

**emco**group

Designed for your profit



# MAXXTURN 65

Universal turning center for complete  
machining of bar stock and chuck work

**TURNING**  
EMCO-WORLD.COM

# MAXXTURN 65-1000

The MAXXTURN 65 is a new development in the MAXXTURN range. Its smart modular design means it perfectly meets specific customer requirements. Two identical high-performance spindles set the basis for unlimited machining. A turret 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.

## 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

- 12-station tool turret
- VDI30 (VDI40) quick-change system
- 12 driven tool stations
- Servo-controlled
- Rigid tapping
- Polygonal turning, etc.
- New with BMT-turret and direct drive

## 3 Y-AXIS

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

## 4 WORK AREA

- Large spindle distance 1050 mm
- Optimum accessibility
- Straight chip drop
- Stainless steel covers and linings

## 5 CONTROL UNIT

- Ergonomically arranged on the right from the working area
- Swiveling
- Height-adjustable
- SINUMERIK 840D sl / 22" or FANUC 31iB / 15"
- Conversational programming (ShopTurn / Manual Guide I)
- 3D simulation
- USB interface

## 6 COUNTER SPINDLE

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

## 7 CHIP CONVEYOR

- Hinged type conveyor belt
- Ejection height 1200 mm
- Integrated coolant tank 350 l
- Turret pump 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
- Protected against chips and coolants
- Universally applicable
- Including along-integrated prefabricated part buffering belt



Machine with optional equipment



Toothed pulley  
(Aluminium)



Sprocket adapter  
(Aluminium)

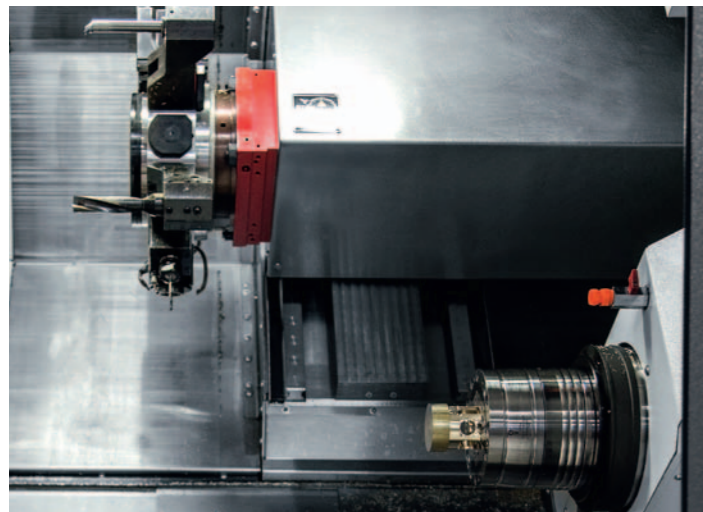


Adjustment sleeve  
(Stainless steel)

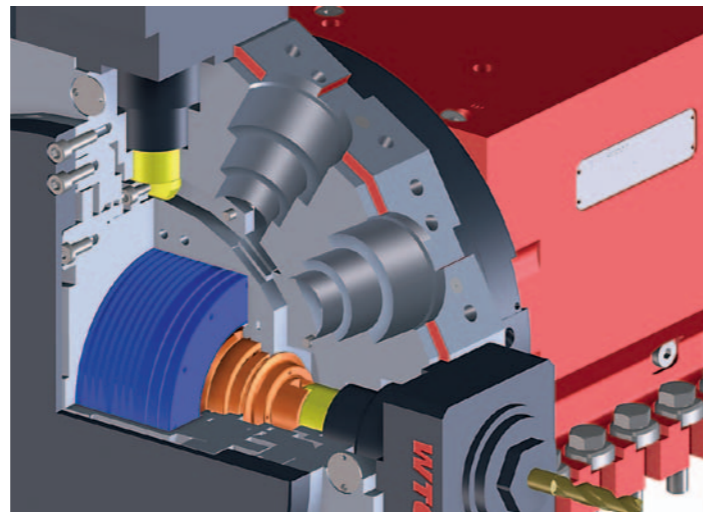


Distributor body  
(Steel)

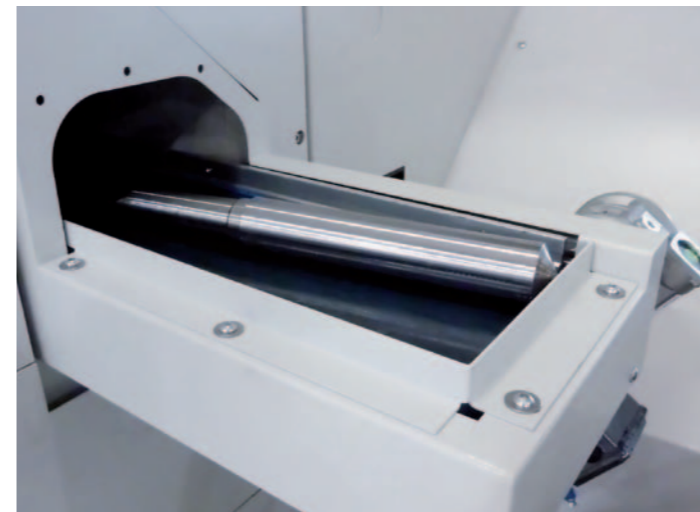




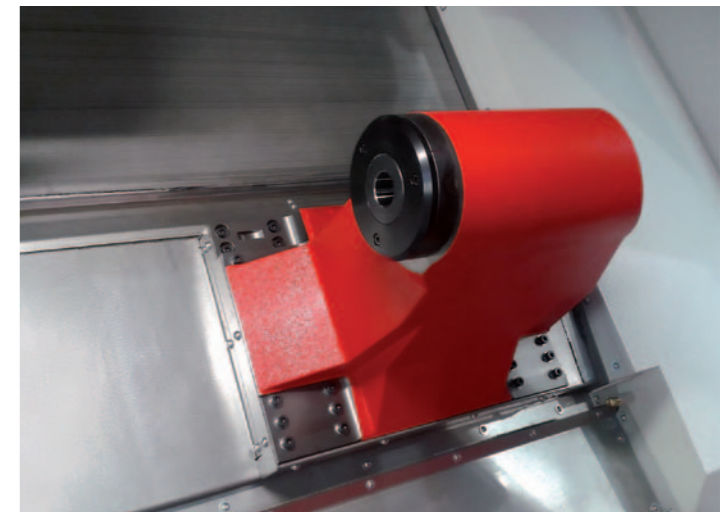
**Tool turret.** Fast 12-station servo turret with very short switching times for standardized VDI30 or VDI40 tools. All stations can hold driven tools for drilling. The operator is able to control the indexing speed with the override switch at any time.



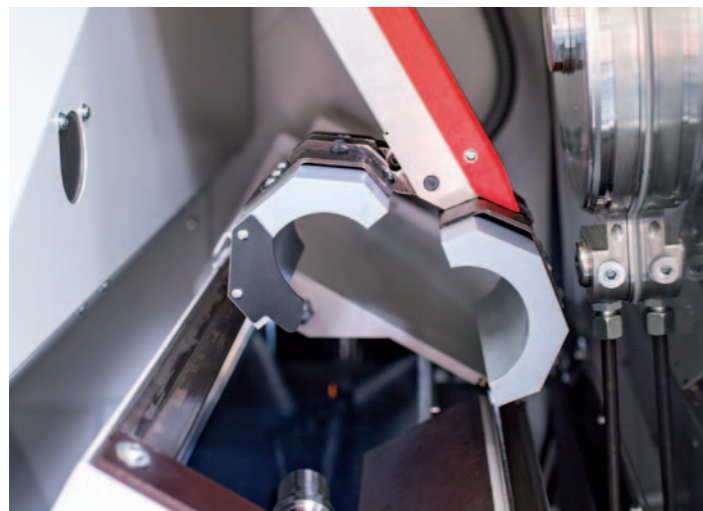
**BMT-turret.** For economical production of complex turned/milled parts with mainly milling share, there is optional the BMT-turret with water cooled direct drive. With max. 12000 rpm 30 Nm and 10 kW, this turret offers optimal prerequisites for the complete machining.



