

Increase the functionality of your CMM
with the SP80 scanning probe

RENISHAW 
apply innovation

SP80 – ultra-high accuracy scanning probe



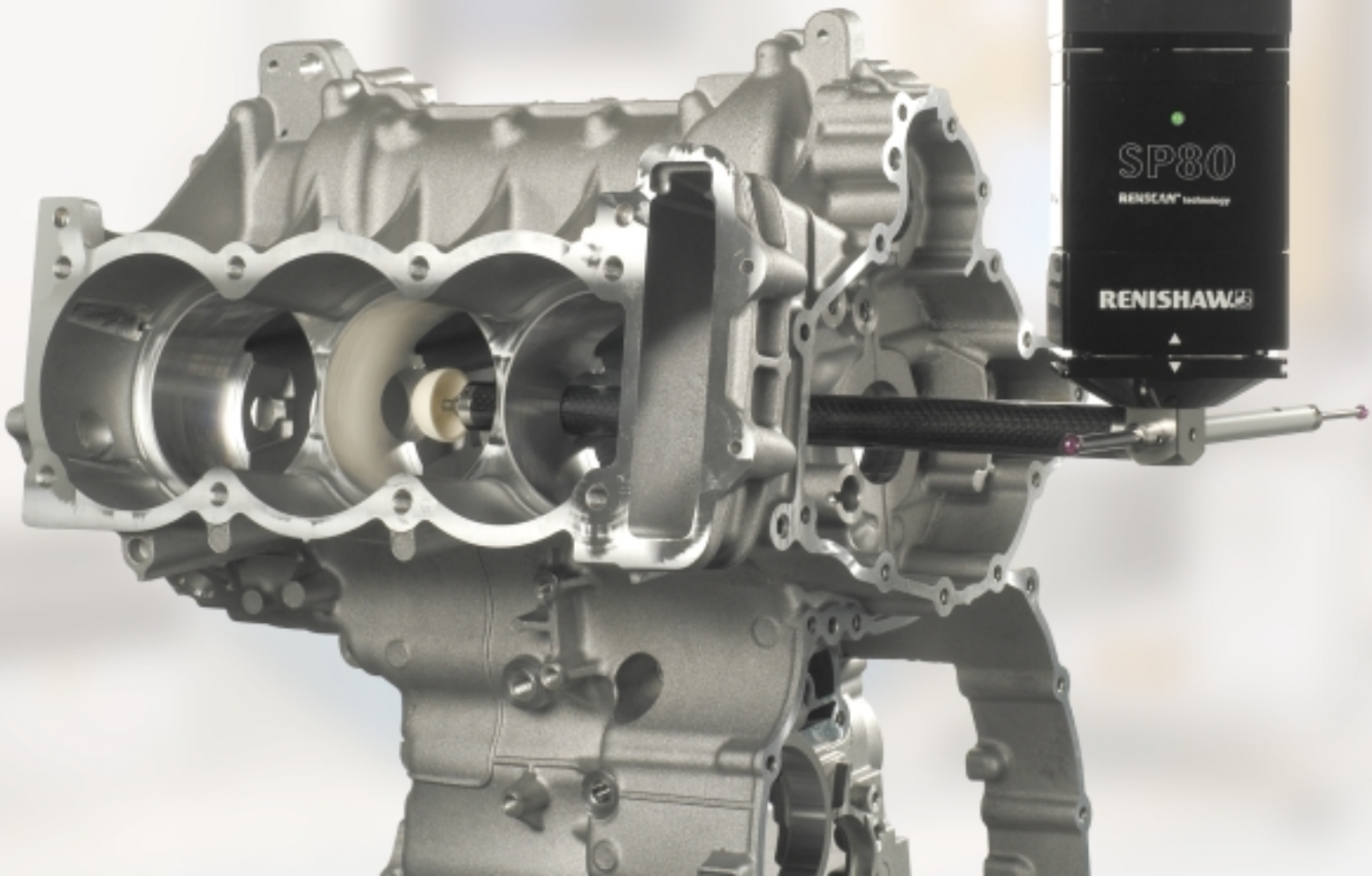
RENSCAN™ technology
Ultra high accuracy scanning solution
with styli up to 800 mm



High-performance design for reliability
and low cost of ownership



Modular rack system enables fast
probe and stylus changing for
maximum productivity



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Ultra-high accuracy scanning probe

Innovative scanning technology from Renishaw brings you a new ultra-high accuracy scanning solution.

