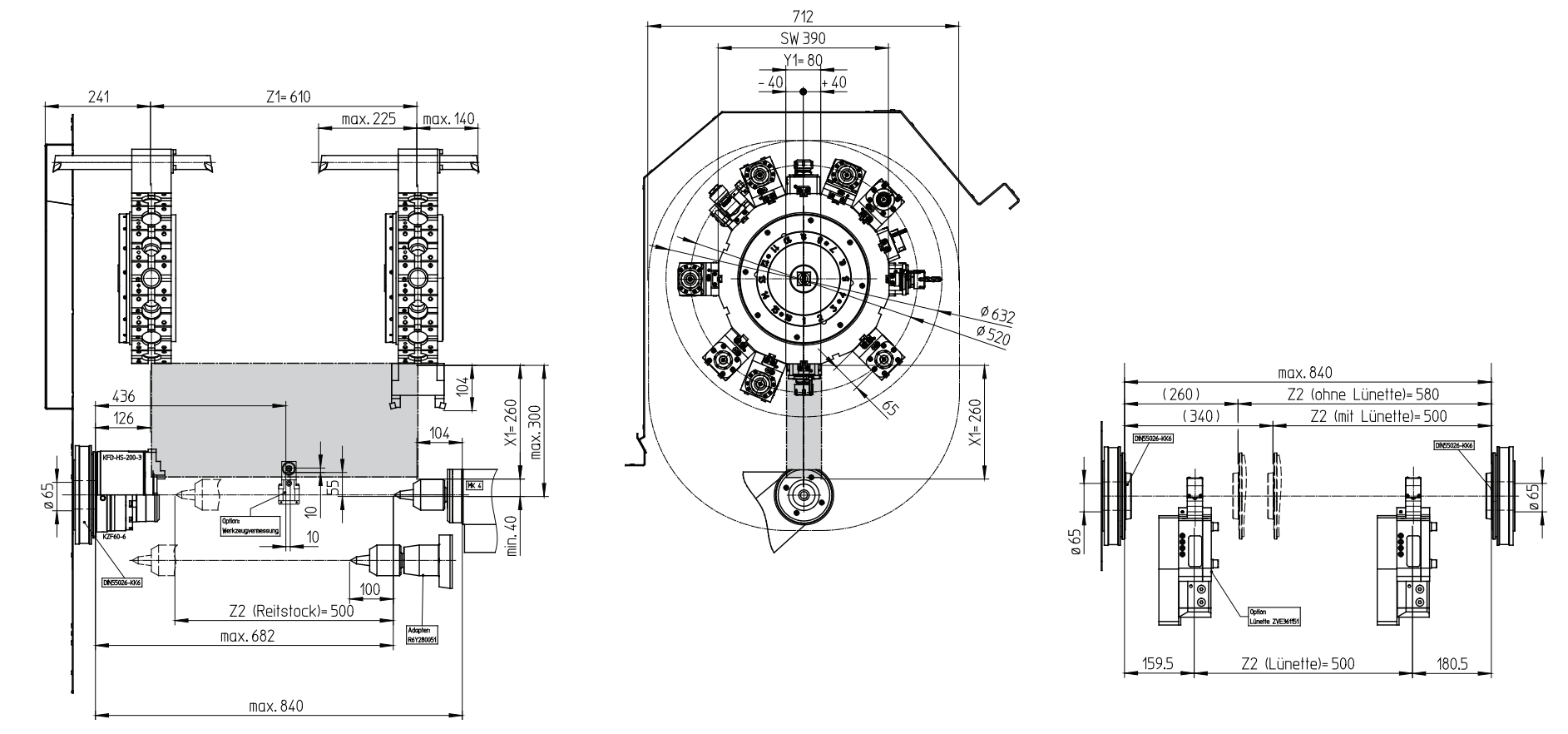
Work area MT65 G2 with 12-position BMT55 turret



Indications in millimeters

# WORK AREA

Work area MT65 G2 with 16-barrel BMT45 turret



Indications in millimeters

# TECHNICAL DATA

## Work area

|   |                   |
|---|-------------------|
| Swing over bed                                | Ø 725 mm          |
| Swing over slide                              | Ø 400 mm          |
| Distance between centers in tailstock version | 682 mm            |
| Main spindle / counter spindle distance       | 840 mm            |
| Maximum turning diameter                      | Ø 500 mm          |
| Maximum part length                           | 520 mm            |
| Maximum bar diameter                          | Ø 65 (76,2/95) mm |

