



ARTERY

Multifunctional horizontal machining center





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 customers 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.



Multifunctional high-performance precision center for turning or turn-mill complete machining

Available as a highly efficient 5-axis precision turning machine as well as a mill-turn center for autonomous, very precise and cost-effective 6-sided complete machining. The high flexibility of the ARTERY enables its use in many industrial sectors, e.g. precision technology, aerospace, mechanical engineering, medical technology, and many others. The high-quality ARTERY manufactures first-class surfaces as well as maximum precision and process reliability and features high vibration damping and flexibility.



Conceptual advantages ARTERY

- Parallel turning or turning and milling.
- User-friendly, functional design
- Large working area with compact footprint
- Vibration-optimized design
- Service-friendly access to all relevant components
- Generously equipped, swiveling control panel
- Vibration damping cast construction
- Long Z-axis for 1,200 mm machining length
- Y-axis (+130/-80 mm) with B-axis and milling spindle (HSK-T 63)
- Compact cartridge milling spindle (B-axis)
- Milling spindle with max. 20,000 min⁻¹, power up to 20 kW, 100 Nm
- 38/102-cartridge chain magazine High-speed tool changer
- Complete machining from bars
- High stability and precision in machining of workpieces
- Identical main and counter spindle



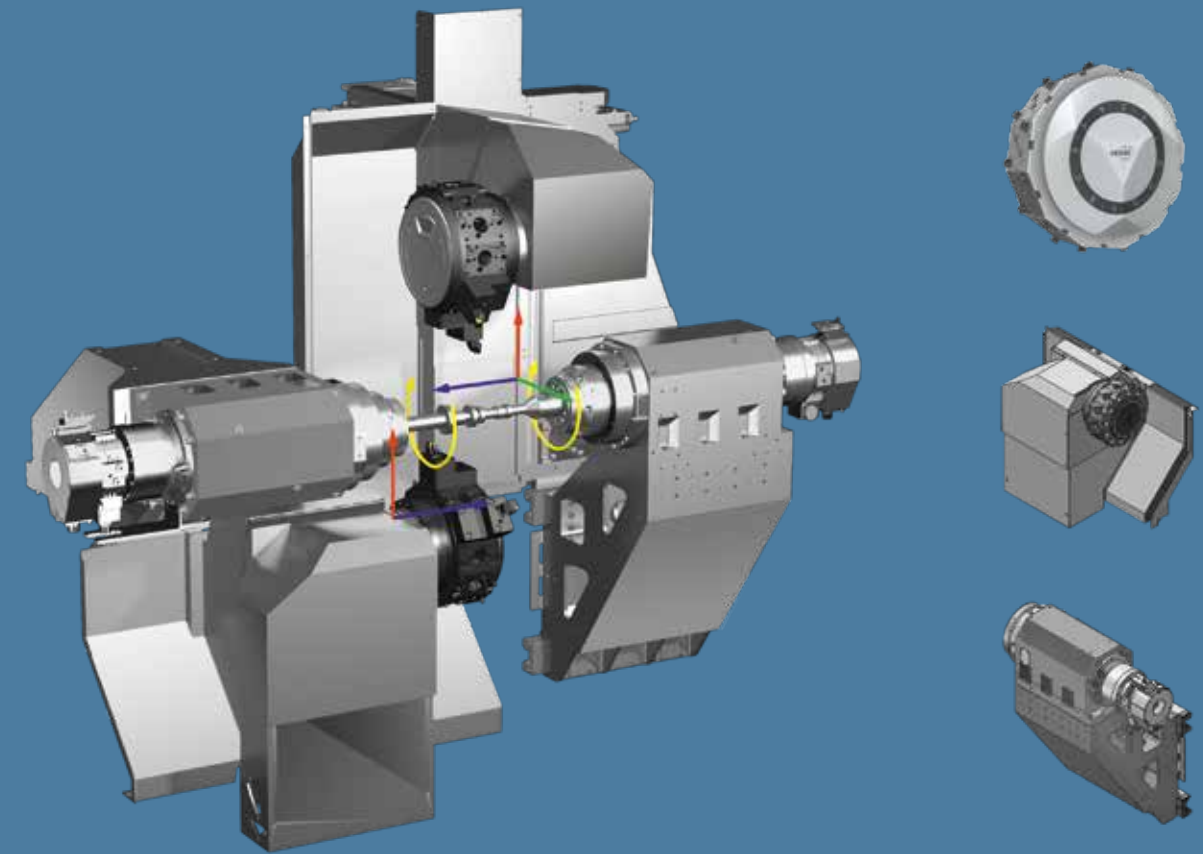
Three workarea configurations, countless possibilities

In all configurations, parallel turning and milling from the bar is possible in addition to 6-sided complete machining.

