

**CARMET®**  
**Specifications**  
Status: October 2015



We make it visible.

## System description

ZEISS CARMET	Horizontal-arm measuring machine on X-axis guide for flush-floor installation
Models	Single or duplex
Operating mode	Motorized/ CNC
Sensor mounts	ZEISS RDS-C CAA
Software	ZEISS CALIGO, ZEISS HOLOS, I++

## Dynamics

Travel speed	Motorized	Axes	0 to 150 mm/s
	CNC	X axis	max. 200 mm/s
		Y axis	
		Z axis	
	Vector		346 mm/s
Acceleration		Axes	max. 200 mm/s <sup>2</sup>
		Vector	max. 346 mm/s <sup>2</sup>

## Accuracy<sup>1)</sup>

				16/25
Length measurement error MPE complies with ISO 10360-2:2001	E for single arm	in $\mu\text{m}$	at 16-24°C	$35+L/50 \leq 80$
Length measurement error MPE complies with ISO 10360-2:2001	EM for dual arm	in $\mu\text{m}$	at 16-24°C	$50+L/40 \leq 120$
Probing error MPE complies with ISO 10360-2:2001	P for single arm	in $\mu\text{m}$	at 16-24°C	30

## Technical features

Length measuring system	Steel scales, 1 $\mu\text{m}$ resolution		
Controller	Type	ZEISS C99L	
	Protection type	IP22	
Accessories (optional)	Various control panels, passive multi-sensor rack for storage of stylus systems		

## Environmental requirements<sup>2)</sup>

Ambient temperature			+16°C to +24°C
	Temperature fluctuations	Per hour	1.5 K/h
		per day	3.0 K/d
	Temperature gradient	Spatial	1.0 K/m
Relative humidity	40-80% (without condensation)		

## Requirements for operational readiness

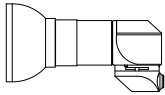
Relative humidity	90% maximum without condensation
Ambient temperature	+10 °C to +35°C
Electrical power rating	1/N/PE 100-240 VAC~, (+/-10%), 50/60 Hz (+/-3.5%) Max. power consumption when fully upgraded 600 VA
Compressed air supply	Supply pressure 6-10 bar, pre-cleaned, use approx. 0,8 NI/min operating pressure Air quality complies with ISO 8573 part 1: class 4

1) L = measuring length in mm.

2) To ensure specified length measuring uncertainty

## Sensor mounts

ZEISS RDS-C CAA



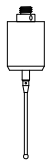
Standard for ZEISS CARMET

Dynamic ZEISS RDS-C CAA articulating unit for contact and optical sensors.  
The lateral tilting axis provides more advantages over articulating units with front-to-back and lateral tilting axis: tilting range of  $\pm 180^\circ$ , large measuring range.  
With CAA correction for automatic calibration of all available angular settings.

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

## Sensors

Renishaw TP6



Standard for ZEISS CARMET; 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

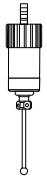
Renishaw TP20



Option for ZEISS CARMET; 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

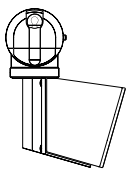
ZEISS RST-P



Option for ZEISS CARMET; 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 FalconEye navigator



ZEISS CARMET option; optical triangulation line sensor

Probe measuring range	+52 mm to -30 mm
Working distance	102 mm
Resolution	5 $\mu$ m
Laser class	2M (no special protection measures)
Line width	max. 66 mm; min. 35 mm

## Approvals

Regulations

ZEISS CARMET complies with EC machine directive 2006/42/EC and EMC directive 2004/108/EC.



