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OMP400 high accuracy machine probe

Unrivalled
3D accuracy and repeatability

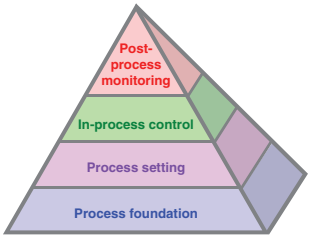
Reliable
modulated optical transmission

Outstanding
performance for less scrap and higher profits

OMP400 – innovative process control

Tackle process variation at source, and reap the rewards

The higher the degree of human involvement in the manufacturing process, the higher the risk for error. Automated in-process measurement using Renishaw probes can help ***eliminate the risk.*** The Renishaw OMP400 optical probe system can facilitate the following measures for enhanced management of your production leading to an ***increase in your profits.***

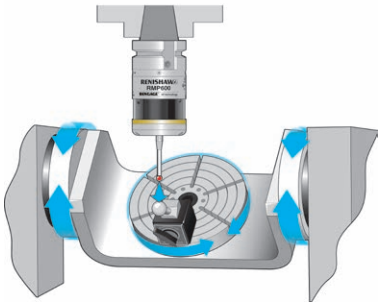


Process foundation

Optimisation and monitoring of machine tool performance.

OMP400 used in conjunction with Renishaw's machine specific software, **AxiSet™** Check-Up, provides fast, accurate and reliable performance data with powerful yet simple reporting.

- Eliminate machine errors
- Reduce unplanned stoppages
- Produce consistently good parts

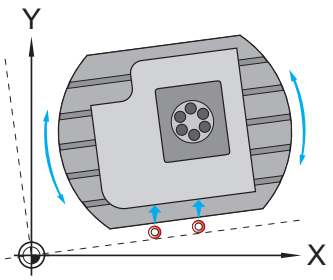


Process setting

Automated measurement of component position and alignment.

OMP400 is the most flexible, high precision machine tool optical probe in the world. Unlike conventional probes from other brands, increased stylus lengths can be supported with no significant decrease in probe performance, which means previously difficult job set-ups are more easily accommodated.

- Eliminate costly fixtures and manual setting errors
- Introduce new processes quickly and respond to new customer needs
- Set up faster, improve quality and reduce scrap

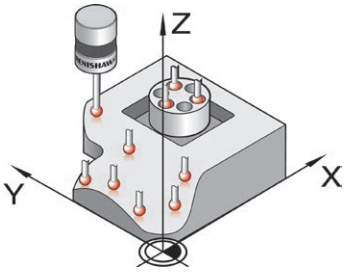


In-process control

Automated measurement of roughed and finished multi-axis features.

OMP400 submicron 3D performance enables probing of complex geometry not possible with conventional probes from other brands. Adaptive machining can be seamlessly integrated when used in conjunction with Renishaw's Productivity+™.

- Improve process capability and traceability
- Compensate for environmental and machine conditions
- Reduce non-productive time and scrap, increase productivity and profits

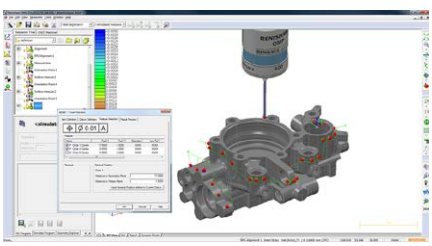


Post-process monitoring

Verification of component conformance prior to removal from machine.

OMP400 used in conjunction with Renishaw's on-machine verification software, OMV, enables reliable verification against a CAD model, which means less inspection off-machine and therefore less set-up and rework.

- Reduce off-machine inspection time and costs
- Rapid, traceable reporting of part conformance to specification
- Increase confidence in manufacturing process



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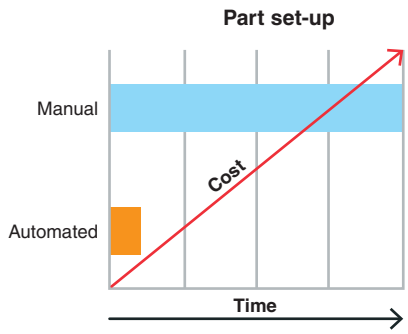
Probing pays...

