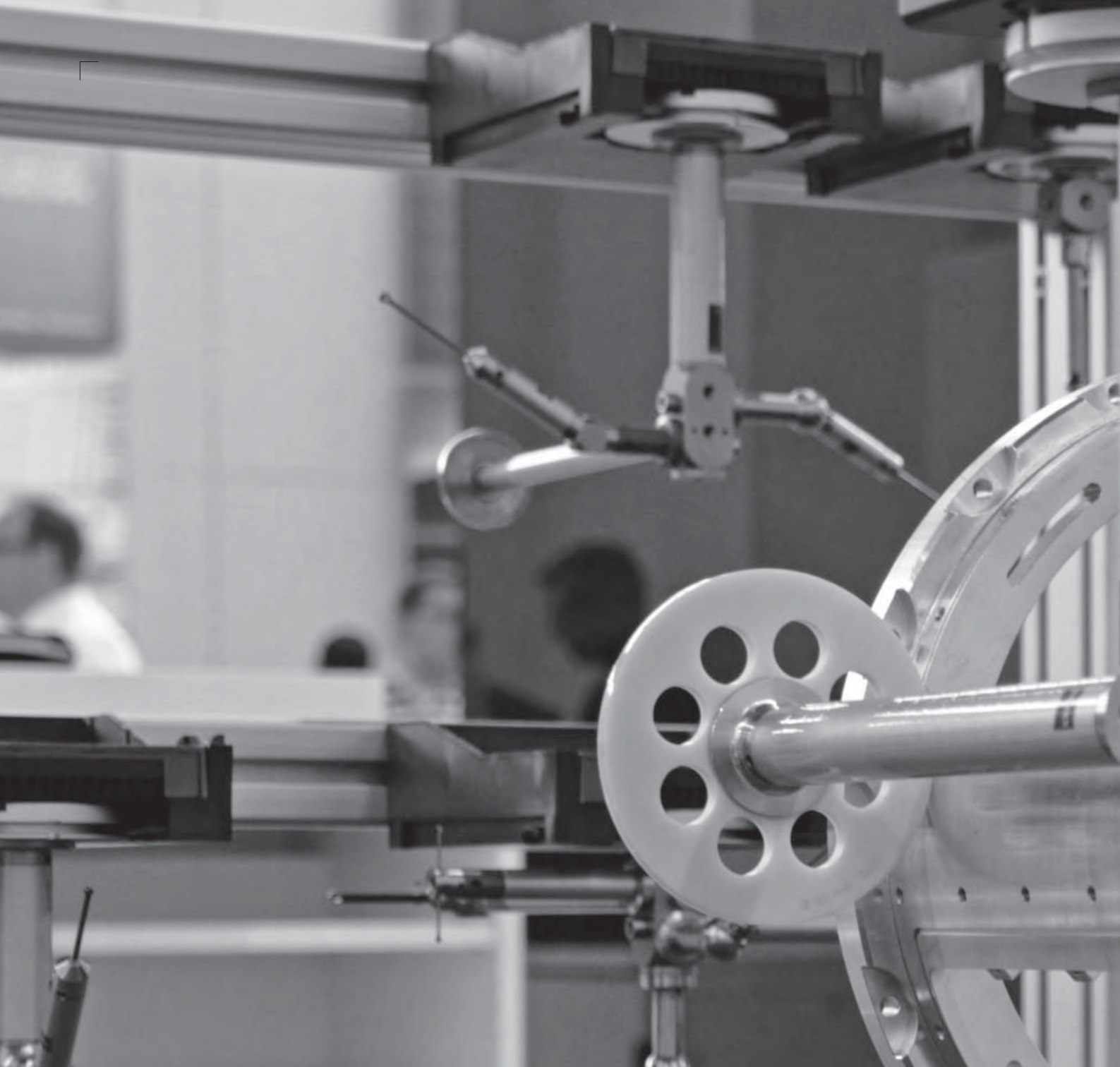


## **VAST® Probe System Equipment**

Original accessories from the technology leader



We make it visible.

**Imprint**

Carl Zeiss  
Industrial Metrology, LLC

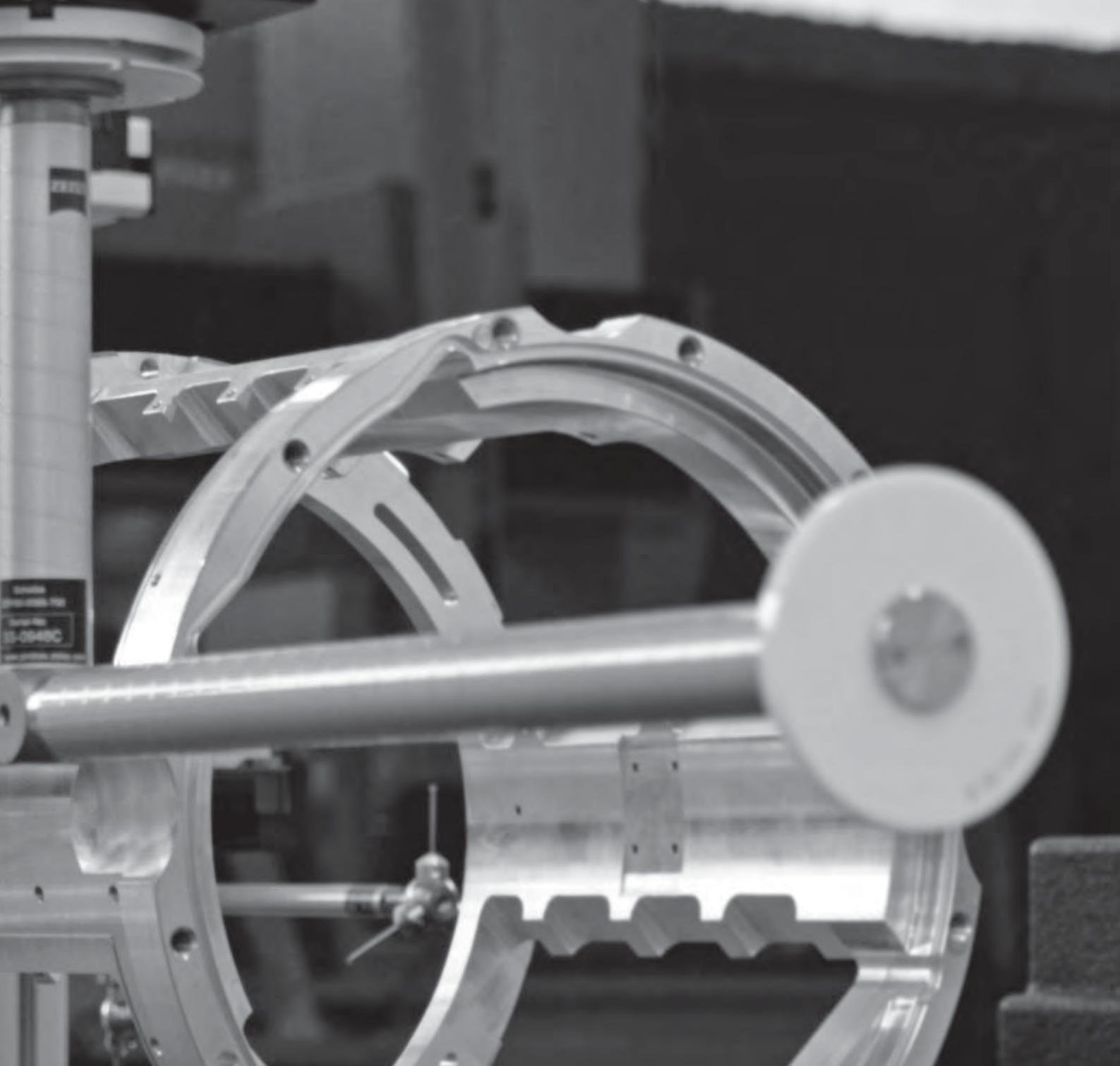
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Maple Grove, MN 55369

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Email: metrology@zeiss.com  
Internet: www.zeiss.com/metrology

**Note:**

Subject to technical modifications and price changes.  
Our product range is aimed at business customers. All  
dimensions in mm. Illustrations may vary. You will find  
our general terms and conditions of sale on the  
Internet at: [www.probes.zeiss.com](http://www.probes.zeiss.com)

Item no.: 626119-0006- 012  
Version: V0543\_A\_001



## **VAST® probe accessories from ZEISS**

As a manufacturer, we know what you require for your measuring instrument in order to measure precisely and efficiently. You will save time and increase your productivity with our accessories tailored specifically to the VAST® probe. Profit from our experience with special-purpose solutions. You will easily find the right accessory for your application with our structured product range. We manufacture your special styli quickly and reliably.

### **Application examples**

From gear to series measurement Page 4

### **Product catalog**

From adapter plates to accessories Page 14



### Extensions

ThermoFit® silver stylus extensions offer minimal expansion or torsion in the event of variations to room temperature. They are therefore optimally suited for use with the ZEISS VAST® scanning technology and in production-related in-line measurement technology.

### Styli

From ruby to diamond: we offer standard and special styli in every conceivable design. Enter the desired parameters in our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com) and select the appropriate stylus.

## Reach areas on the workpiece that are not easily accessible

Stylus extensions are screwed directly to the cube or adapter plate. They enable the assembly of long styli and large stylus systems, in order to reach features on a workpiece which are difficult to access. The selection depends on the requirements for the permissible weight, stiffness and thermal stability.

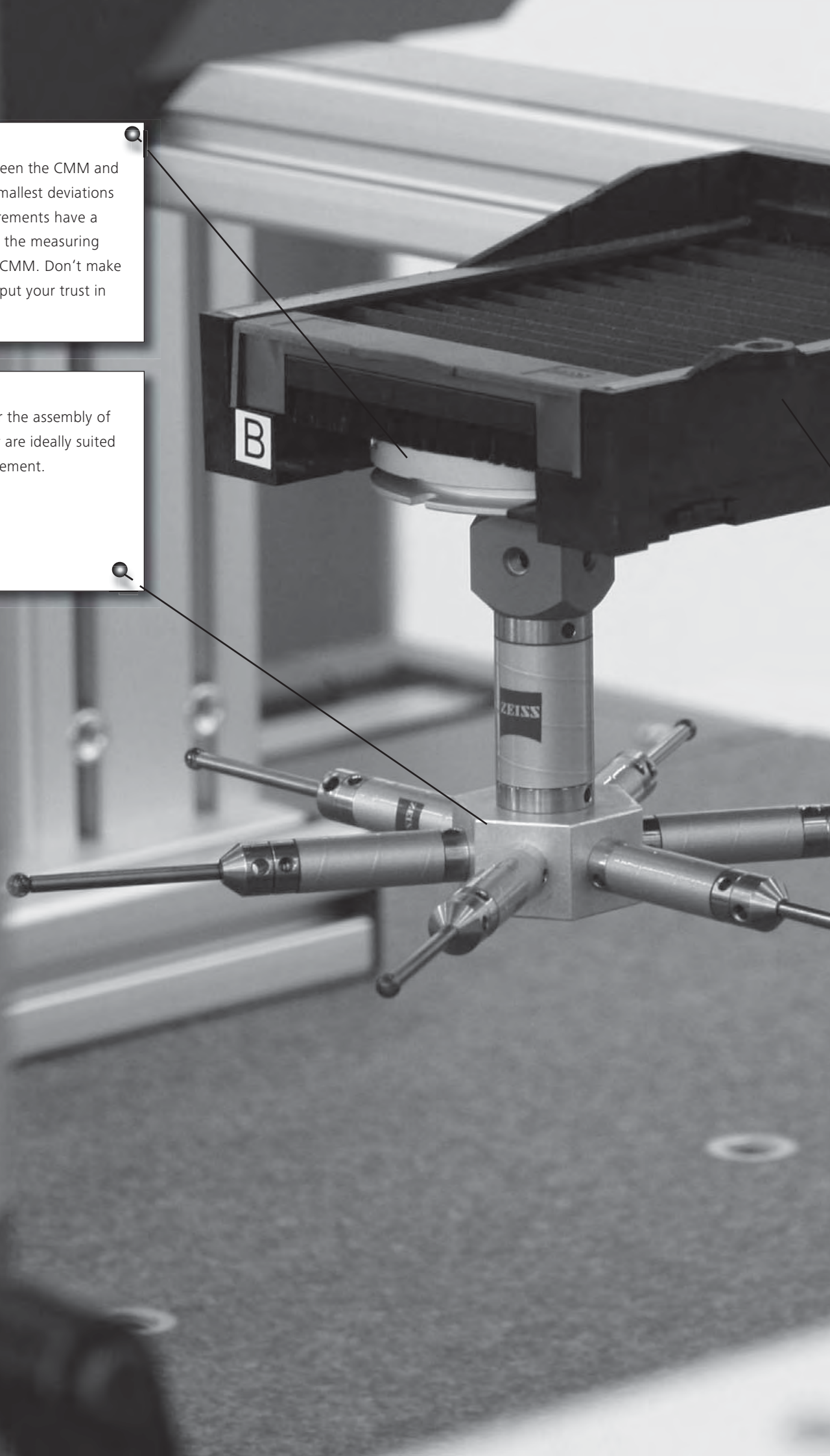
As a general principle, stylus extensions should be selected with the largest possible diameter if accessibility permits this, because the bending resilience increases with the diameter. In addition to this, stylus extensions must be very light and thermally stable, in order to obtain optimum and repeatable measuring results. The material used is therefore a key factor in the case of very long stylus extensions. Our unique ThermoFit® stylus extensions are made of high-strength titanium end caps and thermally stable carbon tubes. We manufacture the carbon fibre tubes on our own machine using a winding technique especially designed for metrology. This combination of materials and the bonding/cutting technology developed by ZEISS provides outstanding results even under difficult factory conditions. ThermoFit® stylus extensions have proven themselves a thousand times over worldwide — in measuring rooms and directly in production.

### Adapter plates

The central point between the CMM and your workpiece. The smallest deviations from the quality requirements have a considerable effect on the measuring certainty of the entire CMM. Don't make any compromises and put your trust in ZEISS technology.

### Star pieces

Star cubes are used for the assembly of star styli systems. They are ideally suited for use in gear measurement.



## Don't make any compromises!

Your coordinate measuring machine from ZEISS is a high-precision system, in which all the components are tailored to each other. Small deviations from the quality requirements of the installed components have a considerable effect on the measuring uncertainty of the entire machine. The adapter plate is located at a central point between the CMM and your workpiece, therefore you should not make compromises — only use original ZEISS adapter plates. ZEISS adapter plates for VAST® probes adhere to strict test procedures. Benefit from the confidence of this safety measure.

Adapter plates are available for all application cases: standard adapter plates, multiple styli adapter plates for gear measurement, adapter plates with ThermoFit® plate extension for production. Choose from our extensive product range.

### Probe sockets

Use our original probe sockets flexibly on a Multi Sensor Rack on your CMM. You avoid collisions with a safe stylus system change.



#### **Adapter for rotary joints**

The adapter has a cone receiver which forms a backlash-free conical connection to angles, cubes and star pieces with a cone adapter. Three sturdy M3 tapped studs with Torx interface provide high clamping forces.

#### **Tools**

Pay attention to stable and secure connections during assembly. With our tried and tested tools, you securely mount sensitive stylus components and prevent damage.



### Rotary joints

Rotary joints have a cone adapter for the quick and efficient assembly of stylus systems. They can be easily adjusted and still hold their styli securely even after repeated use.

## Stylus systems for the production

You link styli and extensions to stylus systems with connecting elements. As a result, you can also measure areas of your workpieces which are difficult to access. If you combine as many styli as possible in a stylus system, you reduce the time required for stylus change. This boosts productivity!

You can very easily assemble right-angled combinations and star styli with cubes. Movable elements such as rotary pieces or articulated pieces are used to assemble angled stylus systems. As a result, you can also measure inclined features without any problems. Thread adapters provide the interface from M5 to styli with M2 or M3 thread systems.

Our product range means that there are virtually no limits to your CMM. Choose from our extensive standard product range or make use of our know-how and have special spatial angle pieces manufactured. Do you need a special connection piece? Do you require an angle piece to measure a special feature? Contact us directly. Our CAD experts are here to help you.



**Cube M5**

This ThermoFit® Pro cube M5 has an integrated cone adapter which can be inserted directly in the rotary end piece of an extension. Up to five styli can be mounted on cubes.

**Stepped extension**

The extensions of the ThermoFit® Pro system that range from 20 to 111 mm enable the stable assembly of very long styli with easy accessibility. The extensions have a rotary end piece fitted at the end.

**FixAssist®**

A tried-and-tested alignment device for VAST® stylus systems. Shaft collisions are prevented during your measurements with precisely aligned stylus systems and angles.

## Quick alignment of large stylus systems

Large stylus systems with a large number of styli have to be aligned before use. The time required for this is drastically reduced with ThermoFit® Pro. Only three angles have to be set up on the stylus system in the photo on the left: the M5 cube with integrated rotary piece and the two double angle pieces with rotary piece. All the other angles are fixed, the extensions are secured by means of the twist-proof ThermoFit® Pro pin connection. We also offer laser welding of rotary joints for rugged use in production. As a result, the stylus systems remain stable throughout and cannot be misaligned during exchange of the styli.

The FixAssist® alignment device for VAST® stylus systems is a useful tool for adjusting all the angles on stylus systems with a high degree of accuracy. Find out more in our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com). Simply enter the term FixAssist® in the Search field to obtain the product-specific information.

### Double angle piece

The angle piece blank is made of a high-grade titanium alloy and can accommodate up to two styli in the desired angles. We will prepare it for you quickly and precisely.



**Screw**

Extensions, spatial angles and multiple holders are fixed with special screws for the ThermoFit® Pro system.

**Index holes**

The ThermoFit® Pro system comes with index holes. These enable twist-proof accommodation of extensions and spatial angle pieces with high angle accuracy.

**Extensions**

ThermoFit® Pro extensions come with two index pins and are therefore fixed to the adapter plate with no risk of twisting. Even if the extensions are repeatedly assembled and disassembled, the angular alignment on the cube remains constant.

## ThermoFit® Pro

ThermoFit® Pro is a unique modular system to assemble stylus systems for ZEISS coordinate measuring machines. You can create rugged and thermally stable stylus systems suitable for series production with just a few, perfectly tailored components.

Download your ThermoFit® Pro catalog PDF on your next visit to our web shop [www.probes.zeiss.com](http://www.probes.zeiss.com).







## VAST® Product Catalog

Styli	Page 16	Artifacts	Page 59
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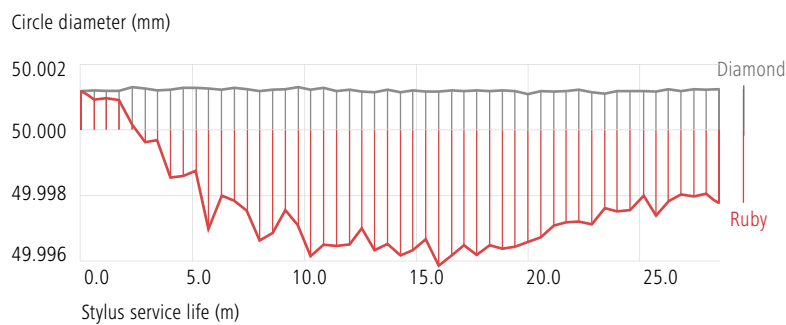


## Measuring with a diamond stylus

Even after a long period of time,  
diamond spheres will keep their perfect shape

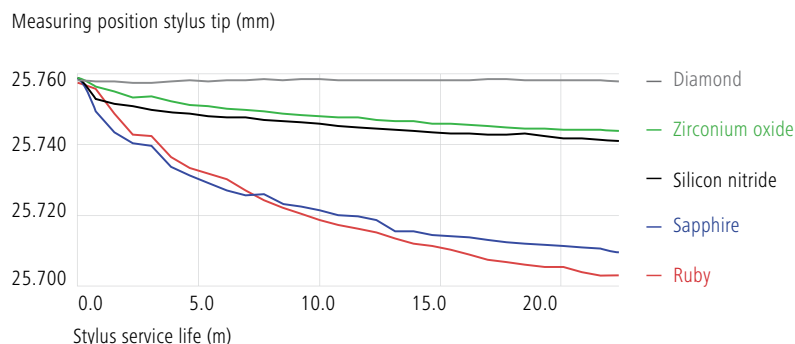
### No build-up of material

Note the difference between a ruby stylus and a Diamond!Scan stylus. The measured diameter will not change. The sphere keeps its high-precision shape, thus ensuring a continuously accurate measurement. This effect occurs during single point measurements, but particularly when the stylus is moved continuously over the workpiece surface, the so-called scanning process. When scanning, for example, the diameter and the shape of a bore hole to capture a maximum number of measuring points, there is a risk of aluminum deposits on the equator of the ruby sphere.



