

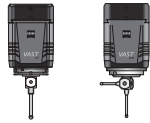
CONTURA®
Specifications
Version: October 2014



We make it visible.

ZEISS CONTURA aktiv sensors and accuracy

ZEISS VAST XT gold
ZEISS VAST XTR gold



Active scanning and multipoint sensor. Scanning measuring rate up to 200 points/s.
Variable measuring force (50-1000 mN) for data acquisition.
ZEISS VAST XT gold: stylus: max. length = 500 mm, max. weight = 500 g incl. stylus adapter, min. stylus tip diameter = 0.5 mm.
ZEISS VAST XTR gold: max. length (rigid) = 500 mm, max. length (during rotation) = 350 mm, max. weight = 500 g, including stylus adapter, min. stylus tip diameter = 0.5 mm.

			7/7/6 to 7/10/6	9/12/8 to 9/16/8	10/12/6 to 10/16/6	12/18/10 to 12/24/10
Length measurement error ^{1) 2)} MPE complies with ISO 10360-2:2009	E0	in μm	1.5+L/350	1.6+L/350	1.7+L/350	2.1+L/350
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in μm	1.2	1.4	1.3	1.5
Scanning error MPE complies with ISO 10360-4:2000	THP	in μm	2.0	2.5	2.8	3.5
Required measuring time MPT	τ	in s	40	40	40	40
Form measurement error ³⁾ MPE for roundness complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONt (MZCI)	in μm	1.5	1.7	1.7	1.9
Single stylus form probing error MPE complies with ISO 10360-5:2010	PFTU	in μm	1.5	1.8	1.7	1.8
Multi-stylus form probing error MPE complies with ISO 10360-5:2010	PFTM ⁴⁾	in μm	2.5	3.5	3.0	3.9
Multi-stylus dimension probing error MPE complies with ISO 10360-5:2010	PSTM ⁴⁾	in μm	1.2	2.1	1.7	2.5
Multi-stylus location probing error MPL complies with ISO 10360-5:2010	PLTM ⁴⁾	in μm	1.7	2.4	2.2	2.8

ZEISS CONTURA RDS sensors and accuracy

ZEISS RDS-C-CAA



Dynamic ZEISS RDS articulating unit for optical and contact sensors.
Front-to-back and lateral tilt range of $\pm 180^\circ$, large measuring range, rotation increments of 2.5° ,
CAA correction for automatic qualification of all 20.736 angular positions for scanning sensors
(ZEISS VAST XXT TL3) and multiple-point sensors (ZEISS XDT TL3).

ZEISS VAST XXT
ZEISS XDT ⁶⁾



ZEISS VAST XXT TL3 on ZEISS RDS scanning and multiple-point sensor
ZEISS XDT TL3: multiple-point sensor
Scanning measuring rate up to 150 points/s.
Stylus length with module: TL3 = 30-150 mm, maximum stylus weight = 15 g
TL3 maximum sensor extension = 100 mm, minimum stylus tip diameter = 0.3 mm

			7/7/6 to 7/10/6	9/12/8 to 9/16/8	10/12/6 to 10/16/6	12/18/10 to 12/24/10
Length measurement error ^{2) 5)} MPE complies with ISO 10360-2:2009	E0	in μm	1.7+L/350	1.8+L/350	1.8+L/350	2.2+L/350
Scanning error MPE complies with ISO 10360-4:2000	THP	in μm	2.7	2.8	3.3	3.6
Required measuring time MPT	τ	in s	50	50	50	50
Form measurement error ³⁾ MPE for roundness complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONt (MZCI)	in μm	1.7	1.8	1.8	1.9
Single stylus form probing error MPE complies with ISO 10360-5:2010	PFTU	in μm	1.7	1.8	1.8	1.9

- 1) Acceptance test with stylus length of 60 mm and tip diameter of 8 mm
- 2) Measuring length L in mm.
- 3) Roundness in Scanning Mode for $V_{\text{scan}} = 5 \text{ mm/s}$, filter 50 UPR, gage calibration.
- 4) Measuring location near the calibration position to document sensor properties.
- 5) ZEISS VAST XXT: Acceptance test with TL3 module; stylus length of 60 mm and stylus tip diameter of 5 mm.
- 6) Only ZEISS CONTURA X700/1000

ZEISS CONTURA direct sensors ⁷⁾

ZEISS VAST XXT ¹⁾
ZEISS XDT ⁷⁾



ZEISS VAST XXT TL3: scanning and multiple-point sensor
ZEISS XDT TL3: multiple-point sensor

(See ZEISS CONTURA RDS sensors and accuracies,
ZEISS VAST XXT and ZEISS XDT for accuracies)

ZEISS ViScan ³⁾



Optical 2D image sensor with autofocus on ZEISS RDS.
Working distance (depending on lens): 75-90 mm.