Machine tools that are optimised to cut more metal, more reliably and more accurately will quickly ***maximise productivity, profits and your competitive edge.***

Automated part setting with the Renishaw OMP400 probe is up to 10 times faster than manual methods, which means immediate and ***significant cost savings.***



Scrap and rework reduce productivity and profits. The Renishaw OMP400 probe helps guarantee "right first time" parts which means ***reduced waste and increased profits.***

... the Renishaw way

Renishaw, an established world leader in metrology solutions invented the touch-trigger probe in the 1970s.

Decades of customer focus and investment in development, coupled with our own manufacturing experience enables us to provide ***innovative*** and ***exceptional products*** that are unmatched for technical excellence and performance.

OMP400 key features

- Ultra compact design with optical transmission for compact to small machining centres and mill-turn centres
- **RENGAGE™** technology — proven and patented
- Trigger Logic™ for quick and easy set-up
- Secure modulated optical transmission offers increased resistance to light interference
- Unrivalled combination of size, accuracy, repeatability and robustness

Customer comment

"Meeting current and future performance requirements for our products demands manufacture of ever smaller and more intricate parts that are consistently accurate to within 1 µm. Reliable set-up and measurements are therefore critical to this process and form the basis of our decision to use Rengage technology. The Renishaw OMP400 is the only product capable of reliably meeting our needs."

Ian Crane, Flann Microwave

OMP400 – an unrivalled combination of flexibility and accuracy

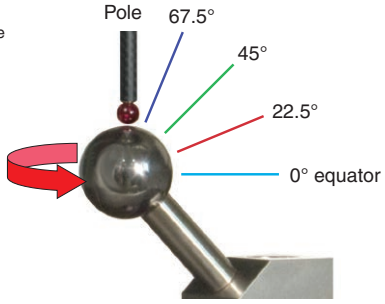
RENGAGE™ superior 3D performance

Lobing, a characteristic of all probes, is caused by bending of the stylus and movement of the probe mechanism before the probe registers contact with a surface. It is therefore dependent upon:

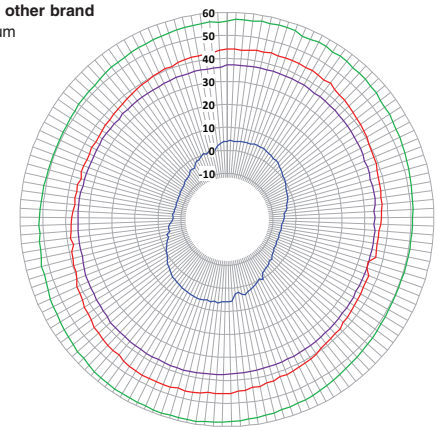
- Length and stiffness of the stylus
- Force required to trigger the probe
- Direction of contact with the surface
- Design of the probe mechanism

Rengage technology as featured in OMP400 was tested for 3D accuracy against products from other brands. The results as illustrated in the error plots below are compelling.

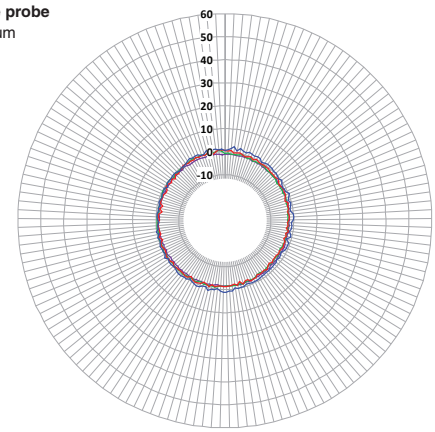
Test method
25 mm calibration sphere probed at 5° increments around X Y planes at four different latitudes.



