



ZEISS CONTURA®

7/7/6, 7/10/6, 9/12/8, 9/18/8 12/18/8 and 12/24/8

Specifications

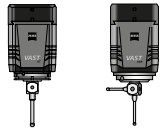
Version: November 2019



ZEISS CONTURA active sensors and accuracy

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 VAST XT gold ZEISS VAST XTR gold



Active scanning and multipoint sensor. Scanning measuring rate up to 500 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 7/10/6 | 9/12/8 9/18/8 | 12/18/8 12/24/8 |
|---|---|----------------|----------------------------|----------------------------|----------------------------|
| Length measurement error ^{1) 2)} MPE complies with ISO 10360-2:2009 | E0 / E150 18°C - 22°C 18°C - 26°C | in µm in µm | 1.5 + L/350 1.5 + L/250 | 1.6 + L/350 1.6 + L/250 | 1.9 + L/350 1.9 + L/250 |
| Repeatability range of E0 MPL complies with ISO 10360-2:2009 | R0 | in µm | 1.2 | 1.4 | 1.5 |
| Scanning error MPE complies with ISO 10360-4:2000 | THP | in µm | 2.0 | 2.5 | 3.5 |
| Required measuring time MPT | τ | in s | 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 | 1.9 |
| Single stylus form probing error MPE complies with ISO 10360-5:2010 | PFTU | in µm | 1.5 | 1.7 | 1.8 |
| Multi-stylus form probing error MPE complies with ISO 10360-5:2010 | PFTM ⁴⁾ | in µm | 2.5 | 3.5 4.1 ⁵⁾ | 3.9 4.5 ⁵⁾ |
| Multi-stylus dimension probing error MPE complies with ISO 10360-5:2010 | PSTM ⁴⁾ | in µm | 1.2 | 2.1 | 2.5 |
| Multi-stylus location probing error MPL complies with ISO 10360-5:2010 | PLTM ⁴⁾ | in µm | 1.7 | 2.4 2.9 ⁵⁾ | 2.8 3.3 ⁵⁾ |

ZEISS CONTURA RDS sensors and accuracy

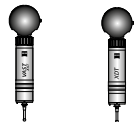
The CMM specifications are only valid when using original accessories by ZEISS. The specified parameters are observed in the application of the internal test instructions for acceptance testing and in the use of the released standards in accordance with the ISO 10360 series.

ZEISS RDS-D-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



ZEISS VAST XXT TL3 on ZEISS RDS scanning and multiple-point sensor
ZEISS XDT TL3: multiple-point sensor
Scanning measuring rate up to 500 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 7/10/6 | 9/12/8 9/18/8 | 12/18/8 12/24/8 |
|---|--|----------------|----------------------------|------------------------|----------------------------|
| Length measurement error ^{2) 6)} MPE complies with ISO 10360-2:2009 | E0 / E40 18 °C - 22 °C 18 °C - 26 °C | in µm in µm | 1.7 + L/350 1.7 + L/250 | 1.8+L/350 1.8+L/250 | 2.0 + L/350 2.0 + L/250 |
| Repeatability range of E0 MPL complies with ISO 10360-2:2009 | R0 | in µm | 1.7 | 1.8 | 1.9 |
| Scanning error MPE complies with ISO 10360-4:2000 | THP | in µm | 2.7 | 2.8 | 3.6 |
| Required measuring time MPT | τ | in s | 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 | 1.9 |
| Single stylus form probing error MPE complies with ISO 10360-5:2010 | PFTU | in µm | 1.7 | 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. Measured with RDS angle position A=0° and B=0°
- 3) Roundness in Scanning Mode for $V_{scan} = 5 \text{ mm/s}$, filter 50 UPR.
- 4) Measuring location near the calibration position to document sensor properties.
- 5) Applies to ZEISS VAST XTR gold.
- 6) 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-D.



