



ZEISS PRO® / ZEISS PRO T® Specifications

Version: November 2017



System description

Type according to ISO 10360-1:2000	Moving ram horizontal-arm CMM			
Models	Single or duplex			
Operating mode	motorized / CNC			
Sensor mounts	ZEISS RDS-C-CAA, ZEISS CSC			
Software	ZEISS CALIGO, ZEISS HOLOS, I++			
			advance	premium
Travel speed	Set-up mode with collision protection for sensor carrier (optional)	Axes	150 mm/s	150 mm/s
		CNC in batch measurement mode with full collision protection for the user	X axis	150 mm/s
		Y axis		
		Z axis		
		Vector	260 mm/s	260 mm/s
		CNC in batch measurement mode with optional safety light barrier	X axis	-
		Y axis		
		Z axis		
		Vector	-	866 mm/s
Acceleration	Axes		max. 800 mm/s ²	max. 1000 mm/s ²
	Vector		max. 1000 mm/s ²	max. 1500 mm/s ²

ZEISS PRO advance/ ZEISS PRO T advance ²⁾ accuracy ¹⁾

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.

			12/15 ³⁾	16/21, 16/25	16/30	18/21, 18/25	18/30
Length measurement error MPE complies with ISO 10360-2:2001	E for single arm	in µm	25 + L/100 ≤60	27 + L/80 ≤70	40 + L/65 ≤105	37 + L/80 ≤90	55 + L/65 ≤125
Length measurement error MPE complies with ISO 10360-2:2001	EM for dual arm	in µm	-	40 + L/60 ≤95	60 + L/45 ≤145	60 + L/60 ≤135	83 + L/45 ≤190
Probing error MPE complies with ISO 10360-2:2001	P	in µm	15	25	30	30	35

ZEISS PRO premium/ ZEISS PRO T premium accuracy ¹⁾ HG option for ZEISS PRO advance / ZEISS PRO T advance ⁴⁾

			12/15 ³⁾	16/21, 16/25	16/30	18/21, 18/25	18/30
Length measurement error MPE complies with ISO 10360-2:2001	E for single arm	in µm	-	18 + L/125 ≤50	25 + L/100 ≤70	30 + L/125 ≤70	35 + L/100 ≤80
Length measurement error MPE complies with ISO 10360-2:2001	EM for dual arm	in µm	-	30 + L/80 ≤75	40 + L/65 ≤110	40 + L/80 ≤105	55 + L/65 ≤120
Probing error MPE complies with ISO 10360-2:2001	P	in µm	-	20	25	25	30

ZEISS PRO premium/ ZEISS PRO T premium accuracy ¹⁾ HG option for ZEISS PRO advance / ZEISS PRO T advance ²⁾

			12/15 ³⁾	16/21, 16/25	16/30	18/21, 18/25	18/30
Length measurement error MPE complies with ISO 10360-2:2001	E for single arm	in µm	-	25 + L/100 ≤60	35 + L/80 ≤90	35 + L/100 ≤80	45 + L/80 ≤110
Length measurement error MPE complies with ISO 10360-2:2001	EM for dual arm	in µm	-	40 + L/70 ≤90	50 + L/55 ≤130	55 + L/70 ≤120	68 + L/55 ≤165
Probing error MPE complies with ISO 10360-2:2001	P	in µm	-	20	25	25	30

1) L = measuring length in mm. This data applies to the maximum length measuring error based on a length of no more than 6000 mm.

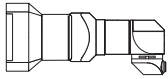
2) Temperature range T1

3) ZEISS PRO T advance only

4) Temperature range T0

Sensor mounts

ZEISS RDS-C-CAA

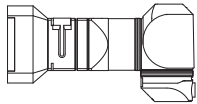


Standard for ZEISS PRO advance / ZEISS PRO T advance, optional for ZEISS PRO/ZEISS PRO T premium

Dynamic ZEISS RDS-C-CAA articulating unit for contact sensors.
The CAA calibration mode permits the use of all RDS angular positions via a simplified CNC calibration run with just 12 angular positions. This reduces the calibration times to a minimum. The lateral tilting axis provides a large rotating/tilting range of $\pm 180^\circ$.

