Horizontal shaft turning center

WEISSER
A HARDINGE COMPANY

As flexible as your manufacturing tasks - 360° turning solutions from WEISSER

Just as chameleons can adapt to their environment, WEISSER's precision turning machines and multifunctional turning centers adapt to the customer's workpieces in the best possible way. In addition, WEISSER keeps an eye on the complete manufacturing process and offers the most economical solution for all requirements with its TURNKEY solutions.

UNIVERTOR AS Pick-up

In the version with pick-up loading

Modular designed, single-spindle pick-up precision turning machine. Designed for complete machining of various batch sizes at low unit costs and with high machining and quality requirements. Due to the automation solution integrated as a pick-up system, no loading devices or separate robot solutions are required. The cross slide of the UNIVERTOR AS, that carries both the motor spindle and the NC tailstock, is designed horizontally. The tailstock and steady rests travel NC-controlled.

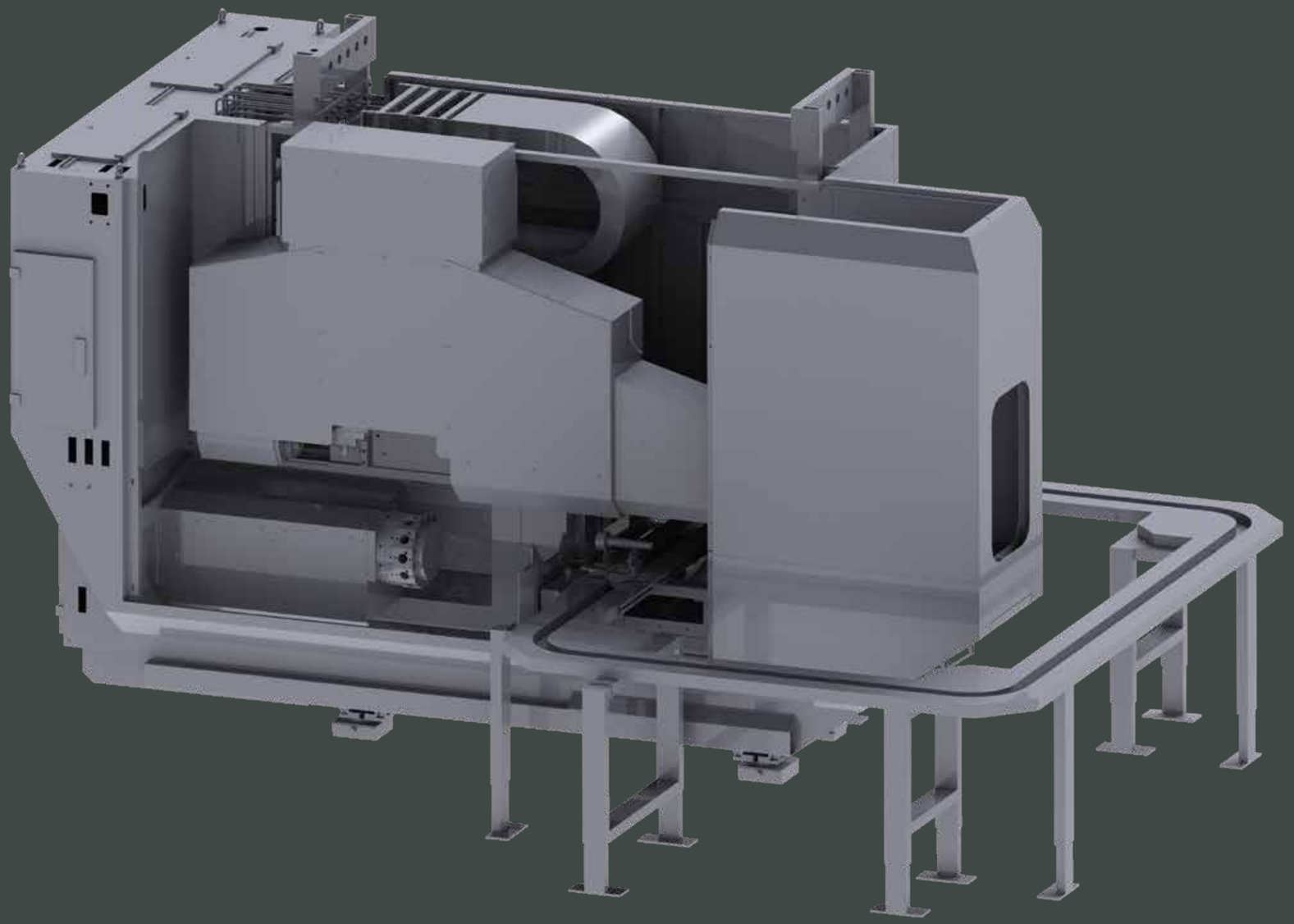
Conceptional advantages pick-up loading

- Available in two machine sizes
- Machine columns with very good stiffness behavior and optimized damping properties due to remaining sand in the model
- Linear guides with high accuracy and preload classes in all axes
- Direct path measuring systems in all axes (glass scales)
- High dynamics of all axes
- In-house built turning spindles with very good accuracy values within concentricity and axial run-out
- Simple installation and disassembly of the turning spindle in case of repair needs
- Green turning, hard turning, scrubbing, and finishing operations
