

# ZEISS CenterMax®

## Specifications

Version: 2021-05



Seeing beyond

## System description

Type according to ISO 10360-1:2000	Gantry CMM		
Operating mode	motorized / CNC		
Sensor mounts	Fixed installation		
Software	ZEISS CALYPSO, ZEISS GEAR PRO, ZEISS HOLOS		
Acceleration			
Travel speeds		axis	Vector
Set-up mode	in mm/s	0 to 70	
Batch measurement mode	in mm/s	max. 300	max. 520
Acceleration	in m/s <sup>2</sup>	max. 1.2	max. 2.4

## Accuracy and measuring performance <sup>1)</sup>

The functionality of the device and its specifications are only achievable when using original accessories by ZEISS. The specified parameters are observed in the application of the internal test instructions for acceptance testing and in the use of the released standards in accordance with the ISO 10360 series.

ZEISS CenterMax			ZEISS VAST gold	ZEISS VAST XTR gold
TVA <sup>2) 3)</sup> (Temperature Variable Accuracy)	TVA MPE <sub>t</sub>	in µm	1.2 + (0,05  Δθ ) + L/(280 - (5  Δθ ))	1.2 + (0,05  Δθ ) + L/(280 - (5  Δθ ))
Length measurement error <sup>2)</sup> MPE complies with ISO 10360-2:2009	E0 / E150	in µm	At 20 °C: 1.2 + L/280 At 26 °C: 1.5 + L/250 At 30 °C: 1.7 + L/230 At 40 °C: 2.2 + L/180	At 20 °C: 1.2 + L/280 At 26 °C: 1.5 + L/250 At 30 °C: 1.7 + L/230 At 40 °C: 2.2 + L/180
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in µm	1.1	1.1
Scanning error MPE complies with ISO 10360-4:2000 required measuring time MPT	THP τ	in µm in s	2.2 26	2.2 26
Form measurement error MPE for roundness <sup>4)</sup> complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONt (MZCI)	in µm	1.0	1.0
Single stylus form probing error MPE complies with ISO 10360-5:2010	PFTU	in µm	1.4	1.4
Multi-stylus form probing error MPE complies with ISO 10360-5:2010	PFTM <sup>5)</sup>	in µm	2.7	3.3
Multi-stylus dimension probing error MPE complies with ISO 10360-5:2010	PSTM <sup>5)</sup>	in µm	1.0	1.0
Multi-stylus location probing error MPE complies with ISO 10360-5:2010	PLTM <sup>5)</sup>	in µm	2.2	2.3
Length measuring system	ZEISS glass ceramic; reflected light system, photo-electric, resolution 0.2 µm			

## Sensors

### ZEISS VAST gold



Active measuring with stylus changer  
Scanning measuring rate up to 500 points/s.

Measuring force at data acquisition	in mN	min. 50
Stylus system weight	in g	max. 600
Stylus system length	in mm	max. 800
Stylus rack optional	8 rack slots (max. 24 fixed rack slots, constantly within the measuring range) ZEISS ProMax active stylus rack with 15 slots (requires compressed air supply for measuring operations)	