### No wear

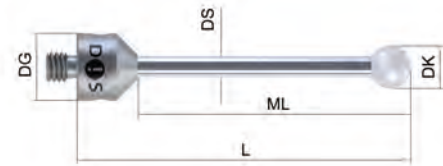
If a ruby stylus is used on a coordinate measuring machine to measure the flatness of a hard surface by scanning, the sphere may flatten in the course of the measurements. This wear process starts immediately, despite the fact that ruby is among the hardest materials known in the world. Note the difference when using a Diamond!Scan stylus. No flattening will occur. The sphere keeps its high-precision shape, thus ensuring an accurate measurement of the flatness of the hard workpiece surface.





### Straight shaft / diamond sphere

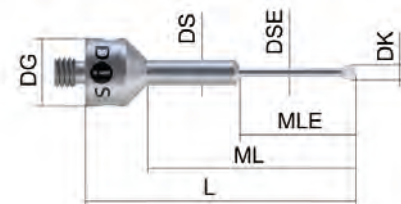
Diamond styli with a tungsten carbide shaft and a diamond sphere are especially suitable for extreme scanning. The sphere is distinguished by the fact that no wear occurs when scanning hard ceramics and there is no build-up of material with soft aluminium alloys. The deviation from the spherical shape is less than 0.25 µm. The diameter tolerance is +/- 20 µm. Special lengths are available on request.



Item no.	DK	L	ML	DS	DG	weight (g)
626115-0209-020	2,00	20,00	9,00	1,00	11,00	5,6
626115-0209-034	2,00	34,00	24,5	1,50	11,00	6,5
626115-0309-025	3,00	25,00	15,00	2,00	11,00	6,7
626115-0309-033	3,00	33,00	23,00	2,00	11,00	7,1
626115-0309-050	3,00	50,00	40,00	2,00	11,00	7,8
626115-0309-058	3,00	58,00	48,00	2,00	11,00	8,2
626115-0309-064	3,00	64,00	54,00	2,00	11,00	8,5

### Stepped shaft / diamond sphere

Diamond styli with a tungsten carbide shaft and a diamond sphere are especially suitable for extreme scanning. The sphere is distinguished by the fact that no wear occurs when scanning hard ceramics and there is no build-up of material with soft aluminium alloys. The deviation from the spherical shape is less than 0.25 µm. The diameter tolerance is +/- 20 µm. Special lengths are available on request.



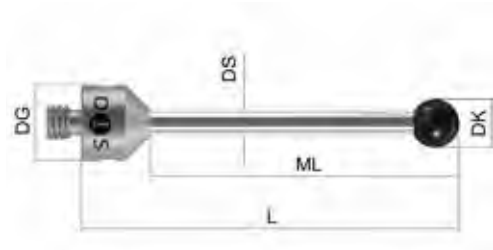
Item no.	DK	L	ML	MLE	DS	DSE	DG	weight (g)
626115-0109-022	1,00	22,00	13,00	5,00	1,00	0,8	11,00	5,7
626115-0109-024	1,00	24,00	14,00	5,00	1,00	0,8	11,00	7,1
626115-0109-032	1,00	32,00	12,00	5,00	1,00	0,8	11,00	7,2
626115-0209-032	2,00	32,00	12,00	-	1,50	-	11,00	7,2
626115-0209-044	2,00	44,00	19,00	-	1,50	-	11,00	7,7
626115-0209-058	2,00	58,00	33,00	-	1,50	-	11,00	8,7



## Diamond-coated styli

### Innovative and long-lasting

#### Straight shaft / diamond-coated sphere



Styli with a diamond coating are especially suitable for scanning soft aluminium alloys. No build-up of material occurs. Practically no wear can be detected when scanning hard ceramics. The deviation from the spherical shape is less than 0.15 µm. Special lengths are available on request.

Item no.	DK	L	ML	DS	DG	weight (g)
626115-0219-020	2.10	20.00	9.00	1.00	11.00	5.6
626115-0219-034	2.10	34.00	24.5	1.50	11.00	6.1

#### Stepped shaft, basic / diamond-coated sphere

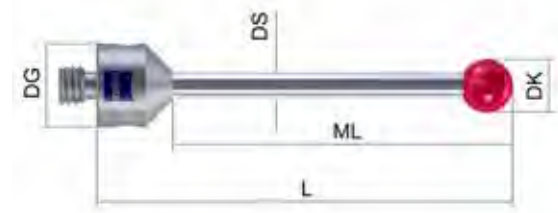


Styli with a diamond coating are especially suitable for scanning soft aluminium alloys. No build-up of material occurs. Practically no wear can be detected when scanning hard ceramics. The deviation from the spherical shape is less than 0.15 µm. Special lengths are available on request.

Item no.	DK	L	ML	DS	DG	weight (g)
626115-0219-032	2.10	32.00	12.00	1.50	11.00	7.2
626115-0219-044	2.10	44.00	19.00	1.50	11.00	7.0
626115-0219-058	2.10	58.00	33.00	1.50	11.00	8.7

**Straight shaft / ruby sphere**

Styli with straight tungsten carbide shaft and a ruby sphere are used in all standard applications. Ruby is an extremely hard material. Tungsten carbide is extremely torsionally rigid even with small shaft diameters.



Item no.	DK	L	ML	DS	DG	weight (g)
626115-0140-033	1.35	32.85	23.85	1.00	11.00	5.5
626115-0150-033	1.50	33.00	24.00	1.00	11.00	5.5
626115-0200-020	2.00	20.00	9.00	1.00	11.00	5.7
626115-0200-034	2.00	33.50	24.50	1.50	11.00	5.8
626115-0204-040	2.00	40.00	30.00	1.50	11.00	6.6
626115-0250-020	2.50	20.00	10.00	1.50	11.00	6.0
626115-0250-034	2.50	34.00	25.00	1.50	11.00	6.0
602030-9010-000	3.00	25.00	15.00	2.00	11.00	4.0
600342-8020-000	3.00	33.50	23.50	2.00	11.00	4.4
626115-0301-040	3.00	40.00	30.00	2.00	11.00	7.1
602030-9011-000	3.00	50.00	40.00	2.00	11.00	5.0
600342-8021-000	3.00	58.00	48.00	2.00	11.00	5.5
600342-8025-000	4.00	33.50	23.50	2.00	11.00	4.0
000000-1005-246	4.00	40.00	30.00	2.00	11.00	6.0
626115-0402-050	4.00	50.00	40.00	2.00	11.00	7.6
602030-9012-000	4.00	64.00	54.00	2.00	11.00	6.0
626115-0500-040	5.00	40.00	28.00	3.50	11.00	11.0
602030-9013-000	5.00	50.00	40.00	3.50	11.00	9.0
600342-8022-000	5.00	53.00	43.00	3.50	11.00	9.8
602030-9015-000	5.00	75.00	65.00	3.50	11.00	13.0
626115-0502-080	5.00	80.00	70.00	3.50	11.00	19.0
600342-8026-000	6.00	54.00	44.00	3.50	11.00	10.0
626115-0600-068	6.00	68.00	58.00	3.50	11.00	13.0
600342-8027-000	7.00	55.00	45.00	3.50	11.00	10.0
600342-8023-000	8.00	63.50	50.50	6.00	11.00	25.0
602030-9016-000	8.00	75.00	62.00	6.00	11.00	30.0
602030-9017-000	8.00	100.00	87.00	6.00	11.00	40.0
600342-8024-000	8.00	114.50	101.50	6.00	11.00	49.0
600342-8029-000	10.00	65.50	52.50	6.00	11.00	27.0
602030-9018-000	10.00	118.00	105.00	6.00	11.00	47.0
626115-1200-065	12.00	65.00	52.00	6.00	11.00	32.0
626115-1200-118	12.00	118.00	105.00	6.00	11.00	62.0
626115-1400-065	14.00	65.00	52.00	6.00	11.00	33.0
626115-1402-118	14.00	118.00	105.00	6.00	11.00	64.0

**Styli** with tungsten carbide shaft

**Stepped shaft, basic / ruby sphere**



Styli with a stepped tungsten carbide shaft and a ruby sphere are used in all standard applications in which easy accessibility with small reference spheres is required.

Item no.	DK	L	ML	DS	DG	weight (g)
602030-8062-000	1.35	32.00	12.00	1.00	11.00	4.0
602030-8063-000	1.35	44.00	19.00	1.00	11.00	7.3
602030-8064-000	1.50	32.00	12.00	1.00	11.00	6.7
602030-8065-000	1.50	44.00	19.00	1.00	11.00	7.2
602030-8066-000	2.00	32.00	12.00	1.50	11.00	7.2
602030-8067-000	2.00	44.00	19.00	1.50	11.00	5.0
602030-8068-000	2.00	58.00	33.00	1.50	11.00	5.0
602030-8069-000	2.50	32.00	12.00	1.50	11.00	4.0
602030-8070-000	2.50	44.00	19.00	1.50	11.00	5.0
602030-8071-000	2.50	58.00	33.00	1.50	11.00	5.0

More lengths on request

**Stepped shaft / ruby sphere**



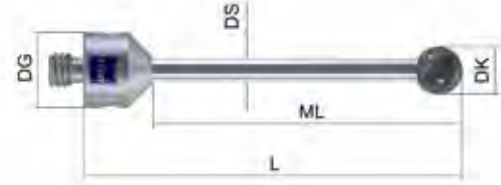
Styli with a stepped tungsten carbide shaft and a ruby sphere are used in all standard applications in which easy accessibility with small reference spheres is required.

Item no.	DK	L	ML	MLE	DS	DSE	DG	weight (g)
626115-0021-025	0.20	25.00	14.00	1.30	1.00	0.10	11.00	4.3
626115-0030-022	0.30	21.80	12.80	2.30	1.00	0.20	11.00	6.0
626115-0050-022	0.50	22.00	13.00	2.50	1.00	0.30	11.00	6.0
626115-0060-022	0.60	22.10	13.10	4.60	1.00	0.40	11.00	5.4
626115-0080-022	0.80	22.30	13.30	4.80	1.00	0.60	11.00	6.0
602030-8060-000	0.80	32.00	12.00	4.80	1.00	0.60	11.00	6.6
626115-0100-022	1.00	22.50	12.50	5.00	1.00	0.80	11.00	5.6
602030-8061-000	1.00	32.00	12.00	5.00	1.00	0.80	11.00	7.1

More lengths on request

**Straight shaft / silicon nitride sphere**

Styli with a straight tungsten carbide shaft and a silicon nitride sphere are used in all standard applications in which easy accessibility with small reference spheres is required. Silicon nitride has a higher pressure resistance than ruby. In this respect, better friction behavior during scanning is apparent. The tungsten carbide shaft is extremely torsionally rigid even with small diameters.



Item no.	DK	L	ML	DS	DG	weight (g)
000000-1323-893	1.50	33.00	24.00	1.00	11.00	5.8
000000-1323-889	2.00	33.50	24.50	1.50	11.00	6.3
626115-0303-025	3.00	25.00	15.00	2.00	11.00	6.5
626115-0300-033	3.00	33.00	23.00	2.00	11.00	4.4
626115-0302-050	3.00	50.00	40.00	2.00	11.00	7.5
626115-0300-058	3.00	58.00	48.00	2.00	11.00	8.0
626115-0400-034	4.00	33.50	23.00	2.00	11.00	7.0
626115-0401-064	4.00	64.00	54.00	2.50	11.00	10.0
626115-0501-050	5.00	50.00	40.00	3.50	11.00	9.0
626115-0501-053	5.00	53.00	40.00	3.50	11.00	9.5
626115-0500-075	5.00	75.00	65.00	3.50	11.00	15.0
626115-0601-025	6.00	25.00	15.00	2.00	11.00	6.6
626115-0603-050	6.00	50.00	40.00	4.00	11.00	13.0
626115-0800-064	8.00	63.50	50.50	6.00	11.00	28.0
626115-0800-075	8.00	75.00	62.00	6.00	11.00	33.0
626115-0801-100	8.00	100.00	88.00	5.00	11.00	40.0
626115-0800-115	8.00	114.50	101.50	6.00	11.00	48.0
626115-1000-165	10.00	165.00	150.00	6.00	11.00	52.0
626115-1201-160	12.00	160.00	150.00	4.50	11.00	42.0

More lengths on request

**Stepped shaft, basic / silicon nitride sphere**

Styli with a stepped tungsten carbide shaft and a silicon nitride sphere are used in all standard applications in which easy accessibility with small reference spheres is required. Silicon nitride has a higher pressure resistance than ruby. In this respect, better friction behavior during scanning is apparent. The tungsten carbide shaft is extremely torsionally rigid even with small diameters.

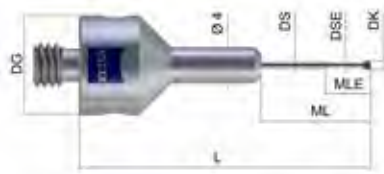


Item no.	DK	L	ML	DS	DG	weight (g)
626115-0200-032	2.00	32.00	12.00	1.50	11.00	7.0
626115-0203-044	2.00	44.00	19.00	1.50	11.00	7.7
626115-0250-032	2.50	32.00	12.00	1.50	11.00	7.0
626115-0250-044	2.50	44.00	19.00	1.50	11.00	7.8
626115-0250-058	2.50	58.00	33.00	1.50	11.00	5.0

More lengths on request

**Styli with tungsten carbide shaft**

**Stepped shaft / silicon nitride sphere**

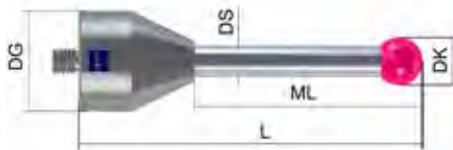


Styli with a stepped tungsten carbide shaft and a silicon nitride sphere are used in all standard applications in which easy accessibility with small reference spheres is required. Silicon nitride has a higher pressure resistance than ruby. In this respect, better friction behavior during scanning is apparent. The tungsten carbide shaft is extremely torsionally rigid even with small diameters.

Item no.	DK	L	ML	MLE	DS	DSE	DG	weight (g)
626115-0104-022	1.00	22.50	12.50	5.00	1.00	0.80	11.00	5.0
626115-0103-030	1.00	30.00	19.00	10.00	2.00	0.80	11.00	7.0
626115-0151-030	1.50	30.00	19.00	8.00	1.50	1.00	11.00	6.5
626115-0204-058	2.00	58.00	48.00	33.00	4.00	1.00	11.00	8.7

More lengths on request

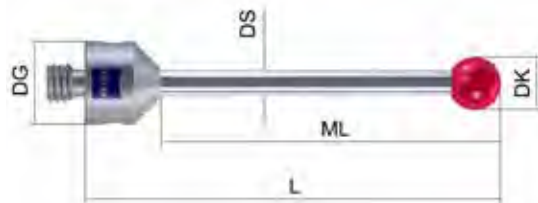
**Reinforced base body / ruby sphere**



Styli with a reinforced base body, a tungsten carbide shaft and a ruby sphere are used in all applications in which maximum stiffness of the stylus is required.

Item no.	DK	L	ML	DS	DG	weight (g)
626115-0300-035	3.00	34.50	16.50	2.00	19.00	20.0
600342-8124-000	8.00	114.50	92.50	6.00	19.00	57.0
600342-8128-000	9.00	64.50	42.50	6.00	19.00	38.0

**Reference stylus / ruby sphere**

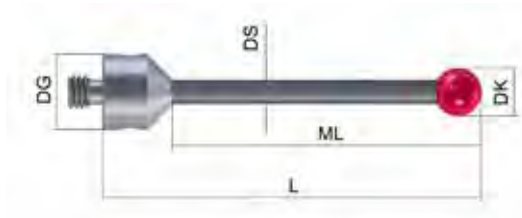


M5 reference styli are provided with a red marking.

Item no.	DK	L	ML	DS	DG	weight (g)
600342-8023-010	8.000	63.50	50.50	6.00	11.00	25.0

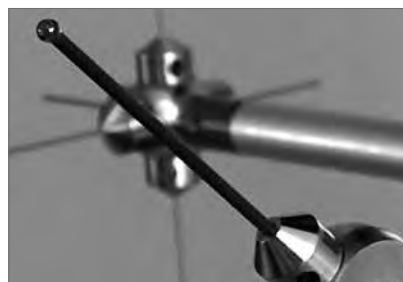
**ThermoFit® / ruby sphere**

Styli with a low-expansion ThermoFit® shaft are especially suitable for the assembly of long styli. The optimized weight is a big advantage. For example, a ThermoFit® stylus with a sphere diameter of 10 mm and a length of 118 mm weighs 80% less than a stylus with a tungsten carbide shaft. The styli below have a ruby sphere.

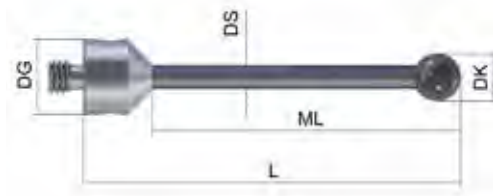


Item no.	DK	L	ML	DS	DG	weight (g)
626105-0300-025	3.00	25.00	15.00	2.00	11.00	4.0
626105-0300-033	3.00	33.00	23.00	2.00	11.00	4.0
626105-0300-050	3.00	50.00	40.00	2.00	11.00	4.0
626105-0300-058	3.00	58.00	48.00	2.00	11.00	4.0
626105-0400-033	4.00	33.00	23.00	2.00	11.00	4.0
626105-0400-064	4.00	64.00	54.00	2.00	11.00	4.0
626105-0510-050	5.00	50.00	40.00	3.50	11.00	4.0
626105-0510-100	5.00	100.00	90.00	3.50	11.00	5.0
626105-0610-054	6.00	54.00	44.00	3.50	11.00	5.0
626105-0710-055	7.00	55.00	45.00	3.50	11.00	5.0
626105-0820-063	8.00	63.00	50.00	6.00	11.00	7.0
626105-0820-075	8.00	75.00	62.00	6.00	11.00	8.0
626105-0820-100	8.00	100.00	87.00	6.00	11.00	9.0
626105-0820-114	8.00	114.00	101.00	6.00	11.00	10.0
626105-0820-150	8.00	150.00	137.00	6.00	11.00	12.0
626105-0820-200	8.00	200.00	187.00	6.00	11.00	14.0
626105-1020-065	10.00	65.00	52.00	6.00	11.00	8.0
626105-1020-118	10.00	118.00	105.00	6.00	11.00	11.0
626105-1020-150	10.00	150.00	137.00	6.00	11.00	13.0
626105-1020-200	10.00	200.00	187.00	6.00	11.00	15.0
626105-1020-350	10.00	350.00	325.00	6.00	11.00	25.0
626105-1020-500	10.00	500.00	475.00	6.00	11.00	31.0
626105-1220-120	12.00	120.00	105.00	6.00	11.00	10.5
626105-1220-225	12.00	225.00	200.00	6.00	11.00	28.0
626105-1220-355	12.00	355.00	330.00	6.00	11.00	35.0

More lengths on request



**ThermoFit® / silicon nitride sphere**

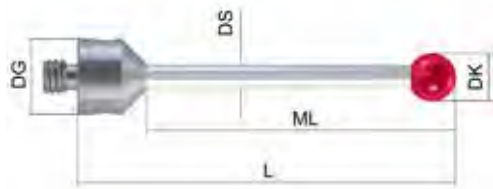


Styli with a low-expansion ThermoFit® shaft are especially suitable for the assembly of long styli. The optimized weight is a big advantage. For example, a ThermoFit® stylus with a sphere diameter of 10 mm and a length of 118 mm weighs 80% less than a stylus with a tungsten carbide shaft. The styli below have a silicon nitride sphere.