The new SP80 scanning probe applies isolated optical metrology and digital readheads to provide outstanding scanning performance even with long styli. Able to carry up to 800 mm long extension bars or styli, the SP80 can reach deep into large parts and offers a highly flexible use of styli for maximum productivity.

Key system benefits

- **Ultra-high accuracy scanning by using digital readheads providing 0.02 μm resolution**
- **Large stylus arrangement capability, up to 800 mm length and 500 g mass, unbalanced**
- **Rapid dynamic response as a result of the low suspended mass within the probe**
- **Repeatable stylus changing for fast, flexible part inspection**
- **Simple and robust design with no internal motors to generate heat or develop reliability issues**
- **An LED on the front face provides a visual signal of the probe's status**

Optimised design for exceptional performance

The SP80 has no internal motors to avoid unnecessary system complexity and heat generation, and offers accurate position sensing through the use of patented Renscan™ technology.

The SP80 probe head mounts directly to the quill of the CMM. A quill adaptor plate with a kinematic location mechanism for the probe prepares the CMM quill to accept the SP80, so that it can be removed and replaced easily, and repeatedly. The stylus holder, SH80, is also magnetically attached to the probe body using kinematics to enable repeatable interchange between stylus configurations.

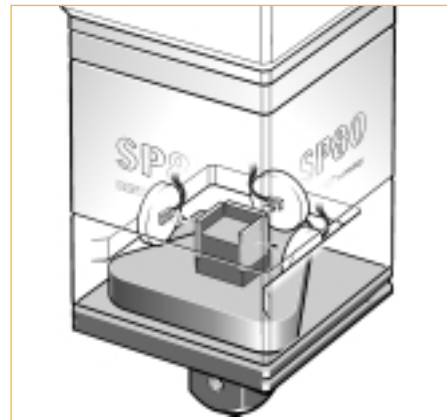
Renishaw has developed a range of M5 extensions and styli, in a variety of lengths, stem and ball materials, specifically for the SP80.

Isolated optical metrology

Using an isolated optical metrology system, SP80 directly measures the deflection of the whole mechanism, thus providing outstandingly accurate position sensing.

The isolated optical metrology system can detect sources of variable error such as thermal and dynamic effects. By contrast, probes with displacement sensors mounted to stacked axes suffer from latency under changing inertial loads, and cannot detect thermal growth in their mechanisms.

Isolated optical metrology can be explained as a feature of the transduction system. The readheads for each axis are fixed to the body of the probe, and measure the deflection in each direction. Any inter-axis errors caused by the arc motion of each pair of parallel-acting springs are directly measured by the sensor system. Isolated optical metrology systems have no moving wire connections (movement is detected by optical methods) and can detect sources of variable error such as thermal and dynamic effects.



Robust and reliable design

Like all Renishaw scanning probes, the SP80 features kinematic couplings for rapid and repeatable exchange between elements. The kinematic couplings provide crash protection in XY axes, whilst a patented 'bump stop' protection prevents damage in Z crashes.

Fast stylus changing for maximum productivity

The flexibility of stylus changing is a key part of Renishaw's probe design. The SP80 utilises the modular rack system (MRS) which is compatible with other scanning probe systems (SP600 and SP25), as well as the ACR3 autochange rack. Multiple stylus changing ports for the SP80 (SCP80) can be attached to the MRS rail at any chosen location, depending on the space requirements for the stylus arrangements needed for your application. The MRS rail can be mounted at varying heights to vertically accommodate 800 mm stylus length using additional legs with a larger diameter for enhanced rigidity.

