ZEISS SPECTRUM family

Unmatched Performance and Flexibility in its class.

Seeing beyond

Table of contents

ZEISS SPECTRUM

Key Characteristics

1 Unmatched scanning technology

The combination of ZEISS VAST XXT and ZEISS RDS-CR5-CAA increases the reliability and reduces operation time of measurements enormously. It also enables a wide range of measurement tasks.

2 Optical scanning options

Upgrading to the next level in identifying parts by scanning complex geometry and surface with the new laser scanner ZEISS LineScan One, all measurements integrate into one CMM.

3 Tailored for your application

Flexibility via different sensor options

ZEISS direct VAST XXT

ZEISS RDS-CR5-CAA VAST XXT TL1

ZEISS RDS-CR5-CAA VAST XXT TL3

ZEISS RDS-CR5-CAA VAST XXT TL3 Compact design

Covered by four sizes

4 ZEISS SoftTouch Mode

Optional for VAST XXT TL1

Boost the performance of your CMM even further and unlock the full potential. ZEISS SoftTouch Mode enables you to measure deflecting parts with best results and even faster.

ZEISS SPECTRUM

Key Characteristics

5 Excellent workpiece accessibility

ZEISS VAST XXT TL3 compact design sensor increases the available machine measuring volume.

6 Get a great value

Highest quality from leading technology with a MPEE0 of 1.8+L/250 µm for 7/7/6

7 Cost effectiveness

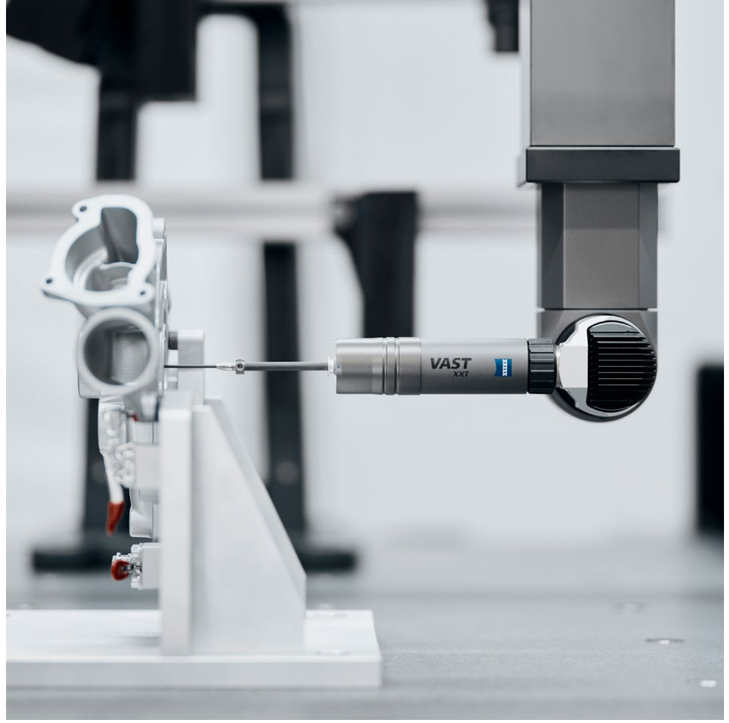
Get the fastest qualification time in class ZEISS RDS-CR5 including CAA allows a qualified system of all 5,184 possible angles in approx. 12 minutes.

