



UNIVERTOR **V400**

Next generation multifunctional vertical turning center



UNIVERTOR V400

For the evolution of the proven AM series, we put together countless years of customer feedback and the concentrated know-how of our engineers. As a result, we have developed the UNIVERTOR V, where we think one step ahead and have spared no effort.

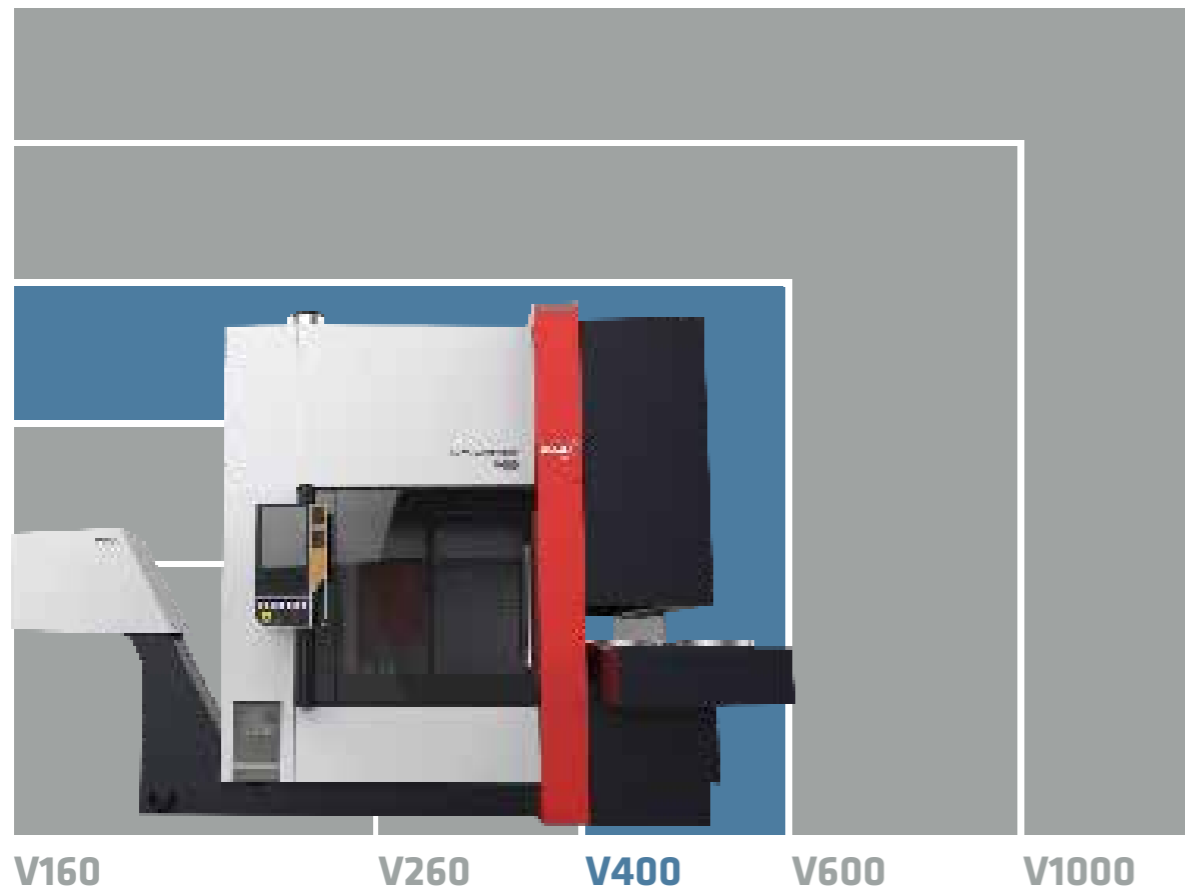
Whether medium or large series, whether light or heavy, whether aluminium, cast iron, steel or titanium, whether dry or wet machining - regardless of the production task set, WEISSER covers a wide range of applications with the UNIVERTOR V series.

The UNIVERTOR V series offers outstanding manufacturing competence for various workpiece applications at highest productivity, continuous accuracy and finishing precision.

In contrast to many other machine tools on the market, the UNIVERTOR V series convinces by an outstanding performance and excellent precision within

this machine category. Due to its high machine stability, the series is predestined for hard turning. Short cycle time allow high quantities and a maximum of economic efficiency.

High production quality is achieved through sophisticated complete machining. Therefore, WEISSER combines the manufacturing processes specified for the respective applications with the original WEISSER Pick-Up system (patented) and customer-specific automation concepts to a perfect, process-reliable system solution.