Item no.	DK	L	ML	DS	DG	weight (g)
626105-0301-025	3.00	25.00	15.00	2.00	11.00	4.0
626105-0301-033	3.00	33.00	23.00	2.00	11.00	4.0
626105-0301-050	3.00	50.00	40.00	2.00	11.00	4.0
626105-0301-058	3.00	58.00	48.00	2.00	11.00	4.0
626105-0401-033	4.00	33.00	23.00	2.00	11.00	4.0
626105-0401-064	4.00	64.00	54.00	2.00	11.00	4.0
626105-0511-050	5.00	50.00	40.00	3.50	11.00	4.0
626105-0511-075	5.00	75.00	65.00	3.50	11.00	5.0
626105-0511-100	5.00	100.00	90.00	3.50	11.00	5.0
626105-0821-063	8.00	63.00	50.00	6.00	11.00	7.0
626105-0821-075	8.00	75.00	62.00	6.00	11.00	8.0
626105-0821-100	8.00	100.00	87.00	6.00	11.00	9.0
626105-0821-114	8.00	114.00	101.00	6.00	11.00	10.0
626105-0821-150	8.00	150.00	137.00	6.00	11.00	12.0
626105-0821-200	8.00	200.00	187.00	6.00	11.00	14.0
626105-1021-065	10.00	65.00	52.00	6.00	11.00	8.0
626105-1021-118	10.00	118.00	105.00	6.00	11.00	11.0
626105-1021-150	10.00	150.00	137.00	6.00	11.00	12.0
626105-1021-200	10.00	200.00	187.00	6.00	11.00	15.0
626105-1021-350	10.00	350.00	325.00	6.00	11.00	25.0
626105-1021-500	10.00	500.00	475.00	6.00	11.00	31.0

More lengths on request

**Ceramic shaft / ruby sphere**



Styli with a ruby sphere and a ceramic shaft are used in all standard applications, in which a low stylus weight is required.

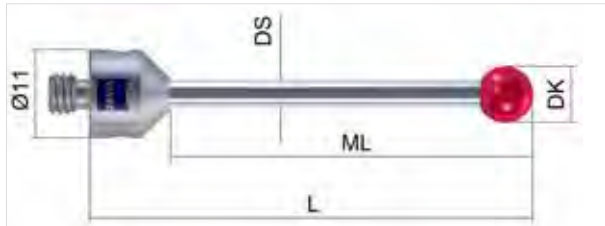
Item no.	DK	L	ML	DS	DG	weight (g)
600342-8013-000	5.00	53.00	43.00	3.50	11.00	5.0
600342-8016-000	6.00	54.00	44.00	3.50	11.00	5.0
600342-8017-000	7.00	55.00	45.00	3.50	11.00	5.1
600342-8014-000	8.00	63.50	50.50	6.00	11.00	8.0
600342-8015-000	8.00	114.50	101.50	6.00	11.00	12.0
600342-8018-000	9.00	64.50	51.50	6.00	11.00	9.1
600342-8019-000	10.00	65.50	52.50	6.00	11.00	9.7



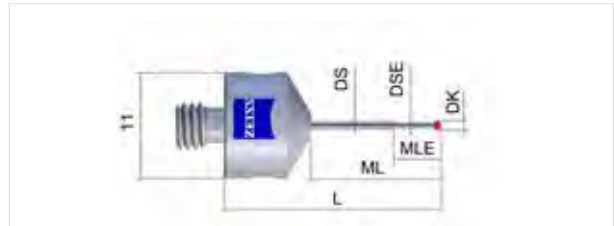
# Request form for M5 styli

- Fill in the appropriate fields
- Add your contact data
- Please fax the request form to 248-486-3114
- Or fill in the form on our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com)

## Straight shaft



## Stepped shaft



### Sphere material (TMAT)

- Ruby (R)
- Silicon nitride (SiN)
- Diamond (DIAM)

### Shaft material (SMAT)

- Tungsten carbide (TC)
- Carbon fibre / ThermoFit® (TF)
- Ceramic (Cer)

Styli	DK in mm	DS in mm	DSE in mm	L in mm	ML in mm	MLE in mm	TMAT	SMAT	Quantity
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Company: \_\_\_\_\_ Department: \_\_\_\_\_

Name, First: \_\_\_\_\_ Address: \_\_\_\_\_

City / Zip: \_\_\_\_\_ E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

**Without thread / straight / ruby sphere**



These styli without thread with a straight tungsten carbide shaft and a ruby sphere are used in all standard applications. The styli are clamped in a stylus holder.

Item no.	DK	L	DS	weight (g)
600341-8500-000	1.35	26.35	1.00	1.0
600341-8501-000	1.50	26.50	1.00	1.0
600341-8502-000	2.00	27.00	1.50	0.6
600341-8503-000	2.50	27.50	1.50	1.0
600341-8510-000	3.00	38.00	2.00	1.6
600341-8511-000	5.00	45.00	3.50	5.8

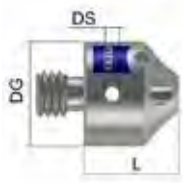
**Without thread / stepped / ruby sphere**



Styli with a stepped tungsten carbide shaft and a ruby sphere are used in all standard applications. The stylus can be clamped in a stylus holder.

Item no.	DK	L	MLE	DS	DSE	weight (g)
600341-8450-000	0.30	15.30	2.30	1.00	0.20	0.1
600341-8451-000	0.50	15.50	2.50	1.00	0.30	1.0
600341-8452-000	0.60	15.60	4.60	1.00	0.40	0.1
600341-8453-000	0.80	15.80	4.80	1.00	0.60	1.0
600341-8454-000	1.00	16.00	5.00	1.00	0.80	0.2

**Holder for stylus without thread, 5-fold**



Styli without thread can be clamped in the 5-fold holder. As a result, a basic star stylus can be assembled in five coordinate directions.

Item no.	DG	L	DS	MAT	weight (g)
600341-8367-000	11.00	10.00	1.00	stainless steel	3.0
600341-8368-000	11.00	10.00	1.50	titanium	5.4
626115-5000-199	11.00	10.00	2.50	stainless steel	5.2

**Holder for stylus without thread, 1-fold**



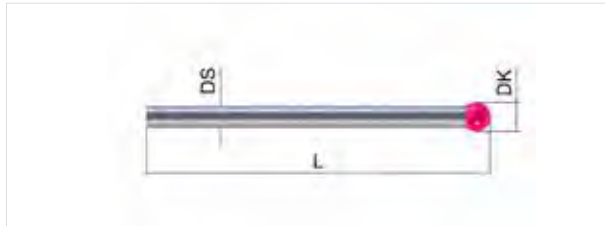
Styli without thread with a shaft diameter of 1.5 mm can be clamped in the L-holder. As a result, a basic hook-shaped stylus can be assembled.

Item no.	L	ML	DS	B	weight (g)
600341-8160-000	45.00	22.00	1.50	6.00	16.0

# Request form - Styli without thread

- Fill in the appropriate fields
- Add your contact data
- Please fax the request form to 248-486-3114
- Or fill in the form on our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com)

## Straight shaft



## Stepped shaft



### Shaft material (SMAT)

Tungsten carbide (TC)

Carbon fibre / ThermoFit® (TF)

Ceramic (Cer)

### Sphere material (TMAT)

Ruby (R)

Silicon nitride (SiN)

Diamond (DIAM)

Styli	DK in mm	DS in mm	DSE in mm	L in mm	ML in mm	MLE in mm	TMAT	SMAT	Quantity
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Company:

Department:

Name, First:

Address:

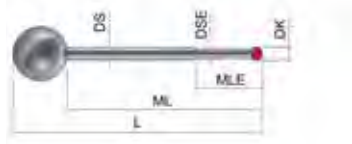
City / Zip:

E-mail:

Phone:

Fax:

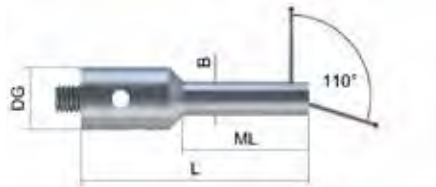
**Swivelling stylus / ruby sphere**



The swivelling stylus is inserted in the appropriate swivelling holder and clamped. The shaft is made of tungsten carbide and the sphere is made of ruby.

Item no.	DK	L	ML	MLE	DS	DSE	weight (g)
600341-8183-000	1.00	17.50	13.50	5.00	1.00	0.80	1.0
600341-8185-000	2.00	28.50	24.50	-	1.50	-	1.0

**Swivelling stylus holder**



Swivelling styli especially designed for this purpose can be inserted and clamped in the swivelling holder.

Item no.	L	ML	B	DG	weight (g)
600341-8180-000	40.00	22.00	6.00	11.00	15.0

**Pointer stylus**



Pointer styli were designed for scanning thread forms, marked points and lines.

Item no.	L	ML	DS	DG	weight (g)
600342-8051-000	61.00	39.00	3.50	11.00	12.0



### Cone stylus / ruby sphere

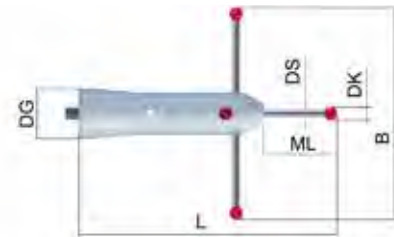
The conical shaft provides these styli with a high bending strength with a large stylus length and small sphere diameter.



Item no.	DK	L	ML	DS	DG	weight (g)
602030-9019-000	1.00	55.00	4.00	0.80	11.00	12.0
602030-9020-000	1.50	55.00	5.00	1.00	11.00	11.0
602030-9021-000	2.00	55.00	5.00	1.50	11.00	11.0
602030-9022-000	2.50	55.00	5.00	2.00	11.00	11.6
602030-9023-000	3.50	55.00	10.00	2.50	11.00	11.0

### Star stylus / ruby sphere

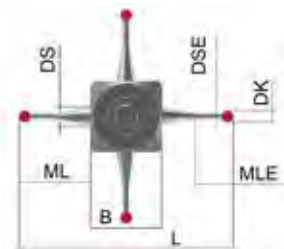
Star styli are suitable for carrying out a large number of different measurement tasks in various coordinate directions.



Item no.	DK	L	ML	DS	B	DG	weight (g)
600331-8093-000	5.00	98.00	28.00	3.50	80.00	19.00	70.0

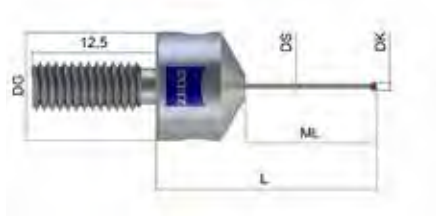
### Star stylus with cube / ruby sphere

Star styli are suitable for carrying out a large number of different measurement tasks in various coordinate directions. This star stylus with cube can be screwed directly to an extension. The styli are glued securely into place.



Item no.	DK	L	ML	MLE	DS	DSE	B	weight (g)
602030-9025-000	1.50	45.00	15.00	6.50	2.00	1.00	15.00	16.0
602030-9027-000	2.50	45.00	15.00	8.00	2.00	1.50	15.00	18.0

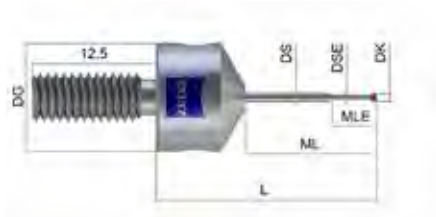
**Long-threaded stylus, straight shaft**



Long-threaded styli M5 x 12.5 with a tungsten carbide shaft and a ruby sphere are only specified for use with slotted and clamp discs. Customized star styli can be assembled with the components. They can be screwed directly to an extension or a cube.

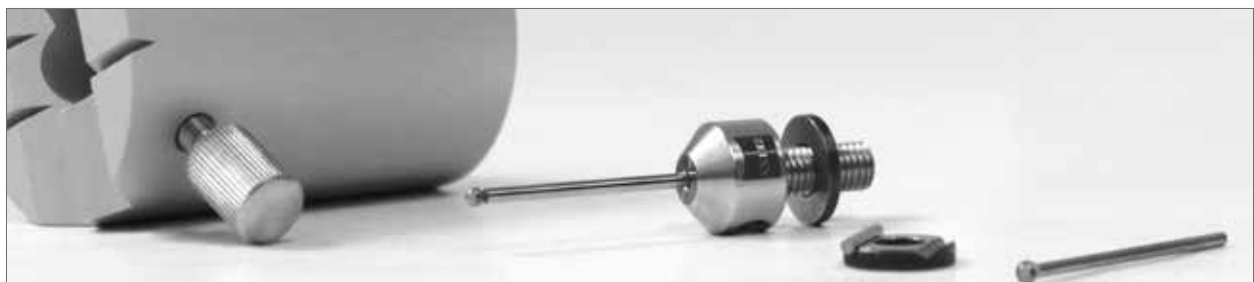
Item no.	DK	L	ML	DS	DG	weight (g)
600342-8200-000	1.35	32.85	23.85	1.00	11.00	6.0
600342-8201-000	1.50	33.00	24.00	1.00	11.00	7.0
600342-8202-000	2.00	33.50	24.50	1.50	11.00	7.0
600342-8203-000	2.50	34.00	25.00	1.50	11.00	7.0
600342-8221-000	3.00	34.50	16.50	2.00	19.00	20.0
600342-8222-000	5.00	43.50	25.50	3.50	19.00	23.0

**Long-threaded stylus, stepped shaft / ruby sphere**



Long-threaded styli M5 x 12.5 with a tungsten carbide shaft and a ruby sphere are only specified for use with slotted and clamp discs. Customized star styli can be assembled with the components. They can be screwed directly to an extension or a cube.

Item no.	DK	L	ML	MLE	DS	DSE	DG	weight (g)
600342-8250-000	0.30	21.80	12.80	2.30	1.00	0.20	11.00	6.0
600342-8251-000	0.50	22.00	13.00	2.50	1.00	0.30	11.00	6.0
600342-8252-000	0.60	22.10	13.10	4.60	1.00	0.40	11.00	6.0
600342-8253-000	0.80	22.30	13.30	4.80	1.00	0.60	11.00	6.0
600342-8254-000	1.00	22.50	13.50	5.00	1.00	0.80	11.00	6.0



### Clamp discs

The disc is screwed against an extension with a slotted disc and a long-threaded stylus. A star stylus is created by clamping a stylus without thread or tungsten carbide pins in between.



Item no.	Description
600341-0140-000	Clamp disc for star probe, DG11, DS5.1, L1.5
600341-0141-000	Clamp disc for star probe, DG11, DS5.1, L1.5

### Slotted discs

Styli and tungsten carbide pins can be inserted and positioned here. The disc is screwed against an extension with a clamp disc and a long-threaded stylus. A star stylus is created in this way.



Item no.	Description
600341-0150-000	Slotted disc for star probe, DG11, DS5.1, L2, DK1/1.5
600341-0151-000	Slotted disc for star probe, DG11, DS5.1, L2, DK1/1.5

### Tungsten carbide pins

The tungsten carbide pins are required for insertion in clampable star styli when one-sided star styli are to be assembled.



Item no.	Description
600341-0520-000	Tungsten carbide pin for star probe, L10, DS1
600341-0521-000	Tungsten carbide pin for star probe, L10, DS1
600341-0522-000	Tungsten carbide pin for star probe, L10, DS1
600341-0523-000	Tungsten carbide pin for star probe, L10, DS1

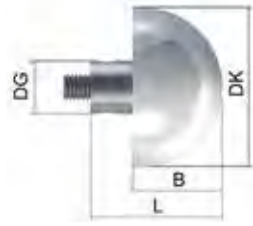
### Assembly tools

Clampable star styli are quickly and easily mounted with the assembly tools for star styli. The required size depends on the base body diameter of the clamping stylus (DG11 or DG19).



Item no.	Description
600341-8300-000	Assembly tool for star probe DG11
600341-8301-000	Assembly tool for star probe DG11

**Stylus with hemisphere / ceramic**



These ceramic styli with hemisphere are used when a large sphere diameter with a low weight is required.

Item no.	DK	L	DS	B	DG	weight (g)
626105-1696-020	16.00	20.00	4.00	10.00	11.00	10.4
626105-2296-020	22.00	20.00	4.00	14.50	11.00	12.5
626105-3096-025	30.00	25.00	4.00	18.00	11.00	17.0

**Styli without shaft / ceramic**



These styli can be screwed directly to an extension with a diameter of 11 mm. As a result, long styli can be assembled, e.g. for measuring deep holes.

Item no.	DK	L	DS	DG	weight (g)
000000-1294-772	15.00	28.00	5.00	11.00	20.0
626115-1600-028	16.00	28.00	5.00	11.00	20.0
626115-1800-028	18.00	28.00	5.00	11.00	22.0
626115-2000-033	20.00	33.00	5.00	11.00	29.0
626115-3000-043	30.00	43.00	5.00	11.00	67.0

**Stylus with spherical disc / hardened steel**



Styli with a small diameter are already provided with a shaft and can be mounted directly on cubes and extensions. The disc is made of hardened steel.

Item no.	DK	L	B	DG	weight (g)
600341-8090-000	10.00	21.50	1.50	7.00	3.0
600341-8095-000	15.00	21.50	1.50	10.00	6.0
000000-1165-629	15.00	40.00	1.00	7.00	5.0
602030-8091-000	20.00	60.00	1.00	7.00	8.0





**Ball discs DS 5 / hardened steel**

Ball discs with M5 through-thread (DS 5) are attached directly to a threaded stem. The ball disc is made of hardened steel.



Item no.	DK	B	DS	TMAT	weight (g)
602030-0003-000	10.00	4.00	5.00	steel	2.0
602030-0004-000	15.00	4.00	5.00	steel	5.0
602030-0005-000	20.00	4.00	5.00	steel	9.0
602030-0006-000	30.00	4.00	5.00	steel	21.0
602030-0007-000	40.00	5.00	5.00	steel	42.0
602030-0008-000	50.00	5.00	5.00	steel	64.0
602030-0009-000	60.00	5.00	5.00	steel	89.0

**Ball discs DS 8 / hardened steel**

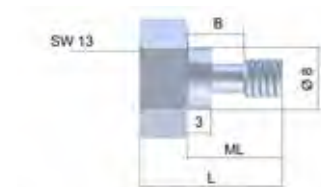
Ball discs with a smooth through-hole (DS 8) can be directly attached to extensions with the respective clamping screws (e.g. 600341-0212-000). The ball disc is made of hardened steel.



Item no.	DK	B	DS	TMAT	weight (g)
602030-0010-000	15.00	4.00	8.00	steel	4.0
600341-0200-000	20.00	2.00	8.00	steel	4.0
602030-0011-000	20.00	4.00	8.00	steel	8.0
600341-0203-000	30.00	4.00	8.00	steel	10.0
600341-0204-000	40.00	4.00	8.00	steel	21.0
600341-0205-000	50.00	5.00	8.00	steel	36.0
600341-0206-000	60.00	6.00	8.00	steel	59.0

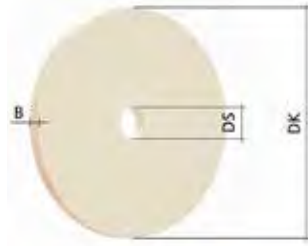
**Screws for stylus discs**

Stylus discs are attached to extensions with these special screws.



Item no.	L	ML	B	SW
600341-0210-000	35.00	26.00	24.00	13.0
600341-0211-000	30.00	21.00	19.00	13.0
600341-0212-000	17.50	10.00	7.00	13.0

**Ball discs DS 8, ceramic**



The ball stylus discs from ZEISS are distinguished by a low weight and excellent accuracy of form, even with large diameters. They are made of aluminium oxide ceramic. The roundness is better than 2 µm. They can be securely mounted on stylus systems with an M5 thread by means of the new holder without any problems.

Item no.	DK	DS	B	weight (g)
626101-6000-004	60.00	8.00	4.00	43.0
626101-3000-002	30.00	8.00	2.00	5.0

**Ball discs DS 16, ceramic**



The ball stylus discs from ZEISS are distinguished by a low weight and excellent accuracy of form, even with large diameters. They are made of aluminium oxide ceramic. The roundness is better than 2 µm. They can be securely mounted on stylus systems with an M5 thread by means of the holder without any problems. The receiver side of the clamping holder remains on the stylus extension.

Item no.	DK	DS	B	weight (g)
626101-2001-005	120.00	16.00	5.00	169.0
626101-9000-005	90.00	16.00	5.00	93.0

**Clamping holder**



Ball discs can also be exchanged quickly and easily by means of the clamping holder. In the case of the large discs with a DS 16 mounting hole, the receiver side of the clamping holder remains on the stylus extension. The discs with DS 8 are mounted directly on an extension with the clamping holder and a support disc.