### ZEISS VAST XTR gold

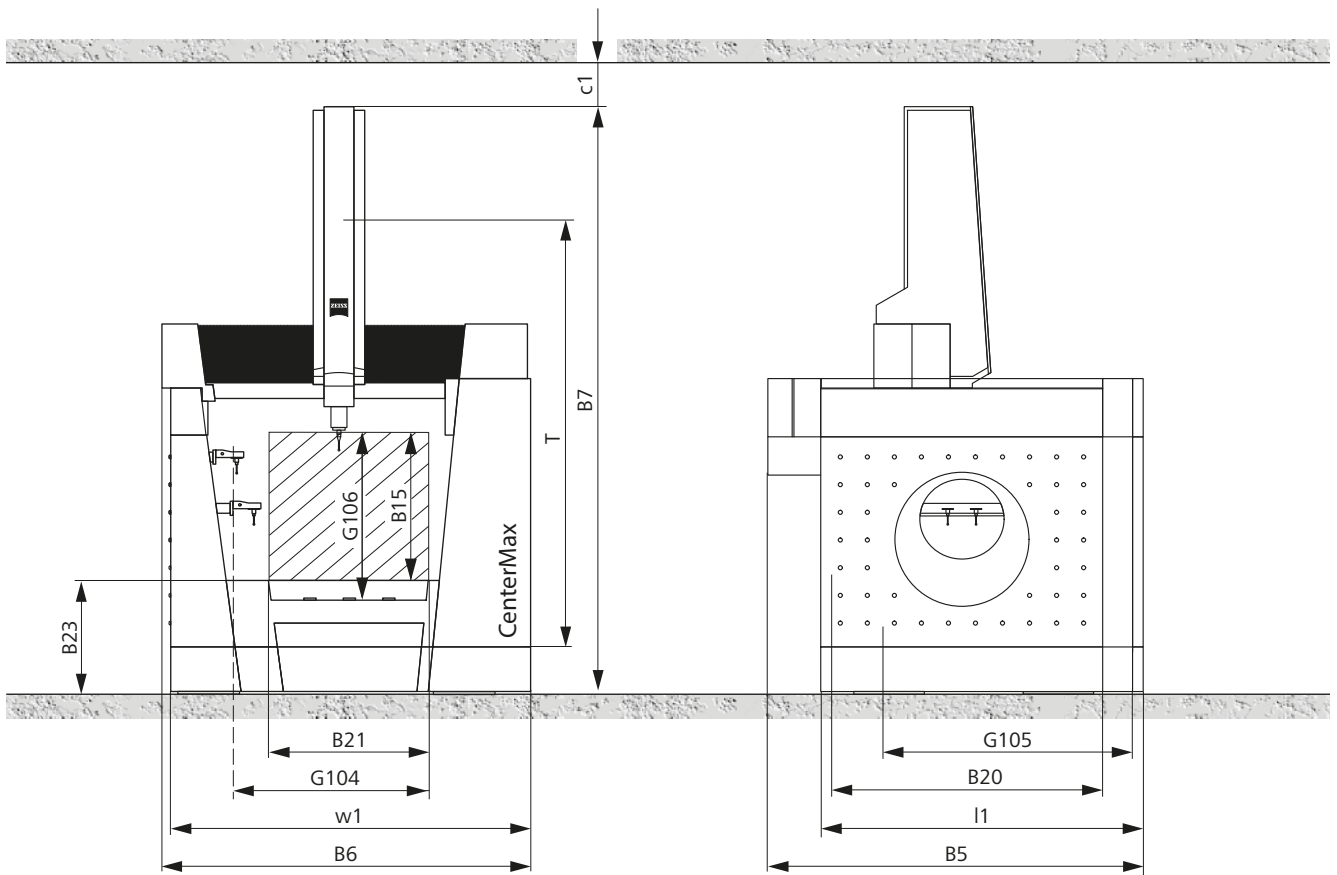


Active measuring with stylus changer,  
with rotary axis positioning in 15° increments <sup>6)</sup>, 1 µm positioning accuracy  
ZEISS VAST XTR gold not combinable with ZEISS ProMax  
Scanning measuring rate up to 500 points/s.

Measuring force at data acquisition	in mN	min. 50
Stylus system weight	in g	max. 500
Stylus system length	in mm	max. 500 (rigid), max. 350 mm (during rotation)
Stylus rack optional	6 rack slots (combination with ZEISS ProMax not approved)	

- 1) Stylus for the acceptance test: ZEISS VAST, length 60 mm, stylus tip diameter 8 mm.
- 2) L = measuring length in mm.
- 3) |Δθ| = absolute value of temperature deviation from 20 °C in K, e.g. |Δθ| = 2 at 22 °C, |Δθ| = 4 at 24 °C.
- 4) Roundness in Scanning Mode on a 50 mm ring gauge for Vscan = 5 mm/s, filter 50 UPR.
- 5) Measuring location near the calibration position to document sensor properties.
- 6) Explanation: 360°/15° = 24 positions.

