emco group

Designed for your profit

[E[M]CONOMY means:]

Easy handling for large parts.
EMCO MAXXTURN 95 / 110

Universal CNC turning center for machining shafts and chuck parts

EMCO MAXXTURN 110

[Control unit]

- Ergonomic, pivotable and slidable
- Sinumerik 840D sl with 15“ color monitor
- Comprehensive machining cycles
- 3D simulation
- USB interface, 230V power socket

[Work area]

- 3 bed lengths
- Optimum access with 60° inclined bed and machine design
- Maximum flexibility with multiple turret concepts

[Y-axis]

- Travel -80 / +100
- 90° implemented in the machine construction
- Large distance between guides
- Stable and compact construction without restrictions

Machine with optional equipment

[Machine bed]

- Widely spaced guide ways
- Large dimensioned Roller-type guide ways
- Highest solidity
- Maximum pre-load guarantees rigidity in several cutting load directions

[Steady rest system]

- Tag along steady rest in various sizes
- Optional: NC steady rest or tandem steady rest
- Easy to remove
- Sealing air, covering and flushing in the basic version included
- Optional: Programmable pressure settings

Maxxturn 110 is suitable for part lengths of up to 3500 mm and a turning diameter of 610 mm and can handle turning and milling operations involving heavy machining as perfectly as machining of precision parts with highest surface quality. A highly accurate C-axis, a stiff Y-axis with large movement path and high rapid traverses complete the performance package.

[Workpieces]

[Chip conveyor]

- Hinged type chip conveyor with ejection height of 1150 mm (45.3“)
- Suitable for: Long steel chips, swarf balls, wooly swarf, dry and wet machining
- With integrated coolant apparatus
- Easy to remove, easy to clean
- Optional: High-pressure pumps

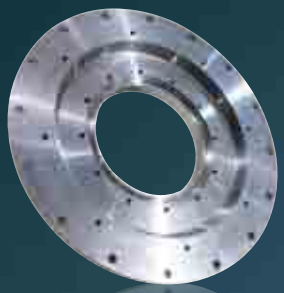
[Tailstock]

- Tag-along tailstock
- Optional: NC tailstock
- Integrated bearings for MT5 centering tip
- Quill diameter ø 150 mm (5.9“)
- Quill travel 150 mm (5.9“) incl. position and pressure monitoring

[Machine cover]

- All-round protection against chips
- 100% coolant retention
- Large safety glass window
- Clear view into the work area

Drive shaft
High-alloy steel 42CrMo4



Adapter flange
(Steel, CK45)

Large shaft
(Steel, CK45)

EMCO MAXXTURN 95

[Control unit]

- Ergonomic, pivotable and slidable
- Sinumerik 840D sl with 15“ color monitor
- Comprehensive machining cycles
- 3D simulation
- USB interface, 230V power socket

[Tool turret]

- 12-position VDI 40
- 12 additional position on the outside with cooling connection (block-tool)
- Synchronized tapping and polygonal turning as standard

[Work area]

- Plenty of open space
- Optimal chip flow
- Easily accessible

[Compact machine build]

- Requires minimal floor space

Machine with optional equipment

Maxxturn 95 is suitable for part lengths of up to 1100 mm and a turning diameter of 450 mm and can handle turning and milling operations involving heavy machining as perfectly as machining of precision parts with highest surface quality. A highly accurate C-axis, a stiff Y-axis with large movement path and high rapid traverses complete the performance package.

[Workpieces]

[Y-axis]

- Travel +80 / -60 mm
- 90° implemented in the machine construction
- Large distance between guides
- Stable and compact construction

[Chip conveyor]

- Hinged type chip conveyor with ejection height of 1150 mm (45.3“)
- 350-liter coolant volume
- Included in the basic version

[Machine cover]

- All-round protection against chips
- 100% coolant retention
- Large safety glass window in door
- Clear view into the work area

Tool turret disc
(Steel, 42CrMo4)

Drive shaft
(Steel, C45)

Wheel
(Aluminium)

[Engineering]

Highlights

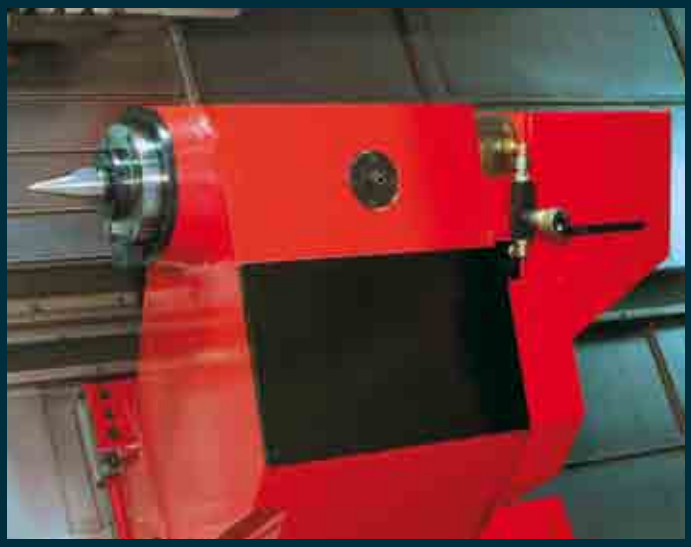
- Extremly robust construction
- Top machining precision
- High rapid motion speed
- Stable Y-axis with large travel (-80 / +100 mm (-3.1 / +3.9“))
- Optional: NC steady rest or tailstock
- Hydraulic spindle break
- State-of-the-art control technology
- Driven tools with C-axis
- Simple, conversational programming
- Made in the Heart of Europe

The Maxxturn series is designed as a modular system with expansion stages from simple turning operations to a turn-mill centre with different application potential: dynamic integrated spindle motor as well as high torque implementations, direct drive turret with BMT or VDI tool holder systems.

MT 95 tool turret: 12 + 12 station hybrid tool turret - VDI40 + block-tool (VDI50 at MT110), axial turret with single-motor technology. A servo motor powers the driven tools and the swivel movement. No tool rise, continuous switching with directional logic. Each station can take up driven tool holders with DIN 5480 coupling.

MT 110 BMT turret. For cost-effective production of complex turning/milling work pieces, in which milling is predominant, the optional BMT 65P turret with water-cooled direct drive (BMT 55P at MT95) is available. With a maximum of 9600 rpm, 56 Nm and 17.6 kW, this turret offers optimum conditions, stability for complete machining and maximum productivity.

High-precision Y-axis: The Maxxturn machine concept has been specially developed for placement of the Y-axis at an angle of 90°. Due to large dimensioned, widely spaced and pre-loaded guide ways, the Y-axis offers optimal machining results with maximum stability and short overhangs.



MT110 Tailstock: Integrated, large bedding for holding MT5 centering tips (optional MT6). The positioning occurs via the Z-slides as standard and optionally as a controlled NC axis.

Automatic steady rests: Self-centering steady rest with hydraulic actuation. Built on the tailstock track and movable over Z-slides optionally movable with servo drive (NC-axis). Sealing air, central lubrication, flushing and integrated flushing channels on the arms (optional) are available for one or more steady rest units or slide systems.