| | | |
|--------|--------|---------|
| 7/7/6 | 9/12/8 | 12/18/8 |
| 7/10/6 | 9/18/8 | 12/24/8 |

8 mm Measuring range
32 mm Working distance

| | | | | | |
|--|---------|-------|-----|-----|-----|
| Probing dispersion 6) MPE complies with ISO 10360-8:2013 | PF (OT) | in µm | 3.3 | 3.3 | 3.3 |
| Dispersion on sphere | 1 Sigma | in µm | 0.9 | 0.9 | 0.9 |

25 mm Measuring range
63 mm Working distance

| | | | | | |
|---|---------|-------|----|----|----|
| Probing dispersion 6) MPE nach ISO 10360-8:2013 | PF (OT) | in µm | 12 | 12 | 12 |
| Dispersion on sphere | 1 Sigma | in µm | 4 | 4 | 4 |



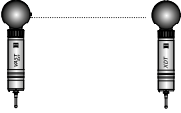

50 mm Measuring range
94 mm Working distance

| | | | | | |
|--|---------|-------|----|----|----|
| Probing dispersion 6) MPE complies with ISO 10360-8:2013 | PF (OT) | in µm | 20 | 20 | 20 |
| Dispersion on sphere | 1 Sigma | in µm | 5 | 5 | 5 |

100 mm Measuring range
220 mm Working distance

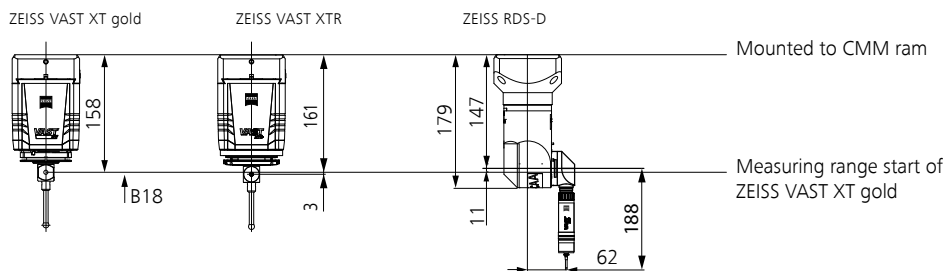
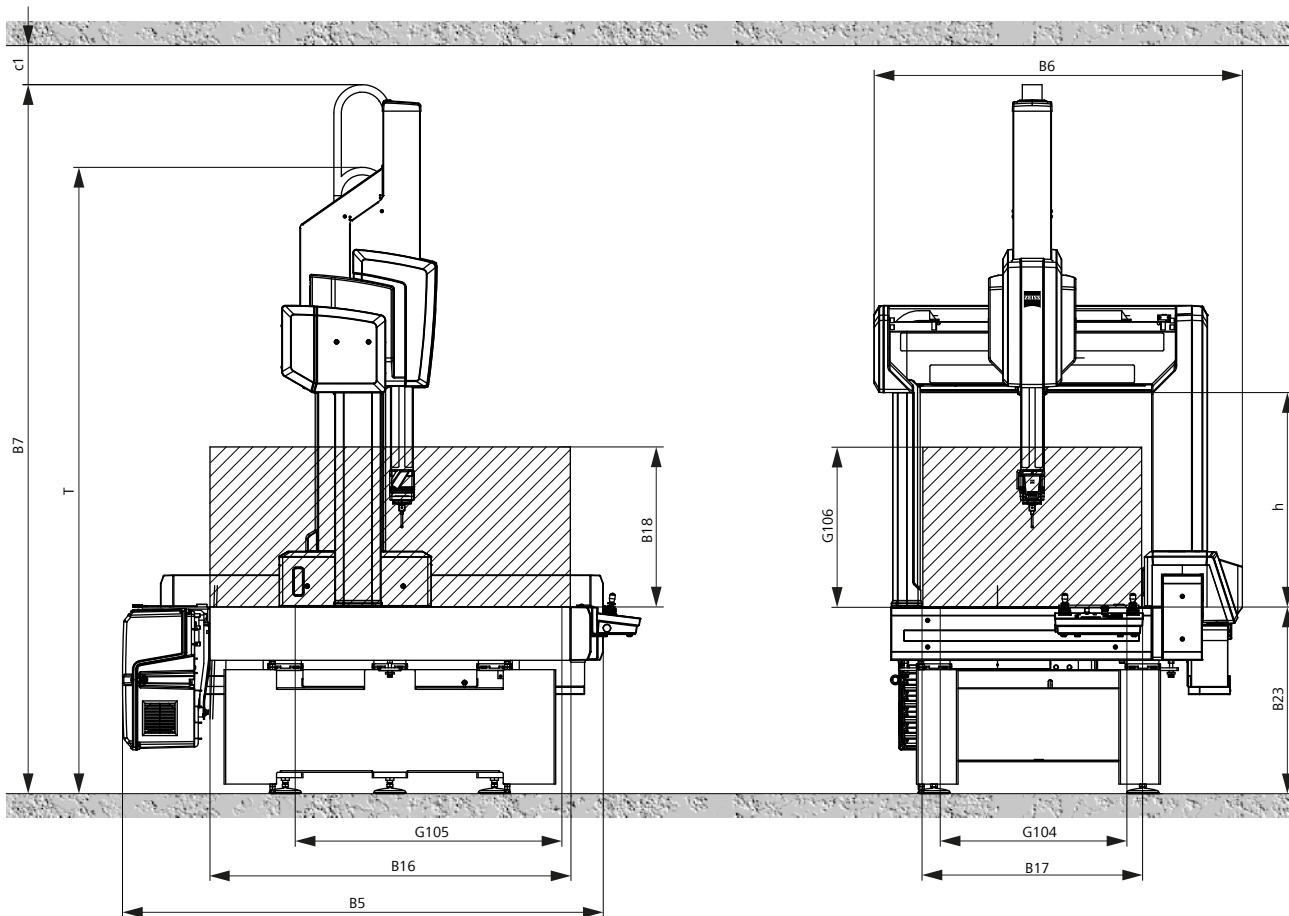
| | | | | | |
|--|---------|-------|----|----|----|
| Probing dispersion 6) MPE complies with ISO 10360-8:2013 | PF (OT) | in µm | 50 | 50 | 50 |
| Dispersion on sphere | 1 Sigma | in µm | 12 | 12 | 12 |

