RENISHAW
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M4 threaded stylus range

The OSP60 is a high-speed optical 3D scanning probe for machining centres

Renishaw's probing systems are designed to give optimum performance using styli from Renishaw's comprehensive range. The following probes all use M4 threaded styli, however, with suitable adaptors, other thread sizes may be used.

CMM

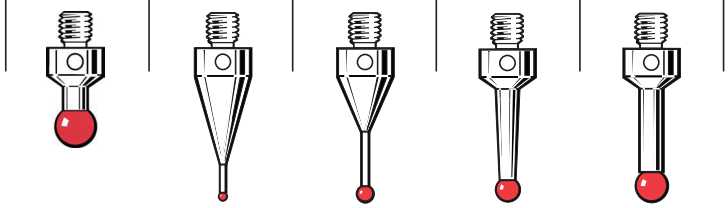
- TP1
- TP7
- SP600

Machine tool

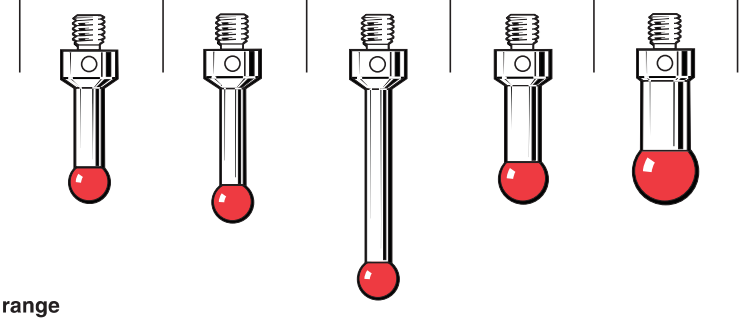
- MP11
- LP2
- TS27R
- OMP40-2
- OMP400
- RMP60
- RP3
- RMP40
- RLP40
- OLP40
- OMP60
- OTS
- RMP600
- MP250
- HPRA
- HPPA
- HPMA
- OSP60
- PRIMO

Ruby ball styli (stainless steel stems)

Ball material		Part number				
Ruby Silicon nitride Zirconia		A-5000-6350	A-5000-7545	A-5000-7547 A-5003-5728 A-5003-5742	A-5000-7549	A-5000-7551 A-5003-5729 A-5003-5743
A	Ball dia. mm (in.)	5.0 (0.20)	1.0 (0.04)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)
B	Length mm (in.)	10.0 (0.40)	19.5 (0.77)	19.0 (0.75)	18.5 (0.73)	18.0 (0.71)
C	Stem dia. mm (in.)	3.0 (0.12)	0.7 (0.028)	1.4 (0.05)	2.0 (0.08)	3.0 (0.12)
D	EWL* mm (in.)	5.0 (0.20)	4.5 (0.18)	9.2 (0.36)	13.0 (0.52)	13.7 (0.54)
	Mass grammes	1.9	2.5	2.3	2.0	2.1



Part number		A-5000-7553	A-5000-6731	A-5000-6352	A-5000-7555	A-5000-7557
A	Ball dia. mm (in.)	5.0 (0.20)	5.0 (0.20)	5.0 (0.20)	6.0 (0.24)	8.0 (0.32)
B	Length mm (in.)	17.5 (0.69)	20.0 (0.79)	30.0 (1.19)	17.0 (0.67)	16.0 (0.63)
C	Stem dia. mm (in.)	3.5 (0.14)	3.0 (0.12)	3.0 (0.12)	4.5 (0.18)	6.0 (0.24)
D	EWL* mm (in.)	13.6 (0.55)	15.89 (0.63)	26.0 (1.03)	13.3 (0.53)	16.0 (0.63)
	Mass grammes	2.3	2.4	3.0	3.0	3.9

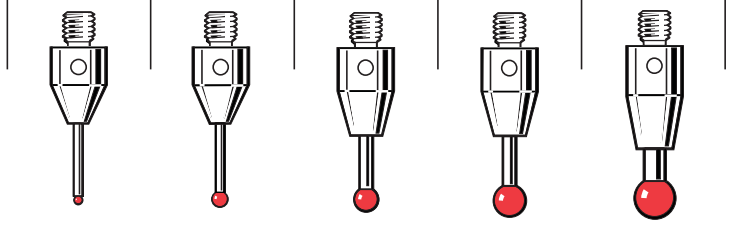


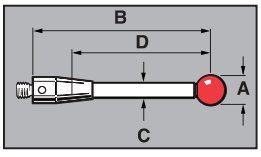
10 mm – 30 mm range

Ruby ball styli (Tungsten carbide stems)

Part number		A-5003-4792	A-5003-2932	A-5003-4793	A-5003-4794	A-5003-4795	A-5003-4796
A	Ball dia. mm (in.)	1.0 (0.04)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	6.0 (0.24)
B	Length mm (in.)	20.0 (0.79)	20.0 (0.79)	20.0 (0.79)	20.0 (0.79)	20.0 (0.79)	20.0 (0.79)
C	Stem dia. mm (in.)	0.7 (0.028)	1.5 (0.06)	2.0 (0.08)	2.0 (0.08)	2.5 (0.10)	2.5 (0.10)
D	EWL* mm (in.)	10.0 (0.40)	10.0 (0.40)	8.5 (0.33)	8.5 (0.33)	7.9 (0.31)	10.7 (0.42)
	Mass grammes	2.39	3.01	3.53	3.53	4.52	4.66

