



ZEISS GageMax®

Specifications

Version: November 2017



System description


Type according to ISO 10360-1:2000	Fixed table cantilever CMM		
Operating mode	motorized / CNC		
Sensor mounts	Fixed installation		
Software	ZEISS CALYPSO, ZEISS GEAR PRO, ZEISS HOLOS		
Travel speeds		axis	vector
	Set-up mode	in mm/s	0 to 70
	Batch measurement mode	in mm/s	max. 300
	Acceleration	in m/s ²	max. 2.0


Sensors and accuracy 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 GageMax			ZEISS VAST XT gold	ZEISS VAST XTR gold
TVA ^{2) 3)} (Temperature Variable Accuracy)	TVA MPE _E	in µm	$1.9 + (0.05 \Delta\theta) + L/(300 - (5 \Delta\theta))$	$2.2 + (0.05 \Delta\theta) + L/(300 - (5 \Delta\theta))$
Length measurement error ²⁾ MPE complies with ISO 10360-2:2009	E0	in µm	at 20 °C	1.9 + L/300
			at 26 °C	2.2 + L/270
			at 30 °C	2.4 + L/250
			at 40 °C	2.9 + L/200
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in µm	1.4	1.4
Scanning error MPE complies with ISO 10360-4:2000 required measuring time MPT	THP	in µm	2.9	3.3
	τ	in s	29	29
Form measurement error MPE for roundness ⁴⁾ complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONt (MZCI)	in µm	1.6	1.8
Single stylus form probing error MPE complies with ISO 10360-5:2010	PFTU	in µm	1.8	1.8
Multi-stylus form probing error MPE complies with ISO 10360-5:2010	PFTM ⁵⁾	in µm	3.7	4.3
Multi-stylus dimension probing error MPE complies with ISO 10360-5:2010	PSTM ⁵⁾	in µm	1.1	1.1
Multi-stylus location probing error MPL complies with ISO 10360-5:2010	PLTM ⁵⁾	in µm	2.5	2.6
Length measuring system	ZEISS glass ceramic; reflected light system, photo-electric; resolution 0.2 µm			