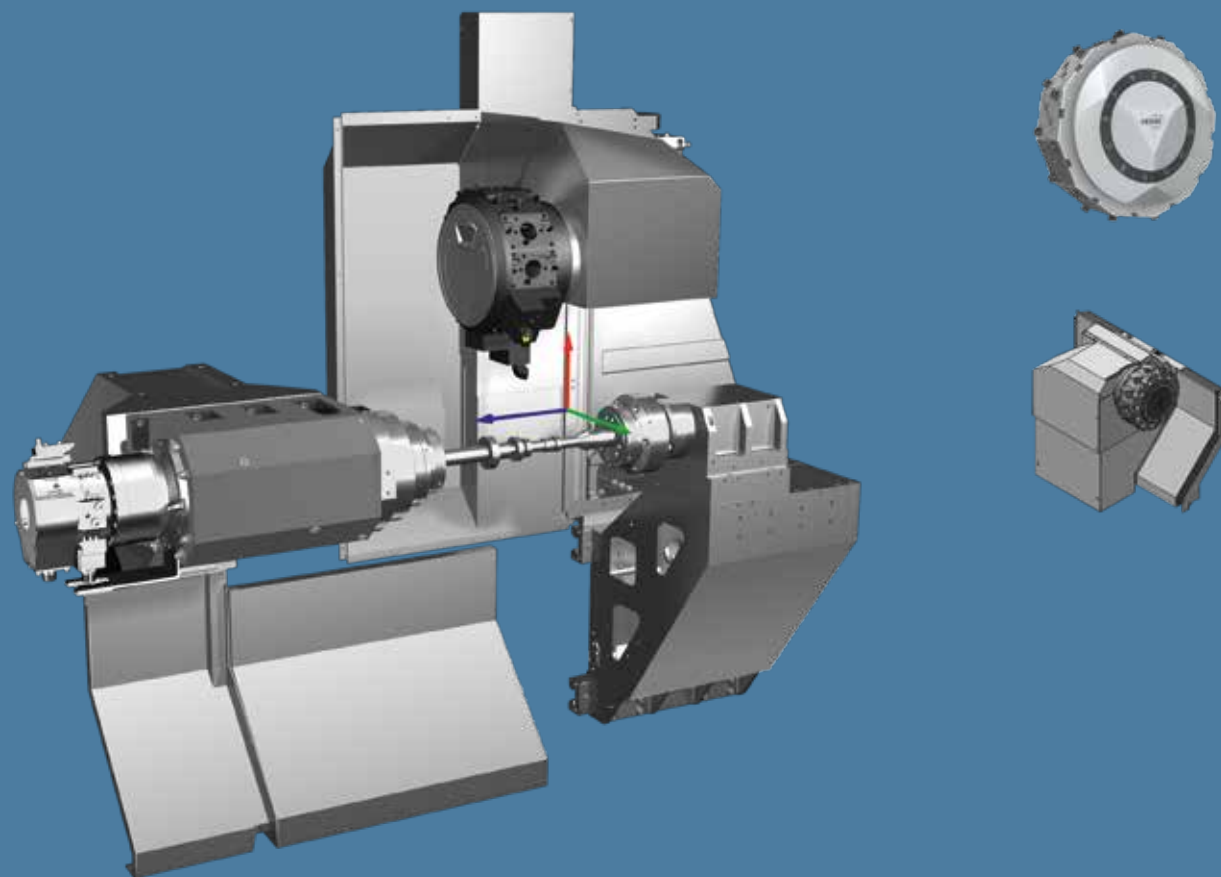
Variant M-1 4X: Version has one tool carrier without counter spindle. Optionally, this version can be equipped with a tailstock and is suitable for medium-length to long shafts.

Variant M-2 5X: Version for multifunctional turning by 4-axis complete machining with two tool carriers, disc turret and counter spindle. Due to the two-turret arrangement, parallel work can be performed depending on the workpiece.