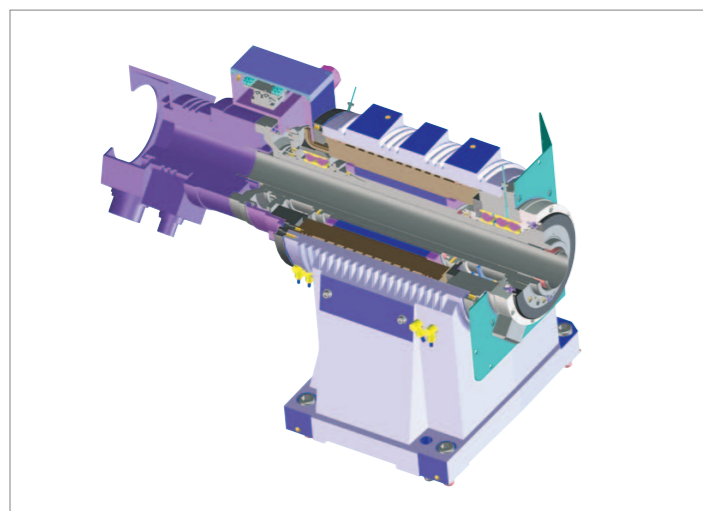
**Finished part conveyor belt.** On the conveyor belt within the machine casing, arranged lengthwise, with a storage surface of 1400 x 180 mm, the work pieces are put down damage free.



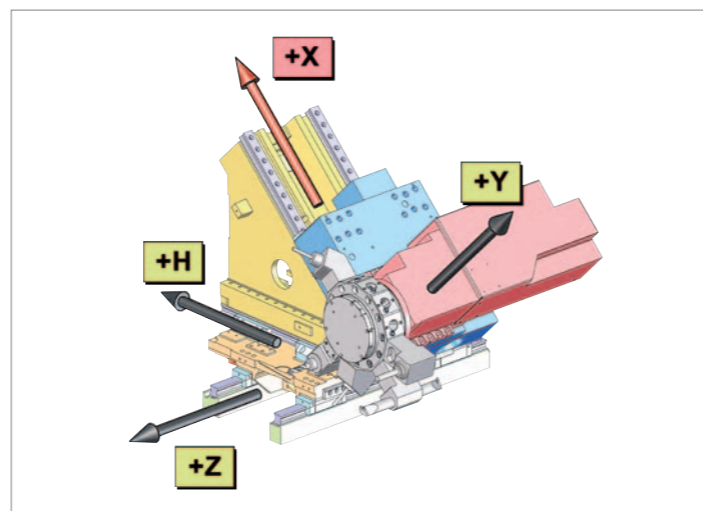
**Tailstock.** For shaft-type application, the MAXXTURN 65 offers two tailstock versions. On the one hand an universal, hydraulic movable tailstock for manually loaded machines and on the other hand a NC-tailstock for fully automatic loaded machines. With the advantage of very short idle times.



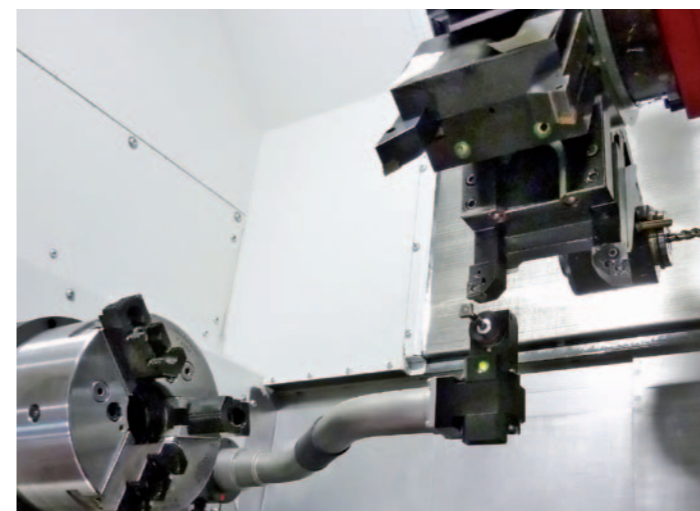
**Parts catcher.** The MAXXTURN 65's electro-pneumatic parts catcher is controlled using M functions. When needed, it traverses to the front of the work area and pivots to the spindle center. The finished part is removed from the clamping device and transferred to the catcher tray. The parts catcher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



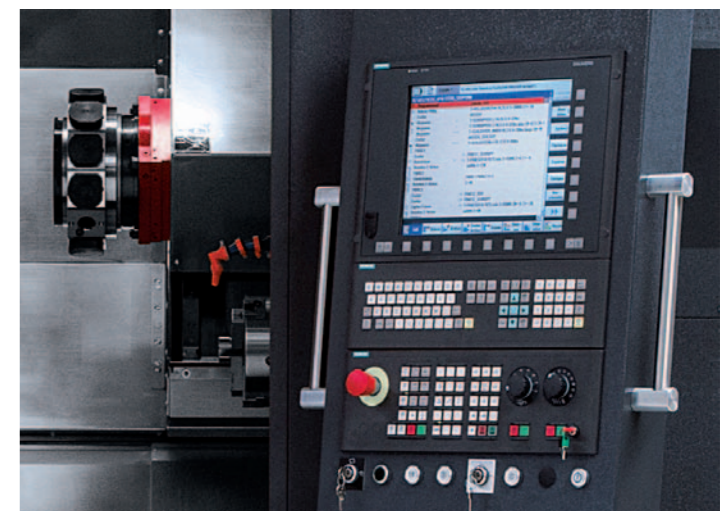
**Integrated spindle motor (ISM).** The latest synchronous technology guarantees the highest dynamics and exceptional torque in a compact design. Liquid cooling in conjunction with automatic temperature control maintains a constant temperature for all spindle motors.



**High-precision Y-axis.** The MAXXTURN'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.



**Tool measuring.** The tool measuring arm equipped with a touch-probe 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.