## Travel

|                 |               |
|-----------------|---------------|
| Travel in X / Z | 260 / 610 mm  |
| Travel in Y     | 80 (+/-40) mm |

## Main spindle (ISM)

|   |                          |
|---|--------------------------|
| Speed range                               | 0 – 5000 (4000/3500) rpm |
| Maximum drive power                       | 29 (29/37) kW            |
| Max. torque on the spindle                | 250 (250/360) Nm         |
| Spindle nose DIN 55026                    | A2-6 (A2-8/A2-8)         |
| Spindle bearing (inner diameter at front) | 105 (130/140) mm         |
| Spindle bore hole                         | Ø 73 (86/106) mm         |

## Counter spindle (ISM)

|  |              |
|--|--------------|
| Speed range                                | 0 – 6000 rpm |
| Maximum drive performance                  | 22 kW        |
| Max. torque on the spindle                 | 130 Nm       |
| Spindle nose DIN 55026                     | A2-6         |
| Spindle bearing (inside diameter at front) | 85 mm        |
| Spindle bore hole                          | 53 mm        |

## Tailstock

|  |                  |
|--|------------------|
| Tailstock travel                                 | 500 mm           |
| Maximum contact pressure                         | 8000 N           |
| Maximum travel speed                             | approx. 20 m/min |
| Inner cone for taking up the roller centre punch | MT 4             |

## C-axis

|                       |          |
|-----------------------|----------|
| Round axis resolution | 0,001°   |
| Rapid motion speed    | 1000 rpm |

## Tool turret

|                                       |                      |
|---------------------------------------|----------------------|
| Number of tool positions (all driven) | 12                   |
| VDI shaft (DIN 69880)                 | 30 (40) mm           |
| Tool cross-section for square tools   | 20 x 20 (25 x 25) mm |
| Shaft diameter for boring bars        | 32 mm                |
| Tool change time                      | 0,2 (0,3) sec.       |

## Driven tools DIN 5480

|                     |                     |
|---------------------|---------------------|
| Speed range         | 0 – 5000 (4500) rpm |
| Maximum torque      | 25 Nm               |
| Maximum drive power | 6,7 kW              |

\* For machines including laser measurement and pitch error compensation

## Tool turret with BMT interface and direct drive

|                                     |                      |
|-------------------------------------|----------------------|
| Number of tool positions            | 12 / 16              |
| Precision interface                 | BMT55-P / BMT45-P    |
| Tool cross section for square tools | 25 x 25 / 20 x 20 mm |
| Shank diameter for boring bars      | 40 / 32 mm           |
| Tool change time                    | 0,5 sec.             |
| Speed range                         | 0 – 12000 rpm        |
| Max. torque                         | 30 / 20 Nm           |
| Max. drive power                    | 10 / 8 kW            |

## Feed drives

|  |                      |
|--|----------------------|
| Rapid motion speed X / Y / Z                 | 30 / 15 / 30 m/min   |
| Feed force in the X / Y / Z                  | 5000 / 7000 / 7000 N |
| Feed force in the Z2 axis (counter spindle)  | 8000 N               |
| Positioning scatter Ps VDI 3441 in X / Y / Z | 2 / 2 / 2 µm *       |

## Coolant system

|                             |                      |
|-----------------------------|----------------------|
| Tank volume (optional)      | 230 (250/720) liters |
| Coolant pressure (optional) | 3,5 (14 / 25) bar    |
| Pump power (optional)       | 0,57 (2,2 / 3) kW    |

## Power consumption

|                |        |
|----------------|--------|
| Connected load | 40 kVA |
| Compressed air | 6 bar  |

## Dimensions and weight

|                                      |                 |
|--------------------------------------|-----------------|
| Height of spindle center above floor | 1180 mm         |
| Machine height                       | 2405 mm         |
| Machine footprint L x D              | 3350 x 2330 mm  |
| Total weight                         | approx. 7000 kg |

## EMCO SL1200

|                         |                |
|-------------------------|----------------|
| Bar length              | 250 – 1200 mm  |
| Bar diameter            | Ø 8 – 95 mm    |
| Material support        | ca. 560 mm     |
| Length                  | 1700 mm        |
| Width                   | 1250 mm        |
| Height (Spindle center) | 1090 – 1380 mm |
| Weight approx.          | ca. 500 kg     |

## Safety devices CE compliant

beyond standard /

EMCO GmbH / Salzburger Str. 80 / 5400 Hallein-Taxach / Austria / T +43 6245 891-0 / F +43 6245 86965 / info@emco.at

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