V160 V260 V400 V600 V1000

Conceptional advantages

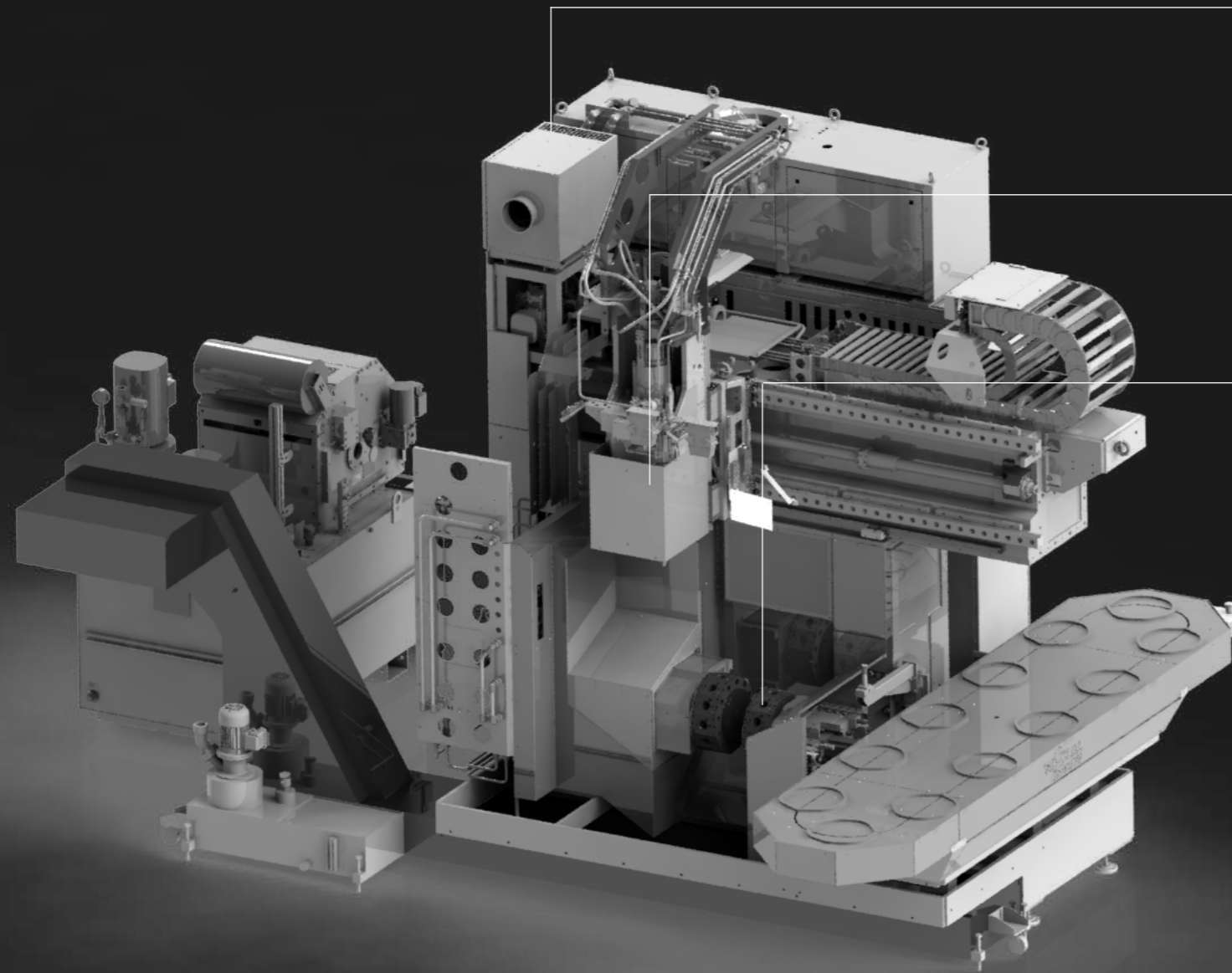
- Proven quality through 100% evolution of the proven AM series
- Simplified chuck change due to large working chamber opening and defined chuck change position
- Faster process times due to modular design
- Large work area and long traverse paths with compact machine external dimensions
- Optimum setup friendliness and short non-productive times thanks to good accessibility, storage options and compact axle geometry in conjunction with improved axle accelerations
- Additional storage space for tools and utensils directly at the machine

UNIVERTOR V400-2 Dual, double spindle version

- Double spindle machine with standard automation
- Highly flexible production through double-sided 4-axis machining (2 turrets)
- 3 predefined distances for customer-specific or variable automation between the machines
- 2 combinable machining technologies per machining area



Conceptual design



BASIC MACHINE

Monobloc machine body made of high quality gray cast iron. Heavily ribbed machine base

