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RSP3-6 extended reach probe

Enhanced access and inspection capability with RSP3-6

The RSP3-6 provides enhanced capability for accessing deep bores and inspecting features within large parts. It is available with a range of stylus holders for applications requiring straight and cranked extensions and can be used for both touch-trigger and 2D scanning applications.

The other RSP3 probes within the range (RSP3-1, -2, -3, -4) can be used for 3-axis scanning with fixed REVO head angles during measurement, providing the REVO system with 3D-scanning (X, Y, Z) with crank stylus capabilities. It also allows different lengths of styli to be used whilst maintaining optimum metrology performance.



Key benefits

Reach

Available with straight extensions up to 800 mm from REVO's A-axis centre of rotation, and cranked extensions up to 600 mm from REVO's A-axis centre of rotation.

Accuracy

Scanning accuracy: Typically better than 10 µm form error (filtered) and 5 µm diameter error.

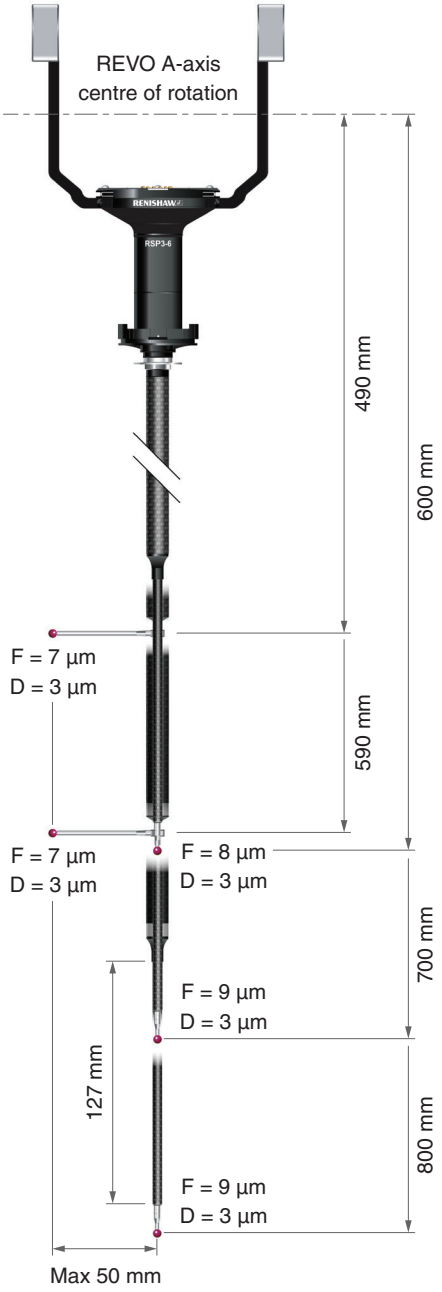
Touch-trigger accuracy: Typically better than 3 µm form and diameter error.

Part of the REVO 5-axis multi-sensor system

Long extensions combined with 5-axis movements for better part access, and multi-sensor changing for increased flexibility.