Sensor overview

| | active | | RDS | | |
|------------------------------|---|---|--|-----------|---|
| |  |  |  | |  |
| | VAST XT gold | VAST XTR gold | VAST XXXT | XDT | LineScan |
| Multipoint | ■ | ■ | ■ | ■ | |
| Passive scanning | | | ■ | | |
| Active scanning | ■ | ■ | | | |
| Optical scanning | | | | | ■ |
| Rotatable / tiltable | | | ■ | ■ | ■ |
| Max. stylus length 1) | 500 mm | 350/500 mm | 150 mm 4) | 150 mm 4) | |
| Max. stylus weight 1) | 500 g | 500 g | 15 g 2) | 15 g 4) | |
| Navigator | ■ | ■ | | | |

1) Depending on the application, limiting the parameters for a stylus system may be useful.
 2) ZEISS VAST XXXT: depending on model. TL 4: 125-250 mm 10 g. TL 3: 30-150 mm 15 g.
 3) The use of optical probes requires calibration with contact probe (e.g. ZEISS VAST XXXT)
 4) Only TL3
 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 dispersion 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.

| ZEISS CONTURA sizes | Dimensions in mm | | | | | | | | | | | | | Weight in kg | |
|---------------------|------------------|--------|-------------------|----------------------------|-------|--------|-------------------------------------|-------|-------------------|--------------|-----------------|-------------------------------|--------|----------------|------|
| | Measuring range | | | Overall CMM dimensions | | | Working range (Max. workpiece size) | | | Table height | As-sembly space | Transport height ² | CMM | 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⁾ | 1603 1503 ³⁾ | 1381 | 2658 | 1050 | 827 | 600 ¹⁾ | 804 | 700 | ≥200 | 2348 | 1200 | 730 |
| 7/10/6 | 700 | 1000 | 600 ¹⁾ | 1913 1813 ³⁾ | 1381 | 2658 | 1350 | 827 | 600 ¹⁾ | 804 | 700 | ≥200 | 2348 | 1570 | 730 |
| 9/12/8 | 900 | 1200 | 800 ¹⁾ | 2213 2103 ³⁾ | 1581 | 3060 | 1650 | 1027 | 800 ¹⁾ | 1040 | 700 | ≥200 | 2650 | 2300 | 1200 |
| 9/18/8 | 900 | 1800 | 800 ¹⁾ | 2911 2703 ³⁾ | 1581 | 3060 | 2250 | 1027 | 800 ¹⁾ | 1004 | 700 | ≥200 | 2650 | 2980 | 1200 |
| 12/18/8 | 1200 | 1800 | 800 ¹⁾ | 2911 2703 ³⁾ | 1881 | 3060 | 2250 | 1327 | 800 ¹⁾ | 1004 | 700 | ≥200 | 2650 | 3380 | 1200 |
| 12/24/8 | 1200 | 2400 | 800 ¹⁾ | 3631 3301 ³⁾ | 1881 | 3060 | 2850 | 1327 | 800 ¹⁾ | 1004 | 700 | ≥200 | 2650 | 4900 | 1200 |



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.
- 3) Without HTG

Technical features

| | |
|-------------------------|--|
| Length measuring system | Photoelectric reflected light system, 0.08 µm resolution |
| Controller | Type: ZEISS C99L Protection type: IP53 |
| Accessories (optional) | Multi-sensor Rack for storage of stylus systems |

Environmental requirements ³⁾

| | | |
|---------------------------------|---|-------------------|
| Relative humidity | 30 % - 60% (without condensation) | |
| Measuring reference temperature | X700/X900/X1200 | Option HTG |
| | 18 °C - 22 °C | 18 °C - 26 °C |
| | Per day: | 1.5 K/d |
| | Per hour: | 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 - 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 Amount of heat generated: max. 2200 kJ/h | |
| Compressed air supply | Supply pressure min. 6 bar, max. 8 bar, pre-cleaned. Max. consumption 80Nl/min for ZEISS CONTURA. 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 8573-1:2010 [6:4:4], Particle: class 6; Water/Oil: class 4 Particle, class 6: max. particle size 15 µm, max. dirt particle concentration ≤ 5mg/m ³ Water, class 4: max. compressed air dew point +3°C Oil, class 4: 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. | |

System description

| | | | |
|------------------------------------|--|--------|----------------------------|
| Type according to ISO 10360-1:2000 | Moving bridge CMM | | |
| Operating mode | motorized / CNC | | |
| Sensor mounts | Fixed installation | | |
| Software | ZEISS CALYPSO, ZEISS GEAR PRO, ZEISS HOLOS | | |
| Travel speed | Motorized | Axes | 0 to 70 mm/s |
| | CNC | Vector | max. 475 mm/s |
| Acceleration | | Vector | max. 1.85 m/s ² |
| Scanning speed ¹⁾ | | | max. 150 mm/s |

Approvals

| | | | |
|---|--|--|--|
| Regulations | ZEISS CONTURA complies with EC machine directive 2006/42/EC, the EMC directive 2014/30/EU and the RoHS directive 2011/65/EU. | | |
|  | | | |
| Disposal | ZEISS products and packaging returned to us are disposed of in accordance with applicable legal provisions. | | |

Certification/accreditation

| | |
|---|---|
| Quality management system | ISO 9001:2015, VDA 6, Parts 4, 3. Version 2017 |
| Environmental management system | ISO 14001:2015 |
| 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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