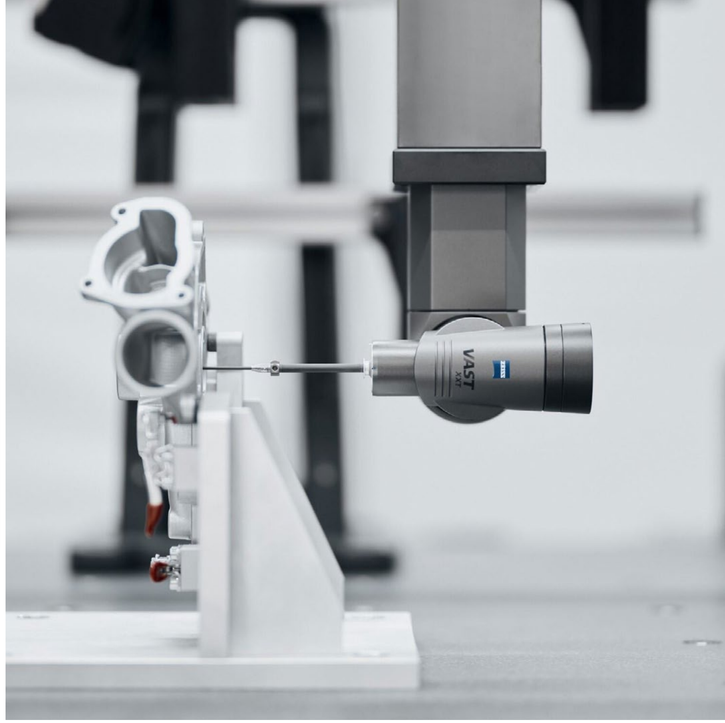
8 Reliability

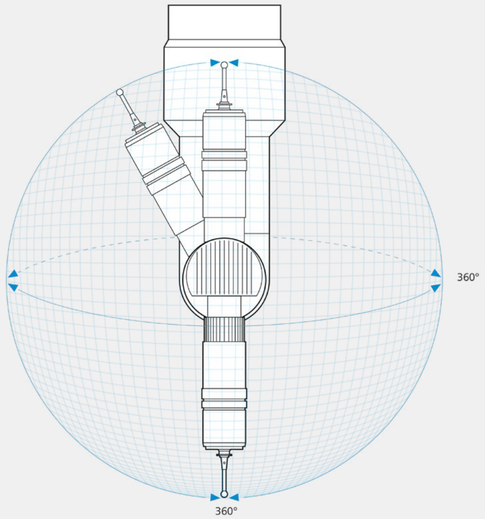
Floating mounted glass ceramic scales for eliminating the temperature scale deflection, meaning temperature sensors are not required.

9 Small footprint

Backpack controller, as well as passive damping system and earthquake protection.







5 degree

5,184 possible angles

ZEISS SPECTRUM verity

Key Characteristics

ZEISS SPECTRUM verity opens the world of active scanning. The coordinate measuring machine offers more reliability, stability, capability and flexibility.

1 ZEISS VAST XT gold: Entering the world of active scanning

ZEISS VAST XT gold provides the foundation for entry into the world of active scanning technology. Especially together with long or heavy probes, it enables the customer to enter the next level of certainty and productivity.