Step width	2.5°
Angular velocity	up to 90°/s
Reproducibility of the position	$\pm 1''$
Maximum torque	50 Ncm
Max. extension	350 mm with ZEISS RST-P 350 mm (PECF) with Renishaw TP6 350 mm (PECF) with Renishaw TP20

ZEISS CSC



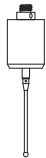
Standard for ZEISS PRO premium/ ZEISS PRO T premium, optional for ZEISS PRO/ ZEISS PRO T advance

Dynamic ZEISS CSC continuous articulating unit for contact and optical sensors.
High torque for the use of optical sensors and long extensions.
The CAA calibration mode permits the use of all angular positions via a simplified CNC calibration run with just 12 angular positions. This reduces the calibration times to a minimum.
The lateral tilting axis provides a large rotating/tilting range of $\pm 180^\circ$.

Resolution	0.324" (continuous)
Angular velocity	up to 180°/s
Reproducibility of the position	<2"
Maximum torque	3.0 Nm
Max. extension	800 mm

Sensors

Renishaw TP6



Standard for ZEISS PRO advance / ZEISS PRO T advance, optional for premium

3D touch-trigger probe, manufactured by Renishaw

Length	41 mm
Diameter	25 mm
Measuring force	0.11 - 0.30 N
Stylus length	max. 50 mm
Stylus weight	max. 5 g

Renishaw TP20

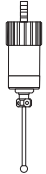


Optional for ZEISS PRO / ZEISS PRO T

3D touch-trigger probe, manufactured by Renishaw

Length	38 mm
Diameter	13.2 mm
Measuring force (with stylus length of 10 mm)	0.08 N; 0.25 N; 0.4 N
Stylus length	max. 50 mm
Stylus weight	max. 5 g

ZEISS RST-P



Standard for ZEISS PRO / ZEISS PRO T premium, optional for advance

Directional-independent touch-trigger sensor

Length	65 mm
Diameter	24 mm
Measuring force at data acquisition	<0.01 N
Stylus length	max. 90 mm
Stylus weight	max. 10 g

ZEISS EagleEye



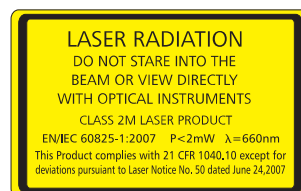
Optional for ZEISS PRO / ZEISS PRO T advance and PRO / PRO T premium with CSC