			7/7/6 to 7/10/6	9/12/8 to 9/16/8	10/12/6 to 10/16/6	12/18/10 to 12/24/10
Length measurement error ²⁾ MPE complies with ISO 10360-7: 2011	EB(XY)	in μm	$10^{-4} + L/350$	$10^{-4} + L/350$	$10^{-4} + L/300$	$10^{-4} + L/350$
MPE probing error of the image editing system as per ISO 10360-7:2011	PFV2D	in μm	10^{-4}	10^{-4}	10^{-4}	10^{-4}

ZEISS LineScan ^{3) 5)}



Optical laser triangulation scanner on ZEISS RDS-C.

			7/7/6 to 7/10/6	9/12/8 to 9/16/8	10/12/6 to 10/16/6	12/18/10 to 12/24/10
25 mm Measuring range. 53.5 mm Working distance.						
Probing error ⁶⁾ MPE complies with ISO 10360-8	PF (OT)	in μm	12	12	-	-
Dispersion on sphere	1 Sigma	in μm	4	4	-	-
50 mm Measuring range. 70 mm Working distance.						
Probing error ⁶⁾ MPE complies with ISO 10360-8	PF (OT)	in μm	20	20	20	20
Dispersion on sphere	1 Sigma	in μm	5	5	5	5
100 mm Measuring range. 230 mm Working distance.						
Probing error ⁶⁾ MPE complies with ISO 10360-8	PF (OT)	in μm	50	50	50	50
Dispersion on sphere	1 Sigma	in μm	12	12	12	12

1) Acceptance test with TL3 module; stylus length of 60 mm and stylus tip diameter of 5 mm.

2) Measuring length L in mm.

3) The use of optical probes requires calibration with contact probe (ZEISS VAST XXT) Temperature range of 18-26°C.









4) Measured with ZEISS ViScan 1x lens

5) Laser class 2M: the accessible laser beam lies in the visible spectral range that is safe for the eye at a short exposure time (0.25 s) as long as the cross section is not reduced by optical instruments (e.g. magnifiers, lens elements, telescope).

6) Probing tolerance on suitable sphere (30 mm diameter) with matte surface.

7) Only ZEISS CONTURA X700/1000

Overview

	active		direct ⁵⁾		RDS			
								
	VAST XT gold	VAST XTR gold	VAST XXT	XDT ⁵⁾	VAST XXT	XDT ⁵⁾	ViScan	LineScan
Single point	■	■	■	■	■	■	■	
Passive scanning			■		■			
Active scanning	■	■						
Optical scanning							■	■
Rotatable/ tiltable					■	■	■	■
Max. stylus length ¹⁾	500 mm	350 mm	250 mm ²⁾	150 mm ⁴⁾	250 mm ²⁾	150 mm ⁴⁾		
Max. stylus weight ¹⁾	500 g	500 g	15 g ²⁾	15 g ⁴⁾	15 g ²⁾	15 g ⁴⁾		

Technical features

Length measuring system	Photoelectric reflected light system, 0.2 µm resolution system
Controller	Type: ZEISS C99 Protection type: IP22
Accessories (optional)	Multi-sensor Rack for storage of stylus systems

Environmental requirements ³⁾

Relative humidity	30-60% (without condensation)	
Measuring reference temperature	X700/1000	X900/1200
	18°C to 22°C, HTG option: 18°C to 26°C	
	Per day:	1.5 K/d
	Per hour:	1.0 K/h
	Spatial:	1.0 K/m
Floor vibrations	ZEISS CONTURA is equipped with passive vibration damping (limits upon request). Upon request, we can provide assistance for vibration studies.	