Item no.	Description
626105-6271-001	Adapter for ball disc with DS 8
626105-6271-002	Adapter for ball disc with DS 16

**Two pin wrench**



These wrenches are used for disc holders.

Item no.	Description
626109-0041-000	Two pin spanner 13x2.5
626109-0042-000	Two pin spanner 25x3

**Inox / diameter 11**

Extensions of stainless steel have a high stiffness. They are used in standard applications in which the weight is unimportant.



Item no.	LE	ÜDGE	weight (g)
600341-0250-000	10.00	11.00	6.0
600341-0251-000	15.00	11.00	9.0
600341-0252-000	20.00	11.00	13.0
600341-0254-000	40.00	11.00	28.0
600341-0256-000	60.00	11.00	42.0
600341-0258-000	80.00	11.00	58.0
600341-0260-000	100.00	11.00	73.0

**Aluminum / diameter 11**

These stylus extensions are made of solid aluminium material with a diameter of 11 mm. The surface is anodized.



Item no.	LE	DGE	weight (g)
600341-8261-000	40.00	11.00	10.0
600341-8262-000	60.00	11.00	14.0
600341-8263-000	80.00	11.00	19.0
600341-8264-000	100.00	11.00	24.0
600341-8265-000	120.00	11.00	30.0

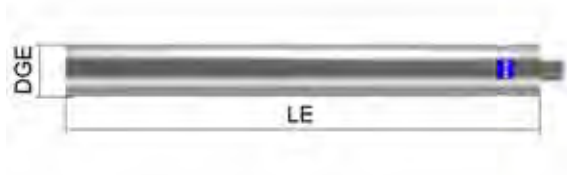
**Aluminum / diameter 20**

These stylus extensions are manufactured from aluminium tubes and are therefore very light with a diameter of 20 mm. The surface is anodized.



Item no.	LE	DGE	weight (g)
600341-8425-000	40.00	20.00	32.0
600341-8424-000	60.00	20.00	37.0
600341-8423-000	80.00	20.00	43.0
600341-8422-000	100.00	20.00	50.0
600341-8421-000	150.00	20.00	68.0
600341-8420-000	200.00	20.00	96.0

**Titanium / diameter 11**



These titanium extensions with a diameter of 11 mm are manufactured from solid material up to a length of 35 mm. Lengths from 40 mm are assembled from tubes for weight reasons. The end caps are soldered two-dimensionally, which results in an extremely good connection to the tube. Tension barrels, as occur in the case of welded extensions, are thus prevented.

Item no.	LE	DGE	weight (g)
602030-9044-000	10.00	11.00	4.0
602030-9045-000	15.00	11.00	6.0
602030-9046-000	20.00	11.00	7.0
602030-9047-000	25.00	11.00	9.6
000000-1251-674	30.00	11.00	12.0
602030-9049-000	40.00	11.00	14.0
602030-9051-000	50.00	11.00	15.0
602030-9053-000	60.00	11.00	14.0
602030-9055-000	75.00	11.00	19.0
602030-9057-000	80.00	11.00	19.0
602030-9059-000	90.00	11.00	20.0
602030-9061-000	100.00	11.00	22.0
602030-9063-000	120.00	11.00	30.0
602030-9065-000	150.00	11.00	29.0

**Titanium / diameter 18**

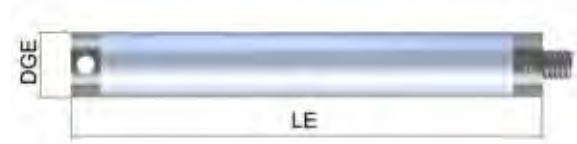


The titanium extensions with a diameter of 18 mm are suitable for rigid stylus assemblies. They are assembled from titanium tubes and are therefore weight-optimized. The end caps are soldered two-dimensionally, which results in an extremely good connection to the tube. Tension barrels, as occur in the case of welded extensions, are thus prevented.

Item no.	LE	DGE	weight (g)
626117-2010-030	10.00	18.00	10.3
626117-2015-030	15.00	18.00	15.9
602030-9048-000	25.00	18.00	26.0
602030-9050-000	40.00	18.00	43.0
602030-9052-000	50.00	18.00	35.0
602030-9054-000	60.00	18.00	38.0
602030-9056-000	75.00	18.00	42.0
602030-9058-000	80.00	18.00	41.0
602030-9060-000	90.00	18.00	47.0
602030-9062-000	100.00	18.00	50.0
602030-9064-000	120.00	18.00	56.0
602030-9066-000	150.00	18.00	68.0
602030-9067-000	200.00	18.00	67.0
602030-9068-000	250.00	18.00	67.5
602030-9069-000	300.00	18.00	84.5

**ThermoFit® silver / diameter 11**

You can use ThermoFit® silver stylus extensions for the light and low-expansion assembly of any stylus systems. The stated extensions with a diameter of 11 mm enable stylus assembly which is extremely torsionally rigid.



Item no.	LE	DGE	weight (g)
626107-1040-100	40.00	11.00	9.0
626107-1050-100	50.00	11.00	10.0
626107-1060-100	60.00	11.00	11.0
626107-1070-100	70.00	11.00	11.0
626107-1075-100	75.00	11.00	12.0
626107-1080-100	80.00	11.00	12.0
626107-1090-100	90.00	11.00	13.0
626107-1100-100	100.00	11.00	14.0
626107-1120-100	120.00	11.00	15.0
626107-1150-100	150.00	11.00	17.0
626107-1180-100	180.00	11.00	19.0
626107-1200-100	200.00	11.00	21.0
626107-1250-100	250.00	11.00	24.0
626107-1300-100	300.00	11.00	27.0
626107-1400-100	400.00	11.00	34.0

More lengths on request

**ThermoFit® silver / diameter 20**

You can use ThermoFit® silver stylus extensions for the light and low-expansion assembly of any stylus systems. The stated extensions with a diameter of 20 mm enable stylus assembly which is extremely torsionally rigid.



Item no.	LE	DGE	weight (g)
626107-2040-100	40.00	20.00	26.0
626107-2050-100	50.00	20.00	28.0
626107-2060-100	60.00	20.00	29.0
626107-2070-100	70.00	20.00	30.2
626107-2075-100	75.00	20.00	31.0
626107-2080-100	80.00	20.00	32.0
626107-2090-100	90.00	20.00	33.0
626107-2100-100	100.00	20.00	34.0
626107-2120-100	120.00	20.00	37.0
626107-2150-100	150.00	20.00	41.0
626107-2180-100	180.00	20.00	45.0
626107-2200-100	200.00	20.00	48.0
626107-2250-100	250.00	20.00	55.0
626107-2300-100	300.00	20.00	62.0
626107-2400-100	400.00	20.00	75.0
626107-2500-100	500.00	20.00	89.0
626107-2600-100	600.00	20.00	103.0

More lengths on request

**ThermoFit® Silber with cone receiver / Diameter 11**



This ThermoFit® silver stylus extension with a diameter of 11 mm has the usual M5 threaded receiver on one side and a cone receiver on the other. Various rotary, angle and star pieces with a cone adapter can be inserted into this cone receiver. This reduces the number of individual parts which have to be mounted and is also more cost-effective.

Item no.	LE	DGE	weight (g)
626107-1050-105	50.00	11.00	13.0
626107-1060-105	60.00	11.00	14.0
626107-1070-105	70.00	11.00	15.0
626107-1080-105	80.00	11.00	15.0
626107-1090-105	90.00	11.00	16.0
626107-1100-105	100.00	11.00	17.0
626107-1110-105	110.00	11.00	18.0
626107-1130-105	130.00	11.00	19.0
626107-1160-105	160.00	11.00	21.0
626107-1190-105	190.00	11.00	24.0
626107-1210-105	210.00	11.00	25.0
626107-1260-105	260.00	11.00	29.0
626107-1310-105	310.00	11.00	33.0
626107-1410-105	410.00	11.00	40.0

More lengths on request

**Rotary joint receiver M5**



This receiver has the usual M5 threaded receiver on one side and a cone receiver on the other. Various connecting elements with a cone adapter can be inserted into this and which are backlash-free.

Item no.	LE	DGE	weight (g)
626107-1015-105	15.00	11.00	5.0

**Screw set for cone receivers M5**



This spare parts set consists of ten M3 Torx screws for fixing the conical connection of rotary connecting elements. A Torx screwdriver T6 is included.

Item no.	Description
626119-0001-019	Set of screws for cone adapter, 10 pcs.

### Knuckle joint M5, rotary

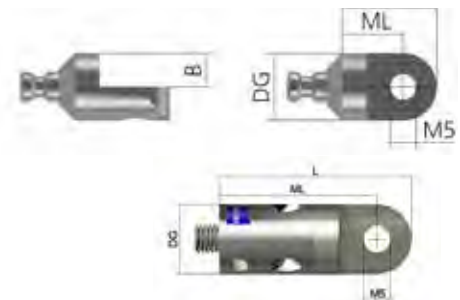
The knuckle joint can accommodate a stylus or an extension with M5 thread. The knuckle joint has an adjustable angular range of 0°-/+ 90° and is directly inserted in a cone receiver. As a result, any desired spatial angles can be set.



Item no.		L	DG	MAT	weight (g)
626107-6280-040	without rotary joint receiver	19 ,00	11.00	titanium	11.2
626105-6280-040	with rotary joint receiver	40.00	11.00	titanium	16.0

### End angle piece M5, rotary

The end angle piece can accommodate a stylus with an M5 thread at a 90° angle. It is inserted in a cone receiver and can be adjusted. The special design of the end angle piece provides better accessibility than a standard cube.



Item no.		DG	B	L	ML	MAT	weight (g)
626107-6280-010	without rotary joint receiver	11.00	5.50	15.50	10.00	titanium	4.7
626105-6280-010	with rotary joint receiver	11.00	5.50	30.5	25.00	titanium	9.6

### Rotary piece M5, rotary

The rotary piece is inserted in a cone receiver. Any desired M5 components can be mounted on this.



Item no.		L	DG	MAT	weight (g)
626107-6280-020	without rotary joint receiver	5.00	11.00	titanium	2.5
626107-6280-030	without rotary joint receiver	15.00	11.00	titanium	6.9
626105-6280-020	with rotary joint receiver	20.00	11.00	titanium	7.2
626105-6280-030	with rotary joint receiver	30.00	11.00	titanium	11.3



## Rotary connecting elements

### Star piece M5, 3 x 120°, rotary



The cube comes with four M5 threads, three of which are arranged at an angle of 120°. The star piece is inserted in a cone receiver. As a result, you can quickly assemble adjustable stylus systems.

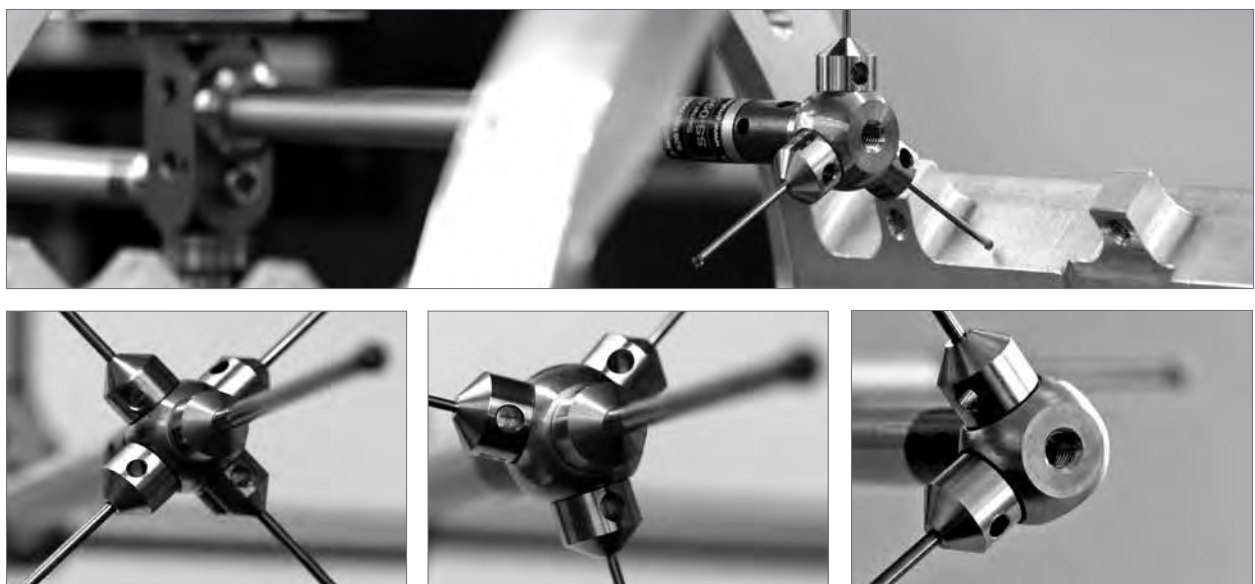
Item no.		L	ML	DG	MAT	weight (g)
626107-6280-090	without rotary joint receiver	17.50	10.00	11.00	titanium	15.0
626105-6280-100	with rotary joint receiver	32.50	25.00	11.00	titanium	19.0

### Cube 15 M5, 4 x 90°, rotary



The cube is comes with five M5 threads. It is inserted in a cone receiver. As a result, you can quickly assemble adjustable stylus systems.

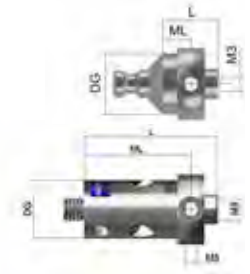
Item no.		DG	B	L	ML	MAT	weight (g)
626107-6280-070	without rotary joint receiver	11.00	15.00	17.50	10.00	titanium	13.0
626105-6280-080	with rotary joint receiver	11.00	15.00	32.50	25.00	titanium	18.0





### Star piece M3 XXT, 4 x 90°, rotary

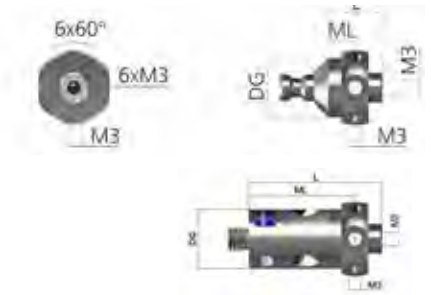
Up to five M3 XXT styli can be mounted to the star adapter. This makes versatile and extremely small star styli possible. It is inserted in a cone receiver. As a result, you can quickly assemble adjustable stylus systems.



Item no.	L	ML	DG	MAT	weight (g)
626107-6280-060	10.00	5.00	11.00	titanium	5.0

### Star piece M3 XXT, 6 x 60°, rotary

Up to seven styli from the M3 XXT product range can be mounted on this star holder, six connectors are arranged at an angle of 60°. As a result, a wide variety of star styli can be assembled, especially small ones. The star piece is inserted in a cone receiver.



Item no.		L	ML	DG	MAT	weight (g)
626107-6280-100	without rotary joint receiver	10.00	5.00	11.00	titanium	5.0
626105-6280-110	with rotary joint receiver	25.00	5.00	11.00	titanium	10.00

### Star piece without thread 1 mm, 4 x 90°, rotary

Create small star styli with the star stylus piece. Clamp the stylus without thread into the adapter. Mount and adjust the star stylus to the cone receiver. A standard stylus can be attached to the M5 thread.

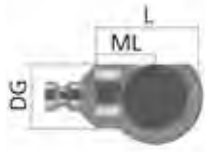


Item no.		DG	L	DS	MAT	weight (g)
626107-6280-050	without rotary joint receiver	11.00	10.00	1.00	titanium	4.1
626105-6280-050	with rotary joint receiver	11.00	25.00	1.00	titanium	11.5



## Rotary connecting elements

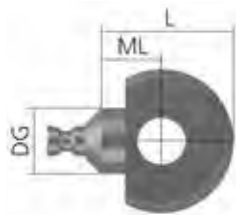
### Blank angle piece, rotary



With the blank angle, you can manufacture angle pieces quickly and easily by yourself. It is inserted in a cone receiver. We can manufacture your desired angle piece according to your specifications. Use the request form opposite for this purpose.

Item no.		L	ML	DG	MAT	weight (g)
626107-6020-000	Blank	16.00	10.00	11.00	titanium	11.0
626107-6020-xxx	Angle piece, complete	16.00	10.00	11.00	titanium	-

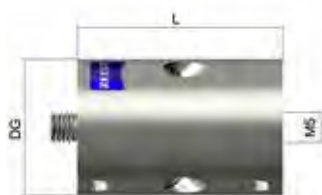
### Blank double angle, rotary



This adjustable end piece allows the creation of two angles for M5 styli, which lie on the same level. The two thread adapters have to be at least 60° apart. It is inserted in a cone receiver. We can manufacture your desired angle piece according to your specifications. Use the request form opposite for this purpose.

Item no.		DG	ML	MAT	weight (g)
626107-6023-000	Blank	11.00	10.00	titanium	18.0
626107-6023-xxx	Angle piece, complete	11.00	10.00	titanium	-

### Rotary joint, diameter 20 mm



Movable elements such as rotary joints are used to assemble angled stylus combinations. The angular adjustment takes place along the main axis of the rotary joint.

Item no.	DG	L	weight (g)
626105-6280-090	20.00	30.00	40.0



# Request form

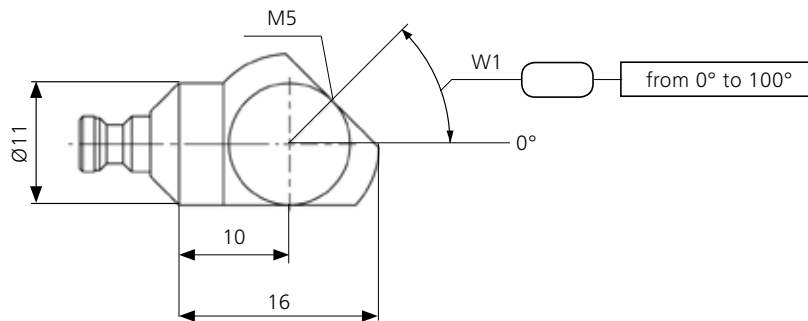


We make it visible.

- Enter the angles in the appropriate fields
- State the required quantity
- Add your contact details
- Fax the request form to 248-486-3114
- Or fill in the form in our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com)

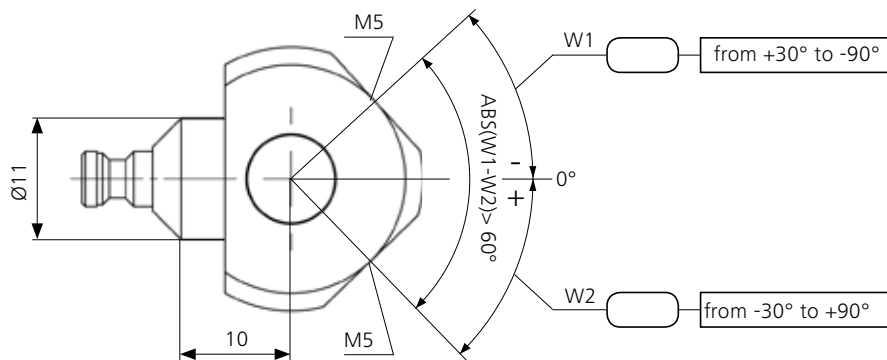
## Single angle with cone adapter

Quantity: \_\_\_\_\_



## Double angle with cone adapter

Quantity: \_\_\_\_\_



Company: \_\_\_\_\_ Department: \_\_\_\_\_

Name, First: \_\_\_\_\_ Address: \_\_\_\_\_

City / Zip: \_\_\_\_\_ E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

## Fixed connecting elements

### Cube with threaded stem



A fixed threaded stem is attached to one side of the cube.

Item no.	B	MAT	weight (g)
600341-8361-000	15.00	titanium	13.0
600341-8002-000	20.00	titanium	32.0

### Cube with countersink



One side of the cube is provided with a countersink. A countersink screw for attachment of the cube to an extension is supplied.

Item no.	B	MAT	weight (g)
626115-6110-002	15.00	titanium	13.0

### Cube with enclosed threaded pin



This cube has an M5 internal thread on all six sides. A threaded pin for attachment to the cube is supplied loose.