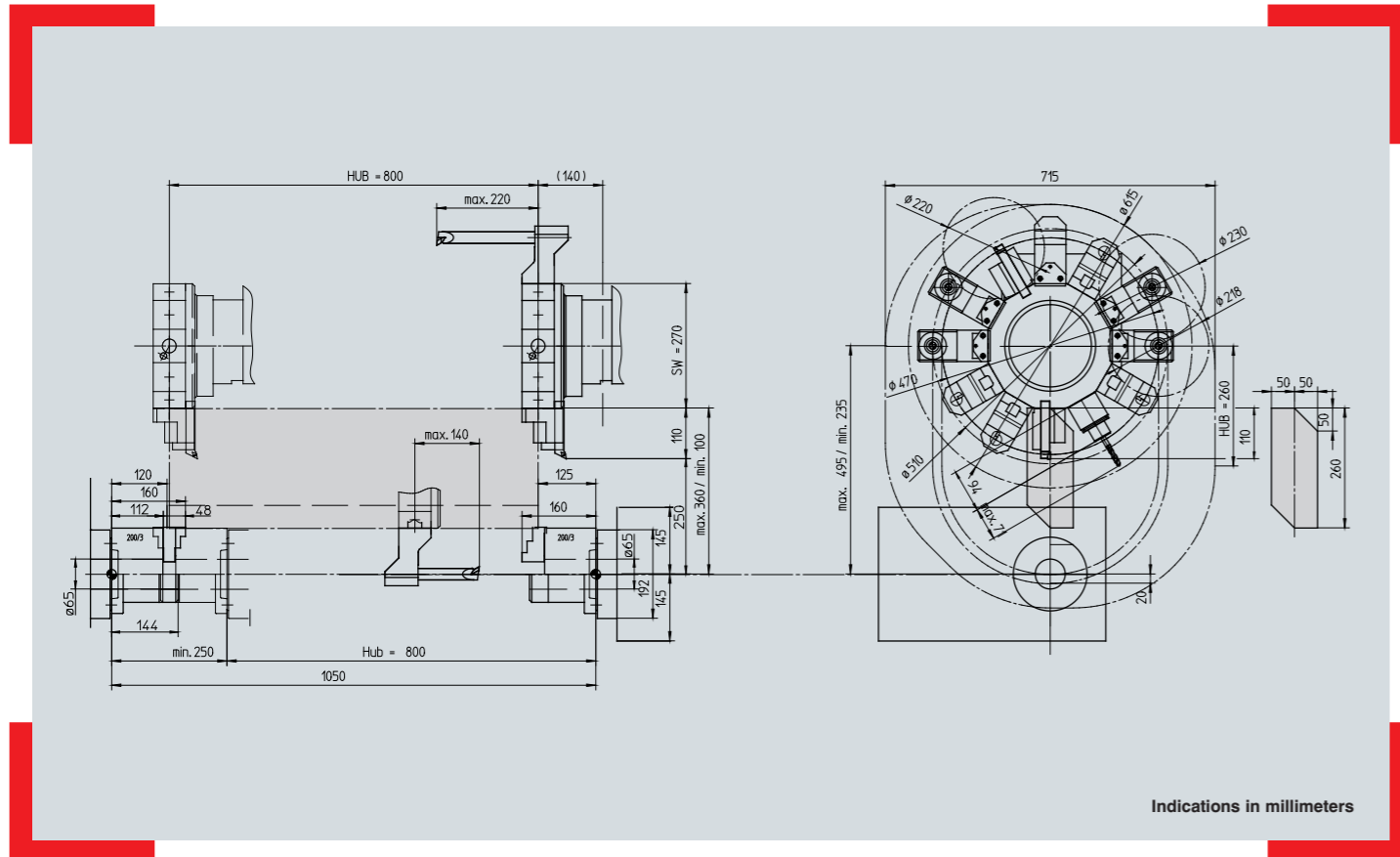
**Control.** The Sinumerik 840D sl with operate user interface resp. Fanuc 31i with Manual Guide i is ergonomically arranged on the right from the working area and can be swiveled 80°. Depending on customer requirements a 15" colour monitor instead of a 10,4" monitor is available. The monitor can be changed in height by approximately 100 mm and on the bottom is a 230 Volt socket, which can be used for any electrical device.

# MAXXTURN 65 Technical Highlights

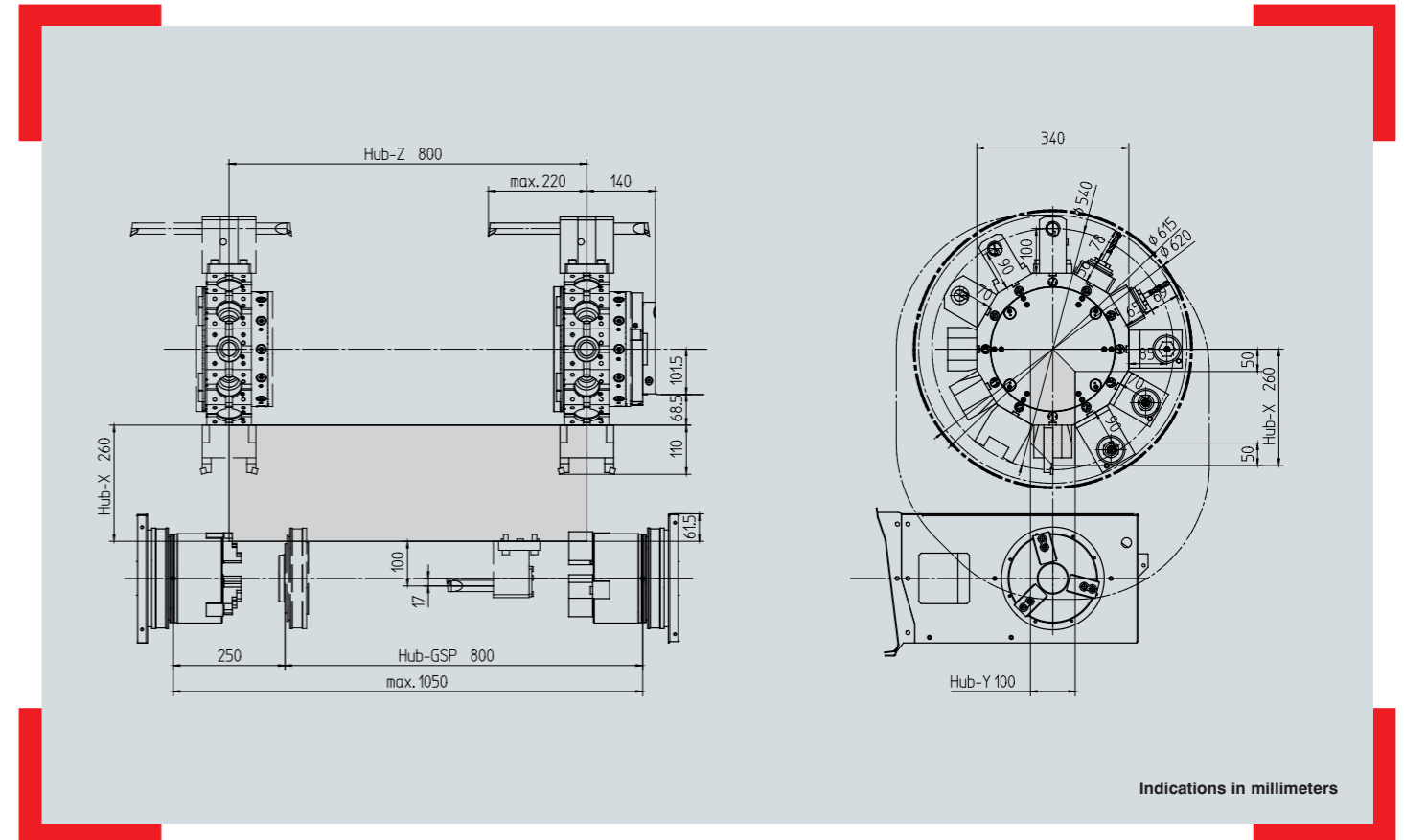
## Highlights

- 2 high performance and water cooled spindle motors
- 12-station turret with VDI 30 / 40 quick-change system
- Optional with BMT-turret and direct drive up to 12 000 rpm
- Y-axis for processing of complex turned/milled parts
- Bar stock feed up to ø 95 mm
- Optimum chip flow and user-friendly work area
- Sinumerik 840D sl or Fanuc 31i for high-performance drive and controls
- Made in the Heart of Europe