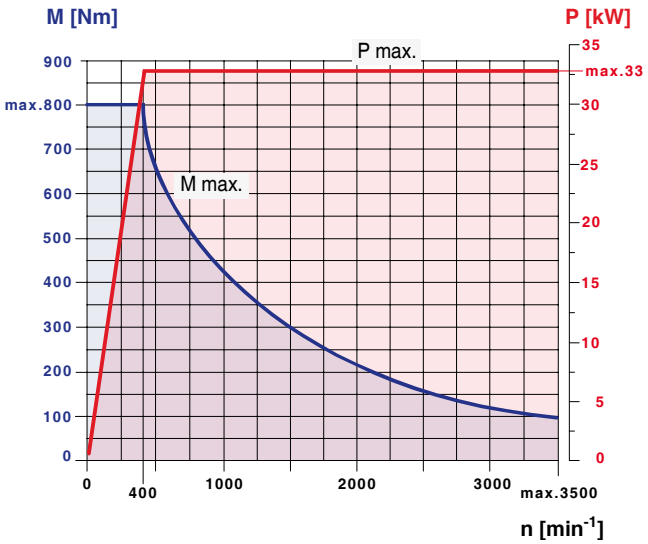
Steady rests / clamping: High-precision complete machining is possible with 3 steady rests on two process-driven slides. Optimal productivity with maximum flexibility is provided due to a shaft-chuck with retractable jaws carrier and face driver, as well as tool calibration.

Processing options: The MT110 with VDI50 and block - tools can carry out optimised machining processes of short cylinder tubes with a surface quality of RA 0.2 by means of roller burnishing tools .
An 80 bar band filter / coolant preparation increases the coolant volume as well as the quality and service life of the cooling lubricant.

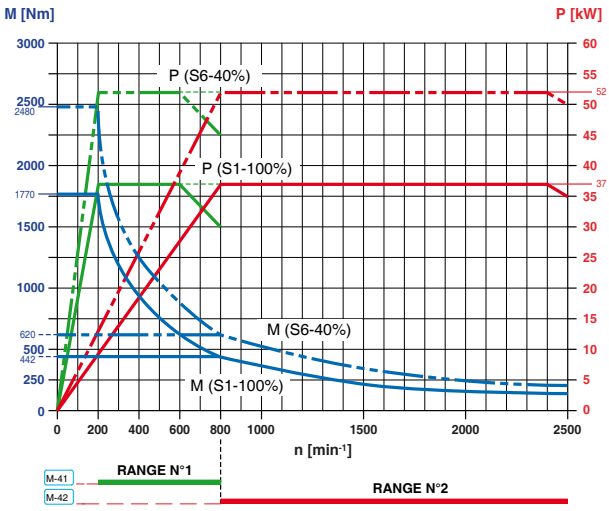
Processing options: The MT 95 VDI40 with driven gear hobbing tool can be used for the production of shafts with toothing up to module 3. The stable, fully automatic NC tailstock with sleeve and integrated bearings provides short idle times and high repeat accuracy.

Perfomance and torque diagram

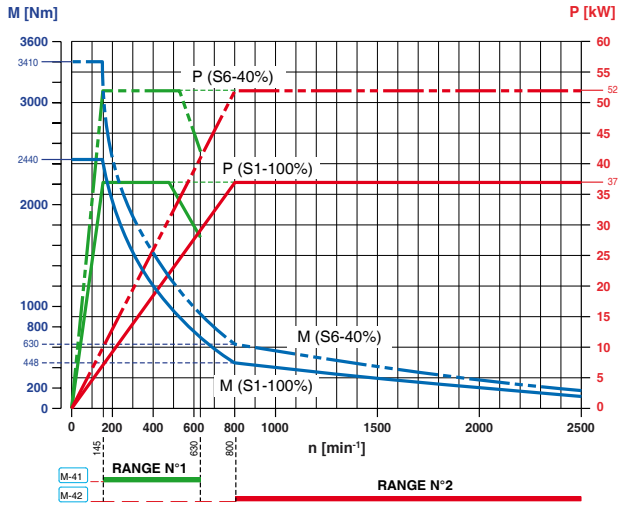
MT 95-110 spindle characteristic A2-8“



MT 110 spindle characteristic A2-11“



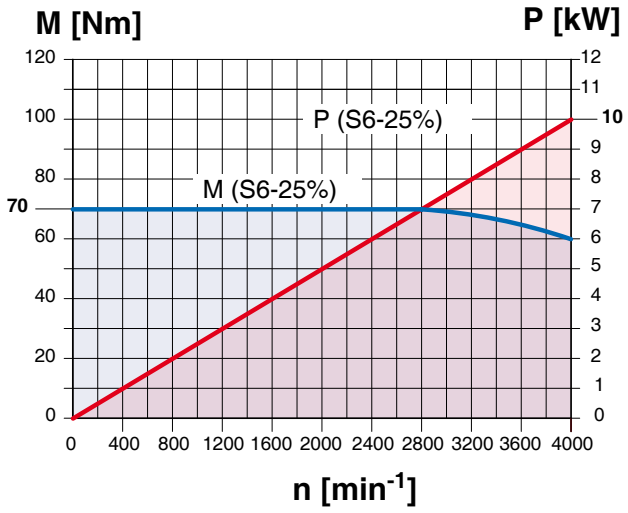
MT 110 spindle characteristic A2-15“



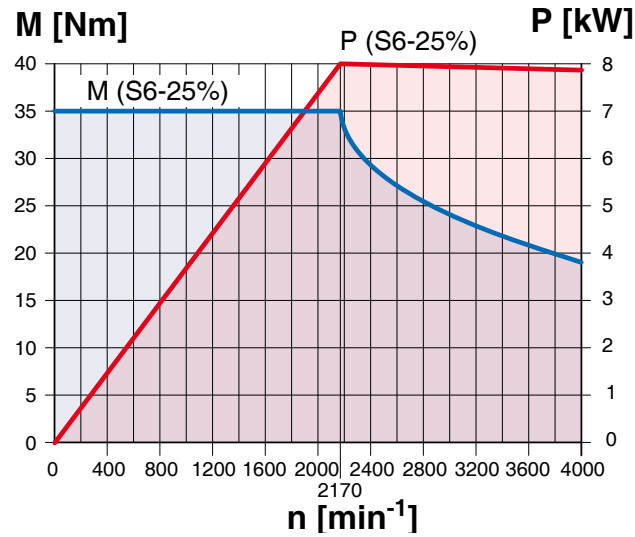
Perfomance and torque diagram

Alternatively, various standardised turret/spindle solutions are available: BMT or VDI, with 8‘‘-, 11‘‘- or 15‘‘-serie spindles. Optimum performance and torque for any form of processing is achieved by precise coordination of mechanics and control.