Readiness for operation

Relative humidity	30-60% (without condensation)	
Ambient temperature	+17 °C to +35 °C	
Power rating	ZEISS C99L	100-240V VAC ~ (±10 %); 50-60 Hz (±3.5 %) Max. power consumption: 800 VA Typical power consumption: 200 W
Compressed air supply	Supply pressure min. 6 bar, max. 8 bar, pre-cleaned. Max. consumption 50NI/min for ZEISS CONTURA X900/1200. Max. consumption 120NI/min for ZEISS CONTURA X700/1000. Air quality complies with ISO 8573 Part 1: Class 4, i.e. Paragraph. 6.1: max. particle size 15 µm, max. dirt particle concentration 8 mg/m ³ Paragraph 6.2: max. compressed air dew point +3°C Paragraph 6.3: max. oil concentration of 5 mg/m ³ If the air supply does not comply with the above requirements, an additional air filter unit and, if necessary, a membrane dryer must be inserted in the compressed air line.	

1) Depending on the application, limiting the parameters for a stylus system may be useful.

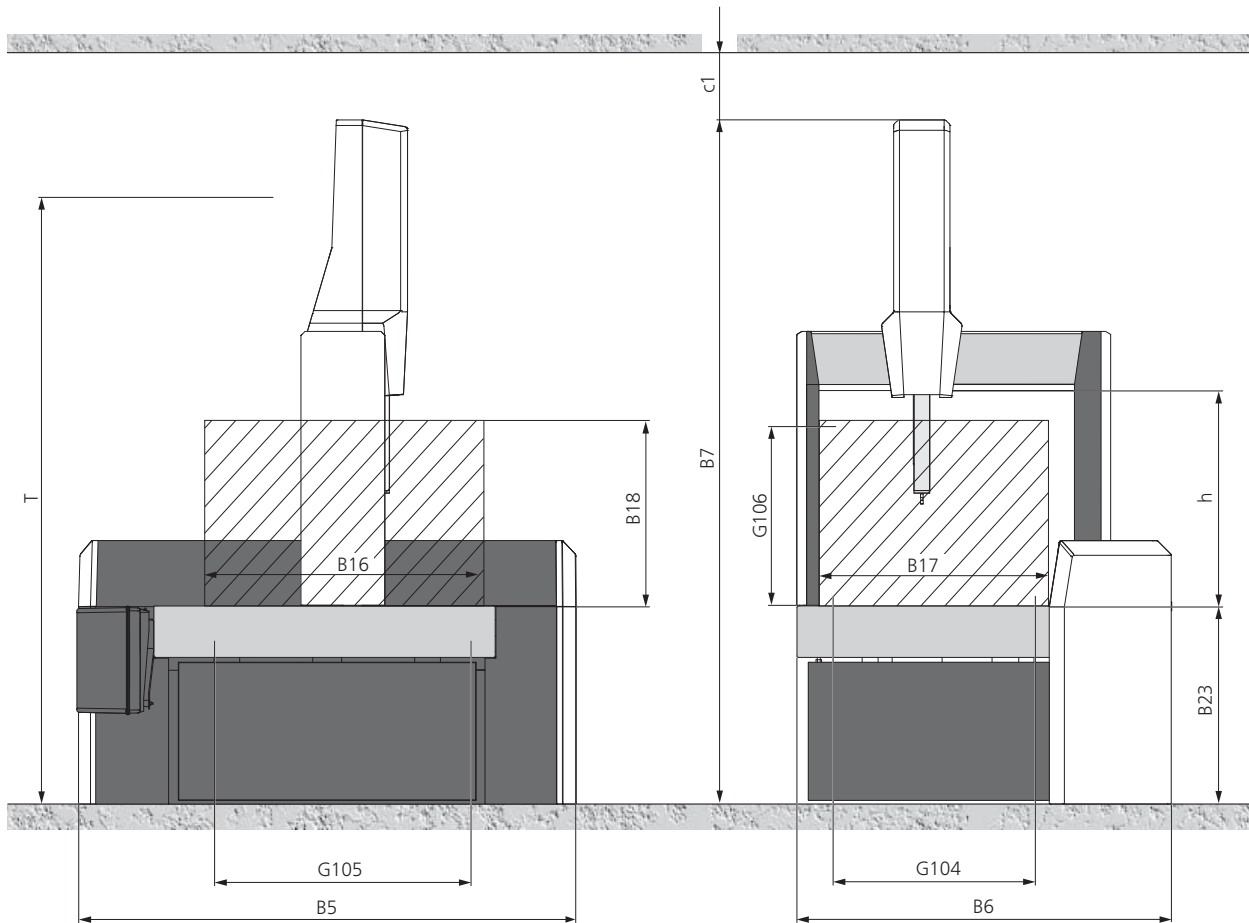
2) ZEISS VAST XXT: depending on model. TL 2: 125-250 mm 10 g. TL 3: 30-250 mm 15 g.