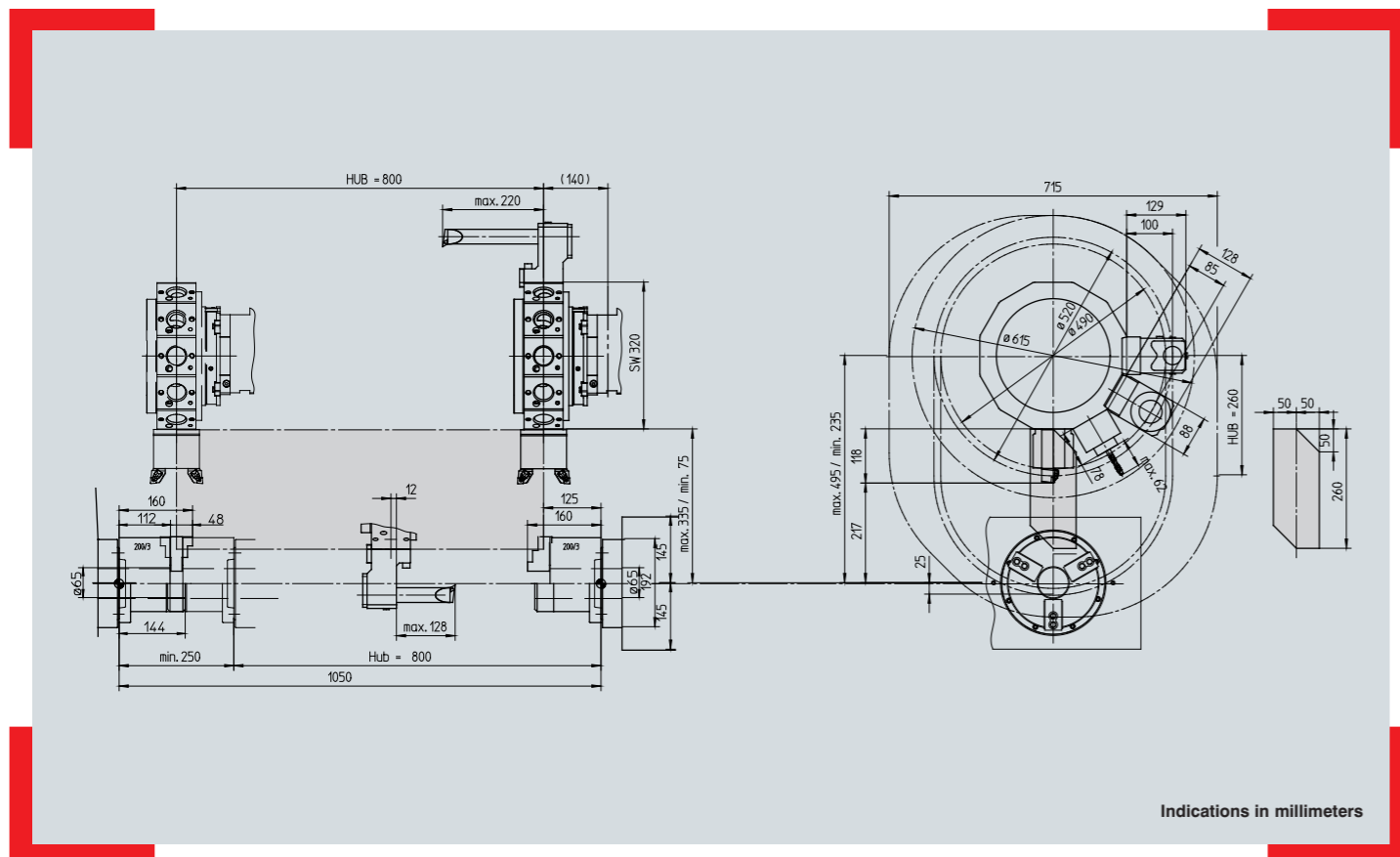
## Workspace Maxxturn 65-1000 with VDI30



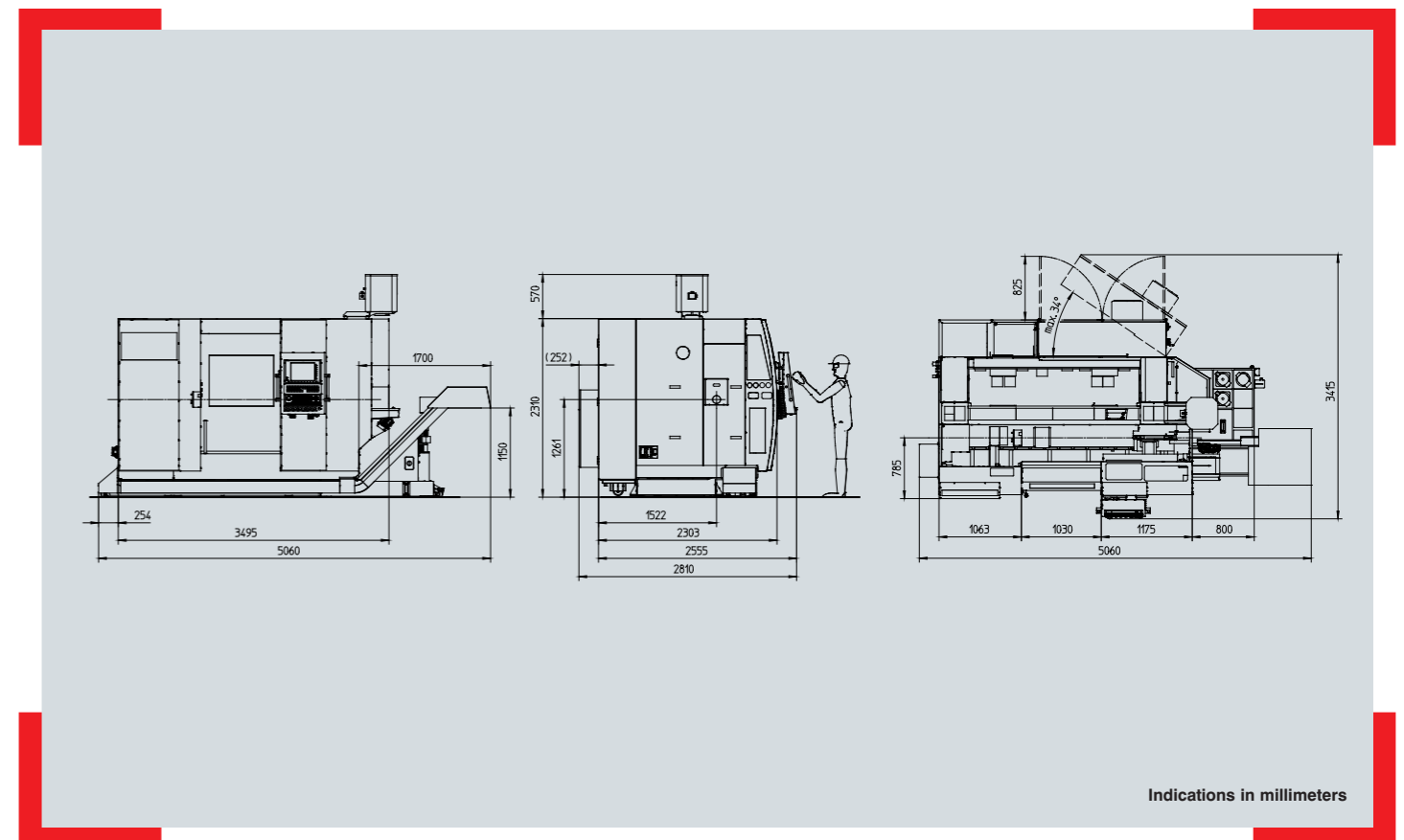
## Workspace Maxxturn 65-1000 with BMT55