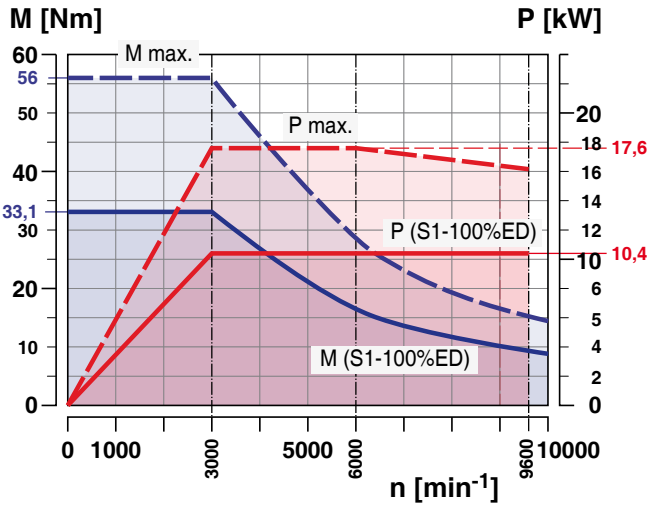
MT 110 turret characteristic VDI50



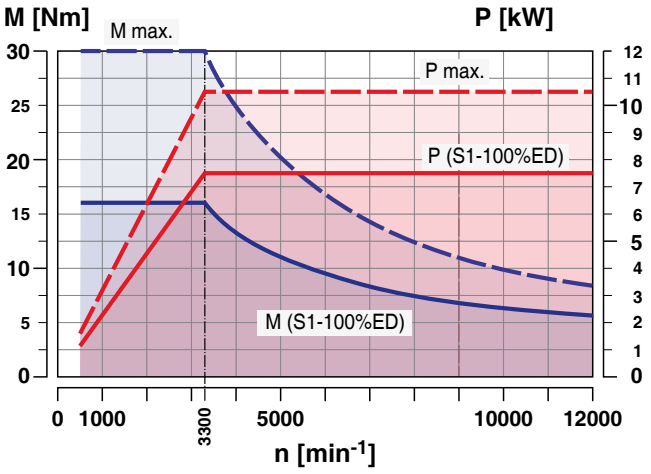
MT 95 turret characteristic VDI40



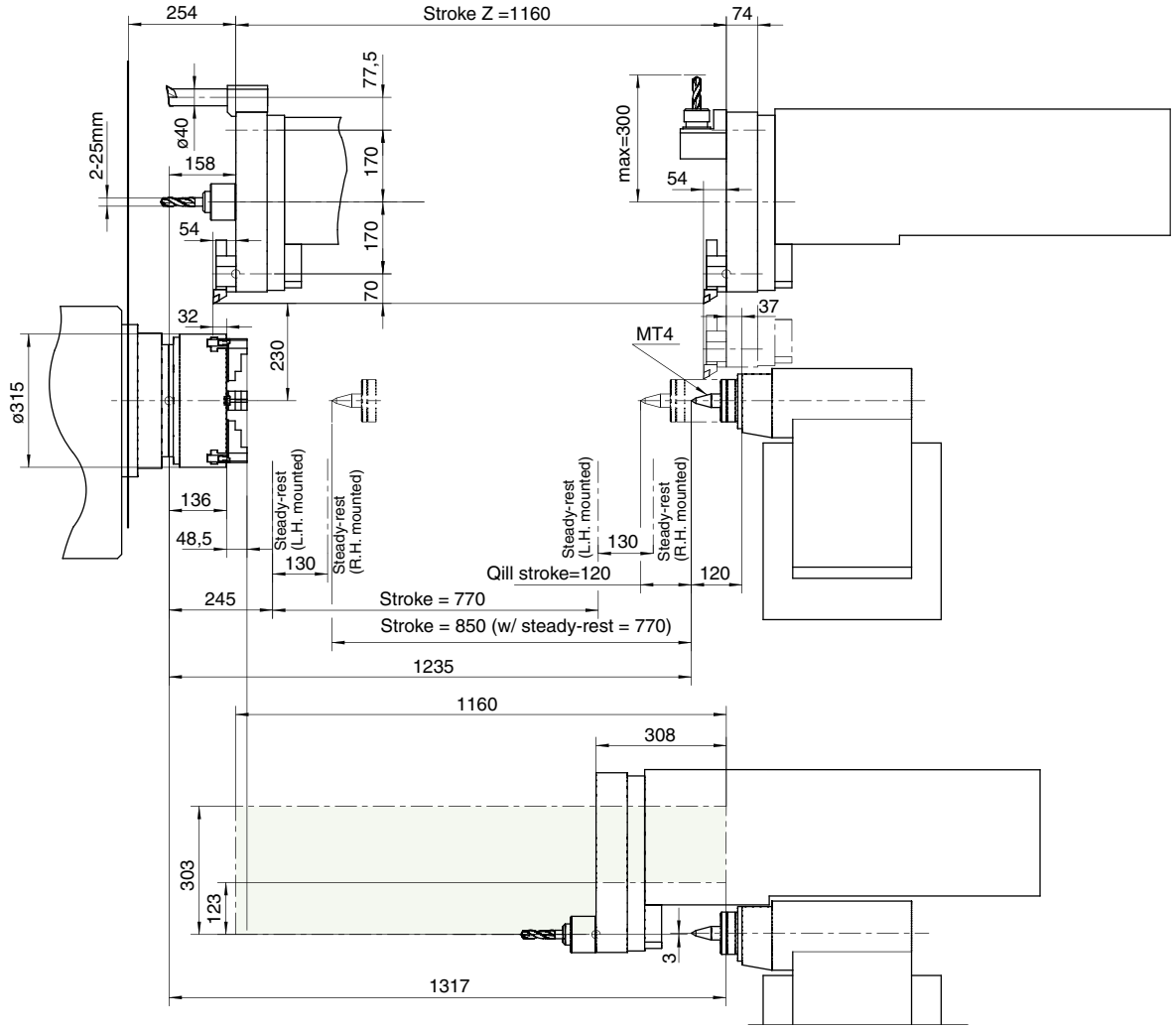
MT 110 turret characteristic BMT 65 P (opt.)

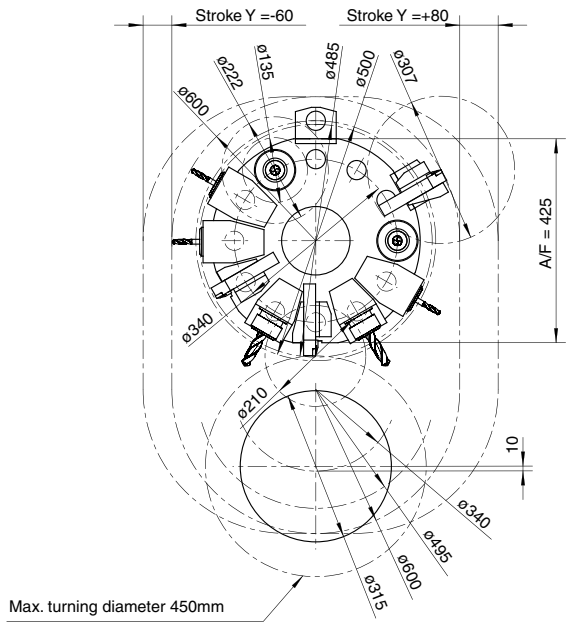


MT 95 turret characteristic BMT 55 P (opt.)