Item no.	B	MAT	weight (g)
626115-6110-001	15.00	titanium	13.0
626115-6110-003	20.00	titanium	32.0
602030-8362-000	20.00	aluminum	20.0
602030-8363-000	15.00	aluminum	7.9

### Screws for cubes



These screws can be screwed into an extension through cubes. An angular adjustment of the subsequent components is thereby possible. The necessary length of the screw depends on the thickness of the cube used.

Item no.	L	ML	SW
626109-0015-000	20.00	15.00	4.0
626109-0016-000	25.00	20.00	4.0
626109-0017-000	27.00	22.00	4.0

**Star piece, 6 x 60**

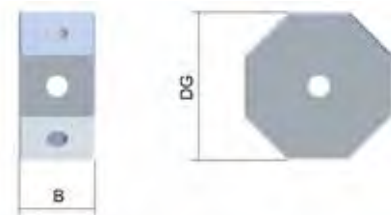
This 6 x 60 degree angle block is used to assemble a 6-fold star stylus. In addition to the six lateral threaded holes, it has two central threaded holes for attachment to an extension.



Item no.	DG	B	MAT	weight (g)
626105-6010-002	34.60	20.00	aluminum	51.4
626105-6110-001	34.00	20.00	titanium	86.8

**Star piece, 8 x 45°**

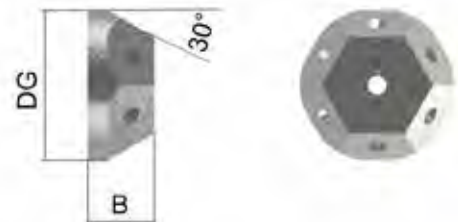
This 8 x 45 degree angle block is used to assemble an 8-fold star stylus. In addition to the eight lateral threaded holes, it has two central threaded holes for attachment to an extension.



Item no.	DG	B	MAT	weight (g)
626105-6010-000	29.00	15.00	aluminum	23.2
626105-6110-000	29.00	15.00	titanium	39.6

**Star piece, 6 x 45° / 30°**

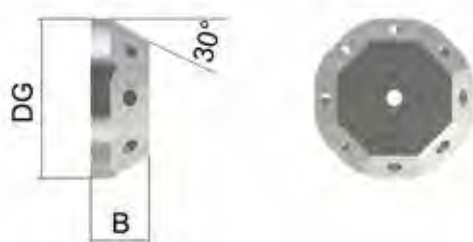
This 6 x 60 degree star piece angled at 30 degrees is used to assemble a 6-fold star stylus. In addition to the six lateral threaded holes, it has two central threaded holes for attachment to an extension.



Item no.	DG	B	MAT	weight (g)
626105-6110-031	34.00	15.00	titanium	47.0

**Star piece, 8 x 45° / 30°**

This 8 x 45 degree star piece angled at 30 degrees is used to assemble an 8-fold star stylus. In addition to the eight lateral threaded holes, it has two central threaded holes for attachment to an extension.



Item no.	DG	B	MAT	weight (g)
626105-6110-030	41.00	15.00	titanium	66.0

## Fixed connecting elements

### End angle piece



With end angle pieces, you can use a stylus angled at 90° at the end of a stylus extension, e.g. in order to measure a hole in the underside of a workpiece. The special design provides better accessibility than a standard cube.

Item no.	L	ML	DG	MAT	weight (g)
626105-6901-001	22.50	17.00	11.00	titanium	6.0

### Knuckle joint



Movable elements such as knuckle joints are used to assemble angled stylus combinations. The angular adjustment takes place at right angles to the main axis of the knuckle joint. You can also use our practical set-up device (626109-0025-000) for the adjustment.

Item no.	DG	L	MAT	weight (g)
600342-9002-000	11.00	30.00	titanium	11.0

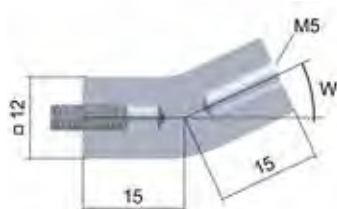
### Knuckle joint, diameter 20 mm



Movable elements such as knuckle joints are used to assemble angled stylus combinations. The angular adjustment takes place at right angles to the main axis of the knuckle joint.

Item no.	DG	L	weight (g)
626105-6280-070	20.00	36.00	43.0

### Angle block



You will find our standard angles here. We will manufacture any desired angle block for you. Please use our request forms.

Item no.	L1	L2	B	angle (°)	weight (g)
626105-6020-015	15.00	15.00	12.00	15.00	11.0
626105-6020-030	15.00	15.00	12.00	30.00	11.0
626105-6020-045	15.00	15.00	12.00	45.00	11.0
626105-6020-060	15.00	15.00	12.00	60.00	11.0
626105-6020-075	15.00	15.00	12.00	75.00	11.0

# Request form



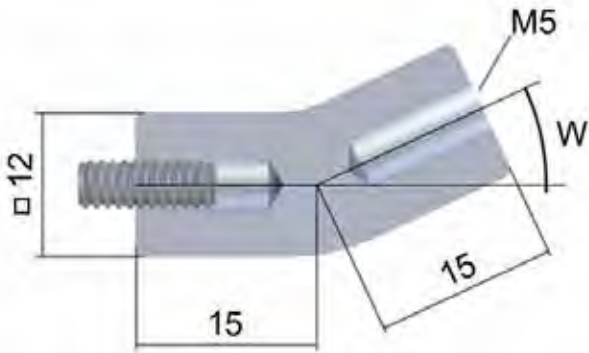
We make it visible.

- Enter the angles in the appropriate fields
- State the required quantity
- Add your contact details
- Fax the request form to 248-486-3114
- Or fill in the form in our online shop at [www.probes.zeiss.com](http://www.probes.zeiss.com)

## Angle block of aluminum

Quantity: \_\_\_\_\_

Angle in degrees: \_\_\_\_\_



Company: \_\_\_\_\_ Department: \_\_\_\_\_

Name, First: \_\_\_\_\_ Address: \_\_\_\_\_

City / Zip: \_\_\_\_\_ E-mail: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

## Adapter plates

### Adapter plate with cube



These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. Furthermore, they are equipped with a 20 mm cube that has already been aligned. Five M5 connections can accommodate styli and extensions. The reference adapter plate is marked with a red ring.

Item no.	Description
600667-9601-000	Adapter plate VAST with active ID-Chip, 158g
600667-9602-000	Reference adapter plate VAST with active ID-Chip, 158g
600667-9611-000	Adapter plate VAST with active ID-Chip, 2 pcs., 158g

### Adapter plate with M5 holder



These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. In addition to this, they are equipped with an M5 holder. An M5 stylus or an extension with a diameter of 20 mm can be attached to this in a vertical direction. As a result of their flat design, they are ideal for use with the Z measuring range.

Item no.	Description
626107-2000-940	Adapter plate VAST, M5, without cube



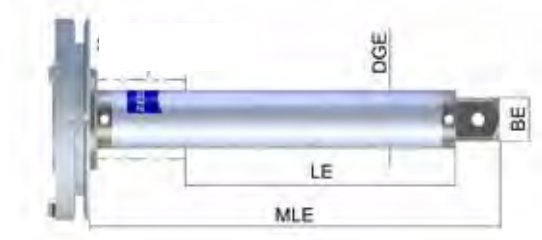
*Get to know ThermoFit® Pro, our twist-proof stylus construction system. With pre-aligned assemblies consisting of extensions and rotary end pieces which are interchangeable. A diverse product range awaits you!*





**Adapter plate with ThermoFit® silver and cube 15**

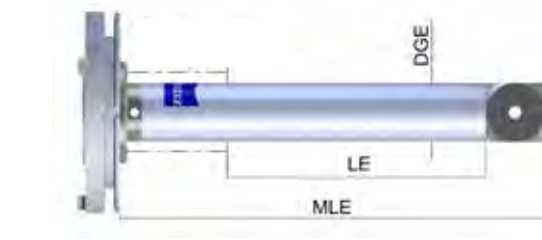
These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. They are fitted with a ThermoFit® silver plate extension with a 15 mm cube that has already been aligned.



Item no.	LE	MLE	BE	DGE	weight (g)
626107-2025-930	25.00	66.50	15.00	20.00	167.0
626107-2040-930	40.00	81.50	15.00	20.00	169.0
626107-2050-930	50.00	91.50	15.00	20.00	171.0
626107-2060-930	60.00	101.50	15.00	20.00	173.0
626107-2080-930	80.00	121.50	15.00	20.00	175.0
626107-2100-930	100.00	141.50	15.00	20.00	177.0
626107-2120-930	120.00	161.50	15.00	20.00	179.0
626107-2150-930	150.00	191.50	15.00	20.00	184.0

**Adapter plate with ThermoFit® silver and cube 20**

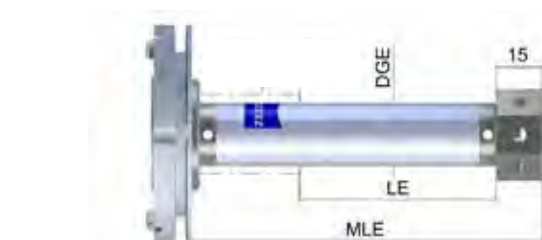
These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. They are fitted with a ThermoFit® silver plate extension with a 20 mm cube that has already been aligned.



Item no.	LE	MLE	BE	DGE	weight (g)
626107-2025-910	25.00	71.50	20.00	20.00	181.0
626107-2040-910	40.00	86.50	20.00	20.00	183.0
626107-2050-910	50.00	96.50	20.00	20.00	185.0
626107-2060-910	60.00	106.50	20.00	20.00	187.0
626107-2080-910	80.00	126.50	20.00	20.00	189.0
626107-2100-910	100.00	146.50	20.00	20.00	191.0
626107-2120-910	120.00	166.50	20.00	20.00	193.0
626107-2150-910	150.00	196.50	20.00	20.00	198.0

**Adapter plate with ThermoFit® silver and star piece**

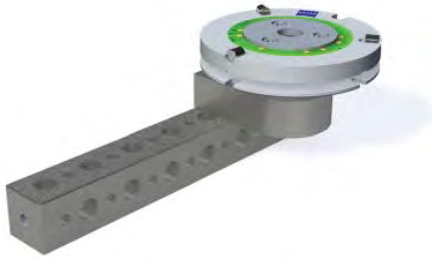
These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. They are fitted with a ThermoFit® silver plate extension with a fixed-mounted 8 x 45° star piece. These are mainly used for the measurement of external gears.



Item no.	LE	MLE	BE	DGE	weight (g)
626107-2070-950	70.00	110.50	29.00	20.00	200.0

## Adapter plate

### Adapter plate with multiple holder



These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. In addition to this, they are equipped with a multiple holder made of titanium. 26 M5 connections can accommodate styli and extensions.

Item no.	Description
626107-2000-951	Multiple styli adapter plate encoded with VAST plate

### Adapter plate with multiple holder, stepped



These adapter plates for VAST® come with an ID-chip for reliable identification by the ZEISS CMM. They are fitted with a ThermoFit® silver plate extension and a multiple holder. 26 M5 connections can accommodate styli and extensions.

Item no.	Description
626107-2070-951	Multiple styli adapter plate encoded with VAST plate

### Adapter plate for RST-T / VAST®



This adapter plate is for the temperature probe RST / VAST®.

Item no.	Description
600667-9603-000	Adapter plate for temperature probe RST/VAST

**Temperature probe RST-T / VAST®**

The RST touch trigger temperature probe can be attached to the VAST® adapter plate. The temperature sensor on the tip is exchangeable.



Item no.	Description
600661-9670-000	Temperature probe RST-T/VAST gold with case

**Replacement sensor for RST-T**

Replacement sensor for the temperature probe RST-T / VAST®. The sensor can be easily removed from and reattached to the probe by hand.



Item no.	Description
600661-8600-000	Temperature sensor PT-100

**Movable knuckle joint**

Angles between 0 and 90 degrees can be set with the RST knuckle joint, e.g. in order to reach areas with the RST probe that are not easily accessible.



Item no.	LE	DGE	weight (g)
600661-9225-000	94.00	24.00	97.0

**Probe extension**

The RST probe can be connected to an RDS or DSE adapter plate with the probe extensions. Inaccessible areas can be reached more easily by means of various extensions. The tubes of the probe extensions are manufactured with the tried-and-tested ZEISS ThermoFit® technology.



Item no.	LE	DGE	weight (g)
600661-8420-000	60.00	24.00	46.0
600661-8421-000	100.00	24.00	56.0
600661-8422-000	200.00	24.00	78.0
600661-8423-000	300.00	24.00	100.0
600661-8424-000	400.00	24.00	124.0
600661-8426-000	600.00	24.00	175.0
600661-8435-000	350.00	24.00	114.1

**Multi Sensor Rack**



The ZEISS Multi Sensor Rack is a flexible stylus and sensor changing system for all bridge-type measuring machines. A high degree of flexibility is obtained, allowing ZEISS CMM operators to keep their options open for future system expansions with the flexible selection of sensor and probe sockets of the new MSR types. The styli and the sensors are changed passively, i.e. the MSR is operated by the bridge-type measuring machine. In this regard, it is positioned within the measuring volume of the bridge-type measuring machine (probe sockets are not included).

Item no.	B	H	ACCURA	PRISMO	CONTURA	SPECTRUM	UPMC	MMZ
626100-9302-000	800	550	7/X700	7/X700	700DT/XT/G2			
626100-9302-010	800	450	5/X700	5/X700		700		
626100-9302-100	800	550					850	
626100-9312-000	1000	550	7/X900	5/X900				
626100-9322-000	1100	550			1000DT/XT/G2			
626100-9322-010	1100	450				-		
626100-9322-020	1100	700			2G/U-Stein			
626100-9332-000	1250	800	10/X1200	5/X1200				
626100-9342-000	1600	800	10/X1600	10/X1600				
626100-9342-010	1600	800						MMZ-G/T

**Multi Sensor Rack additional level**



You can extend your Multi Sensor Rack easily and flexibly with these additional levels and mounting sets. The width of the third level depends on the width of the basic module. The Y mounting set enables the attachment and adjustment of the MSR along the Y-axis of your coordinate measuring machine.

Item no.	Description
626100-9303-000	Additional level MSR, L=800 without probe socket
626100-9313-000	Additional level MSR, L=1000 without probe socket
626100-9323-000	Additional level MSR, L=1100 without probe socket
626100-9333-000	Additional level MSR, L=1250 without probe socket
626100-9343-000	Additional level MSR, L=1600 without probe socket
626100-8390-000	Fastening angle for MSR



**Multi Sensor Rack mini**

The Multi Sensor Rack mini is a simple and flexible changer rack for coordinate measuring machines with a small measuring range (probe sockets are not included).



Item no.	Description
626100-9392-000	Multi Sensor Rack mini B720/H450

**Multi Sensor Rack duplex**

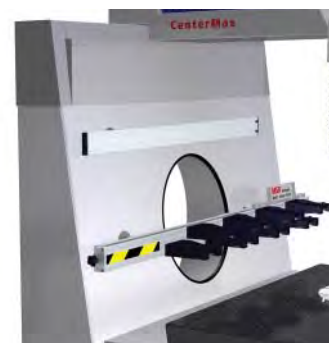
The Multi Sensor Rack duplex enables two MSR to be fixtured one coordinate measuring machine. The MSR are manually moved out of the measuring range, turned by 180 degrees and repositioned in the measuring range. A new set of stylus systems is immediately available for measurements (probe sockets are not included).



Item no.	B	H	Accura	Prismo
626100-9304-000	800	480	5/X700	5/X700
626100-9314-000	1000	580	7/X900	7/X900
626100-9324-000	1250	880	10/X1200	10/X1200

**Multi Sensor Rack Telescopic for CenterMax**

The MSR-T provides ultra-easy operation and improved ergonomics for removing the probe socket from the measuring range. The pull-out direction can be preset to the front or the back. It is therefore a flexible solution, regardless of the ambient conditions of your CenterMax CMMs. The MSR-T is available as a conversion kit without a probe socket or as a practical set including eight VAST® probe sockets.



Item no.	Description
626100-9305-000	MSR-T for CenterMax, incl. 8 MT/VAST probe sockets
626100-9305-100	MSR-T for CenterMax, without probe sockets

## Probe changer racks

### ProMax



ProMax is an automatically operated changer rack for ZEISS CMMs. The changer rack moves automatically out of the measuring range when styli are not required. Existing test plans do not have to be changed. ProMax consists entirely of modular components and can therefore be easily adapted to your CMM. The individual linear modules are mounted on a base frame. The modules can be moved laterally and vertically, even after installation. Up to two sockets for VAST® adapter plates can be mounted on one module. The complete system can be extended with probe sockets (probe sockets are not included).

Item no.	Machine	Levels	linear modules	max. probe sockets	fixed sockets
000000-1152-179	Contura 7	2	8	8	No
000000-1152-180	Prismo 5 / Accura 5	1	2	4	Yes
000000-1152-181	Prismo 7 / Accura 7	2	6	12	No
000000-1152-182	Prismo 10 / UPMC 1200	3	12	15	No

### ProMax accessories



Accessories for extending your ProMax system. Please give us a call, we will be pleased to offer you advice and prepare a quotation for the installation and integration in your existing system. (only for ProMax systems from item. no. 000000-1152-179 to 000000-1152-182).

Item no.	Description
000000-1152-184	Linear module 300 for ProMax, stroke 300 mm
000000-1152-185	Linear module 500 for ProMax, stroke 500 mm
000000-1152-186	Passive box for ProMax, to integrate fixed probe sockets
000000-1152-187	Assembly of ProMax on CMM within Germany
000000-1152-188	Assembly of ProMax on CMM within EU

**ProMax-G for GageMax, lateral**

Automatic changer rack with two ProMax-G transfer units on two levels, for lateral mounting on the GageMax base plate, incl. eight VAST® probe sockets, incl. control elements and software macro, for new machines without a ProMax-G module 626100-9410-000. Cannot be combined in the standard version with ProMax-G additional level.



Item no.	Description
626100-9430-000	ProMax-G probe changer lateral mounting

**ProMax-G additional level**

The ProMax-G changer rack can be extended by the additional level for GageMax. The additional level consists of a module for the supporting structure, stroke approx. 200 mm. The storage rack is approx. 480 mm wide and is supplied with mounting accessories. No probe sockets are included in the supply. An additional hole must be drilled in the polymer concrete of the CMM for mounting.



Item no.	Description
626100-9440-000	Extension ProMax-G second level

**ProMax-G for GageMax**

Automatic changer rack for ZEISS GageMax In-Line CMMs. ProMax-G was especially developed for use in the production environment. Up to five VAST® probe sockets (not included) can be mounted on a bar, which is moved from the measuring range automatically. The probe sockets are automatically moved into the measuring range by the CALYPSO measuring software for stylus change. Existing test plans do not have to be changed.



Item no.	Description
626100-9420-000	ProMax-G for GageMax (without probe sockets)

**ProMax-C for CenterMax**



The system is a movable automatic changer rack for ZEISS CenterMax In-Line CMMs. ProMax-C was especially developed for use in the production environment. Ten probe sockets are included and are mounted on two linear modules (see photo). The linear modules have a stroke of approx. 200 mm, in order to pneumatically transport the probe sockets from the measuring range during the measurement. The probe sockets are automatically moved into the measuring range by the CALYPSO measuring software for stylus change. Existing test plans do not have to be changed.

Item no.	Description
626100-9510-000	ProMax-C - automatic probe changer

**ProMax-C additional level**



You can easily extend the ProMax-C for CenterMax changer rack with the additional level, probe sockets are not included.

Item no.	Description
626100-8510-000	3rd level for ProMax-C (new changer) without sockets

**Probe socket VAST®**



This probe socket can accommodate a ZEISS VAST® adapter plate.

Item no.	Description
600660-8365-000	Probe socket VAST

**Probe socket XTR / VAST®**



Make additional stylus systems available to your CMM with this VAST® XTR probe socket.

Item no.	Description
600664-8600-000	Probe socket VAST XTR



**MSC probe cabinet with glass doors, VAST®**

This robust probe cabinet is suitable for storing stylus systems with VAST® adapter plates. The stable sheet cabinet with the dimensions 1000 x 400 x 2000 mm (WxDxH) is equipped with glass doors, so that you can see your stylus systems from the outside. It is lockable and painted light grey. Five height-adjustable racks with 30 VAST® probe sockets are mounted inside. Further accessories can be added. The price includes packaging.