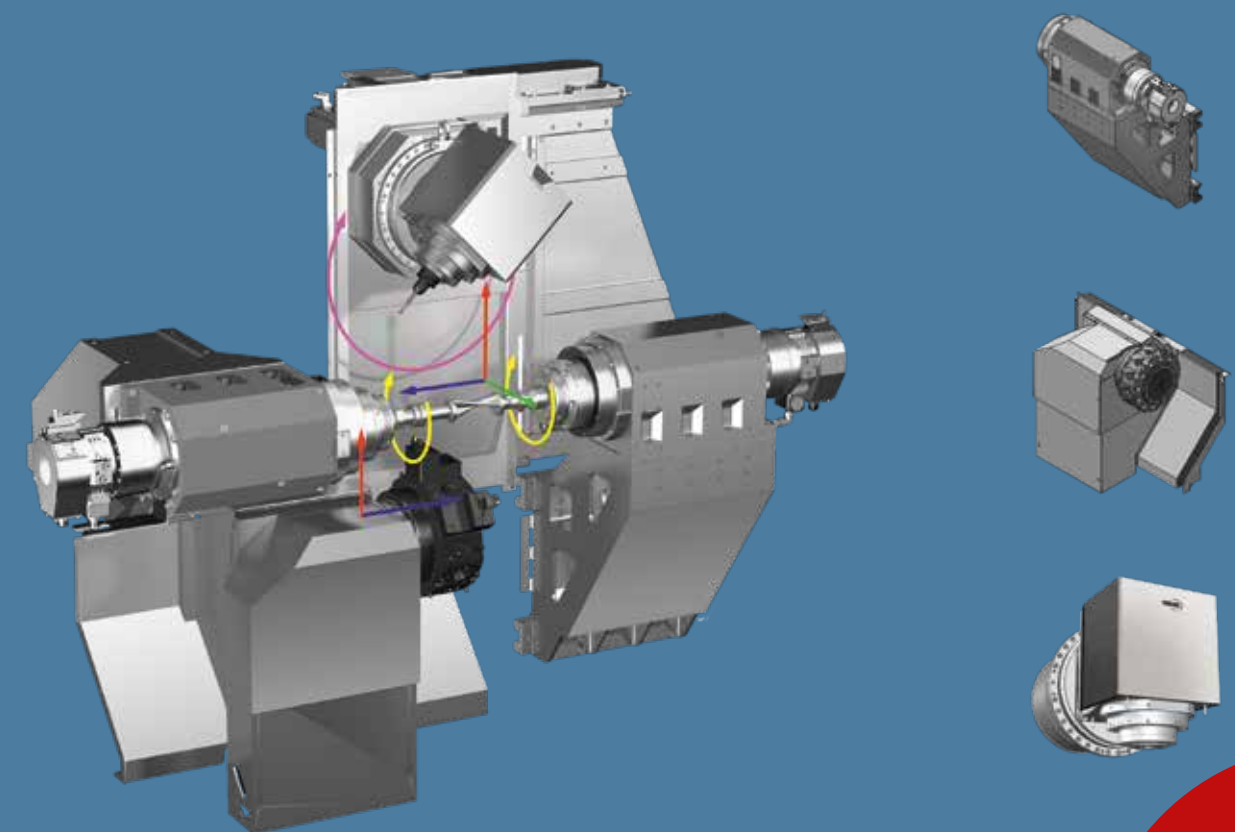
Variant M-2 TM: In this version, turning and milling from bar is possible through the B axis with a milling spindle as well as a tool carrier and counter spindle equipped with a disk turret.



