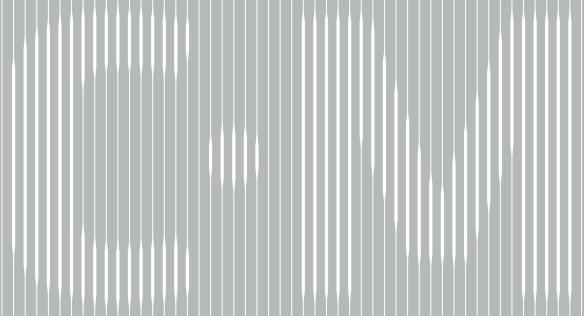
VERTOR C
VERTOR M



Vertical turning center

WEISSER

VERTOR C / M series

The VERTOR C and VERTOR M are ideally suitable for the wet and dry machining of all common, rotationally symmetric shaft workpieces with highest precision, availability and continuous accuracy.

The modular designed, vertical precision turning centers VERTOR C and VERTOR M are both equipped with a stationary motor spindle, highly flexible and perfectly suited for the most economical, multifunctional complete machining of different batch sizes with high demands on cutting technique and quality.

Conceptual advantages:

- Heavily ribbed monobloc machine base
- Extremely high stiffness and thermal stability
- Large working volumes with compact external dimensions of the machine
- Direct drives / Guides outside the working area
- Slide design for high accuracy and dynamics
- Precision linear guides in horizontal and vertical direction
- Maintenance-free three-phase servo drives
- High rapid traverse speed

Machine models

VERTOR C / M

The Vertor C and M series machines are ideally suited for wet and dry machining of all common rotationally symmetrical workpieces with highest precision, availability and continuous accuracy. The VERTOR C and M series have very good accessibility at smallest space requirement and offers the option of two- or four-axes machining additionally.

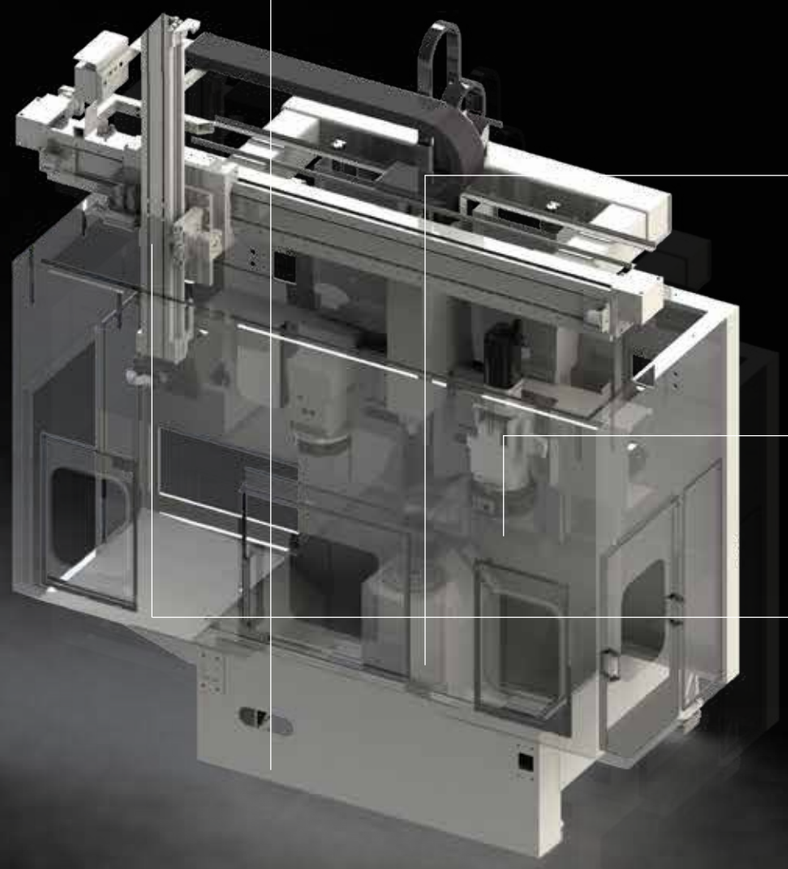
Product competence

VERTOR C / M

The possibility of technology integration of innovative processes such as non-circular turning, hard turning, grinding, drilling or milling leads to a significant reduction of internal logistics processes and creates high-precision machining results.