Item no.	Description
626100-9025-100	Probe cabinet MSC, with glass doors and 30 sockets VAST

**MSC probe cabinet with sheet doors, VAST®**

This robust probe cabinet is suitable for storing stylus systems with VAST® adapter plates. The stable sheet cabinet with the dimensions 1000 x 400 x 2000 mm (WxDxH). It is lockable and painted light grey. Five height-adjustable racks with 30 VAST® probe sockets are mounted inside. Further accessories can be added.



Item no.	Description
626100-9025-000	Probe cabinet MSC, with 30 sockets VAST

**Accessories for the probe cabinet**

Equip your probe cabinet according to your requirements with various probe sockets, stylus pallets or practical storage trays.





Item no.	Description
626100-8024-000	Additional level for cabinet MSC
626100-8023-000	Shelf for cabinet MSC
626100-8022-000	Tool tray for probe cabinet MSC
626100-8021-000	Pallet for 67 styli M5 for cabinet MSC
626100-8011-010	Probe socket VAST for cabinet MSC
626100-8012-000	Probe socket ST/ST 3 for cabinet MSC
626100-8013-000	Probe socket DSE for cabinet MSC
626100-8014-000	Probe socket RDS for cabinet MSC
626100-8015-000	Probe socket XXT for cabinet MSC
626100-8011-020	Probe socket XTR for cabinet MSC

# Design your own MSC



## 1. Choose the cabinet type

You can choose between the cabinet with glass doors and the standard type cabinet with metal doors. Both are equipped with five shelves.

	Item no.	Description	Qty.
	626100-9015-000	Probe cabinet MSC with metal doors, W x D x H 1000x400x2000 mm, without probe sockets , incl. 5 shelves	<input type="text"/>
	626100-9015-100	Probe cabinet MSC with glass doors, W x D x H 1000x400x2000 mm, without probe sockets , incl.5 shelves	<input type="text"/>








## 2. Additions

Design the interior of your new MSC yourself and get exactly what you require.

	Item no.	Description	Qty.
	626100-8023-000	Ground level compartment for the probe cabinet MSC, powder-coated, max. carrying capacity: 60kg, width 990 mm	<input type="text"/>
	626100-8024-000	Additional level shelf for the probe cabinet MSC effective width max. 930 mm	<input type="text"/>

## 3. Combining probe sockets and accessories

Equip your MSC with various probe sockets, probe pallets or the handy tool tray.

	Item no.	Description	Qty.
	626100-8011-010	Probe socket VAST for MSC width 100 mm	<input type="text"/>
	626100-8012-000	Probe socket ST/ST3 for MSC width 80 mm	<input type="text"/>
	626100-8013-000	Probe socket DSE for MSC width 130 mm	<input type="text"/>
	626100-8014-000	Probe socket RDS for MSC width 100 mm	<input type="text"/>
	626100-8015-000	Probe socket XXT for MSC width 50 mm	<input type="text"/>
	626100-8021-000	Pallet for 67 styli M5 for MSC width 287 x Tiefe 205 mm	<input type="text"/>
	626100-8022-000	Tool tray for MSC width 210 x depth 105 mm	<input type="text"/>

## 4. Order via Fax: +49 7361 6336 29

Name: \_\_\_\_\_ Dept.: \_\_\_\_\_

Comp.: \_\_\_\_\_ Zip/Loc : \_\_\_\_\_

Street: \_\_\_\_\_ E-mail : \_\_\_\_\_

Phone: \_\_\_\_\_

### CMM-Check

The CMM-Check can be used to check coordinate measuring machines in accordance with DIN EN ISO 10360 and VDI/VDE 2617. The following characteristics can be measured with the calibration artifact:

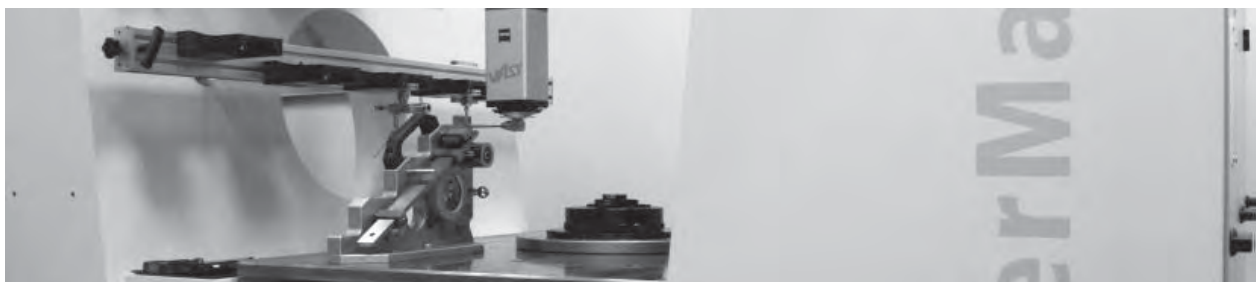
- Probing behavior of the probe system
- Scanning properties of the probe system
- CMM as a form measuring machine including filter characteristics
- Linear measuring errors
- Four-axis errors for CMM with rotary table (optional)

The basis of the universal calibration artifact is a torsionally rigid base body, to which high-precision calibrated dimensional standards and form standards are attached:

- One adjusting ring, 50 mm diameter
- One ceramic sphere, diameter 30 mm
- One Flick standard (precision cylinder with two ground flat areas of approximately 10 micrometers and 250 micrometres)
- Two parallel gauge blocks, 50 mm and 400 mm
- Two ceramic spheres (optional), diameter 30 mm



Item no.	Description
000000-1103-602	CMM-Check with case
000000-1103-606	DKD-calibration CMM-Check
000000-1103-607	Manufacturer calibration CMM-Check
626001-0100-100	Flightcase for CMM-Check
626001-0122-020	Software CMM-Check / SW, UMESS UNIX / LINUX
626001-0130-020	Software CMM-Check / SW, CALYPSO



### Multisensor-Check



The Multisensor-Check is a procedure for the standardized checking of coordinate measuring machines (CMMs) with tactile/optical sensors. The universal calibration artifact is supplied with the associated control and analysis software. The Multisensor-Check can be used to check coordinate measuring machines in accordance with DIN EN ISO 10360-2 and VDI/VDE 2617 Sheet 6.1:

- Probe deviation of the measuring head system
- Scan deviation of the measuring head system
- Length measurement deviation
- Probe deviation and length measurement deviation are checked using tactile and optical methods.

The basis of the calibration artifact is a torsionally rigid base body, on which high-precision, calibrated measuring standards are mounted:

- A special adjusting ring for tactile and optical measurements, diameter of 16 mm
- A precision ceramic sphere, diameter 25 mm
- Two parallel gauge blocks, lengths 50 mm and 200 mm
- A glass scale, length 200 mm. The glass scale includes precise, circular markings for checking the probe deviation and a division scale for checking the length measurement deviation

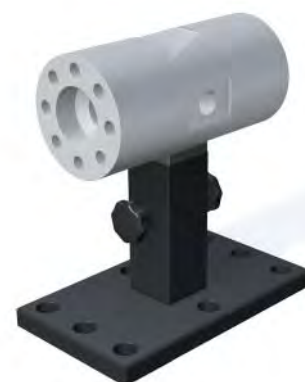
Item no.	Description
626001-0830-000	Multisensor-Check
626001-0830-020	CALYPSO Multisensor-Check PC base license
626001-0890-000	DAkKS calibration Multisensor-Check



### Multi-Feature-Check

The Multi-Feature-Check is a method for determining the inspection criteria-specific measuring uncertainty and measurement process suitability for almost all the dimensional, form and positional errors found in coordinate measuring technology.

Measuring uncertainties can therefore be determined and information about the suitability of the measurement process derived with respect to the coordinate measuring machine.



For example, the following inspection criteria of the universal calibration artifact can be selected depending on the user's parts spectrum. Measuring uncertainties can be determined and information obtained regarding the suitability of the measurement process with respect to the coordinate measuring machine:

- Diameter, length, angle
- Straightness, flatness, roundness, cylindric form
- Parallelism, squareness, inclination, position, concentricity, coaxiality, symmetry
- Radial run-out, axial run-out, total radial run-out, total axial run-out

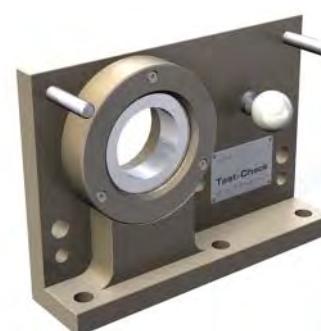
When using this method, the measurement uncertainties and the suitability of the measurements are determined under realistic conditions taking

- the current local temperatures into account
- with material similar to the workpiece and
- surface properties similar to the workpiece.

Item no.	Description
626001-0730-000	Multi-Feature-Check
626001-0730-020	Multi-Feature-Check CALYPSO license
626001-0790-000	DKD-calibration Multi-Feature-Check

### Probe-Check

The Probe-Check method can be used for testing the probing and scanning behavior of the probe in combination with the coordinate measuring machine according to VDI/VDE 2617. The basis of the calibration artifact is a torsionally rigid body, on which a ceramic sphere of 30 mm diameter and an adjusting ring, diameter 50 mm, are attached. Both standards are high-precision and calibrated. It goes without saying that the calibration artifact can be used on CMMs developed by all manufacturers.



Item no.	Description
000000-1103-639	Probe-Check with case
000000-1103-642	TDKD-calibration Probe-Check
000000-1103-643	In-house calibration Probe-Check
626001-0422-020	Software Tast-Check for SW UMESS UNIX / LINUX
626001-0430-020	CALYPSO Probe-Check PC base license

### Reference sphere holder RSH, complete



The reference sphere holder is available in three different heights of 214, 364, and 514 mm for the reference sphere. As a result, it can be optimally adapted to the requirements in the case of different machine sizes and special equipment. There is a complete set for each of these sizes, which consists of a reference sphere holder, a 30 mm ceramic reference sphere with a shaft, fixing material, tool, certificate and brief instructions. The set is supplied in a practical transport and storage case.

Item no.	Description
600332-9265-000	Reference sphere holder RSH-214 with reference sphere DK30
600332-9266-000	Reference sphere holder RSH-364 with reference sphere DK30
600332-9267-000	Reference sphere holder RSH-514 with reference sphere DK30

### Reference sphere RS



These reference spheres can be mounted on all RSH systems. They are provided with a ceramic sphere and an M6 threaded connection. The length from the base body to the middle of the sphere is 70.1 mm. All reference spheres are supplied with a certificate.

Item no.	system	DK	L	DG	TMAT	weight (g)
600332-8443-000	M6	8.000	74.10	18.00	ceramics	91.0
600332-8444-000	M6	15.000	77.60	18.00	ceramics	100.0
600332-8445-000	M6	25.000	82.60	18.00	ceramics	114.0
600332-8446-000	M6	30.000	85.10	18.00	ceramics	132.0



### Reference sphere holder RSH

The reference sphere holder is available in three different heights of 214, 364, and 514 mm for the reference sphere. As a result, it can be optimally adapted to the requirements in the case of different machine sizes and special equipment. There is a complete set for each of these sizes, which consists of a reference sphere holder and fixing material. The set is supplied in a practical transport and storage case.



Item no.	Description
600332-9165-000	Basic set RSH-214 without calibration sphere
600332-9166-000	Basic set RSH-364 without calibration sphere
600332-9167-000	Basic set RSH-514 without calibration sphere

### Reference sphere holder ThermoFit®

Our ThermoFit® reference sphere holders are manufactured from carbon fiber tubes and are therefore extremely resistant to bending with low thermal expansion in the event of fluctuations in the ambient temperature. As a result, they are optimally suited for use in the production environment. Stands are especially suitable for calibrating stylus systems which face upwards and downwards. Reference spheres are available as accessories and not included in our scope of supply.



Item no.	Description
626106-9110-000	Stand for twin reference standard, ThermoFit L200
626106-9010-000	Stand for reference standard, ThermoFit L200

### Reference sphere holder Invar

Our Invar steel reference sphere holders are extremely resistant to bending with low thermal expansion in the event of fluctuations in the ambient temperature. As a result, they are optimally suited for use in the production environment. Stands are especially suitable for calibrating stylus systems which face upwards and downwards. Reference spheres are available as accessories and not included in our scope of supply.



Item no.	Description
626106-9130-100	Stand for twin reference standard, Invar L300
626106-9140-100	Stand for twin reference standard, Invar L400
626106-9030-100	Stand for reference standard, Invar L300
626106-9040-100	Stand for reference standard, Invar L400

### Interchangeable pallet set 300 x 200



All the initial equipment you need is provided in the practical interchangeable pallet set. It consists of a base mounting plate and an interchangeable grid pallet. A pallet with a vice or a pallet with a three jaw chuck is included depending on the set.

Item no.	Description
626109-9220-130	Interchangeable pallet with bench vice
626109-9220-140	Interchangeable pallet with three jaw chuck

### Base mounting plate



The base mounting plate is mounted directly in the measuring range of your coordinate measuring machine. The appropriate interchangeable pallets can be quickly and easily mounted by hand on the statically defined support with three rollers and with repeated accuracy.

Item no.	Description
626109-9220-010	Base mounting plate for 300 x 200 pallets

### Interchangeable grid pallet 300 x 200



This 300 x 200 grid pallet with changer system has a 25 mm M6 hole line spacing. As a result, user-defined workpiece holding fixtures with bracket clamping systems or other elements can be assembled. You will find suitable clamping material in our clamping kit.

Item no.	Description
626109-9220-020	Interchangeable grid pallet 300 x 200, M6x25



**Interchangeable vice pallet 300 x 200**

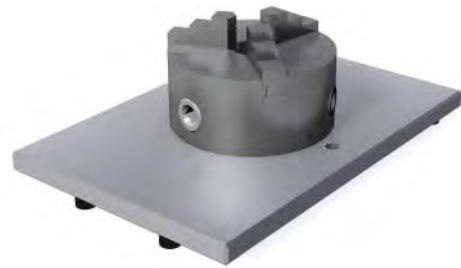
This 300 x 200 mm interchangeable pallet has a mounted vice with a jaw width of 73 mm and a maximum span width of 100 mm. The vice is mounted on the pallet with brackets and can be moved on the plate.



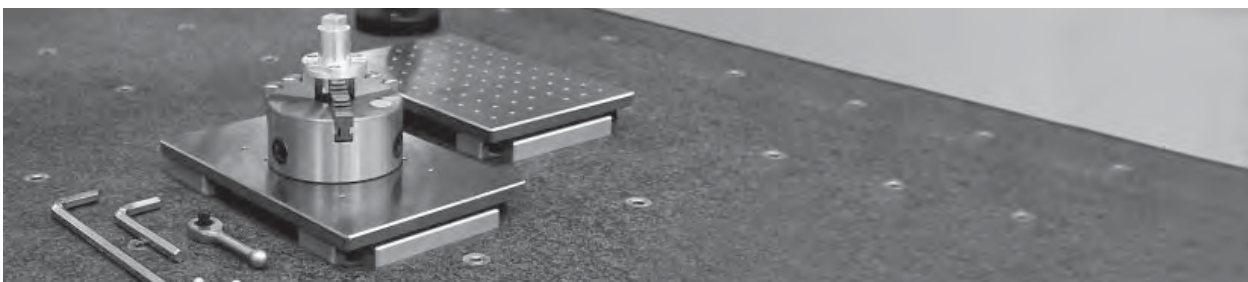
Item no.	Description
626109-9220-030	Interchangeable vice pallet 300 x 200

**Interchangeable jaw chuck pallet 300 x 200**

This 300 x 200 mm interchangeable pallet has a mounted 125 mm 3-jaw chuck. A practical ratchet wrench for manipulating the chuck is also supplied.



Item no.	Description
626109-9220-040	Interchangeable jaw chuck pallet 300 x 200



## Pallet systems with temperature sensor

A safe system for workpiece temperature monitoring on your coordinate measuring machine.

### Temperature Sensor

It is available in miniature design or as a standard size in a steel or a plastic housing. All temperature sensors are spring-loaded and balance your component tolerance.

### Workpiece pallet with pallet-sided contact unit

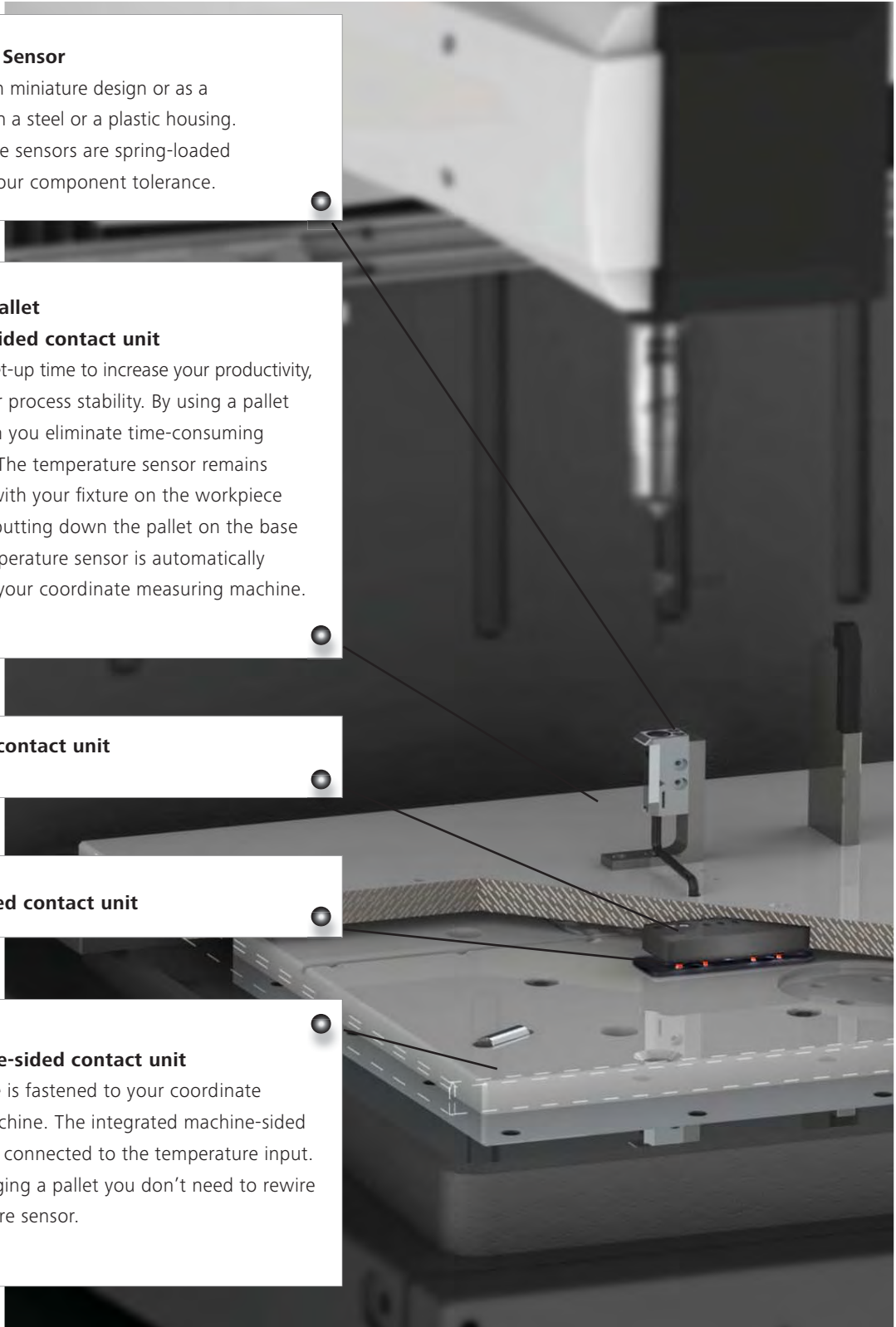
Reduce your set-up time to increase your productivity, as well as your process stability. By using a pallet change system you eliminate time-consuming changeovers. The temperature sensor remains permanently with your fixture on the workpiece pallet. When putting down the pallet on the base plate, the temperature sensor is automatically connected to your coordinate measuring machine.

### Pallet-sided contact unit

### Machine-sided contact unit

### Base plate with machine-sided contact unit

The base plate is fastened to your coordinate measuring machine. The integrated machine-sided contact unit is connected to the temperature input. When exchanging a pallet you don't need to rewire the temperature sensor.



