

# 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.

[Top](#)

## 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

[Top](#)

## 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>

Top

## 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 $\mu\text{m}$ (10 $\mu\text{in}$ ) 2 sigma – 50 mm stylus length* 0.35 $\mu\text{m}$ (14 $\mu\text{in}$ ) 2 sigma – 100 mm stylus length
2D lobing in X, Y	$\pm 0.25 \mu\text{m}$ (10 $\mu\text{in}$ ) 2 sigma – 50 mm stylus length* $\pm 0.25 \mu\text{m}$ (10 $\mu\text{in}$ ) 2 sigma – 100 mm stylus length
3D Lobing in X, Y, Z	$\pm 1.00 \mu\text{m}$ (40 $\mu\text{in}$ ) 2 sigma – 50 mm stylus length* $\pm 1.75 \mu\text{m}$ (70 $\mu\text{in}$ ) 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	Legacy mode: OMI or OMM / MI12 Modulated mode: 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  $\mu\text{m}$  after the trigger point and rises by 0.52 N/mm, 52 gf/mm (46.59 oz/in) until the machine tool stops.

[Top](#)

## 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

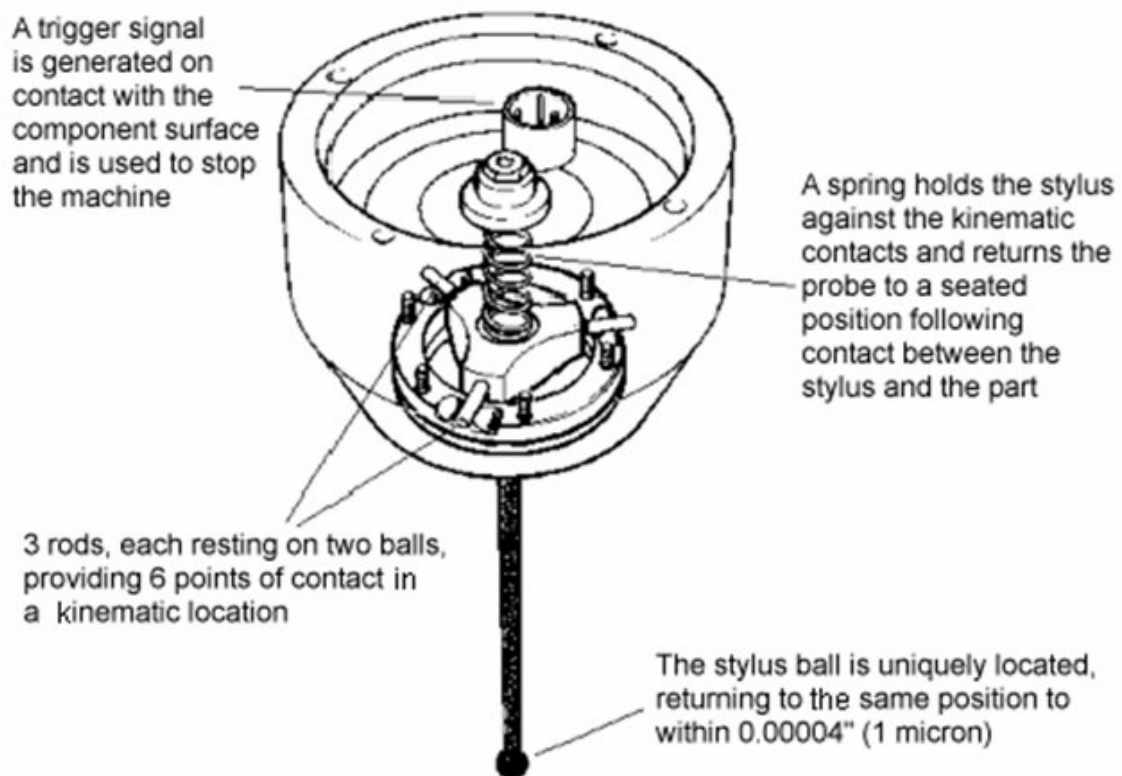
**Inspection plus** - an integrated suite of inspection cycles including vector measurement

**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.

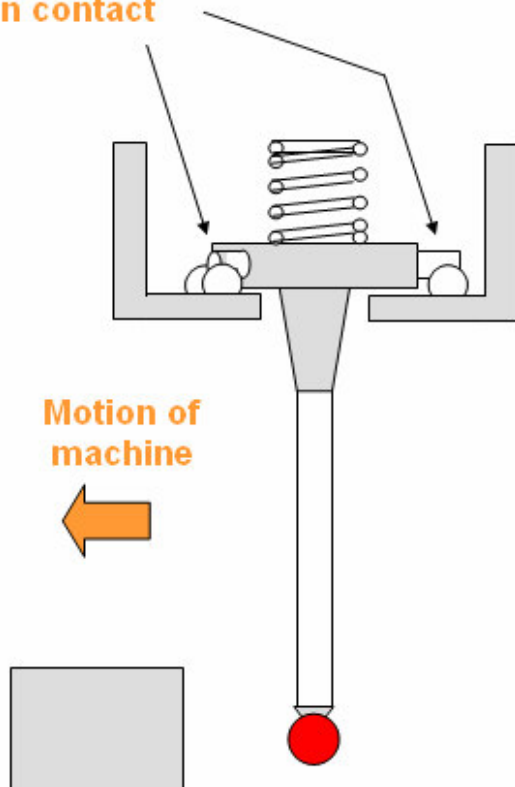
**Renishaw OMV** - A PC-based software package for verification of complex parts and live data capture to PC during probing for instant feedback on component quality.

Tuch-Trigger system

## Kinematic resistive probe operation



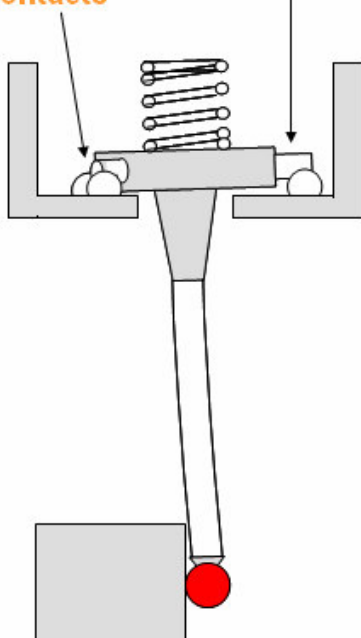
All kinematics  
in contact



- 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