

Measuring Elements

***Diamond Coated
Styli***



Know-How

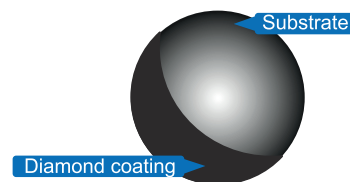
DC styli with diamond coated ball are the perfect alternative to existing ball materials. They can be used to measure extremely hard, very rough, abrasive and sharp surfaces tactilely by scanning.

Compared to ruby or silicon nitride, our nanocrystalline DC balls achieve the highest lifetime and thus the lowest wear.

The standard portfolio of diamond coated balls currently includes the ball diameter 0.3mm; 0.5mm; 0.8mm; 1 mm; 2mm; 3mm; 5mm and 8mm. The roundness is <150nm (grade 5).

The shop offers a selection of standard sizes with a threaded connection in M2, M3 and M5. Of course, all special styli specifications, including L or T styli, styli for roundness measurement or for production machines with an M4 thread are available within 3 days.

Physical property	High Precision Sphere
Diamond type	Nanocrystalline diamond coating
Diamond purity	> 93%
Surface roughness	Ra < 2 nm
Coating thickness	25 µm
Young's modulus	700 GPa
Hardness	7,000 HV (68 GPa)
Fracture strength	5 GPa
Thermal expansion coefficient	$1.2 \times 10^{-6}/K$
Wear coefficient	10-8 mm ³ /Nm
Intrinsic electrical resistivity	> 108 ohm cm



Advantage

- » Low to no material adhesion
- » Almost no wear
- » Highest lifetime
- » Fewer Calibrations
- » Special styli available

Disadvantage

- » One time cost intensive purchase
- » Not useful for every measurement task
- » High storage costs

Ruby sphere

First signs of wear after 2000m scan measurement. The ceramic material Al₂O₃ acts very abrasively on the ruby ball.



Ruby sphere

Material application after a short scan measurement of an aluminum alloy (AlCuMgPb).



DC sphere

Neither abrasion nor application for measurements over 15 km measuring distance.

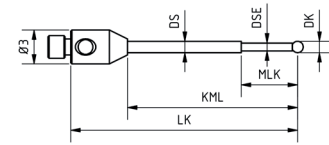


Styli M2

Styli M2, stepped shaft

DK Material = Diamond coated / DS Material = carbide

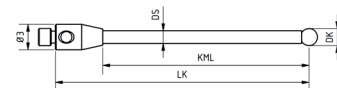
Order No.	DK	LK	KML	DS	DSE	MLK	Weight / g	Price
51255001	1,05	20	15	1	0,7	5	0,400	460,00 €



Styli M2, straight shaft

DK Material = Diamond coated / DS Material = carbide

Order No.	DK	LK	KML	DS	Weight / g	Price
51255002	1,05	20	15	1	0,400	460,00 €
51255003	3,05	20	14	1,5	0,400	460,00 €

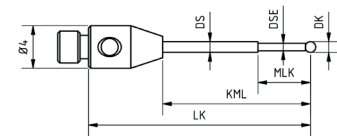


Styli M3

Styli M3, stepped shaft

DK Material = Diamond coated / DS Material = carbide

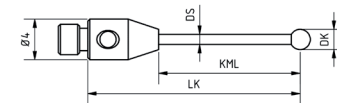
Order No.	DK	LK	KML	DS	DSE	MLK	Weight / g	Price
51355001	1,05	21	14	1	0,7	5	0,700	460,00 €



Styli M3, straight shaft

DK Material = Diamond coated / DS Material = carbide

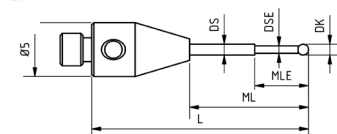
Order No.	DK	LK	KML	DS	Weight / g	Price
51355002	2,05	21	14	1	0,800	460,00 €
51355003	3,05	21	14	1,5	0,900	460,00 €
51355004	3,05	50	43	2	2,100	460,00 €



Styli M3 XXT, stepped shaft

DK Material = Diamond coated / DS Material = carbide

Order No.	DK	L	ML	DS	DSE	MLE	Weight / g	Price
51755001	1,05	20	11	1	0,7	5	0,700	460,00 €



