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MP250 machine probe system

The world's first strain gauge based inspection probe for grinding machines, using Renishaw's patented RENGAGE™ technology

The Renishaw MP250 is an ultra compact touch probe for grinding machines that sets new standards for the precision measurement of 3D part geometries, whilst offering all the standard probing benefits of reduced set-up times, reduced scrap and improved process control.

The MP250 uses a hard-wired connection to the machine control via the specially designed HSI interface.

It offers a truly unrivalled combination of size, accuracy, reliability and robustness that will benefit its users.

Key benefits

High accuracy
Patented RENGAGE™ strain gauge technology with ultra-low pretravel variation provides high accuracy, even when the application requires long styli. This allows sub-micron 3D performance on a range of applications which demand high precision measurement such as contoured surfaces, for example gear teeth and cutting tools. Probe calibration times are reduced compared to standard probes.

Highly repeatable
Improved repeatability in all probing directions compared to standard probes.

Ultra compact
Measuring only Ø25 mm x 40 mm long, the MP250 is ideal for grinding machine applications with restricted space.

Robust and reliable
Renishaw's MP250 sets new standards for reliability and is designed to resist the harsh machine conditions.

The MP250 probe is sealed for use within the grinding machine's hostile environment, where it is subject to particle-laden coolant. The diaphragm material is resistant to coolants and elevated temperatures.

The MP250 offers resistance to shock and false triggering through the use of digital filtering.

Solid-state strain gauge technology reduces the effects of mechanical wear resulting in improved life time compared to traditional probes.

Innovations

The MP250 successfully combines the miniaturisation of the popular LP2 with the high accuracy RENGAGE™ technology of the MP700 and OMP400, which has been proven in thousands of machine tool applications worldwide.

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Principal application

Work piece measurement and job set-up on tool and cutter grinding machines, wire erosion machines and wheel erosion machines.

Specification - MP250 probe

Dimensions:	Length: 40.7 mm (1.60 in) Diameter: 25 mm (0.98 in) Weight: 64 g (2.26 oz)
Transmission type:	Hard wired transmission using the HSI interface
Sense directions:	Omni-directional ± X, ± Y, + Z
Uni-directional repeatability:	0.25 µm (10 µin) 2 sigma*
2D lobing in X, Y:	± 0.25 µm (10 µin)*
3D lobing in X, Y, Z:	± 1.00 µm (40 µin)*
Stylus trigger force:	
XY plane	0.08 N, 8.0 gf (0.29 ozf) typical minimum
+Z direction	2.6 N, 270 gf (9.4 ozf) typical minimum
Stylus overtravel force:**	
XY plane	0.70 N, 70 gf (2.5 ozf) typical minimum §
+ Z direction	5.0 N, 510 gf (18 ozf) typical minimum †
Stylus length:	Standard 50 mm (1.97 in) Longest 100 mm (3.94 in)
Stylus overtravel:**	
X and Y direction	± 13°
Z direction	6.5 mm (0.26 in)
Minimum trigger speed:	3 mm/min (0.12 in/min)
Mounting:	M16 thread, for LT extension bars and adaptors
Sealing:	IPX8
Storage temperature:	-10 °C to 70 °C (14 °F to 158 °F)
Operating temperature:	5 °C to 50 °C (41 °F to 122 °F)

* Performance specification is for a test velocity of 480 mm/min (18.9 in/min) with a 35 mm stylus. Test velocity does not constrain performance in application.

** The stylus trigger force is the force exerted on the component when the probe triggers. However, the maximum force applied to the component will occur after the trigger point and will be greater than the trigger force. The magnitude depends on a number of factors affecting probe overtravel including measuring speed and machine deceleration. If the forces applied to the component are critical, contact Renishaw for further information.

§ Stylus overtravel force in XY plane occurs 50 µm after the trigger point and rises by 0.12 N/mm, 12 gf/mm (11 oz/in) until the machine tool stops (in the high force direction and using a 35 mm stylus).

† Stylus overtravel force in + Z direction occurs 11 µm after the trigger point and rises by 1.2 N/mm, 120 gf/mm (110 oz/in) until the machine tool stops.

Specification – HSI interface

Principal application:	Hard-wired transmission interface, which conveys and processes signals between an inspection probe and the CNC machine control
Dimensions:	134 mm x 107.6 mm x 34.6 mm
Mounting:	DIN rail
Power supply:	12 V to 24 V d.c.
Probe compatibility:	The HSI interface is compatible with the following probes: LP2H, LP2, LP2DD, LP2LD and MP250

More information

For further details on the products mentioned in this flyer, please visit
www.renishaw.com/mtp

For worldwide contact details please visit our main website at www.renishaw.com/contact

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