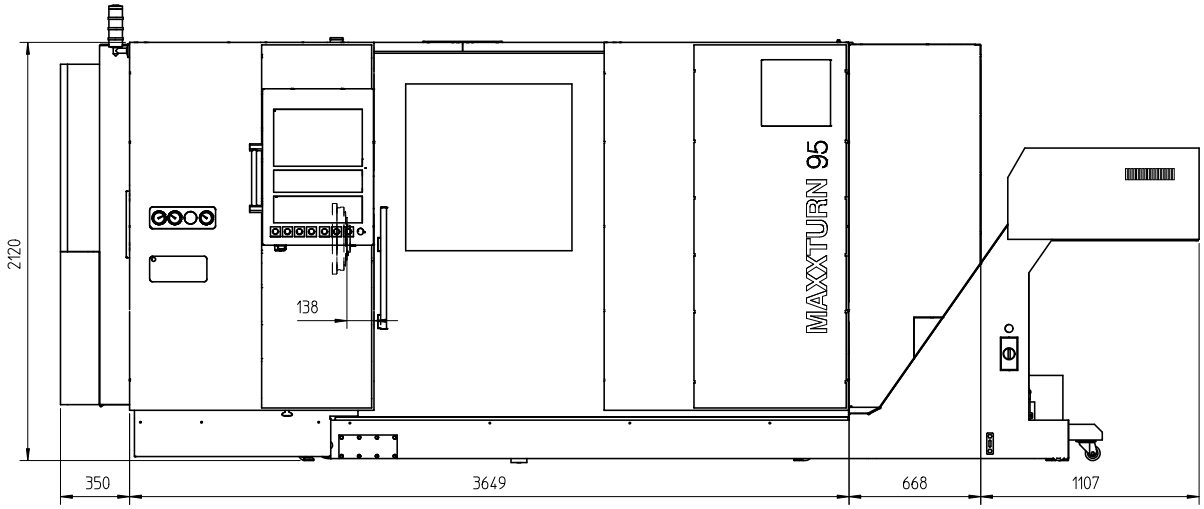
Work area MAXXTURN 95

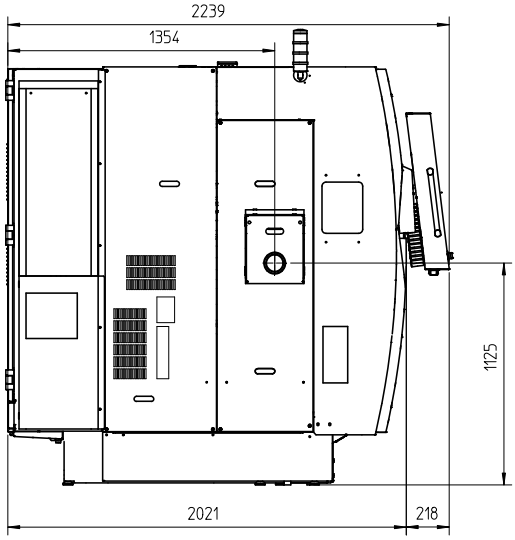


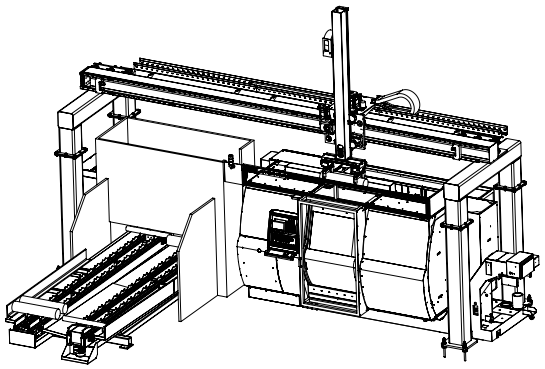


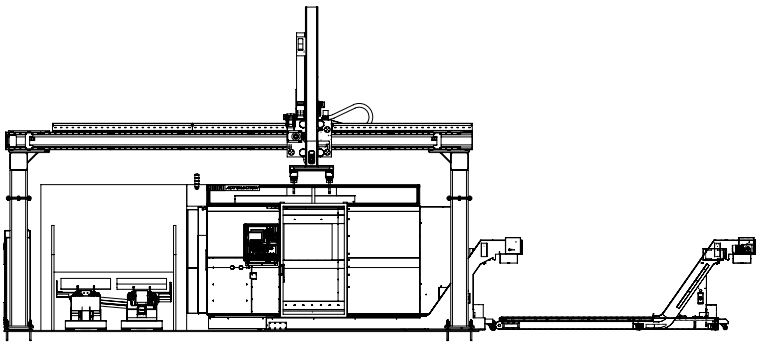
Details in millimeters

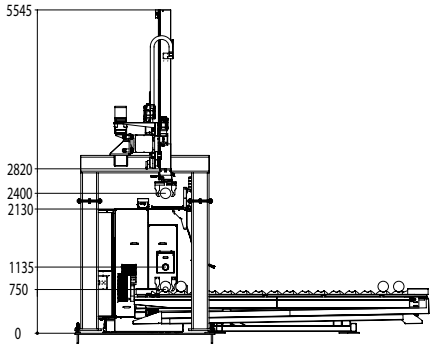
Machine layout MAXXTURN 95 with gantry loader