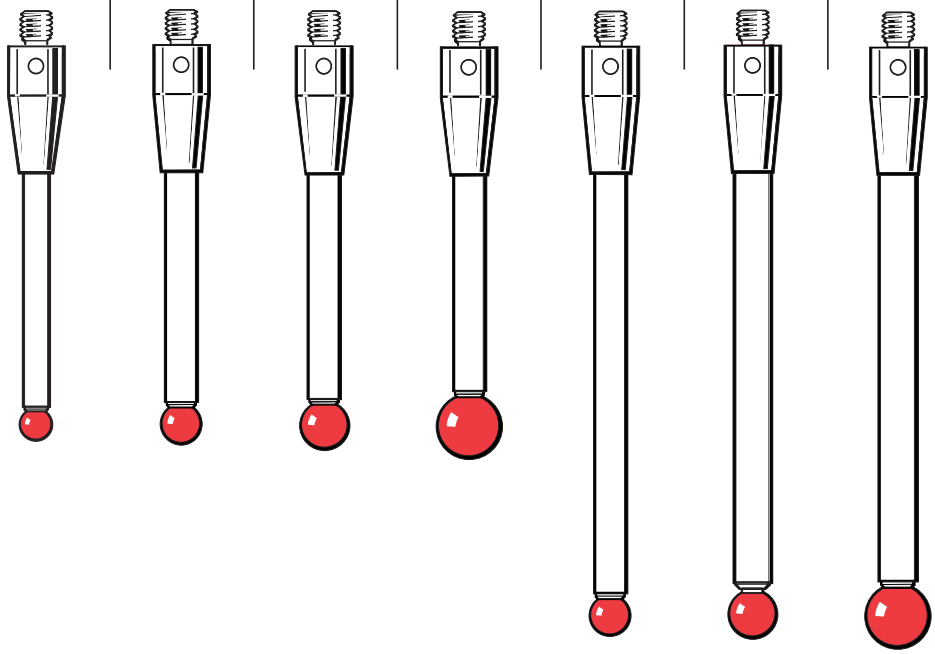
20 mm range



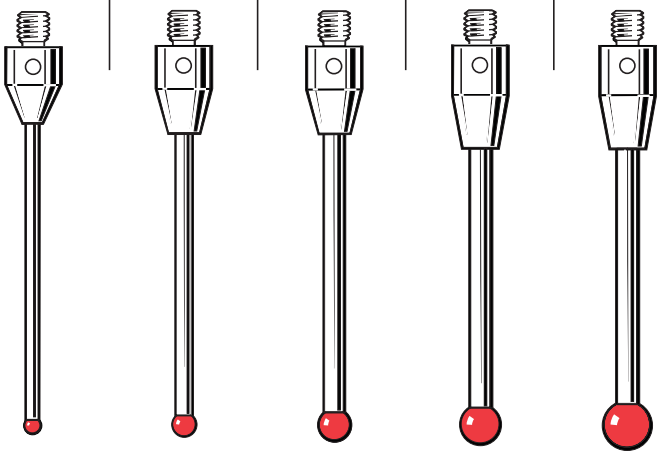


Ruby ball styli

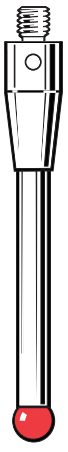
Ceramic stems

Part number		A-5003-0233 Ceramic	A-5003-0235 Ceramic	A-5000-3709 Ceramic	A-5000-7795 Ceramic	A-5003-0236 Ceramic	A-5003-2764 Ceramic	A-5003-4802 Ceramic
A	Ball dia. mm (in.)	4.0 (0.16)	5.0 (0.20)	6.0 (0.24)	8.0 (0.32)	5.0 (0.20)	6.0 (0.24)	8.0 (0.32)
B	Length mm (in.)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	75.0 (2.96)	75.0 (2.96)	75.0 (2.96)
C	Stem dia. mm (in.)	3.0 (0.12)	3.8 (0.15)	4.5 (0.18)	4.5 (0.18)	3.8 (0.15)	4.5 (0.18)	4.5 (0.18)
D	EWL* mm (in.)	33.5 (1.32)	33.5 (1.32)	38.5 (1.50)	50.0 (1.97)	58.5 (2.30)	63.5 (2.51)	75.0 (2.96)
	Mass grammes	3.9	5.0	4.8	5.4	5.63	5.64	6.20
50 mm – 75 mm range								

Tungsten carbide stems

Part number		A-5003-4797 Tungsten carbide	A-5003-3680 Tungsten carbide	A-5003-4799 Tungsten carbide	A-5003-4800 Tungsten carbide	A-5003-4801 Tungsten carbide
A	Ball dia. mm (in.)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	6.0 (0.24)
B	Length mm (in.)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)
C	Stem dia. mm (in.)	1.5 (0.06)	2.0 (0.08)	2.0 (0.08)	2.5 (0.10)	2.5 (0.10)
D	EWL* mm (in.)	40.0 (1.58)	38.5 (1.51)	38.5 (1.51)	37.9 (1.49)	40.7 (1.60)
	Mass grammes	3.80	4.94	4.99	6.72	6.86
50 mm range						

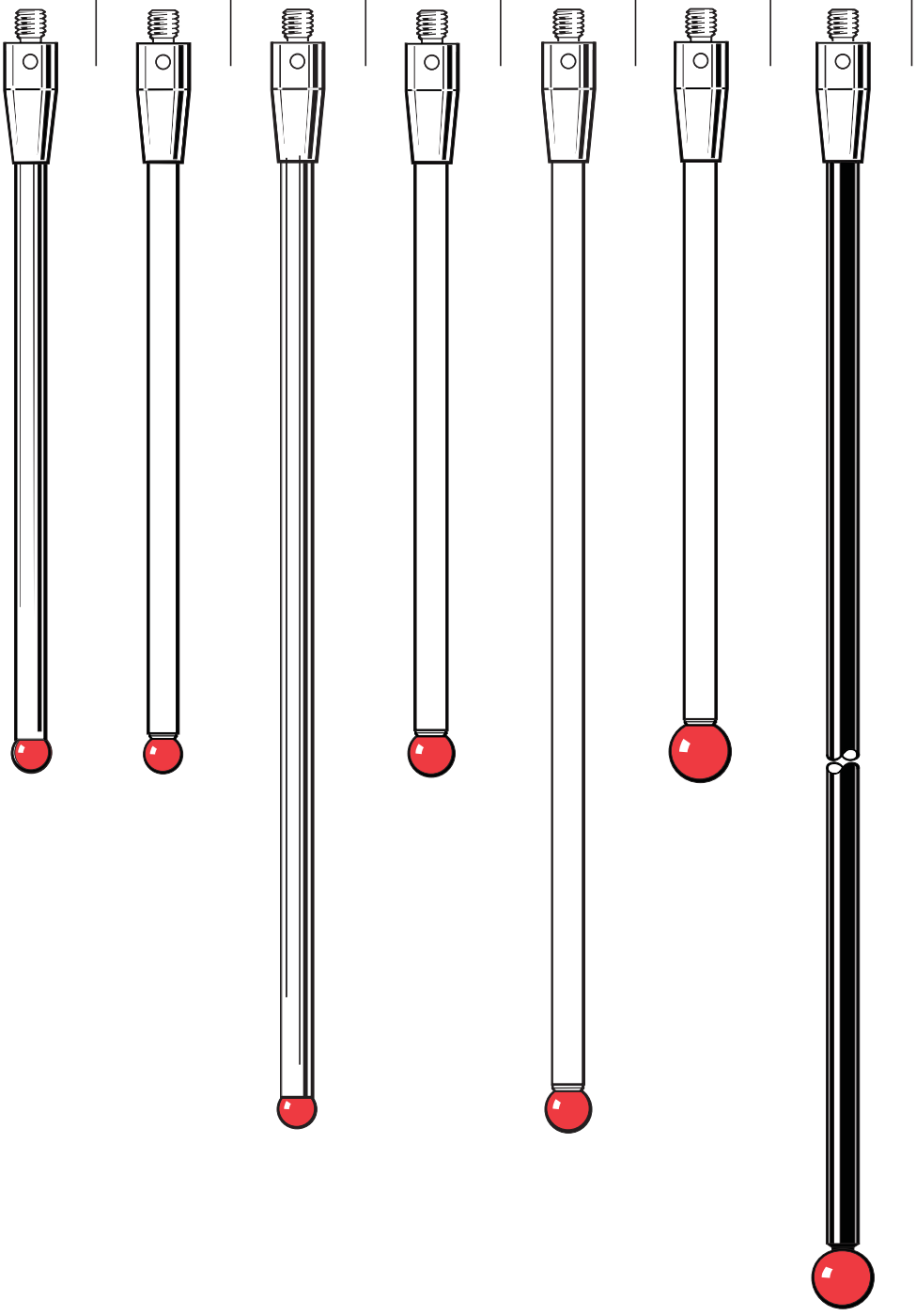
Stainless steel stems

Part number		A-5000-7521 Stainless steel
A	Ball dia. mm (in.)	5.0 (0.20)
B	Length mm (in.)	50.0 (1.97)
C	Stem dia. mm (in.)	4.5 (0.18)
D	EWL* mm (in.)	33.5 (1.32)
	Mass grammes	5.8
50 mm range		