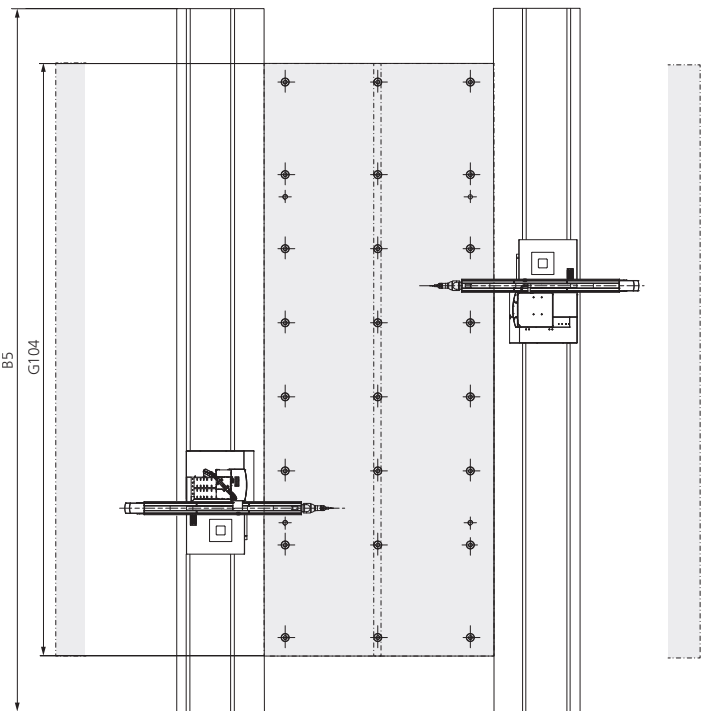
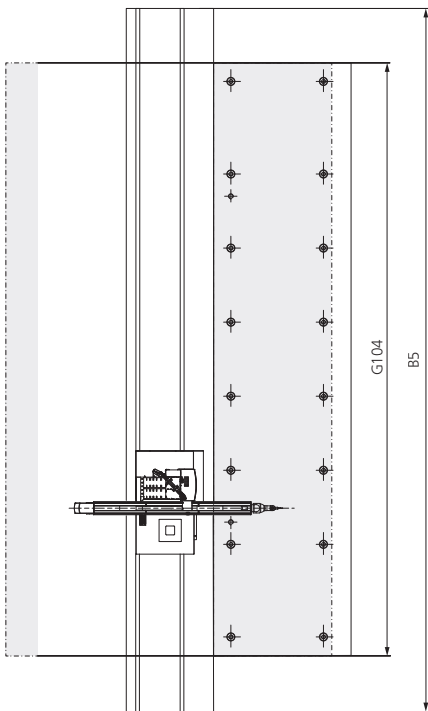
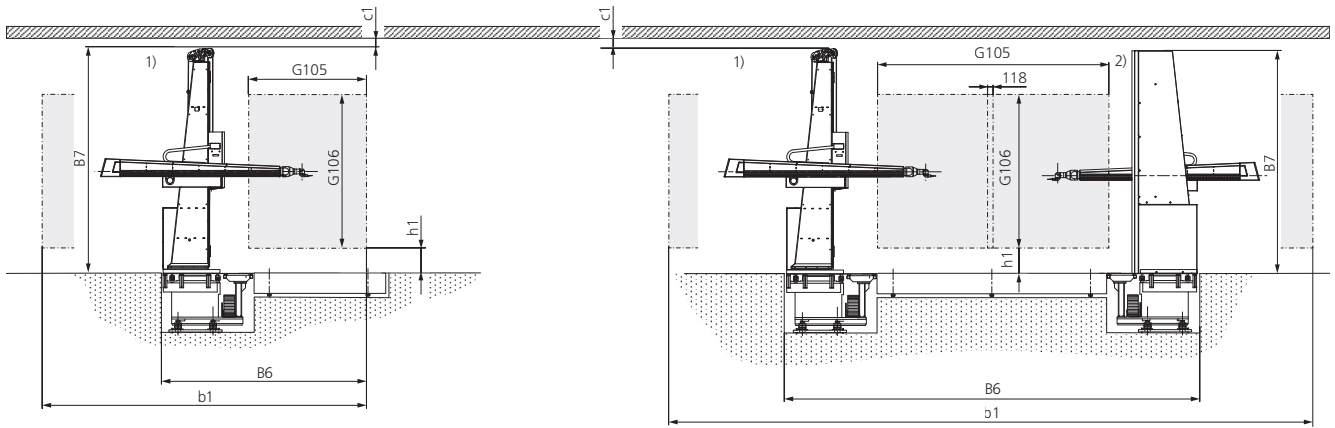
Laser line triangulation sensor with 6th axis. Rotatable by $n \times 360^\circ$.

Measuring range	100 mm
Line width	68 mm
Middle working distance	90 mm
Maximum error during sphere center test	70 μm^*

* Sphere center test on PRO 16/25. 29 angular positions of A-/B- and C-axis

The following features can be measured with ZEISS EagleEye directly as a feature or as a link: Elongated hole, point, square hole, cylinder/threaded rods, sphere, edge, gap and alignment, double sheet metal, point cloud