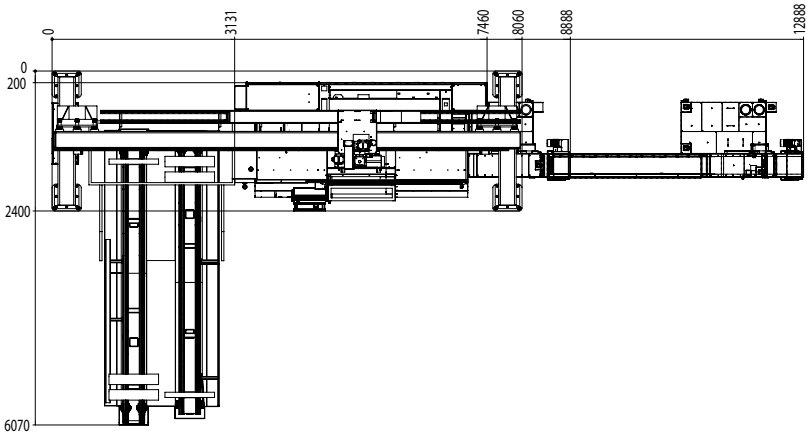






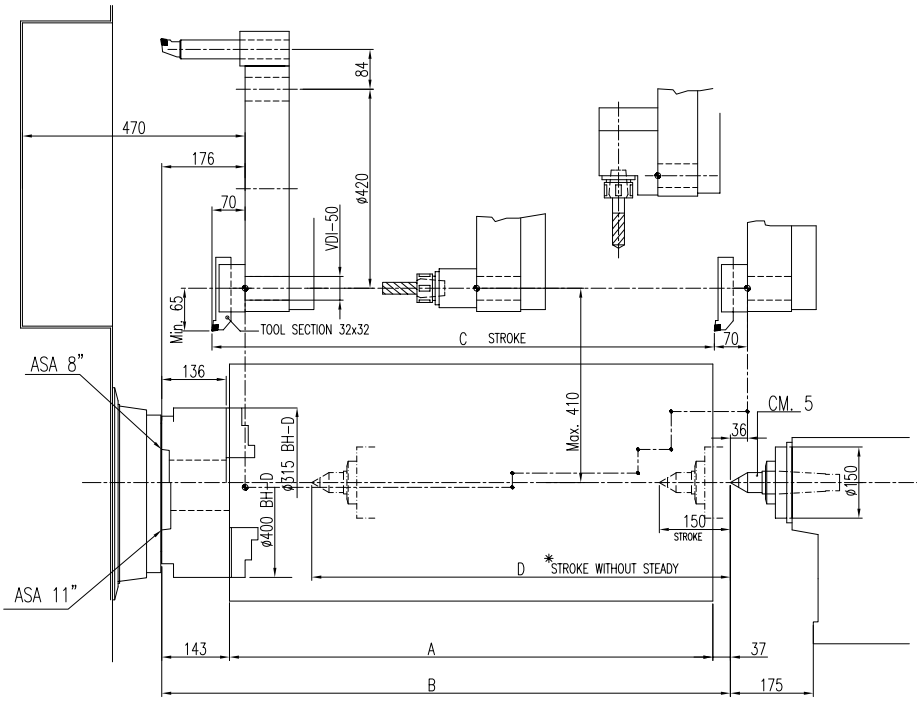


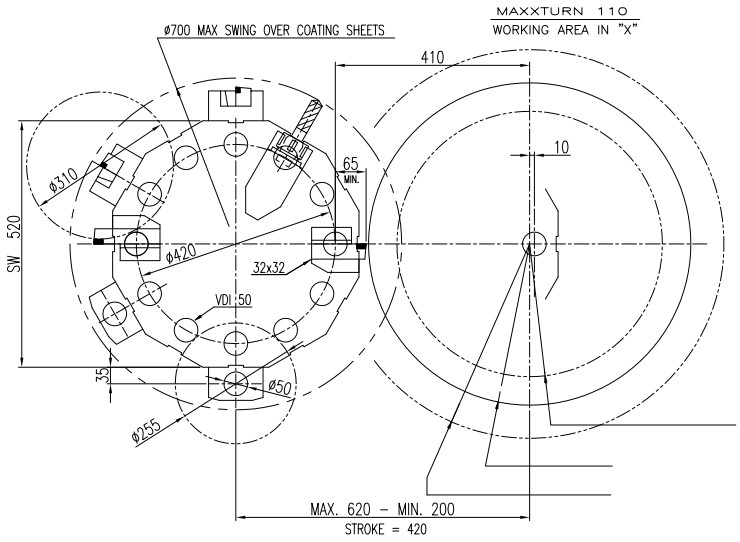




Details in millimeters

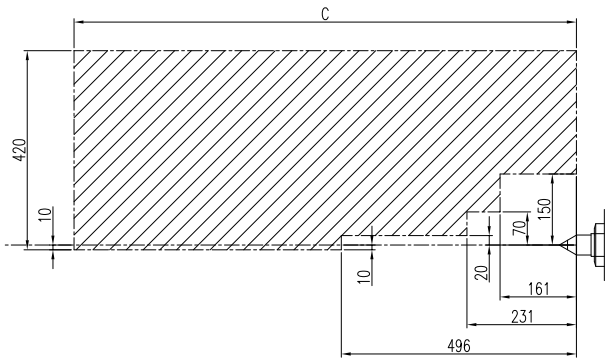
Work area MAXXTURN 110





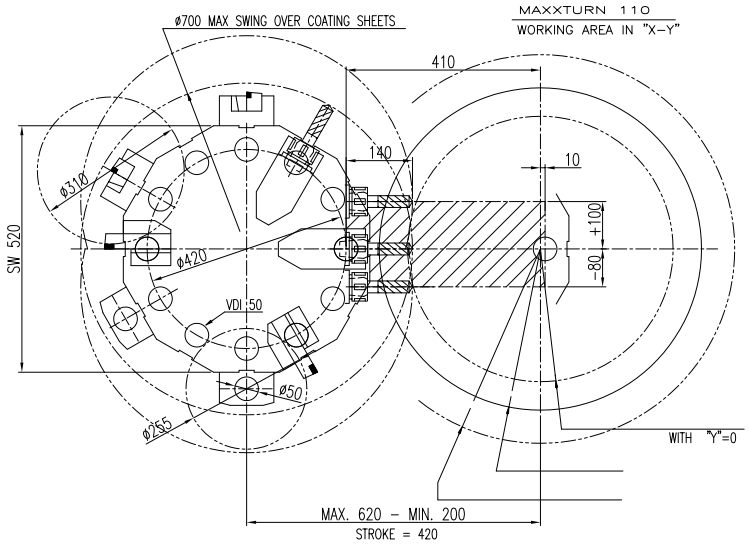
TAILSTOCK WITH QUILL CM5

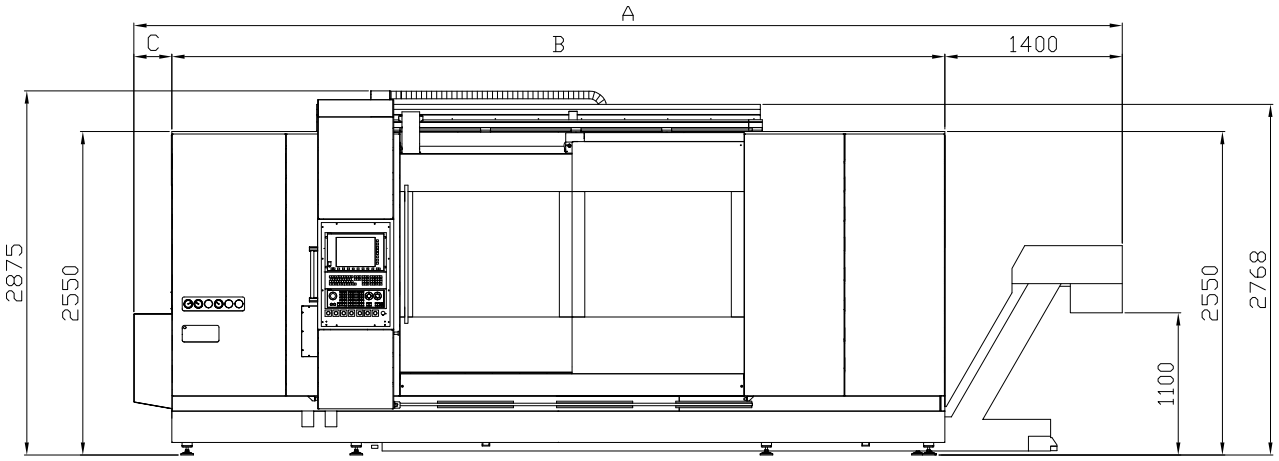
D.P.	A	B	C	D *
1500	1520	1700	1560	1300
2500	2520	2700	2560	2300
3500	3520	3700	3560	3300

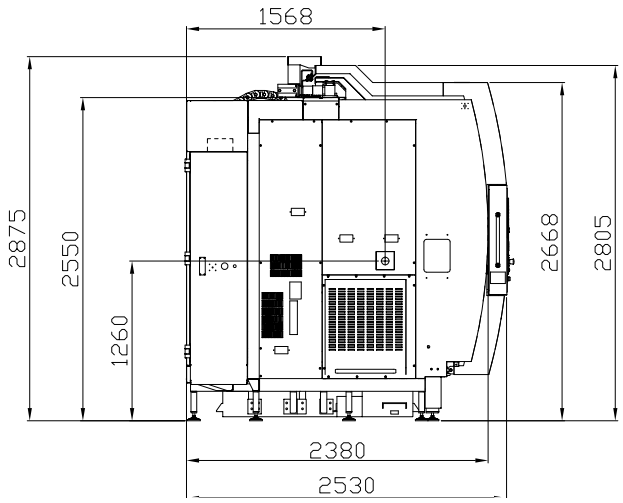


Details in millimeters

Turret swing circle and machine layout MAXXTURN 110







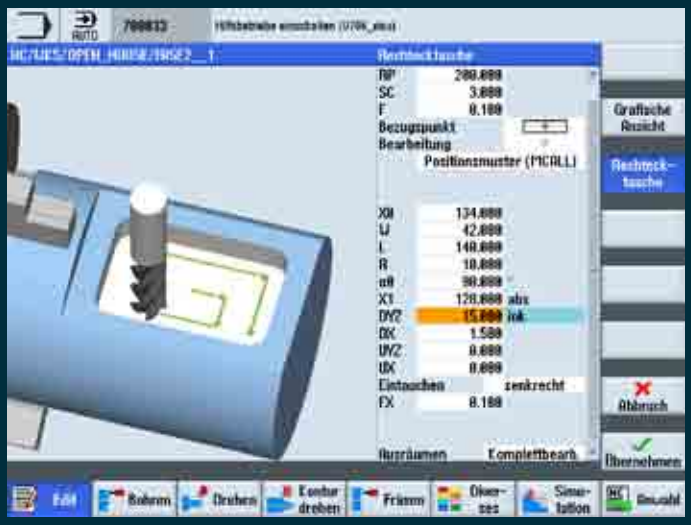
ASA 11"	A	B	C
DP 1500	6775	5075	300
DP 2500	7800	6100	300
DP 3500	9200	7800	0