*Effective working length

Ruby ball styli

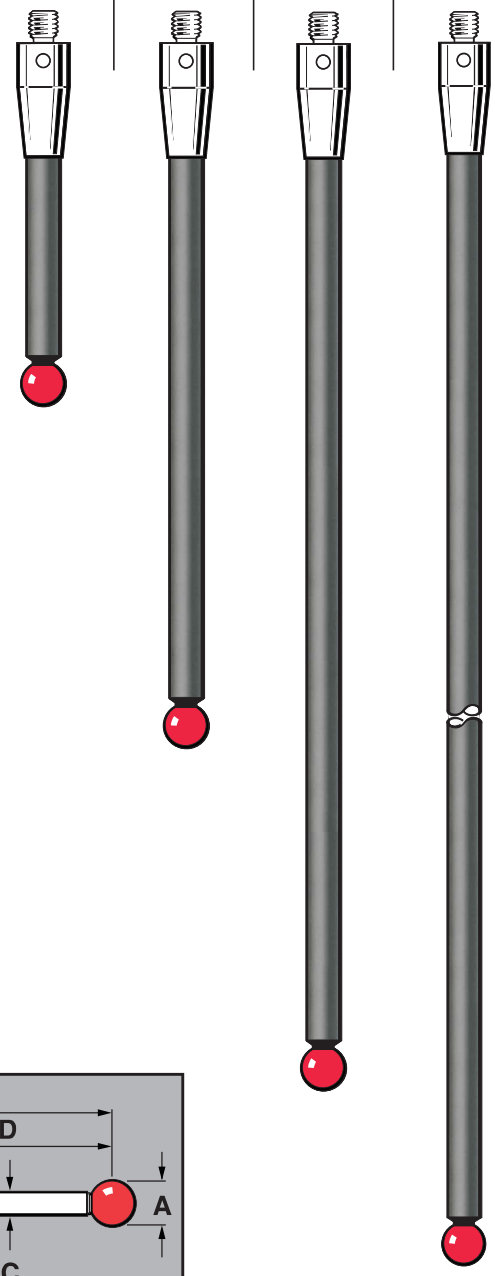
Part number		A-5000-7522 Stainless steel	A-5000-9761 Ceramic	A-5000-7523 Stainless steel	A-5000-3712 Ceramic	A-5000-8156 Ceramic	A-5000-7796 Ceramic	A-5003-3461 Carbon fibre
A	Ball dia. mm (in.)	5.0 (0.20)	5.0 (0.20)	5.0 (0.20)	6.0 (0.24)	6.0 (0.24)	8.0 (0.32)	8.0 (0.32)
B	Length mm (in.)	100.0 (3.94)	100.0 (3.94)	150.0 (5.91)	100.0 (3.94)	150.0 (5.91)	100.0 (3.94)	300.0 (11.82)
C	Stem dia. mm (in.)	4.5 (0.18)	3.8 (0.15)	4.4 (0.17)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)
D	EWL* mm (in.)	83.2 (3.28)	83.5 (3.29)	133.0 (5.24)	88.5 (3.48)	135.0 (5.31)	100.0 (3.94)	300.0 (11.82)
	Mass grammes	11.3	6.3	17.4	6.3	7.9	7.5	10.4

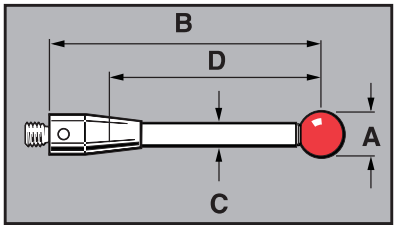


100 mm – 300 mm range

Ruby ball styli (recommended for use with OMP400 and RMP600)

Ball material		Part number			
Ruby		A-5003-7306	A-5003-6510	A-5003-6511	A-5003-6512
Silicon nitride		A-5003-5730	A-5003-5731		
Zirconia		A-5003-5744	A-5003-5745		
		Carbon fibre	Carbon fibre	Carbon fibre	Carbon fibre
A	Ball dia. mm (in.)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)
B	Length mm (in.)	50.0 (1.97)	100.0 (3.94)	150.0 (5.91)	200.0 (7.88)
C	Stem dia. mm (in.)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)
D	EWL* mm (in.)	38.5 (1.52)	88.5 (3.48)	138.5 (5.45)	188.5 (7.42)
	Mass grammes	4.1	6.2	7.5	8.7

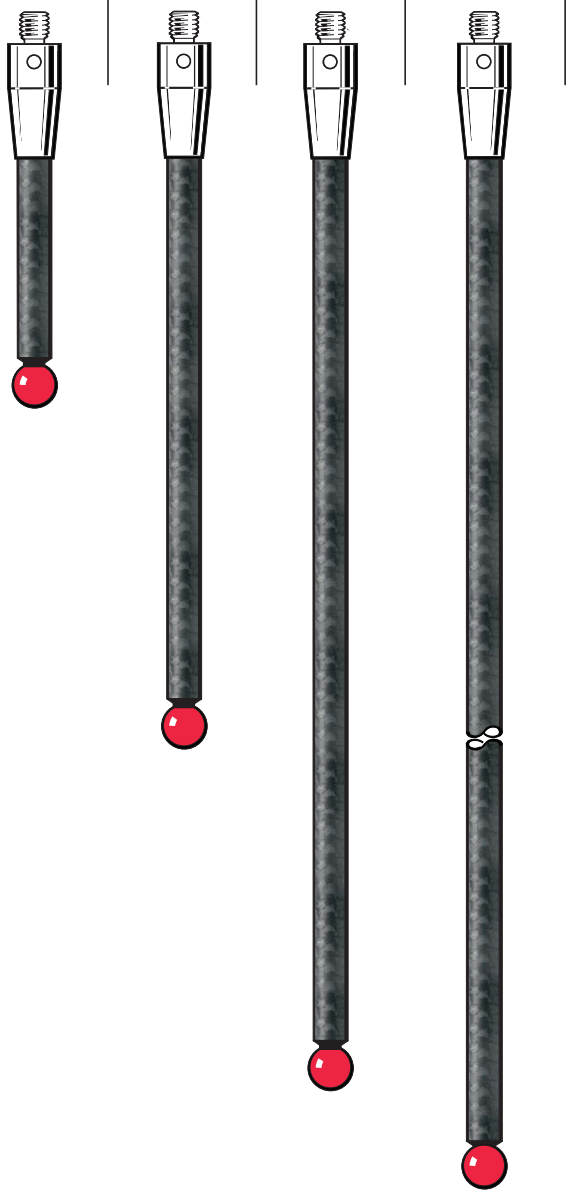




*Effective working length

Ruby ball styli (recommended for use with MP700)

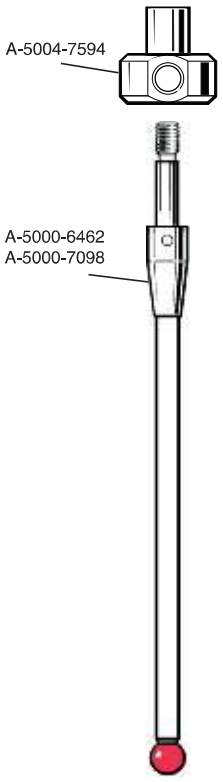
A-5003-1436**	A-5003-1358**	A-5003-1255**	A-5003-1075**
Carbon fibre	Carbon fibre	Carbon fibre	Carbon fibre
6.0 (0.24)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)
50.0 (1.97)	100.0 (3.94)	150.0 (5.91)	200.0 (7.88)
4.5 (0.18)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)
38.5 (1.52)	88.5 (3.48)	138.5 (5.46)	188.5 (7.42)
4.1	6.2	7.5	8.7

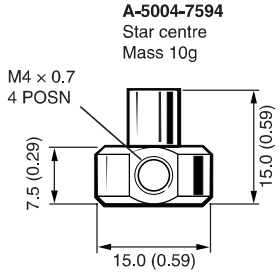


** This MP700 specific stylus has an additional internal design feature that in case of severe overtravel crash allows for a controlled reseating of the probe kinematics avoiding strain gauge damage.