## Workspace Maxxturn 65-1000 with VDI40

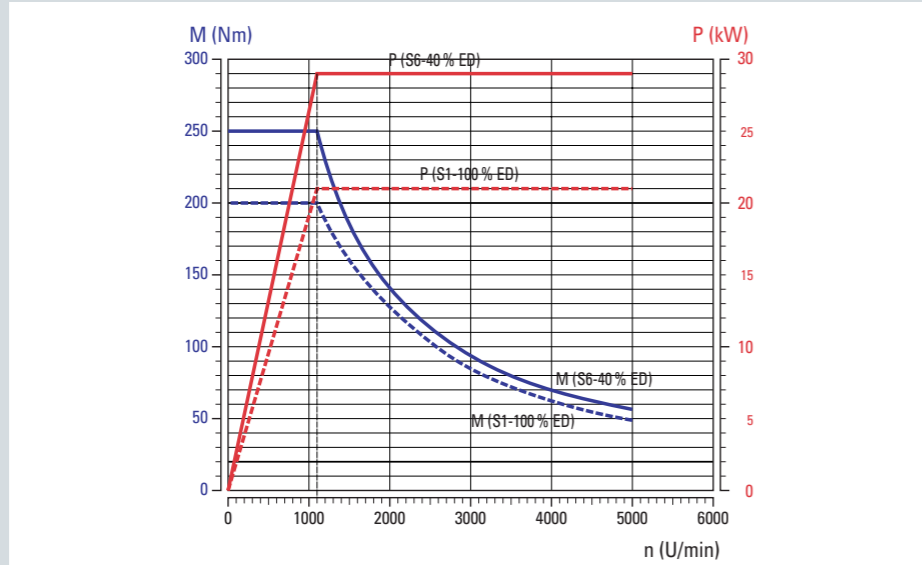


## Machine layout Maxxturn 65-1000

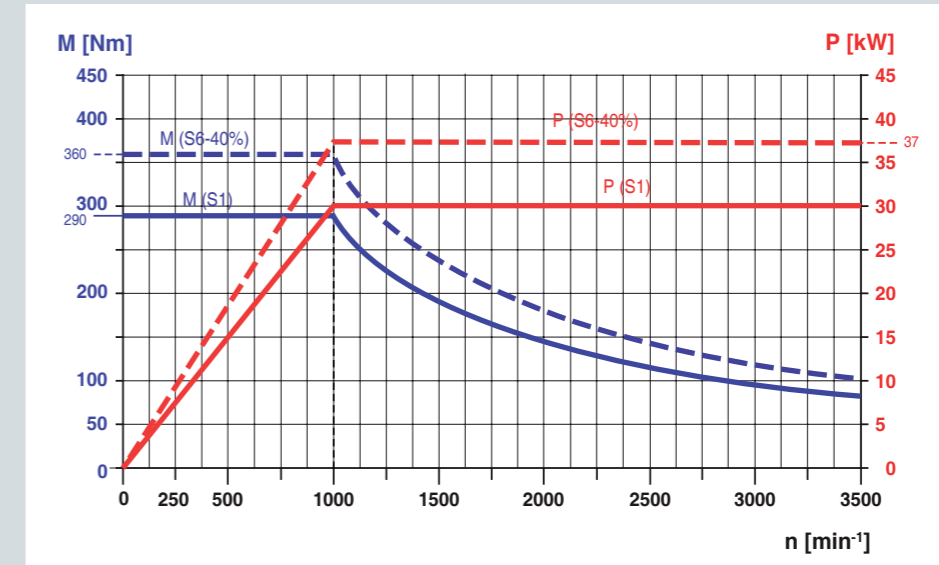




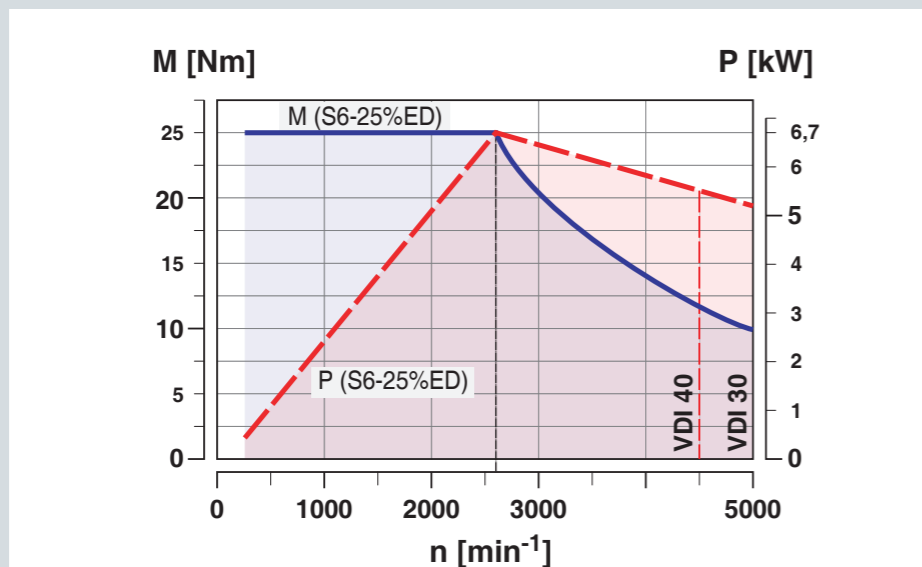
## Performance and torque Maxxturn 65 main and counter spindle $\varnothing$ 65/76,2 mm



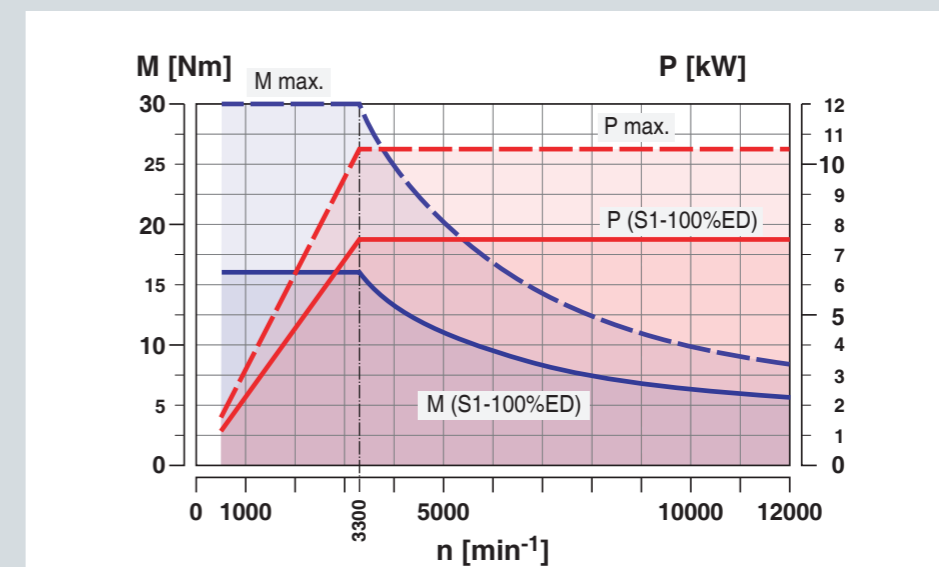
## Performance and torque Maxxturn 65 main spindle $\varnothing$ 95 mm



## Performance and torque Tool turret - driven tools VDI 30/40



## Performance and torque Tool turret - driven tools BMT55P



# The EMCO gantry loader. Individual process optimization.

1 GANTRY LOADER

2 PALLET MAGAZINE



## 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 load

# Automatic Return on Investment

## Workpiece magazine

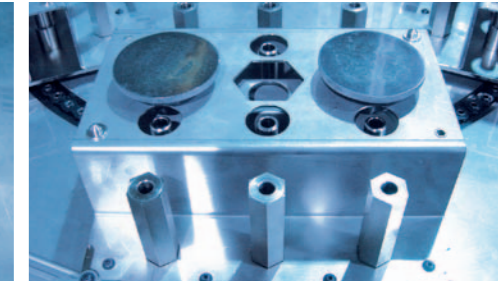
Blank-specific pallet attachments enable oriented loading of blanks into the machine and increase the parts stock for unmanned production. Changeover times are reduced or eliminated thanks to the perfect adjustment to the customer's parts.