The multifunctional vertical precision turning centers of the VERTOR series are one of the best machines of their class worldwide in terms of operating speed, availability, stability and reliability.

Conceptual Design



BASIC MACHINE

One-piece machine construction made of high-quality grey cast iron. Heavily ribbed machine base.

MAIN SPINDLE

Motor spindle with 35/40 kW power at 100/40% CDF with water cooling, maintenance-free spindle motor in digital drive technology.

- Spindle bearing Ø: 4,72 inch / 120 mm
- Spindle flange: A8 according to DIN 55026
- Speed limit: 3,500 rpm
- Rated speed: 780 rpm

TOOL TURRET

- 8/12 x with electric drive
- VDI 40 interface additional tool interfaces possible
- Optionally with driven tools

GANTRY LOADING

TECHNICAL EXTENSIONS

- Tailstock
- Counter spindle
- Steady rest
- HOT unit
- Grinding spindle

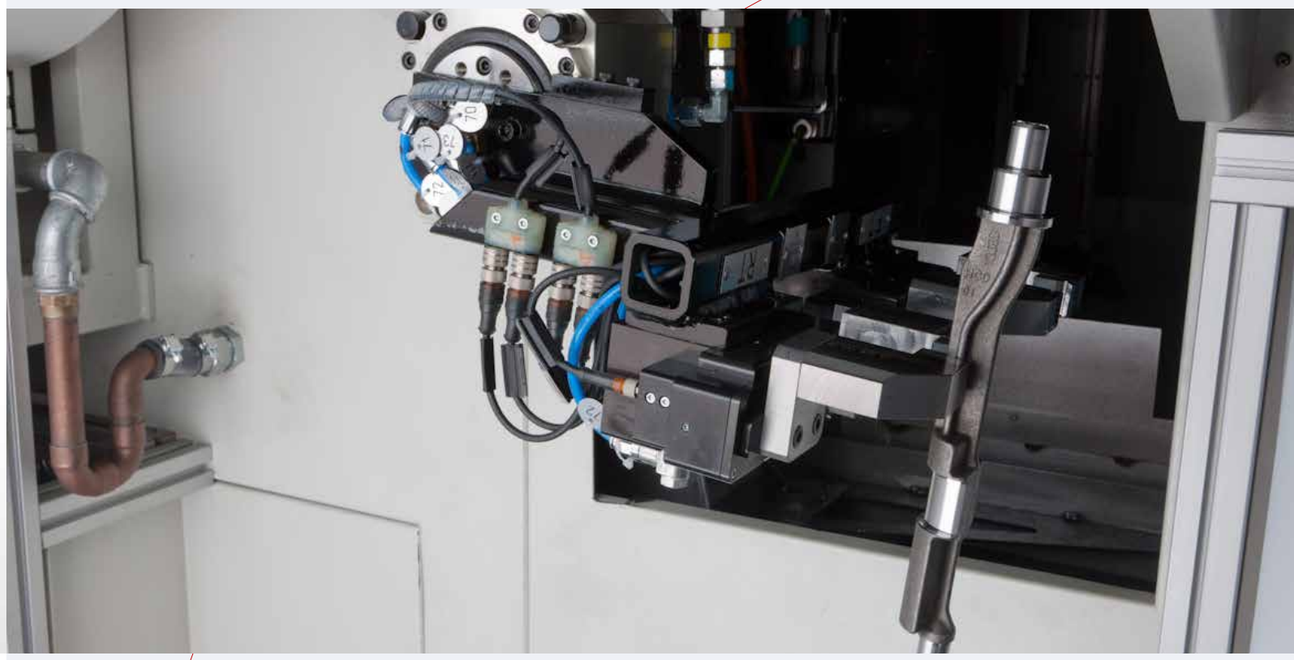
Automation

Transport systems

The automation options with different transport systems (e.g. pallet conveyor, drag frame, friction roller conveyor, etc.) offer highly variable application possibilities. Depending on the design, they can be adapted to the shape and weight of the workpieces to be transported. A variety of linking tasks, maximum flexibility and easy maintenance are part of the countless advantages offered by these customized automation solutions.