3) To ensure specified accuracies.

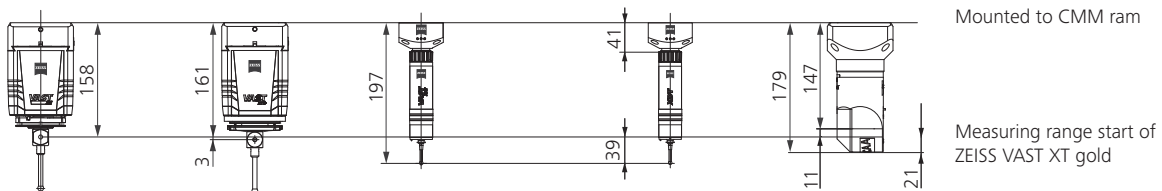
4) Only TL3

5) Only ZEISS CONTURA X700/1000

ZEISS CONTURA sizes	Dimensions in mm													Weight in kg	
	Measuring range			Overall measuring machine dimensions			Working range (Max. workpiece size)				Table height	As-assembly space	Transport height ²⁾	Measuring machine	Max. workpiece
	X axis	Y axis	Z axis	Length	Width	Height	Length	Width	Height	Height	Height	Height	Height		
	G104	G105	G106	B5	B6	B7	B16	B17	B18	h	B23	c1	T		
7/7/6	700	700	600 ¹⁾	1670	1481	2797	1039	910	716 ¹⁾	824	850	≥200	2200	1300	560
7/10/6	700	1000	600 ¹⁾	1975	1481	2797	1344	910	716 ¹⁾	824	850	≥200	2200	1570	730
9/12/8	900	1200	800 ¹⁾	2250	1867	3394	1940	1260	864 ¹⁾	950	850	≥200	1850	2900	1200
9/16/8	900	1600	800 ¹⁾	2650	1867	3394	2340	1260	864 ¹⁾	950	850	≥200	1850	3400	1200
10/12/6	1000	1200	600 ¹⁾	2180	1783	2797	1544	1215	716 ¹⁾	824	850	≥200	2200	2340	1150
10/16/6	1000	1600	600 ¹⁾	2579	1783	2797	1944	1215	716 ¹⁾	824	850	≥200	2200	2840	1500
12/18/10	1200	1800	1000 ¹⁾	2850	2197	3596	2540	1590	1064 ¹⁾	1151	650	≥200	2050	4300	1200
12/24/10	1200	2400	1000 ¹⁾	3450	2197	3596	3140	1590	1064 ¹⁾	1151	650	≥200	2050	6050	1200



ZEISS VAST XT gold ZEISS VAST XTR ZEISS VAST XXT direct³⁾ ZEISS XDT direct³⁾ ZEISS RDS-C



Note: the given dimensions and weights are approximate values. Subject to change. Actual appearance of specific sizes may vary from illustration. Dimensioning based on DIN 4000-167:2009.

- 1) Applies to ZEISS VAST XT gold. The measuring range (G106) and the maximum workpiece height (B18) are reduced by at least 50 mm when other probes are used.
- 2) Transport height of the secured machine group without pallet or Z mast. When transporting without base, deduct 600 mm from the transport height.
- 3) Only ZEISS CONTURA X700/1000

System description

Operating mode	Motorized/ CNC
Sensor mounts	Fixed/ ZEISS RDS
Software	ZEISS CALYPSO, ZEISS GEAR PRO, ZEISS HOLOS

Dynamics

Travel speed	Motorized	Axes	0 to 70 mm/s
	CNC	Vector	max. 465 mm/s
Acceleration		Vector	max. 1.85 m/s ²
Scanning speed ¹⁾			max. 125 mm/s

Approvals

Regulations ZEISS CONTURA complies with EC machine directive 2006/42/EC and EMC directive 2004/108/EC..



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, Parts 4, 2. Version 2005
Environmental management system	ISO 14001:2004
Occupational health & safety management systems	BS OHSAS 18001:2007
Accredited	ISO / IEC 17025:2005

1) For ZEISS CONTURA with activ probe head and navigator function.

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