4-station pallet attachment for tees



6-station pallet attachment for articulated brackets



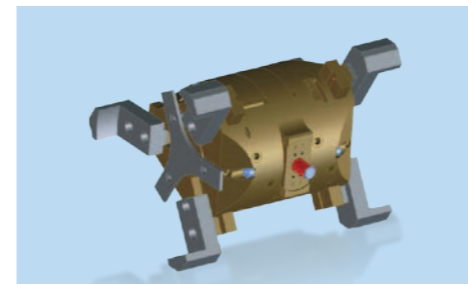
Multi-pallet attachment for a family of parts



4-station pallet attachment for valve caps



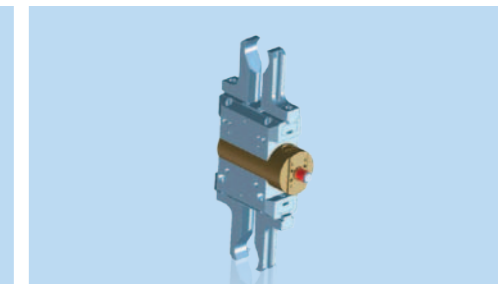
20-station pallet magazine with customer-specific pallets



2 x 3-jaw double gripper head



4 x 3-jaw gripper head

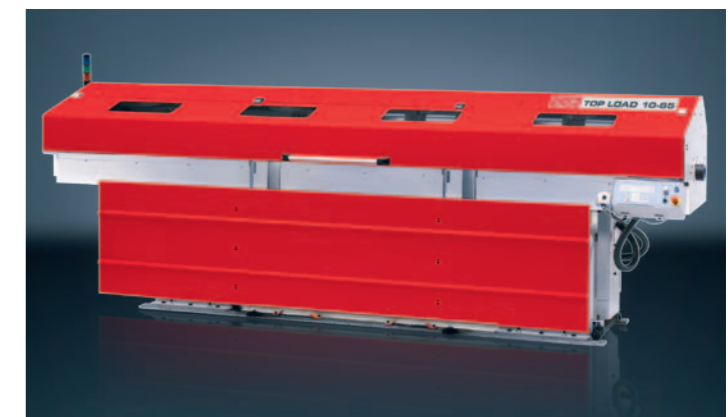


Shaft gripper head

## EMCO Stangenlader



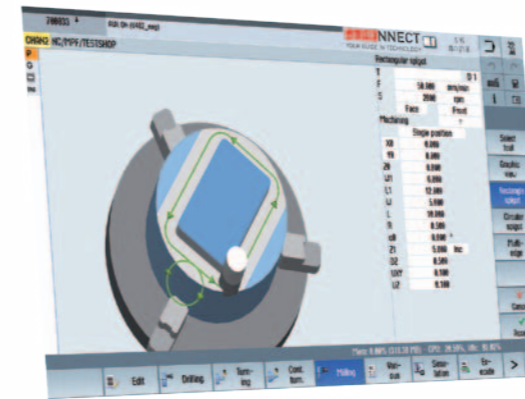
**EMCO short bar loader.** In view of the ever-increasing pressure on floorspace for machines, EMCO has developed the most compact short loader on the market: the EMCO SL1200.



**EMCO Top Load 10-65.** 3-metres of bar material may be loaded into the machine in a fully automated way. Multi-Level material supports enable unmanned operation for an even longer period of time.



Your “Control Center” for the entire production flow



**SINUMERIK - the Control and the Machine's Centerpiece**

Thanks to the App Launcher operators may switch between the emcoNNECT Apps and the control at any time. All it takes to do so is a click on the emcoNNECT logo. To improve the work processes on the machine the control can, as shown in the picture, be operated in full screen mode or in interaction with practical apps (sidebar).

**DASHBOARD – For a Quick Overview of the Machine Status**

Clear and compact processing of all relevant machine and NC data depending on the configuration of the machine (number of tool systems, spindles, ...) and the active operating mode (JOG, MDA, AUTO). Know at a glance whether everything is OK or whether the machine operator will be required to interact.

**MACHINE DATA – All Data related to Productivity at a Glance**

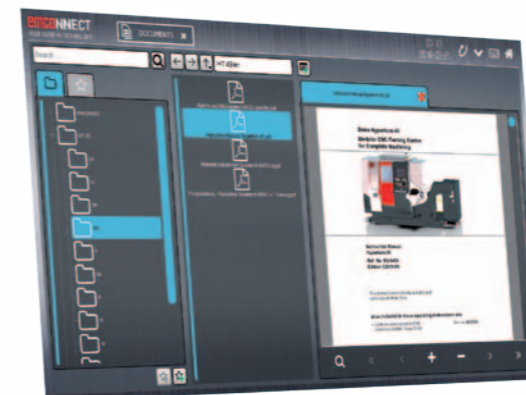
Operating data collection to inform the user about the current production status and OEE (Overall Equipment Effectiveness) values full screen or sidebar.



emcoNNECT's hardware basis is a 22" industrial touch control panel combined with an industrial PC (IPC).

**Highlights**

- Direct interaction between EMCO Apps and the control
- Intuitive user interface optimized for touch control
- Range of available applications is continuously being expanded
- Customised and project-specific applications
- Optimized for the EMCO machine range
- emcoNNECT allows for easy and quick configuration and updating



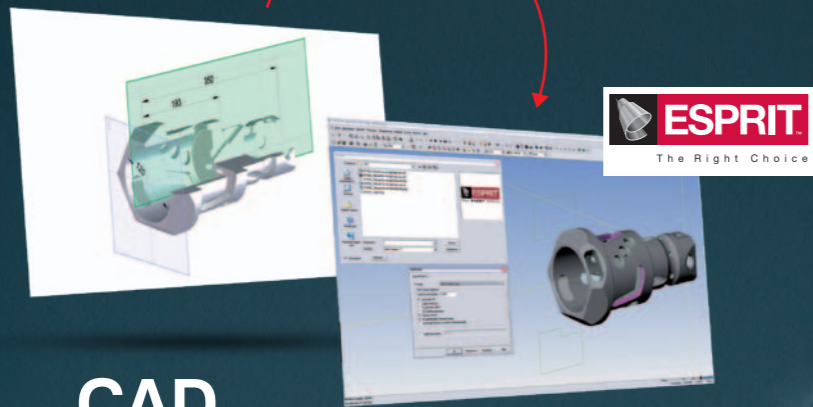
**DOCUMENTS – A Digital and Expandable Document Collection Customised to Suit Your Individual Needs**

To display PDF documents such as machine documentations, programming instructions, process descriptions ... Including favourites management - full screen or sidebar



# Virtual workflow. Real benefits.

The Esprit CAM system offers high flexibility and process security, a comprehensive selection of machining cycles, maximum tool control, and cross-machine technology for your entire production facility. EMCO CPS Pilot provides for a 1:1 mapping of the real machine for defining and testing processes, optimizing machining sequences, and training new operators.