### Changeover interface set, M12, 500 x 500

The practical changeover interface set consists of a workpiece pallet (either with or without M6 grid holes, 50 x 50 mm), a base mounting plate and two insertion aids which can be mounted on the coordinate measuring machine. The base mounting plate and insertion aids are available for CMMs with M12 fastening holes. The pallet and base mounting plate are prepared for the installation of an interface for the connection of a temperature sensor integrated in the device.



Item no.	Description
626109-9220-622	Changeover interface set M12 raster 500x500
626109-9220-652	Changeover interface set M12 raster 500x500

### Workpiece pallet 500 x 500

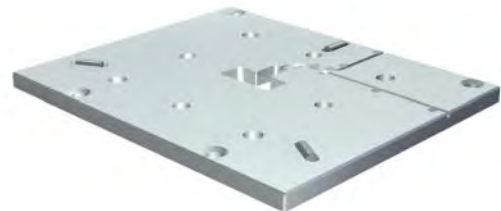
The 500 x 500 mm aluminum workpiece pallet comes with two carrying handles. It is designed for the installation of a temperature transmission interface. Two versions are available: With M6 threaded holes in a 50 x 50 mm grid and without holes (basis).



Item no.	Description
626109-9220-520	Workpiece pallet 500x500 Raster
626109-9220-550	Workpiece pallet 500x500 Raster

### Base mounting plate for 500 x 500

The aluminum base mounting plate with fastening holes M12 or M10 (DuraMax) is mounted on the table of the coordinate measuring machine. It is prepared for the installation of the temperature transmission interface. Fixturing material and the respective insertion aids are supplied.



Item no.	Description
626109-9220-512	Base mounting plate M12 for pallet 500x500
626109-9220-510	Base mounting plate M10 for pallet 500x500 (DuraMax)

## Temperature sensor systems

### Contact unit on the CMM side



This unit is installed in the base mounting plate 500 x 500 (626109-9220-510), incl. cable (3m) with SUB-D socket for connection to CMMs.

Item no.	Description
626140-9121-500	TSM-50 contact unit f. temperature sensor, cmm side

### Contact unit on the pallet side



The contact unit is installed in Workpiece pallet 500 x 500 and is used for transmitting the temperature sensor signals to the contact unit on the CMM side. The sensor can be directly connected via clamping contacts.

Item no.	Description
626140-9122-500	Temperature interface TSP-50 pallet contact unit

### Temperature sensors



These temperature sensors can be directly integrated in the clamping fixture. They have a spring-loaded sensor head, open cable ends and ferrules (cable length = 3 m). Available with a plastic or steel housing.

Item no.	Description
626140-9111-200	Temperature sensor with plastic housing, open cable end 3 m
626140-9112-200	Temperature sensor with steel housing, open cable end 3 m
626140-9111-100	Temperature sensor SUB-D with plastic housing, open cable end 3 m
626140-9112-100	Temperature sensor SUB-D with steel housing, open cable end 3 m
626140-9111-000	Temperature sensor DIN with plastic housing, open cable end 3 m
626140-9112-000	Temperature sensor DIN with steel housing, open cable end 3 m

### Replacement sensor head



Replacement part for temperature sensor for installation in devices. Cannot be used for RST-T temperature probe.

Item no.	Description
626140-9130-000	Sensorhead for temperature sensor (fixtures)

### Temperature sensor mini

This Pt100 1/10 DIN miniature sensor can be directly installed in workpiece holding fixtures, in order to record the workpiece temperature. With dimensions of  $\varnothing 6.5 \times 32\text{mm}$  and a spring deflection of approx. 2 mm, the sensor can also be installed in confined spaces.



Item no.	Description
626140-9113-200	Temperature sensor (mini), open cable end 1.5 m
626140-9113-100	Temperature sensor (mini), SUB-D, cable 1.5 m
626140-9113-000	Temperature sensor (mini), DIN, cable 1.5 m

### Temperature sensor mini, angled

This Pt100 1/10 DIN miniature sensor can be directly installed in workpiece holding fixtures, in order to record the workpiece temperature. With dimensions of  $\varnothing 6.5 \times 32\text{ mm}$  and a spring deflection of approx. 2 mm, the sensor can also be installed in confined spaces.



Item no.	Description
626140-9113-210	Temperature sensor (mini) angled, open cable head, 1.5m
626140-9113-110	Temperature sensor (mini) angled, SUB-D, cable 1.5m
626140-9113-010	Temperature sensor (mini) angled, DIN, cable 1.5m

### Hinged bracket for temperature sensor mini

The Hinged bracket is used to hold a temperature sensor (mini) and can be manually aligned on the workpiece for temperature measurement. Thread adapters in M6, M10, M12 and 1/4" are available for the mounting.



Item no.	Description
626140-9134-000	Hinged bracket for temperature sensor mini without thread adapter
626140-9134-001	Hinged bracket for temperature sensor mini with thread adapter M6
626140-9134-002	Hinged bracket for temperature sensor mini with thread adapter M10
626140-9134-003	Hinged bracket for temperature sensor mini with thread adapter M12
626140-9134-004	Hinged bracket for temperature sensor mini with thread adapter M 1/4"



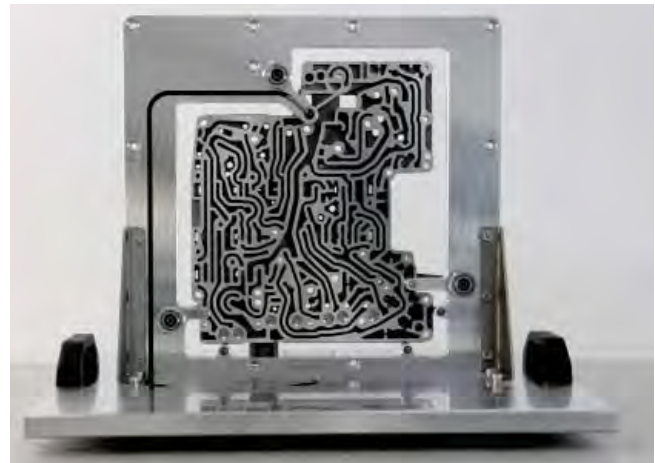
## GSF - Global Standard Fixtures

The standard solution for tough series operation.

Global Standard Fixtures (GSF) are workpiece holding fixtures for coordinate measuring instruments from ZEISS. They are manufactured by us in series quality in a very short time and guarantee a global standard for clamping components. The stable frame construction guarantees high stability and optimum component accessibility. Measuring programs for measuring six sides are drastically simplified. Standardized tried-and-tested clamping concepts and the option of integrated workpiece temperature measurement make the design the ideal solution for global industrial-scale use.

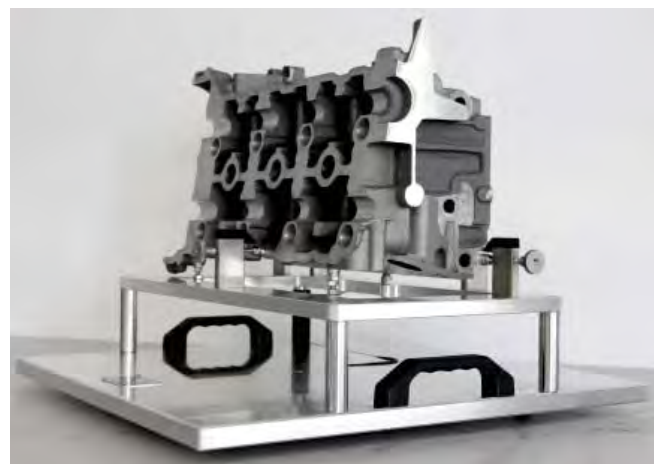
### Advantages:

- Component position—horizontal or vertical
- Minimal interference contours for optimum access to the measuring points
- Reduced work for the measuring program creation and stylus systems configuration
- High stiffness as a result of frame design
- Integrated temperature measurement as an option
- Very short lead times
- Simple cost structure
- Spare parts in stock



### Prerequisites:

- CAD model of the component
- List of characteristics
- One component can be clamped for each device
- Maximum size of the components  
350 x 550 mm (cast shadow)



We will be pleased to answer your questions and provide you with more information. Call us at 1-800-327-9735 #5 or send an e-mail to [metrology@zeiss.com](mailto:metrology@zeiss.com).

**FixAssist® VAST® linear**

An adapter plate with stylus can be set up and mounted on the FixAssist® VAST® linear set-up device. The angle for the CMM Z-axis and a horizontal axis can be adjusted precisely and repeatedly.

Your advantages:

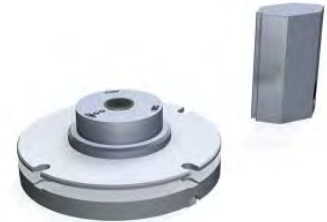
- No machine use for pre-alignment
- Simple operation, prevents damage to styli
- Quick repeatable probe assembly
- High degree of safety through optimally adjusted styli



Item no.	Description
626109-9120-000	FixAssist® VAST® linear, incl. tool kit

**XXT Adapter Set for FixAssist® linear**

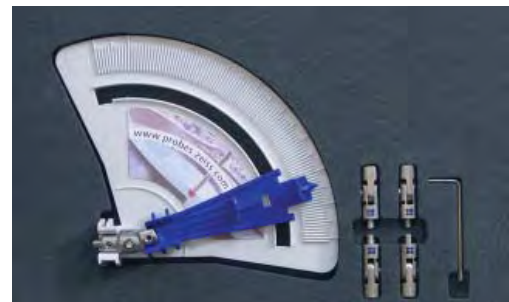
This adapter set for the FixAssist® linear is for adjusting XXT stylus systems. It consists of a plate adapter and a magnetic prism adapter. Both adapters are made of stainless steel.



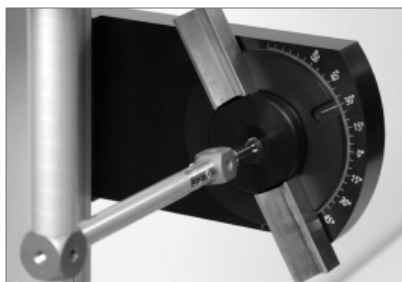
Item no.	Description
626109-9150-000	XXT adapter set for FixAssist Linear

**Angle setting device kit for Knuckle Joints**

Angle setting device for knuckle joints diameter 11 mm. This setting aid can be used to set the angle of knuckle joints to the exact degree before installation. Available in a set with five knuckle joints and tool or as an individual item.



Item no.	Description
626109-9020-000	Set up device kit for knuckle joints, incl. 4 knuckle joints
626109-0025-000	Set up device for knuckle joints



**Tool set for probe assembly**



This 13-piece tool set contains hook wrenches, pin wrenches, Allen keys, torque screwdrivers and a Inox extension for probe assembly.

Item no.	Description	
626109-9010-000	Tool kit	

Content	Qty.	Description
626109-9010-000	1	Torque hex wrench 2 Nm, 2.5 mm
626109-0012-000	2	Hook wrench DG20
626109-0013-000	2	Hook wrench DG11
600341-0260-000	1	Extension, M5, Inox, DGE11, LE100
602030-0222-000	2	Hex wrench 2.9
602030-0002-000	1	Hex wrench, SW 1.5
000000-0015-245	1	Hex wrench, SW 2.0
602030-0021-000	1	Hex wrench, SW 2.5
000000-0015-247	1	Hex wrench, SW 3.0
000000-0015-248	1	Hex wrench, SW 4

**Torque screwdriver**



This torque screwdriver with a 2.5 mm hexagon blade is used to unscrew and tighten the screws on adapter plates (e.g. VAST and ST3).

Item no.	Description
626109-0010-000	Torque screwdriver 2 Nm, 2.5 mm

**Pin wrench ZEISS standard**



A pin wrench is used for the assembly and disassembly of styli. It can be used on both ends.

Item no.	Description
000000-0015-323	Pin wrench, 1.1
000000-0015-328	Pin wrench, 2.9



### Hook wrenches

Extensions and styli can be mounted and disassembled with a hook wrench. High torques can be applied. Available individually and in a set with 5 x hook wrenches DG11 and 5 x hook wrenches DG20.



Item no.	Description
626109-0018-000	Hook wrench DG5
626109-0012-000	Hook wrench DG11
626109-0013-000	Hook wrench DG20
626119-0001-000	Hook wrench set, 5xDG11, 5xDG20

### Hex wrenches

This hexagon wrench is used to tighten cylinder-head screws with a hexagon socket.



Item no.	Description
602030-0042-000	Hex wrench DIN 911, BSW0.9
602030-0002-000	Hex wrench DIN 911, BSW1.5
000000-0015-245	Hex wrench DIN 911, BSW2
602030-0021-000	Hex wrench DIN 911, BSW2.5
000000-0015-247	Hex wrench DIN 911, BSW3
000000-0015-248	Hex wrench DIN 911, BSW4

### Additional pin wrenches

Pin wrench for small hole diameters.



Item no.	Description
602030-0001-000	Pin wrench, 1.2
602030-0027-000	Pin wrench, 1.7
602030-0222-000	Pin wrench, 2.9

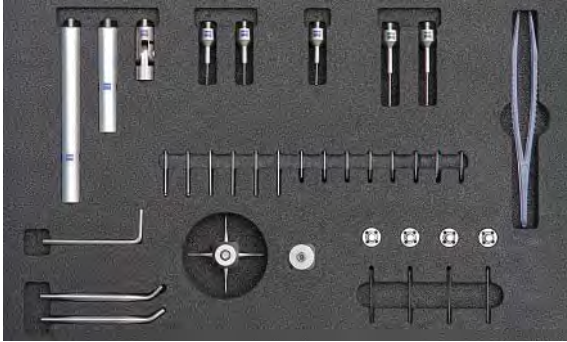
### Cleaning material

Cleanliness is essential for precision measurements. The workpiece must be cleaned before the measurement in order to obtain optimum measuring results. Our cleaning material has been tested by users in practice and is recommended for all ZEISS measuring machines.



Item no.	Description
000000-1359-469	Microfiber cleaning tissue
626119-0010-006	Polyamide-stretch-glove with PU coated palm (size XL).2 pair
000000-0424-218	Cleaning cloths Absorbond TX409.9" x9" (300 pcs.)

### Stylus kit, M5, VAST®, small

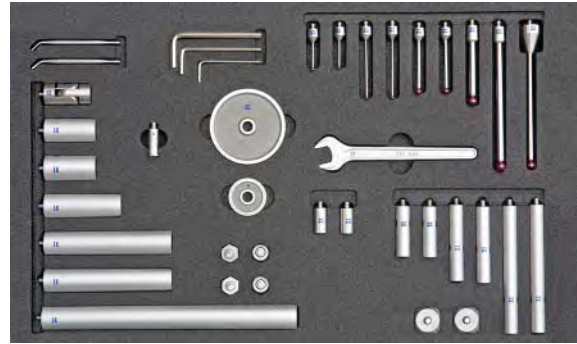


This stylus kit is designed for measuring small workpieces with a VAST® probe. The contents consist of 22 different parts from the M5 system with a total of 36 parts.

Item no.	Description	
626115-9030-000	Stylus kit, M5, VAST for small workpieces, set of 36 pcs.	
Content	Qty.	Description
602030-8067-000	2	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK2, L44, ML19
602030-8064-000	1	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK1.5, L32, ML12
602030-8061-000	1	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK1, L32, ML12
60203-8060-000	1	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK0.8, L32, ML12
600341-8451-000	3	Stylus without thread, DS1, shouldered, tungsten carbide, ruby, DK0.5, L15.5, MLE2.5
600341-8452-000	1	Stylus without thread, DS1, shouldered, tungsten carbide, ruby, DK0.6, L15.6, MLE4.6
600341-8453-000	1	Stylus without thread, DS1, shouldered, tungsten carbide, ruby, DK0.8, L15.8, MLE4.8
600341-8454-000	3	Stylus without thread, DS1, shouldered, tungsten carbide, ruby, DK1, L16, MLE5
600341-8501-000	3	Stylus without thread, DS1, tungsten carbide, ruby, DK1.5, L26.5
600341-8502-000	1	Stylus without thread, DS1.5, tungsten carbide, ruby, DK2, L27
600341-8503-000	2	Stylus without thread, DS1.5, tungsten carbide, ruby, DK2.5, L27.5
600341-8262-000	1	Stylus extension, M5, aluminium, L60
600341-8264-000	1	Stylus extension, M5, aluminium, L100
600342-9002-000	1	Knuckle joint, M5, titanium
602030-9025-000	1	Star stylus with cube, M5, tungsten carbide, ruby, DK1.5, L45, MLE6.5
600341-8361-000	1	Cube, M5, titanium, 6-folder
600341-8367-000	2	Holder for stylus DS1, 5-folder, L10
600341-8368-000	2	Holder for stylus DS1.5, 5-folder, L10
602030-0222-000	2	Pin wrench 2.9
602030-0021-000	1	Hex wrench DIN 911, SW2.5
602030-0042-000	4	Hex wrench 0.9
626109-0022-000	1	Tweezers, plastic, for stylus handling

## Stylus kit, M5, VAST®, large

This stylus kit is designed for measuring large workpieces with a VAST® probe. The contents consist of 26 different parts from the M5 system with a total of 39 parts.



Item no.	Description
626115-9031-000	Stylus kit, M5, VAST for large workpieces, set of 39 pcs.

Content	Qty.	Description
602030-0222-000	2	Pin wrench 2.9
000000-0015-248	1	Hex wrench DIN 911 SW 4
000000-0015-247	1	Hex wrench DIN 911 SW 3
000000-0015-245	1	Hex wrench DIN 911 SW 2
600342-8020-000	2	Stylus with thread, M5, tungsten carbide, Ruby, DK3, L33.5
600342-8021-000	2	Stylus with thread, M5, tungsten carbide, Ruby, DK3, L58
600342-8022-000	2	Stylus with thread, M5, tungsten carbide, Ruby, DK5, L53
600342-8023-000	1	Stylus with thread, M5, tungsten carbide, Ruby, DK8, L63.5
600342-8024-000	1	Stylus with thread, M5, tungsten carbide, Ruby, DK8, L114.5
600342-8124-000	1	Stylus with thread, M5, tungsten carbide, Ruby, DK8, L114.5, DG19
626105-6280-070	1	Knuckle joint, M5, titanium, DG20, LK36
600341-8425-000	2	Stylus extension, M5, aluminium, DG20, L40
600341-8424-000	1	Stylus extension, M5, aluminium, DG20, L60
600341-8422-000	2	Stylus extension, M5, aluminium, DG20, L100
600341-8420-000	1	Stylus extension, M5, aluminium, DG20, L200
600341-8090-000	1	Ball disc stylus M5, steel, DG7, DK10, L21.5, B1.5
600341-0206-000	1	Stylus disc, M5, steel, DK60, DS8, B6
600341-0203-000	1	Stylus disc, M5, steel, DK30, DS8, B4
626109-0004-000	1	Flat wrench DIN 894 SW 13
600341-0252-000	2	Stylus extension, M5, steel, DG11, L20
600341-8261-000	2	Stylus extension, M5, aluminium, DG11, L40
600341-8262-000	2	Stylus extension, M5, aluminium, DG11, L60
600341-8264-000	2	Stylus extension, M5, aluminium, DG11, L100
600341-0212-000	2	Screw for stylus disc, M5, ML10
600341-0210-000	2	Screw for stylus disc, M5, ML26
600341-8002-000	2	Cube with threaded pin, M5, titanium, B20

**Stylus kit, M5, ST/ST 3, small**



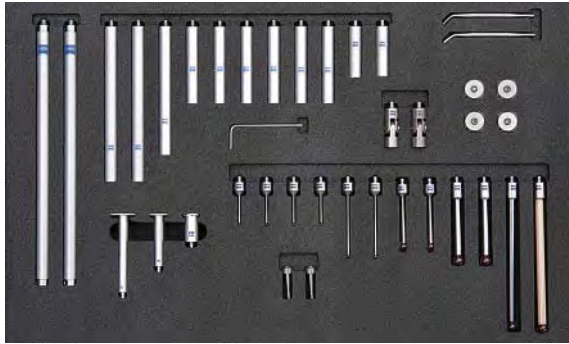
This stylus kit is designed for measuring workpieces with an ST/ST 3 probe. The contents consist of 11 different parts from the M5 system with a total of 20 parts.