ASA 8"	A	B
DP 1500	6475	5075
DP 2500	7500	6100
DP 3500	9200	7800

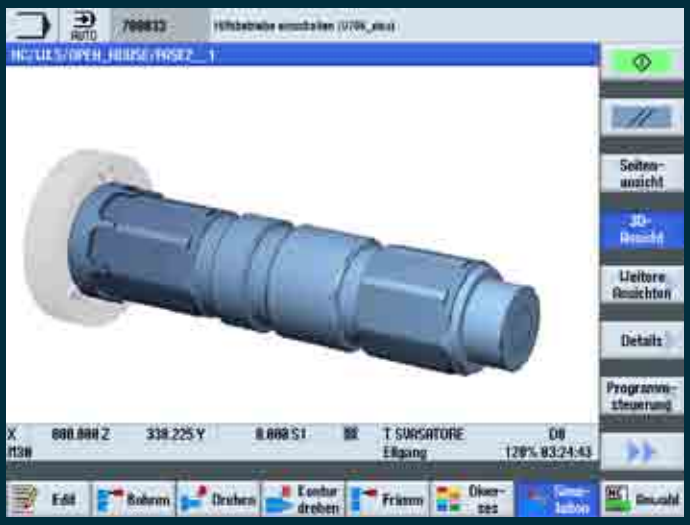
Details in millimeters

SINUMERIK 840D sl
Open, strong, flexible

Sinumerik 840D sl with Operate user interface has been ergonomically located at the left of the work space, can be swivelled by 120 ° and is movable with MT 110. Shopturn dialogue programming, RJ45 and a 230 volt outlet on the side are included in the standard version.

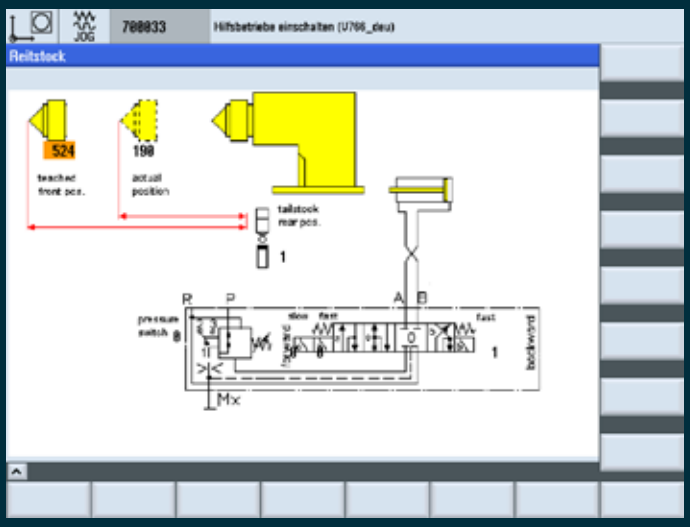


Shopturn - Shopmill / processing cycles: The machine programming can be freely selected from DIN to shop turn. Complex work pieces require efficient production methods and innovative CNC solutions. The CNC equipment SINUMERIK 840D sl supports multi-technology machines in the machining of workpieces in one setting and offers for this purpose innovative functionality - even when alternating between different technologies.



Processing simulation: 3D simulation during turning and milling, with detailed representation and workpiece profile

Tool management: Simple and open operation through integrated tool management for all tool types and data.



EMCO diagnostics: EMCO diagnostics for rapid, simple analysis of the entire machine (example: tailstock hydraulic diagram and sleeve position monitoring).

Quality components

MADE IN THE HEART OF EUROPE

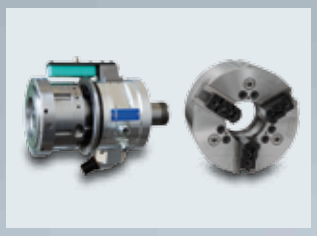
[Machine bases and slides]

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.

www.emco-magdeburg.de

[Clamping cylinder / chuck]

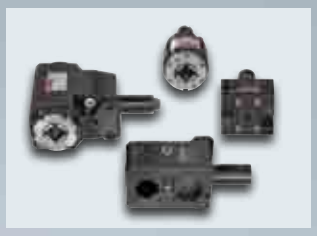
Hydraulically activated clamping cylinders and chucks guarantee the precise, safe clamping of work pieces. Programmable sensors are used for stroke monitoring. There is no need for time-consuming adjustments of contactless limit switches.



www.smwautoblok.de

[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.



www.wto.de

[Tool turret]

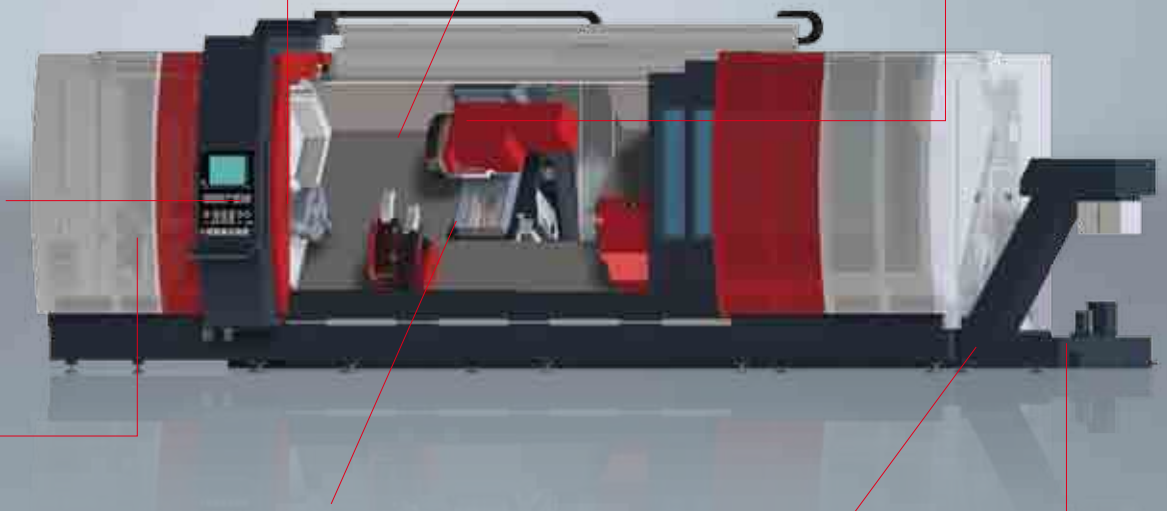
Rapid-indexing turrets with adjustable swivel speeds and milling drives represent the current state of the art. The backlash-free milling drive is not only ideal for milling and drilling, but also for rigid tapping, hobbing, and polygonal turning.

www.sauter-feinmechanik.com

[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.

www.emco-magdeburg.de



[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.

www.hawe.de

[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.

www.boschrexroth.com

[Chip conveyor]

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

www.metasrl.it

[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.

www.grundfos.at

Everything from a single source.