A typical other brand
Scale in µm

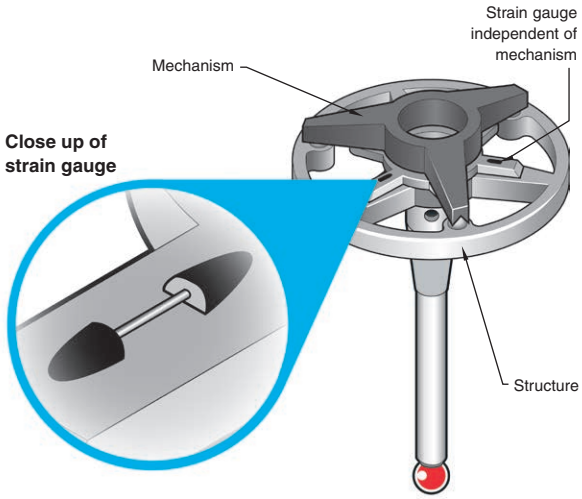


Rengage probe
Scale in µm



RENGAGE™ technology

Rengage combines proven silicon strain gauge technology and ultra compact electronics to achieve unparalleled performance and capabilities. Suitable for a wide range of machine tool applications and able to address the 3D performance limitations of many alternative probe designs, only Renishaw's MP250, OMP400 and RMP600 probes feature this technology.



Sensing is independent of the probe mechanism which means that probes with Rengage technology provide capabilities not associated with conventional design.

Advantages

- Unbeatable 3D accuracy and repeatability enables reliable on-machine gauging/measurement
- Improved accuracy with long styli means dificult parts can be probed more easily
- Ultra low trigger force for delicate work helps eliminate surface and form damage
- Ultra compact design enables better access in restricted spaces and small machines
- Robust, even in the harshest environment, means reliable measurement and long service life

Key benefits

- Reduced set-up and calibration time
- Improved control processes and quality set-up
- Reduced costs, increased profits

For further details regarding lobing and superior 3D performance please refer to:
www.renishaw.com/rengage

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OMP400 and modulated transmission optimised for safe, reliable and efficient performance

The benefits of modulated transmission

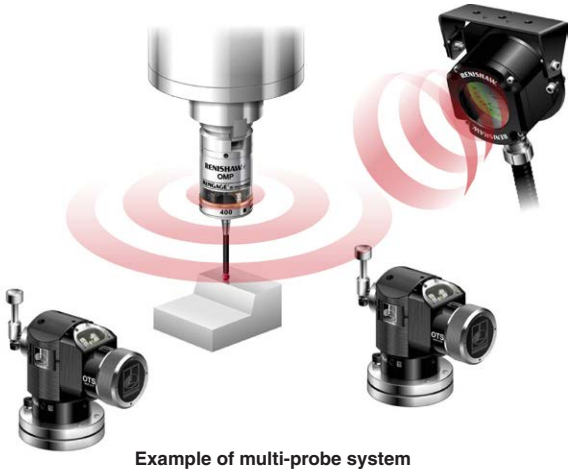
Renishaw's modulated optical technology uses coded signals and is optimised to work within areas having other light sources.

In addition to providing secure optical transmission, the technology is integrated into the OMM-2 and OSI multi-probe interface allowing an OMP400 to be used in conjunction with up to two Renishaw optical tool setters (OTS) providing even greater flexibility and performance benefits.

Other system configurations are available.

The advantages are clear to see

- Resistant to interference from other light sources
- Robust and proven transmission method
- Single interface supports multiple probes
- Can be used with automatic tool changers
- Suitable for retrofit installation



Example of multi-probe system

Ease of use and reliability

Unique to Renishaw, Trigger Logic™ is a simple method enabling the user to quickly adjust probe mode settings for specific applications.

Constructed from the highest grade materials, Renishaw probes are robust and reliable in the harshest environments including shock, vibration, temperature extremes and even continual liquid immersion.

For further details, please refer to the *OMP400 data sheet H-5069-8200.*

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About Renishaw

Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Products include:

- Additive manufacturing, vacuum casting, and injection moulding technologies for design, prototyping, and production applications
- Advanced material technologies with a variety of applications in multiple fields
- Dental CAD/CAM scanning and milling systems and supply of dental structures
- Encoder systems for high accuracy linear, angle and rotary position feedback
- Fixturing for CMMs (co-ordinate measuring machines) and gauging systems
- Gauging systems for comparative measurement of machined parts
- High speed laser measurement and surveying systems for use in extreme environments
- Laser and ballbar systems for performance measurement and calibration of machines
- Medical devices for neurosurgical applications
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools
- Raman spectroscopy systems for non-destructive material analysis
- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

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

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