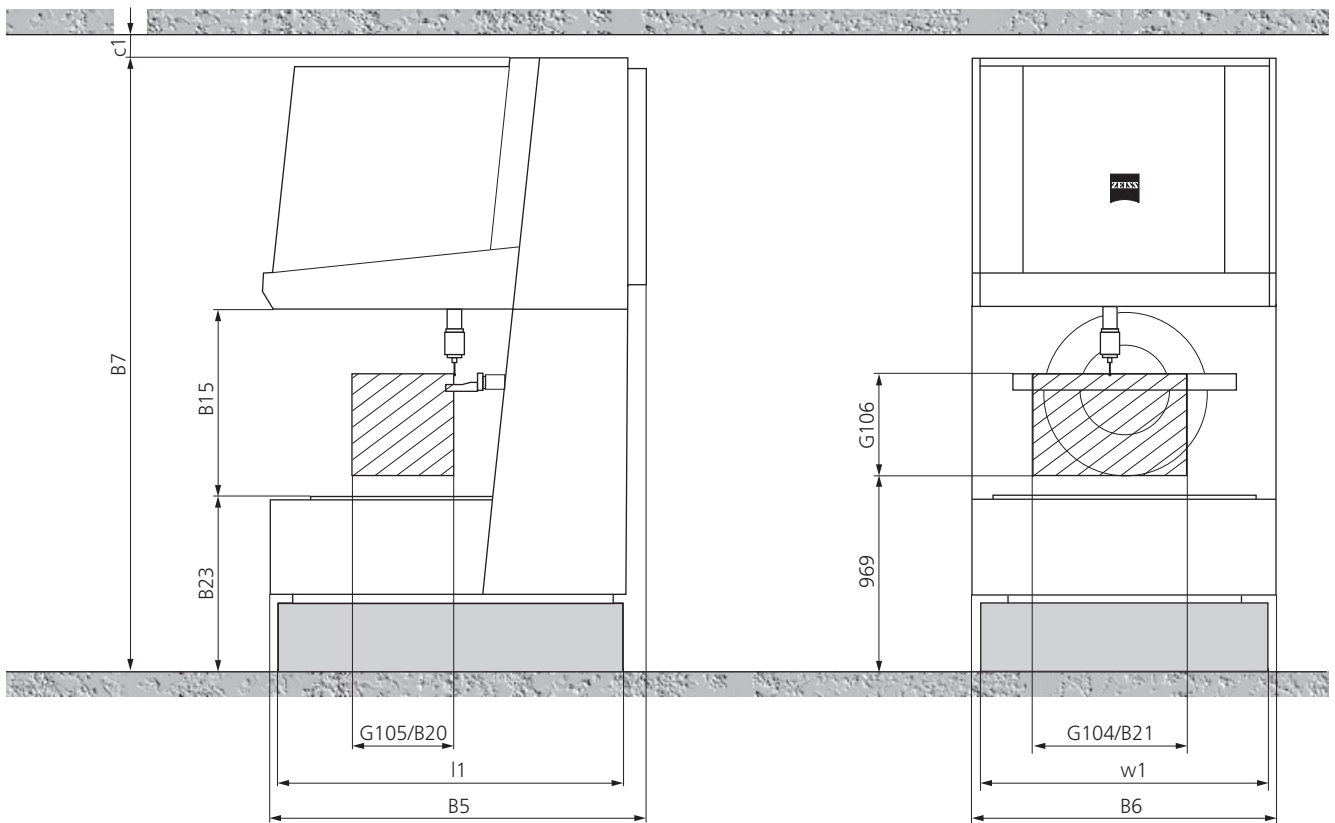
Sensor properties

ZEISS VAST XT 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. 500	
Stylus system length	in mm	max. 500	
Stylus rack optional	6 rack slots ZEISS ProMax active stylus rack (requires compressed air supply)		

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 mass	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. Also valid for other styli (Ø 3 x 33 mm, Ø 5 x 50 mm, Ø 8 x 114 mm and Ø 12 x 92 mm were tested)
- 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) Filter used: 50 W/U; scanning speed for roundness: 5 mm/s
- 5) Measuring location near the calibration position in order to record sensor properties.
- 6) 360°/15° = 24 positions

Dimensions in mm						Mass in kg		
ZEISS GageMax	Measuring range			Working range (max. workpiece size)			Max. workpiece	Optional rotary table centric load capacity (including clamping equipment and workpiece) max.
	X axis	Y axis	Z axis	Width	Length	Height		
	G104	G105	G106	B21	B20	B15		
750	500	500	750	500	938			
Overall CMM dimensions			Footprint		Working height	Assembly space	Transport height	CMM
Width	Length	Height	Width	Length	Height	Height	Height	
B6	B5	B7	w1	l1	B23	c1	T	
1500	1860	3020	1418	1712	857	≥ 200	2550	5000



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




Environmental conditions

Ambient temperature for operational readiness	10 °C - 40 °C		
Temperature conditions to guarantee specified accuracies			
Ambient temperature	15 °C - 40 °C		
Temperature fluctuations	per hour	in K/h	3.0
	per day	in K/d	10.0
Temperature gradient	spatial	in K/m	2.0
Relative humidity	40% - 70%, optionally up to 85% in combination with an air conditioner on the computer/controller cabinet.		
Floor vibrations	ZEISS GageMax is equipped with a passive vibration damping system. 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 GageMax is available with a computer cabinet. Here the required PC equipment can be safely protected from the immediate production environment.		
Electrical power rating	CMM and controller	1/N/PE 100/110/115/120/125/230/240 V~ (±10 %); 47 - 63 Hz. Power consumption: max. 3000 VA; Typical power consumption: 380 W	
	Computer cabinet option	1/N/PE 100/110/115/120/125/230/240 V~ (±10 %); 47 - 63 Hz. Power consumption: max. 2500 VA; Typical power consumption: 200 W	

Approvals

Regulations	ZEISS GageMax complies with EC machine directive 2006/42/EC and EMC directive 2014/30/EU.		
  			
ZEISS GageMax can be optionally equipped with safety positions in X, Y and Z for automation.			
Disposal	ZEISS products and packaging returned to us are disposed of in accordance with applicable legal provisions.		

Certifications/accreditations

Quality management system	ISO 9001:2008 VDA 6, Parts 4, 2nd Version 2005
Environmental management system	ISO 14001:2004
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

Internet: 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

Internet: www.zeiss.com/metrology