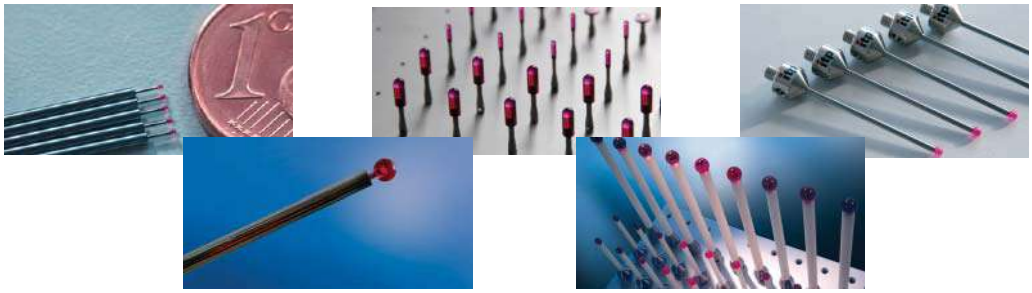
Replacement
Styli

itp™
styli



Adapter Plates and Adapter Plate Extensions

Adapter plates equivalent to Zeiss Vast and MT with active ID chip and individual plate code. Every plate is tested before shipping. Unbeatable price and ships same day.

Adapter plate extensions with or without cube offer integral components to maximize rigidity.

Temp-Comp: Constant Length at Varying Temperatures

Temp-Comp thermal stable carbon fiber provides relatively low weight and the greatest temperature stability. When coupled with our unique titanium end cap design, thermal expansion is essentially zero on a 180 mm long extension.

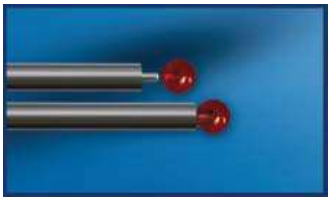
Custom Probe Tooling Solutions

Ask us about custom probe tooling solutions from design to delivery. Titanium holders with your unique angles are coupled with Temp-Comp thermal stable carbon fiber in rigid configurations designed to improve cycle time and measurement accuracy.

itp Specials: Custom Styli Manufactured to Your Specifications

Whether it is a simple change in length or a more elaborate customization, itpstyli welcomes the opportunity to provide the solution you need.

Best Quality



Peg mounted ruby spheres drilled in-house increase durability and accuracy on spheres up to 10mm in diameter. (Below 0.5mm, drilling is not possible)

Visit us at **itpstyli.com**

Search by other manufacturer code or use the unique search filters to find what you need. Save your shopping list. View previous orders. And more.

itpstyli, LLC
1265 Research Boulevard
St. Louis, MO 63132

877-478-9587
Fax 314-432-3107
sales@itpstyli.com

Table of Contents

Click on the description to jump to that page.

All prices are quoted in US dollars and are subject to change without notice.
Prices exclude freight, tax, and insurance.

Welcome to itpstyli
itpstyli is an independent American corporation located in St. Louis Missouri.

itpstyli was created with the sole mission of fulfilling the needs of CMM, machine tool and gear-measurement professionals throughout North America who are looking for a quick and easy method to find and purchase a diverse range of high quality replacement styli, accessories and custom solutions, at lower cost.

Customer Service

The itpstyli customer service promise is simple: Provide customers a friendly, easy, accurate and knowledge-based method of selecting products.

Next day delivery is available when ordered by 3:00 PM CST. With over 7,000 items stocked in our centrally located warehouse we are likely to have what you need in your hands the next day.

In-house CMM professionals are prepared to help you with unique challenges you may face.

Customer service is available during normal business hours: 8 a.m. to 5 p.m. Central Time.

Custom Solutions

Do you need creative solutions for finding the proper stylus for your specific application? itpstyli has experienced CMM operators available to answer your technical questions or to help design the custom stylus needed for your application. Basic “specials” can ship within 72 hours from receipt.

Unconditional Guarantee

Be assured; if you are not happy with our service or product, we will fix the problem to your satisfaction or provide a full refund.

Credit Terms

We accept all major credit cards. We will also accept purchase orders with Net 30 day terms. New customers with business entity addresses in the continental US can place orders up to $600 credit limit. Credit references may be required at our discretion.

www.itpstyli.com

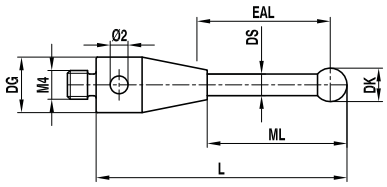
For those who prefer the convenience of e-commerce, itpstyli hosts a world-class Web site that provides several methods to search, find, and purchase the most appropriate stylus or accessory for your application around the clock. You can order and purchase online or easily generate a fax or purchase order to be sent at your convenience.

itpstyli LLC
1265 Research Blvd.
St. Louis, MO 63132

Toll free: 877-478-9587
Fax : 314-432-3107

sales@itpstyli.com
www.itpstyli.com

M4 Ruby Carbide

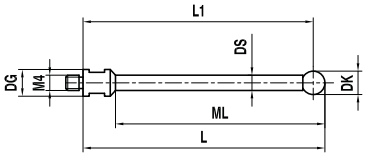


Ball Range 1.0-6.0 mm

TN: 278 – O: 8000

DK	L	ML1 ML	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
1.0	20.5	10.5	0.7	2.4	Stainless steel / Carbide	73.00	**TH M4 010 R7 020**
2.0	21.0	11.0	1.5	3.0	Stainless steel / Carbide	82.00	**TH M4 020 07 021**
2.0	51.0	41.0	1.5	3.8	Stainless steel / Carbide	87.00	**TH M4 020 07 051**
3.0	21.5	11.5	1.5	3.5	Stainless steel / Carbide	82.00	**TH M4 030 07 021**
3.0	51.5	40.0	2.0	4.9	Stainless steel / Carbide	91.00	**TH M4 030 07 051**
4.0	22.0	10.5	1.5	3.5	Stainless steel / Carbide	82.00	**TH M4 040 07 022**
4.0	52.0	40.5	2.0	5.0	Stainless steel / Carbide	91.00	**TH M4 040 07 052**
5.0	22.5	9.0	2.5	4.5	Stainless steel / Carbide	87.00	**TH M4 050 07 022**
5.0	52.5	39.0	2.5	6.7	Stainless steel / Carbide	95.00	**TH M4 050 07 052**
6.0	23.0	9.5	2.5	4.7	Stainless steel / Carbide	87.00	**TH M4 060 07 023**
6.0	53.0	39.5	2.5	6.9	Stainless steel / Carbide	95.00	**TH M4 060 07 053**

M4 Ruby Carbide



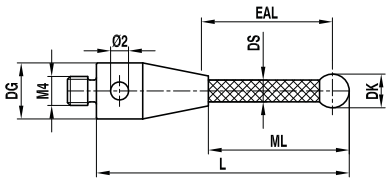
Ball Range 1.0-8.0 mm

TN: 216 – O: 8100

Marposs Style

DK	L L1	DG D	ML1 ML	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
1.0	20.5 / 20.0	7.0	4.5	0.8	1.5	Stainless steel / Carbide	67.00	**TH M4 010 07 020**
2.0	21.0 / 20.0	7.0	8.0	1.5	1.5	Stainless steel / Carbide	61.00	**TH M4 020 07 020**
4.0	22.0 / 20.0	7.0	12.0	3.0	1.9	Stainless steel / Carbide	55.00	**TH M4 040 07 020**
6.0	23.0 / 20.0	7.0	14.5	4.0	2.1	Stainless steel / Carbide	55.00	**TH M4 060 07 020**
6.0	38.0 / 35.0	7.0	29.5	4.0	15.2	Stainless steel / Carbide	55.00	**TH M4 060 07 035**
6.0	43.0 / 40.0	7.0	34.5	4.0	16.5	Stainless steel / Carbide	55.00	**TH M4 060 07 040**
6.0	53.0 / 50.0	7.0	44.5	4.0	18.0	Stainless steel / Carbide	55.00	**TH M4 060 07 050**
6.0	78.0 / 75.0	7.0	69.5	4.0	19.7	Stainless steel / Carbide	63.00	**TH M4 060 07 075**
6.0	103.0 / 100.0	7.0	94.5	4.0	27.5	Stainless steel / Carbide	57.00	**TH M4 060 07 100**
7.0	153.5 / 150.0	7.0	135.5	4.0	36.0	Stainless steel / Carbide	68.00	**TH M4 070 07 150**
8.0	24.0 / 20.0	7.0	15.5	4.0	2.2	Stainless steel / Carbide	63.00	**TH M4 080 07 020**

