



ZEISS SPECTRUM Family

Specifications

Version: 2024-08



Seeing beyond

System description

Type according to ISO 10360-1:2000	Bridge-type CMM with a moveable bridge			
Operating mode	Motorized / CNC			
Sensor mounts	Fixed installation			
Software	ZEISS CALYPSO			
			7/7/6 and 7/10/6	9/12/6 and 9/18/6
Travel speed	Motorized	Axes	0 to 70 mm/s	0 to 70 mm/s
	CNC	Vector	max. 346 mm/s	max. 346 mm/s
Acceleration		Vector	max. 866 mm/s ²	max. 866 mm/s ²

ZEISS SPECTRUM verity 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 ¹⁾



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.

			7/7/6 and 7/10/6	9/12/6 and 9/18/6
Length measurement error ²⁾ MPE complies with ISO 10360-2:2009	E0 / E150	in µm	1.7 + L/300	1.9 + L/300
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in µm	1.7	1.8
Scanning error MPE complies with ISO 10360-4:2000	THP	in µm	2.5	3.0
Required measuring time MPT	τ	in s	40	40
Form measurement error ³⁾ MPE for roundness complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONT (MZCI)	in µm	1.8	1.9
Single stylus form probing error MPE complies with ISO 10360-5:2010	PFTU	in µm	1.7	1.9

1) Acceptance test with a stylus length of 60 mm and a tip diameter of 8 mm. Also valid for other styli. Dia. 3 x 33 mm, dia. 5 x 50 mm, dia. 8 x 114 mm and dia. 12 x 92 mm were tested

2) Measuring length L in mm.

3) Roundness in scanning operations on a 50 mm ring gauge with v 5 mm/sec, filter 50 UPR.

ZEISS SPECTRUM verity Sensors and accuracy

The functionality of the device and its specifications are only achievable 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-CR1-CAA



Dynamic ZEISS RDS-CR1-CAA articulating unit for contact sensors.

Lateral swivel axis offers more benefits than articulating systems with front-to-back and lateral tilt axis; front-to-back and lateral tilt range of $\pm 180^\circ$, large measuring range, rotation increments of 2.5° , CAA correction to automatically qualify all potential 20.736 angular positions.

ZEISS VAST XXT

ZEISS VAST XXT Compact design

ZEISS VAST XXT Direct



Measuring contact sensor direct or

attached to the ZEISS RDS-CR1-CAA articulating probe holder.

Stylus length with TL3 module = 30-150 mm; maximum sensor extension = 100 mm;

maximum stylus weight = 15 g; minimum stylus tip diameter = 0.3 mm.

				7/7/6 and 7/10/6	9/12/6 and 9/18/6
Length measurement error ^{1) 2) 3)} MPE complies with ISO 10360-2:2009	E0	in μm	ZEISS VAST XXT	1.7 + L/300	1.9+ L/300
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in μm		1.8	2.0
Scanning tolerance MPE complies with ISO 10360-4:2000	THP	in μm		3.5	3.5
Required measuring time MPT	τ	in s		50	50
Form measurement error ⁴⁾ MPE for roundness complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONT (MZCI)	in μm		1.9	1.9
Single stylus form error MPE complies with ISO 10360-5:2010	PFTU	in μm		1.9	2.0

Sensor overview SPECTRUM verity

	active		RDS				
							
	VAST XT gold	VAST XXT	LineScan One	VAST XXT TL1	VAST XXT Compact design	VAST XXT	RDS-CR1-CAA
Multipoint	■	■		■	■	■	
Passive scanning		■		■	■	■	
Active scanning	■						
Max. stylus length ⁵⁾	500 mm	150 mm		125 mm	150 mm	250 ⁶⁾	
Max. stylus weight ⁵⁾	500 g	15 g		10 g	15 g	15 g	
Optical scanning			■				

1) Acceptance test for ZEISS VAST XXT TL1, TL3 with stylus length of 50 mm and sphere diameter of 3 mm. Specifications and acceptance test for VAST XXT TL4 with long stylus extension on request.

2) Measuring length L in mm.

3) In compliance with the specified ambient conditions.

4) Roundness in scanning operations on a 50 mm ring gauge with v 5 mm/sec, filter 50 UPR.

5) Depending on the application, limiting the parameters for a stylus configuration may be useful.

6) Depending on different module TL3 = 30 - 150 mm, TL4 = 125 - 250 mm.

ZEISS SPECTRUM Sensors and accuracy

The functionality of the device and its specifications are only achievable 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-CR5-CAA



Dynamic ZEISS RDS-CR5-CAA articulating unit for contact sensors.

Lateral swivel axis offers more benefits than articulating systems with front-to-back and lateral tilt axis; front-to-back and lateral tilt range of $\pm 180^\circ$, large measuring range, rotation increments of 5° , CAA correction to automatically qualify all potential 5,184 angular positions.

ZEISS VAST XXT

ZEISS VAST XXT Compact design

ZEISS VAST XXT Direct



Measuring contact sensor direct or

attached to the ZEISS RDS-CR5-CAA articulating probe holder.

