

Transducer

English



www.peterhirt.com



PETER HIRT GmbH

Contact

PETER HIRT GmbH
Murggenstrasse 18
CH-8606 Nänikon

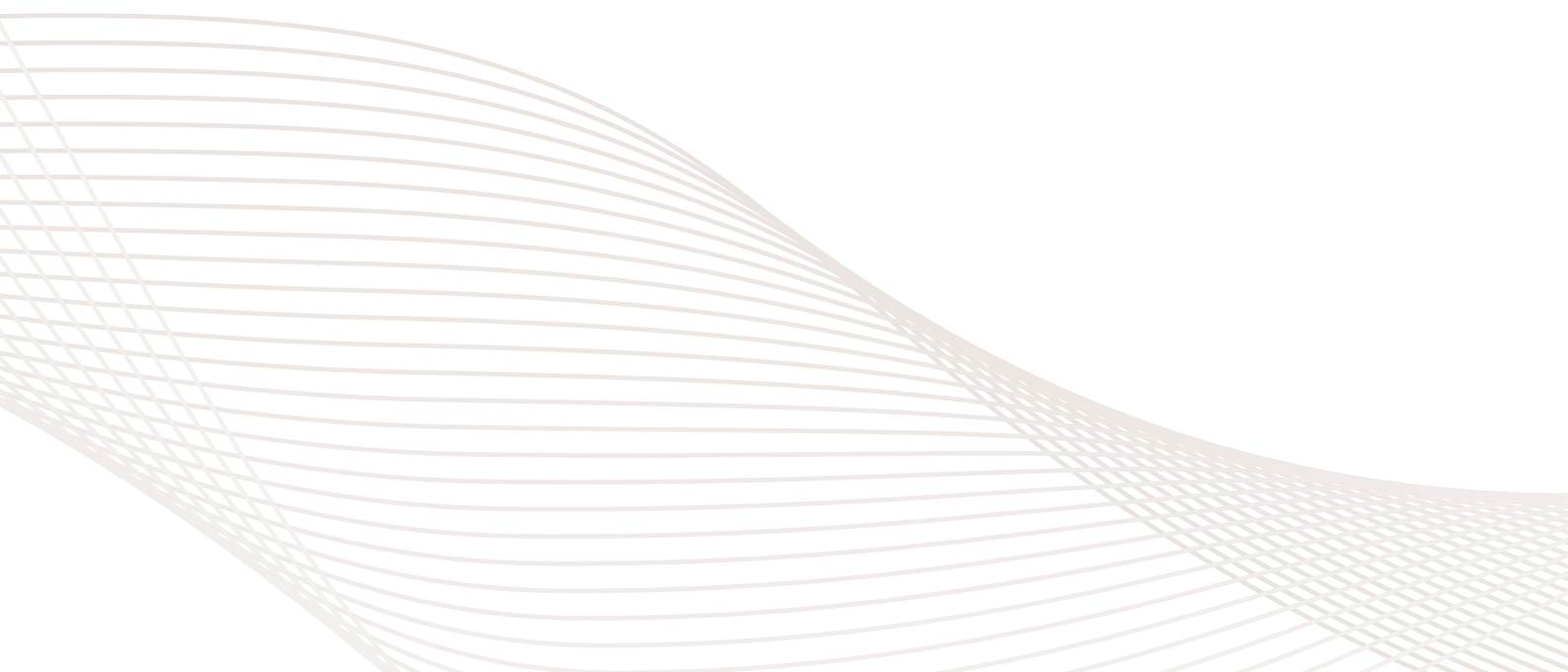
Telefon +41 (0)44 251 24 39
Fax +41 (0)44 252 57 90

email info@peterhirt.com
web www.peterhirt.com

Some company registered trade names are used in this catalogue. They are used for reference only and have no relationship to PETER HIRT GmbH.

Content

Overview of Transducers	6
Glossary / Information	8
Transducer T071 / T072	12
Transducer T101 / T102	14
Transducer T151 / T152	16
Transducer T151-024 / T152-024	18
Transducer T161 / T162	20
Transducer T201 / T202	22
Transducer T301 / T302	24
Transducer T401 / T402, T451 / T452	26
Transducer T501 / T502	28
Transducer T521 / T522	30
Transducer T523 / T524	32
Transducer T801 / T802, T851 / T852	34
Transducer 10P0 / 10P1 / 1P0	36
Transducer pluggable	38
Transducer pluggable T070	40
Transducer pluggable T100	42
Transducer pluggable T200	44
Transducer pluggable T300	46
Transducer pluggable T500	48
Transducer pluggable T521	50
Transducer pluggable T523	52
DC-Transducer	54
T-Module	55
Cable-Module	56
DIN-Rail Module	57
Examples for ordering	58
MICRON Switch	59
Bore measuring transducer BMT200	60
Bore measuring transducer BMT500	62
Digital Transducer	64
Digital Transducer T500	66
Digital Transducer T500	68
Measuring Inserts M2.5	70
Accessories	71
Cables / Connection cables	72
Accessories	73
Transducer Accessories	74



Overview of Transducers

Transducer Standard

Spring Push	Vacuum Retract	Pneumatic Push Bellow Sealed	Pneumatic Push Air Gap Seal	Cable Exit	Short Description
T071F T072F	T072V	T072P	T072L	axial radial	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T101F T102F	T101V T102V	T101P T102P	T101L T102L	axial radial	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T151F T152F	T151V T152V	T151P T152P	T151L T152L	axial radial	LVDT, ±1 mm measuring stroke
T151F-024 T152F-024	T151V-024 T152V-024	T151P-024 T152P-024	T151L-024 T152L-024	axial radial	LVDT Marposs® compa- tible, ±1 mm measuring stroke
T161F T162F	T161V T162V	T161P T162P	T161L T162L	axial radial	Mahr® compatible, ±1 mm measuring stroke
T201F T202F	T202V	T202P	T202L	axial radial	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T301F T302F	T301V T302V	T301P T302P	T301L T302L	axial radial	halfbridge, ±2 mm measuring stroke (TESA® compatible)
T401 T402				axial radial	halfbridge, OEM module, ±1 mm measuring stroke (TESA® compatible)
T451 T452				axial radial	LVDT, OEM module, ±1 mm measuring stroke
T501F T502F	T501V T502V	T501P T502P	T501L T502L	axial radial	halfbridge, ±5 mm measuring stroke (TESA® compatible)
T521F T522F	T521V T522V	T521P T522P	T521L T522L	axial radial	halfbridge, ±2 mm measuring stroke with 8 mm stroke after electrical zero, setting 1 : 2 (TESA® compatible)
T523F T524F	T523V T524V	T523P T524P	T523L T524L	axial radial	halfbridge, ±1 mm measuring stroke with 8 mm stroke after electrical zero, setting 1 : 1 (TESA® compatible)
T801 T802				axial radial	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T851 T852				axial radial	LVDT, ±1 mm measuring stroke

Pluggable Transducers

Spring Push	Vacuum Retract	Pneumatic Push Bellow Sealed	Pneumatic Push Air Gap Seal	Description
T070FS	T070VS	T070PS	T070LS	halfbridge, ± 1 mm measuring stroke (TESA® compatible)
T100FS	T100VS	T100PS	T100LS	halfbridge, ± 1 mm measuring stroke (TESA® compatible)
T200FS	T200VS	T200PS	T200LS	halfbridge, ± 1 mm measuring stroke (TESA® compatible)
T300FS	T300VS	T300PS	T300LS	halfbridge, ± 2 mm measuring stroke (TESA® compatible)
T500FS	T500VS	T500PS	T500LS	halfbridge, ± 2 mm measuring stroke (TESA® compatible)
T521FS	T521VS	T521PS	T521LS	halfbridge, ± 2 mm measuring stroke with 8 mm stroke after electrical zero, setting 1 : 2 (TESA® compatible)
T523FS	T523VS	T523PS	T523LS	halfbridge, ± 1 mm measuring stroke with 8 mm stroke after electrical zero, setting 1 : 1 (TESA® compatible)

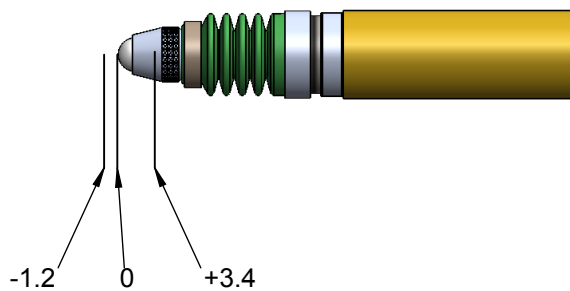
Digital Transducers

Spring Push	Vacuum Retract	Pneumatic Push Bellow Sealed	Pneumatic Push Air Gap Seal	Description
T501FDG	T501VDG	T501PDG	T501LDG	± 5 mm measuring stroke
T502FDG	T502VDG	T502PDG	T502LDG	± 5 mm measuring stroke

Glossary / Information

Pretravel

All transducers in this catalogue are drawn in «electrical zero» position. The stated pre-travel indicates the transducer position without applied vacuum or pneumatic pressure. The transducer T101F, drawn below is in «electrical zero» position and has -1.2 mm pre-travel and a total mechanical stroke of 4.6 mm.



Linearity error

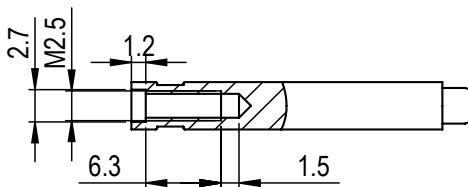
Is the deviation between the sensor signal and the real mechanical position of the tip. Stated errors are always relative to the stroke. Each manufactured transducer is delivered with a measuring protocol.

Repeatability

Is the variation of the sensor output signal when the tip is multiple times mechanically exactly repositioned. Repeatability errors occur due to mechanical tolerances and hysteresis of materials in the coil system.

Tip M2.5

The T070, T100, T300 and T500 series transducer have on the shaft a M2.5 thread for fixing the tip. The drawing underneath shows the thread arrangement.



Conditioning Electronics

Electronic to process half- or fullbridge sensors. It provides its signal digitally or on base of a SI-unit signal (or derived one). The electronic transfrom the measuring shaft position into a numerically processable or electronically measurable signal. Both the transducer and the conditioning electronics must be set to a manufacturer standard.

Digital Transducers

Transducer with integrated conditioning electronic and interface connection. Sensitivity settings are part of the whole system and do not need to be assured seperately. Systems errors (mainly sensitivity settings and linearity errors) are corrected.

Communication protocol for digital HIRT Transducers

Protocol for the communication between transducers and measurement computers or interfaces. Halfduplex protocol on RS485 standard, with baud rates up to 1 Mbit/s. 4000 measurements can be transfered in real-time. Digital transducers have stored self-related information (such as article number, serial number and more). Interfaces and measurement computers supporting reading out these information can store them for tracking purposes. The communication protocol is open and freely accessible for 3rd party implementations.

Gateway

Unit to link digital transducers to existing measuring computers or interfaces.

User Guide for Transducers

Introduction

These products are intended to be used by qualified personnel only.

Mounting the transducers

The transducer may be clamped over the full length of the case. Do not over clamp and ensure free movement of the linear bearing. Select an appropriate clamping element which does not deform the case.

Change tip (except 10PO, 10P1 and T200 series)

The tip will be firmly tightened to ensure correct results. To change the tip

- Slip the bellow (3) with small bellow ring (2) back up the shaft until the key flats become usable
- Use the supplied key (small opening) on the shaft key flats - never apply torque on the case as this would destroy the mechanics
- Using appropriate pliers, undo the tip
- Change the tip. For pneumatic advanced transducers models an appropriate tip must be used to ensure correct function of the transducer
- Tighten the tip using the same setup as above
- Slide the bellow forward up to the rear face of the tip - check correct position of the small bellow ring

Pretravel setting (except 10PO, 10P1, 1PO, T200 series and digital transducers)

Pretravel is set at production to the catalogue value. If a modification is necessary

- Use the supplied key (large opening) to undo the lock nut (5)
- Connect the transducer to a compatible electronic readout
- Rotate the tip to the desired reading. The shaft has to be in the fully outward position
- Tighten the lock nut

Pneumatic

The maximum pressure for transducers is as follows:

Transducer version P, application pressure = 0.8 bar, maximum pressure = 1.5 bar

Transducer version L, application pressure = 1.1 bar, maximum pressure = 4.5 bar

Measuring force

The spring may be changed (except 10PO, 10P1, 1PO, T200 and T400 models). This however calls for a resetting of the pretravel and the sensitivity of the transducer. Only trained personnel with access to the necessary equipment should do such modifications.