- Simple automation, only conveyor belt required
- Patented pick-up principle optimized for machining of shaft parts
- Proven machine concept with over 500 machines built
- Compact footprint
- Main spindle A6 according to DIN 55026
- Tailstock with MK 4 mounting
- Tool turret interface VDI or Capto

Options

- Driven tools (for drilling operations)
- Rotational turning
- NC adjustable steady rest
- Integrated measuring probe
- Additional external grinding unit possible
- Loading via NC shuttle

Design Pick-up



Base machine
One-piece machine body made of high quality gray cast iron. Heavily ribbed machine base.

Main spindle
Maintenance-free spindle motor in digital drive technology.
- Spindle bearing Ø: 90 mm
- Spindle flange: A6 according DIN 55026

Tool turret
- 12-position with electric drive
- Standard interface VDI
- Optional tool drive
- Optional rotary turning

Loading
- Passage for various conveyor belt solutions or NC shuttle

Technical extensions
- Grinding spindle
- Rotational turning
- Steady rest
- Counter spindle

UNIVERTOR AS Portal

In the version with portal loading

The horizontal shaft turning machine is equipped with a main spindle with a tailstock or a counter spindle. The highly productive simultaneous machining in one machine with up to two powerful disc turrets (4 axes) enables intelligent technology processes with high savings potentials and also offers highly precise machining results. In addition to good dynamics and the high rapid traverse speeds, this series has excellent damping properties and thus first-class accuracy behavior. Workpieces can be machined up to a workpiece length of 800 mm.

