

OMP400



Ultra compact high-accuracy 3D measurement touch probe for small to medium sized machining centres.

About OMP400



The OMP400 is an ultra compact probe, ideally suited to small to medium machining centres. It combines the miniaturisation of the highly successful [OMP40](#) probe with new advances in **strain gauge technology**, pioneered by Renishaw's high accuracy [MP700](#) probe.

Strain gauges attached to the structure measure the smallest of stylus motions, allowing for a very sensitive system.

The innovative RENGAGE™ technology built into the OMP400 brings unrivalled performance in terms of 3D measurement. Use OMP400 with [Renishaw OMV](#) for advanced on-machine verification when machining contoured surfaces and complex shapes.

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OMP400 features and benefits

RENGAGE™

- Patented RENGAGE™ technology brings unrivalled performance in terms of 3D measurement.
- Increased stylus lengths can be supported without a significant decrease in probe performance
- Compatible with all existing Renishaw receiver interfaces (*modulated*: [OMI-2T](#) and [OMI-2C](#); *legacy*: [OMI](#) and [OMM / MI12](#))
- The OMP400 sets new standards for reliability and, sealed to IPX8, OMP400 is designed to resist the harshest machine conditions

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OMP400 system options

OMP400 with OMI-2T	OMP400 with OMI-2	OMP400 with OMI	OMP400 with OMM / MI12
 <p>Offers twin probing option.</p>	 <p>Offers a state-of-the-art modulated optical transmission method.</p>	 <p>Ideal for factory fitment by machine tool builders.</p>	 <p>Offers installation flexibility making it ideally suited for retro-fitting in the field.</p>

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OMP400 specification

Specification	
Principal application	Small to medium machining centres and mould & die applications
Weight (without shank in g) with batteries without batteries	262 g (9.24 oz) 242 g (8.53 oz)
Sense directions	Omni-directional: $\pm X, \pm Y, +Z$
Uni-directional repeatability	0.25 μm (10 μin) 2 sigma – 50 mm stylus length* 0.35 μm (14 μin) 2 sigma – 100 mm stylus length
2D lobing in X, Y	$\pm 0.25 \mu\text{m}$ (10 μin) 2 sigma – 50 mm stylus length* $\pm 0.25 \mu\text{m}$ (10 μin) 2 sigma – 100 mm stylus length
3D Lobing in X, Y, Z	$\pm 1.00 \mu\text{m}$ (40 μin) 2 sigma – 50 mm stylus length* $\pm 1.75 \mu\text{m}$ (70 μin) 2 sigma – 100 mm stylus length
Trigger speed range	10 mm/min to 1 m/min
Stylus trigger force XY plane + Z direction	0.13 N, 13 gf (0.45 ozf) max § 4.65 N, 465 gf (16.40 ozf) max §
Stylus overtravel force XY plane +Z direction	1.8N, 180 gf (6.35 ozf) max 5.9N, 590 gf (20.81 ozf) min †
Stylus overtravel XY plane +Z direction	$\pm 11^\circ$ 6 mm (0.23 in)
Battery life - stand-by - 5% usage - continuous life	standard / low power mode One year 75 / 90 days 95 / 110 hours
Sealing	IP X8 (BS 5490, IEC 529) 1 atmosphere
Shanks	Various
Compatible interface	<i>Legacy mode:</i> OMI or OMM / MI12 <i>Modulated mode:</i> OMI-2 or OMI-2T

* Performance specification is for a test velocity of 240 mm/min (9.45 in/min) with a 50 mm carbon fibre stylus.

§ Performance specification is for a test velocity of 30 mm/min (1.18 in/min) with a 50 mm stylus.

† Stylus overtravel force in + Z direction occurs 7 to 8 μm after the trigger point and rises by 0.52 N/mm, 52 gf/mm (46.59 oz/in) until the machine tool stops.

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OMP400 software options

The following software packages can be used to program probing routines for work piece set-up and inspection on CNC machining centres

EasyProbe - entry-level package for simple work piece set-up

Inspection - basic set-up and work piece inspection cycles, with automatic update of offsets