Bellow

The bellow has to be clean, not show any cracks and sit firmly on the shaft and the bearing outer.

To change the bellow

- Disassemble the tip (see procedure described above)
- Screw the large bellow ring (4) towards the backwards
- Slide the bellow with the small bellow ring off the shaft
- Reverse the procedure to assemble a new bellow

Transducer with changeable cable

Use original cable assembly of the same length exclusively, or the characteristics of the transducer will be changed and not comply with the data sheet.

Extension cable

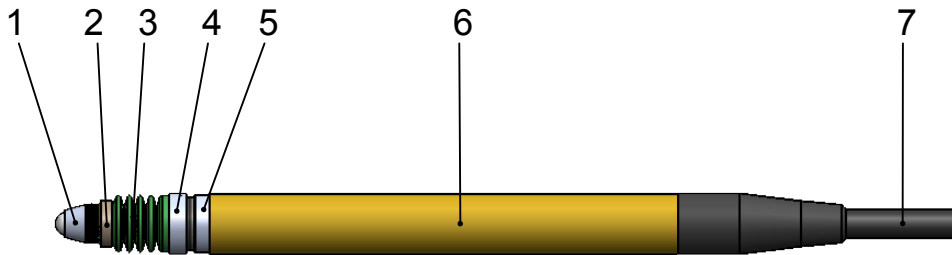
The use of extension cables do change the characteristics of the transducer and are to be considered in the measuring uncertainty figures.

Maintainance of the transducer

Keep the transducer body, the bellow and the cable assembly clean

- Check the free rolling of the linear bearing
- Check the bellow for firm fixing and cracks
- Check the cable for scratches and cuts

The transducer does not contain user serviceable parts.

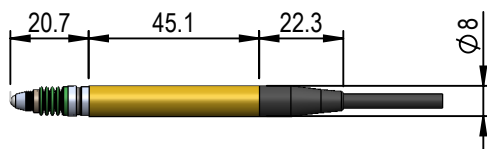


Transducer T071 / T072

Drawing (Scale 1:2)

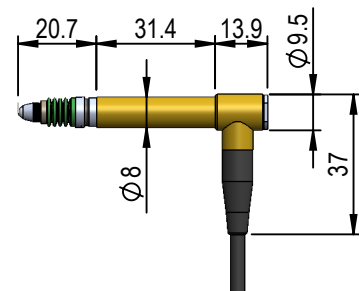
1000016

T071F



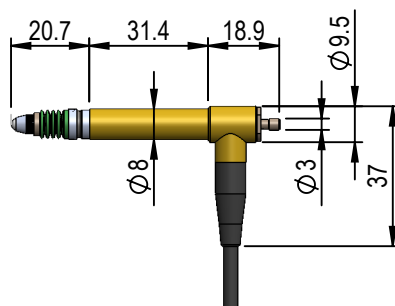
1003293

T072F



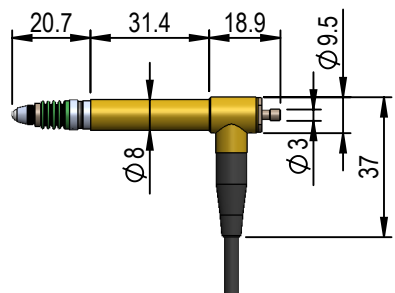
1000030

T072V



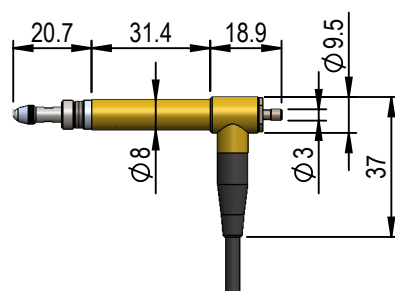
1000029

T072P



1003378

T072L



Halfbridge, ± 1 mm Measuring Stroke

Technical Data

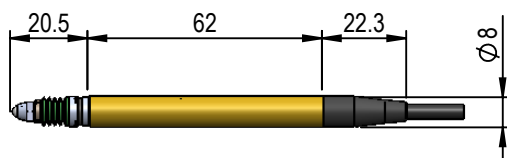
Cable exit	T071F axial	T072F radial	T072V radial	T072P radial	T072L radial
Maximum stroke	2.2 mm		2.2 mm	2.2 mm	2.2 mm
Measuring stroke	± 1 mm		± 1 mm	± 1 mm	± 1 mm
Pretravel Default setting	adjustable -1.1 mm		adjustable -1.1 mm	adjustable +1.1 mm	adjustable +1.1 mm
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. cycles		>10 Mio. cycles	-	>10 Mio. cycles
Tip rotation	1 ° over full stroke		1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any		any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM		FPM / FKM	FPM / FKM	-
Body diameter	8h6		8h6	8h6	8h6
Cable	PUR, length 2 m		PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270 °		5 pin, 270 °	5 pin, 270 °	5 pin, 270 °
Advance	-		-	pneumatic	pneumatic
Lift off	none		vacuum	-	-
Maximum pressure	-		-	1.5 bar	4.5 bar
Spring rate	0.63 N ± 20 % (at electrical zero)		0.63 N ± 20 % (at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)
Repeatability	0.01 μ m		0.01 μ m	0.01 μ m	0.01 μ m
Linearity error	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)		0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)		73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %		13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS		3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)		halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled		possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer T101 / T102

Drawing (Scale 1:2)

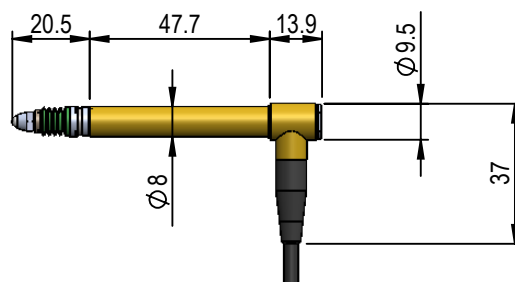
1000940

T101F



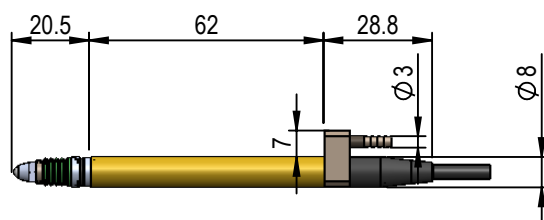
1001103

T102F



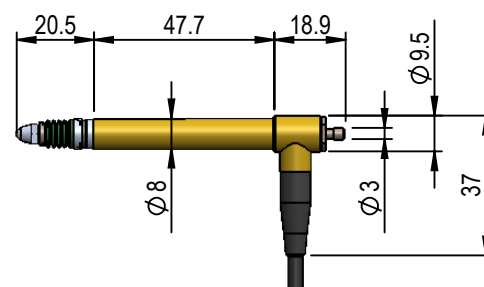
1001069

T101V



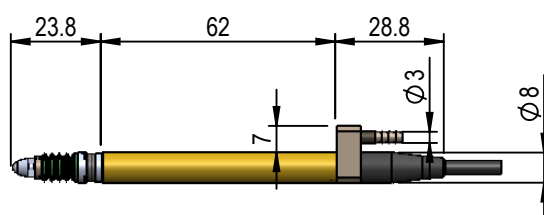
1001220

T102V



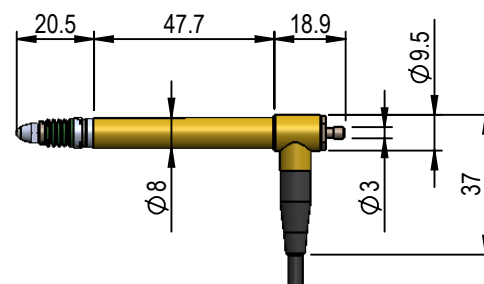
1001034

T101P



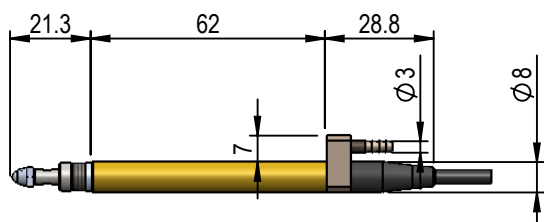
1001184

T102P



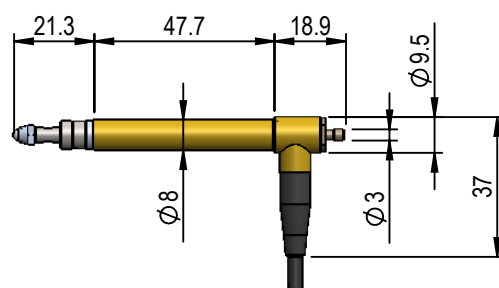
1001000

T101L



1001151

T102L



Halfbridge, ±1 mm Measuring Stroke

Technical Data

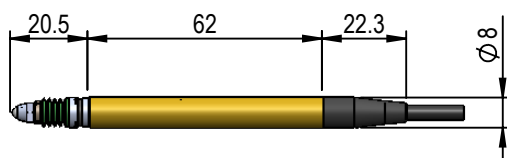
Cable exit	T101F axial	T102F radial	T101V axial	T102V radial	T101P axial	T102P radial	T101L axial	T102L radial
Maximum stroke	4.6 mm		4.6 mm		4.6 mm		4.6 mm	
Measuring stroke	±1 mm		±1 mm		±1 mm		±1 mm	
Pretravel Default setting	adjustable -1.2 mm		adjustable -1.2 mm		adjustable +2.8 mm		adjustable +2.8 mm	
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped	
Life	>10 Mio. cycles		>10 Mio. cycles		-		>10 Mio. cycles	
Tip rotation	1 ° over full stroke		1 ° over full stroke		1 ° over full stroke		1 ° over full stroke	
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	
Mounting position	any		any		any		any	
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	
Gaiter	FPM / FKM		FPM / FKM		FPM / FKM		-	
Body diameter	8h6		8h6		8h6		8h6	
Cable	PUR, length 2 m		PUR, length 2 m		PUR, length 2 m		PUR, length 2 m	
Plug	5 pin, 270 °		5 pin, 270 °		5 pin, 270 °		5 pin, 270 °	
Advance	-		-		pneumatic		pneumatic	
Lift off	none		vacuum		-		-	
Maximum pressure	-		-		1.5 bar		4.5 bar	
Spring rate	0.63 N ±20 % (at electrical zero), others as option (see page 73)		0.63 N ±20 % (at electrical zero), others as option (see page 73)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)	
Repeatability	0.01 µm		0.01 µm		0.01 µm		0.01 µm	
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	
Sensitivity	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	
Drive frequency	13 kHz ±5 %		13 kHz ±5 %		13 kHz ±5 %		13 kHz ±5 %	
Supply voltage	3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS	
Coil form	halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)	
Repair	possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled	

Transducer T151 / T152

Drawing (Scale 1:2)