Dimensions in mm						Weight in kg					
<b>ZEISS CenterMax</b>			<b>Measuring range</b>			<b>Working range (Max. workpiece size)</b>			<b>Max. workpiece</b>		
X axis	Y axis	Z axis	Width	Length	Height	Universal table	Granite table	Optional rotary table centering capacity (including clamping equipment and workpiece)			
G104	G105	G106	B21	B20	B15						
1100	1200	900	955	1520	841 <sup>1)</sup>	1000	750	250			
<b>Overall CMM dimensions</b>			<b>Footprint</b>		<b>Work- ing height <sup>1)</sup></b>	<b>Assembly space Height</b>	<b>Trans- port height</b>	<b>Measuring machine</b>			
Width	Length	Height	Width	Length	Height	Height	Height				
B6	B5	B7	w1	l1	B23	c1	T				
2092	2140	3340	2040	1830	652	≥200	2550	6000			



Note: The given dimensions and weights are approximate values. Dimensions in mm. Subject to change. Dimensioning based on DIN 4000-167:2009.

1) Depending on clamping device.




## Environmental requirements

Ambient temperature for operational readiness	8 °C - 40 °C		
Temperature conditions to guarantee specified accuracies			
Ambient temperature	15 °C - 40 °C		
Temperature fluctuations	per hour	in K/h	2.0
	per day	in K/d	8.0
Temperature gradient	spatial	in K/m	2.0
Relative humidity	40 % to 70 % Optional: up to 85 % in combination with an air conditioner on the computer/controller cabinet.		
Floor vibrations	ZEISS CenterMax is equipped with an active damping system and is therefore highly resistant to vibrations. Please contact us for limiting curves. Upon request, we will perform a vibration analysis.		
Acoustic pressure	≤100 dB		

## Requirements for operational readiness

Data technology	As an option, ZEISS CenterMax is available with a computer cabinet. Here the required PC equipment can be safely protected from the immediate production environment.		
Electrical power rating	Measuring machine and controller:	1/N/PE 100/110/115/120/125/230/240 V~ (±10%); 47-63 Hz. Max. power consumption 2500 VA Amount of heat generated: max. 9000 kJ/h	
	Computer cabinet option:	1/N/PE 100 to 240 V~ (±10%); 47-63 Hz. Max. power consumption 2500 VA	
Compressed air supply	Supply pressure min. 6 bar, max. 10 bar, pre-cleaned max. 10 l/min at 5 bar operating pressure (50 Nl/min at 1 bar). Air quality complies with ISO 8573 part 1: Class 4		

## Approvals

Regulations	ZEISS CenterMax fulfills EC machine directive 2006/42/EC, EMC directive 2014/30/EU and the RoHS directive 2011/65/EU.		
	  		
	ZEISS CenterMax can be optionally equipped with safety positions in Y and Z for automation or crane locking.		
Disposal	ZEISS products and packaging returned to us are disposed of in accordance with applicable legal provisions.		

## Certification/accreditation

Quality management system	ISO 9001:2015; VDA 6, Part, 3rd Issue 2017		
Environmental management system	ISO 14001:2015		
Occupational health & safety management systems	BS OHSAS 18001:2007		
Accredited	ISO/IEC 17025:2005		

### Carl Zeiss

#### Industrielle Messtechnik GmbH

73446 Oberkochen / Germany

Sales: +49 7364 20-6336

Service: +49 7364 20-6337

Fax: +49 7364 20-3870

Email: [info.metrology.de@zeiss.com](mailto:info.metrology.de@zeiss.com)

Internet: [www.zeiss.de/imt](http://www.zeiss.de/imt)

### Carl Zeiss

#### Industrial Metrology, LLC

6250 Sycamore Lane North

Maple Grove, MN 55369/USA

Phone: +1 763 744-2400

Fax: +1 763 533-0219

Email: [info.metrology.us@zeiss.com](mailto:info.metrology.us@zeiss.com)

Internet: [www.zeiss.com/metrology](http://www.zeiss.com/metrology)