2 Tailored for your application

Flexibility via different sensor options

ZEISS direct VAST XXT

ZEISS RDS-CR1-CAA VAST XXT TL1

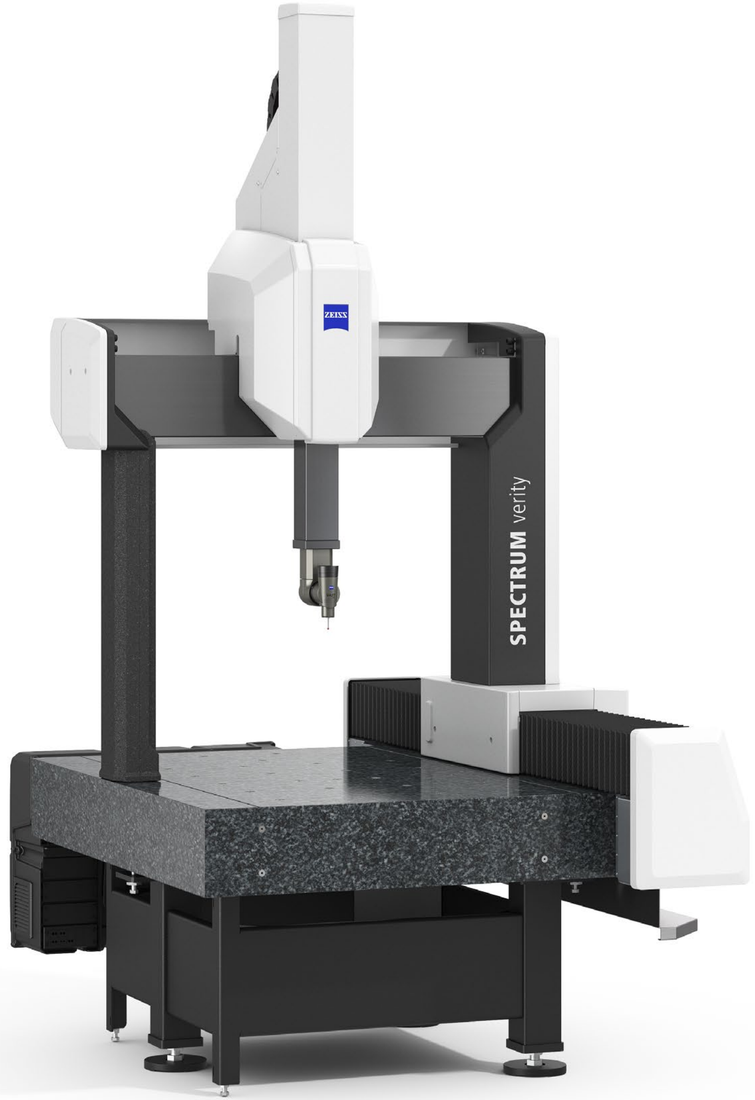
ZEISS RDS-CR1-CAA VAST XXT TL3

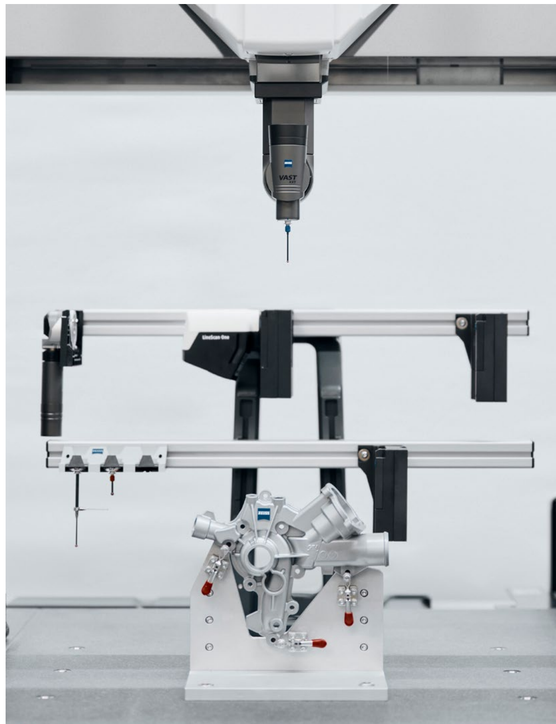
ZEISS RDS-CR1-CAA VAST XXT TL3 Compact design