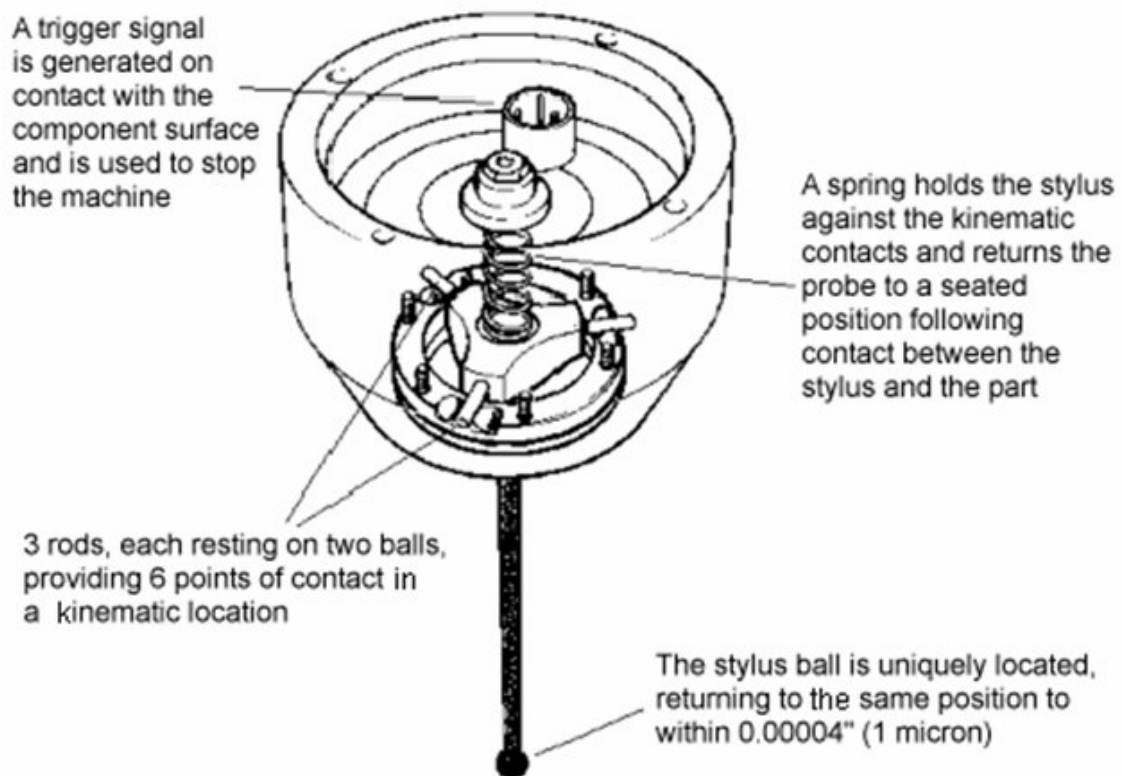
Inspection plus - an integrated suite of inspection cycles including vector measurement

Productivity+ Active Editor Pro - a PC-based software package with GUI, allowing the user to select features directly from an imported CAD model, making the generation of probing cycles even easier.

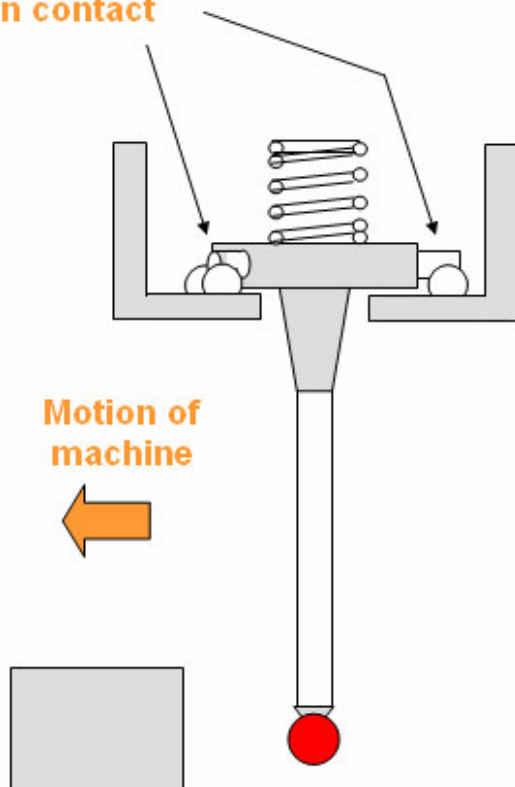
Renishaw OMV - A PC-based software package for verification of complex parts and live data capture to PC during probing for instant feedback on component quality.

Tuch-Trigger system

Kinematic resistive probe operation



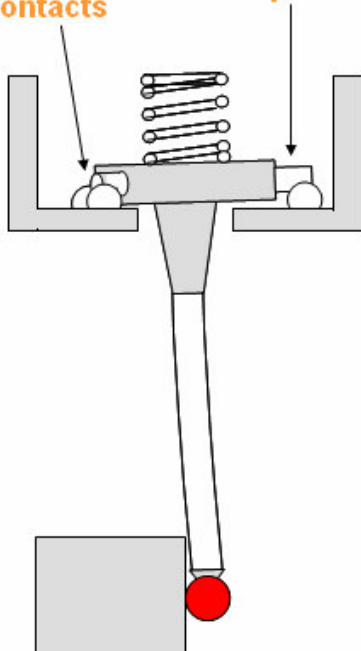
All kinematics
in contact



- probe in seated position

Pivots about
these
contacts

Contacts
separate



- probe in seated position
- stylus makes contact with component
- contact force resisted by reactive force in probe mechanism resulting in bending of the stylus
- stylus assembly pivots about kinematic contacts, resulting in one or two contacts moving apart
 - trigger generated before contacts separate