

ZEISS CenterMax®

Specifications

Version: May 2018



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 ²	max. 1.4	max. 2.4

Accuracy and measuring performance ¹⁾

The CMM specifications are only valid 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 ²⁾ (Temperature Variable Accuracy)	TVA MPE _E	in µm	1.2 + (0,05 Δθ) + L/(280 - (5 Δθ)) Δθ = error in K of 20 °C ³⁾	1.2 + (0,05 Δθ) + L/(280 - (5 Δθ)) Δθ = error in K of 20 °C ³⁾
Length measurement error ²⁾ 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	THP	in µm	2.2	2.2
required measuring time MPT	τ	in s	26	26
Form measurement error MPE for roundness ⁴⁾ 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 ⁵⁾	in µm	2.7	3.3
Multi-stylus dimension probing error MPE complies with ISO 10360-5:2010	PSTM ⁵⁾	in µm	1.0	1.0
Multi-stylus location probing error MPE complies with ISO 10360-5:2010	PLTM ⁵⁾	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 ⁶⁾ , 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.

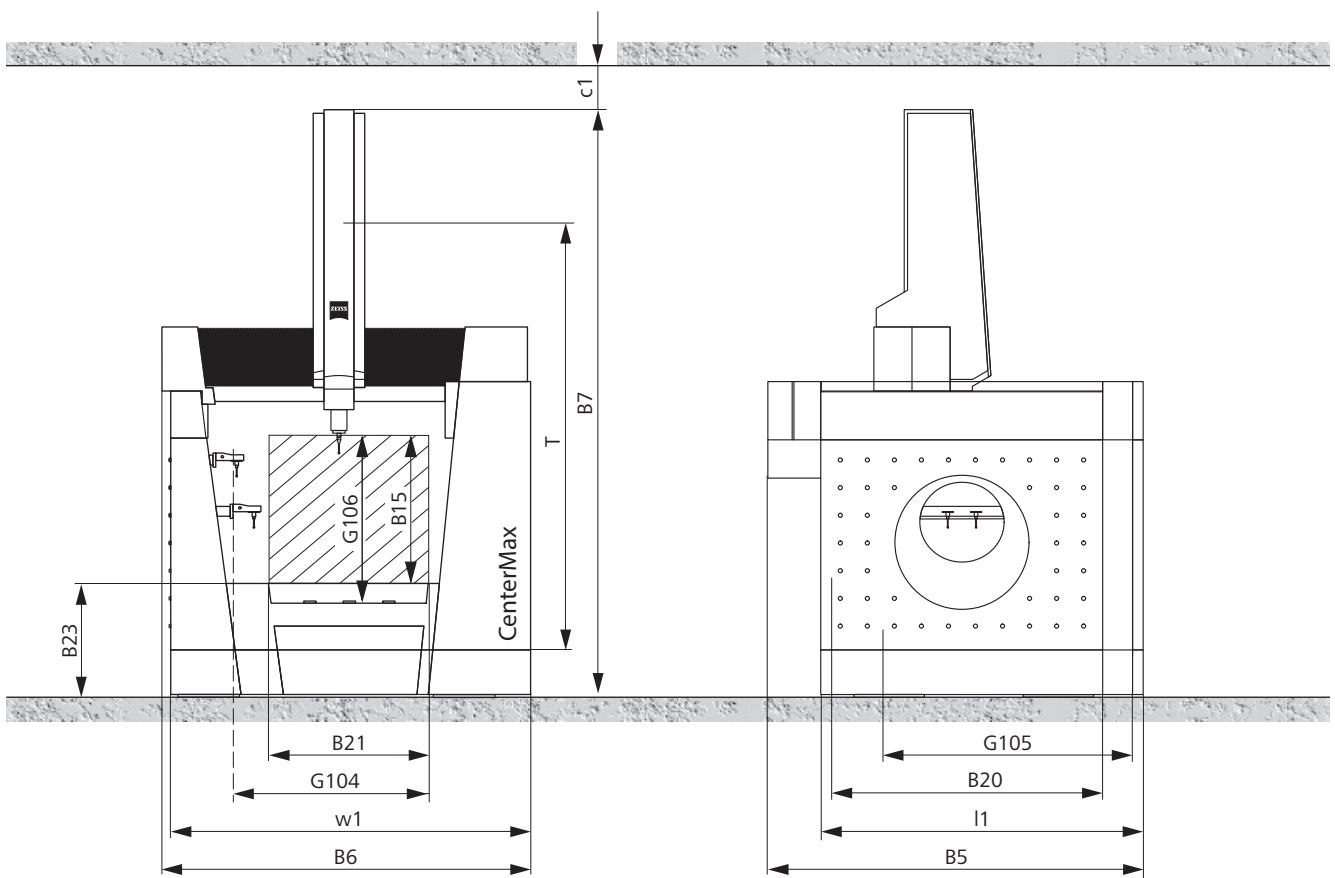
3) Explanation: value |Δθ|: e.g. at 22 °C |Δθ| = 2, at 24 °C |Δθ| = 4.

4) Filter used: 50 W/U; scanning speed for roundness: 5 mm/s.

5) Measuring location near the calibration position to document sensor properties.

6) Explanation: 360°/15° = 24 positions

Dimensions in mm						Weight in kg					
ZEISS CenterMax			Measuring range			Working range (Max. workpiece size)			Max. workpiece		
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 ¹⁾	1000	750	250			
Overall CMM dimensions			Footprint		Work- ing height ¹⁾	Assembly space	Trans- port height	Measuring machine			
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	
	Computer cabinet:	1/N/PE 100/110/115/120/125/230/240 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 NI/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 and EMC directive 2014/30/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 9001:2008; VDA 6, Part, 2nd Issue 2005
Environmental management system	ISO 14001:2004
Occupational health & safety management systems	BS OHSAS 18001:2007
Accredited	ISO/IEC 17025:2005

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