ARTERY M-2 5X

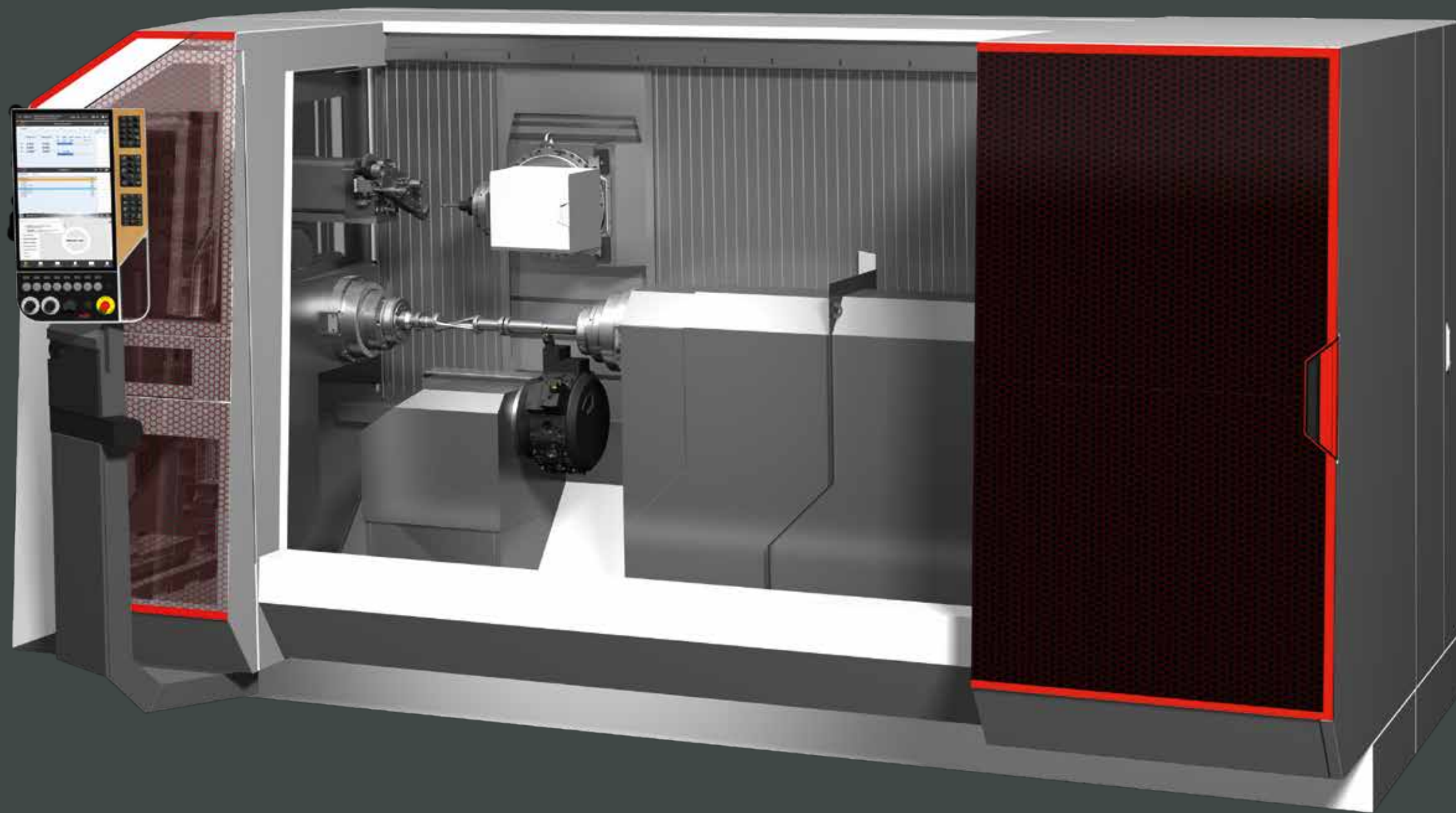


ARTERY M-1 4X



ARTERY M-2 TM

Design ARTERY*



Tool magazine
Chain magazine with 102 tools

Tilting milling spindle
12.000 / 20.000 min⁻¹
B-axis ± 120° (HSKT-T63)
Y-axis +130 / -80 mm