Robot automation

Robot automation offers a highly flexible loading and unloading method for your machine. Machining solutions with robot automation are configured according to the customer's requirements, so that related processes (e.g. measuring, signing, aligning) can also be operated in a space-saving manner and offer maximum availability.



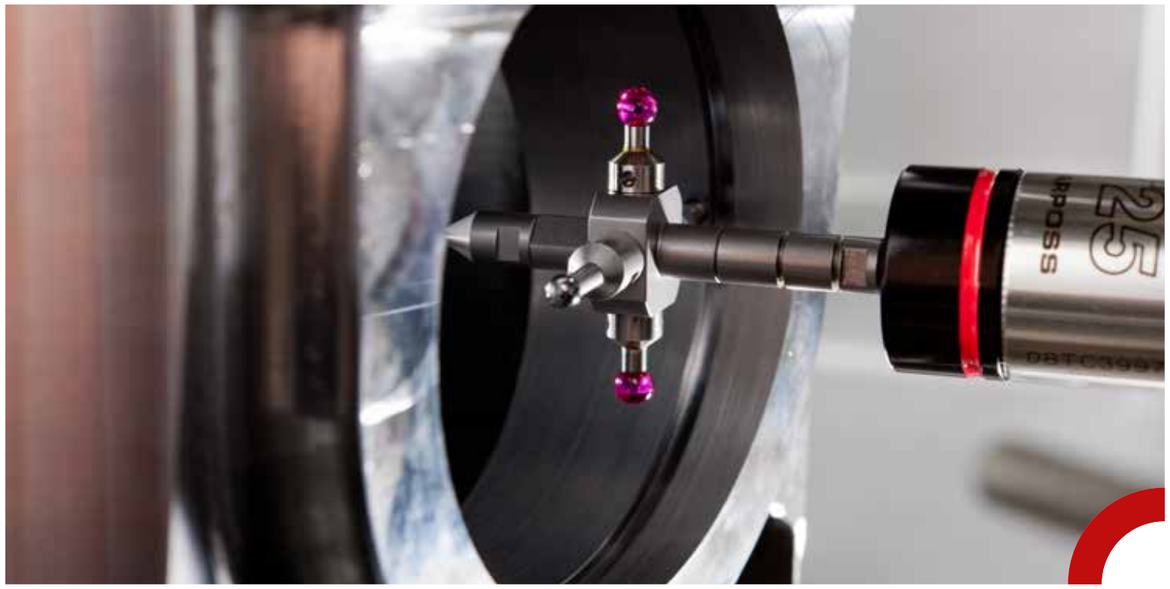
Technical Highlights

Highly productive 4-axes simultaneous 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 thus reduces the cost per part.

Mechanical zero

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

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.

External grinding

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.

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.

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 four 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.

WEISSER IoT Solutions

Digitization / Industry 4.0

Intelligence, efficiency, individuality, speed, connectivity - these are the central statements associated with Industry 4.0. Thanks to WEISSER's broad portfolio of Industry 4.0 solutions your machine can be connected to the digital world. By reducing downtimes, you can increase the efficiency of your machine, keep it up to date by constant software updates and maintain the quality of your workpieces by keeping the machine always updated and the parameters in standard.

WEISSER Cloud CorE

Through our cloud platform you can access your machine from anywhere. By interlinking the entire assembly line, you can optimally plan your production and derive organizational measures. And should a problem occurs, your WEISSER service partner can be contacted directly. Our aim is to carry out a preventive maintenance (Predictive Maintenance PdM), so that you can recognize in advance when refilling is required and detect a leak at an early stage due to a non-continuous decrease of operating materials.

Workpieces

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

Out-of-round machining

Processing of workpieces with different profiles

- Out-of-round turning (HOT) inside and outside
- Manufacturing of shaft-hub connections
- Out-of-round machining Piston
- Cycle time: Depending on the task

Balance shaft

Machining Diameter and end face

- Clamping technology shaft chuck
- Turning all functional surfaces
- 4-axes machining
- Cycle time: approx. 60 seconds

Cylinder liner

Complete machining in three clampings

- Individual clamping technology
- Turning off the casting skin outside
- Turning of the casting skin inside and finish machining
- Drilling
- Finish machining outer contour
- Cycle time: 60 - 120 seconds depending on the part dimensions