M4 star styli

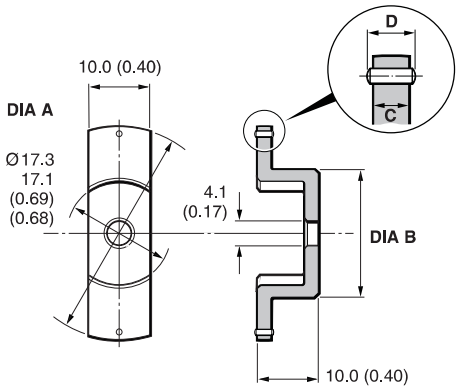
Ball material		Part number	
Ruby		A-5000-6462	A-5000-7098
A	Ball dia. mm (in.)	6.0 (0.24)	6.0 (0.24)
B	Length mm (in.)	100.0 (3.94)	50.0 (1.97)
C	Stem dia. mm (in.)	4.5 (0.18)	4.5 (0.18)
D	EWL* mm (in.)	88.5 (3.48)	38.5 (1.52)
	Mass grammes	7.5	6.0



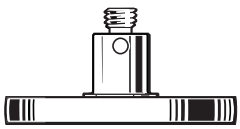


Disc styli

Part number	A-5000-7596	A-5000-7597	A-5000-7598
Diameter A mm (in.)	Ø30.0 (1.19)	Ø35.0 (1.38)	Ø50.0 (1.97)
Diameter B mm (in.)	Ø21.0 (0.83)	Ø21.0 (0.83)	Ø23.0 (0.91)
C mm (in.)	2.2 (0.09)	2.2 (0.09)	3.0 (0.12)
D mm (in.)	3.0 (0.12)	3.0 (0.12)	4.0 (0.16)
Mass grammes	8.01	9.57	13.55

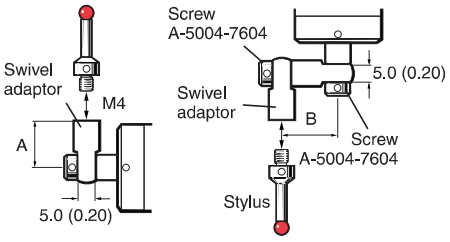


Part number	A-5000-6351 Silver steel
Disc dia. mm (in.)	Ø30.0 (1.19)
Disc depth mm (in.)	3.0 (0.12)
Length mm (in.)	10.0 (0.40)
Rollers	N/A
Mass grammes	7.9



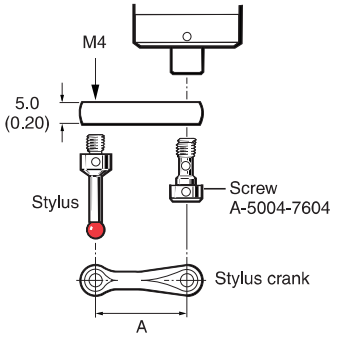
Swivel adaptor

Part number	A-5004-7607	A-5004-7608
Length A mm (in.)	10.0 (0.40)	13.5 (0.54)
Length B mm (in.)	12.5 (0.50)	16.0 (0.63)
Mass grammes	2.76	3.70



Styli crank

Part number	A-5004-7605	A-5004-7606
Length A mm (in.)	21.9 (0.86)	27.6 (1.09)
Mass grammes	6.07	6.94

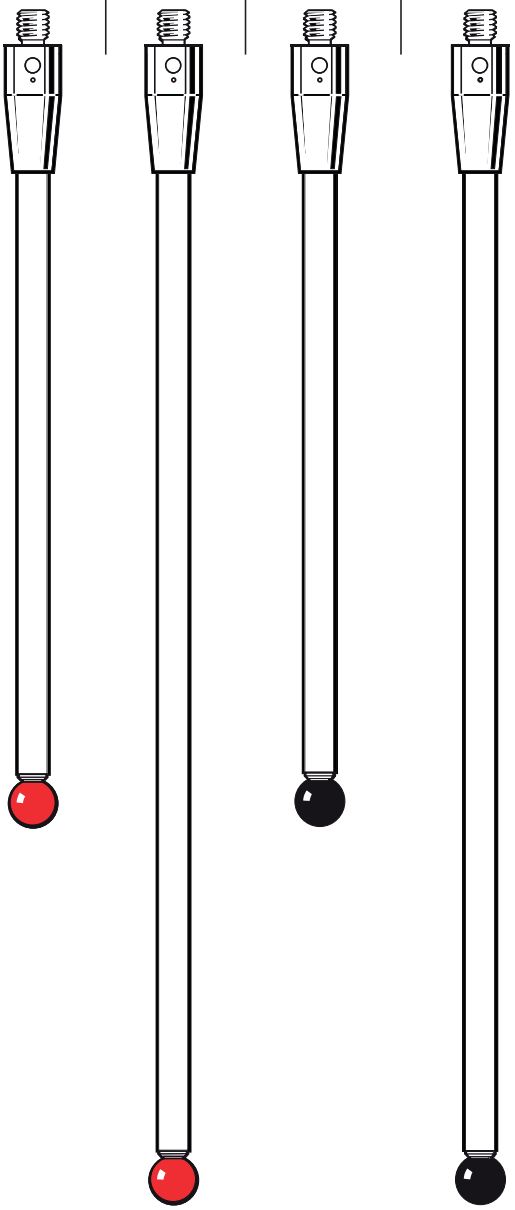


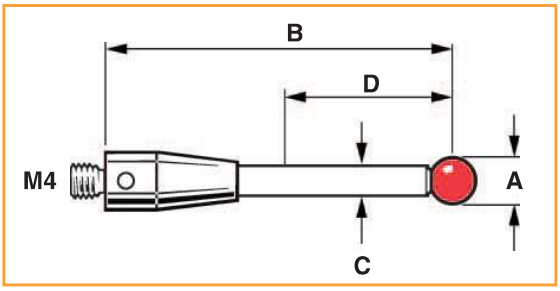
*Effective working length

OSP60 styli – M4 thread (ceramic stems)

Part number (standard)		A-5004-4472	A-5004-4474	A-5004-6470	A-5004-6471
Part number (calibrated)		A-5465-8576	A-5465-8577	A-5465-5008	A-5465-5009
Ball material		Ruby	Ruby	Silicon nitride	Silicon nitride
A	Ball dia. mm (in.)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)	6.0 (0.24)
B	Length mm (in.)	100.0 (3.94)	150.0 (5.91)	100.0 (3.94)	150.0 (5.91)
C	Stem dia. mm (in.)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)
D	ESWL* mm (in.)	62.9 (2.48)	71.5 (2.81)	62.9 (2.48)	71.5 (2.81)
	Mass grammes	6.5	8.0	6.5	8.0

* ESWL = Effective Scanning Working Length, measured from the centre of the ball to the point at which the stem will foul against a vertical face when at the maximum scanning deflection.