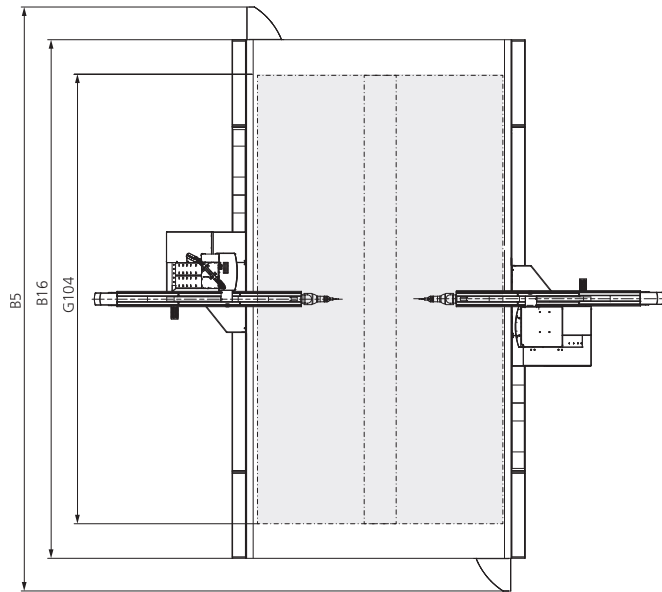
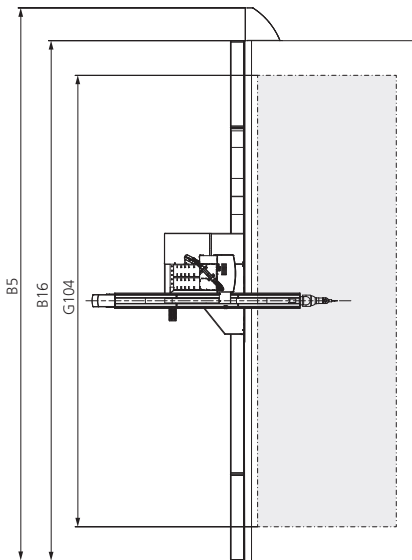
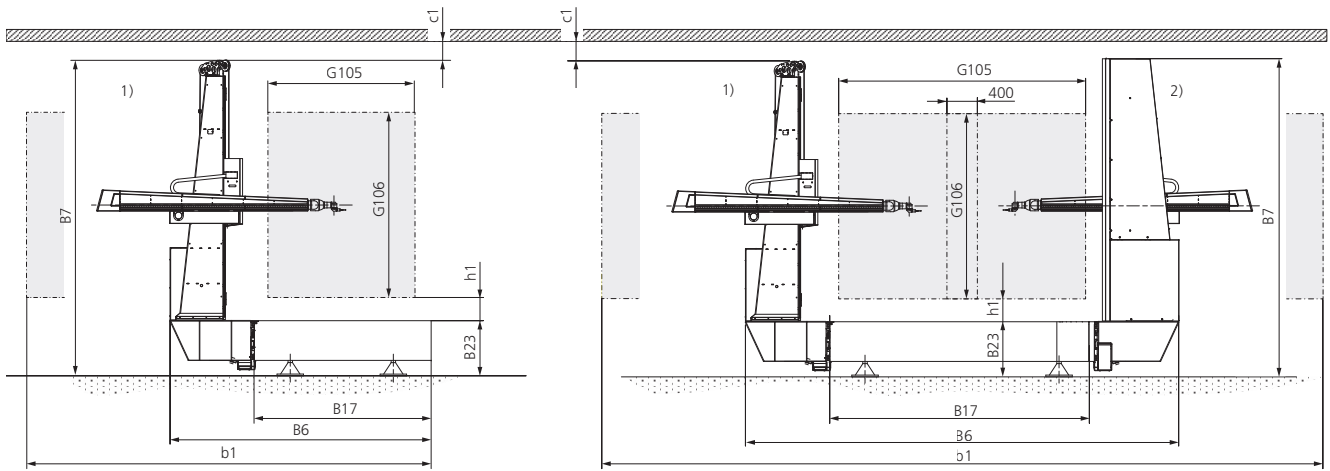


Note: the given dimensions and weights are approximate values. Subject to change. Actual appearance of specific sizes may vary from illustration. Dimensioning based on DIN 4000-167:2009.