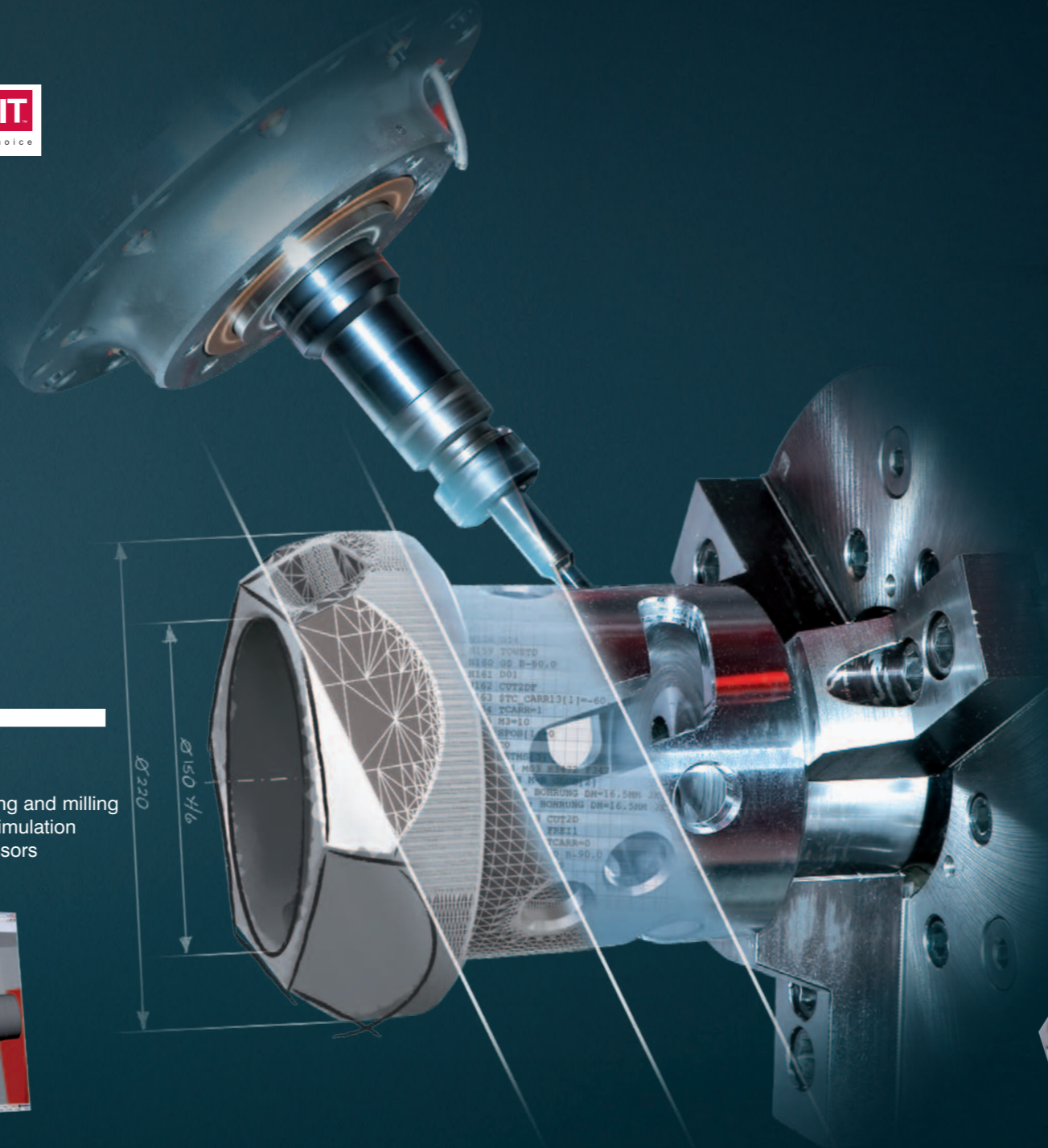
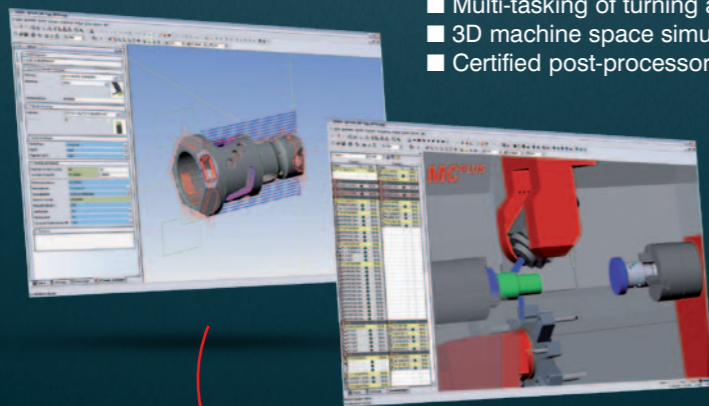
## CAD

### Direct CAD data import

- AutoCAD (DWG)
- Parasolid®
- Solid Edge®
- Solid Works®
- ACIS® (SAT)
- Optional interfaces: CATIA®, Pro/ENGINEER®, STEP, STL,...

## CAM

- 2-22 axis turning
- 2-5 axis milling
- Multi-tasking of turning and milling
- 3D machine space simulation
- Certified post-processors



## CPS

- 1:1 simulation with collision detection
- Direct connection to CAM ESPRIT
- Process optimization
- Reverse simulation of existing NC codes
- Reduction in scrap rates
- Training on the virtual machine
- Simulation of loading systems (e.g. EMCO gantry loader)



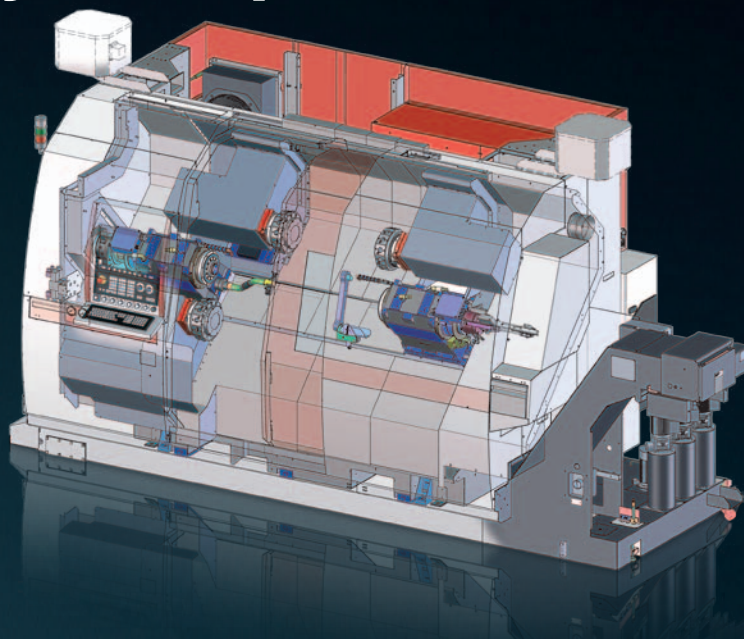
## Production

- Reduction in set-up costs
- Reduction in downtimes
- Reduction in repair costs
- Optimum machine utilization





# Quality Components



## Coolant pumps

Low-maintenance immersion pumps for pressures of up to 25 bar and flow rates of up to 1500 l/min provide optimum conditions for machining and enable reliable chip transportation.