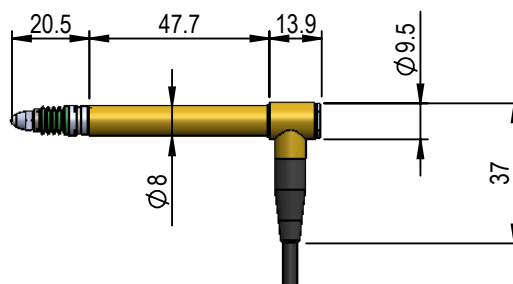
1001292

T151F



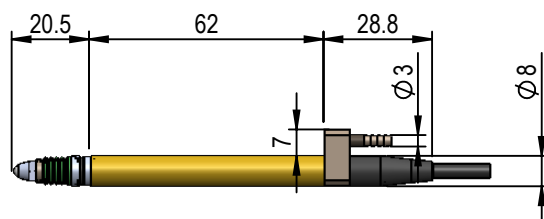
1001315

T152F



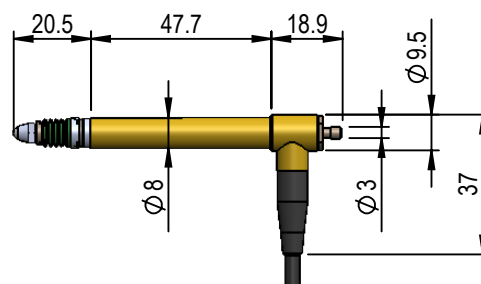
1001311

T151V



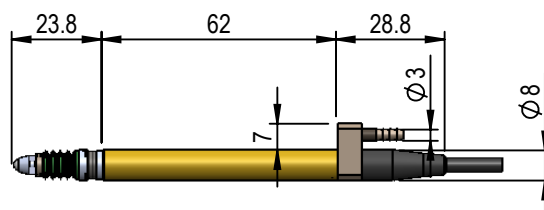
1001326

T152V



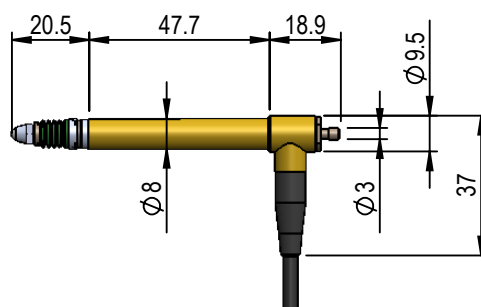
1001307

T151P



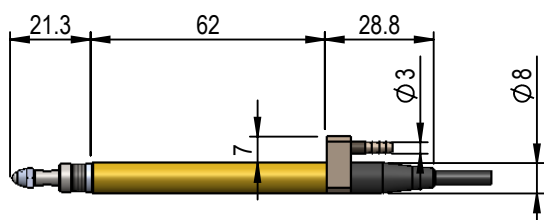
1001322

T152P



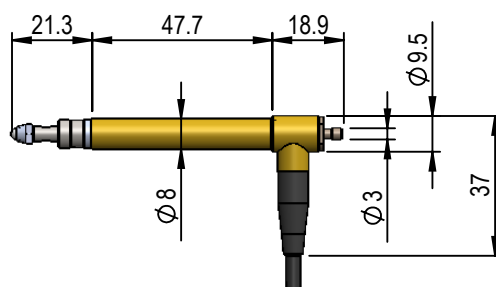
1001303

T151L



1001319

T152L



Fullbridge (LVDT), ±1 mm Measuring Stroke
Technical Data

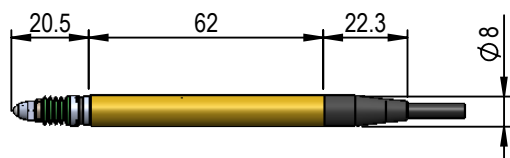
Cable exit	T151F axial	T152F radial	T151V axial	T152V radial	T151P axial	T152P radial	T151L axial	T152L radial
Maximum stroke	4.6 mm		4.6 mm		4.6 mm		4.6 mm	
Measuring stroke	±1 mm		±1 mm		±1 mm		±1 mm	
Pretravel Default setting	adjustable -1.2 mm		adjustable -1.2 mm		adjustable +2.8 mm		adjustable +2.8 mm	
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped	
Life	>10 Mio. Cycles		>10 Mio. Cycles		-		>10 Mio. Cycles	
Tip rotation	1 ° over full stroke		1 ° over full stroke		1 ° over full stroke		1 ° over full stroke	
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	
Mounting position	any		any		any		any	
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	
Gaiter	FPM / FKM		FPM / FKM		FPM / FKM		-	
Body diameter	8h6		8h6		8h6		8h6	
Cable	PUR, length 2 m		PUR, length 2 m		PUR, length 2 m		PUR, length 2 m	
Plug	5 pin, 270°		5 pin, 270°		5 pin, 270°		5 pin, 270°	
Advance	-		-		pneumatic		pneumatic	
Lift off	none		vacuum		-		-	
Maximum pressure	-		-		1.5 bar		4.5 bar	
Spring rate	0.63 N ±20 % (at electrical zero), others as option (see page 73)		0.63 N ±20 % (at electrical zero), others as option (see page 73)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)	
Repeatability	0.01 µm		0.01 µm		0.01 µm		0.01 µm	
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)		0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	
Sensitivity	150 mV/(Vmm) (into R = 100 kOhm)		150 mV/(Vmm) (into R = 100 kOhm)		150 mV/(Vmm) (into R = 100 kOhm)		150 mV/(Vmm) (into R = 100 kOhm)	
Drive frequency	5 kHz ±5 %		5 kHz ±5 %		5 kHz ±5 %		5 kHz ±5 %	
Supply voltage	3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS	
Coil form	fullbridge (LVDT)		fullbridge (LVDT)		fullbridge (LVDT)		fullbridge (LVDT)	
Repair	possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled	

Transducer T151-024 / T152-024

Drawing (Scale 1:2)

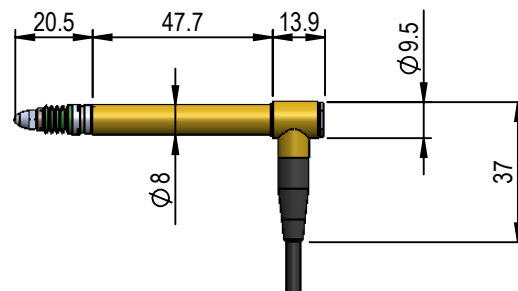
1001294

T151F-024



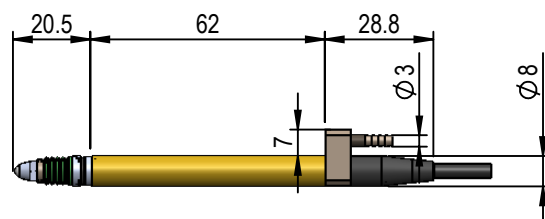
1001317

T152F-024



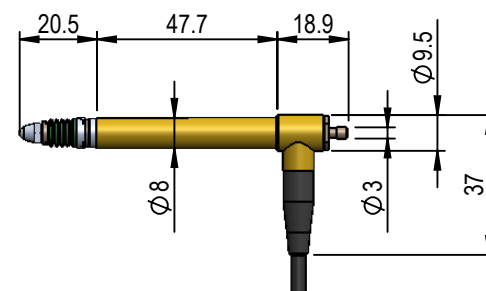
1001312

T151V-024



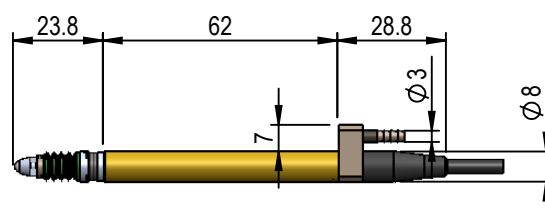
1001327

T152V-024



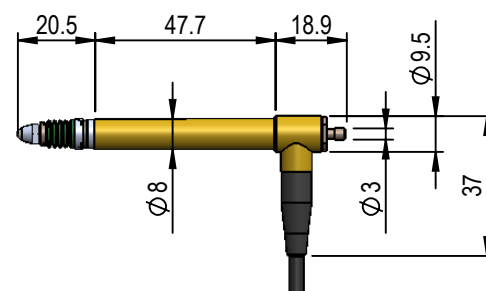
1001308

T151P-024



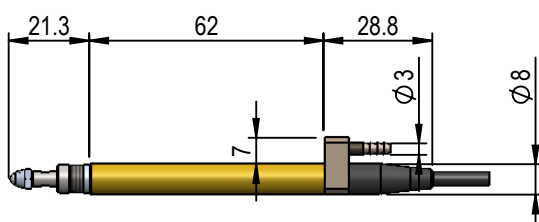
1001323

T152P-024



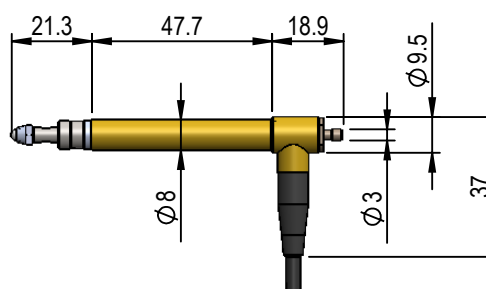
1001304

T151L-024



1001320

T152L-024



LVDT Marposs® Compatible, ±1 mm Measuring Stroke
Technical Data

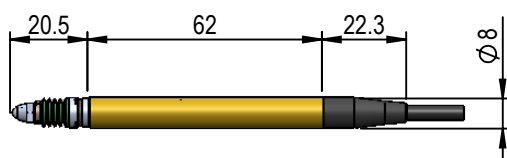
Cable exit	T151F-024 T152F-024 axial radial	T151V-024 T152V-024 axial radial	T151P-024 T152P-024 axial radial	T151L-024 T152L-024 axial radial
Maximum stroke	4.6 mm	4.6 mm	4.6 mm	4.6 mm
Measuring stroke	±1 mm	±1 mm	±1 mm	±1 mm
Pretravel Default setting	adjustable -1.2 mm	adjustable -1.2 mm	adjustable +2.8 mm	adjustable +2.8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°	5 pin, 270°
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	0.63 N ±20 % (at electrical zero), others as option (see page 73)	0.63 N ±20 % (at electrical zero), others as option (see page 73)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)
Repeatability	0.01 µm	0.01 µm	0.01 µm	0.01 µm
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)
Sensitivity	230 mV/(Vmm) (into R = 100 kOhm)	230 mV/(Vmm) (into R = 100 kOhm)	230 mV/(Vmm) (into R = 100 kOhm)	230 mV/(Vmm) (into R = 100 kOhm)
Drive frequency	7.5 kHz ±5 %	7.5 kHz ±5 %	7.5 kHz ±5 %	7.5 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	fullbridge (LVDT)	fullbridge (LVDT)	fullbridge (LVDT)	fullbridge (LVDT)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer T161 / T162

Drawing (Scale 1:2)