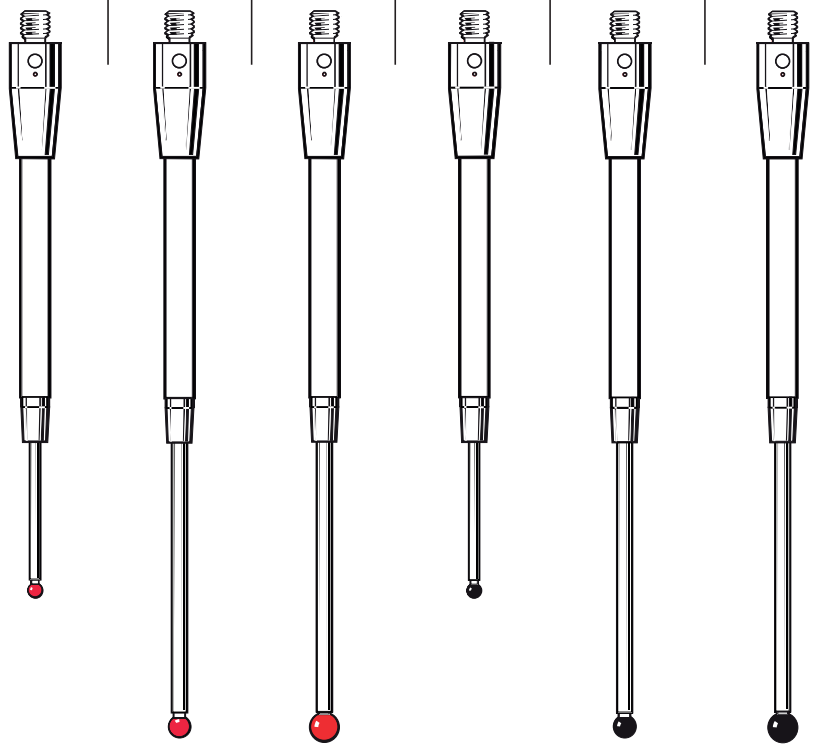




OSP60 styli continued
M4 thread (ceramic stems)

	Part number (standard)	A-5004-6463	A-5004-6464	A-5004-6465	A-5004-6467	A-5004-6468	A-5004-6469
	Part number (calibrated)	**A-5465-5001**	**A-5465-5002**	**A-5465-5003**	**A-5465-5005**	**A-5465-5006**	**A-5465-5007**
	Ball material	**Ruby**	**Ruby**	**Ruby**	**Silicon nitride**	**Silicon nitride**	**Silicon nitride**
A	Ball diameter mm (inch)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)
B	Length mm (inch)	80.0 (3.15)	100.0 (3.94)	100.0 (3.94)	80.0 (3.15)	100.0 (3.94)	100.0 (3.94)
C	Stem diameter mm (inch)	1.5 (0.06)	2.0 (0.08)	2.0 (0.08)	1.5 (0.06)	2.0 (0.08)	2.0 (0.08)
D	ESWL* mm (inch)	10.7 (0.42)	27.0 (1.06)	42.6 (1.68)	10.7 (0.42)	27.0 (1.06)	42.6 (1.68)
E	Stem diameter mm (inch)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)	3.8 (0.15)
	Mass (grammes)	5.9	7.4	7.4	5.9	7.4	7.4

* ESWL = Effective Scanning Working Length, measured from the centre of the ball to the point at which the stem will foul against a vertical face when at the maximum scanning deflection.



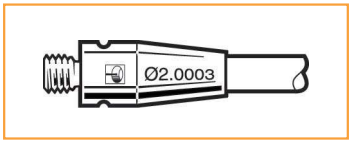
OSP60 standard range

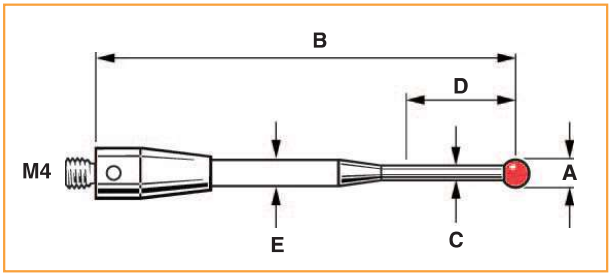
During scanning the stylus is constantly deflected, so the ceramic stem has been designed to be narrow and therefore tightly control all squareness tolerances. This ensures that even when measuring a part with vertical surfaces, such as on prismatic parts, the risk of the stylus shank contacting the part before the stylus tip is minimised.

OSP60 calibrated range

In the variable temperature environment typical of a machine tool, the dimensional variation of the calibration sphere, compared with the machine structure, can degrade the performance of the measurement system. In the highest accuracy applications, this contribution to the overall system measurement uncertainty can be significant.

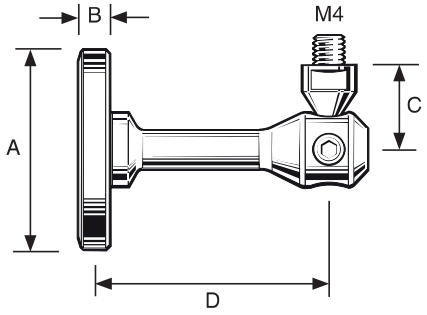
To ensure the highest possible measurement accuracy in all measurement conditions, the ball on each stylus within the OSP60 calibrated range is measured and UKAS certified. The exact ball diameter is engraved onto the stylus holder, so that this highly accurate value can be applied during probe calibration as an absolute reference.





Primo toolsetter stylus

Part number		A-5472-3000 Tungsten carbide
Ruby **Silicon nitride** **Zirconia**		
A	Disc dia. mm (in.)	26 (1.02)
B	Disc depth mm (in.)	4 (0.16)
C	Length A mm (in.)	11 (0.43)
D	Length B mm (in.)	31 (1.22)
	Mass grammes	34



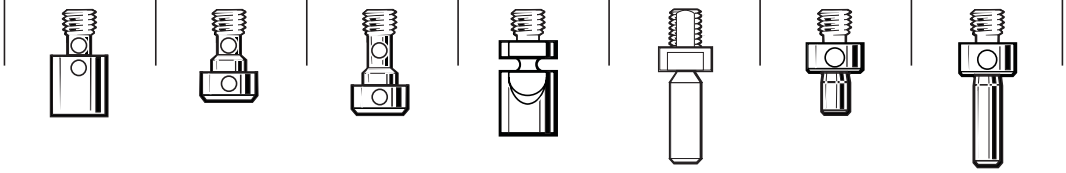
Flat bottom cylinder stylus (tungsten carbide)

Part number	A-5004-5370 Tungsten carbide
Cylinder dia. mm (in.)	1.0 (0.04)
Overall length mm (in.)	20.0 (0.79)
EWL mm (in.)	10.0 (0.40)
Mass grammes	2.5

This flat-bottomed stylus has been specifically designed for xy and accurate z point measurement with the face being precision ground parallel.

Crash protection devices

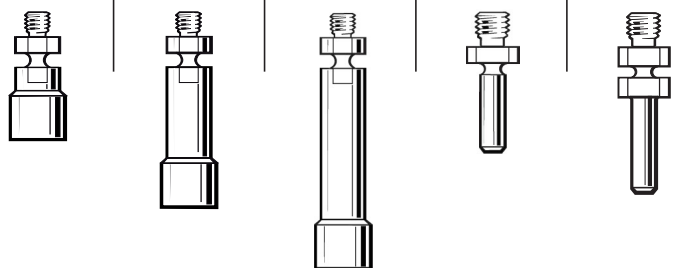
Part number For pack of ten	A-5004-7598 Stainless steel	A-5004-7603 Stainless steel	A-5004-7604 Stainless steel	A-5004-7621 Silver steel	A-5003-0661* A-5004-1865 Silver steel	A-5004-7624 A-5004-1867 Silver steel	A-5004-6723 A-5004-1869 Silver steel
Length mm (in.)	8.0 (0.32)	8.0 (0.32)	10.0 (0.40)	12.0 (0.48)	15.2 (0.60)	9.0 (0.36)	16.0 (0.63)
Mass grammes	1.8	1.4	1.5	2.7	4.6	1.5	2.1
For use on	LP2	LP2	LP2	MP10	TS27R	HPMA	HPMA
				MP12		HPRA	HPRA
				RMP60		HPPA	HPPA
				OMP60			
				MP3			
				MP11			



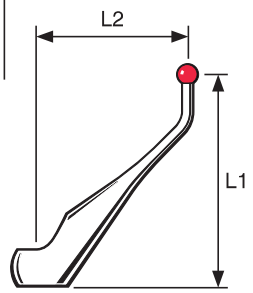
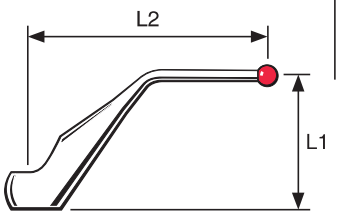
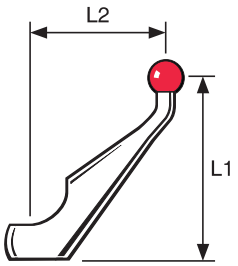
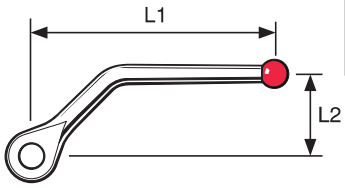
Use **P-TL09-0003** to tighten.