Item no.	Description
626115-9021-000	Stylus kit, M5, ST/ST3, small, set of 20 pcs.

Content	Qty.	Description
600341-0211-000	1	Screw for stylus disc
600341-8361-000	2	Cube, M5, titanium, B15
602030-9011-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK3, L50
600342-8020-000	3	Stylus with thread, M5, tungsten carbide, ruby, DK3, L33.5
600342-8022-000	2	Stylus with thread, M5, tungsten carbide, ruby, DK5, L53
600342-8023-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK8, L63.5
600342-8024-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK8, L114.5
600341-8262-000	4	Stylus extension, M5, aluminium, DG11, L60
600341-8265-000	2	Stylus extension, M5, aluminium, DG11, L120
626109-0015-000	1	Screw for cube, M5, Inox, I20
602030-0222-000	2	Pin wrench 2.9



### Styli kit, M5, ST/ST 3, standard

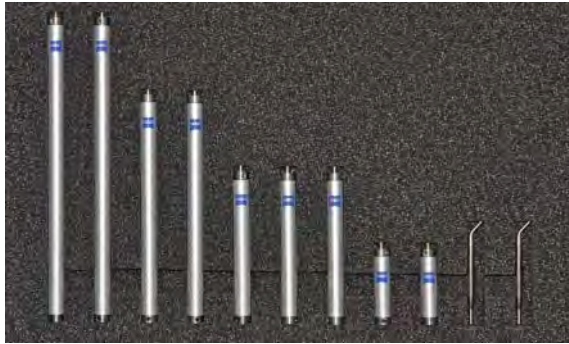


This stylus kit is designed for measuring workpieces with a ST/ST 3 probe. The contents consist of 19 different parts from the M5 system with a total of 39 parts.

Item no.	Description
626115-9020-000	Stylus kit, M5, ST/ST3, standard, set of 39 pcs.

Content	Qty.	Description
626107-1200-100	2	Stylus extension, M5, ThermoFit, DG11, L200
600341-8165-000	2	Stylus extension, M5, aluminium, DG11, L120
600341-8264-000	1	Stylus extension, M5, aluminium, DG11, L100
600341-8262-000	6	Stylus extension, M5, aluminium, DG11, L60
600341-8261-000	2	Stylus extension, M5, aluminium, DG11, L40
602030-0222-000	2	Pin wrench 2.9
600341-8361-000	4	Cube, M5, titanium, B15
602030-0021-000	1	Hex wrench 2.5
600342-9002-000	2	Knuckle joint, M5, titanium, DG11, L30
602030-8091-000	1	Ball disc stylus, M5, Steel, DK20, L60
000000-1165-629	1	Ball disc stylus, M5, Steel, DK15, L40
600341-8095-000	1	Ball disc stylus, M5, Steel, DK15, L21.5
600342-8020-000	4	Stylus with thread, M5, tungsten carbide, ruby, DK3, L33.5
600342-8021-000	2	Stylus with thread, M5, tungsten carbide, ruby, DK3, L58
602030-9013-000	2	Stylus with thread, M5, tungsten carbide, ruby, DK5, L50
600342-8023-000	2	Stylus with thread, M5, tungsten carbide, ruby, DK8, L63.5
600342-8024-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK8, L114.5
600342-8015-000	1	Stylus with thread, M5, ceramic, ruby, DK8, L114.5
626109-0015-000	2	Screw for cube, M5, Inox, L20

**Extension kit, M5, ThermoFit® silver, diameter 11**

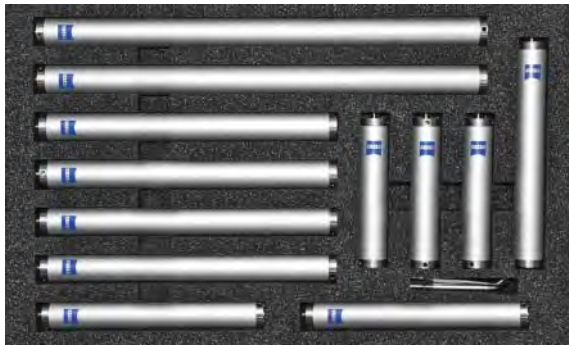


This extension kit from the M5 system consists of nine ThermoFit® silver extensions and four different lengths with diameter 11mm. It has a total of 11 parts which includes tools. You can use ThermoFit® silver stylus extensions for the light and low-expansion assembly of any stylus systems. The extensions enable stylus assembly which is extremely torsionally rigid.

Item no.	Description
626107-9013-100	Extension kit, M5, ThermoFit silver, set of 11 pcs

Content	Qty.	Description
626107-1050-100	2	Stylus extension, M5, ThermoFit silver, DG11, L50
626107-1100-100	3	Stylus extension, M5, ThermoFit silver, DG11, L100
626107-1150-100	2	Stylus extension, M5, ThermoFit silver, DG11, L150
626107-1200-100	2	Stylus extension, M5, ThermoFit silver, DG11, L200
000000-0015-328	2	Pin wrench 2.9, ZEISS Norm 1170

**Extension kit, M5, ThermoFit® silver, diameter 20**



This extension kit from the M5 system consists of nine ThermoFit® silver extensions and four different lengths with diameter 20 mm. It has a total of 11 parts, which includes tools. You can use ThermoFit® silver stylus extensions for the light and low-expansion assembly of any stylus systems. The extensions enable stylus assembly which is extremely torsionally rigid.

Item no.	Description
626107-9014-100	Extension kit, M5, ThermoFit silver, set of 14 pcs.

Content	Qty.	Description
626107-2100-100	3	Stylus extension, M5, ThermoFit silver, DG20, L100
626107-2150-100	3	Stylus extension, M5, ThermoFit silver, DG20, L150
626107-2200-100	4	Stylus extension, M5, ThermoFit silver, DG20, L200
626107-2300-100	2	Stylus extension, M5, ThermoFit silver, DG20, L300
000000-0015-328	2	Pin wrench 2.9, ZEISS Norm 1170

### ThermoFit® silver professional kit, M5, small

This stylus and extension kit with ThermoFit components from the M5 system and special tools consists of 23 parts.



Item no.	Description
626107-9011-000	Stylus and extension kit, M5, ThermoFit silver, set of 23 pcs.

Content	Qty.	Description
626107-2050-110	1	Plate extension with cube 20, M5, ThermoFit silver, DGE20, LE50
626107-2060-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE80
626107-2080-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE80
626107-2180-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE180
626107-1060-100	1	Stylus extension, M5, ThermoFit silver, DGE11, LE60
626107-1080-100	1	Stylus extension, M5, ThermoFit silver, DGE11, LE80
626107-1120-100	1	Stylus extension, M5, ThermoFit silver, DGE11, LE120
626105-0511-075	1	Stylus with thread, M5, ThermoFit, silicon nitride, DK5, L75
626105-0821-114	1	Stylus with thread, M5, ThermoFit, silicon nitride, DK8, L114
626105-0301-033	2	Stylus with thread, M5, ThermoFit, silicon nitride, DK3, L33
602030-8066-000	1	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK2, L32,
602030-8064-000	1	Stylus with thread, M5, shouldered, tungsten carbide, ruby, DK1.5, L32,
600341-8361-000	2	Cube 90°, M5, titanium, B15
626105-6280-020	1	Rotary joint, M5, titanium, L20
626109-0015-000	1	Screw for cube, M5, Inox, L20
626109-0016-000	1	Screw for cube, M5, Inox, L25
626109-0017-000	1	Screw for cube, M5, Inox, L27
000000-0015-247	1	Hex wrench, SW3, zinc coated
000000-0015-248	1	Hex wrench, SW4, zinc coated
626109-0012-000	2	Hook wrench DG11
626109-0013-000	2	Hook wrench DG20

**ThermoFit® silver professional kit, M5, large**

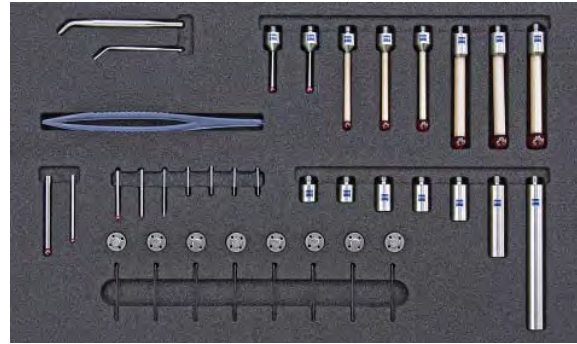
This stylus and extension kit with ThermoFit® components from the M5 system and special tools consists of 59 parts.

Item no.	Description	
626107-9010-000	Stylus and extension kit, M5, ThermoFit silver, set of 59 pcs.	
Content	Qty.	Description
626107-2050-110	2	Plate extension with cube 20, M5, ThermoFit silver, DGE20, LE50
626107-2100-110	1	Plate extension with cube 20, M5, ThermoFit silver, DGE20, LE100
626107-1040-100	2	Stylus extension, M5, ThermoFit silver, DGE11, LE40
626107-1050-100	2	Stylus extension, M5, ThermoFit silver, DGE11, LE50
626107-1060-100	2	Stylus extension, M5, ThermoFit silver, DGE11, LE60
626107-1080-100	2	Stylus extension, M5, ThermoFit silver, DGE11, LE80
626107-1100-100	2	Stylus extension, M5, ThermoFit silver, DGE11, LE100
626107-2050-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE50
626107-2080-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE80
626107-2100-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE100
626107-2150-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE150
626107-2200-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE200
626107-2300-100	1	Stylus extension, M5, ThermoFit silver, DGE20, LE300
600341-0260-000	1	Stylus extension, M5, Inox, DGE11, LE100
626105-0301-058	3	Stylus with thread, M5, ThermoFit, silicon nitride , DK3, L58
626105-0511-050	3	Stylus with thread, M5, ThermoFit, silicon nitride , DK5, L50
626105-0511-075	3	Stylus with thread, M5, ThermoFit, silicon nitride , DK5, L75
626105-0821-114	2	Stylus with thread, M5, ThermoFit, silicon nitride , DK8, L114
626105-0821-150	2	Stylus with thread, M5, ThermoFit, silicon nitride , DK8, L150
626105-1021-200	1	Stylus with thread, M5, ThermoFit, silicon nitride , DK10, L200
600341-8002-000	2	Cube, M5, titanium, B20
600341-8361-000	4	Cube, M5, titanium, B15
626105-6280-020	2	Rotary joint, M5, titanium, DG11, L20
600342-9002-000	2	Knuckle joint, M5, titanium, DG11, L30
626109-0015-000	1	Screw for cube, M5, Inox, L20
626109-0016-000	1	Screw for cube, M5, Inox, L25
626109-0017-000	1	Screw for cube, M5, Inox, L27
626109-0010-000	1	Torque screwdriver 2Nm
602030-0002-000	1	Hex wrench, SW1.5, zinc coated
000000-0015-245	1	Hex wrench, SW2, zinc coated
602030-0021-000	1	Hex wrench, SW2.5, zinc coated
000000-0015-247	1	Hex wrench, SW3, zinc coated
000000-0015-248	1	Hex wrench, SW4, zinc coated
626109-0012-000	2	Hook wrench DG11
626109-0013-000	2	Hook wrench DG20
602030-0222-000	2	Pin wrench 2.9, DG5



### Stylus kit for gear measurement, M5, VAST®

This stylus and extension kit is designed for gear measurement with a VAST® probe. This kit consists of M5 system components, 43 special tools total.



Item no.	Description
626115-9040-000	Styli kit, M5, VAST, for gear measurement, 43 pcs.

Content	Qty.	Description
600341-0258-000	1	Stylus extension, M5, Inox, DGE11, LE80
600341-0254-000	1	Stylus extension, M5, Inox, DGE11, LE40
600341-0252-000	1	Stylus extension, M5, Inox, DGE11, LE20
600341-0251-000	2	Stylus extension, M5, Inox, DGE11, LE15
600341-0250-000	2	Stylus extension, M5, Inox, DGE11, LE10
600342-8019-000	1	Stylus with thread, M5, ceramic, ruby, DK10, L65.5
600342-8018-000	1	Stylus with thread, M5, ceramic, ruby, DK9, L64.5
600342-8014-000	1	Stylus with thread, M5, ceramic, ruby, DK5, L75
600342-8017-000	1	Stylus with thread, M5, ceramic, ruby, DK7, L55.5
600342-8016-000	1	Stylus with thread, M5, ceramic, ruby, DK6, L54
600342-8013-000	1	Stylus with thread, M5, ceramic, ruby, DK5, L53
600342-8025-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK4, L33.5
600342-8020-000	1	Stylus with thread, M5, tungsten carbide, ruby, DK3, L33.5
600341-8453-000	2	Stylus without thread, tungsten carbide, ruby, DS1, DK0.8, L15.8
600341-8454-000	2	Stylus without thread, tungsten carbide, ruby, DS1, DK1, L16
600341-8501-000	1	Stylus without thread, tungsten carbide, ruby, DS1.5, DK1.5, L26.5
600341-8502-000	1	Stylus without thread, tungsten carbide, ruby, DS1.5, DK2, L27
600341-8503-000	1	Stylus without thread, tungsten carbide, ruby, DS1.5, DK2.5, L27.5
600341-8510-000	1	Stylus without thread, tungsten carbide, ruby, DS1.5, DK3, L38
600341-8511-000	1	Stylus without thread, tungsten carbide, ruby, DS1.5, DK5, L45
600341-8368-000	4	Holder for stylus without thread DS1.5
600341-8367-000	4	Holder for stylus without thread DS1.0
602030-0042-000	8	Hex wrench DIN 911, SW0.9
626109-0022-000	1	Tweezers, plastic, for stylus handling
602030-0222-000	1	Pin wrench 2.9, DG5
602030-0027-000	1	Pin wrench 1.7, DG5

# CeramTec uses the advantages of diamond styli on 14 ZEISS Coordinate Measuring Machines

Diamond styli are a production manager's best friend

By Norbert Schmidt

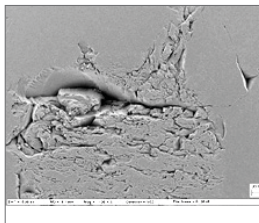


Who would have thought it: Measurement styli suffer from wear and tear. Despite the very sensitive touch of the coordinate measuring machines, the ruby spheres flatten off when scanning flat surfaces or suffer from wear and tear or material build-up when scanning internal and external radii - and the accuracy is gone. The only answer is to throw it away. But that can get expensive. For this reason CeramTec has been using measurement styli with diamond spheres since the summer of 2007, which have not shown any indications of wear after being used for a year.

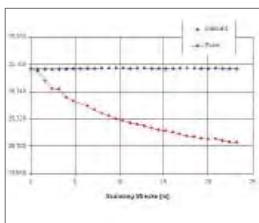
*"We are installing styli with diamond spheres on all coordinate measuring machines - and there are 14 of them -"* Dipl.-Ing (BA) Uwe Kemmer, Production Manager in the Medical Technology department at CeramTec AG, quotes, opposing the impression that he will be using diamond measuring probes exclusively, *"but only where it makes sense to do so."* That means that we must differentiate. *"With measurements on polished surfaces,"* asserts Dr.-Ing. Frank Richter, Managing Director of Carl Zeiss 3D Automation GmbH and supplier of the measuring probes, *"styli with ruby spheres are virtually wear-free and have a very long service life."*



And that's exactly what Uwe Kemmer's colleagues are doing: The polished surfaces on ball heads and dish inserts of the synthetic hip joint components made of ceramic material are measured using a ruby sphere stylus. But the joint ball head has unmachined surfaces after pressing and sintering - an end face and an inner tapered hole for mounting the titanium element that is anchored in the thigh. The dish insert is only polished on the inside and its base surface and the external shape are not; however, they provide the base values, in a way, the zero line, of the ceramic parts. For this reason they are important and need to be measured. But these surfaces are rough in places, even if it can only be detected by the eye based on the degree of gloss. *"The consistency of these surfaces"*, Uwe Kemmer explains his measurement problem, *"Make necessary for us to change the ruby stylus once or twice every week."*



Replacement means throwing it away. The ruby spheres on the styli exhibit such a high level of wear that they can no longer be used for documented measurement. However, the ceramic joint components need to be measured with 100 percent accuracy and the measured values must be traceable to each individual part via the serial number, even years later. What can we do? *"We had to check the stylus spheres for damage in short intervals and then we could only replace them"*, according to Uwe Kemmer. He didn't comprehend that the machine component had changed from an investment item to a wear item. Every year around 70 styli per coordinate measuring machine had to be purchased and replaced. A stylus costs around €30, so that's €2.100 per year - times 14, because that's the number of measuring machines that Kemmer is responsible for.



*"This problem was also described to us by other customers of ours"*, Dr.-Ing. Frank Richter explains the motivation to develop less sensitive styli *"the ruby spheres wore out on hard*

*materials, or had material build-up of soft material and changed their diameter.*" In all cases, they are no longer serviceable and need to be thrown away because the build-up layers cannot be removed again. The developers at ZEISS 3D Automation soon found out in the analyses, that the surface structure of the measured objects is definitive. *"On hard materials we observed damage to the ruby sphere when measuring flat surfaces which leads to flattening",* Dr. Richter remembers the investigation of the causes, *"and on soft surfaces a layer of build-up developed."* We were also able to determine that damage of this type was not seen with point sensing. Scanning was identified as the source of the problem, i.e. when the measuring probe was guided over a surface and slid along it, the surface of a gearbox or the internal and external radii of components.

For many users, including Uwe Kemmer, point measurement was not the solution, *"because we did not have adequate information about the entire surface",* he explains. And with an increased point density, the measurement would have taken far too long to make it economical. The developers at ZEISS 3D Automation therefore had to find a measuring sphere that is hard enough not to withstand wear and tear from hard and rough materials, and to which soft material does not adhere. *"At first we performed tests with silicon nitride",* Dr. Richter describes the route to the result, *"but with a 30 percent increase in costs, our performance only increased 10 to 15 percent."*

Only when a supplier of industrial diamonds was able to make spheres, was there light at the end of the tunnel. Even if the center of the sphere is the actual measuring point, the shape deviation from it being *"100 percent spherical"* is very small. And the problem was coming as close as possible to this ideal dimension. But the industrial diamond manufacturer was then able to herald their success, and all the tests at ZEISS produced outstanding results. And as Uwe Kemmer saw the diamond stylus at the ZEISS stand at Control 2007, he ordered it straight away because he was convinced that the team around Dr. Richter had found the correct solution.

And after a year of use, the diamond stylus has fully lived up to this expectation and is now available on the market as the "Diamond!Scan" and even from the web shop ([www.probes.zeiss.com](http://www.probes.zeiss.com)). *"We use the diamond styli in all of our 14 coordinate measuring machines"* Uwe Kemmer provides an intermediate report, *"and we have not needed to replace a single one during this period."* For CeramTec this means that instead of using more than 70 probes per year per measuring machine, only one will be used. We cannot make a final assessment because we do not yet know the end of the service life of the diamond stylus. Perhaps it will last another year? *"Tests using a raster electron microscope have shown that there has been virtually zero wear and tear",* Dr.-Ing. Frank Richter says, excited about the good result.

For Uwe Kemmer and CeramTec, the investment in the diamond stylus has paid for itself many times over, even if it does cost 3.000 percent more than a ruby stylus. Even the simple comparison in investments shows that the €1.000 diamond stylus wins out, because this value must be compared to the €2.100 (70 ruby styli at €30 each). This results in an amortization period of less than 6 months. *"And this does not include the testing expenditures or the replacement of the ruby styli and the associated standstill of the coordinate measuring machine",* Uwe Kemmer points out the error in the profitability calculation *"which, combined, amount to around €60."* This means that an extra €4.200 must be included in the calculation and the amortization time for the diamond stylus would be decreased to less than 2 months.

This means that, for Uwe Kemmer, the stylus has gone back to being an investment part of the machine. *"But our diamond styli can only compete with the ruby styli in extreme measurement situations",* Dr. Richter describes the deployment specification scope of use, *"where high levels of wear or material build-up can falsify the measurement results."* And he harbors a suspicion that there will be many users throughout the country who would prefer to scan, but who, because of the rough surface, won't risk it and settle for point measurement. In many areas of application, the ZEISS representative predicts a high demand and predicts a rosy future for his "Diamond!Scan".

## The ceramics specialists

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