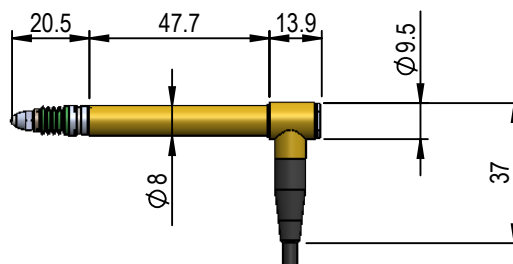
1001342

T161F



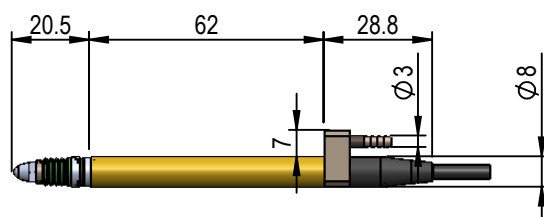
1001354

T162F



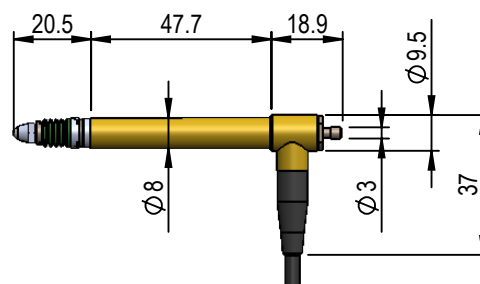
1001351

T161V



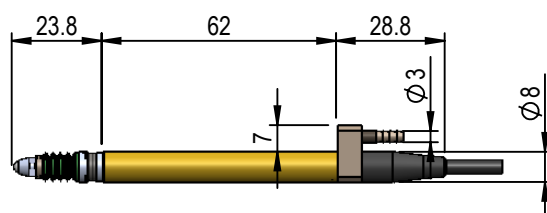
1001363

T162V



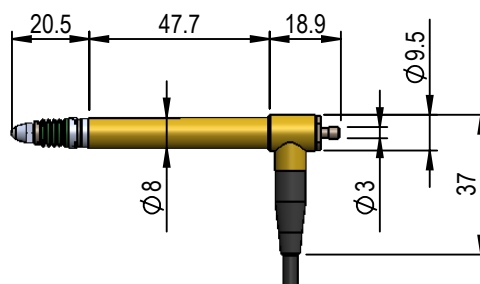
1001348

T161P



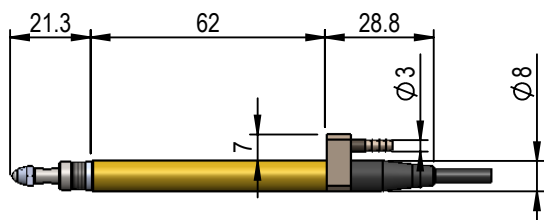
1001360

T162P



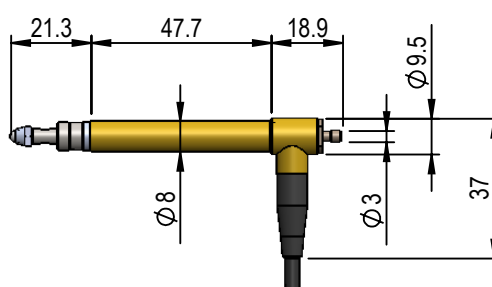
1001345

T161L



1001357

T162L



Mahr® Compatible, ±1 mm Measuring Stroke

Technical Data

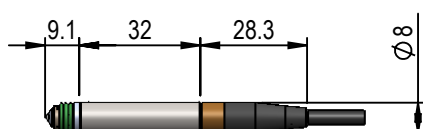
Cable exit	T161F axial	T162F radial	T161V axial	T162V radial	T161P axial	T162P radial	T161L axial	T162L radial
Maximum stroke	4.6 mm		4.6 mm		4.6 mm		4.6 mm	
Measuring stroke	±1 mm		±1 mm		±1 mm		±1 mm	
Pretravel Default setting	adjustable -1.2 mm		adjustable -1.2 mm		adjustable +2.8 mm		adjustable +2.8 mm	
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped	
Life	>10 Mio. Cycles		>10 Mio. Cycles		-		>10 Mio. Cycles	
Tip rotation	1 ° over full stroke		1 ° over full stroke		1 ° over full stroke		1 ° over full stroke	
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	
Mounting position	any		any		any		any	
Tip	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable		3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable		3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable		3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	
Gaiter	FPM / FKM		FPM / FKM		FPM / FKM		-	
Body diameter	8h6		8h6		8h6		8h6	
Cable	PUR, length 2 m		PUR, length 2 m		PUR, length 2 m		PUR, length 2 m	
Plug	5 pin, 270°		5 pin, 270°		5 pin, 270°		5 pin, 270°	
Advance	-		-		pneumatic		pneumatic	
Lift off	none		vacuum		-		-	
Maximum pressure	-		-		1.5 bar		4.5 bar	
Spring rate	0.63 N ±20 % (at electrical zero), others as option (see page 73)		0.63 N ±20 % (at electrical zero), others as option (see page 73)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)		approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)	
Repeatability	0.01 µm		0.01 µm		0.01 µm		0.01 µm	
Linearity error	0.3 % FS ±1000 µm range (at 20 °C ±1 °C)		0.3 % FS ±1000 µm range (at 20 °C ±1 °C)		0.3 % FS ±1000 µm range (at 20 °C ±1 °C)		0.3 % FS ±1000 µm range (at 20 °C ±1 °C)	
Sensitivity	184 mV/(Vmm) (into normal impe- dance)		184 mV/(Vmm) (into normal impe- dance)		184 mV/(Vmm) (into normal impe- dance)		184 mV/(Vmm) (into normal impe- dance)	
Drive frequency	20 kHz ±5 %		20 kHz ±5 %		20 kHz ±5 %		20 kHz ±5 %	
Supply voltage	5 V ±0.5 % RMS		5 V ±0.5 % RMS		5 V ±0.5 % RMS		5 V ±0.5 % RMS	
Coil form	Mahr® compatible		Mahr® compatible		Mahr® compatible		Mahr® compatible	
Repair	possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled	

Transducer T201 / T202

Drawing (Scale 1:2)

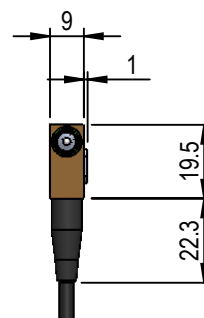
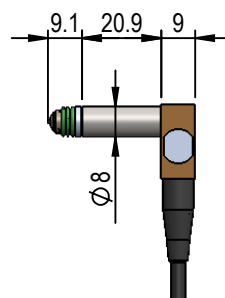
1001403

T201F



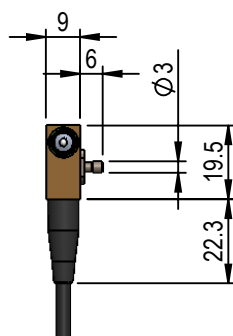
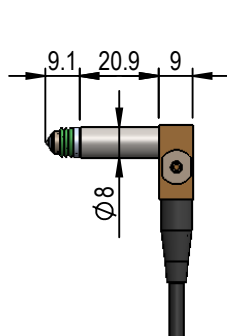
1001424

T202F



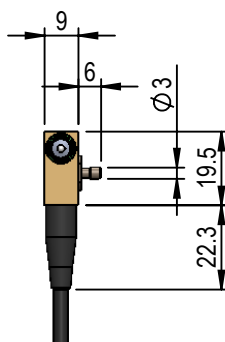
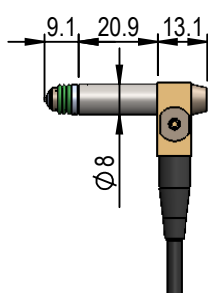
1001484

T202V



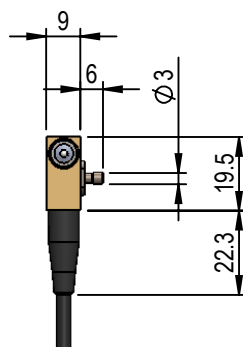
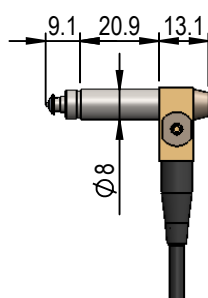
1001465

T202P



1001447

T202L



Halfbridge, ± 1 mm Measuring Stroke

Technical Data

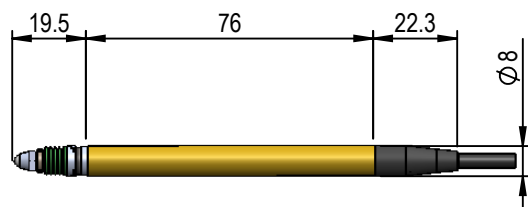
Cable exit	T201F axial	T202F radial	T202V radial	T202P radial	T202L radial
Maximum stroke	2.5 mm		2.5 mm	2.5 mm	2.5 mm
Measuring stroke	± 1 mm		± 1 mm	± 1 mm	± 1 mm
Pretravel	not adjustable		not adjustable	not adjustable	not adjustable
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles		>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke		1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any		any	any	any
Tip	2 mm tungsten carbi- de ball		2 mm tungsten carbi- de ball	2 mm tungsten carbi- de ball	2 mm tungsten carbi- de ball
Gaiter	FPM / FKM		FPM / FKM	FPM / FKM	-
Body diameter	8h6		8h6	8h6	8h6
Cable	PUR, length 2 m		PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°		5 pin, 270°	5 pin, 270°	5 pin, 270°
Advance	-		-	pneumatic	pneumatic
Lift off	none		vacuum	-	-
Maximum pressure	-		-	1.5 bar	4.5 bar
Spring rate	0.4 N ± 50 % (at electrical zero)		0.4 N ± 50 % (at electrical zero)	0.6 N at 0.6 bar 1.0 N at 0.8 bar (both at el. zero)	0.6 N at 0.8 bar 1.0 N at 1.1 bar (both at el. zero)
Repeatability	0.02 μ m		0.02 μ m	0.02 μ m	0.02 μ m
Linearity error	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)		0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.6 % FS ± 1000 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)		73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %		13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS		3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)		halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)

Transducer T301 / T302

Drawing (Scale 1:2)