M4 Ruby Carbon Fiber

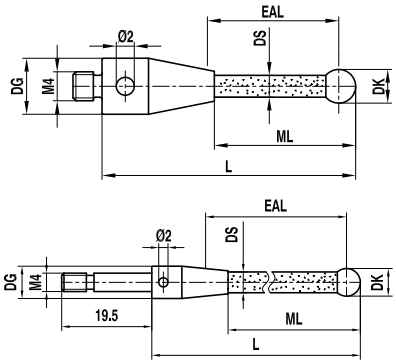


Ball Range 6.0 mm

TN: 143 – O: 8200

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
6.0	53.0	36.5	36.0	4.5	5.1	Stainless steel / Carbon fiber	62.00	**TC M4 060 07 053**
6.0	103.0	86.5	86.0	4.5	6.2	Stainless steel / Carbon fiber	93.00	**TC M4 060 07 103**
6.0	153.0	136.5	138.5	4.5	7.5	Stainless steel / Carbon fiber	90.00	**TC M4 060 07 153**
6.0	203.0	186.5	186.0	4.5	8.7	Stainless steel / Carbon fiber	95.00	**TC M4 060 07 203**
6.0	303.0	286.5	288.5	4.5	10.4	Stainless steel / Carbon fiber	143.00	**TC M4 060 07 303**

M4 Ruby Ceramic



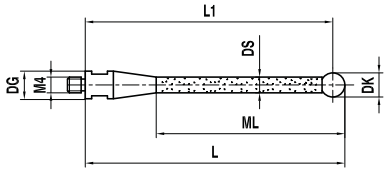
* These parts correspond with the second drawing and are to be used with 5 way star center HI M4 000 15 015 described on page 49.

Ball Range 5.0-8.0 mm

TN: 142 – O: 8300

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
5.0	52.5	36.0	34.0	3.5	5.0	Stainless steel / Ceramic	59.00	**TK M4 050 07 052**
5.0	77.5	61.0	59.0	3.5	5.6	Stainless steel / Ceramic	64.00	**TK M4 050 07 077**
5.0	102.5	86.0	84.0	3.5	6.4	Stainless steel / Ceramic	69.00	**TK M4 050 07 102**
6.0	78.0	61.5	63.5	4.5	5.6	Stainless steel / Ceramic	83.00	**TK M4 060 07 078**
6.0	53.0	36.5	36.0	4.5	4.7	Stainless steel / Ceramic	39.00	**TK M4 060 07 053**
6.0	103.0	86.5	86.0	4.5	6.7	Stainless steel / Ceramic	41.00	**TK M4 060 07 103**
6.0	53.0	36.5	36.0	4.5	6.0	Stainless steel / Ceramic	72.00	**TK M4 060 S7 053***
6.0	103.0	86.0	86.0	4.5	7.5	Stainless steel / Ceramic	91.00	**TK M4 060 S7 103***
8.0	54.0	37.5	50.0	4.5	5.1	Stainless steel / Ceramic	50.00	**TK M4 080 07 054**
8.0	104.0	87.5	100.0	4.5	6.6	Stainless steel / Ceramic	52.00	**TK M4 080 07 104**
8.0	79.0	62.5	75.0	4.5	6.2	Stainless steel / Ceramic	86.00	**TK M4 080 07 079**

M4 Ruby Ceramic



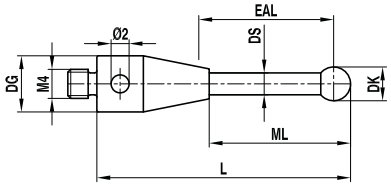
Ball Range 6.0-10.0 mm

TN: 215 – O: 8400

Marposs Style

DK	L L1	DG D	ML1 ML	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
6.0	38.0 / 35.0	7.0	29.5	4.0	3.8	Stainless steel / Ceramic	72.00	**TK M4 060 07 035**
6.0	43.0 / 40.0	7.0	34.5	4.0	4.0	Stainless steel / Ceramic	72.00	**TK M4 060 07 040**
6.0	48.0 / 45.0	7.0	39.5	4.0	4.7	Stainless steel / Ceramic	72.00	**TK M4 060 07 045**
6.0	53.0 / 50.0	7.0	44.5	4.0	4.5	Stainless steel / Ceramic	72.00	**TK M4 060 07 050**
6.0	78.0 / 75.0	7.0	60.0	4.0	5.2	Stainless steel / Ceramic	81.00	**TK M4 060 07 075**
6.0	103.0 / 100.0	7.0	85.0	4.0	6.5	Stainless steel / Ceramic	88.00	**TK M4 060 07 100**
7.0	128.5 / 125.0	7.0	110.5	4.0	7.9	Stainless steel / Ceramic	133.00	**TK M4 070 07 125**
7.0	153.5 / 150.0	7.0	135.5	4.0	8.9	Stainless steel / Ceramic	152.00	**TK M4 070 07 150**
7.0	73.5 / 70.0	7.0	55.5	4.0	5.0	Stainless steel / Ceramic	89.00	**TK M4 070 07 070**
10.0	105.0 / 100.0	7.0	87.0	4.0	7.3	Stainless steel / Ceramic	98.00	**TK M4 100 07 100**

M4 Ruby Stainless Steel

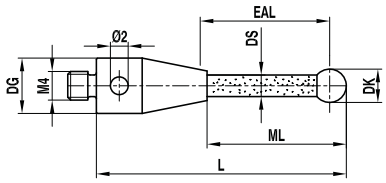


Ball Range 1.0-8.0 mm

TN: 141 – O: 8600

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
1.0	20.0	4.5	4.0	0.7	2.5	Stainless steel	28.00	**TI M4 010 07 020**
2.0	20.0	9.0	8.0	1.3	2.3	Stainless steel	28.00	**TI M4 020 07 020**
3.0	20.0	14.5	13.0	2.0 – 3.0	2.0	Stainless steel	29.00	**TI M4 030 07 020**
4.0	20.0	15.0	13.0	3.0	2.1	Stainless steel	30.00	**TI M4 040 07 020**
5.0	20.0	16.0	13.5	3.5	2.3	Stainless steel	31.00	**TI M4 050 07 020**
5.0	22.5	17.5	16.0	3.0	2.4	Stainless steel	33.00	**TI M4 050 07 022**
5.0	52.5	35.5	33.0	4.5	5.8	Stainless steel	36.00	**TI M4 050 07 052**
5.0	102.5	85.5	83.0	4.5	11.3	Stainless steel	40.00	**TI M4 050 07 102**
5.0	13.0	9.0	5.5	3.5	2.0	Stainless steel	31.00	**TI M4 050 07 013**
5.0	152.5	135.5	133.0	4.5	18.2	Stainless steel	47.00	**TI M4 050 07 152**
5.0	32.5	27.5	26.0	3.0	3.0	Stainless steel	35.00	**TI M4 050 07 032**
6.0	20.0	16.0	13.5	4.5	3.0	Stainless steel	44.00	**TI M4 060 07 020**
8.0	20.0	16.5	16.0	6.0	3.9	Stainless steel	75.00	**TI M4 080 07 020**

