

Product information

High precision shaft measuring device MarShaft SCOPE 1000 plus

Product features

As a specialist in camshaft applications and more recently (optional) in straight and helical cylinder gears, Mahr now offers a completely new measuring technique with the new MarShaft SCOPE 600 plus 3D measuring station: The combination of optical and tactile sensors enables 3D functionality for the first time and thus a complete inspection of the workpiece in one setup. To this end, Mahr has enhanced its already very successful MarShaft SCOPE 750 plus measuring station. It now has a new 2D probe system, a motorized tailstock and calibration for the linear axes. The matrix camera optically measures features such as diameters, lengths, radii, form, position features, cam angles and the cam pitch in just a few seconds. The additional 2D probe records features that cannot be measured optically: concave cam profile, all standard gear parameters on cylindrical gears, axial runouts, reference elements in an axial direction, such as axial grooves. The tactile and optical system are calibrated in one coordinate system. The measuring station uses the MarWin software platform to deliver complete 3D functionality. Performance features at a glance:

- Complete measurement of camshafts, including the cam angle and all standard cam contours
- Measurement of the gears on cylindrical gears
- Measurement of contour elements
- Drive pins not used
- Direct measurement of references (e.g. 2-flat or feather key groove)
- Measurement of feather key grooves
- Measurement of blind holes
- 100% 3D function using new 2D probe
- Additional Y measurement axis
- Special calibration of linear axes (Z-X-Y)
- MarShaft Professional
- Manual control panel



Item no.: 5361522

Technical data

Positioning speed C-axis	0.2 - 60 1/min
Positioning speed X axis	0.5 - 100 mm/s
Positioning speed Z-axis	0.5 - 200 mm/s
Measured value resolution Length	0.01 - 0.0001 mm
Measured value resolution diameter	0.01 - 0.0001 mm
Table load max.	15 kg
Error limit Length	$MPE \leq (3.0 + l/125) \mu\text{m}; "l" \text{ in mm}$
Error limit diameter	$MPE \leq (1.5 + d/125) \mu\text{m}; "d" \text{ in mm}$
Angular resolution	0.01 - 0.0001 °
Reference temperature	20 °C
Workpiece length max.	600 mm
Workpiece diameter max.	120 mm
Sensors	optical-tactile
Optical system	Telecentric precision optics with a large field of view
Camera system	CMOS matrix camera
Probe system	Mahr 1320-2
Special equipment	Motorized tailstock and specially alkalized linear axes
Measuring computer	19" industrial PC (incl. Microsoft Windows 10 IoT LTSC)
Operating temperature	40 °C to 10 °C
Storage and transport temperature	50 °C to -10 °C
Sound pressure level	< 70 dB(A)
Permissible humidity	max. 90 %; non-condensing
Mains voltage	100 – 240 V
Mains frequency	50/60 Hz
Power consumption max.	1000 W
Weight basic unit	140 kg
Transportation options	suitable for air freight
Scope of delivery	Probe system 1320 (incl. probe arm 2 x 72 mm) and two 60° centering tips (2 – 44 mm)