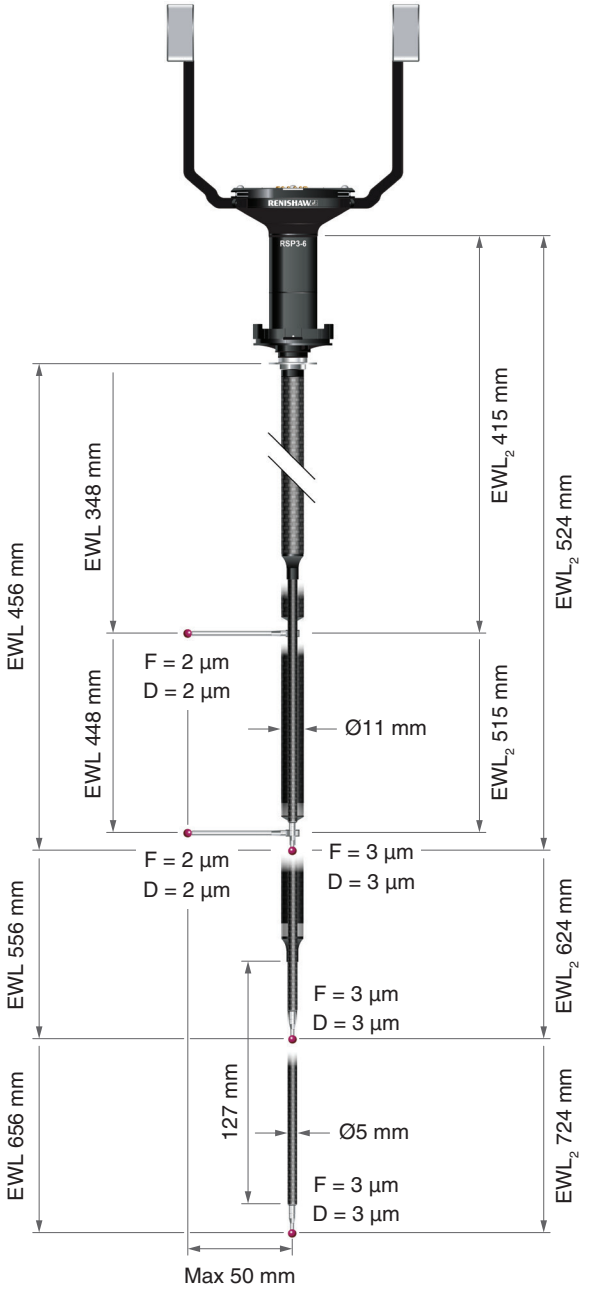
Scanning of a ring gauge

Form error (F) and diameter error (D)