- 1) ZEISS PRO with standard housing shown
- 2) ZEISS PRO with full housing shown

Sizes		Dimensions in mm										Weight in kg			
ZEISS PRO Single arm	ZEISS PRO Dual arm	Measuring range			Overall machine dimensions								Assembly space	Measuring machine	Measuring beams X axis
		X axis	Y axis ¹⁾	Z axis	Length	Single-arm width		Dual-arm width		Height		Height			
		G104	G105	G106	B5	B6	b1	B6	b1	B7	h1	c1			
50/16/21	50/30/21	5000	1600/3082	2100	6500	3200	4325	5400	8530	3045	340	≥200	500	3250	
60/16/21	60/30/21	6000	1600/3082	2100	7500	3200	4325	5400	8530	3045	340	≥200	500	3750	
70/16/21	70/30/21	7000	1600/3082	2100	8500	3200	4325	5400	8530	3045	340	≥200	500	4250	
100/16/21	100/30/21	10000	1600/3082	2100	11500	3200	4325	5400	8530	3045	340	≥200	500	5750	
50/16/25	50/30/25	5000	1600/3082	2500	6500	3200	4325	5400	8530	3445	340	≥200	550	3250	
60/16/25	60/30/25	6000	1600/3082	2500	7500	3200	4325	5400	8530	3445	340	≥200	550	3750	
70/16/25	70/30/25	7000	1600/3082	2500	8500	3200	4325	5400	8530	3445	340	≥200	550	4250	
100/16/25	100/30/25	10000	1600/3082	2500	11500	3200	4325	5400	8530	3445	340	≥200	550	5750	
50/16/30	50/30/30	5000	1600/3082	3000	6500	3200	4325	5400	8530	3945	340	≥200	600	3250	
60/16/30	60/30/30	6000	1600/3082	3000	7500	3200	4325	5400	8530	3945	340	≥200	600	3750	
70/16/30	70/30/30	7000	1600/3082	3000	8500	3200	4325	5400	8530	3945	340	≥200	600	4250	
100/16/30	100/30/30	10000	1600/3082	3000	11500	3200	4325	5400	8530	3945	340	≥200	600	5750	
50/18/21	50/35/21	5000	1800/3500	2100	6500	3200	4525	5900	9348	3045	340	≥200	500	3250	
60/18/21	60/35/21	6000	1800/3500	2100	7500	3200	4525	5900	9348	3045	340	≥200	500	3750	
70/18/21	70/35/21	7000	1800/3500	2100	8500	3200	4525	5900	9348	3045	340	≥200	500	4250	
100/18/21	100/35/21	10000	1800/3500	2100	11500	3200	4525	5900	9348	3045	340	≥200	500	5750	
50/18/25	50/35/25	5000	1800/3500	2500	6500	3200	4525	5900	9348	3445	340	≥200	550	3250	
60/18/25	60/35/25	6000	1800/3500	2500	7500	3200	4525	5900	9348	3445	340	≥200	550	3750	
70/18/25	70/35/25	7000	1800/3500	2500	8500	3200	4525	5900	9348	3445	340	≥200	550	4250	
100/18/25	100/35/25	10000	1800/3500	2500	11500	3200	4525	5900	9348	3445	340	≥200	550	5750	
50/18/30	50/35/30	5000	1800/3500	3000	6500	3200	4525	5900	9348	3945	340	≥200	600	3250	
60/18/30	60/35/30	6000	1800/3500	3000	7500	3200	4525	5900	9348	3945	340	≥200	600	3750	
70/18/30	70/35/30	7000	1800/3500	3000	8500	3200	4525	5900	9348	3945	340	≥200	600	4250	
100/18/30	100/35/30	10000	1800/3500	3000	11500	3200	4525	5900	9348	3945	340	≥200	600	5750	

1) Single/dual arm



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) ZEISS PRO T with standard housing shown
- 2) ZEISS PRO T with full housing shown

