

Fully automated surface finish measurement on your CMM

Surface finish measurement has traditionally involved the use of hand-held sensors or has required the part to be moved onto a costly dedicated measuring machine. The REVO® SFP1 probe changes all this, making surface finish inspection an integral part of your CMM measurement, enabling you to automatically switch between scanning and surface finish measurement as with other probe types. This unique capability allows the surface finish analysis to be fully integrated into a single measurement report.

REVO® surface finish probe system benefits

The SFP1 surface finish probe, part of the REVO 5-axis measurement system, offers numerous benefits;

- The SFP1 probe takes advantage of the infinite positioning capability of the REVO head.



The C axis enables the probe tip to be orientated to any angle to suit the part.

- The SFP1 introduces a C axis that enables surface finish measurements to be made at all required orientations around a part. The process of changing the C axis angle is fully automatic, utilising the B axis positioning of the REVO head and the SFCP to rotate the SFP1.
- The surface finish calibration artefact (SFA) is mounted on the MRS rack.



- Sensor calibration involves measuring the surface finish of the SFA. The calibration software then adjusts parameters within the probe in accordance with the calibrated value for the artefact.
- Automatic changing of the SFP1 probe and stylus holders is possible using the standard MRS rack and RCPTC and RCP ports. This enables surface finish measurement to be fully integrated with the standard CMM inspection program.

Probe characteristics:

- SFP1 has been classified as a Class 3R laser product according to EN60825 - 1:12007.
- SFP1 is a skidded probe type with a 2µm tip radius diamond stylus. The skid is held against the surface with a controlled force of approximately 0.2 N, whilst the stylus tip force is approximately 0.005 N.
- The SFS-1 straight and SFS-2 cranked stylus holders have been designed to facilitate access to a wide range of features.
- The probe size with a straight stylus holder allows measurement within a 10 mm diameter bore to a depth of 100 mm.
- Surface measurement capability: 6.3 to 0.05µm Ra (accuracy ±10%).
- Output: Ra, RMS and raw data are returned from UCCServer to the metrology application client software using the I++ DME protocol. The raw data can subsequently be presented to specialist surface analysis software packages for further detailed reporting.



Conclusion

The SFP1 further extends the multi sensor capabilities of the REVO system and provides a cost-effective and repeatable solution to what is currently a labour intensive and time consuming task.

Please contact your local Renishaw office for further details.



Straight stylus with the tip close-up



Cranked stylus with the tip close-up