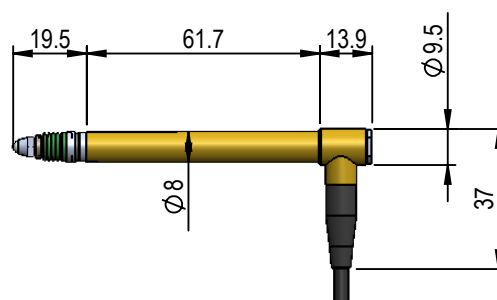
1001524

T301F



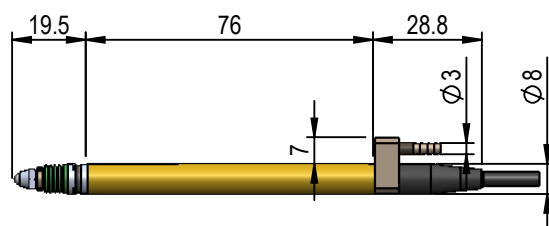
1001598

T302F



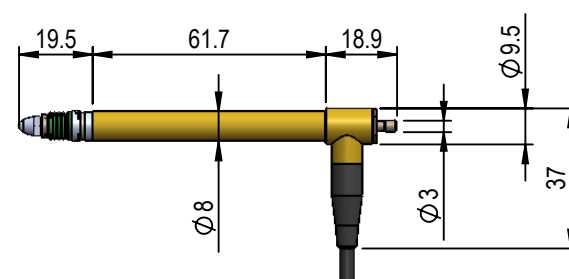
1001580

T301V



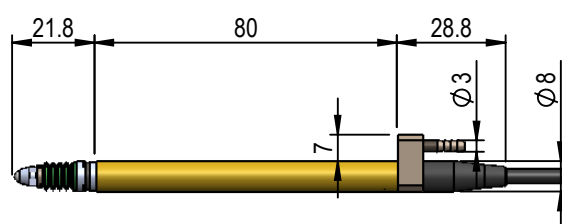
1001651

T302V



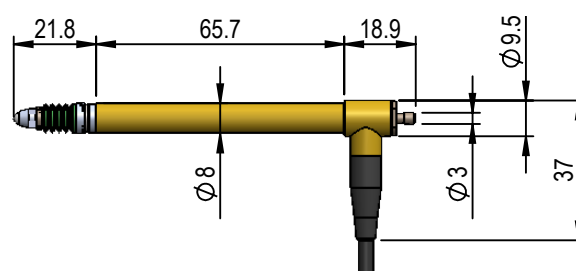
1001562

T301P



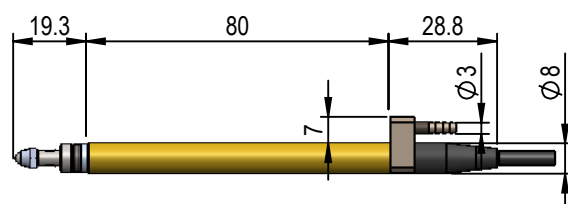
1001634

T302P



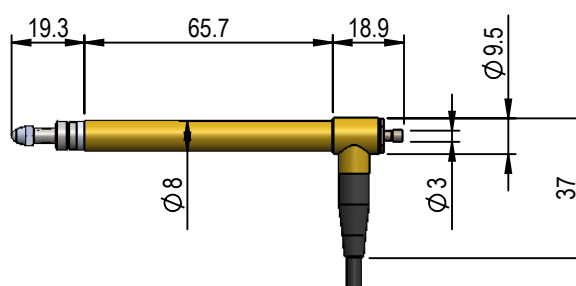
1001544

T301L



1001617

T302L



Halfbridge, ± 2 mm Measuring Stroke

Technical Data

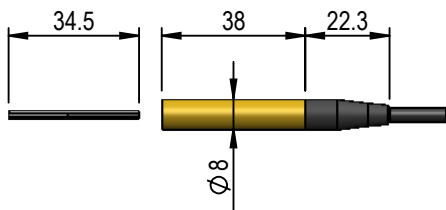
Cable exit	T301F axial	T302F radial	T301V axial	T302V radial	T301P axial	T302P radial	T301L axial	T302L radial
Maximum stroke	4.6 mm		4.6 mm		4.6 mm		4.6 mm	
Measuring stroke	± 2 mm		± 2 mm		± 2 mm		± 2 mm	
Pretravel Default setting	adjustable -2.25 mm		adjustable -2.25 mm		adjustable +2.25 mm		adjustable +2.25 mm	
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped	
Life	>10 Mio. Cycles		>10 Mio. Cycles		-		>10 Mio. Cycles	
Tip rotation	1 ° over full stroke		1 ° over full stroke		1 ° over full stroke		1 ° over full stroke	
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	
Mounting position	any		any		any		any	
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	
Gaiter	FPM / FKM		FPM / FKM		FPM / FKM		-	
Body diameter	8h6		8h6		8h6		8h6	
Cable	PUR, length 2 m		PUR, length 2 m		PUR, length 2 m		PUR, length 2 m	
Plug	5 pin, 270°		5 pin, 270°		5 pin, 270°		5 pin, 270°	
Advance	-		-		pneumatic		pneumatic	
Lift off	none		vacuum		-		-	
Maximum pressure	-		-		1.5 bar		4.5 bar	
Spring rate	0.63 N ± 20 % (at electrical zero)		0.63 N ± 20 % (at electrical zero)		0.6 N at 0.5 bar 1.0 N at 0.7 bar (both at electrical zero)		0.6 N at 0.8 bar 1.0 N at 1.1 bar (both at electrical zero)	
Repeatability	0.01 μ m		0.01 μ m		0.01 μ m		0.01 μ m	
Linearity error	0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)		0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)		0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)		0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	
Sensitivity	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)		36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)		36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)		36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	
Drive frequency	13 kHz ± 5 %		13 kHz ± 5 %		13 kHz ± 5 %		13 kHz ± 5 %	
Supply voltage	3 V ± 0.5 % RMS		3 V ± 0.5 % RMS		3 V ± 0.5 % RMS		3 V ± 0.5 % RMS	
Coil form	halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)	
Repair	possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled	

Transducer T401 / T402, T451 / T452

Drawing (Scale 1:2)

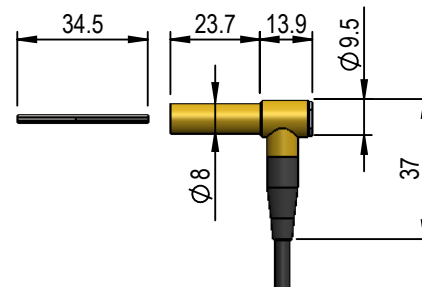
1001682

T401



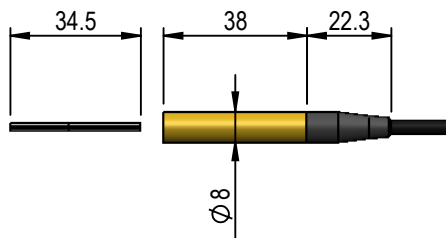
1001685

T402



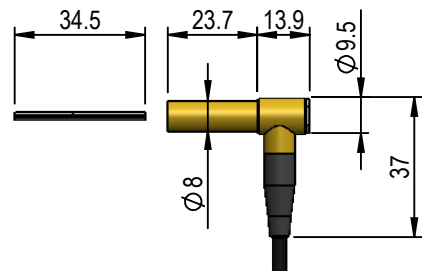
1001687

T451



1001688

T452



T401 / T402 Halfbridge, T451 / T452 Fullbridge (LVDT)

Technical Data

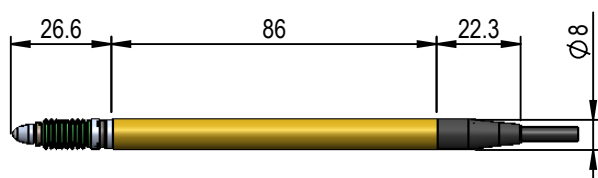
Cable exit	T401 axial	T402 radial	T451 axial	T452 radial
Measuring stroke	±1 mm	±1 mm	±1 mm	±1 mm
Bearing	none / external	none / external	none / external	none / external
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Body diameter	8h6	8h6	8h6	8h6
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°	5 pin, 270°
Repeatability	0.01 µm with corres- ponding external linear bearing	0.01 µm with corres- ponding external linear bearing	0.01 µm with corres- ponding external linear bearing	0.01 µm with corres- ponding external linear bearing
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)
Sensitivity	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	150 mV/(Vmm) (into R = 100 kOhm)	150 mV/(Vmm) (into R = 100 kOhm)
Drive frequency	13 kHz ±5 %	13 kHz ±5 %	5 kHz ±5 %	5 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	fullbridge (LVDT)	fullbridge (LVDT)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer T501 / T502

Drawing (Scale 1:2)

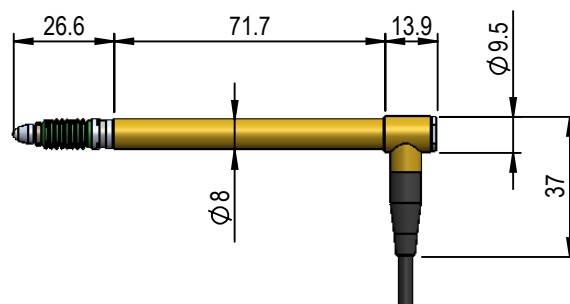
1001734

T501F



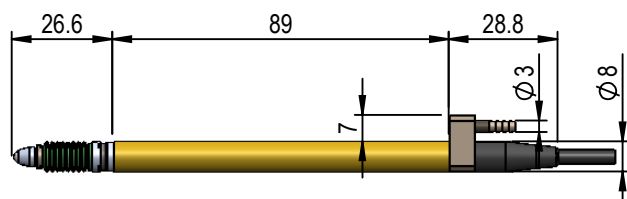
1001816

T502F



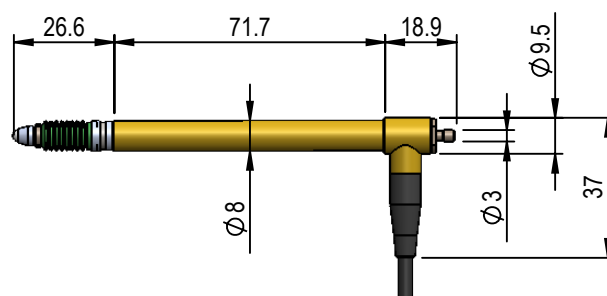
1001798

T501V



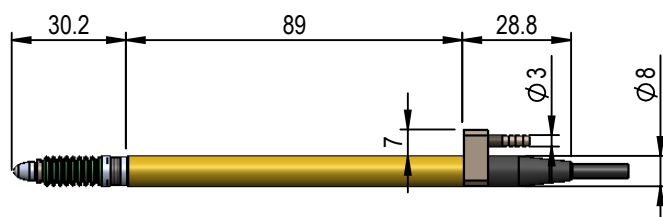
1001879

T502V



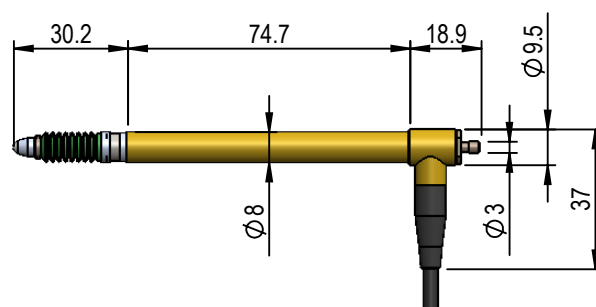
1001778

T501P



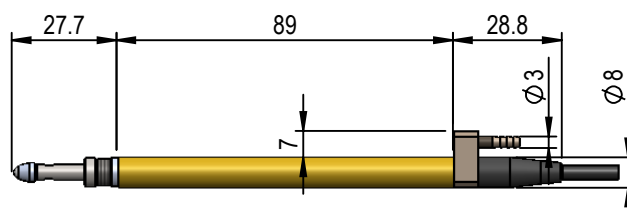
1001860

T502P



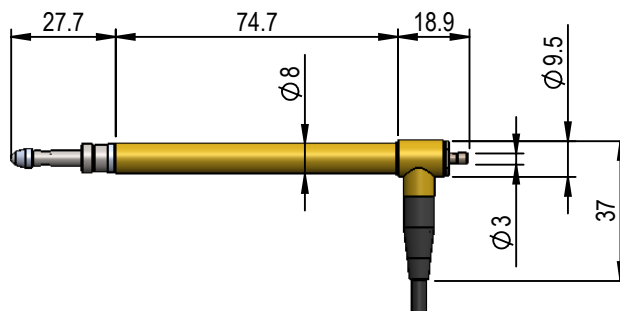
1001760

T501L



1001842

T502L



Halfbridge, ±5 mm Measuring Stroke

Technical Data

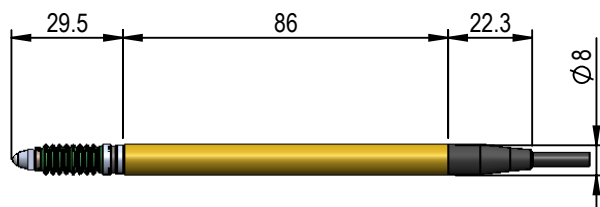
Cable exit	T501F axial	T502F radial	T501V axial	T502V radial	T501P axial	T502P radial	T501L axial	T502L radial
Maximum stroke	10.6 mm		10.6 mm		10.6 mm		10.6 mm	
Measuring stroke	±5 mm		±5 mm		±5 mm		±5 mm	
Pretravel Default setting	adjustable -5.5 mm		adjustable -5.5 mm		adjustable +5.5 mm		adjustable +5.5 mm	
Bearing	ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped		ball bearing no side-play, lapped	
Life	>10 Mio. Cycles		>10 Mio. Cycles		-		>10 Mio. Cycles	
Tip rotation	1 ° over full stroke		1 ° over full stroke		1 ° over full stroke		1 ° over full stroke	
Temperature range	-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation		-10 to +65 °C, storage and operation	
Mounting position	any		any		any		any	
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable		3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	
Gaiter	FPM / FKM		FPM / FKM		FPM / FKM		-	
Body diameter	8h6		8h6		8h6		8h6	
Cable	PUR, length 2 m		PUR, length 2 m		PUR, length 2 m		PUR, length 2 m	
Plug	5 pin, 270°		5 pin, 270°		5 pin, 270°		5 pin, 270°	
Advance	-		-		pneumatic		pneumatic	
Lift off	none		vacuum		-		-	
Maximum pressure	-		-		1.5 bar		4.5 bar	
Spring rate	1 N ±15 % (at electrical zero), others as option (see page 73)		1 N ±15 % (at electrical zero), others as option (see page 73)		1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)		1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)	
Repeatability	0.02 µm		0.02 µm		0.02 µm		0.02 µm	
Linearity error	0.8 % FS ±5000 µm range (at 20 °C ±1 °C)		0.8 % FS ±5000 µm range (at 20 °C ±1 °C)		0.8 % FS ±5000 µm range (at 20 °C ±1 °C)		0.8 % FS ±5000 µm range (at 20 °C ±1 °C)	
Sensitivity	standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)		standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	
Drive frequency	13 kHz ±5 %		13 kHz ±5 %		13 kHz ±5 %		13 kHz ±5 %	
Supply voltage	3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS		3 V ±0.5 % RMS	
Coil form	halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)		halfbridge (TESA® compatible)	
Repair	possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled		possible, unit can be disassembled	