Stylus length with TL3 module = 30-150 mm; maximum sensor extension = 100 mm;

maximum stylus weight = 15 g; minimum stylus tip diameter = 0.3 mm.

				7/7/6 and 7/10/6	9/12/6 and 9/18/6
Length measurement error ^{1) 2) 3)} MPE complies with ISO 10360-2:2009	E0	in μm	ZEISS VAST XXT	$1.8 + L/250$	$2.1 + L/250$
Repeatability range of E0 MPL complies with ISO 10360-2:2009	R0	in μm		1.9	2.1
Scanning tolerance MPE complies with ISO 10360-4:2000	THP	in μm		3.5	3.5
Required measuring time MPT	τ	in s		50	50
Form measurement error ⁴⁾ MPE for roundness complies with ISO 12181 (VDI/VDE 2617 sheet 2.2)	RONt (MZCI)	in μm		1.9	1.9
Single stylus form error MPE complies with ISO 10360-5:2010	PFTU	in μm		2.0	2.1

ZEISS LineScan One ^{5) 6)}



Optical laser triangulation scanner on ZEISS RDS-CR5-CAA and RDS-CR1-CAA

				7/7/6 and 7/10/6	9/12/6 and 9/18/6
70 mm measuring range 75 mm working distance					
Probing dispersion ³⁾ MPE complies with ISO 10360-8:2013	PF (OT)	in μm		20	20
Dispersion on sphere	1 Sigma	in μm		5	5

1) Acceptance test for ZEISS VAST XXT TL1, TL3 with stylus length of 50 mm and sphere diameter of 3 mm. Specifications and acceptance test for VAST XXT TL4 with long stylus extension on request.

2) Measuring length L in mm.

3) In compliance with the specified ambient conditions.

4) Roundness in scanning operations on a 50 mm ring gauge with $v \leq 5$ mm/sec, filter 50 UPR.

5) The use of optical probes requires calibration with contact probe (e.g. ZEISS VAST XXT).

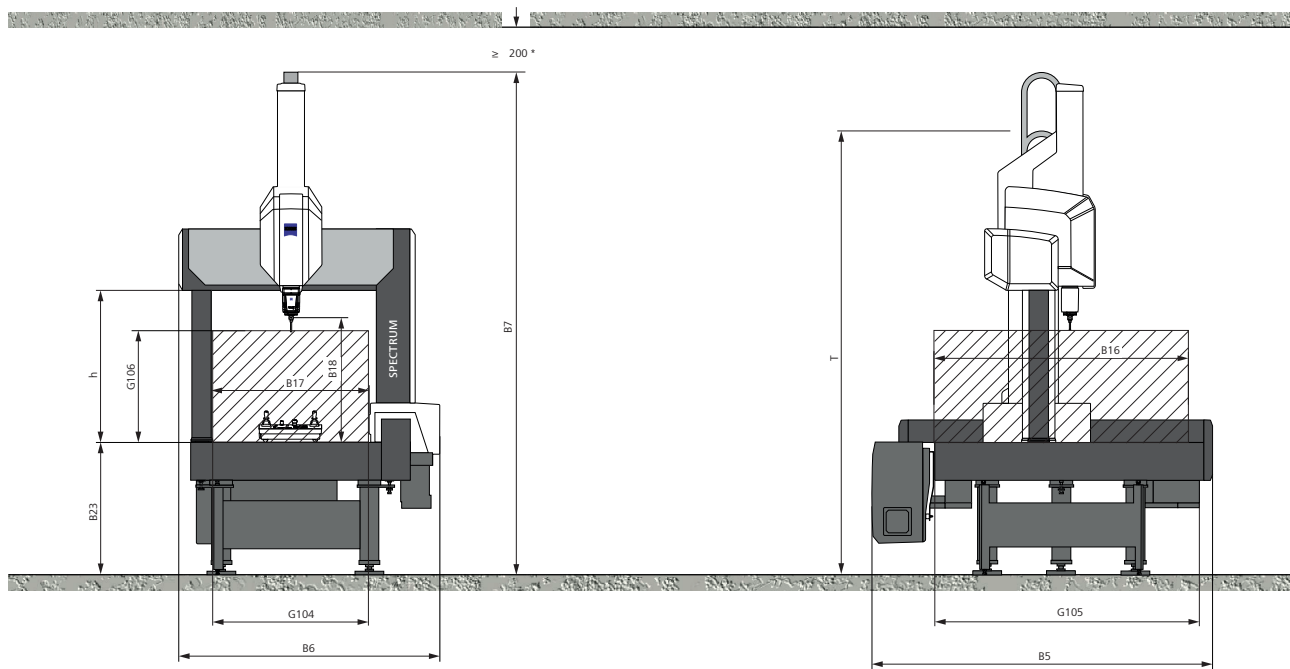
6) Laser class 2M: the accessible laser beam lies in the visible spectral range that is safe for the eye at a short exposure time (0.25 s) as long as the cross section is not reduced by optical instruments (e.g. magnifiers, lens elements, telescope).