The EMCO loading gantry solution provides maximum flexibility in terms of weight and machine size. It allows the integration of various automated systems such as a shaft conveyor, circulating magazine, robot, or measurement station. This enables various combinations of minimally staffed complete solutions to be implemented in line with customer requirements.

[Control]

- Ergonomically placed and pivotable
- Multi-channel for machining and parts handling
- Siemens 840D sl incl. ShopTurn
- Color LCD monitor
- USB interface
- Ethernet connection

[Gantry axes]

- Robust mechanism
- Safety brake
- Central lubrication system
- Optional: H-loader, machine connection

[Blank conveyor / finished parts conveyor]

- Shaft conveyor (shown)
- Circulating magazine

[Gantry]

- Electric shaft gripper
- Adjustable gripping force
- Position monitoring via NC axis
- No compressed air required

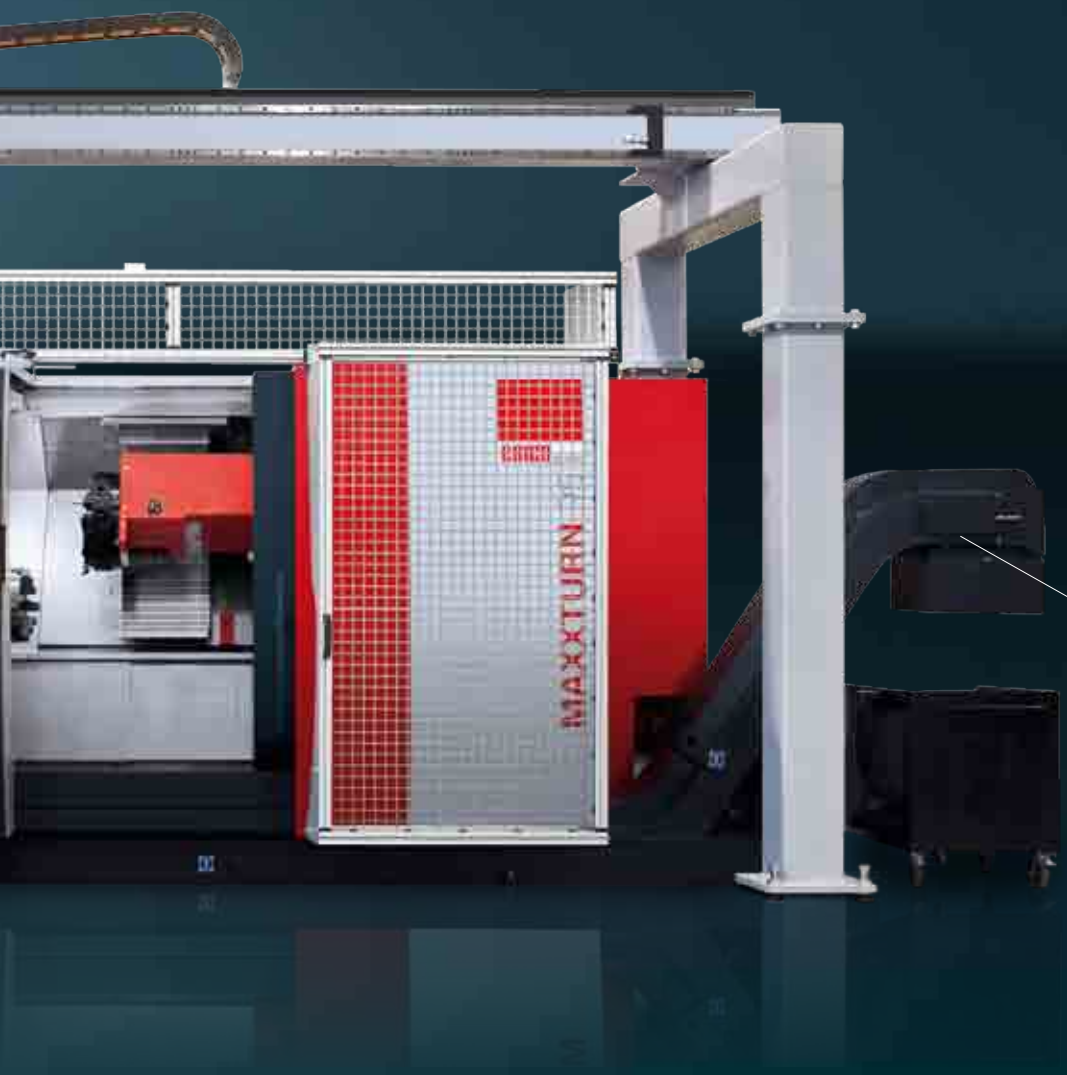
[Hydraulic unit]

- Ergonomic operation
- Automatic pressure monitoring
- Compact and low-maintenance

Magazine: Raw materials and finished parts are automatically supplied and discharged by dual-track indexed conveyor. The conveyor was designed for a capacity of 20 parts. The shaft gripper seizes the raw workpiece, which is centred on both sides, from the indexed conveyor and brings it into the machine. Magazining of raw materials and finished parts is carried out in the same way The loading gantry is designed for a maximum workpiece weight of 150 kg.

Measuring device: Measuring station integrated at the machining table for machining of precision parts with minimum manpower. The tool offsets are adjusted automatically. By means of the gantry loader, each workpiece is placed into the measuring device and measured with the measuring gauge. Good parts are pushed into the parts container, rejected parts are stored separately.

Operation: The Maxxturn 95/110 gantry loaders were designed by EMCO and are electrically and NC-technically controlled and programmed via the machine control. For this purpose, an additional, independent handling program runs at the control. The shaft grippers are actuated by a self-locking threaded spindle and are easily adjustable to the respective workpiece. The handheld terminal provides for an easy and clear operation of individual machine components and is integrated into the machine.



[Chip conveyor]

- Hinged-type conveyor
- Ejection height 1150 mm (45.3“)
- 350-liter coolant volume
- Included in the basic model

Minimum use of resources for maximum profit.

E[M]COLOGY
Designed for Efficiency

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]

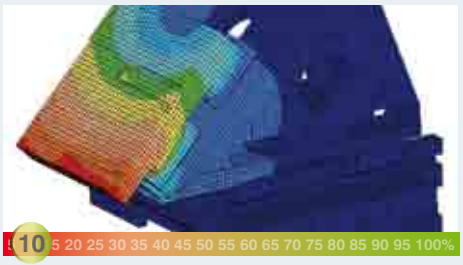
Thanks to its accumulator charging system, the pump only runs when required. If the pressure accumulator is full, the pump switches over to closed loop circulation.
Savings of up to 90%

[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%

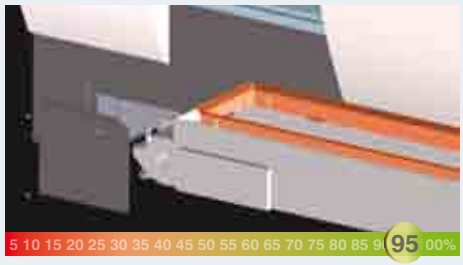


[Highly efficient motors]

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 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%

[Technical data]

