

# 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.

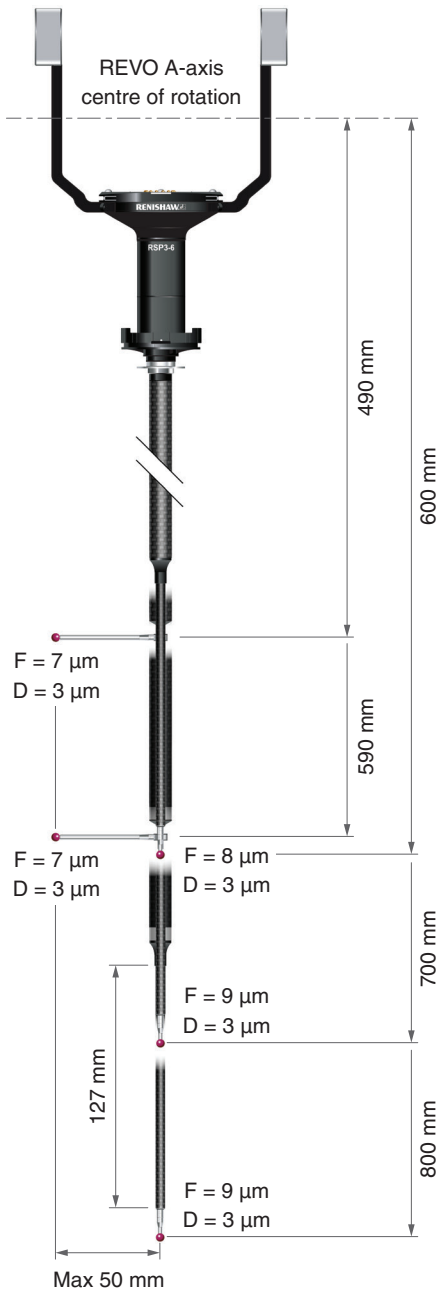
**Touch-trigger accuracy:** Typically better than 3 µm form and diameter error.

## 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.

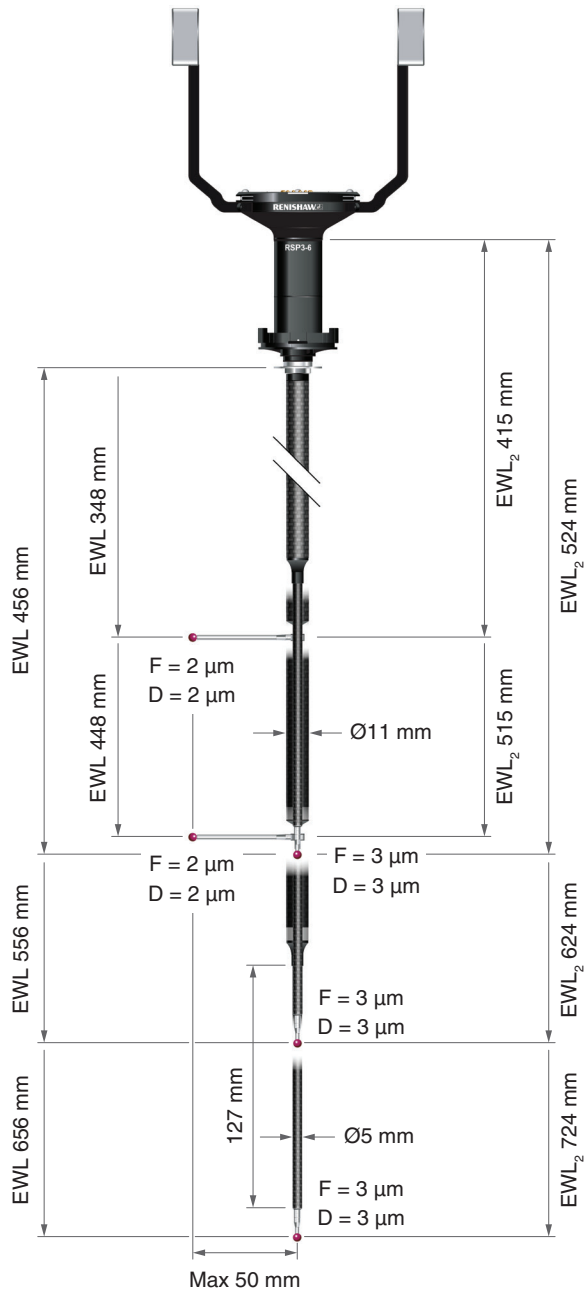
## Scanning of a ring gauge

Form error (F) and diameter error (D)