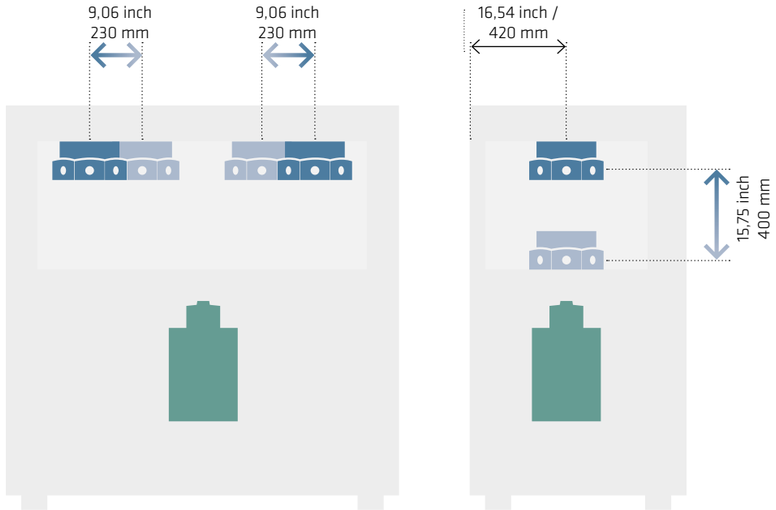
Steel pistons

Processing in several processing steps

- Grooving grooves
- Oil holes drilling
- Finish turning of groove flanks
- Oval turning (pre- and finish turning)
- Line cycle: 30 seconds

Technical data

VERTOR C-1



Technical data

		VERTOR C	VERTOR M
Max. turning diameter	**inch** / mm	**17,72** / 450	**17,72** /450
Max. chuck diameter	**inch** / mm	**23,62** / 600	**23,62** / 600
Max. Feed force X/Z (40 % CDF)	kN	9 / 9	9 / 9
Working stroke X/Z-axis	**inch** mm	**9,06 / 11,02 (11,02/15,75)** 230 / 280 (280/400)	**9,06 / 11,02 (11,02/15,75)** 230 / 280 (280/400)
Max. Process speed X/Z	**ipm** m/min	**1.181,10 / 1.181,10** 30 / 30	**1.181,10 / 1.181,10** 30 / 30
Ball screw diameter X1/Z1	**inch** mm	**1,57 / 1,57** 40 / 40	**1,57 / 1,57** 40 / 40
Number of tools		12 (2x12)	12 (2x12)
Tool holder		VDI40 / 50	VDI40 / 50
Tool flight circle	**inch** / mm	620	620

Main spindle

Spindle bearing diameter	**inch** / mm	**3,54** / 90	**5,91** / 150
Spindle flange	DIN55026	A6	A8
Drive power 100 % CDF	kW	18	52
Drive power 40 % CDF	kW	23	67
Rated speed	rpm	1.500	1.100
Max. Speed	rpm	6.000	3.500
Torque 100 % CDF	Nm	115	580
Torque 40 % CDF	Nm	146	450

Tailstock

Working stroke	**inch** / mm	**7,87** / 200	**7,87** / 200
Spindle bearing		Rigid, without bearing	Rigid, without bearing
Max. peak distance	**inch** / mm	**25,16** / 639	**25,16** / 639
Pressing force	daN	850	850
Center point adapter	MK	MK4	MK4
Max. Speed	rpm	-	-

Dimensions (2-axes)

Dimensions basic machine (LxWxH)	**inch** mm	**74,80 x 74,80 x 102,36** 1.900 x 1.900 x 2.600	**74,80 x 74,80 x 102,36** 1.900 x 1.900 x 2.600
Weight	**lbs** / kg	**19.841,6** / 9.000	**19.841,6** / 9.000

Dimensions (4-axes)

Dimensions basic machine (LxWxH)	**inch** mm	**118,11 x 74,80 x 102,36** 3.000 x 1.900 x 2.600	**118,11 x 74,80 x 102,36** 3.000 x 1.900 x 2.600
Weight	**lbs** / kg	**24.250,85** / 11.000	**24.250,85** / 11.000

J. G. WEISSER SÖHNE GmbH & Co. KG

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

WEISSER Präzisionstechnik

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

Weisser Maschinenzentrum Schwenningen

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

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