Main spindle
5.700 rpm / 24 kW / 191 Nm

Counter spindle
5.700 rpm / 24 kW / 191 Nm

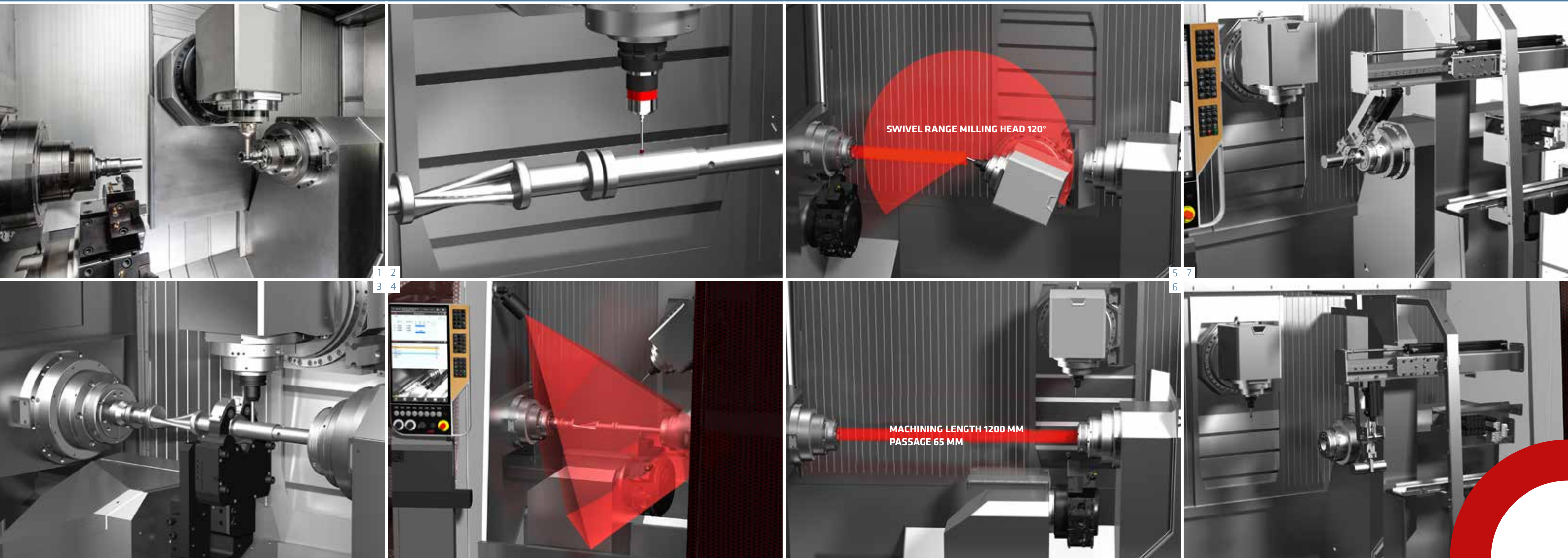
Tool carrier
with 12-position turret
tools BMT 65/VDI 40
with tool drive 6.000 / 12.000 rpm

*using the example of a machine of a type M-2 TM

Horizontal machine design and technology that thinks in advance

The unique ARTERY series enables high-speed and efficient turning and milling thanks to its Y- / B-axis milling spindle and a tool carrier equipped with disk-type turret and counter spindle. The ARTERY permits the simultaneous machining of two workpieces or the machining of one workpiece in two clampings. Parallel machining by tool carrier with disk-type turret and milling spindle (B-axis). Thanks to its mechanical and dynamic properties, the ARTERY provides outstanding work results. In this performance class, and offers enough space for a variety of machining options.

- 1 Freeturn technology
- 2 Measuring probe
- 3 Steady rest on slide unit below
- 4 Camera system
- 5 Cartridge milling spindle on Y- /B-axis
- 6 Large-volume work area with numerous degrees of freedom for maximum productivity
- 7 Workpiece removal from counter spindle, deposit on internal discharge conveyor



Technical highlights

Highly stable guiding systems and ball screws

The large dimensions as well as the highest quality materials used for guides and ball screws ensures minimal wear, which leads to a lower maintenance and repair costs.