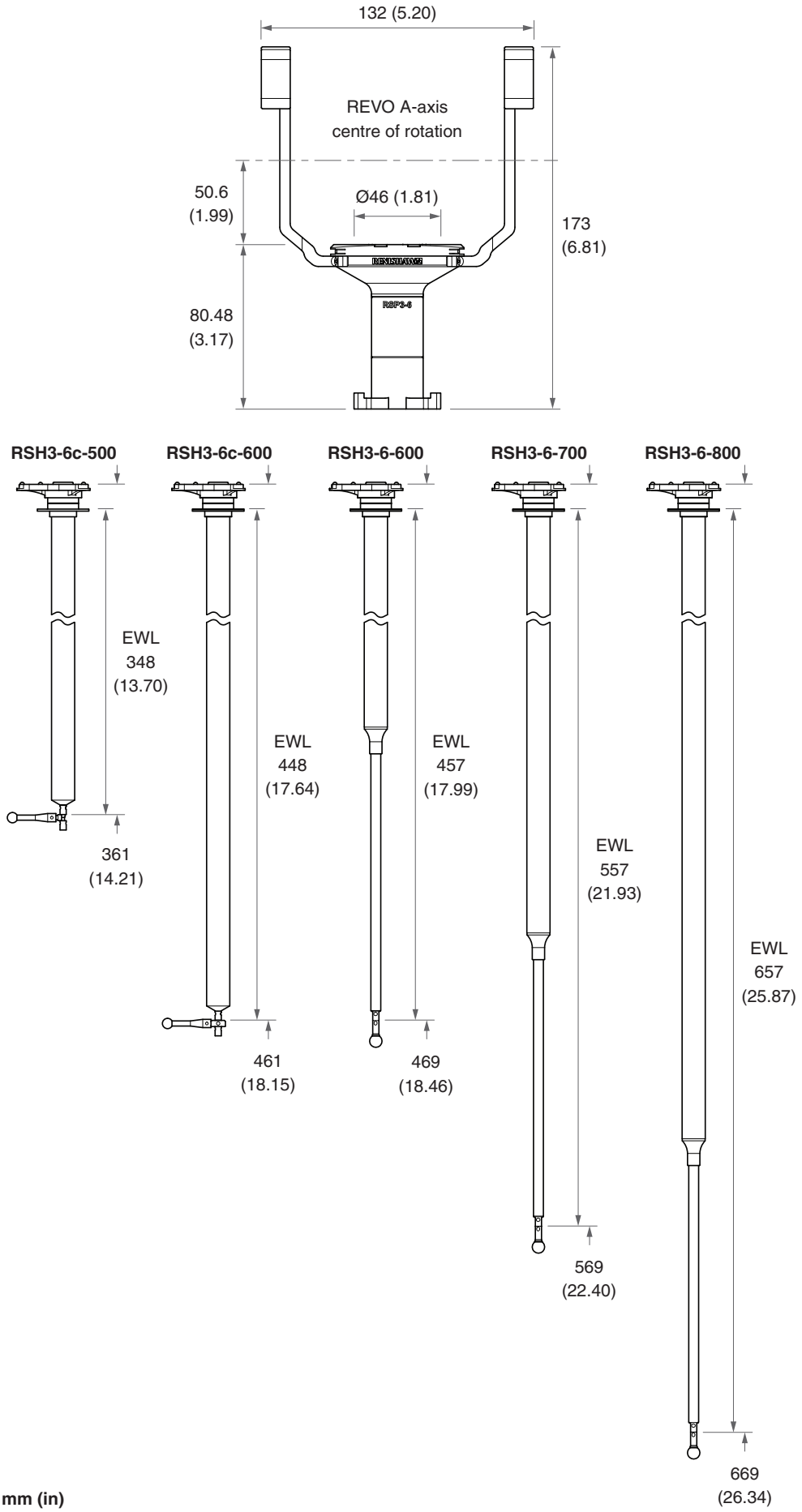


Touch-trigger probing of a ring gauge

Form error (F) and diameter error (D)
EWL = effective working length



Test setup criteria	
Stylus used	Renishaw's M2 stylus range
CMM specification	U3 = 3.1 µm + L / 250
CMM controller	UCC S5
Data filter used	Harmonic simple cut off order = 60 UPR (undulation values)
Artefacts used	Ø45 mm (nom) calibration sphere (for the calibration) Ø50 mm (nom) ring gauge (for the ring gauge tests)
Scanning speed	5 mm/s (for the ring gauge scan tests)
Touch speed	2 mm/s (for the ring gauge touch tests)
Back off speed	2 mm/s
Bi-directional scans	Bi-directional scan data is quoted to demonstrate the performance of the Renishaw probe calibration method



Dimension in mm (in)

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Specification

Probe attributes	2-axis scanning (X,Y) and 3-axis touch-trigger (X,Y,Z)	
Measurement range	±0.5 mm deflection in all directions in all orientations	
Overtravel range	X, Y:	±2 mm
	+Z:	1.7 mm
	-Z:	1.2 mm
Resolution	Capable of <0.1 µm	
Weight	300 g (10.58 oz) (excluding stylus holder and stylus)	
Mounting	Magnetised kinematic coupling	
Crash protection	±X, ±Y, -Z	Via break out of probe or stylus holder
	+Z	Via integral bump-stop design
Change rack options	RCP TC-3	For probe changing only This single port unit mounts to the MRS or MRS2
	RCP2	For stylus holder changing only This single port unit mounts to the MRS or MRS2
Interface options	UCC S5	

Effective stylus length range			
RSP3-6 + RSH3-6c-500	EWL 348 mm (13.70 in)	EWL_2 415 mm (16.34 in)	Using M2 star centre
RSP3-6 + RSH3-6c-600	EWL 448 mm (17.64 in)	EWL_2 515 mm (20.28 in)	
RSP3-6 + RSH3-6-600	EWL 456 mm (17.95 in)	EWL_2 524 mm (20.63 in)	Using 10 mm stylus
RSP3-6 + RSH3-6-700	EWL 556 mm (21.89 in)	EWL_2 624 mm (24.57 in)	
RSP3-6 + RSH3-6-800	EWL 656 mm (25.83 in)	EWL_2 724 mm (28.50 in)	

Maximum permissible stylus length vs mass	
RSP3-6 + RSH3-6c-500	50 mm (8 g)*
RSP3-6 + RSH3-6c-600	50 mm (4.6 g)*
RSP3-6 + RSH3-6-600	10 mm (3.42 g)
RSP3-6 + RSH3-6-700	10 mm (3.42 g)
RSP3-6 + RSH3-6-800	10 mm (3.42 g)

* Includes weight of stylus centre

www.renishaw.com/RSP3-6

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Part no.: H-1000-2122-04-B
Issued: 11.2023