Transducer T521 / T522

Drawing (Scale 1:2)

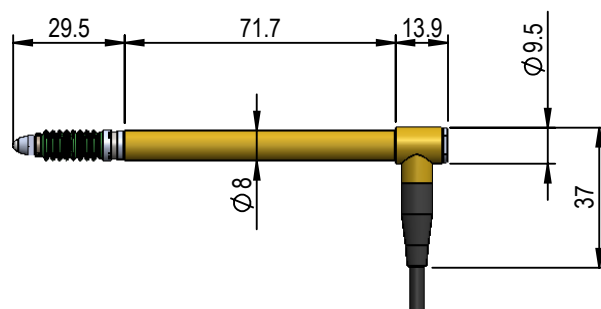
1001897

T521F



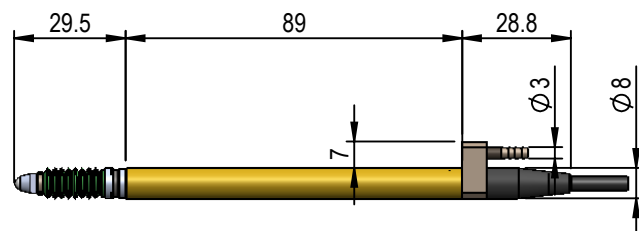
1001969

T522F



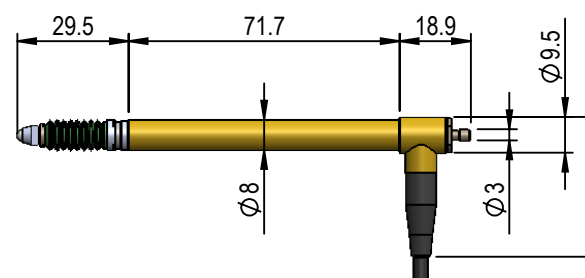
1001951

T521V



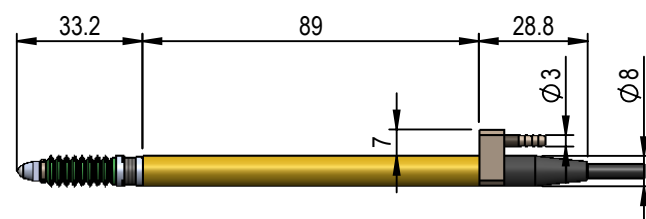
1002020

T522V



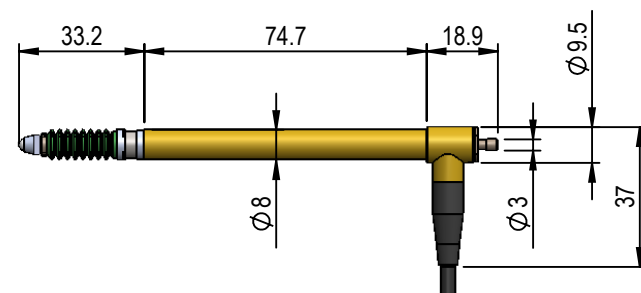
1001933

T521P



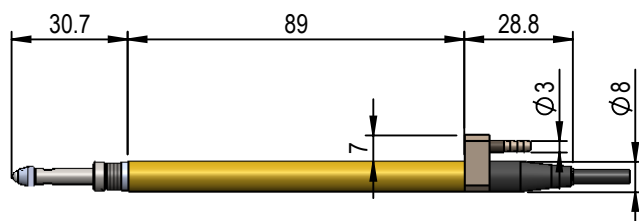
1002003

T522P



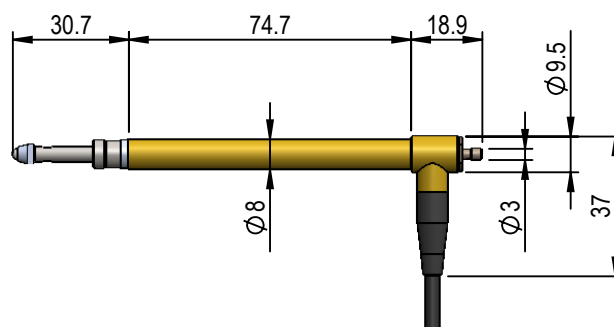
1001915

T521L



1001986

T522L



8 mm After Electrical Zero, Halfbridge, ± 2 mm Measuring Stroke, Setting 1 : 2
Technical Data

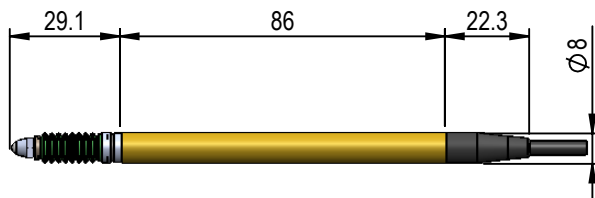
Cable exit	T521F axial T522F radial	T521V axial T522V radial	T521P axial T522P radial	T521L axial T522L radial
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	± 2 mm	± 2 mm	± 2 mm	± 2 mm
Pretravel Default setting	adjustable -2.25 mm	adjustable -2.25 mm	adjustable +8 mm	adjustable +8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°	5 pin, 270°
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ± 15 % (at electrical zero), others as option (see page 73)	1 N ± 15 % (at electrical zero), others as option (see page 73)	1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)	1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)
Repeatability	0.02 μ m	0.02 μ m	0.02 μ m	0.02 μ m
Linearity error	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)
Sensitivity	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer T523 / T524

Drawing (Scale 1:2)

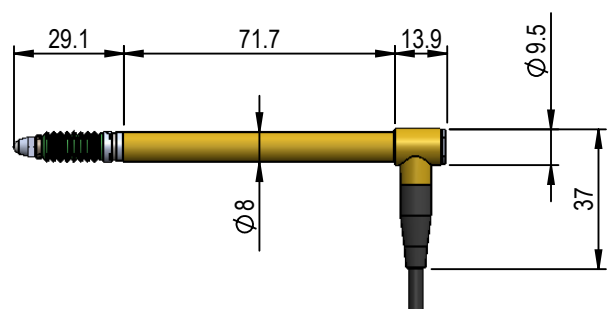
1002039

T523F



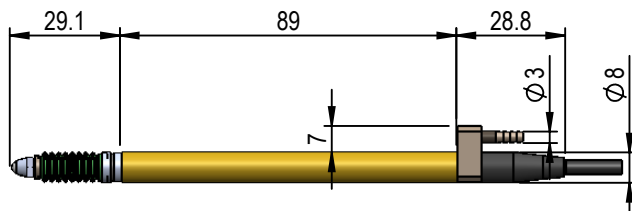
1002113

T524F



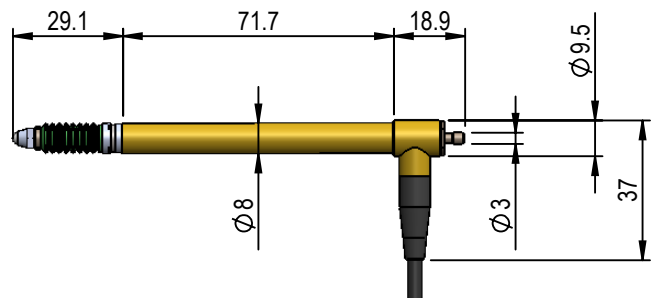
1002095

T523V



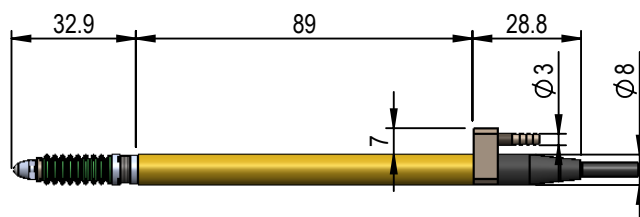
1002165

T524V



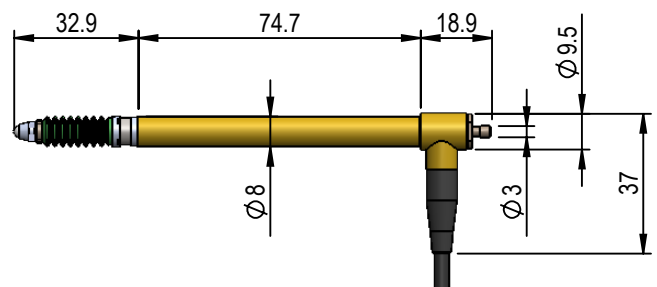
1002075

T523P



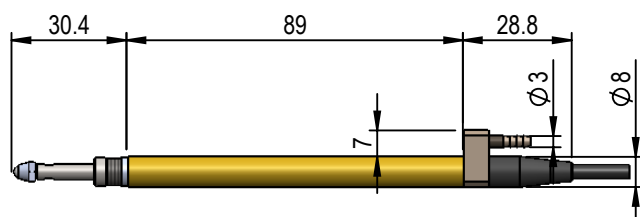
1002148

T524P



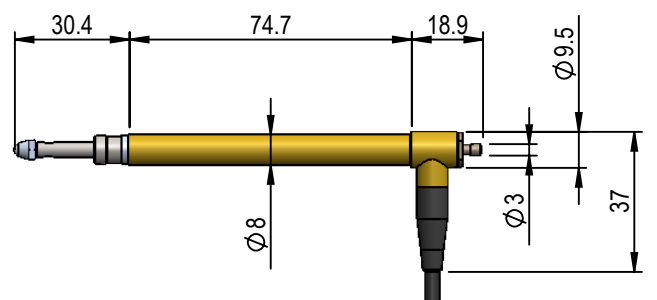
1002057

T523L



1002131

T524L



8 mm Stroke After Electrical Zero, Halfbridge, ± 2 mm Measuring Stroke, Setting 1 : 1
Technical Data

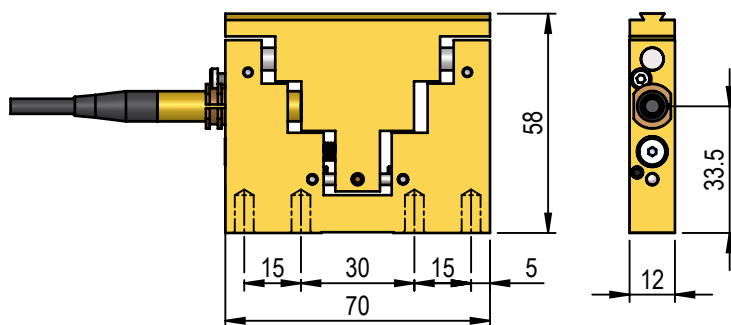
Cable exit	T523F axial T524F radial	T523V axial T524V radial	T523P axial T524P radial	T523L axial T524L radial
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	± 1 mm	± 1 mm	± 1 mm	± 1 mm
Pretravel Default setting	adjustable -2.25 mm	adjustable -2.25 mm	adjustable +8 mm	adjustable +8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°	5 pin, 270°
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ± 15 % (at electrical zero), others as option (see page 73)	1 N ± 15 % (at electrical zero), others as option (see page 73)	1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)	1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)
Repeatability	0.02 μ m	0.02 μ m	0.02 μ m	0.02 μ m
Linearity error	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer T801 / T802, T851 / T852

Drawing (Scale 1:2)