EMCO MAXXTURN 110

Work area	
Swing over bed	820 mm (33.1“)
Swing over cross slide (at Y = 0)	560 mm (22.04“)
Distance between spindle noses	1700 / 2700 / 3700 mm (66.9 / 106.3 / 145.7“)
Max. turning diameter	680 mm (26.8“)
Max. part length	1500 / 2500 / 3500 mm (59.1 / 98.4 / 137.8“)
Travel	
Travel in X	420 mm (16.5“)
Travel in Z	1560 / 2560 / 3560 mm (61.4 / 100.7 / 140.2“)
Travel in Y	–80 / +100 mm (– 3.1 / +9.4“)
Main spindle with spindle nose A2-8	
Speed range	0 – 3500 rpm
Maximum power	33 kW (44.2 hp)
Maximum torque	800 Nm (589.6 ft/lbs)
Spindle nose DIN 55026	A2-8
Spindle bore	106 mm (4.2“)
Spindle diameter at front bearing	160 mm (6.3“)
Maximum chuck diameter	315 (400) mm (12.4“(15.7“))
C axis for spindle A2-8	
Resolution	0.001°
Main spindle with spindle nose A2-11	
Speed range	0 – 2500 rpm
Maximum power	52 kW (69.7 hp)
Maximum torque	2480 Nm (1828 ft/lbs)
Spindle nose DIN 55026	A2-11
Spindle bore	125 mm (4.9“)
Spindle diameter at front bearing	190 mm (7.5“)
Maximum chuck diameter	400 (630) mm (15.7“(16“))
C axis for spindle A2-11 (indexing/gear-driven servo drive)	
Maximum torque	2000 Nm (1474 ft/lbs)
Resolution	0.005°
Tool turret	
Number of tool stations (all driven)	12
VDI shaft DIN 69880	50 mm (2.0“)
Tool cross-section for square tools	32 x 32 mm (1.3 x 1.3“)
Shank diameter for boring bars	50 mm (2.0”)
Additional tools (block tool)	12
Feed drives	
Speed range	0 – 4000 rpm
Max. power	max. 10 kW (13.4 hp)
Max. torque	max. 70 Nm (51.6 ft/lbs)
Feed drives	
Rapid motion speed in X / Z / Y	24 / 30 / 12 m/min (944.9 / 1181.1 / 472.4 ipm)
Feed force in X axis	17000 N (3821.6 lbs)
Feed force in Z axis	20000 N (4496 lbs)
Feed force in Y axis	17000 N (3821.6 lbs)
Tailstock with quill	
Quill travel	150 mm (5.9“)
Quill diameter	150 mm (5.9“)
Maximum application force	22500 N (5058 lbs)
Internal taper of quill	MT 5

Coolant system	
Tank capacity BL 1500/2500/3500	450 / 520 / 650 liters (119 / 137.4 / 171.7 gal)
Pump power 7 bar (option 14 bar)	1.15 (2.2) kW (1.8 (3.0) hp)
Power consumption	
Connected load (spindle A2-8 / A2-11)	46 / 70 kVA
Dimensions	
Height of centers above floor	1265 mm (49.8“)
Total height	2875 mm (113.2“)
Dimensions W x D (without chip conveyor)	5375 / 6400 / 7800 x 2530 mm (211.6 / 252 / 307.1 x 99.6“)
Total weight BL 1500/2500/3500	approx. 16 / 18 / 20 t (35274 / 39684 / 44093 lb)

GANTRY LOADER

Technical data:	
Traverse speed Horizontal	80 m/min (3150 ipm)
Traverse speed Vertical	40 m/min (1575 ipm)
Application example: Maxxturn 110	
Workpiece dimensions for	flanged / shaft parts
Max. diameter	250 / 180 mm (9.8 / 7.1“)
Max. length	300 / 2000 mm (11.8 / 78.7“)
Max. weight	35 / 350 kg (77.2 / 771.6 lb)

[Technical data]

emco group

Designed for your profit

EMCO MAXXTURN 95

Work area	
Swing over bed	700 mm (27.6")
Swing over cross slide	500 mm (19.7")
Distance between centers	1230 mm (48.4")
Maximum turning diameter	450 mm (17.7")
Maximum part length	1100 mm (43.3")
Draw tube bore	95 mm (3.7")
Travel	
Travel in X	303 mm (11.9")
Travel in Z	1160 mm (45.7")
Travel in Y	-60 / +80 mm (-2.4 / +3.1")
Main spindle	
Spindle nose DIN 55026	A2-8
Speed range	0 – 3500 rpm
Max. drive performance	33 kW (44.2 hp)
Max. torque on the spindle	800 Nm (589.6 ft/lbs)
Spindle bearing (inside diameter at front)	160 mm (6.3")
Spindle bore	106 mm (4.2")
Max. chuck diameter	315 (400)mm (12.4"(15.7"))
C-axis	
Round axis resolution	0.001°
Rapid motion speed	1000 rpm
Tailstock with quill	
Tailstock travel	850 mm (33.5")
Maximum application force	12500 N (2810 lbs)
Max. Traverse speed	4 m/min (157.5 ipm)
Tool holding shaft (with integrated bearings)	MT4
Tool turret	
Number of tool positions	12 + 12
Tool holding shaft in accordance with VDI (DIN 69880)	40 mm (1.6")
Tool cross-section for square tools	25 x 25 mm (1 x 1")
Shank diameter for boring bars	40 mm (1.6")
Turret indexing time	0.4 sec
Driven tools	
Number of driven tool positions	12
Maximum speed	0 – 4000 rpm

Driven tools	
Maximum torque	35 Nm (25.8 ft/lbs)
Maximum drive performance	8 kW (10.7 hp)
Feed drive	
Rapid motion speed X / Z / Y	24 / 30 / 12 m/min (944.9 / 1181.1 / 472.4 ipm)
Feed force in the X axis	9000 N (2023.2 lbs)
Feed force in the Z axis	13000 N (2922.4 lbs)
Feed force in the Y axis	9000 N (2023.2 lbs)
Acceleration time from 0 to rapid motion	0.2 sec
Coolant system	
Tank volume	350 liters (92.6 gal)
Pump performance at 7 bar	1.15 kW (1.5hp)
Power consumption	
Connected load	46 kVA
Pneumatic load	6 bar (87.02 PSI)
Consumption	approx. 300 l/h (80 gal/h)
Dimensions	
Height of centers above floor	1260 mm (49.6")
Machine height	2200 mm (86.6")
Required space for machine W x D (without chip conveyor)	5780 x 2240 mm (227.6 x 88.2")
Total weight	approx. 10500 kg (23150 lb)

GANTRY LOADER

Technical data:	
Traverse speed Horizontal	80 m/min (3150 ipm)
Traverse speed Vertical	40 m/min (1575 ipm)
Application example: Maxxturn 95	
Workpiece dimensions for	flanged / shaft parts
Max. diameter	250 / 180 mm (9.8 / 7.1")
Max. length	100 / 800 mm (3.9 / 31.5")
Max. weight	25 / 150 kg (55.1 / 330.7 lb)

TÜV AUSTRIA ZERTIFIZIERT EN ISO 9001 ZERTIFIKAT NR. 20 100 20419 TÜV AUSTRIA CERT GMBH

www.emco-world.com

EMCO MAIER Ges.m.b.H.
Salzburger Straße 80 · 5400 Hallein-Taxach · Austria
Phone +43 6245 891-0 · Fax +43 6245 86965 · info@emco.at