Renishaw's scanning technology

Sir David McMurtry, Renishaw's chairman and CE invented the world's first touch trigger probe in 1972 to solve a specific inspection requirement, and went on to revolutionise the use of CMMs. Since then, the company has relentlessly developed innovative products to fulfil the increasing demands placed on quality inspection. This concept is the focal point of the Renishaw's integrated scanning philosophy.

Renishaw's scanning technology provides class-leading scanning performance, with a modular approach to design, which allows greater flexibility and lower lifetime costs than conventional fixed scanning systems.

Renishaw's scanning technology is based on the following principles:

- **compact, light and robust scanning sensors** which support high speed, high accuracy measurement
- improved accuracy, accessibility and flexibility obtained from **probe and stylus changing**
- maximum inspection system performance due to high integration of sensor and **machine control**, with sophisticated **dynamics compensation**
- **isolated optical metrology** that independently measures probe deflections



About Renishaw

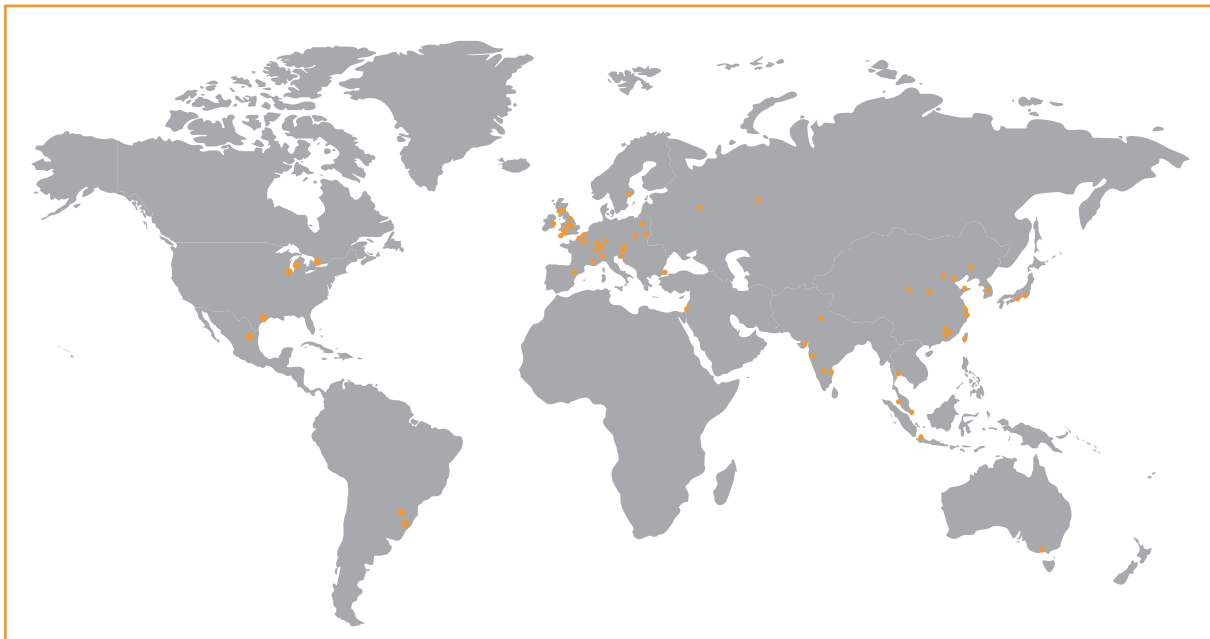
Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective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

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

Products include:

- Additive manufacturing technologies encompassing laser melting, vacuum casting and injection moulding techniques
- Advanced material technologies with a variety of applications in multiple fields
- Dental CAD/CAM scanning and milling systems
- Encoder systems for high accuracy linear, angle and rotary position feedback
- Gauging systems for comparative measurement of machined parts
- 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 (co-ordinate measuring machines)
- 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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