## Clamping cylinder / chuck

Hydraulically activated clamping cylinders and chucks guarantee the precise, safe clamping of work pieces. Programmable sensors are used for stroke monitoring. There is no need for time-consuming adjustments of contactless limit switches.



## Tool holder

Innovative, fully developed tool holder systems form the basis for cost-effective machining. High changeover accuracy and stability result in short setup and cycle times.



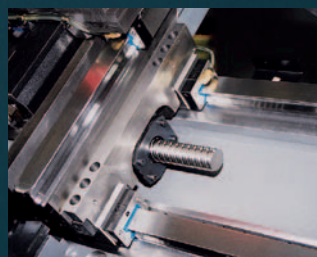
## Headstocks

The design and manufacture of headstocks are two of EMCO's core competencies. During engineering, the focus is on precision, robustness, high rigidity, precise rotational characteristics, and a long service life.



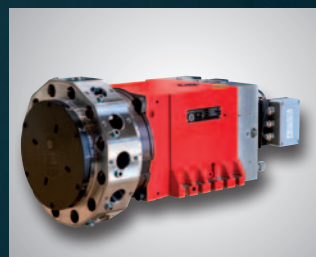
## Hydraulic systems

Compact dimensions, quiet operation, and high energy efficiency - just some of the advantages of the hydraulic assemblies used by EMCO. Monitored pressure switches prevent the need for time-consuming manual pressure adjustments.



## Machine bases and slides

When matching components, we place great value on high stability, good damping characteristics, and a thermoneutral design. We achieve high stability through a shorter force flow, thermal stability through symmetry, and dampening through the materials and interfaces selected.



## Tool turret

Rapid-indexing turrets with adjustable swivel speeds and milling drives represent the current state of the art. The backlash-free milling drive is not only ideal for milling and drilling, but also for rigid tapping, hobbing, and polygonal turning.



## Ball screws and roller guides

Highly precise and generously dimensioned guide rails and ball screws with optimal pretensioning form the basis for the machining of precision parts



## Chip conveyor

Slat band conveyors allow for flexible implementation and the safe removal of chips. A monitored overload clutch prevents damage from improper use.



# Minimum use of resources for maximum profit.



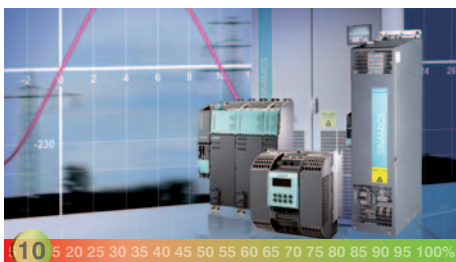
At EMCO, we take a consistent, responsible approach to the use of resources in machine tools in order to safeguard long-term investments. From the development of our machines through to their construction and manufacture, we place a strong focus on the sensible and sparing use of raw materials and energy. This enables us to achieve parallel savings in two areas:

1. Reduction in the basic power consumption of machine tools, e.g. assemblies are switched on and off as required and the installed connected loads are kept to a minimum.
2. Reduction in variable consumption: This can be seen in the lighter axes, energy recovery system, increased rate of good parts, and the shorter process chain enabled by complete machining.

Through these measures, which are constantly being refined and further optimized, EMCO truly demonstrates that its slogan of „Designed for your Profit“ is not just an empty promise: EMCO products help save the environment and provide intelligent customer savings without compromising on quality and flexibility.

## [Regenerative drive system]

Kinetic energy is converted into electrical energy and fed back into the grid.  
**Savings of up to 10%**



## [Compact hydraulics unit with pressure accumulator]

Thanks to its accumulator charging system, the pump only runs when required. If the pressure accumulator is full, the pump switches over to closed loop circulation.  
**Savings of up to 90%**



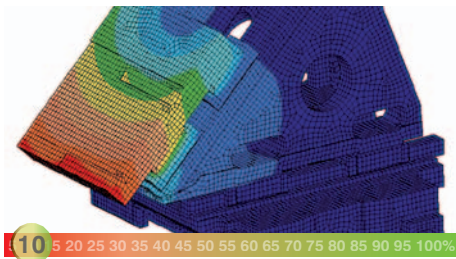
## [Roller guides]

Extremely low friction losses thanks to rolling friction. Highly dynamic performance with minimal lubricant consumption.  
**Savings of up to 50%**



## [Structurally optimized mechanics]

FEM analysis is used to optimize the relevant components in terms of their rigidity while simultaneously reducing their weight.  
**Savings of up to 10%**



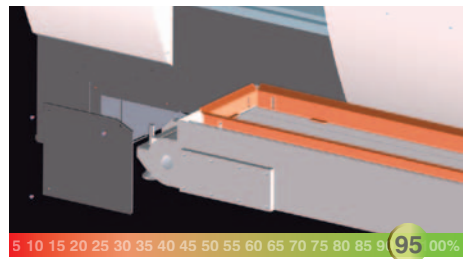
## [Highly efficient motors]

The use of energy-efficient motors (IE2) in the coolant preparation area guarantee highly cost-effective operation.  
**Savings of up to 10%**



## [Synchronized chip conveyor]

Programmable interval times enable optimal use of the chip conveyor independently of the machining process.  
**Savings of up to 95%**



## [Intelligent standby concepts]

Reduced consumption by automatically switching off ancillary units and machine space/screen illumination after a defined period of inactivity on the control panel.  
**Savings of up to 50%**



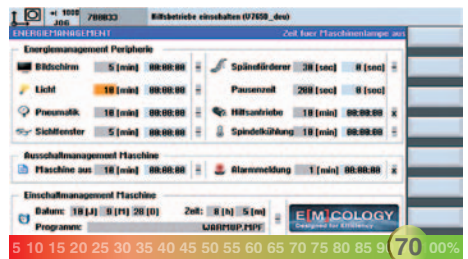
## [Virtual machine]

Significant reduction in the setup and running-in times on the machine through the use of highly developed simulation and programming software.  
**Savings of up to 85%**



## [Intelligent energy management]

Intuitive data entry screens for activating the individual energy-saving functions.  
**Savings of up to 70%**





## MAXXTURN 65

# Technical Data

### Work area

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

### Travel

Traverse path X	260 mm
Traverse path Z1 / Z2	800 / 800
Traverse path Y	100 (+/-50)

### Main spindle

Speed range	0 – 5000 (4000 / 3500) rpm
Maximum torque	250 (250 / 360) Nm
Spindle nose DIN 55026	A2-6 (A2-8 / 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 turrets top and bottom

Number of tools stations	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	12

### Turret with BMT-interface and direct drive

Number of tool positions	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	0,7 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 X	30 m/min
Rapid speed Z1 / Z2	30 m/min
Rapid speed Y	12 m/min
Feed force X	5000 N
Feed force Z1 / Z2	8000 N
Feed force Y	7000 N

### Coolant system

Tank capacity	300 l
Coolant pump for the tool turret	14 bar
Flushing pumps for the work area	2 x 3,7 bar

### Power consumption

Connected load	40 kVA
Compressed air	6 bar

### Dimensions

Height of center above floor	1261 mm
Overall height	2341 mm
Required space L x D (with chip conveyor)	5060 x 2825 mm
Total weight	8450 kg

### Safety devices CE compliant