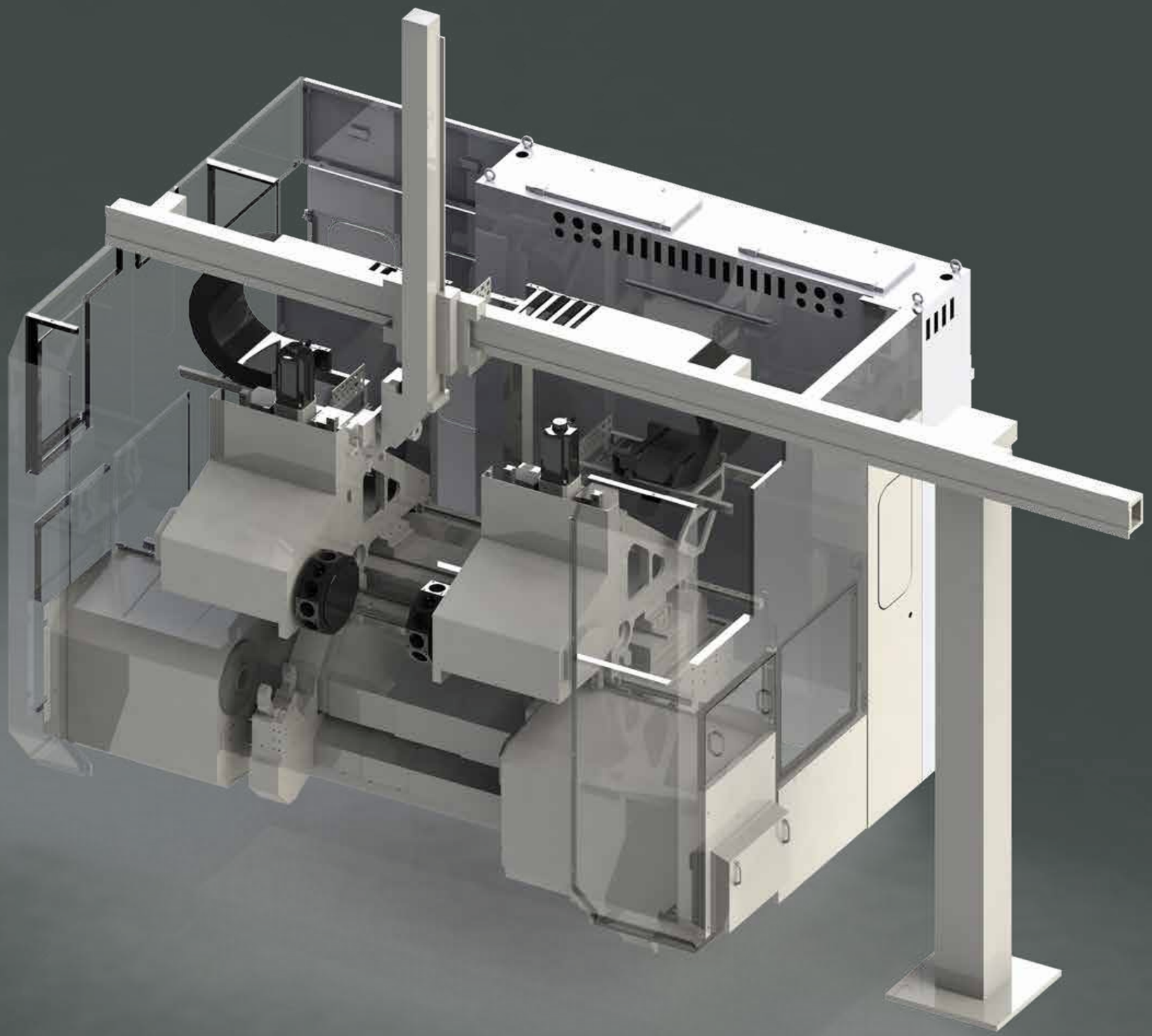
Conceptional advantages portal loading

- 2-axis machining or 4-axis machining
- Machine column with very good stiffness behavior and optimized damping properties due to remaining sand in the model
- Linear guides designed in high accuracy and preload classes in all machine axes
- Direct path measuring systems in all machining axes (glass scales)
- High dynamics of all machine axes
- Self-built turning spindles with very good concentricity and axial runout accuracy values
- Easy installation and removal of the turning spindle in the event of repairs
- Green turning, hard turning, rough machining, finishing possible
- Main spindle available in four power sizes (A6 or A8 according to DIN55026)
- Tailstock with MK 4 or MK 5 mounting possible
- Instead of tailstock also counter spindle in four power sizes possible (counter spindle principle)
- Interface in tool turret VDI or Capto

Options

- Driven tools (for drilling operations).
- Rotational turning
- NC-adjustable steady rest (up to two independent steady rests possible)
- Integrated measuring probe
- Flexible automation solution via portal
- Maintenance-friendly design due to integrated maintenance aisle

Design Portal



Base machine
One-piece machine body made of high quality gray cast iron. Heavily ribbed machine base.

Main spindle
Maintenance-free spindle motor in digital drive technology.
- Spindle bearing: Ø: 90 mm
- Spindle flange: A6 according DIN 55026

Tool turret
- 12-position with electric drive
- Standard interface VDI
- Optional tool drive
- Optional rotary turning

Gantry loading

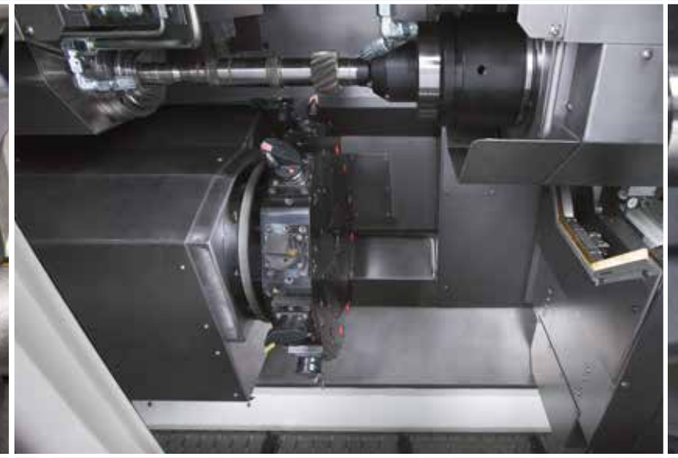
Technical extensions
- Possibility of 4-axis machining
- Rotational turning
- Steady rest
- Counter spindle

Application examples

Bringing the application to the road...