Soft Touch Mode Optional for VAST XXT TL1

VAST XT gold

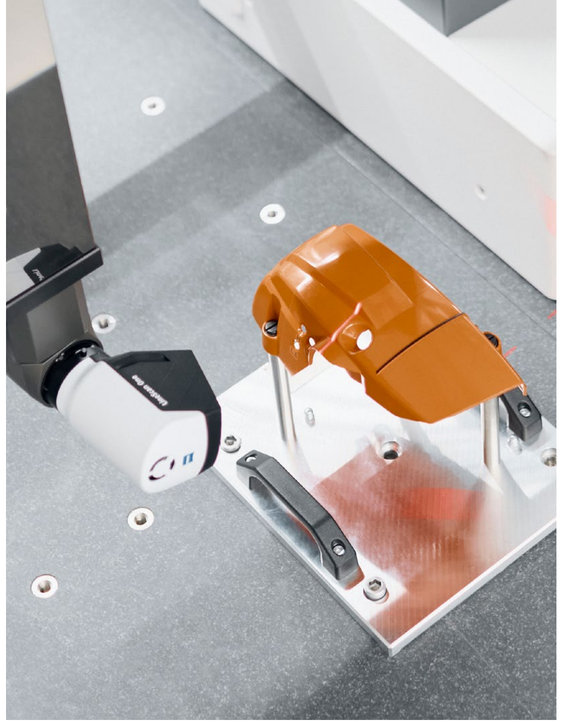
Covered by four sizes





ZEISS SPECTRUM verity

Key Characteristics

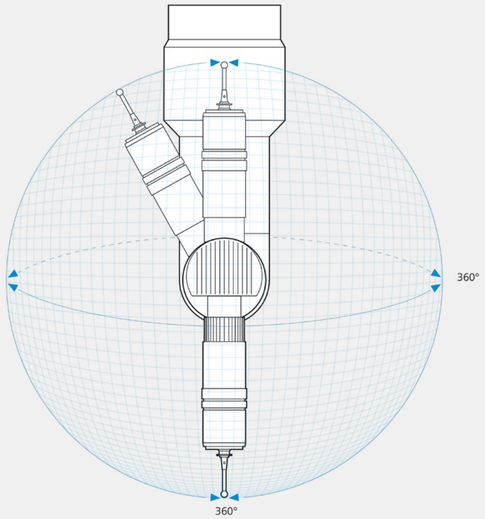


3 Get the best value in this class

Highest quality from leading technology with a MPEE0 of 1.7+L/300 µm for 7/7/6

4 Get faster

More possibilities - fastest qualification ZEISS RDS-CR1 including CAA allows a qualified system of all 20,736 possible angles in approx. 12 minutes.



2.5 degree

20,736 possible angles

ZEISS SPECTRUM verity is also available with ZEISS RDS C CAA including VAST XXT.

ZEISS SPECTRUM

Sensors and Sizes

For higher data quality

ZEISS SPECTRUM with ZEISS direct VAST XXT

Scanning Technology

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

For complex parts

ZEISS SPECTRUM with ZEISS-RDS-C5 CAA including ZEISS VAST XXT

Scanning Technology with articulating probe and CAA (Computer Aided Accuracy) for faster operating time

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

For parts with complex geometry & surface

ZEISS SPECTRUM with LineScan One

Optical Measurement of free-form surfaces

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

ZEISS SPECTRUM verity

Sensors and Sizes

For even more angular positions

ZEISS SPECTRUM verity with ZEISS RDS-C1-CAA including ZEISS VAST XXT

Scanning Technology with articulating probe and CAA (Computer Aided Accuracy) for faster operating time