M4 Silicon Nitride Ceramic

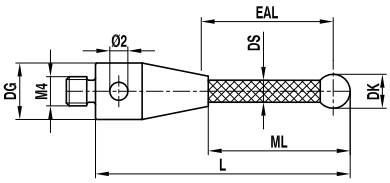


Ball Range 6.0-8.0 mm

TN: 205 – O: 8800

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
6.0	53.0	36.5	36.0	4.5	4.7	Stainless steel / Ceramic	63.00	**TK M4 S60 07 053**
6.0	103.0	86.5	86.0	4.5	6.7	Stainless steel / Ceramic	107.00	**TK M4 S60 07 103**
8.0	54.0	37.5	50.0	4.5	5.1	Stainless steel / Ceramic	74.00	**TK M4 S80 07 054**
8.0	104.0	87.5	100.0	4.5	6.6	Stainless steel / Ceramic	76.00	**TK M4 S80 07 104**

M4 Silicon Nitride Carbon Fiber

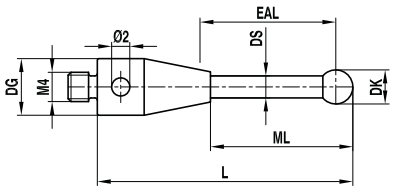


Ball Range 6.0 mm

TN: 207 – O: 8850

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
6.0	53.0	36.5	36.0	4.5	5.1	Stainless steel / Carbon fiber	109.00	**TC M4 S60 07 053**
6.0	103.0	86.5	86.0	4.5	6.2	Stainless steel / Carbon fiber	117.00	**TC M4 S60 07 103**
6.0	153.0	136.5	138.5	4.5	7.5	Stainless steel / Carbon fiber	114.00	**TC M4 S60 07 153**
6.0	203.0	186.5	186.0	4.5	8.7	Stainless steel / Carbon fiber	119.00	**TC M4 S60 07 203**
6.0	303.0	286.5	288.5	4.5	10.4	Stainless steel / Carbon fiber	166.00	**TC M4 S60 07 303**

M4
Silicon Nitride
Stainless Steel

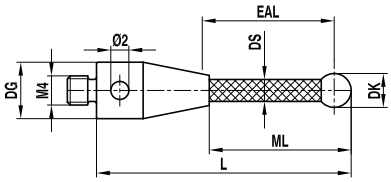


Ball Range
1.0-8.0 mm

TN: 206 – O: 8900

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
1.0	20.0	4.5	4.0	0.7	2.5	Stainless steel	47.00	**TI M4 S10 07 020**
2.0	20.0	9.0	8.0	1.3	2.3	Stainless steel	47.00	**TI M4 S20 07 020**
3.0	20.0	14.5	13.0	2.0 – 3.0	2.0	Stainless steel	48.00	**TI M4 S30 07 020**
4.0	20.0	15.0	13.0	3.0	2.1	Stainless steel	49.00	**TI M4 S40 07 020**
5.0	20.0	16.0	13.5	3.5	2.3	Stainless steel	50.00	**TI M4 S50 07 020**
5.0	22.5	17.5	16.0	3.0	2.4	Stainless steel	51.00	**TI M4 S50 07 022**
5.0	52.5	35.5	33.0	4.5	5.8	Stainless steel	59.00	**TI M4 S50 07 052**
5.0	102.5	85.5	83.0	4.5	11.3	Stainless steel	95.00	**TI M4 S50 07 102**
6.0	20.0	16.0	13.5	4.5	3.0	Stainless steel	72.00	**TI M4 S60 07 020**
8.0	20.0	16.5	16.0	6.0	3.9	Stainless steel	104.00	**TI M4 S80 07 020**

M4
Zirconium Oxide
Carbon Fiber

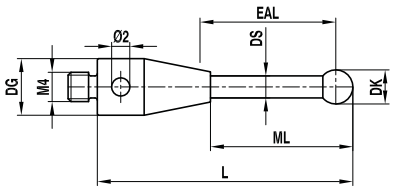


Ball Range
6.0 mm

TN: 285 – O: 9100

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
6.0	53.0	36.5	36.0	4.5	5.1	Stainless steel / Carbon fiber	210.00	**TC M4 Z60 07 053**
6.0	103.0	86.5	86.0	4.5	6.2	Stainless steel / Carbon fiber	228.00	**TC M4 Z60 07 103**
6.0	153.0	136.5	138.5	4.5	7.5	Stainless steel / Carbon fiber	114.00	**TC M4 Z60 07 153**
6.0	203.0	186.5	186.0	4.5	8.7	Stainless steel / Carbon fiber	119.00	**TC M4 Z60 07 203**
6.0	303.0	286.5	288.5	4.5	10.4	Stainless steel / Carbon fiber	265.00	**TC M4 Z60 07 303**

M4
Zirconium Oxide
Stainless Steel

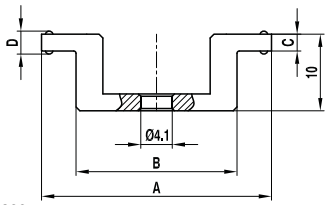


Ball Range
2.0-4.0 mm

TN: 286 – O: 9150

DK	L	ML1 ML	EAL B	DS1 DS	Weight g	Base/Stem Material	Price $USD	Part Number
2.0	20.0	9.0	8.0	1.3	2.3	Stainless steel	67.00	**TI M4 Z20 07 020**
4.0	20.0	15.0	13.0	3.0	2.1	Stainless steel	60.00	**TI M4 Z40 07 020**

M4
Disks
Stainless Steel

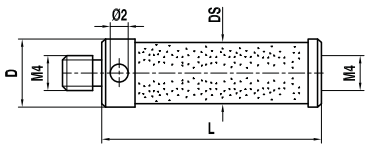


Disk Range
30.0-50.0 mm
With Two Hemispherical Balls

TN: 301 – O: 9200

C D	A B	Weight g	Material	Price $USD	Part Number
2.2 / 3.0	21.0 / 30.0	8.0	Stainless steel	108.00	**KI M4 022 30 021**
2.2 / 3.0	21.0 / 35.0	9.5	Stainless steel	103.00	**KI M4 022 35 021**
3.0 / 4.0	23.0 / 50.0	13.5	Stainless steel	113.00	**KI M4 030 50 023**

M4
Extensions
Ceramic

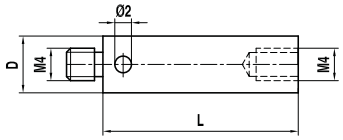


Length Range
30.00-100.00 mm

TN: 144 – O: 9300

L	DG D	Weight g	Body Material	End Material	Price $USD	Part Number
30.0	7.5	5.1	Ceramic	Stainless Steel	40.00	**VK M4 000 07 030**
50.0	7.5	6.7	Ceramic	Stainless Steel	42.00	**VK M4 000 07 050**
100.0	7.5	10.6	Ceramic	Stainless Steel	48.00	**VK M4 000 07 100**

M4 Extensions Stainless Steel

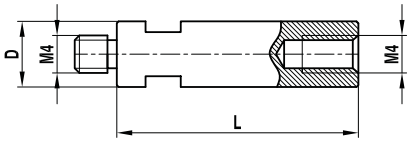


Length Range 10.00-30.00 mm

TN: 151 – O: 9400

L	DG D	Weight g	Body Material	Price $USD	Part Number
10.0	7.0	2.4	Stainless steel	11.00	**VI M4 000 07 010**
15.0	7.0	3.7	Stainless steel	11.00	**VI M4 000 07 015**
20.0	7.0	4.8	Stainless steel	12.00	**VI M4 000 07 020**
30.0	7.0	7.4	Stainless steel	12.00	**VI M4 000 07 030**