Sizes		Dimensions in mm													
ZEISS PRO T Single arm	ZEISS PRO T Dual arm	Measuring range			Overall machine dimensions										
		X axis	Y axis ¹⁾	Z axis	Length ¹⁾		Single-arm width			Dual-arm width			Height		
		G104	G105	G106	B5	B16	B17	B6	b1	B17	B6	b1	B7	B23	h1
22/12/15	-	2200	1200	1500	3378	3000	1500	2457	3850	-	-	-	3005	625	263
32/12/15	-	3200	1200	1500	4378	4000	2000	2457	3850	-	-	-	3005	625	263
32/16/21	32/28/21	3200	1600/2800	2100	4378/4756	4000	2000	2957	4650	3000	4914	8300	3605	625	263
42/16/21	42/28/21	4200	1600/2800	2100	5378/5756	5000	2000	2957	4650	3000	4914	8300	3605	625	263
52/16/21	52/28/21	5200	1600/2800	2100	6378/6756	6000	2000	2957	4650	3000	4914	8300	3605	625	263
62/16/21	62/28/21	6200	1600/2800	2100	7378/7756	7000	2000	2957	4650	3000	4914	8300	3605	625	263
72/16/21	72/28/21	7200	1600/2800	2100	8378/8756	8000	2000	2957	4650	3000	4914	8300	3605	625	263
32/16/25	32/28/25	3200	1600/2800	2500	4378/4756	4000	2000	2957	4650	3000	4914	8300	4005	625	263
42/16/25	42/28/25	4200	1600/2800	2500	5378/5756	5000	2000	2957	4650	3000	4914	8300	4005	625	263
52/16/25	52/28/25	5200	1600/2800	2500	6378/6756	6000	2000	2957	4650	3000	4914	8300	4005	625	263
62/16/25	62/28/25	6200	1600/2800	2500	7378/7756	7000	2000	2957	4650	3000	4914	8300	4005	625	263
72/16/25	72/28/25	7200	1600/2800	2500	8378/8756	8000	2000	2957	4650	3000	4914	8300	4005	625	263

Sizes		Dimensions in mm	Weight in kg	
ZEISS PRO T Single arm	ZEISS PRO T Dual arm	Assembly space	Measuring machine	Measuring plate ¹⁾
		Height		
		c1		
22/12/15	-	≥200	450	5700
32/12/15	-	≥200	450	8000
32/16/21	32/28/21	≥200	500	8000/12000
42/16/21	42/28/21	≥200	500	10000/15000
52/16/21	52/28/21	≥200	500	12000/18000
62/16/21	62/28/21	≥200	500	14000/21000
72/16/21	72/28/21	≥200	500	16000/24000
32/16/25	32/28/25	≥200	550	8000/12000
42/16/25	42/28/25	≥200	550	10000/15000
52/16/25	52/28/25	≥200	550	12000/18000
62/16/25	62/28/25	≥200	550	14000/21000
72/16/25	72/28/25	≥200	550	16000/24000

1) Single/dual arm

Technical features

Length measuring system	Electro-optical reflected light system; resolution 1 µm		
Controller	Type	ZEISS C99	
	Protection type	IP54	
	Cooling system	Fan/ optional air conditioner	
Accessories (optional)	Safety technology for high travel speed, CNC sensor rack, column lock, safety position (crane lock), kink protection for articulating joints, automatic temperature capture of CMM and workpiece, various control panels		

Environmental requirements ¹⁾

		T1	T0	
Ambient temperature		16 °C - 24 °C	18 °C - 22 °C	
	Temperature fluctuations	per hour	1.5 K/h	0.5 K/h
		per day	3.0 K/d	2.0 K/d
	Temperature gradient	spatial	1.0 K/m	0.5 K/m
Relative humidity		30 % - 80 %	40 % - 70 %	
Acoustic pressure	max. 80 dbA			

Requirements for operational readiness

Relative humidity	80 % maximum without condensation		
Ambient temperature	15 °C - 35 °C		
Power rating	1/N/PE 100/110/115/120/125/230/240 V~, (+/-10 %), 50/60 Hz (+/-3.5 %) Max. power consumption when fully upgraded 2500 VA		
Compressed air supply (only with RDS)	Supply pressure 6-10 bar, pre-cleaned, use approx. 0,8 NI/min operating pressure Air quality complies with ISO 8573 part 1: class 4		

Approvals

Regulations ZEISS PRO and ZEISS PRO T comply 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) To ensure specified length measuring uncertainty

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