Maximum stability and long term accuracy

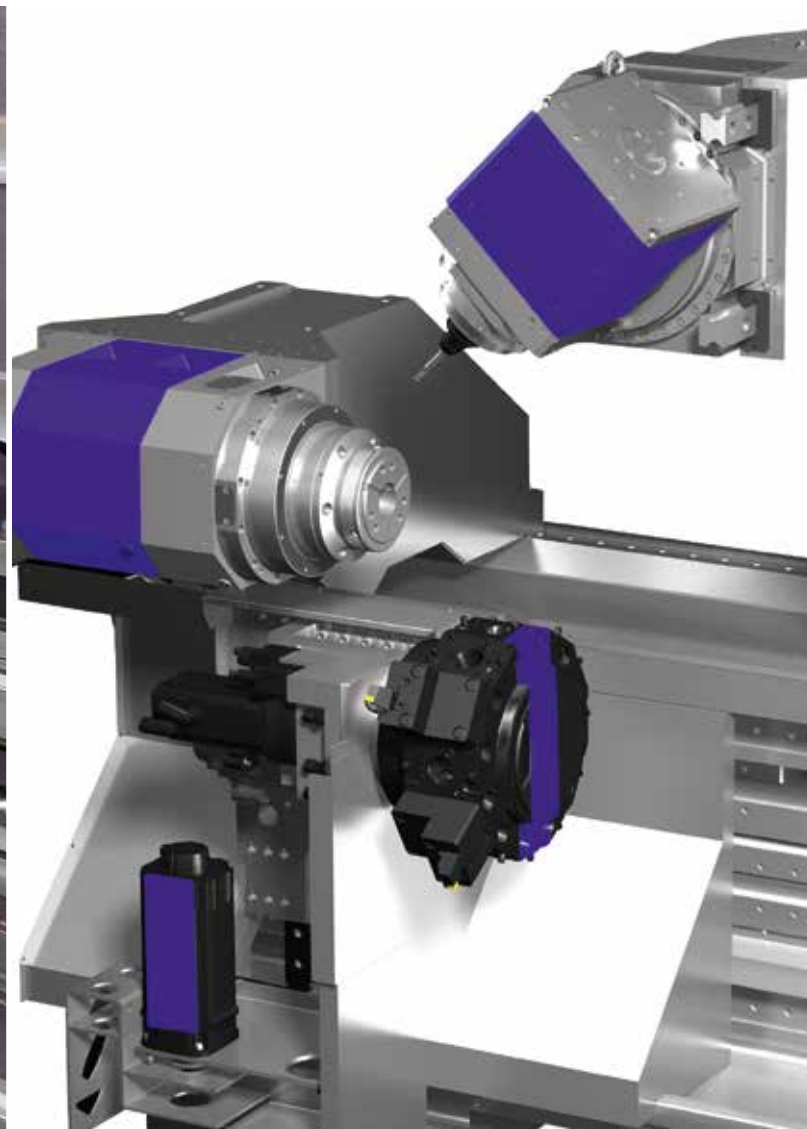
The WEISSER ARTERY is characterized by a vibration-optimized construction. The FEM- and topology-optimized monoblock machine base and the slide units ensure high stability. The ARTERY is assembled in an efficient and quality-oriented production process with a high level of expert knowledge. This leads to highest quality and permanent accuracy with maximum availability.

NC-controlled chain magazine

Minimization of setup time through flexible tool handling. The highly dynamic, robust NC-controlled chain magazine supports the productivity of the ARTERY. There are up to 102 magazine positions in the chain, and a total of 104 tool places are available for workpiece machining, tool input station with good accessibility from front makes it more efficient.

Unload handling

With the unload handling, the workpieces can be removed from the main spindle. (Removal from main spindle and counter spindle). Remaining parts are picked up directly from the main spindle and placed together with the workpieces on an internal discharge conveyor.