M4 Extensions Stainless Steel



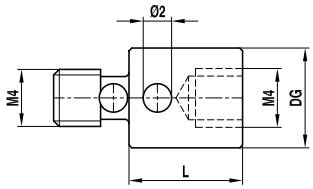
Length Range 10.00-50.00 mm

TN: 213 – O: 9500

Marposs Style

L	DG D	Weight g	Body Material	Price $USD	Part Number
10.0	7.0	2.4	Stainless steel	28.00	**VI M4 000 M7 010**
15.0	7.0	3.7	Stainless steel	28.00	**VI M4 000 M7 015**
20.0	7.0	4.8	Stainless steel	28.00	**VI M4 000 M7 020**
30.0	7.0	7.4	Stainless steel	28.00	**VI M4 000 M7 030**
50.0	7.0	9.5	Stainless steel	28.00	**VI M4 000 M7 050**

M4 Holders Stainless Steel

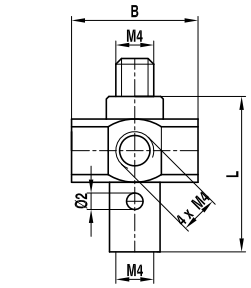


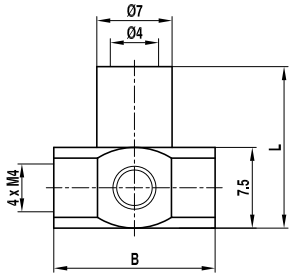
Holder for Anticrash Protection

TN: 179 – O: 9700

DG D	L	Weight g	Body Material	Price $USD	Part Number
7.0	8.0	1.8	Stainless steel	4.50	**BI M4 000 07 008**
7.0	6.0	1.4	Stainless steel	4.75	**BI M4 000 07 006**
7.0	10.0	1.5	Stainless steel	4.75	**BI M4 000 07 010**
7.0	12.0	2.7	Stainless steel	19.00	**BI M4 000 07 012**
7.0	15.2	4.6	Stainless steel	25.00	**BI M4 000 07 015**
7.0	9.0	1.5	Stainless steel	23.75	**BI M4 000 07 009**
7.0	16.0	2.1	Stainless steel	8.00	**BI M4 000 R7 016**

M4
5-Way Rotary Holders
Stainless Steel





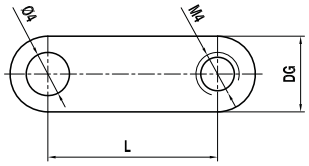
* This part corresponds with the second drawing and is to be used with the two asterisked styli with extended threads as described on page 43.

5-Way Star Center

TN: 178 – O: 9800

L	EAL B	Weight g	Body Material	Price $USD	Part Number
18.0	15.0	12.5	Stainless steel	51.00	**HI M4 000 15 018**
15.0	15.0	10.0	Stainless steel	95.00	**HI M4 000 15 015***

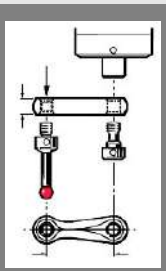
M4
Adapters for Crank Styli
Stainless Steel



Holder for Crank

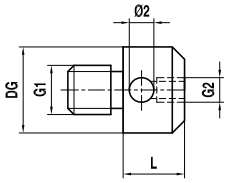
TN: 257 – O: 9900

DG D	L	Weight g	Body Material	Price $USD	Part Number
7.0	22.0	1.5	Stainless steel	44.00	**RI M4 000 07 022**
7.0	28.0	1.8	Stainless steel	44.00	**RI M4 000 07 028**



The holder will accept an M4 stylus and is attached to the sensor using the M4 screw SI M4 000 07 010.
The tool TF M2 M30 08 195 can be used to hold the holder in place while tightening the set screw.

M4 Adapters Stainless Steel

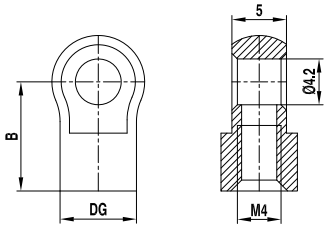


Adapter

TN: 145 – O: 10000

G1 G2	L	DG D	Weight g	Material	Price $USD	Part Number
M4/M2	5.0	7.0	1.5	Stainless steel	10.00	**RI M4 000 07 005**
M4/M3	9.0	7.0	1.4	Stainless steel	10.00	**RI M4 000 07 009**
M4/M5	10.0	11.0	5.2	Stainless steel	14.00	**RT M4 500 11 010**
M4x0.5/M3	18.0	7.0	1.9	Stainless steel	33.00	**RI M4 300 07 018**

M4 Adapters Stainless Steel

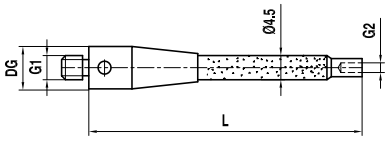


Swivel Adapter

TN: 300 – O: 10100

DG D	L	EAL B	Weight g	Material	Price $USD	Part Number
7.0	14.25	10.0	2.8	Stainless steel	47.50	**RI M4 000 07 014**
7.0	17.75	13.5	3.7	Stainless steel	47.50	**RI M4 000 07 018**

M4 Adapters Ceramic

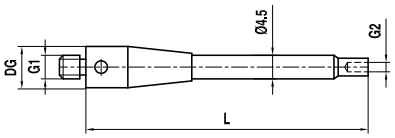


Extension Adapter M4 – M3

TN: 311 – O: 10200

L	DG D	Weight g	Base/Body Material	Price $USD	Part Number
50.0	7.0	4.4	Stainless steel / Ceramic	53.00	**RK M4 300 07 050**
75.0	7.0	5.2	Stainless steel / Ceramic	61.00	**RK M4 300 07 075**
100.0	7.0	6.3	Stainless steel / Ceramic	69.00	**RK M4 300 07 100**

M4 Adapters Stainless Steel

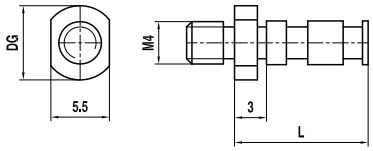


Extension Adapter

TN: 258 – O: 10300

L	DG D	G1 G2	Weight g	Base/Body Material	Price $USD	Part Number
20.0	7.0	M4/M3	3.2	Stainless steel	20.00	**RI M4 300 07 020**

M4 Adapters Stainless Steel

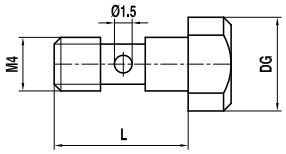


Anticrash Adapter for WP Styli

TN: 233 – O: 10400

L	DG D	Weight g	Body Material	Price $USD	Part Number
16.0	7.0	1.8	Stainless steel	8.00	**BI M4 000 07 016**

M4 Screw for Adapter Stainless Steel

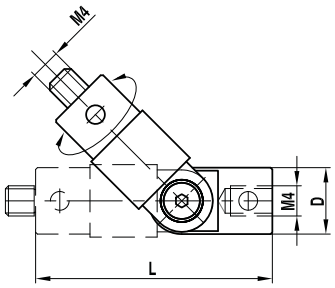


Screw for Crank

TN: 256 – O: 10500

L	DG D	Weight g	Body Material	Price $USD	Part Number
10.0	7.0	1.8	Stainless steel	8.00	**SI M4 000 07 010**