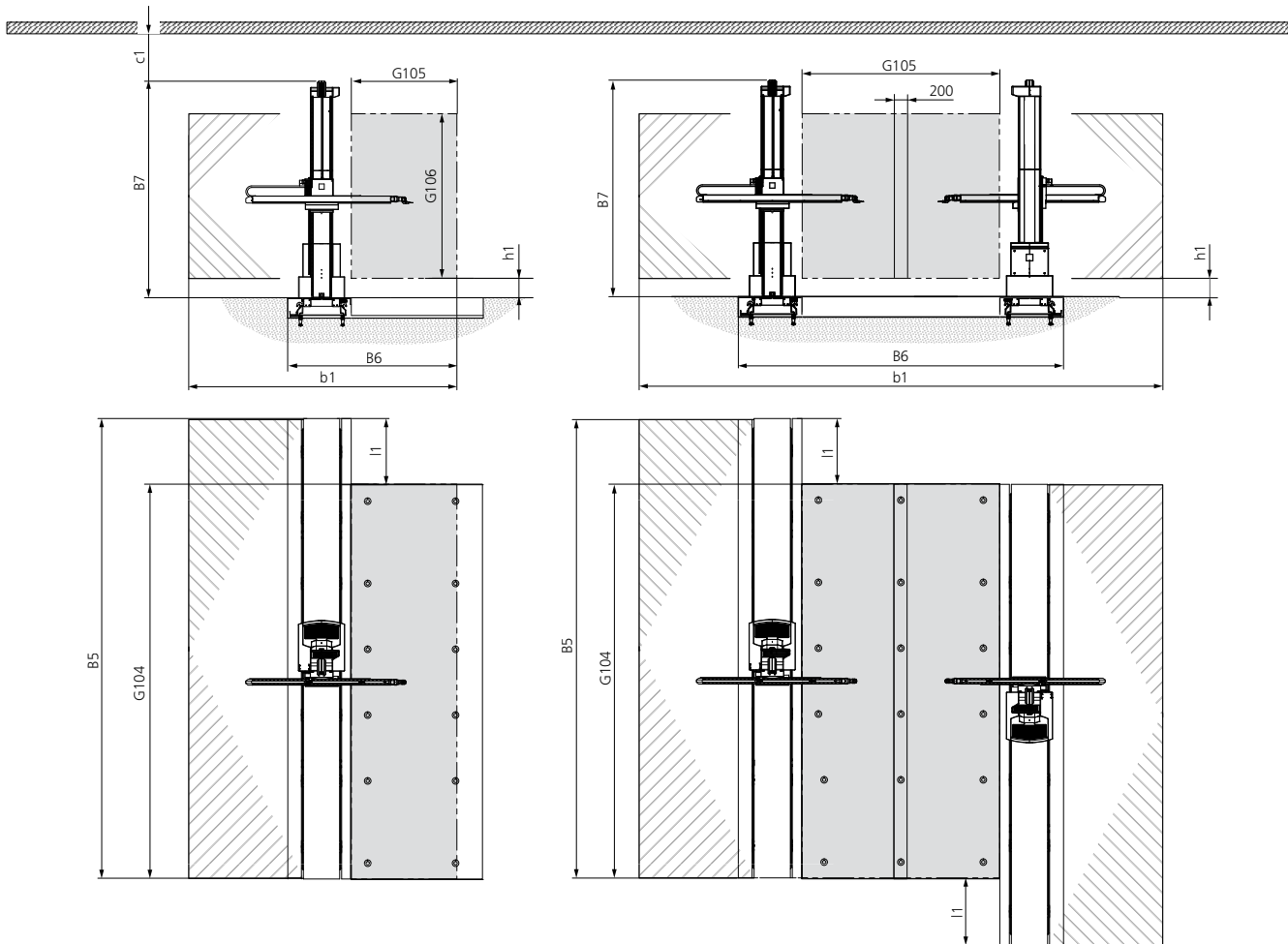
Disposal

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

ZEISS CARMET sizes	Dimensions in mm										Weight in kg	
	Measuring range			Overall measuring machine dimensions						Assembly space	Measuring machine	X axis measuring beams
	X axis	Y axis	Z axis	Length		Width		Height		Height		
	G104	G105	G106	B5	l1	B6	b1	B7	h1	c1		
<b>Single arm</b>												
40/16/25	4000	1600	2500	4995	995	2730	3960	3315	296	≥200	350	2000
50/16/25	5000	1600	2500	5995	995	2730	3960	3315	296	≥200	350	2400
60/16/25	6000	1600	2500	6995	995	2730	3960	3315	296	≥200	350	2800
70/16/25	7000	1600	2500	7995	995	2730	3960	3315	296	≥200	350	3200
<b>Dual arm</b>												
40/30/25	4000	3000	2500	4995	995	4930	7720	3315	296	≥200	350	2x2000
50/30/25	5000	3000	2500	5995	995	4930	7720	3315	296	≥200	350	2x2400
60/30/25	6000	3000	2500	6995	995	4930	7720	3315	296	≥200	350	2x2800
70/30/25	7000	3000	2500	7995	995	4930	7720	3315	296	≥200	350	2x3200



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.

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Subject to change in design and scope of delivery and as a result of ongoing technical development.  
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