* Please note: If you require the full TS27R break stem kit, please order A-5003-5171.

Part number	A-5004-7616 M3 Silver steel	A-5004-7618 M3 Silver steel	A-5004-7619 M3 Silver steel	A-5004-7620 M4 Silver steel	A-5004-7622 M4 Silver steel
Length mm (in.)	13.3 (0.52)	22.3 (0.88)	30.3 (1.19)	13.5 (0.53)	19.0 (0.75)
Mass grammes	2.43	3.6	4.5	1.37	2.2
For use on	TS20	TS20	TS20	RP1/2	TSA

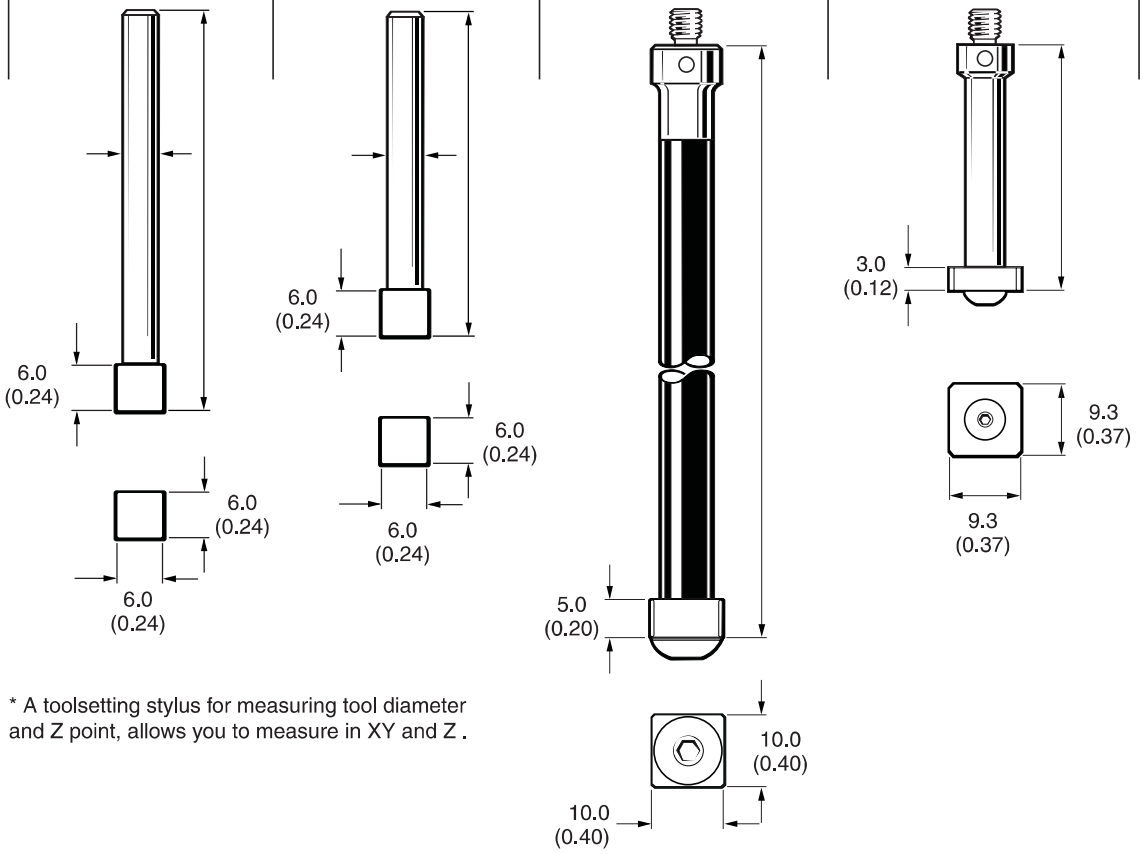


Cranked styli

Part number	A-5000-5302 M4 Stainless steel	A-5000-5307 M4 Stainless steel	A-5000-6620 M4 Stainless steel	A-5000-7580 M4 Stainless steel
Ball diameter mm (in.)	3.0 (0.13)	3.0 (0.12)	5.0 (0.20)	4.0 (0.16)
Length L1 mm (in.)	32.0 (1.26)	20.1 (0.79)	27.4 (1.08)	38.8 (1.53)
Length L2 mm (in.)	21.9 (0.86)	34.9 (1.37)	19.0 (0.75)	12.5 (0.49)
Mass grammes	3.8	3.85	4.7	2.5
For use on	LP2	LP2	LP2	LP2
				

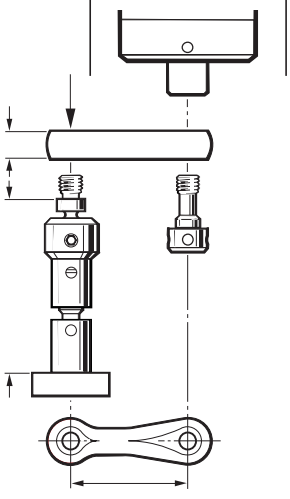
Tool datuming styli

Part number	A-5000-3212* Stainless steel	A-5000-6701* Stainless steel	A-5000-6713 Aluminium	A-5000-6403 Stainless steel
Overall length mm (in.)	53.0 (2.09)	43.0 (1.70)	96.5 (3.80)	32.5 (1.28)
Stem dia. mm (in.)	4.5 (0.18)	4.5 (0.18)	7.5 (0.30)	5.4 (0.22)
Mass grammes	4.5	4.3	21.9	11.0



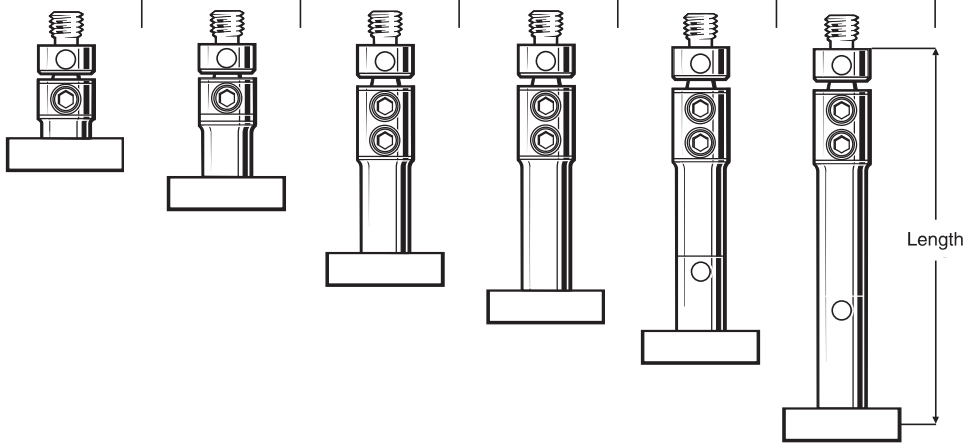
* A toolsetting stylus for measuring tool diameter and Z point, allows you to measure in XY and Z .