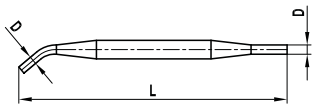
M4
Rotary Knuckles
Stainless Steel



Rotary Knuckle TN: 294 – O: 10600

DG D	L	Weight g	Material	Price $USD	Part Number
9.0	33.0	9.8	Stainless steel	133.00	**GI M4 000 09 033**

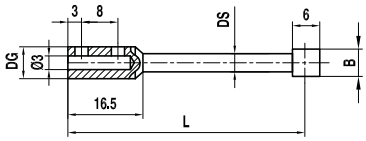
M4
Pin-Type Wrench
Stainless Steel



Pin-Type Wrench TN: 312 – O: 10610

DG D	L	Body Material	Price $USD	Part Number
1.7	49.0	Stainless steel	9.00	**MI MO 017 00 049**

M4
Styli for Tool Datuming
Stainless Steel-Carbide Cube



Cube Range 31.00-95.00 mm TN: 255 – O: 10700

L	EAL B	DG D	DS1 DS	Weight g	Base/Cube Material	Price $USD	Part Number
31.0	6.0	7.0	4.0	3.3	Stainless steel / Carbide	85.00	**WP M4 000 07 031**
36.0	6.0	7.0	4.0	3.5	Stainless steel / Carbide	84.00	**WP M4 000 07 036**
48.0	6.0	7.0	4.0	3.8	Stainless steel / Carbide	84.00	**WP M4 000 07 048**
61.0	6.0	7.0	4.0	4.7	Stainless steel / Carbide	84.00	**WP M4 000 07 061**
95.0	6.0	7.0	4.0	7.5	Stainless steel / Carbide	93.00	**WP M4 000 07 095**

Vision Fixturing Systems

High quality components, affordable costs, effective solutions

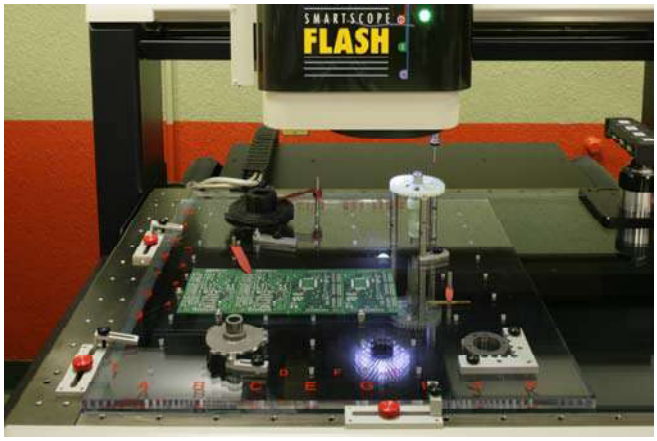
Why purchase an

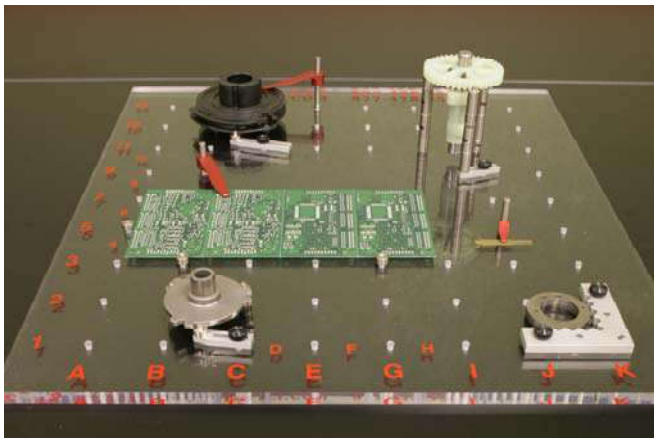
www.itpstyli.com

Vision Fixture System?

- Simplify multiple part inspections
- Improved location and orientation accuracy
- Transfer fixturing set-up information to other operators with grid identification
- Faster setup and cycle time
- Improved measurement repeatability
- Ideal for Quality Certification Processes
- Can be used with literally any vision or multi-sensor machine
- Best value available
- Same-day shipping available
- Pre-configured kits make it easy to start
- All parts available as individual items with no minimum orders

sales@itpstyli.com ● **www.itpstyli.com**





Acrylic Plates

- VP 150 – 6 x 6 in. (152x152 mm) - $225.00
- VP 200 HFC – 8 x 8 in. (203x203 mm) - $335.00
- VP 500 HFC – 18 x 20 in. 457x508 mm - $415.00

Pre-Configured Vision Fixture Kits

Quantities Included per Kit	Kit 150	Kit 200	Kit 500
Acrylic Plate *Hole Free Center**	1, 6 x 6in. (152 x 152 mm)	1, 8 x 8in. (203 x 203 mm)	1, 18 x 20in. (457 x 508 mm)
Spring Clamp (two sizes)	(3 of each) 6 Total	(5 of each) 10 Total	(7 of each) 14 Total
Spring Post (two sizes)	(3 of each) 6 Total	(5 of each) 10 Total	(7 of each) 14 Total
Extension (three sizes)	(3 of each) 9 Total	(5 of each) 15 Total	(7 of each) 21 Total
Adjustable Extension (two sizes)	(1 of each) 2 Total	(2 of each) 4 Total	(3 of each) 6 Total
Locator Pin (three sizes)	(4 ea, 2 sizes) 8 Total	(5 of each) 15 Total	(7 of each) 21 Total
Radius Locator	4 Total	5 Total	7 Total
Adjustable Base (two sizes)	1 small	(2 sm, 1 lg) 3 Total	(3 sm, 3 lg) 6 Total
Corner Bracket	1 Total	1 Total	1 Total
Plate Locator Kit	1 small	1 small	1 large
Organizer Box	1 small	1 large	1 large
Total Pieces	40 pcs.	65 pcs.	93 pcs.
Price US$ (+ ship)	$860	$1,275	$1,750

Can be purchased by individual item or by the preconfigured kit

Spring Clamp
Slips over spring post for variable clampingof work-piece.

S SH 025 - Small – 25 mm Length - $9.00
S SH 055 - Large – 50 mm Length - $10.00

Spring Post
Used with spring clamp to hold down work-piece. Two (2) lengths (L) available.

S HT M4 000 80 025, L 25 mm, $13.00
S HT M4 000 80 050, L 50 mm, $14.00

Locator Pin
Work-piece rests against pin in a stand-off position. Three (3) lengths (L) available.

S HT M4 000 10 005, L 5 mm, $13.00
S HT M4 000 10 010, L 10 mm, $14.00
S HT M4 000 10 025, L 20 mm, $15.00

Radius Locator
Use with base plate or extensions to locate irregular or radius workl-pieces.

S HK M4 100 10 007, 5 mm Radius, $10.00

Adjustable Extension
Provides variable height adjustment.

S VI M4 000 10 022
Adjusts from 22 to 30 mm, $35.00

S VI M4 000 10 035
Adjusts from 35 to 50 mm, $38.00

Extension
Accepts locator pin, other extensions, and radius locator. Three (3) lengths (L) available.

S VT M4 000 10 010, L 10mm, $11.00
S VT M4 000 10 020, L 20mm, $12.00
S VT M4 000 10 215, L 25mm, $13.00

Adjustable Base
Locate all tooling outside of the M4 plate gride to obtain more location flexiblilty. Two (2) lengths (L) available.

S VS AB M4 010 040, L 40 mm, $26.00
S VS AB M4 010 060, L 60 mm, $29.00

Corner Bracket
Quick and easy work piece positioning while maintaining clear edge view.
73.0 mm x 73 mm, Contains two M4 thumb screws.

