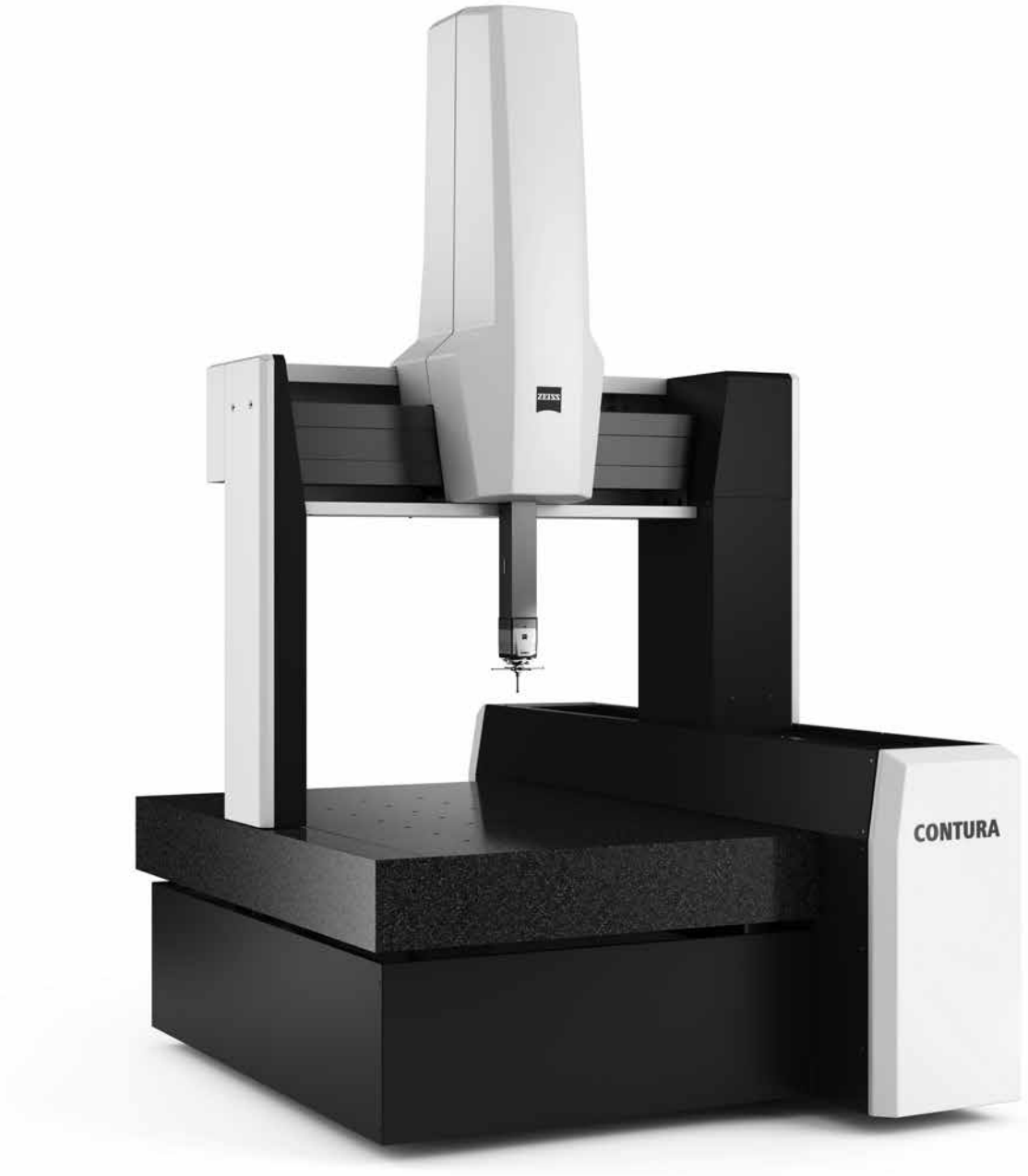


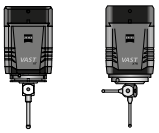
ZEISS CONTURA®

Specifications

Version: May 2016

ZEISS CONTURA active 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.

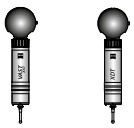
			7/7/6 to 7/10/6	9/12/8 to 9/16/8	10/12/6 to 10/16/6	12/18/10 to 12/24/10
Length measurement error [1) 2)] MPE complies with ISO 10360-2:2009	E0 / E150 18°C to 22°C	in µm	1.5+L/350	1.6+L/350	1.7+L/350	2.1+L/350
	E0 / E150 18°C to 26°C	in µm	1.5+L/350	2.1+L/350	1.7+L/350	2.5+L/350
Repeatability range of 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 ±180°, 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 / E40 18°C to 22°C	in µm	1.7+L/350	1.8+L/350	1.8+L/350	2.2+L/350
	E0 / E40 18°C to 26°C	in µm	1.7+L/350	2.1+L/350	1.8+L/350	2.5+L/200
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

