

Styli recommendations for strain gauge probes

Renishaw recommends that carbon fibre styli be used with the MP700, OMP400, OMP600, RMP600 and MP250 strain gauge probes. Styli made from carbon fibre are preferred as their lower mass is best suited for use with the sensitive strain gauge mechanisms used within these probes.

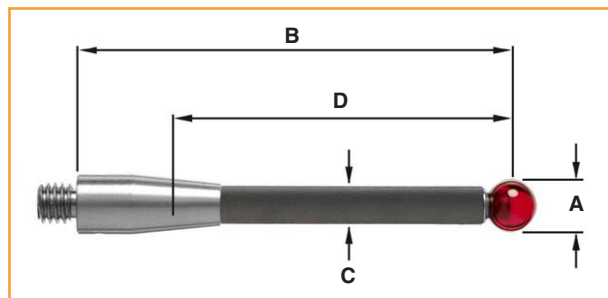
Renishaw recommends that the MP700 is used with the range of hollow carbon fibre styli. These styli are identifiable by a cross-weave finish.



A new range of solid high modulus carbon fibre styli has been developed for use specifically with the MP250, OMP400, OMP600 and RMP600 probes. These styli, which are designed to minimise pre-travel and improve the accuracy of the probe, are identifiable by a graphite finish.



Solid carbon fibre styli, which are featured in the table below, ensure the best possible performance of the MP250, OMP400, OMP600 and RMP600.



Part number	A-5003-7306 Carbon fibre	A-5003-6510 Carbon fibre	A-5003-6511 Carbon fibre	A-5003-6512 Carbon fibre
A	Ball dia. mm (inch)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)
B	Length mm (inch)	50.0 (1.97)	100.0 (3.94)	150.0 (5.91)
C	Stem dia. mm (inch)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)
D	EWL mm (inch)*	38.5 (1.52)	88.5 (3.48)	138.5 (5.45)
	Mass (grams)	4.1	6.2	7.5
	MP700	✗	✗	✗
	MP250	✓	✓	✗
	OMP400	✓	✓	✓
	OMP600	✓	✓	✓
	RMP600	✓	✓	✓

*EWL = Effective working length

It is possible that the featured range of solid carbon fibre styli may not be suitable for every MP250, OMP400, OMP600 or RMP600 application and that it may be necessary to select specialised styli configurations to meet specific application requirements.

In applications where specialised styli configurations are to be used, it may be beneficial to reduce the speed of probing moves. It has been seen in some cases that certain styli configurations do not exhibit the probing characteristics and performance that would have otherwise been expected and achieved when using optimum styli configurations. Reducing the speed of the probing move may, in some cases, improve the performance of the probe.

When selecting components for an application-specific stylus, it is recommended that a configuration with the least number of components is used. The stylus diameter should always be as large as possible, while the overall stylus length should be kept to a minimum.

If a stylus with a reduced stem diameter is required, it is recommended that an M4 stem with a short length of reduced diameter is selected wherever possible. See “Figure 1: Preferred 2 mm ball application-specific stylus” – the stem has a shorter length of reduced diameter and the M4 screw joint connecting the components is much stiffer.

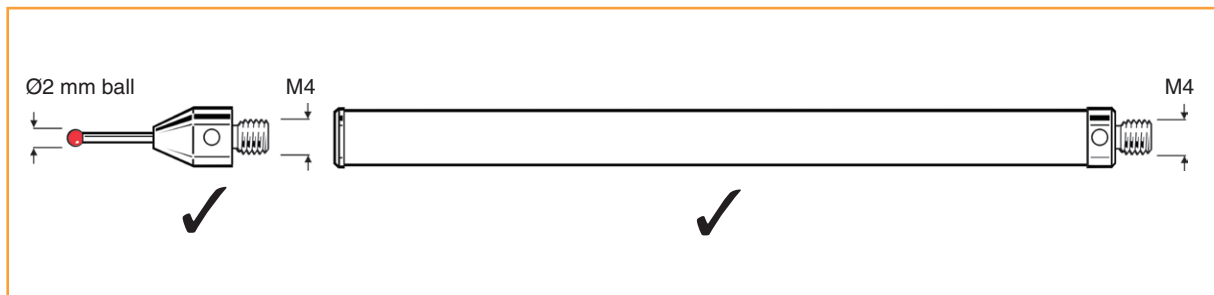


Figure 1: Preferred 2 mm ball application-specific stylus

Stylus assemblies comprising several components with reducing diameters should be avoided where possible: multiple screw joints can cause stylus flex and lead to poor metrology. See “Figure 2: Non-preferred 2 mm ball application-specific stylus”.

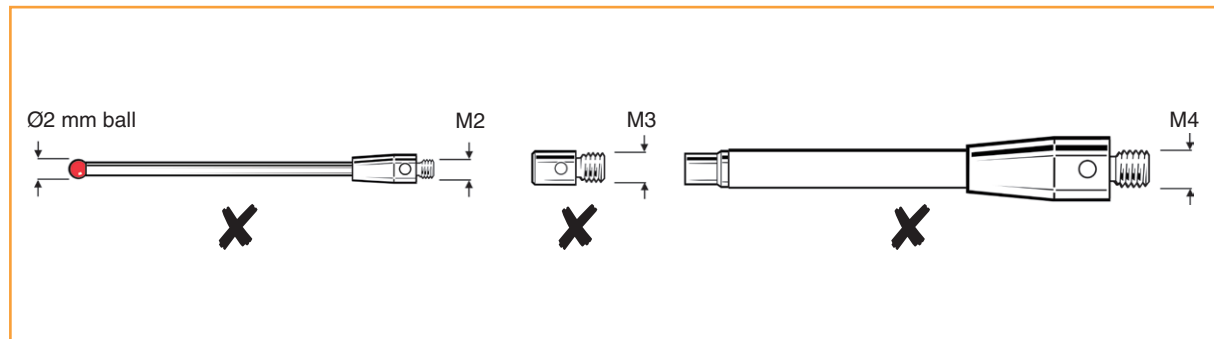


Figure 2: Non-preferred 2 mm ball application-specific stylus

If a specialist stylus configuration is to be used, it is recommended that the most robust solution is selected and that trials are conducted to verify that the required metrology performance is achieved.

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