S WS 000 73 19 073, 73 mm, $40.00

Plate Locator Kit
Secures acrylic plate to table top.
Two (2) Kits available: Large and Small.
Includes three (3) sets of: Plate, clamp, M6 and M4 thumb screws.

VLP-Kit SM 150-200, 12 pcs, Small $160.00
VLP-Kit LG 500, 12 pcs, Large $160.00

TEMP-COMP

Constant Length at Varying Temperatures

Coordinate Measuring Machines are being introduced directly to the production area, thus reducing and eliminating delays in obtaining corrective values for production machines and making process control more efficient.

However, in order to obtain maximum performance in shop floor measurements, several challenging requirements must be met:

- ↔ **Minimize thermal expansion** to preserve accuracy, especially at high temperature gradients on the manufacturing floor.
- ↔ **High mechanical rigidity**, which has a decisive influence on the accuracy of the measurement
- ↔ **Low weight**, enabling usage of long stylus combinations.

itpstyli manufacturers a new generation of carbon fiber **styli** and **extensions** to help obtain accurate measurement in your production area. Engineered to meet the harsh environments of space and aviation, **TEMP-COMP** addresses the thermal expansion, rigidity, and low weight requirements needed to obtain accurate measurements.

Initially developed for aerospace applications, unique carbon fiber materials are used in **TEMP-COMP** styli and extensions. These carbon fibers are coiled at high density, in several layers and directions, which allows for exceptionally high bending and torsion rigidity.

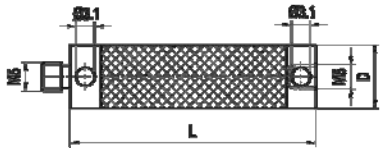
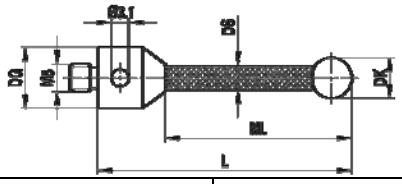
Most importantly, this technology provides a consistent thermal expansion coefficient.

TEMP-COMP products combine **titanium** fittings and a proprietary manufacturing technology that produces a thermally stable and rigid component unmatched in the CMM metrology market.

The following performance data (as illustrated in Table 1) highlights the unique **TEMP-COMP** advantages:

- An E-module of approximately 450 Gpa (Giga-pascal). Compare this to a normal rate of 250 Gpa on other carbon fiber extensions.
- Extremely low thermal expansion coefficients.
- Linear expansion of - 0.00002 mm per degree Kelvin with an extension of 200 mm.
- Linear expansion of + 0.000118 with an extension of 100 mm per degree Kelvin

Table 1: Coefficients of Thermal Expansion for TEMP-COMP Extensions and Styli

Extensions **Special carbon fiber body, titanium fittings**		
Diameter (D, mm)	**Length (L, mm)**	**Thermal Expansion Coefficient (mm/1°K)**
11	**100**	**0.000148**
11	**120**	**0.000124**
11	**150**	**0.000088**
11	**200**	**0.000028**
20	**100**	**0.000118**
20	**150**	**0.000058**
20	**180**	**0.000002**
20	**200**	**-0.000002**
Styli **Special carbon fiber stem, titanium fittings**		
Stem Diameter DS (mm)	**Length L (mm)**	**Thermal Expansion Coefficient (mm/1°K)**
2	**33**	**0.000057**
2	**58**	**0.000015**
3	**53**	**0.000030**
3.5	**53**	**0.000015**
3.5	**75**	**-0.000003**
4	**103**	**-0.000012**
6	**100**	**-0.000038**

CHOOSE THE MOST SUITABLE MATERIAL FOR YOUR APPLICATION

BEST	**Recommended choice (best available)**
OK	**Acceptable alternative (not ideal)**
NO	**Not recommended (or not applicable)**

THREADED BASE MATERIAL

Thread	STAINLESS STEEL	TITANIUM	ALUMINUM
M2 M3 M4 M6	BEST	OK	NO
M5	OK	BEST	NO

BALL MATERIAL

Application	RUBY	SILICON NITRIDE	CARBIDE	ZYRCONIA
Point-to-Point measurements on all materials	BEST	OK	NO	OK
Scanning on ALUMINUM parts	OK (frequent cleaning required)	BEST	NO	OK
Scanning on CAST IRON	OK (rapid wear)	OK	NO	BEST
Portable CMMs	BEST	NO	NO	OK

STEM or EXTENSION

Application	STAINLESS STEEL	HIGH GRADE STAINLESS STEEL	CARBIDE TUBULAR STEM	CARBIDE FULL STEM	CERAMIC	CARBON FIBER
Point to Point (L < 80)	BEST	OK	OK	OK	OK	OK
Scanning with high stiffness	NO	BEST	OK	OK	OK	NO
Small ball diameters (Ø < 1 mm)	NO	NO	NO	BEST	NO	NO
Reduced weight	NO	NO	NO	NO	OK	BEST
Reduced weight + high stiffness	NO	OK	BEST	OK	OK	NO
Long stylus (L > 150 mm) Ø ball > 4 mm MAX. STIFFNESS	NO	NO	BEST	NO	OK	NO
Long stylus (L > 150 mm) Ø ball < 4 mm MAX. STIFFNESS	NO	NO	NO	BEST	OK	NO
Anticrash	NO	NO	NO	NO	BEST	NO

STEM AND BASE MATERIAL TECHNICAL SPECIFICATIONS

	MATERIAL	HARDNESS	DENSITY
TITANIUM	3.7035 Grade 2	150 Brinell	4.5 g/cm^3
STAINLESS STEEL	1.4035	300 Vickers	7.95 g/cm^3
TUNGSTEN CARBIDE	DK 120	1700 Vickers	15.0 g/cm^3
CERAMIC	Alsint 99.7	9 nach Mohs	3.85 g/cm^3
CARBON FIBER	Bending Strength > 450 GPa CTE (Coefficient of Thermal Expansion) – 0.4x10^{-6}K^{-1}		

BALL MATERIAL TECHNICAL SPECIFICATIONS

	RUBY BALLS	CERAMIC BALLS	SILICON NITRIDE BALLS	ZIRCONIA OXIDE BALLS
MATERIAL	Synthetic Ruby Monochrystal Al_2O_3	Aluminum Oxide Polychrystal >99.9 Al_2O_3	Silicon Nitride Polychrystal SI_3N_4	Zirconia Oxide Polychrystal ZrO_2
FORM DEVIATION	0.08µm - 0.13µm	0.08µm - 0.13µm	0.08µm - 0.13µm	0.08µm - 0.13µm
DIAMETER DEVIATION	0.08µm - 0.13µm	0.08µm - 0.13µm	0.08µm - 0.13µm	0.08µm - 0.13µm
ROUGHNESS Ra	0.007µm - 0.008µm	0.007µm -0.008µm	0.004µm - 0.005µm	0.007µm -0.008µm
HARDNESS	2400 Vickers	2100 Vickers	1600 Vickers	1200 Vickers
DENSITY	3.99 g/cm^3	3.85 g/cm^3	3.20 g/cm^3	6.05 g/cm^3
THERMAL EXPANSION	$5.4 \cdot 10^{-6} K^{-1}$	$8.0 \cdot 10^{-6} K^{-1}$	$2.9 \cdot 10^{-6} K^{-1}$	$10.5 \cdot 10^{-6} K^{-1}$
COMPRESSION STRENGTH (MPa)	2100	3800	3000	2000
BENDING STRENGTH	400	470	>1000	700-1100
FRACTURE TOUGHNESS ($MN/m^{3/2}$)	1	4	>6.5	10