Differential housings, brake discs, pistons: components manufactured on WEISSER machines can be found in countless vehicles. Intelligent production processes require innovative technologies and reliable, highly accurate machining centers designed for high-performance use. Therefore, WEISSER's precision turning machines and multifunctional turning centers are built with the highest level of technical maturity and high accuracy. This gives customers the assurance that nothing stands in the way of their production of safety-relevant components.








Technical highlights

Original WEISSER synchronous motor spindle with direct drive technology

More than 160 years of experience in development, design and own production of motor spindles carried out an unmatched competence potential, which is beneficial for WEISSER customers,

especially when it comes to:

- Process safety
- High technical availability
- Maximum productivity
- Excellent manufacturing quality

Highest precision and accuracy

Measuring of all components and units relevant for the accuracy - despite high basic accuracies the individual components are „finely assembled“. As a result, mechanical deviations during assembly are minimized and wear is reduced. This ensures a high long-term stability of the complete machine system.

Technologies

Rotational turning

With the rotation turning process developed and patented by WEISSER, precisely machined surfaces can be generated with twist-free finishing precision and thus replace the expensive grinding operations. The simultaneous rotation of workpiece and tool cutting edge reduces the machining time by up to 77 % compared with hard turning.

Hard turning

Hard turning describes the turning of steel with a hardness of more than 45 HRC. It is an efficient alternative for grinding hardened workpieces. The advantages of this process are shorter cycle, set-up and tooling times as well as the relatively lower investment costs and the options of wet and dry machining.

External grinding with the AS650 (pick-up)

Machining with the technology of external cylindrical grinding in one machine is exemplary for perfect hard fine machining of rotationally symmetrical workpieces. In order to achieve optimum cycle times, this machining technology can be combined with hard turning or rotational turning processes.

Turnkey

Intelligent technology processes and complete Turnkey systems

WEISSER machining centers with integrated technology concepts are the solution to demands for shorter process times, productivity and process safety. Shorter cycle times and the associated lower unit costs are decisive competitive factors, especially when manufacturing high quantities. WEISSER turnkey solutions not only score at high quantities but also at small quantities with high set-up flexibility. We pass this competitive advantage on to our customers. With the experience of more than 160 years of development, construction and realization of customized machines, our engineers develop today the most economical solution upon your requirements. The development of the complete production process provides you full cost transparency and helps you to solve complex tasks in an optimal way. With three steps to success. WEISSER Turnkey.

OFFER PHASE AND PLANNING PHASEE

- Process requirements
- Production boundary conditions
- Machine requirements & machine type
- Workpiece clamping / Tools
- MFU features
- Terms of acceptance
- Delivery instructions
- Processing strategy
- Inspection of critical MFU characteristics
- Number of fixings
- Number of spindles
- Design of the machine system
- Workpiece loading and automation
- Clamping device
- Tools

IMPLEMENTATION PHASE

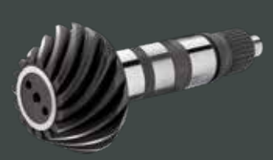
- Construction and integration of the workpiece-specific
  - Clamping fixtures
  - Tools
  - Automation
- Approval process of the tooling plan, layout plan, etc.
- The verification procedure of the process capability through
  - the preliminary acceptance at WEISSER
  - the final acceptance at the customer

TARGET PHASE

- Assistance with production startup and support
- Training in operation, programming and maintenance
- Service e.g. with preventive maintenance, spare part support, qualified service personnel, etc.

Workpieces

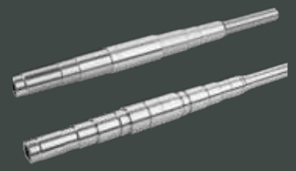
Typical, machine-specific workpieces with cycle time and technical challenges.