Sensor overview SPECTRUM

	direct	RDS				
	 VAST XXT	 LineScan One	 VAST XXT TL1	 VAST XXT Compact design	 VAST XXT	 RDS-CR1-CAA
Multipoint	■		■	■	■	
Passive scanning	■		■	■	■	
Active scanning						
Max. stylus length ¹⁾	150 mm		125 mm	150 mm	250 ²⁾	
Max. stylus weight ¹⁾	15 g		10 g	15 g	15 g	
Optical scanning		■				

1) Depending on the application, limiting the parameters for a stylus configuration may be useful.
2) Depending on different module TL3 = 30 - 150 mm, TL4 = 125 - 250 mm.

ZEISS SPECTRUM plus Sizes	Dimensions in mm													Weight in kg	
	Measuring range			Overall CMM dimensions			Working range (Max. workpiece size)				Table height	Assem- bly space	Trans- port height ²⁾	CMM	Max. workpiece
	X axis	Y axis	Z axis	Width	Length	Height	Width	Length	Height	Height	Height	Height	Height		
	G104	G105	G106	B6	B5	B7	B17	B16	B18	h	B23	c1	T		
7/7/6	700	700	600	1380	1463	2660	827	1050	620 ¹⁾	804	700	≥200	2150	1200	730
7/10/6	700	1000	600	1380	1763	2660	827	1350	620 ¹⁾	804	700	≥200	2150	1570	730
9/12/6	900	1200	600	1580	2062	2660	1027	1650	620 ¹⁾	804	700	≥200	2150	2280	1200
9/18/6	900	1800	600	1580	2662	2660	1027	2250	620 ¹⁾	804	700	≥200	2150	2960	1200

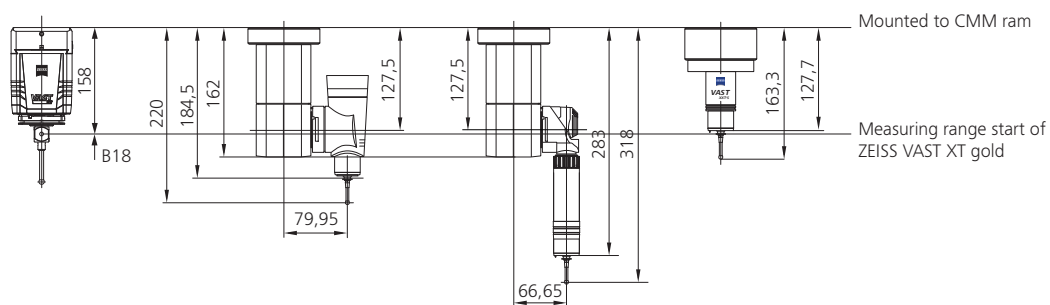


ZEISS VAST XT gold

ZEISS VAST XXT
Compact design

ZEISS VAST XXT

ZEISS VAST XXT
Direct



Note: The given dimensions and weights are approximate values. Subject to change. Actual appearance of specific sizes may vary from illustration.
Measuring range in Z (G106) and working area height (B18) may vary depending upon probe configuration. Valid for ZEISS VAST XXT compact design (to bottom edge of the sensor).

- 1) Valid for ZEISS VAST XXT compact design (to bottom edge of the sensor). Working range height (B18) is depending upon probe configuration..
- 2) Transport height of the secured machine group without pallet or Z tower. When transporting without foundation, deduct 600 mm from the transport height value.

Technical features

Length measuring system	Reflected light length measuring system, photoelectric 0.08 µm resolution	
Controller	Type	ZEISS C99M
	Cooling system:	Fan
Accessories (optional)	Standard control panel:	2 joysticks with progressive characteristics for manual control

Ambient requirements ¹⁾

Relative humidity	40 -70% (without condensation)	
Measuring reference temperature from	18°C to 22° ²⁾	
	Per day	1.5 K/d
	Per hour	1.0 K/h
	Spatial	1.0 K/m

Requirements for operational readiness

Relative humidity	40 -70% (without condensation)
Ambient temperature	+17°C to +35°C

Connection data

Power rating	1/N/PE 100-240 V 50-60 Hz, Power consumption: max. 600VA Amount of heat generated: max. 2200 kJ/h
Compressed air supply	Supply pressure min. 6 bar, max. 8 bar, pre-cleaned. Max. consumption: 80NI/min. Air quality according to ISO 8573-1:2010 [6:4:4]. Max. particle concentration: 5 mg/m ³ (Class 6) Max. pressure dew point: +3°C (Class 4) Max. oil concentration: 5 mg/m ³ (Class 4) 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.

Approvals

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

Certifications / accreditation

Quality management system	ISO 9001:2015
Environmental management system	ISO 14001:2015
Occupational health & safety management systems	ISO 45001:2018
Accredited	ISO / IEC 17025

1) To ensure specified accuracies.

2) At a measuring lab temperature that has remained constant for 48 hours.

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