CHOOSING THE RIGHT MATERIAL – BENEFITS AND LIMITATIONS

THREADED BASE	BENEFITS	LIMITATIONS
Stainless Steel	- Very good ratio stiffness/weight - Low wear - Medium-low cost - Always used with M2, M3, and M4 threads. Often used with M5	- Thermal coefficient medium-high
Titanium	- **Best ratio stiffness/weight** - Lower thermal coefficient - Minimum wear - Used on some M5 styli - Preferable to Ceramic extension body (slightly higher weight, crash-proof, excellent stiffness)	- Higher cost - More difficult machining
STEM / EXTENSION		
Stainless Steel	- Very good ratio stiffness/weight - Reduced cost - Good for diameters over 0.7 mm - Perfect electrical conductivity Stem diameter / Max length 0.7 - 1 / 20 1.5 - 3 / 40 4 - 6 / 80	- Under 0.7 mm diameter, the stem bending is not acceptable
High Grade Stainless Steel (used in Aerospace industry) high stiffness	- **Base and stem machined from one single steel part (integral)** - Higher stiffness - Better ratio stiffness/weight - **Ideal for scanning (M5)**	- Higher cost - Available only for M5 range
Tungsten Carbide solid stem	- **Best stiffness vs. metal stems** - Necessary for diameters under 0.7 mm. - **Necessary for balls under 1 mm diameter**	- Highest density = highest weight for same diameter and length - Higher cost vs. stainless steel
Tungsten Carbide tube stem	- **Lighter than solid carbide stem for same diameter** - Lengths from 50 to 118 mm - Ball size from 5 to 10 mm - Ideal for lengths over 80 mm	- Not available for ball diameters smaller than 5 mm - Higher cost - Available only for M5 - Adhered ball
STEM / EXTENSION		
Standard Carbon Fiber	- Low weight and resistant to crashes - Minimal thermal coefficient - Good for styli over 100 mm lengths with stem size over 6 mm - Ideal for extensions over 200 mm stem length / diameter 20 – 40 / 3 40 – 70 / 4 75 – 100 / 8	- Lower stiffness vs. ceramic - Not to be used for stems under 3 mm diameter - Higher cost

CHOOSING THE RIGHT MATERIAL – BENEFITS AND LIMITATIONS

TEMP-COMP Carbon Fiber (new)	- **Best absolute ratio stiffness / weight (E-module > 450 GPa)** - **The lowest total thermal coefficient (body + base or fittings) due to mutual compensation between metal and fiber parts (negative coefficient of the fiber, positive of the base/fittings)** - Used on high-end CMMs used on shop floor stem length 20 – 40 → diameter 2 stem length 40 – 80 → diameter 3.5 stem length 90 – 100 → diameter 6	- Higher cost than traditional Carbon Fiber - Stem diameters are available in sizes 2 mm and above - Extension diameters are 11 mm and 20 mm only
Ceramic	- Low weight - Best stiffness for same weight and diameter size - Low thermal coefficient - Good for styli over 100 mm lengths with stem size over 4 mm - **Ideal for protection of probe head against crashes (e. g. CNC machining centres)** - Adhered balls with stem size over 3.5 mm - Drilled balls for stems under 3.5 mm	- Fragile - **Not to be used under 2 mm stem size**
BALL MATERIAL		
Ruby (AL_2O_3 / Cr_2O_3)	- **Best ratio features/price** - Diamond-like hardness (9 for Ruby, 10 for diamond on Mohs scale) - Very high roundness/roughness features for very small sizes (down to 0.3 mm) - Excellent resistance to wear - Ideal for point to point and scanning on steel parts	- **Attracts Aluminum particles for continuous scanning applications (heavy and repeated cleaning procedures)** - Available sizes up to 13 mm
Silicon Nitride (Sl_3N_4)	- Smoother surface (lower friction) - **Ideal for scanning on Aluminum parts (no build up of material particles)**	- Higher cost - Diameters sizes limited (from 1 to 10 mm only as standard, larger diameters are possible under request)
Tungsten Carbide	- Low weight - Possible to obtain the ball from stem machining - Better shock absorption - Normally used on articulated arms	- Surface and dimensional features lower than Ruby - rapid loss of dimensional tolerances - very low roundness and roughness for ball sizes under 1 mm diameter
Zirconium Oxide ($Zr O_2$)	- Very good surface features (comparable to Ruby) - **Ideal for scanning on Cast Iron parts (lower friction, lower wear)**	- Higher cost than ruby

Design Your Own Custom Stylus

The extensive **itpstyli** product line will address many of your application needs, but not all of them. As such, **itpstyli** has developed business and manufacturing processes to make it easy and affordable for you to design and receive your custom stylus.

Your design will fall into one of two categories: special or exotic. A special design is a unique configuration that utilizes standard components, such as M2 thread, titanium base, ceramic stem and a ruby ball. The dimensional requirements and combination of materials are what make it special.

An exotic design is one that has a component or feature that cannot be found in our catalog, such as a 0.2 mm ruby ball attached to a 7 mm stem and base.

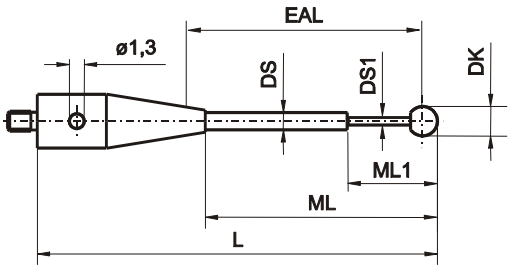
Custom styli cost and turnaround time:

- *Special* styli will ship within 72 hours from receipt of order, and your cost will be reasonably similar to that of the closest item that we offer in our standard line.
- *Exotic* styli, which require more time to estimate manufacturing cost and delivery time, will be quoted within 48 hours.

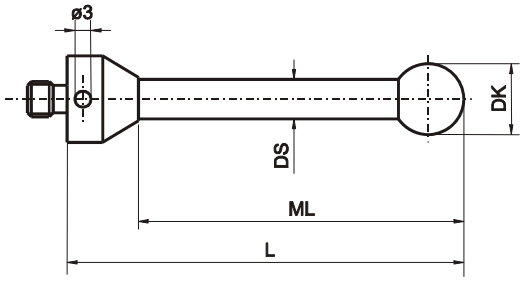
THREAD SIZE GUIDE FOR PROBE HEADS

M2	M3	M4		M5	M6
MH20i	MIP	CYCLONE	MP16	LEITZ TRAX	FARO
P1-5A	SP25	CP1	MP18	DT	
P1-5BS	SP25M	DEA TF8	MP700	LSP-X3	
TP2	TESA	LP2	MP700E	LSP-X5	
TP20	TESASTAR	LP2DD	OMP40	RST-P	
TP200	TP1	LP2H	RMP60	SiP-3D	
TP200B	TP1SM	MP1	RP1	SP2	
TP200 NI	TP-50	MP3	RP1DD	SP2-1	
	TP6	MP4	RP2	SP80	
	TP6A	MP6	RP2DD	ST2	
	TPES	MP7	RP3	ST3	
	VAST XXT	MP8	SP600	UNIVERSAL 3D	
		MP9	SP600M	VAST GOLD	
		MP10	SP620	VAST NAVIGATOR	
		MP10E	TP7	VAST XT	
		MP11	TP7M	ZEISS	
		MP12	TP800		
		MP15	TS27R		