Drive bevel gear (hard)

Machining of diameters and end faces

- Rotational turning, hard turning, grinding
- Clamping technology facedrivers and/or shaft chuck and tailstock
- Steady rest
- Cycle time: 60 seconds



Mainshaft (soft)

End machining in one set-up

- Soft turning
- Steady rest
- 4-axes machining
- Cycle time: 300 seconds

Input-Main-Outputshaft

Complete machining in one set-up

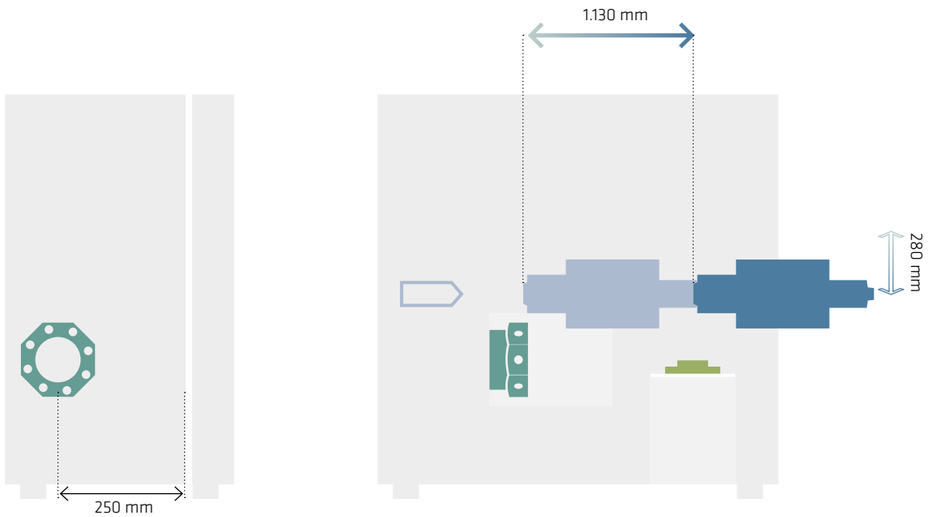
- Soft Turning
- Clamping technology shaft chuck
- Steady rest
- 4-axes machining
- Cycle time: 90 seconds depending on the scope of processing

Input shaft

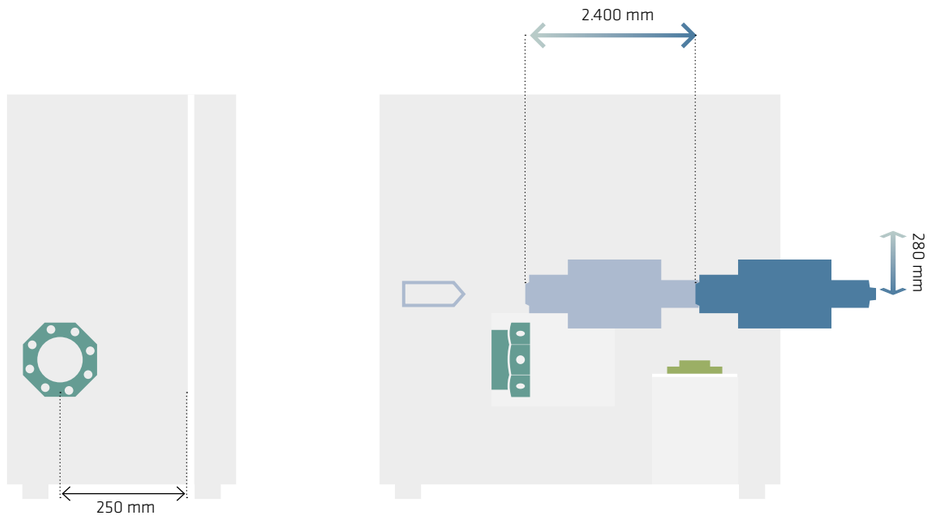
Machining of diameters and end faces

- Rotational turning, hard turning, grinding
- Clamping technology face driver and/or shaft chuck and tailstock
- Steady rest
- Cycle time: 40 seconds

Technical data (Pick-up)