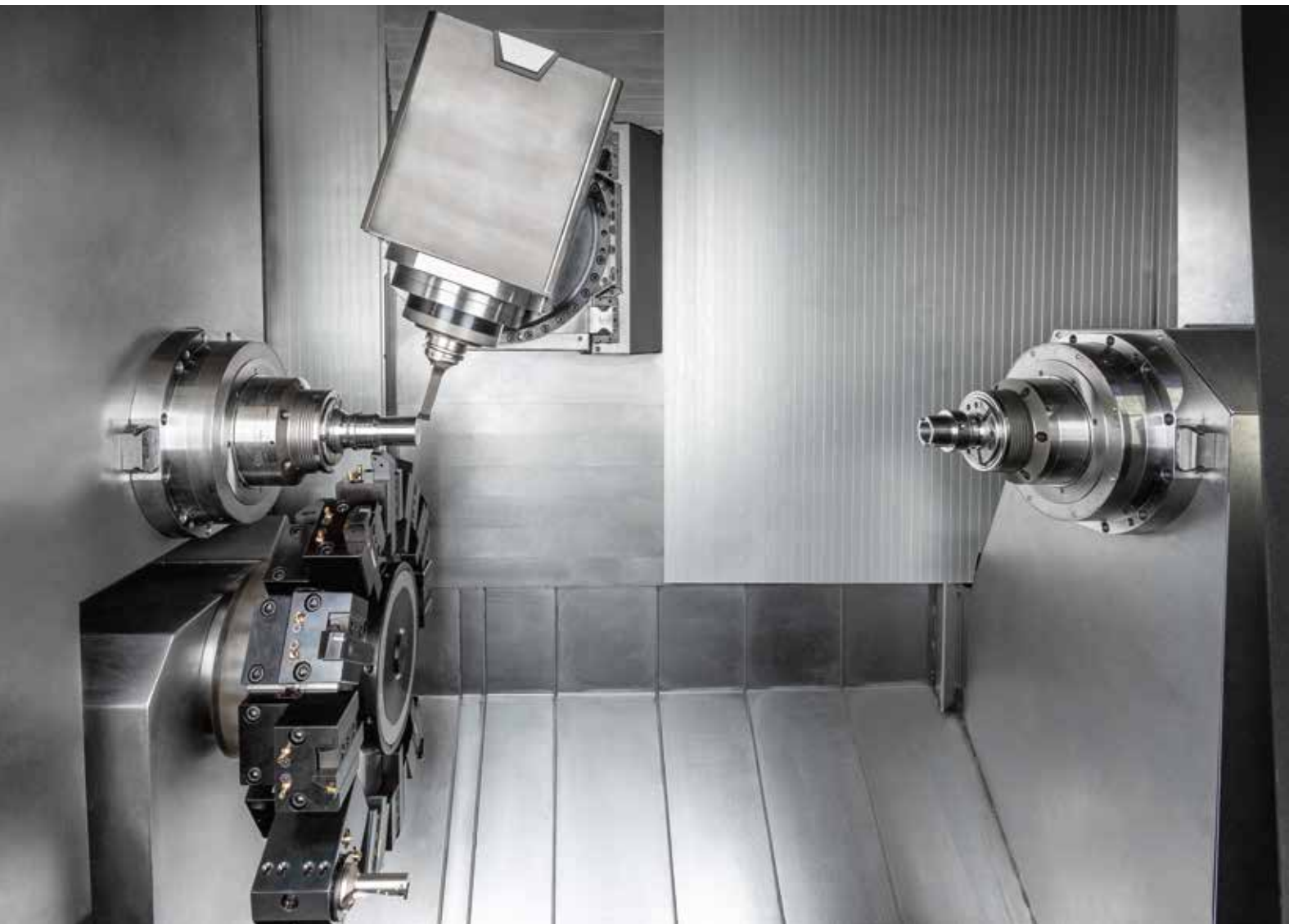
Technologies

6-sided complete machining

Due to its particularly long Z-axis, the ARTERY is very well suited for 6-sided complete bar machining or for long workpieces. Thanks to the compact milling head with HSK-T63 or optionally Capto C6 mounting, long tools can also be used on the face side.

Machining from bar

In addition to the 6-side complete machining, simultaneous turning and milling from bar with a diameter of up to 65 mm and 105 mm or workpieces with a turning length of up to 1.200 mm is possible.



Technologies

Turnkey

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.

Gear cutting (hobbing)

Integration of a hobbing module, being the only method to manufacture internal and external gearings with different helix angles and directions in a single machining center. This manufacturing process combines hobbing and slotting by continuous hobbing with maximum feed rate.

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 PHASE

- 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.



