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RUP1 ultrasonic probe



The RUP1 ultrasonic probe increases the multi-sensor capability of the REVO® 5-axis measurement system for CMMs, offering ultrasonic thickness inspection.

Unlike many other ultrasonic systems, RUP1 probe does not require the use of water tanks or coupling gel to enable a good transmission of the signal. Instead, it uses an innovative elastomer tip ball to provide excellent coupling between the probe and the material. As a result, the RUP1 probe eliminates the need for skilled operators to interpret oscilloscope screens and releases shop floor space occupied by the dedicated immersion tanks.

The use of ultrasonics for single-sided measurement of part thickness also delivers clear advantages over traditional tactile probing techniques for parts where access to internal features is challenging.

The RUP1 probe uses a 20 MHz transducer and provides a thickness measurement range of 1 mm to 20 mm with an accuracy of better than 10 microns using touch points.

The RUP1 probe is fully integrated into Renishaw's MODUS™ metrology software (version 1.12) and UCCsuite software (version 5.8). It includes features such as geometry and material calibration, tip ball size monitoring and compensation, automatic calculation of REVO head positions based on the back-wall angle for non-parallel surfaces, and tip life monitoring.

Aircraft landing gear parts, power generation drive shafts, and hollow aerospace blades are just a few parts that will significantly benefit from using the RUP1.

Key benefits

Thickness measurement accuracy

The RUP1 probe uses a 20 MHz transducer and provides a thickness measurement range of 1 mm to 20 mm with an accuracy of better than 10 microns using touch points.

Maximising tip ball life

The tip ball is user-replaceable and is preserved by a protective cap that can be automatically removed and replaced to maximise tip life.

Compatibility with the REVO system

The RUP1 probe is fully compatible with the MRS2 change rack using the RCP TC-3 rack change port and is interchangeable with all other probe options available for the REVO system.

Multi-sensor integration

RUP1 is fully integrated into MODUS metrology software and UCCsuite software enabling its use as part of a multi-sensor system.

Reduced costs

The RUP1 probe removes the need for skilled operators to interpret oscilloscope screens, and releases shop floor space as immersion tanks and deep bore CMMs are not required.



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Technical specifications

Material thickness range	1 mm to 20 mm on typical metal parts (aluminium, steels and titanium). Parts made from cast iron, CF, GF, glass and additive materials, and those with coatings are not supported
Thickness measurement accuracy	• Better than 0.025 mm on parallel surfaces • Better than 0.100 mm on wedge angles of up to 10°
Tip composition	Elastomer bead swollen with an ethylene glycol and distilled water solution
Tip life	In use; 1-5 shifts – dependent on environment
	Ready to use; 7 days when stored in a rack with protective cap
	Shelf life; 12 months minimum
Measurement method	Point measurement of near parallel surfaces and wedges up to 10°
Probe changing	Fully automated to operate as part of a multi-sensor measurement system



RUP1 probe and all other REVO system probes can be changed automatically to provide:

- Tactile scanning
- Touch-trigger
- Surface finish
- Ultrasonic
- Non-contact structured light
- and vision measurement

They are all used within a common co-ordinate reference frame, providing the choice of an optimum tool to measure features.

www.renishaw.com/rup

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+44 (0) 1453 524524 **uk@renishaw.com**

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