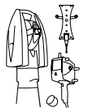
PRECISION MEASURING INSTRUMENTS

PORTABLE MEASURING ARMS

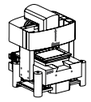


LASER TRACKERS & STATIONS

WHITE LIGHT SCANNERS

SENSORS

BRIDGE CMMS



MULTISENSOR & OPTICAL SYSTEMS

ULTRA HIGH ACCURACY CMMS

HORIZONTAL ARM CMMS

GANTRY CMMS

AUTOMATED APPLICATIONS

SOFTWARE SOLUTIONS

HEXAGON METROLOGY

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ROMER ABSOLUTE ARM **TOP FEATURES**

Absolute Encoders

Referencing and warm-up time is a thing of the past – just switch the arm on and measure.

RDS

The ROMER proprietary software RDS features SMART technology, allowing total management of checks in the field as well as temperature and shock monitoring.

Laser Scanning

The ROMER Absolute Arm is available with a completely integrated high-performance laser scanner or the external HP-L-20.8 scanner, for complex scanning tasks. ROMER Absolute Arms are the only scanning systems on the market to offer fully-verifiable scanning system accuracy.

Automatic and repeatable Probe Recognition

Intelligent Quick Change Probes: Swap touch probes at any time without the need to recalibrate. The ROMER Absolute Arm's repeatable mount allows you to change probes on the fly, according to your measurement needs.

Instant Feedback

The ROMER Absolute Arm provides immediate acoustic and haptic feedback to the operator, allowing the system to be used in even the harshest industrial environments.

Measurement Volume

Size does matter: The ROMER Absolute Arm is available in seven lengths between 1.2 m and 4.5 m.

Certification

All ROMER Absolute Arms including scanning systems pass through B89.4.22 certification. Additional certifications according to VDI/VDE 2617-9 are also available. The ROMER Absolute Arm Compact model is available with a choice of ISO 10360-2 or B89.4.22 certification.

SmartLock

If the ROMER Absolute Arm is not in use it can be locked safely into its rest position. SmartLock also allows the arm to be fixed in any intermediate position.

Zero G

The Zero G counterbalance minimises torque in the base of the arm. This allows greater freedom in mounting options such as lightweight tripods, magnetic and vacuum bases making the ROMER Absolute Arm the most portable available.

Feature Packs

Thanks to easily interchangeable Feature Packs, the functionality of the ROMER Absolute Arm can always be enhanced. Feature Packs are available for wi-fi communication, wi-fi scanning capability and full battery operation.

HEXAGON METROLOGY

FACTSHEET

ROMER ABSOLUTE ARM

ROMER ABSOLUTE ARM

The 6-axis ROMER Absolute Arm is designed for highly-accurate tactile measurements on countless types of workpiece. It allows for reliable touch-probe measurement and inspection of almost anything including sheet metal parts, plastic components or carbon fibre structures. If your measurement jobs require laser scanning later, an upgrade is possible at any time.

ROMER ABSOLUTE ARM WITH INTEGRATED LASER SCANNER

Freedom of movement: with a fully integrated and certified RS3 laser scanner, this is an all-purpose metrology system for almost any measurement need. Point cloud inspection, product benchmarking, reverse engineering, rapid prototyping, virtual assembly or CNC milling are just some of the typical laser scanning applications that can be added to the rich portfolio of touch-probe measurement applications. The integrated laser scanner is designed to capture data from almost any object surface. It does not need warm-up time or additional cables and controllers. Scanner and probe measurements are combined in the same software session.

ROMER ABSOLUTE ARM WITH EXTERNAL LASER SCANNER

The ROMER Absolute Arm with external scanner is the high-end laser scanning platform designed for the HP-L-20.8 laser scanner from Hexagon Metrology. With HP-L-20.8, the ROMER Absolute Arm offers first-class performance on the most complex surface types. Automatic laser control means that multiple surface colours can be scanned in a single pass. Thanks to the HP-L-20.8's unique flying dot technology, the scan width and point density are entirely variable, allowing the user to guarantee maximum scan detail where it's needed most.

ROMER TUBE INSPECTION SOLUTION

The ROMER Tube Inspection Solution covers all 3 main tasks of tube measurement in a single non-contact product: tube inspection and definition, geometry measurement and even interfacing to CNC tube bending machines is possible, via bending program correction. The ROMER Tube Inspection Solution is the only portable true tube inspection solution on the market. It can be taken to the workpiece to measure pipes, lines, hoses and tubes in situ, thereby saving time and effort. Reverse engineering of tubes and hoses is also unbelievably fast, and without any need for complex laser scanning.

ROMER ABSOLUTE ARM COMPACT

The ROMER Absolute Arm Compact is a high-accuracy portable coordinate measuring machine (CMM) that brings total mobility to high-tolerance 3D measurement applications on the shop floor. It is the only portable CMM on the market today with full ISO 10360-2 certification, making it the perfect portable compliment to stationary CMM's. Featuring industry-proven technology from the ROMER Absolute Arm range, the ROMER Absolute Arm Compact is perfect for measuring small to medium parts, and ideal for GD&T measurement. With a measurement volume of up to 1.2 metres and a choice of certifications available, the ROMER Absolute Arm Compact has been designed to give reliable results in tight spaces, anywhere.