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

For active scanning

ZEISS SPECTRUM verity with ZEISS VAST XT gold

Active scanning & single point measurement

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

For parts with complex geometry & surface

ZEISS SPECTRUM with LineScan One

Optical Measurement of free-form surfaces

Sizes
7/7/6
7/10/6
9/12/6
9/18/6

ZEISS SPECTRUM sensor package

Tailored to your applications

ZEISS SPECTRUM and ZEISS SPECTRUM verity

4 sizes available for

- 7/7/6, 7/10/6
- 9/12/6, 9/18/6

SPECTRUM family

VAST XT gold

only for SPECTRUM verity

Direct Version

VAST XXT TL3 direct

RDS Version

RDS-CR5-CAA: ZEISS SPECTRUM
RDS-CR1-CAA: ZEISS SPECTRUM verity

VAST XXT TL3
Compact design

Better accessibility

VAST XXT TL1

VAST XXT TL3

LineScan One

Tactile active scanning

Tactile passive scanning

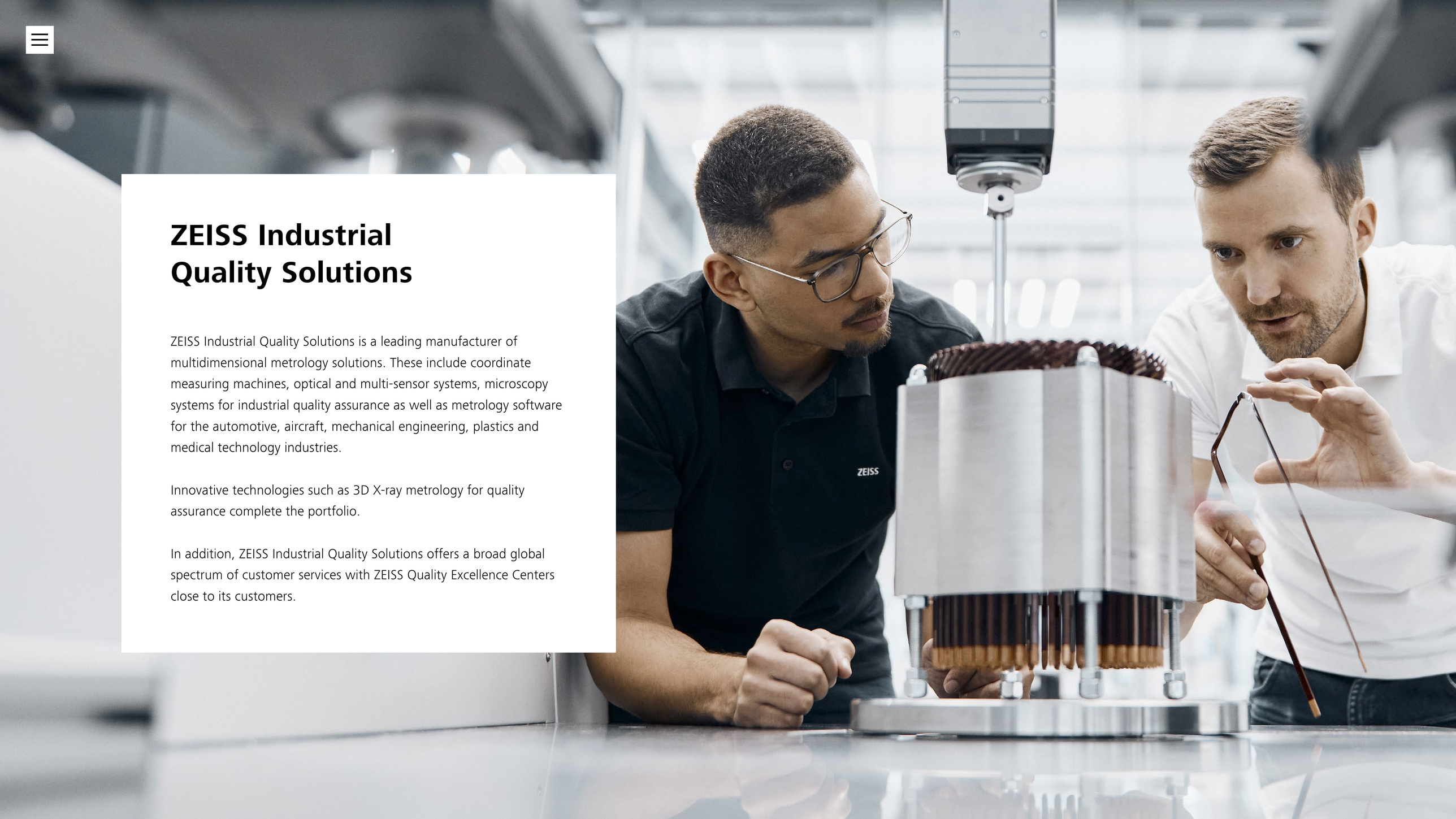
Optical scanning

ZEISS Industrial Quality Solutions

ZEISS Industrial Quality Solutions is a leading manufacturer of multidimensional metrology solutions. These include coordinate measuring machines, optical and multi-sensor systems, microscopy systems for industrial quality assurance as well as metrology software for the automotive, aircraft, mechanical engineering, plastics and medical technology industries.

Innovative technologies such as 3D X-ray metrology for quality assurance complete the portfolio.

In addition, ZEISS Industrial Quality Solutions offers a broad global spectrum of customer services with ZEISS Quality Excellence Centers close to its customers.



Your holistic technology partner

Numerous services and training courses support you in your daily work with 3D measuring technology. Training courses and webinars help you to extend your knowledge about using the software and get to know more application fields for the measuring systems.

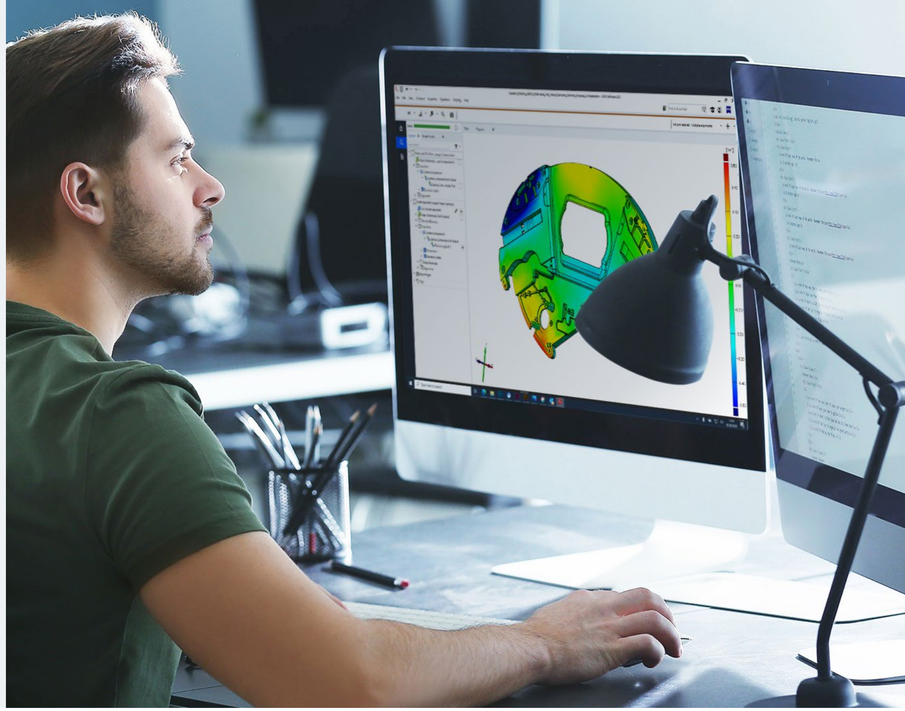
The ZEISS Quality Suite supports you with instructions, tutorials and frequently asked questions and answers. Moreover, the user forum offers a platform for mutual exchange and support.