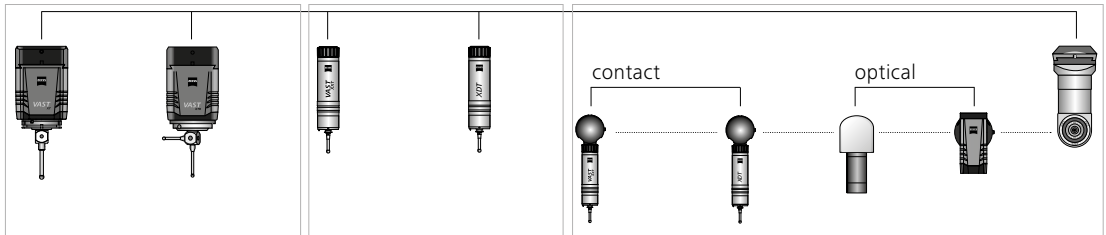
1) ZEISS VAST XT gold: acceptance test with 60 mm stylus and 8 mm stylus tip. Also valid for other styli (Ø 3 x 33 mm, Ø 5 x 50 mm, Ø 8 x 114 mm and Ø 12 x 92 mm were tested).
2) Measuring length L in mm.
3) Roundness in Scanning Mode for V_{scan} = 5 mm/s, filter 50 UPR.
4) Measuring location near the calibration position to document sensor properties.
5) ZEISS VAST XXT: acceptance test with TL3 module; 50 mm stylus and 3 mm stylus tip diameter. E40 acceptance applies only in conjunction with RDS-C.
6) Only ZEISS CONTURA X700/X1000

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/350	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. 63 mm Working distance.						
Probing error [6] MPE complies with ISO 10360-8:2013	PF (OT)	in µm	12	12	12	12
Dispersion on sphere	1 Sigma	in µm	4	4	4	4
50 mm Measuring range. 94 mm Working distance.						
Probing error [6] MPE complies with ISO 10360-8:2013	PF (OT)	in µm	20	20	20	20
Dispersion on sphere	1 Sigma	in µm	5	5	5	5
100 mm Measuring range. 220 mm Working distance.						
Probing error [6] MPE complies with ISO 10360-8:2013	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 50 mm and stylus tip diameter of 3 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 error in the center of the measuring range on suitable sphere (30 mm diameter) with matte surface. P[Form.Sph.D95%:Tr:ODS]. The information on the working distance is based on the center of the measuring range.
7) Only ZEISS CONTURA X700/X1000

Overview



	VAST XT gold	VAST XTR gold	VAST XXT	XDT 5)	VAST XXT	XDT 5)	ViScan	LineScan
Multipoint	■	■	■	■	■	■	■	
Passive scanning			■		■			
Active scanning	■	■						
Optical scanning							■	■
Rotatable / tiltable					■	■	■	■
Max. stylus length 1)	500 mm	350/500 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)		
Navigator	■	■						

Technical features

Length measuring system	Photoelectric reflected light system, 0.2 µm resolution
Controller	Type: ZEISS C99L Protection type: IP22
Accessories (optional)	Multi-sensor Rack for storage of stylus systems

Environmental requirements 3)

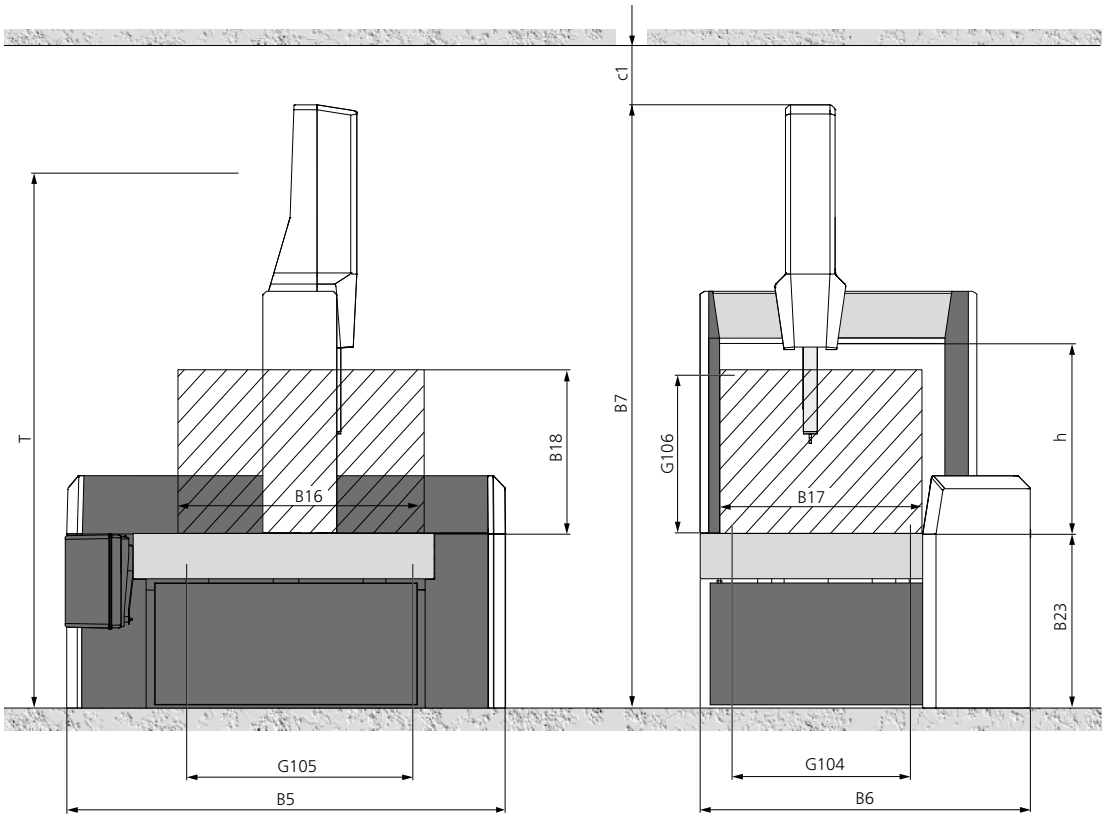
Relative humidity	30-60% (without condensation)		
Measuring reference temperature		X700/X900/X1000/X1200	X700/X900/X1000/X1200 (Option HTG)
		18°C to 22°C	18 °C to 26 °C
	Per day:	1.5 K/d	1.5 K/d
	Per hour:	1.0 K/h	1.0 K/h
	Spatial:	1.0 K/m	1.0 K/m
Floor vibrations	ZEISS CONTURA is equipped with standard vibration damping (limits upon request). Upon request, we can provide assistance for vibration studies.		