ROMER ABSOLUTE ARM COMPACT PROBING SPECIFICATIONS

		B89.4.22		ISO 10360-2		
Model	Measuring range	Point repeatability	Volumetric accuracy	MPEp	MPEe	Arm weight
7312	1.2 m / 3.9 ft.	0.014 mm / 0.0006 in.	± 0.025 mm / 0.0010 in.	8 µm	5+L/40≤18 µm	10.2 kg / 22.5 lbs
7512	1.2 m / 3.9 ft.	0.010 mm / 0.0004 in.	± 0.020 mm / 0.0008 in.	6 µm	5+L/65≤15 µm	10.8 kg / 23.8 lbs

Point repeatability and volumetric accuracy values according to B89.4.22. MPEp is the Maximum Permissible Probing Error according to the ISO 10360-2 standard. MPEe is the Volumetric Length Measuring Error according to the ISO 10360-2 standard. Generally, the MPEe value is the most appropriate for determining the arm accuracy.

6-AXIS PROBING SPECIFICATIONS

	Model	Measuring range	Point repeatability[1]	Volumetric accuracy[2]	Arm weights
73 series	7320	2.0 m / 6.6 ft.	0.030 mm / 0.0012 in.	± 0.042 mm / 0.0017 in.	7.4 kg / 16.3 lbs
	7325	2.5 m / 8.2 ft.	0.038 mm / 0.0015 in.	± 0.051 mm / 0.0020 in.	7.7 kg / 17.0 lbs
	7330	3.0 m / 9.8 ft.	0.059 mm / 0.0023 in.	± 0.075 mm / 0.0030 in.	8.0 kg / 17.6 lbs
	7335	3.5 m / 11.5 ft.	0.079 mm / 0.0031 in.	± 0.100 mm / 0.0039 in.	8.3 kg / 18.3 lbs
	7340	4.0 m / 13.1 ft.	0.099 mm / 0.0039 in.	± 0.125 mm / 0.0049 in.	8.6 kg / 19.0 lbs
	7345	4.5 m / 14.8 ft.	0.120 mm / 0.0047 in.	± 0.150 mm / 0.0059 in.	8.9 kg / 19.6 lbs
75 series	7520	2.0 m / 6.6 ft.	0.016 mm / 0.0006 in.	± 0.023 mm / 0.0009 in.	7.7 kg / 17.0 lbs
	7525	2.5 m / 8.2 ft.	0.020 mm / 0.0008 in.	± 0.029 mm / 0.0011 in.	8.0 kg / 17.6 lbs
	7530	3.0 m / 9.8 ft.	0.030 mm / 0.0012 in.	± 0.044 mm / 0.0017 in.	8.3 kg / 18.3 lbs
	7535	3.5 m / 11.5 ft.	0.040 mm / 0.0016 in.	± 0.057 mm / 0.0022 in.	8.6 kg / 19.0 lbs
	7540	4.0 m / 13.1 ft.	0.055 mm / 0.0022 in.	± 0.069 mm / 0.0027 in.	8.9 kg / 19.6 lbs
	7545	4.5 m / 14.8 ft.	0.070 mm / 0.0028 in.	± 0.082 mm / 0.0032 in.	9.2 kg / 20.3 lbs

All specifications according to B89.4.22. Certification is also available to VDI/VDE 2617-9.

