

PH20 motorised probe head



PH20 is a dynamic measuring probe head which delivers a 3-fold increase in measurement throughput whilst maintaining high system accuracy.

Utilising technology developed for the multi-award winning REVO® measurement system, the new PH20 probe head offers unique 'head touches' for rapid touch-trigger measurement, and fast infinite 5-axis positioning to guarantee optimal feature access. Unlike conventional touch trigger measurement methods which rely on speeding up the motion of the CMM's 3 axes to measure quickly, PH20 uses head motion to minimise the dynamic errors of the CMM at higher measurement speeds. Its compact design makes it suitable for new CMM purchases, and as a retrofit to the vast majority of existing CMM touch-trigger installations.

PH20 incorporates the industry standard TP20 touch-trigger probe, affording immediate access to a range of proven probe modules and a wide selection of trigger forces, directional sensing options and extensions to meet application requirements. The detachable modules provide crash protection and can be automatically changed using the MCR20 change rack. Current users of TP20 systems will be able to upgrade to PH20 and utilise their existing modules*.

The PH20 probe head offers dramatic time savings with a unique rapid 'inferred calibration' technique which determines head orientation and probe position in a single operation, allowing subsequent measurement at any head angle. The system's design requires no air supply, and it can be mounted to the CMM quill either directly or via a shank using a range of mounting adaptors.

Key features

Compact design – suitable for a wide range of CMMs using shank or quill mounting.

Renishaw CMM controller – I++DME communication; wide selection of metrology software.

Index head compatibility – no requirement to modify existing programs in the majority of cases.

Integral TP20 probe – allows re-use of existing equipment.

Innovations

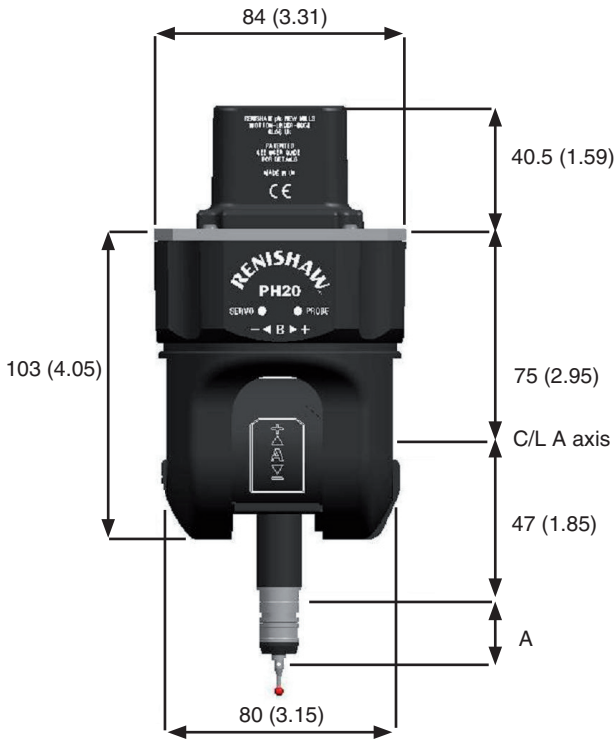
Rapid head touches – where the CMM is stationary and the head moves and takes a touch point.

Rapid 5 axis moves – synchronised motion of the head and CMM between measurements.

Inferred calibration – determines head orientation and probe position in a single operation, allowing subsequent measurement at any head angle.

* Excepting the extended force module

Specification



Dimensions in mm (inch)



	Dimension A	
	mm	inch
Module force		
Standard	21	0.83
Medium	21	0.83
Low	21	0.83
6-way	25	0.98
EM1	71	2.79
EM2	96	3.78

Weight (excluding module and cables)	810 g (28.6 oz)		
Temperature range	15 °C to 35 °C (59 °F to 95 °F)		
Operating Storage	-25 °C to 70 °C (-13 °F to 158 °F)		
Maximum movement speed	3 revs/s (1281 mm/s with standard module & 10 mm stylus)		
Maximum head touch speed	50 mm/s		
Rotation angles			
A axis	-115° to 115°		
B axis	∞		
Angular resolution	0.4 μRadians		
Bearings	Mechanical		
Change rack system	MCR20 NI and MCR20		
Joystick	Multifunction MCU/ite-2		
ISO 10360-5 (2001) typical performance		CMM TOUCH	HEAD TOUCH
std force module with 12 x 4 mm stylus on a CMM	Size	0.0006 mm (0.00002 in)	0.0002 mm (0.00001 in)
with ISO 10360-2 (2002) specification of 0.48+ L/1000*	Form	0.0026 mm (0.00010 in)	0.0024 mm (0.00009 in)
	Location	0.0013 mm (0.00005 in)	0.0009 mm (0.00003 in)

* specified with a TP7

Additional information

- PH20 can be fitted directly to the CMM quill. A wide range of shank adaptors is also available.
- The PH20 system utilises the Renishaw Universal CMM controller system, which provides functionality particular to 5-axis motion and head-touch measurement.
- I++DME command protocol communication via Renishaw UCCserver™ software application.

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