Part number	A-2116-0142
Length mm (in.)	30.3 (0.40)
Mass grammes	22.6
For use on	TSA

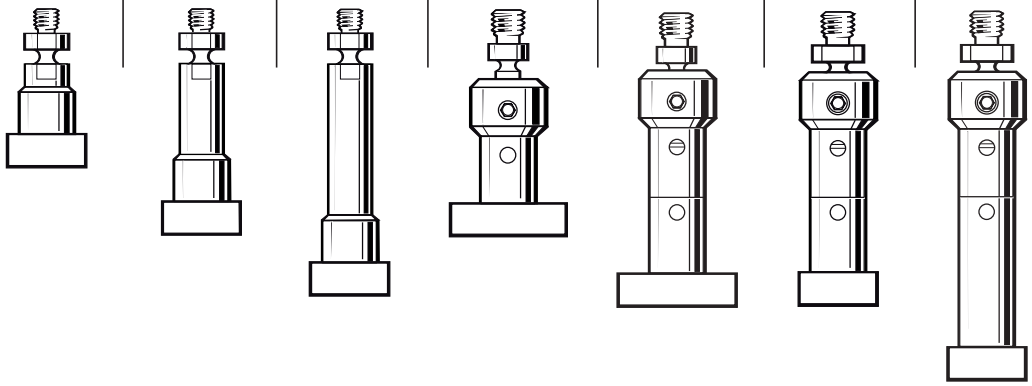


Tool datuming styli (continued)

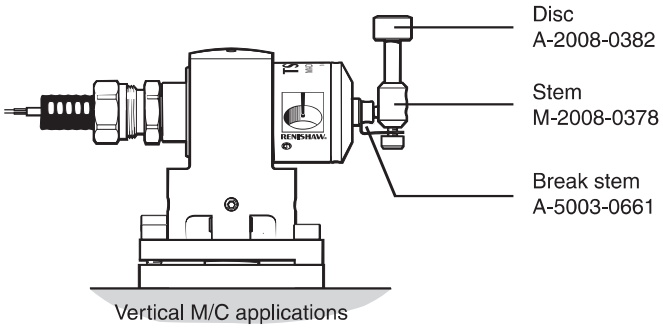
Part number	A-2197-0157 Tungsten carbide	A-2197-0158 Tungsten carbide	A-2197-0159 Tungsten carbide	A-2197-0160 Tungsten carbide	A-2197-0161 Tungsten carbide	A-2197-0162 Tungsten carbide
Length mm (in.)	14.2 (0.56)	19.57 (0.77)	29.5 (1.16)	34.5 (1.36)	39.5 (1.55)	49.5 (1.95)
Mass grammes	14.86	16.0	20.0	20.7	21.8	23.5
For use on	HPPA	HPPA	HPPA	HPPA	HPPA	HPPA
	HPMA	HPMA	HPMA	HPMA	HPMA	HPMA
	HPRA	HPRA	HPRA	HPRA	HPRA	HPRA
	RP3	RP3	RP3	RP3	RP3	RP3
Replacement break stem	A-5004-7624	A-5004-7624	A-5004-6723	A-5004-6723	A-5004-6723	A-5004-6723

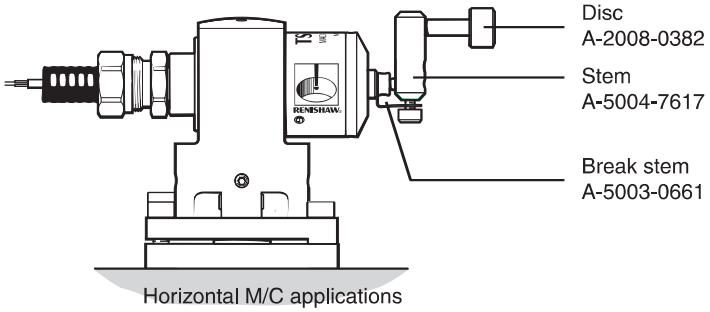


Part number	A-2008-0601 M3 Tungsten carbide	A-2008-0602 M3 Tungsten carbide	A-2008-0603 M3 Tungsten carbide	A-2048-2050 M4 Tungsten carbide	A-2048-2051 M4 Tungsten carbide	A-2116-0140 M4 Tungsten carbide	A-2116-0141 M4 Tungsten carbide
Length mm (in.)	15.4 (0.61)	24.0 (0.96)	32.4 (1.27)	23.2 (0.91)	32.0 (1.26)	32.0 (1.26)	42.0 (1.65)
Mass grammes	9.1	8.0	8.95	18.14	20.64	13.56	16.05
For use on	TS20	TS20	TS20	HPA (M6 MTG)	HPA (M6 MTG)	TSA	TSA
Replacement break stem	A-5004-7616	A-5004-7618	A-5004-7619	A-5004-7620	A-5004-7620	A-5004-7620	A-5004-7620