7-AXIS PROBING AND SCANNING SPECIFICATIONS

	Model[3]	Measuring range	Probing point repeatability[1]	Probing volumetric accuracy[2]	Scanning system accuracy SI[4] (with RS3)	Scanning system accuracy SE[4] (with HP-L-20.8)	Arm weights SI	Arm weights SE
73 series	7320SI/SE	2.0 m / 6.6 ft.	0.044 mm 0.0017 in.	± 0.061 mm 0.0024 in.	0.079 mm 0.0031 in.	0.075 mm 0.0030 in.	8.3 kg 18.3 lbs	7.9 kg 17.4 lbs
	7325SI/SE	2.5 m / 8.2 ft.	0.049 mm 0.0019 in.	± 0.069 mm 0.0027 in.	0.084 mm 0.0033 in.	0.080 mm 0.0031 in.	8.6 kg 19.0 lbs	8.2 kg 18.1 lbs
	7330SI/SE	3.0 m / 9.8 ft.	0.079 mm 0.0031 in.	± 0.100 mm 0.0039 in.	0.119 mm 0.0047 in.	0.113 mm 0.0044 in.	8.9 kg 19.6 lbs	8.5 kg 18.7 lbs
	7335SI/SE	3.5 m / 11.5 ft.	0.099 mm 0.0039 in.	± 0.125 mm 0.0049 in.	0.147 mm 0.0058 in.	0.140 mm 0.0055 in.	9.2 kg 20.3 lbs	8.8 kg 19.4 lbs
	7340SI/SE	4.0 m / 13.1 ft.	0.115 mm 0.0045 in.	± 0.151 mm 0.0059 in.	0.181 mm 0.0071 in.	0.172 mm 0.0068 in.	9.5 kg 20.9 lbs	9.1 kg 20.1 lbs
	7345SI/SE	4.5 m / 14.8 ft.	0.141 mm 0.0056 in.	± 0.179 mm 0.0070 in.	0.214 mm 0.0084 in.	0.203 mm 0.0080 in.	9.8 kg 21.6 lbs	9.4 kg 20.7 lbs
75 series	7520SI/SE	2.0 m / 6.6 ft.	0.023 mm 0.0009 in.	± 0.033 mm 0.0013 in.	0.058 mm 0.0023 in.	0.053 mm 0.0021 in.	8.6 kg 19.0 lbs	8.2 kg 18.1 lbs
	7525SI/SE	2.5 m / 8.2 ft.	0.027 mm 0.0011 in.	± 0.038 mm 0.0015 in.	0.063 mm 0.0025 in.	0.058 mm 0.0023 in.	8.9 kg 19.6 lbs	8.5 kg 18.7 lbs
	7530SI/SE	3.0 m / 9.8 ft.	0.042 mm 0.0017 in.	± 0.058 mm 0.0023 in.	0.083 mm 0.0033 in.	0.078 mm 0.0031 in.	9.2 kg 20.3 lbs	8.8 kg 19.4 lbs
	7535SI/SE	3.5 m / 11.5 ft.	0.055 mm 0.0022 in.	± 0.081 mm 0.0032 in.	0.101 mm 0.0040 in.	0.096 mm 0.0038 in.	9.5 kg 20.9 lbs	9.1 kg 20.1 lbs
	7540SI/SE	4.0 m / 13.1 ft.	0.067 mm 0.0026 in.	± 0.098 mm 0.0039 in.	0.119 mm 0.0047 in.	0.114 mm 0.0045 in.	9.8 kg 21.6 lbs	9.4 kg 20.7 lbs
	7545SI/SE	4.5 m / 14.8 ft.	0.084 mm 0.0033 in.	± 0.119 mm 0.0047 in.	0.138 mm 0.0054 in.	0.133 mm 0.0052 in.	10.1 kg 22.3 lbs	9.7 kg 21.4 lbs

All specifications in relation to B89.4.22.

ROMER ABSOLUTE ARM LASER SCANNERS

Scanning sensor specification		Integrated scanner RS3	External scanner HP-L-20.8
Max. point acquisition rate		460 000 Points/s	150 000 Points/s
Points per Line		4600	max. 4000
Line rate		100 Hz	max. 100 Hz
Line width range	min.	46 mm	176 mm / 104 mm / 51 mm / 40 mm / 20 mm
	mid.	65 mm	220 mm / 130 mm / 63 mm / 51 mm / 25 mm
	max.	85 mm	231 mm / 148 mm / 75 mm / 60 mm / 30 mm
Stand off (mid range)		150 mm ± 50 mm	180 mm ± 40 mm
Minimum point spacing (mid range)		0.014 mm	0.013 mm
Laser power control		Fully automatic – per line	Fully automatic – per point
Accuracy		2 sigma / 30 µm	Probing Form error 1 sigma / 9 µm
Probing Dispersion value* P[Form.Sph.D95%:Tr:ODS]		n.a.	36 µm
Weight		340 g	410 g
Controller		No	No
Laser safety		Class 2M	Class 2
Working temperature		5°C – 40°C (41°F – 104°F)	10°C – 42°C (50°F – 108°F)

*ISO10360-8:2013

[1] The **Point Repeatability Test** is the reference test to determine measurement arm repeatability with ball probe. The cone is in front of the machine. Points are measured from multiple approach directions. The average point and the deviation of each point to the average center are calculated. The result is the maximum range divided by two.

[2] The **Volumetric Accuracy Test** most accurately represents the reasonable expectations for machine performance in practical measuring applications since it involves measuring a certified length standard many times in several locations and orientations and compares the resultant measurements to the actual length. The Volumetric Length Accuracy Test is the most appropriate test for determining machine accuracy and repeatability. The result is the maximum deviation of the measuring distance less the theoretical length.

Ambient conditions

Working temperature:	0°C – 50°C (32°F – 122°F)
Storage temperature:	-30° – 70° C (-22°F – 158°F)
Relative humidity:	10% – 90% non-condensing
Operational elevation:	0 – 2000 m (0 – 6600 ft)

Marks of conformity

CE Compliance:	Yes

Power requirement

Universal worldwide voltage:	110V – 240V

[3] **SI** designates the ROMER Absolute Arm with integrated scanner, **SE** designates the ROMER Absolute Arm with external scanner.

[4] **The Scanning System Accuracy Test** most accurately represents the reasonable expectations for machine performance in practical measuring applications while using the laser scanning method. The test consists of measuring a matte grey sphere with 5 different arm articulations. In each articulation of the arm the sphere is scanned from 5 different directions such that the majority of the sphere is scanned. The result is the maximum 3D center to center distance of the 5 spheres.

All probing specifications are achieved with a ROMER Absolute Arm mounted on a ROMER base plate or magnetic base and using a 15 mm steel ball probe with a length of 50 mm under stable environmental conditions.