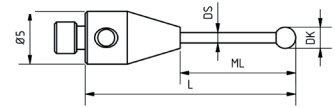
Styli M3

Styli M3 XXT, straight shaft

DK Material = Diamond coated / DS Material = carbide



Order No.	DK	L	ML	DS	Weight / g	Price
51755002	2,05	20	11	1	0,700	460,00 €

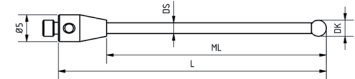


Styli M3 XXT, straight shaft

DK Material = Diamond coated / DS Material = carbon



Order No.	DK	L	ML	DS	Weight / g	Price
51756001	3,05	50	41	2	0,800	460,00 €
51756002	5,05	50	41	3,5	1,400	640,00 €



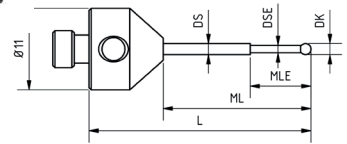
Styli M5

Styli M5, stepped shaft

DK Material = Diamond coated / DS Material = carbide



Order No.	DK	L	ML	DS	DSE	MLE	Weight / g	Price
51555001	0,3	32	12	1	0,5/0,23	4,5/1,3	6,500	748,00 €
51555002	0,5	32	12	1	0,5/0,23	5/2,6	6,500	630,00 €

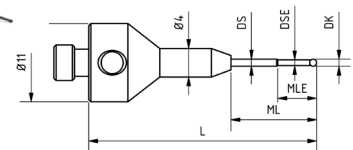


Styli M5, stepped shaft

DK Material = Diamond coated / DS Material = carbide



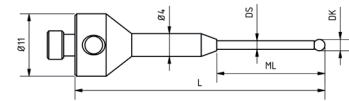
Order No.	DK	L	ML	DS	DSE	MLE	Weight / g	Price
51555003	0,3	25	15	1	0,5/0,23	4,5/1,3	5,600	748,00 €
51555004	0,5	25	15	1	0,6/0,32	4,5/2,6	5,600	630,00 €
51555005	0,8	25	15	1	0,5	4,6	5,600	550,00 €
51555006	1,05	20	10	1	0,7	5	5,600	460,00 €
51555007	1,05	25	15	1	0,7	5	5,700	460,00 €
51555008	1,05	30	20	1,5	0,7	5	6,100	460,00 €



Styli M5

Styli M5, stepped shaft

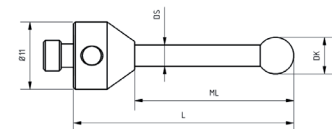
DK Material = Diamond coated / DS Material = carbide



Order No.	DK	L	ML	DS	DSE	MLE	Weight / g	Price
51555009	0,8	32	12	1	0,5	4,6	6,800	550,00 €
51555010	1,05	32	12	1	0,7	5	6,800	460,00 €
51555011	2,05	32	12	1,5			7,300	460,00 €
51555012	2,05	44	19	1,5			8,000	460,00 €
51555013	2,05	58	33	1,5			8,700	460,00 €

Styli M5, straight shaft

DK Material = Diamond coated / DS Material = carbide



Order No.	DK	L	ML	DS	Weight / g	Price
51555014	2,05	20	10	1	5,700	460,00 €
51555015	2,05	30	20	1,5	5,800	460,00 €
51555016	2,05	40	30	1,5	5,900	460,00 €
51555017	3,05	20	10	1,5	5,800	460,00 €
51555018	3,05	33,5	23,5	2	6,700	460,00 €
51555019	3,05	40	30	2	7,100	460,00 €
51555020	3,05	50	40	2	7,500	460,00 €
51555021	3,05	58	48	2	7,900	460,00 €
51555022	5,05	100	90	3,5	18,700	640,00 €
51555023	5,05	30	20	2	6,700	640,00 €
51555024	5,05	53	43	3,5	12,200	640,00 €
51555025	5,05	75	65	3,5	15,200	640,00 €
51555026	8,05	100	87	6	32,100	740,00 €
51555027	8,05	114,5	101,5	6	36,400	740,00 €
51555028	8,05	63,5	50,5	6	23,000	740,00 €
51555029	8,05	75	62	6	25,000	740,00 €



dk FIXIERSYSTEME GmbH & Co. KG

Ferdinand-Lassalle-Straße 35
72770 Reutlingen, Germany

Tel. +49 (0) 7121 90 97 10
Fax +49 (0) 7121 90 97 120
www.dk-fixiersysteme.de
info@dk-fixiersysteme.de



The digital version of our
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www.dk-fixiersysteme.de