TS27R styli



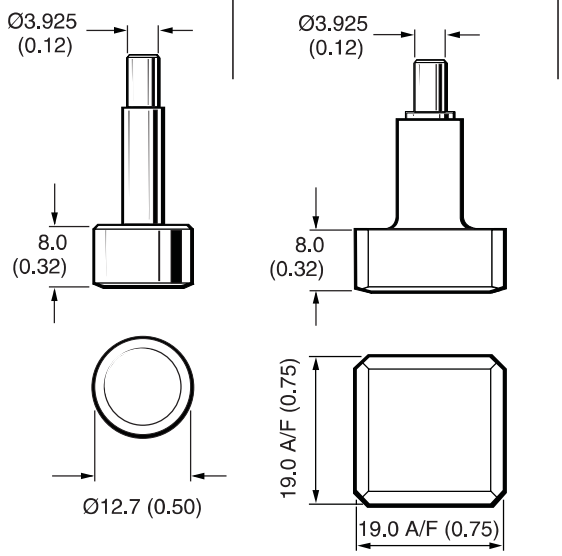


Horizontal machine application conversion kit part number A-2008-0448

*Order also requires 2 × P-SC11-0404

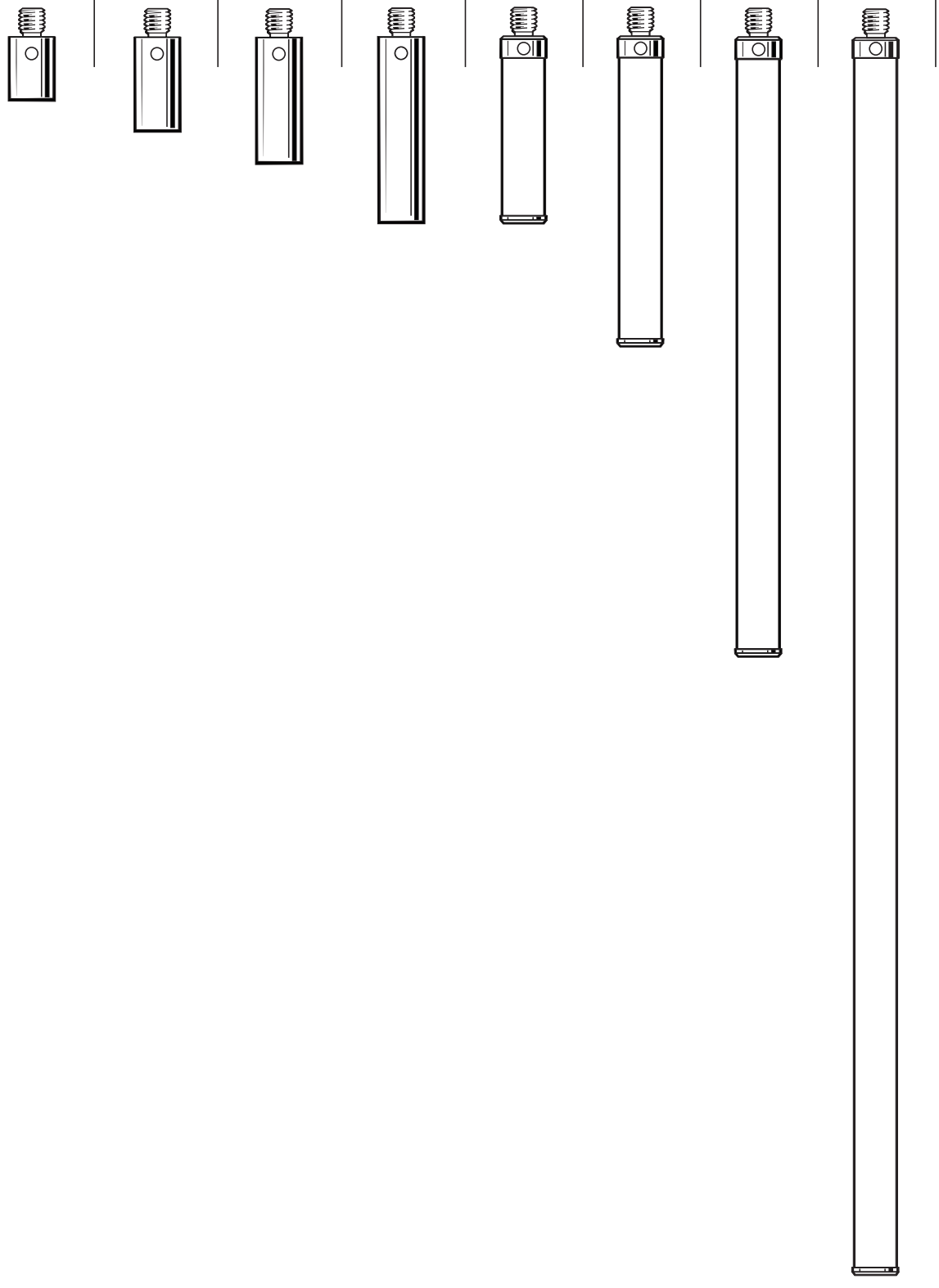
TS27R styli – parallel shafted (not M4) – Not compatible with TS27 probes

Part number	A-2008-0382 Tungsten carbide	A-2008-0384 Ceramic
Overall length mm (in.)	23.0 (0.91)	22.0 (0.87)
Mass grammes	12.1	7.1



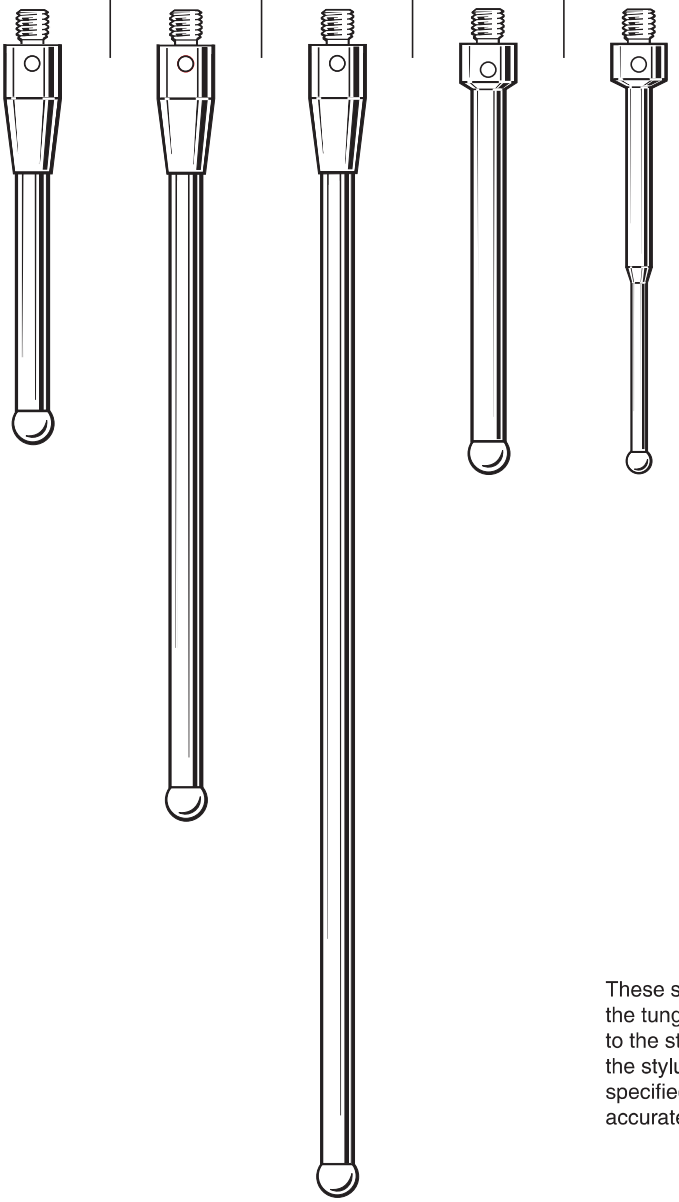
Stylus extensions

Part number	A-5004-7599 Stainless steel	A-5004-7600 Stainless steel	A-5004-7601 Stainless steel	A-5004-7602 Stainless steel	A-5000-7754 Ceramic	A-5000-7755 Ceramic	A-5000-7727 Ceramic	A-5003-0587 Ceramic
Length mm (in.)	10.0 (0.40)	15.0 (0.60)	20.0 (0.79)	30.0 (1.19)	30.0 (1.19)	50.0 (1.97)	100.0 (3.94)	200.0 (7.87)
Stem dia. mm (in.)	7.0 (0.28)	7.0 (0.28)	7.0 (0.28)	7.0 (0.28)	7.4 (0.30)	7.4 (0.30)	7.4 (0.30)	7.4 (0.30)
Mass grammes	2.4	3.7	4.8	7.4	5.1	6.7	10.6	26.7

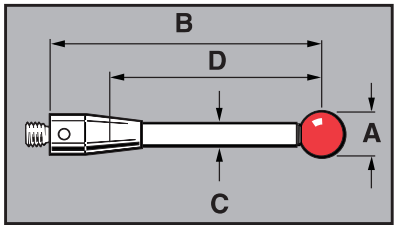


Tungsten carbide styli (stainless steel stems)

Part number		A-5000-7670	A-5000-7671	A-5000-7672	A-5000-9685	A-5000-9697
A	Ball dia. mm (in.)	5.0 (0.20)	5.0 (0.20)	5.0 (0.20)	5.0 (0.20)	3.0 (0.12)
B	Length mm (in.)	50.0 (1.97)	100.0 (3.94)	150.0 (5.91)	54.0 (2.12)	55.0 (2.17)
C	Stem dia. mm (in.)	4.5 (0.18)	4.5 (0.18)	4.5 (0.18)	3.9 (0.15)	1.9 (0.07)
D	EWL* mm (in.)	35.0 (1.38)	85.0 (3.35)	135.0 (5.31)	50.0 (1.97)	25.0 (0.99)
	Mass grammes	6.2	11.9	18.2	6.9	3.8



These styli are for use on job contact probes; the tungsten carbide balls have been brazed to the stem to ensure conductivity through the stylus. The resistance of these styli are specified to be less than 0.1 Ω to ensure accurate measurement with your probe.



*Effective working length