MAIN SPINDLE

- Maintenance-free spindle motor with digital drive technology.
- Spindle bearing \varnothing : 4,72 inch / 120 mm
- Spindle flange: A8 according to DIN 55026

TOOL TURRET

- 12-fold with electric drive
- Standard interface VDI
- Optional tool drive

VARIABLE AUTOMATION INTERFACE

- e.g. for drag frames
- NC-controlled
- 12 trailing frames

TECHNICAL EXTENSIONS

- Possibility of 4-axis machining
- Grinding spindle (internal & external)
- Multi-spindle drilling heads
- Lifting steel holder

Technical Highlights

4-axes machining

Highly productive simultaneous machining in one machine with two powerful disk turrets (4-axes). Intelligent technology processes and the combination of different machining steps offer high savings potential. Working with two tools simultaneously shortens the machining times of the workpiece and reduces the cost per part.



Out-of-round turning

3 times capacity with WEISSER HOT system for shorter piece times and lower piece costs. The technology enables the highly productive machining of a wide range of workpieces, such as pistons for combustion engines, camshafts, polygonal profiles or the production of polygon shapes (shaft-hub connections) with process-oriented perfection.



Finely assembled

Measuring of all components and assemblies relevant for accuracy - despite high basic accuracies, the individual components are - finely assembled to approach „Mechanical Zero“. This ensures a high long-term stability of the complete machine system.



WEISSER synchronous motor spindle

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



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.



Internal/external grinding

The complete machining from the combined processes of hard turning, internal and external cylindrical grinding in one machine is exemplary for perfect hard fine machining of rotationally symmetrical workpieces.



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.



Automation

By default, the UNIVERTOR V is equipped with a drag frame conveyor. Due to the integrated interface, further automation options can be realized in accordance with the customer's requirements.

Workpieces

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



Differential housing
Machining in several clamping positions

- Outside and inside turning operations
- Various drilling processes
- Machining of the ball possible with special tools
- Cycle time: approx. 120 seconds



Stator housing
Machining of a stator carrier in two clamps

- Two independent working areas for OP10 and OP20
- Two motor spindles
- Measuring probe
- Individual clamping devices
- Cycle time: 80 to 90 seconds depending on the processing time



Axle drive wheel
Complete machining with soft turning, drilling and tapping

- Two independent working areas for OP10 and OP20
- Two motor spindles
- Wet machining with coolant
- Drill breakage control
- Special clamping devices
- Cycle time: approx. 120 seconds



Brake disc
Machining of brake discs in four clamping positions on two machines

- Two pending spindles
- NC Pick-Up double turning unit
- Units driven for bore machining
- Dry machining
- Ventilated, unventilated and lightweight brake discs
- Cycle time: 45-50 seconds

Technical data



Technical data

		V 400
Max. turning diameter	inch / mm	13,78 / 350
Max. chuck diameter	inch / mm	15,75 / 400
Max. Feed force X/Z (100 % CDF)	kN	8/10
Working stroke X-axis	inch / mm	55,12 / 72,83 1400/1850
Working stroke Z-axis	inch / mm	15,75 / 400
Max. Process speed X/Z	ipm / m/min	2.952,76/1.181,10 75/30
Ball screw diameter X1/Z1	inch / mm	1,97/1,57 50/40

Main spindle

	DIN55026	A6	A8
Spindle flange	DIN55026	A6	A8
Spindle bearing diameter	inch / mm	4,72 / 120	4,72 / 120
Drive power 100 % CDF	kW	29,1	35,1
Drive power 40 % CDF	kW	30	40
Rated speed	rpm	1.050	780
Max. Speed	rpm	4.500	3.500
Torque 100 % CDF	Nm	265	430
Torque 40 % CDF	Nm	340	610

Tool turret

Number of tools		8/12
Tool holder	DIN ISO 10889 (DIN 69880)	Ø40/ 50
Tool flight circle	inch / mm	34,65 / 880
Speed max.	rpm	6.000 torque drive 12.000 speed drive
Drive power max.	kW	28,5 torque drive 23,5 speed drive
Torque max. (10% CDF)	Nm	85 torque drive 56 speed drive

Dimensions

Dimensions	V400	(LxWxH) inch	122,05 x 98,43 x 118,11
		(LxWxH) mm	3.100 x 2.500 x 3.000
Dimensions	V400-2 (double spindle version)	(LxWxH) inch	240,55 x 101,73 x 129,88
		(LxWxH) mm	6.110 x 2.584 x 3.299
Weight	V400	lbs / kg	about 24.250,85 / 11.000*
Weight	V400-2 (double spindle version)	lbs / kg	about 46.297,08 / 21.000*

*Depending on the variant, the weight may vary



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