UNIVERTOR AS 400

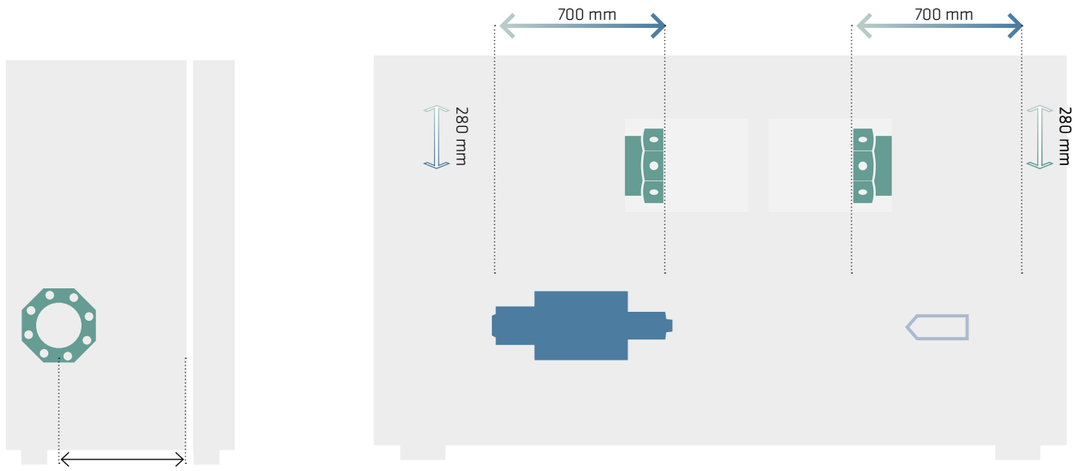


UNIVERTOR AS 650

		AS90/400	AS90/650
Max. Turning diameter	mm	160	160
Max. Chuck diameter	mm	215	215
Max. Peak distance	mm	max. 740	max. 990
Max. Feed force X/Z (40 % CDF)	kN	10 / 8	10 / 8
Working stroke X/Z-axis	mm	280 / 1.130	280 / 2.400
Max. Process speed X/Z	m/min	30 / 60	30 / 100
Ball screw diameter X1/Z1	mm	40 / 40	40 / Linear motor
Number of tools		12 (2x)	12 (2x)
Tool holder		VDI 40	VDI 40
Tool flight circle	mm	600 or 650	600 or 650
Main spindle			
Spindle bearing diameter	mm	90	90
Spindle flange	VDI	A6	A6
Drive power 100/40 % CDF	kW	18 / 23 or 23 / 30	18 / 23 or 23 / 30
Rated speed	1/min	1.500	1.500
Max. Speed	1/min	4.500	4.500
Torque 100/40 % CDF	Nm	115 / 146 or 151 / 191	115 / 146 or 151 / 191

		AS90/400	AS90/650
Tailstock			
Pressing force	daN	850	850
Center point adapter	MK	MK4	MK4
Max. Speed	rpm	4.500	4.500
Dimensions			
Dimensions basic machine (LxWxH)	mm	4.350 x 2.550 x 2.950	5.550 x 2.550 x 2.950
Weight	kg	12.000	16.000

Technical data (Portal)



UNIVERTOR AS 800

Max. Turning diameter	mm	320	Main spindle left				
Max. Chuck diameter	mm	400	Spindle bearing diameter	mm	90	120	150
Max. Peak distance	mm	max. 1460	Spindle flange	VDI	A6	A8	A8
Max. Feed force X/Z (40 % CDF)	kN	10 / 8	Drive power 100/40 % CDF	kW	18 / 23 or 23 / 30	35 / 40	52 / 67
Working stroke X/Z-axis	mm	280 / 700	Rated speed	1/min	1.500	780	1.100
Max. Process speed X/Z	m/min	30 / 60	Max. Speed	1/min	4.500	3.500	3.500
Ball screw diameter X1/Z1	mm	40 / 40	Torque 100/40 % CDF	Nm	115 /146 or 151 / 191	610 / 430	580 / 450
Tool carrier on the left (for 2-axis version only one tool carrier available)			Counter spindle right or tailstock				
Number of tools		12	Spindle bearing diameter	mm	90	120	150
Tool holder		VDI40	Spindle flange	VDI	A6	A8	A8
Tool flight circle	mm	730	Drive power 100/40 % CDF	kW	18 / 23 or 23 / 30	35 / 40	52 / 67
Tool carrier on the right (for 2-axis version only one tool carrier available)			Rated speed	1/min	1.500	780	1.100
Number of tools		12	Max. Speed	1/min	4.500	3.500	3.500
Tool holder		VDI40	Torque 100/40 % CDF	Nm	115 /146 or 151 / 191	610 / 430	580 / 450
Tool flight circle	mm	730	Tailstock				
Dimensions			Pressing force	daN	850		850
Dimensions basic machine (LxWxH)	mm	3.600 x 2.800x 2.950	Center point adapter	MK	MK4		MK5
Weight	kg	16.000	Max. Speed	rpm	4.500		4.500

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