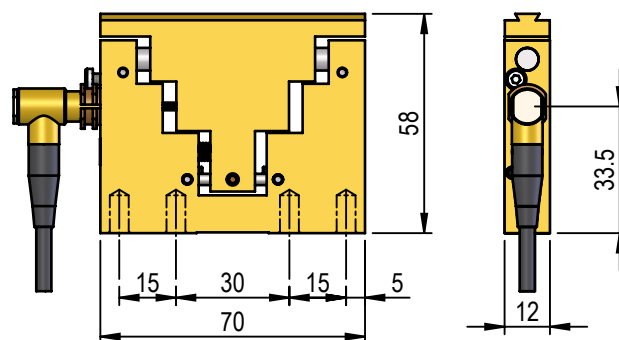
1002225

T801



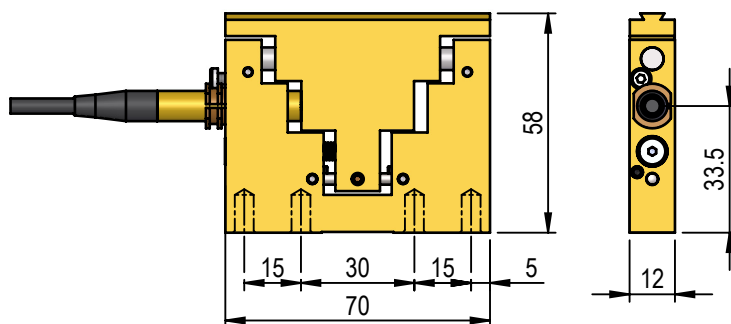
1002226

T802



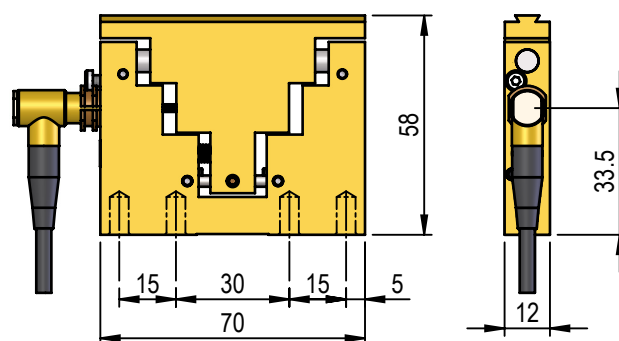
1002227

T851



1002228

T852



T801 / T802 Halfbridge, T851 / T852 Fullbridge (LVDT)
Technical Data

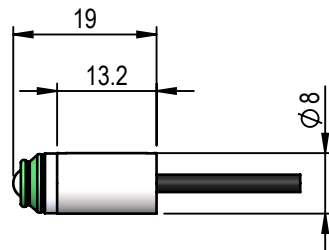
Cable exit	T801 axial	T802 radial	T851 axial	T852 radial
Maximum stroke	6.0 mm	6.0 mm	6.0 mm	6.0 mm
Measuring stroke	±1 mm	±1 mm	±1 mm	±1 mm
Pretravel Default setting	adjustable -1.2 mm	adjustable -1.2 mm	adjustable -1.2 mm	adjustable -1.2 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	>10 Mio. Cycles	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	mountable	mountable	mountable	mountable
Dimension	70 x 58 x 12 mm	70 x 58 x 12 mm	70 x 58 x 12 mm	70 x 58 x 12 mm
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°	5 pin, 270°
Advance	mountable	mountable	mountable	mountable
Spring rate	1 N ±15 % (at electrical zero), others as option (see page 73)	1 N ±15 % (at electrical zero), others as option (see page 73)	1 N ±15 % (at electrical zero), others as option (see page 73)	1 N ±15 % (at electrical zero), others as option (see page 73)
Repeatability	0.01 µm	0.01 µm	0.01 µm	0.01 µm
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)
Sensitivity	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	150 mV/(Vmm) (into R = 100 kOhm)	150 mV/(Vmm) (into R = 100 kOhm)
Drive frequency	13 kHz ±5 %	13 kHz ±5 %	5 kHz ±5 %	5 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	fullbridge (LVDT)	fullbridge (LVDT)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer 10P0 / 10P1 / 1P0

Drawing (Scale 1:1)

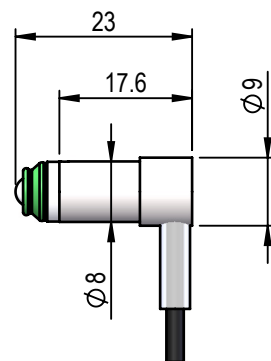
1000000

10P0



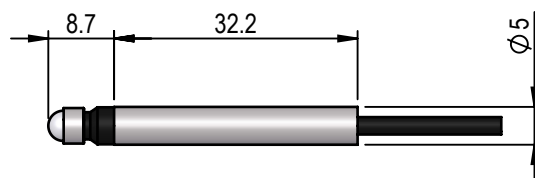
1000009

10P1



1000031

1P0



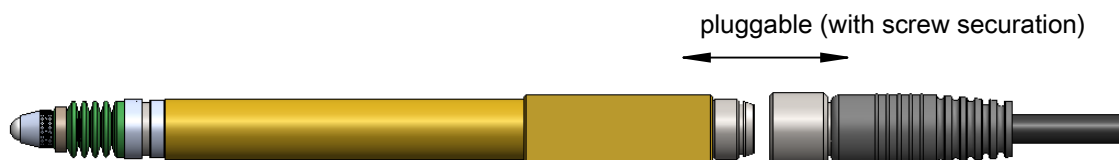
10P0 / 10P1 ± 0.25 mm Measuring Stroke, 1P0 ± 0.4 mm Measuring Stroke
Technical Data

Cable exit	10P0 axial	10P1 radial	1P0 axial
Maximum stroke	0.8 mm	0.8 mm	1.5 mm
Measuring stroke	± 0.25 mm	± 0.25 mm	± 0.40 mm
Pretravel	-0.35 mm	-0.35 mm	-0.40 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	>10 Mio. Cycles
Tip rotation	0.5 ° over full stroke	0.5 ° over full stroke	0.5 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any
Tip	4 mm tungsten carbi- de ball	4 mm tungsten carbi- de ball	4 mm tungsten carbi- de ball
Gaiter	FPM / FKM	FPM / FKM	Nitrile
Body diameter	8h6	8h6	5h6
Cable	PUR, length 2 m	PUR, length 2 m	PUR, length 2 m
Plug	5 pin, 270°	5 pin, 270°	5 pin, 270°
Lift off	none	none	none
Spring rate	0.63 N $\pm 20\%$ (at electrical zero)	0.63 N $\pm 20\%$ (at electrical zero)	0.8 N $\pm 20\%$ (at electrical zero)
Repeatability	0.01 μ m	0.01 μ m	0.01 μ m
Linearity error	0.8 % FS ± 250 μ m range (at 20 °C ± 1 °C)	0.8 % FS ± 250 μ m range (at 20 °C ± 1 °C)	1.25 % FS ± 400 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)

Transducer pluggable

T-series transducer with pluggable connection cable for an easy change and replacement, alignment in transducer

Application	The same as T-series transducers
Body diameter	8h6
Connection	Connection to transducer Sensor plug M8, 4 pins with screw interlock (Cable tap 180° / 90°) Cable PUR, length 2 m or 5 m Connection to electronic DIN plug 5 Pol, 270°



Transducer pluggable, sensor plug M8, 4 pins with screw interlock

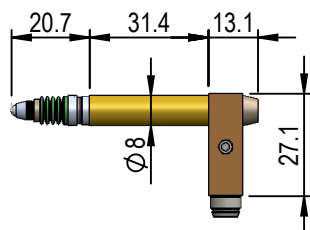
Spring Push	Vacuum Retract	Pneumatic Push Bellow Sealed	Pneumatic Push Air Gap Seal	Short Description
T070FS	T070VS	T070PS	T070LS	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T100FS	T100VS	T100PS	T100LS	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T200FS	T200VS	T200PS	T200LS	halfbridge, ±1 mm measuring stroke (TESA® compatible)
T300FS	T300VS	T300PS	T300LS	halfbridge, ±2 mm measuring stroke (TESA® compatible)
T500FS	T500VS	T500PS	T500LS	halfbridge, ±5 mm Measuring stroke (TESA® compatible)
T521FS	T521VS	T521PS	T521LS	halfbridge, ±2 mm measuring stroke, 8 mm after electrical zero, Setting 1:1 (TESA® compatible)
T523FS	T523VS	T523PS	T523LS	halfbridge, ±1 mm measuring stroke, 8 mm after electrical zero, Setting 1:1 (TESA® compatible)

Transducer pluggable T070

Drawing (Scale 1:2)

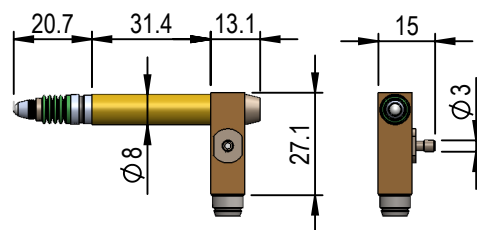
1003447

T070FS



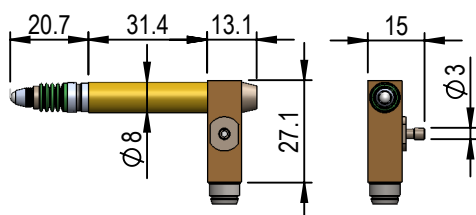
1003449

T070VS



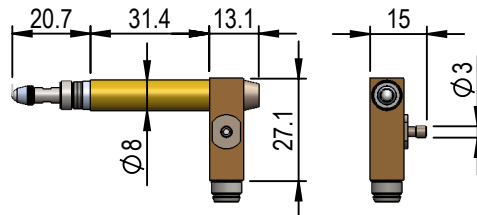
1003450

T070PS



1003451

T070LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m

Halfbridge, ±1 mm Measuring Stroke

Technical Data

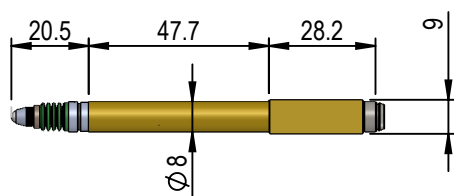
	T070FS	T070VS	T070PS	T070LS
Maximum stroke	2.2 mm	2.2 mm	2.2 mm	2.2 mm
Measuring stroke	±1 mm	±1 mm	±1 mm	±1 mm
Pretravel Default setting	adjustable -1.1 mm	adjustable -1.1 mm	adjustable +1.1 mm	adjustable +1.1 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. cycles	>10 Mio. cycles	-	>10 Mio. cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	0.63 N ±20 % (at electrical zero)	0.63 N ±20 % (at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)
Repeatability	0.01 µm	0.01 µm	0.01 µm	0.01 µm
Linearity error	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)	0.25 % FS ±1000 µm range (at 20 °C ±1 °C)
Sensitivity	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ±0.1 %)
Drive frequency	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer pluggable T100

Drawing (Scale 1:2)

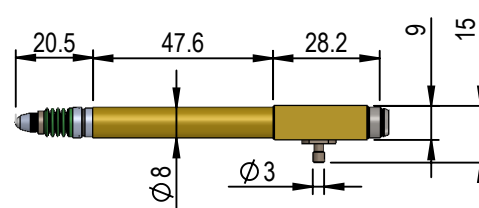
1003379

T100FS



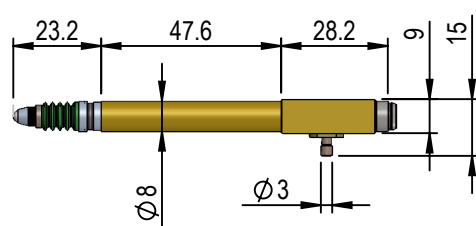
1003380

T100VS



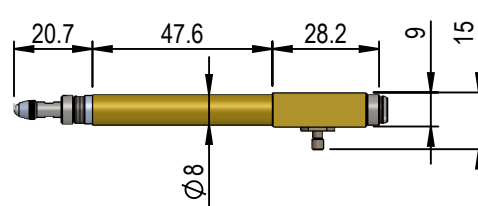
1003381

T100PS



1003382

T100LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

Halfbridge, ± 1 mm Measuring Stroke

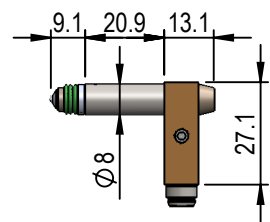
Technical Data

	T100FS	T100VS	T100PS	T100LS
Maximum stroke	4.6 mm	4.6 mm	4.6 mm	4.6 mm
Measuring stroke	± 1 mm	± 1 mm	± 1 mm	± 1 mm
Pretravel Default setting	adjustable -1.2 mm	adjustable -1.2 mm	adjustable +2.8 mm	adjustable +2.8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. cycles	>10 Mio. cycles	-	>10 Mio. cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	0.63 N ± 20 % (at electrical zero), others as option (see page 73)	0.63 N ± 20 % (at electrical zero), others as option (see page 73)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 0.8 bar (both at electrical zero)	approx. 0.6 N at 0.6 bar approx. 1.0 N at 1.1 bar (both at electrical zero)
Repeatability	0.01 μ m	0.01 μ m	0.01 μ m	0.01 μ m
Linearity error	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

