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RVP vision probe for REVO-2

The REVO vision probe (RVP) provides non-contact vision measurement on an infinitely positioning, 5-axis platform.

Now, tactile scanning measurement, surface finish analysis and non-contact inspection can all be performed on one CMM.

The RVP system is a breakthrough in technology in the world of non-contact CMM inspection. The combination of non-contact vision measurement and a 5-axis, infinitely positioning platform makes the RVP system truly unique.

RVP further expands the range of applications for the REVO-2 system with a non-contact edge detecting sensor automatically interchangeable with all other REVO probe options. As a result, the system provides the optimum tool to measure multiple features, and a wider variety of parts can be inspected.



System components

The RVP system comprises a vision probe body, a number of vision modules, an angle change mirror, rack ports and a calibration artefact. The image capture and processing components of the system are held inside the vision probe body and include an industry standard, robust, CMOS sensor for reliable image capture.

The vision modules allow a range of features with different sizes and shapes to be inspected. The ACM accessory provides enhanced access allowing vision inspection of bore surfaces and other features previously inaccessible to RVP. All vision modules contain integral LED lighting to achieve a sharp contrast between holes and part material. Background feature enhancement is also available using backlighting combined with bespoke part fixturing.

Benefits

Added part inspection capability

Small features and delicate or flexible parts that cannot be measured using tactile probes can now be inspected on a 5-axis non-contact measurement platform.

Added value multi-sensor system

A machine equipped with REVO-2 can be used for a large range of inspection applications including scanning measurement, surface finish analysis and now, non-contact inspection.

High speed data collection

5-axis motion between part features and real time image processing dramatically increase data collection rates.

Innovations

5-axis movement, infinite positioning

RVP benefits from REVO's infinite positioning and 5-axis movement, which ensure accurate and unrestricted placement in front of features at any angle.

Automatically interchangeable sensors

The RVP non-contact probe is automatically interchangeable with all other probe options available for REVO-2, and data from multiple sensors is automatically referenced to a common datum.

3D feature reconstruction

5-axis motion and infinite positioning provide access to the data required for 3D feature reconstruction.

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System specification

Probe specification	RVP
Weight	551g
Dimensions	158 mm x 131 mm x 134 mm
Rack port compatibility	VPCP (heated)
Sensor type	1/1.8” CMOS sensor
Head compatibility	REVO-2
Operating temperature	+10 °C to +40 °C
Software compatibility	UCCsuite 5.0 onwards MODUS 1.7 onwards
Integration	I++ DME protocol



Module type	Feature size error (circle diameter)[1]		
	Ø25 mm	Ø10 mm	Ø2 mm
VM10	3 µm	2 µm	2 µm
VM11-2	n/a[2]	1 µm	1 µm
VM12	n/a[2]	n/a[2]	TBC

[1] Feature size diameter error measured using calibrated glass artefact (uncertainty ±0.5 µm) with backlighting.

[2] Circle diameter not applicable to lens specification.

Tests completed using REVO-2 with RVP and VM10 and VM11-2 modules.

Test machine specification: MPE(E150) 3 µm + L / 333 mm MPE(PFTU) 1.6 µm

Module specification	VM10	VM11-2	VM12
Weight	153 g	134 g	138 g
Dimensions	86 mm × 39 mm	74 mm × 67 mm	144 mm × 67 mm
Rack port compatibility	VMCP (heated)	VMCP (heated)	VMCP (heated)
Measurement range	1 mm diameter or greater	0.4 mm diameter or greater	0.05 mm diameter or greater
Field of view	50 mm × 40 mm	12.5 mm × 10 mm	3.1 mm × 2.5 mm
Stand-off	80 mm	120 mm	50 mm
Depth of field	5 mm	5 mm	0.2 mm
Resolution	40 µm	20 µm	2.5 µm
LED illumination	24 LEDs	10 LEDs	10 LEDs
Backlight compatibility	Yes	Yes	Yes
ACM compatible	No	Yes	No

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