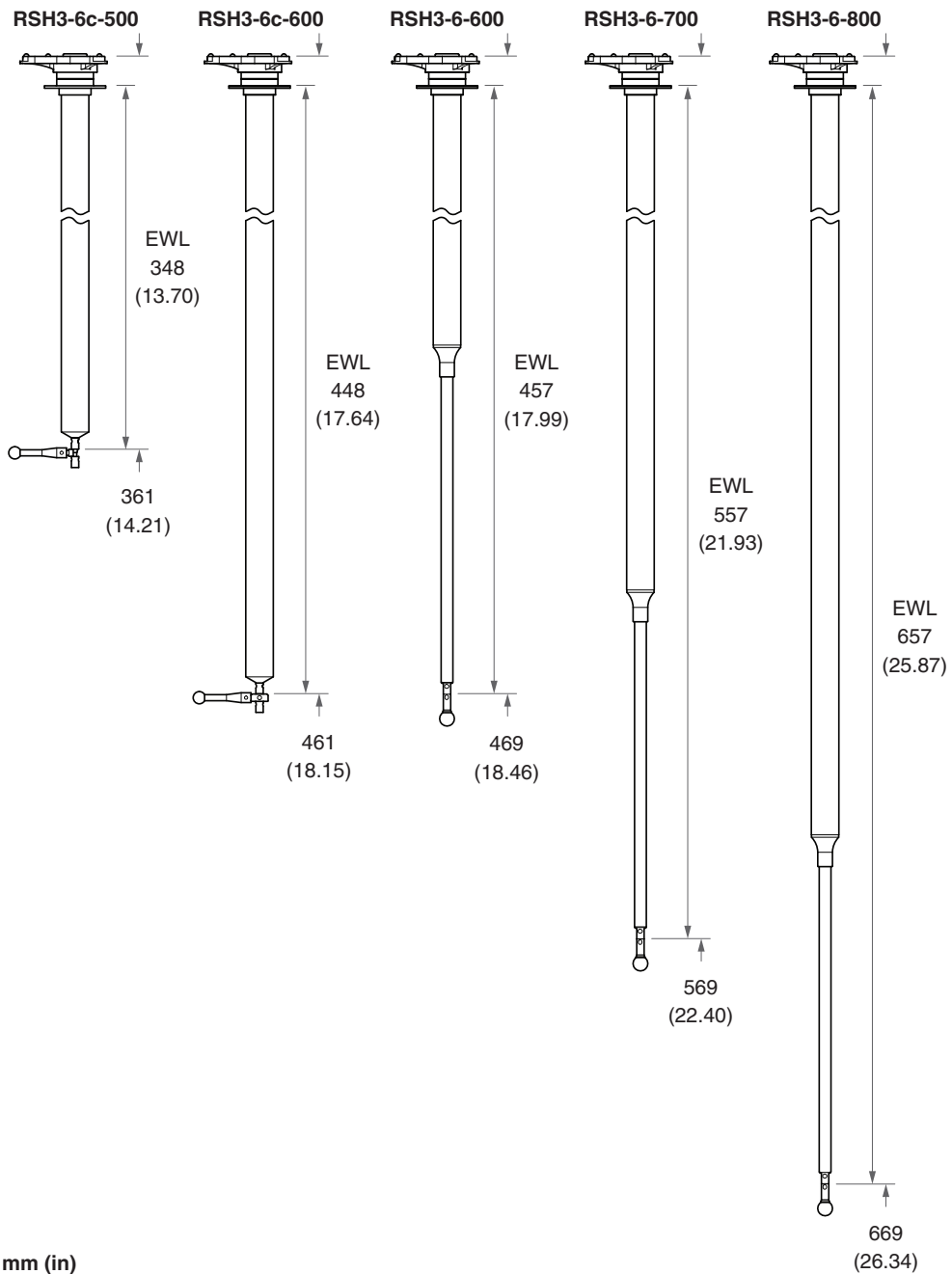
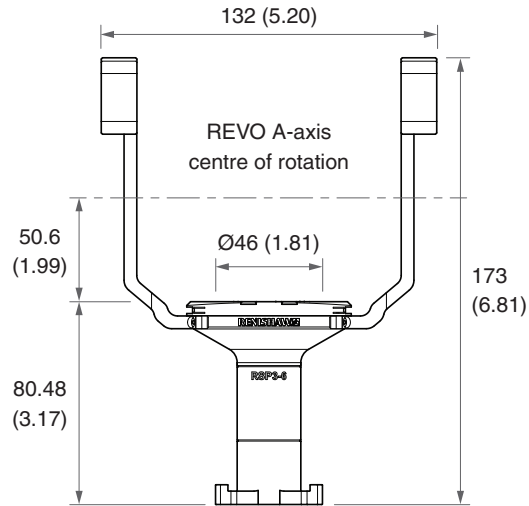
## Touch-trigger probing of a ring gauge

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



### Test setup criteria

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



Dimension in mm (in)

## Specification

<b>Probe attributes</b>	2-axis scanning (X,Y) and 3-axis touch-trigger (X,Y,Z)	
<b>Measurement range</b>	±0.5 mm deflection in all directions in all orientations	
<b>Overtravel range</b>	X, Y:	±2 mm
	+Z:	1.7 mm
	-Z:	1.2 mm
<b>Resolution</b>	Capable of <0.1 µm	
<b>Weight</b>	300 g (10.58 oz) (excluding stylus holder and stylus)	
<b>Mounting</b>	Magnetised kinematic coupling	
<b>Crash protection</b>	±X, ±Y, -Z	Via break out of probe or stylus holder
	+Z	Via integral bump-stop design
<b>Change rack options</b>	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
<b>Interface options</b>	UCC S5	

### Effective stylus length range

RSP3-6 + RSH3-6c-500	EWL 348 mm (13.70 in)	EWL <sub>2</sub> 415 mm (16.34 in)	Using M2 star centre
RSP3-6 + RSH3-6c-600	EWL 448 mm (17.64 in)	EWL <sub>2</sub> 515 mm (20.28 in)	
RSP3-6 + RSH3-6-600	EWL 456 mm (17.95 in)	EWL <sub>2</sub> 524 mm (20.63 in)	Using 10 mm stylus
RSP3-6 + RSH3-6-700	EWL 556 mm (21.89 in)	EWL <sub>2</sub> 624 mm (24.57 in)	
RSP3-6 + RSH3-6-800	EWL 656 mm (25.83 in)	EWL <sub>2</sub> 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](http://www.renishaw.com/RSP3-6)



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