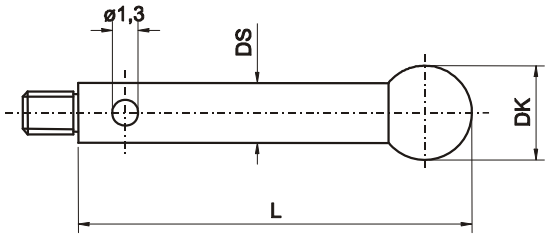
A



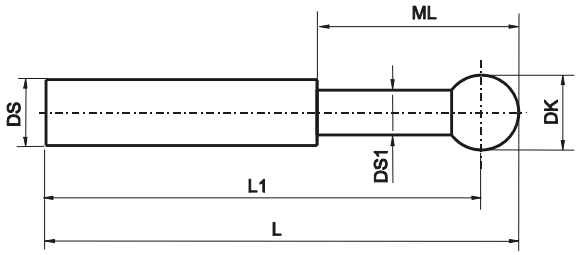
B



C



D

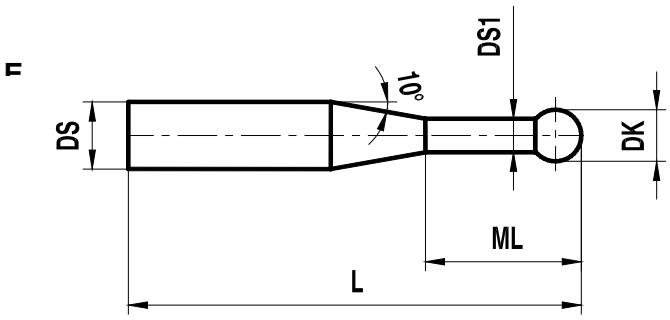


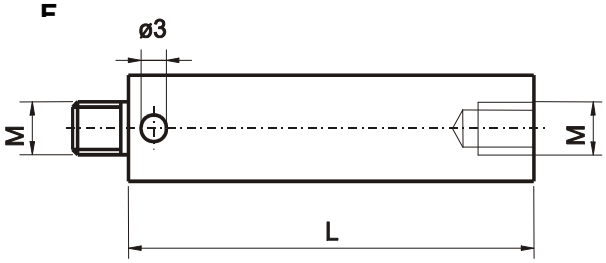
Styli Type (A-B-C-D)				
Thread (M2, 3, 4, 5, or none)	M	M	M	M
Ball Material – Ruby (**R**) Silicon (**S**) Ceramic (**C**) Zirconia (**Z**)				
Ball Diameter (mm) – **DK**				
Measure length (mm) – **ML**				
Total length (mm) – **L**				
Stem Diameter (mm) – **DS, DS1** (if required)				
Stem Material				
Stainless Steel				
Carbide				
Ceramic				
Temp-Comp Carbon Fiber				
Quantity				

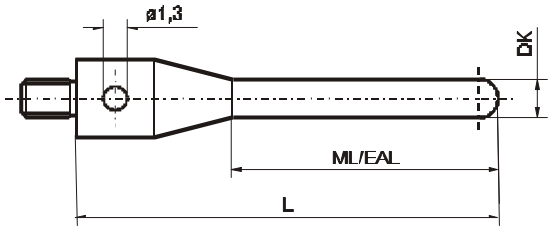
Name:		**Phone:**	
Company:		**Fax:**	
Email:			

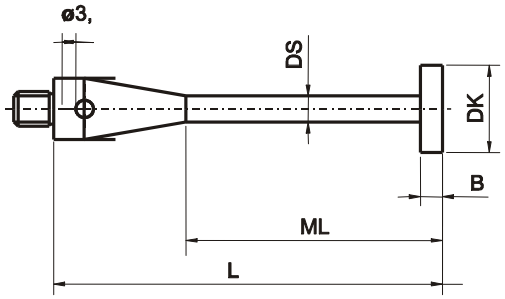
RETURN FAX 314-432-3107

You may also request a quote at itpstyli.com by following the link to Design Your Own.









Styli Type (E-F-G-H)				
Thread (M2, 3, 4, 5 or none)	M	M	M	M
Ball Material – Ruby (**R**) Silicone (**S**) Ceramic (**C**) Carbide (**CB**) Zirconia (**Z**)				
Ball Diameter (mm) – **DK**				
Measure length (mm) – **ML**				
Total length (mm) – **L**				
Stem Diameter (mm) – **DS, DS1** (if required)				
Stem Material				
Stainless Steel				
Carbide				
Ceramic				
Temp-Comp Carbon Fiber				
Quantity				

Name:		**Phone:**	
Company:		**Fax:**	
Email:			

RETURN FAX 314-432-3107

You may also request a quote at itpstyli.com by following the link to Design Your Own.

Order Form

Please copy, complete and return via fax or mail.

BILL TO:
Name:
Company:
Address:
Address:
City, State Zip:
Phone:
Fax: E-mail:

SHIP TO:
Name:
Company:
Address:
Address:
City, State Zip:
Phone:
Fax:

P.O. Number (required) _____

itp Item Number	Quantity	Cost Each	Total

Select Shipping Charge: Surface $9.00____ Second Day Air: $19.00____ Next Day: $33.00____

Credit Cards Accepted - Please call if you would like to use MasterCard or Visa.

RETURN FAX 314-432-3107

Sub-total	
Tax	
Shipping	
TOTAL	

Quick Reference Conversion Chart

TO CONVERT **inch TO mm:**

MULTIPLY INCHES by 25.4

TO CONVERT **mm TO inch**:

MULTIPLY mm by 0.03937
OR
DIVIDE mm BY 25.4

inch	inch	mm
1/64	0.016	0.397
1/32	0.031	0.794
3/64	0.047	1.191
1/16	0.063	1.588
5/64	0.078	1.984
3/32	0.094	2.381
7/64	0.109	2.778
1/8	**0.125**	**3.175**
9/64	0.141	3.572
5/32	0.156	3.969
11/64	0.172	4.366
3/16	0.188	4.763
13/64	0.203	5.159
7/32	0.219	5.556
15/64	0.234	5.953
1/4	**0.250**	**6.35**
17/64	0.266	6.747
9/32	0.281	7.144
19/64	0.297	7.541
5/16	0.313	7.938
21/64	0.328	8.334
11/32	0.344	8.731
23/64	0.359	9.128
3/8	**0.375**	**9.525**
25/64	0.391	9.922
13/32	0.406	10.319
27/64	0.422	10.716
7/16	0.438	11.113
29/64	0.453	11.509
15/32	0.469	11.906
31/64	0.484	12.303

inch	inch	mm
1/2	0.500	**12.7**
33/64	0.516	13.097
17/32	0.531	13.494
35/64	0.547	13.891
9/16	0.563	14.288
37/64	0.578	14.684
19/32	0.594	15.081
39/64	0.609	15.478
5/8	**0.625**	**15.875**
41/64	0.641	16.272
21/32	0.656	16.669
43/64	0.672	17.066
11/16	0.688	17.463
45/64	0.703	17.859
23/32	0.719	18.256
3/4	**0.750**	**19.05**
49/64	0.766	19.447
25/32	0.781	19.844
51/64	0.797	20.241
13/16	0.813	20.638
27/32	0.844	21.431
55/64	0.859	21.828
7/8	**0.875**	**22.225**
57/64	0.891	22.622
29/32	0.906	23.019
59/64	0.922	23.416
15/16	0.938	23.813
61/64	0.953	24.209
31/32	0.969	24.606
63/64	0.984	25.003
1	1.000	**25.4**

mm	inch
0.3	0.012
0.5	0.020
0.8	0.031
1.0	0.039
1.5	0.059
2.0	0.079
2.5	0.098
3.0	0.118
3.5	0.138
4.0	0.157
4.5	0.177
5.0	0.197
5.5	0.217
6.0	0.236
6.5	0.256
7.0	0.276
7.5	0.295
8.0	0.315
8.5	0.335
9.0	0.354
9.5	0.374
10.0	0.394
10.5	0.413
11.0	0.433
11.5	0.453
12.0	0.472
12.5	0.492
13.0	0.512
13.5	0.531
14.0	0.551
14.5	0.571

NOTES & COMMENTS