Technical data

		M-14X	M-2 5X	M-2 TM			M-14X	M-2 5X	M-2 TM
Turning length	mm	1.200	1.200	1.200	Tool carrier top				
Chuck diameter	mm	up to 350	up to 350	up to 350	Tool system		Target revolver 12-fold	Target revolver 12-fold	Milling spindle
Feed force W/X/Y/Z max. (25 % CDF)	kN	7,5 / 7,5 / 7,5 / 7,5	7,5 / 7,5 / 7,5 / 7,5	7,5 / 7,5 / 7,5 / 7,5	Tool holder		BMT 65s / VDI40	BMT 65s / VDI40	HSK T63 (Capto C6)
Working stroke X (top / bottom)	mm	200 / 200	200 / 200	500 / 200	Max. Speed	rpm	6.000 torque drive 10.000 BMT / 12.000 VDI speed drive	6.000 torque drive, 10.000 BMT / 12.000 VDI speed drive	12.000 (20.000)
Working stroke Y-axis	mm	210 (+130 / -80)	210 (+130 / -80)	210 (+130 / -80)					
Working stroke Z-axis (top / bottom)	mm	1.100 / 1.200	1.100 / 1.200	1.200 / 1.200	Max. Drive power (25% CDF)	kW	28,5 torque drive 23,5 speed drive	28,5 torque drive 23,5 speed drive	20
Max. Travel speed W/X/Y/Z	m/min	45 / 40 / 40 / 45	45 / 40 / 40 / 45	45 / 40 / 40 / 45					
Ball screw diameter W/X/Y/Z	mm	40 / 40 / 40 / 40	40 / 40 / 40 / 40	40 / 40 / 40 / 40	Max. Torque (25% CDF)	Nm	70 BMT / 85 VDI torque drive 56 speed drive	70 BMT / 85 VDI torque drive 56 speed drive	115
Profile rail guide W/X/Y/Z	mm	45 / 45 / 45 / 45	45 / 45 / 45 / 45	45 / 45 / 45 / 45					
Tool flying circle	mm	700	700	700	Swivel range B-axis	Degree	-	-	±120
Max. Peak distance	mm	1.200	1.200	1.200	Tool carrier bottom				
Main spindle / Counter spindle					Tool system		-	Target revolver 12-fold	Target revolver 12-fold
Spindle bearing diameter	mm	120 (160)	120 (160)	120 (160)	Tool holder		-	BMT 65s / VDI40	BMT 65s / VDI40
Spindle diameter	mm	65 (105)	65 (105)	65 (105)	Max. Speed	rpm	-	6.000 torque drive, 10.000 BMT / 12.000 VDI speed drive	6.000 torque drive, 10.000 BMT / 12.000 VDI speed drive
Spindle bore diameter	mm	80 (120)	80 (120)	80 (120)					
Spindle flange / spindle head	DIN55026	A6 (A8)	A6 (A8)	A6 (A8)	Max. Drive power (25% CDF)	kW	-	28,5 torque drive 23,5 speed drive	28,5 torque drive 23,5 speed drive
Drive power 100 % CDF	kW	22 (48)	22 (48)	22 (48)					
Drive power 40 % CDF	kW	24 (52)	24 (52)	24 (52)	Max. Torque (25% CDF)	Nm	-	70 BMT / 85 VDI torque drive 56 speed drive	70 BMT / 85 VDI torque drive 56 speed drive
Nominal speed	rpm	1.400 (780)	1.400 (780)	1.400 (780)					
Max. Speed	rpm	5.700 (3.200)	5.700 (3.200)	5.700 (3.200)	Tool magazine				
Torque 100 % CDF	Nm	150 (585)	150 (585)	150 (585)	Tool system	DIN69893	-	-	HSK T63 (Capto C6)
Torque 40 % CDF	Nm	191 (795)	191 (795)	191 (795)	Places in tool magazine		-	-	102
C-axis resolution	Degree	0,001	0,001	0,001	Max. Tool weight	kg	-	-	8
Tailstock (optional instead of counter spindle)					Chip-to-chip time	s	-	-	ca. 8,5
Shaft fixture	DIN228	MK5	MK5	MK5	Dimensions				
Pressing force	kN	7,5	7,5	7,5	Dimensions basic machine (LxWxH)	mm	4.500 x 2.500 x 2.500	4.500 x 2.500 x 2.500	4.500 x 2.500 x 2.500
Max. Speed	rpm	4.500	4.500	4.500	Weight	kg	approx. 12.500	approx. 13.500	approx. 15.000
					Connected load	kW	25 (50)	36 (60 / 79)	36 (60 / 79)

* Values in brackets are options that deviate from the standard equipment, our sales department will be happy to support you here



J. G. WEISSER SÖHNE GmbH & Co. KG

Johann-Georg-Weisser-Straße 1
78112 St. Georgen
T +49 7724 881-0
www.weisser-web.com



WEISSER Präzisionstechnik

Johann-Georg-Weisser-Straße 1
78112 St. Georgen
T +49 7724 881-590
www.weisser-pt.com

WEISSER Maschinenzentrum Schwenningen

Albertstraße 16
78056 Villingen-Schwenningen
T +49 7720 60900-41
www.weisser-web.com/service