At conferences and application-based workshops, webinars and digital demos, ZEISS directly shares process and measurement technology know-how. In addition, contractual support and services for all measuring solutions are available.

Training

ZEISS training centers offer training and eLearning courses for all levels of expertise. The training courses follow an internationally standardized concept and are implemented by our certified partners in the corresponding national language. In addition to online training courses and scheduled courses in our training centers, customer-specific on-site training courses are also available on request.

Learn more



Support und Service

ZEISS provides support and services to assist you quickly and reliably if required. These are based on the following three pillars: Remote Assistance, Services and ZEISS Metrology Care.

Learn more

Did ZEISS SPECTRUM family get your attention?

Contact us for a free demonstration –
on site or online.

Contact us

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EN_SPECTRUM Digital Version CZ-08/2024

ZEISS SPECTRUM Family

Specifications

Version: 2024-10

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

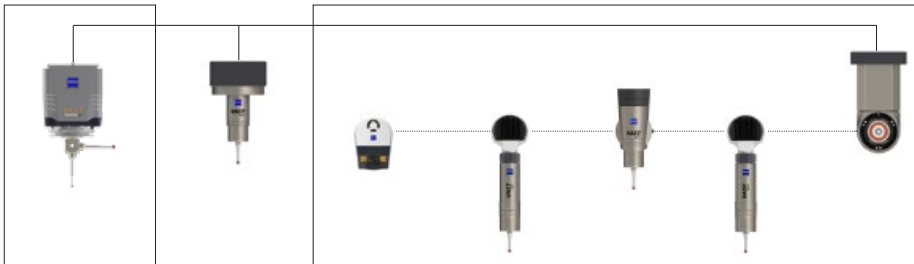
Dynamic ZEISS RDS-CR1-CAA articulating unit for contact sensors.
Lateral swivel axis offers more benefits than articulating systems with front-to-back and lateral tilt axis; front-to-back and lateral tilt range of ±180°,large measuring range, rotation increments of 2.5°, CAA correction to automatically 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 c onditions.
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 ±180°, 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+ L250
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

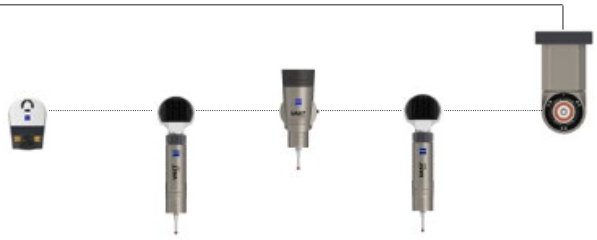
ZEISS LineScan One [5) 6)]

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)] MPL complies with ISO 10360-8:2013	P[Form.Sph.D95%:Tr:ODS]	in µm	20	20
Dispersion on sphere	1 Sigma	in µm	5	5