Readiness for operation

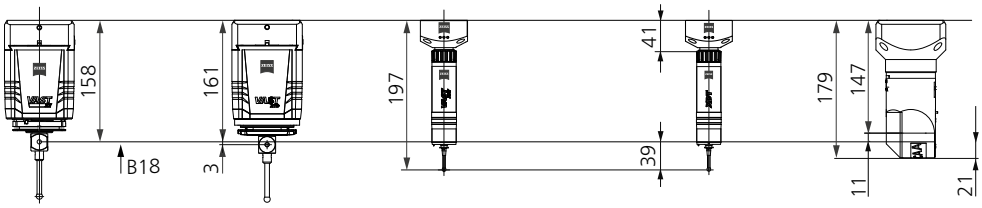
Relative humidity	30 - 60% (without condensation)	
Ambient temperature	+17 °C to +35 °C	
Power rating	ZEISS C99L	100-240V VAC ~ (±10 %); 50-60 Hz (±3.5 %) Max. power consumption: 800 VA Typical power consumption: 200 W
Compressed air supply	Supply pressure min. 6 bar, max. 8 bar, pre-cleaned. Max. consumption 50Nl/min for ZEISS CONTURA X900/1200. Max. consumption 120Nl/min for ZEISS CONTURA X700/1000. The use of the AirSaver included with delivery ensures that compressed air is not used during ZEISS CONTURA downtimes, thus enabling environmentally friendly operations. 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/m³ Paragraph 6.2: max. compressed air dew point +3°C Paragraph 6.3: max. oil concentration of 5 mg/m³ 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 4: 125-250 mm 10 g. TL 3: 30-150 mm 15 g.
3) To ensure specified accuracies.
4) Only TL3
5) Only ZEISS CONTURA X700/X1000

ZEISS CONTURA sizes	Dimensions in mm													Weight in kg	
	Measuring range			Overall measuring machine dimensions			Working range (Max. workpiece size)				Table height	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	1280	560
						2577 [4]					630 [4]		1980 [4]	1270 [4]	
7/10/6	700	1000	600 [1]	1915	1481	2797	1344	910	716 [1]	824	850	≥200	2200	1550	730
						2577 [4]					630 [4]		1980 [4]	1540 [4]	
9/12/8	900	1200	800 [1]	2250	1867	3394	1600	1260	864 [1]	950	850	≥200	1850	2900	1200
9/16/8	900	1600	800 [1]	2650	1867	3394	2000	1260	864 [1]	950	850	≥200	1850	3400	1200
10/12/6	1000	1200	600 [1]	2060	1743	2797	1544	1225	716 [1]	824	850	≥200	2200	2310	1150
						2577 [4]					630 [4]		1980 [4]	2300 [4]	
10/16/6	1000	1600	600 [1]	2460	1743	2797	1944	1225	716 [1]	824	850	≥200	2200	2810	1500
						2577 [4]					630 [4]		1980 [4]	2790 [4]	
12/18/10	1200	1800	1000 [1]	2850	2197	3596	2200	1590	1064 [1]	1151	650	≥200	2050	4300	1200
12/24/10	1200	2400	1000 [1]	3450	2197	3596	2800	1590	1064 [1]	1151	650	≥200	2050	6050	1200



ZEISS VAST XT gold ZEISS VAST XTR ZEISS VAST XXT direct[3] ZEISS XDT direct[3] ZEISS RDS-C



Mounted to CMM ram

Measuring range start of ZEISS VAST XT gold

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
4) CONTURA with reduced base socket.

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/s²
Scanning speed [1]			max. 125 mm/s

Approvals

Regulations	ZEISS CONTURA complies with EC machine directive 2006/42/EC and EMC directive 2014/30/EU.
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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