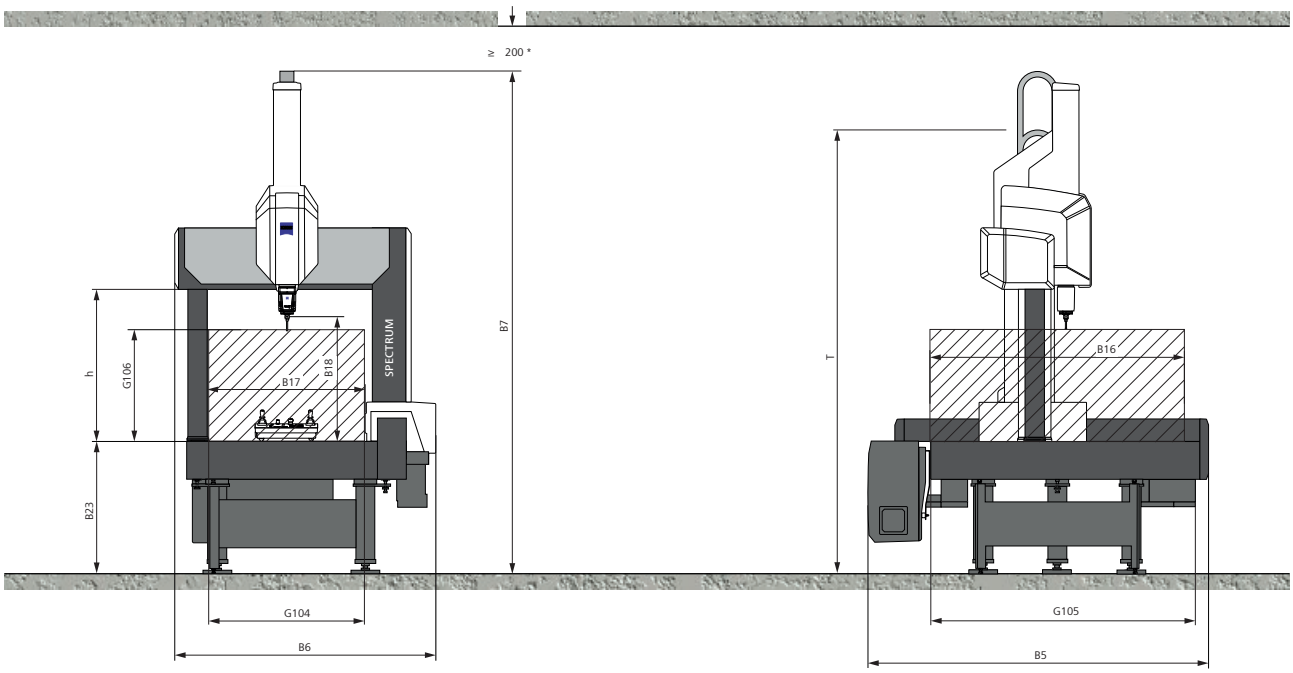
1) Acceptance test for ZEISS VAST XXT TL1,TL3 with stylus length of 50 mm and sphere diameter of 3 mm. Specifications and acceptance test for VAST XXT TL4 with long stylus extension on request.
2) Measuring length L in mm.
3) In compliance with the specified ambient conditions.
4) Roundness in scanning operations on a 50 mm ring gauge with v 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-CR5-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 Family Sizes	Dimensions in mm													Weight in kg	
	Measuring range			Overall CMM dimensions			Working range (Max. workpiece size)				Table height	Assembly space	Transport 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

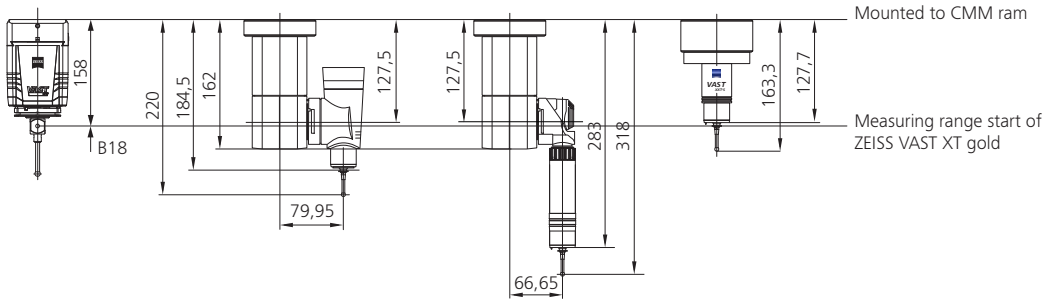


ZEISS VAST XT gold

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: 80 Nl/min. Air quality according to ISO 8573-1:2010 [6:4:4]. Max. particle concentration: 5 mg/m3 (Class 6) Max. pressure dew point: +3°C (Class 4) Max. oil concentration: 5 mg/m³ (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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