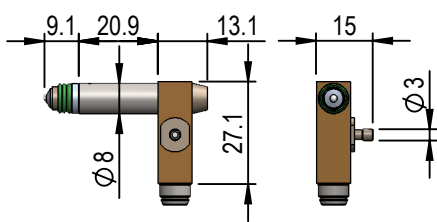
Transducer pluggable T200

Drawing (Scale 1:2)

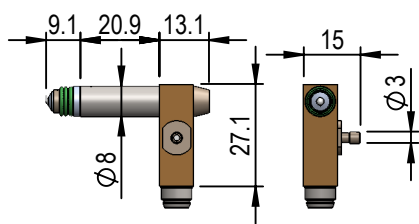
1003383
T200FS



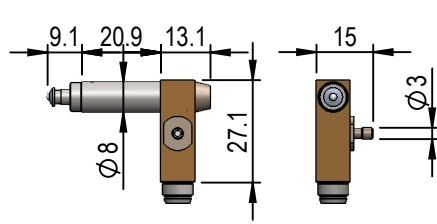
1003384
T200VS



1003385
T200PS



1003386
T200LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m

Halfbridge, ±1 mm Measuring Stroke

Technical Data

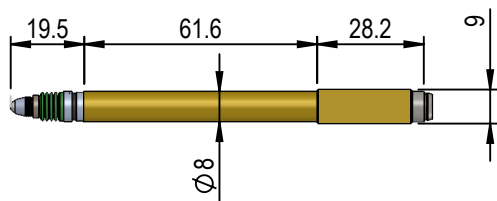
	T200FS	T200VS	T200PS	T200LS
Maximum stroke	2.5 mm	2.5 mm	2.5 mm	2.5 mm
Measuring stroke	±1 mm	±1 mm	±1 mm	±1 mm
Pretravel	not adjustable	not adjustable	not adjustable	not adjustable
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	2 mm tungsten carbi- de ball, exchangeable	2 mm tungsten carbi- de ball, exchangeable	2 mm tungsten carbi- de ball, exchangeable	2 mm tungsten carbi- de ball, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	0.4 N ±50 % (at electrical zero)	0.4 N ±50 % (at electrical zero)	0.6 N at 0.6 bar 1.0 N at 0.8 bar (both at el. zero))	0.6 N at 0.8 bar 1.0 N at 1.1 bar (both at el. zero)
Repeatability	0.02 µm	0.02 µm	0.02 µm	0.02 µm
Linearity error	0.6 % FS ±1000 µm range (at 20 °C ±1 °C)	0.6 % FS ±1000 µm range (at 20 °C ±1 °C)	0.6 % FS ±1000 µm range (at 20 °C ±1 °C)	0.6 % FS ±1000 µm range (at 20 °C ±1 °C)
Sensitivity	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ±0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)

Transducer pluggable T300

Drawing (Scale 1:2)

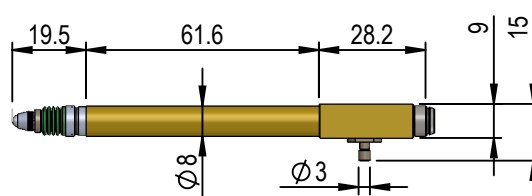
1003387

T300FS



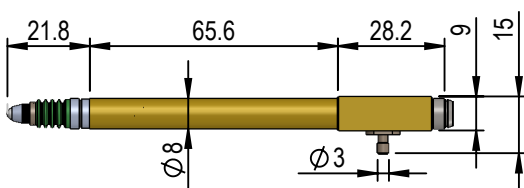
1003389

T300VS



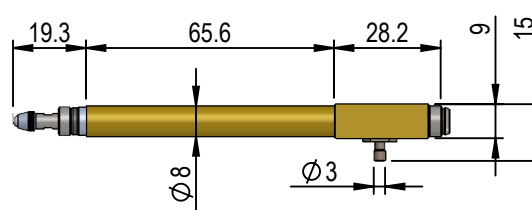
1003390

T300PS



1003391

T300LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

Halfbridge, ± 2 mm Measuring Stroke

Technical Data

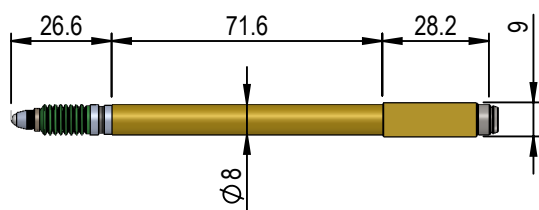
	T300FS	T300VS	T300PS	T300LS
Maximum stroke	4.6 mm	4.6 mm	4.6 mm	4.6 mm
Measuring stroke	± 2 mm	± 2 mm	± 2 mm	± 2 mm
Pretravel Default setting	adjustable -2.25 mm	adjustable -2.25 mm	adjustable +2.25 mm	adjustable +2.25 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	0.63 N ± 20 % (at electrical zero)	0.63 N ± 20 % (at electrical zero)	0.6 N at 0.5 bar 1.0 N at 0.7 bar (both at electrical zero)	0.6 N at 0.8 bar 1.0 N at 1.1 bar (both at electrical zero)
Repeatability	0.01 μ m	0.01 μ m	0.01 μ m	0.01 μ m
Linearity error	0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.4 % FS ± 2000 μ m range (at 20 °C ± 1 °C)
Sensitivity	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer pluggable T500

Drawing (Scale 1:2)

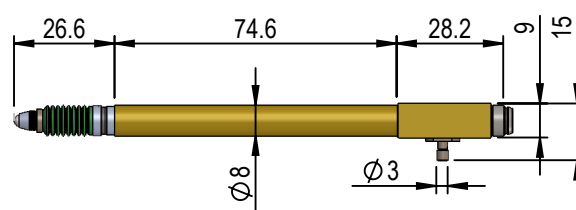
1003392

T500FS



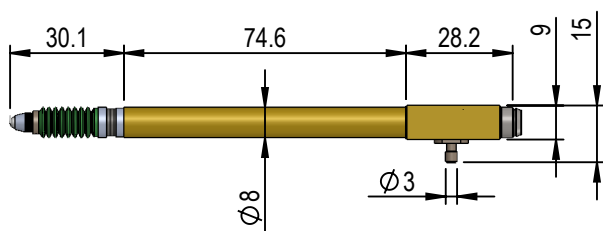
1003393

T500VS



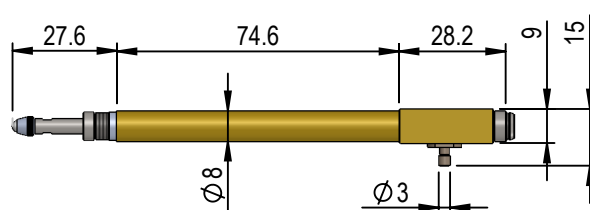
1003394

T500PS



1003395

T500LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

Halfbridge, ±5 mm Measuring Stroke

Technical Data

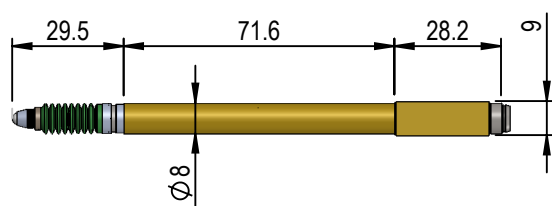
	T500FS	T500VS	T500PS	T500LS
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	±5 mm	±5 mm	±5 mm	±5 mm
Pretravel Default setting	adjustable -5.5 mm	adjustable -5.5 mm	adjustable +5.5 mm	adjustable +5.5 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ±15 % (at electrical zero), others as option (see page 73)	1 N ±15 % (at electrical zero), others as option (see page 73)	1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)	1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)
Repeatability	0.02 µm	0.02 µm	0.02 µm	0.02 µm
Linearity error	0.8 % FS ±5000 µm range (at 20 °C ±1 °C)	0.8 % FS ±5000 µm range (at 20 °C ±1 °C)	0.8 % FS ±5000 µm range (at 20 °C ±1 °C)	0.8 % FS ±5000 µm range (at 20 °C ±1 °C)
Sensitivity	standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)	standard setting 1:10 7.38 ±0.02 mV/(Vmm) (into R = 2 kOhm ±0.1 %) optional setting 1:5 14.76 ±0.04 mV/(Vmm) (into R = 2 kOhm ±0.1 %)
Drive frequency	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %	13 kHz ±5 %
Supply voltage	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS	3 V ±0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer pluggable T521

Drawing (Scale 1:2)

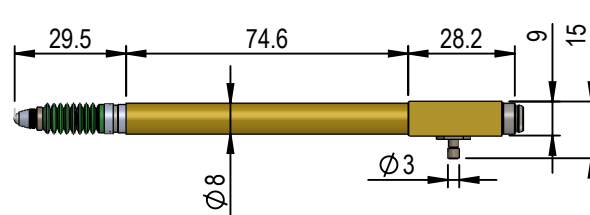
1003396

T521FS



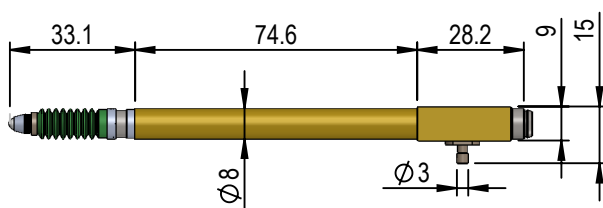
1003397

T521VS



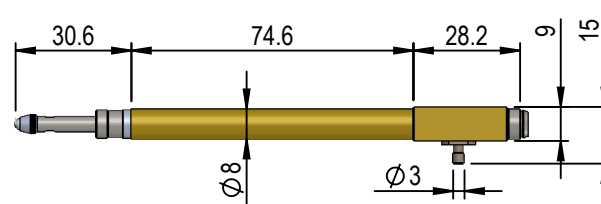
1003398

T521PS



1003399

T521LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

8 mm After Electrical Zero, Halfbridge, ± 2 mm Measuring Stroke, Setting 1 : 2

Technical Data

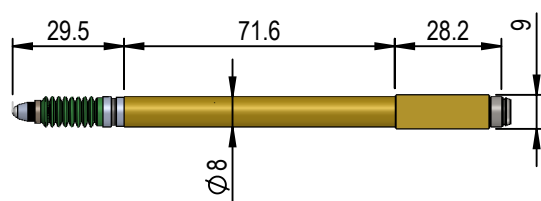
	T521FS	T521VS	T521PS	T521LS
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	± 2 mm	± 2 mm	± 2 mm	± 2 mm
Pretravel Default setting	adjustable -2.25 mm	adjustable -2.25 mm	adjustable +8 mm	adjustable +8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ± 15 % (at electrical zero), others as option (see page 73)	1 N ± 15 % (at electrical zero), others as option (see page 73)	1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)	1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)
Repeatability	0.02 μ m	0.02 μ m	0.02 μ m	0.02 μ m
Linearity error	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)	0.5 % FS ± 2000 μ m range (at 20 °C ± 1 °C)
Sensitivity	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	36.88 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

Transducer pluggable T523

Drawing (Scale 1:2)

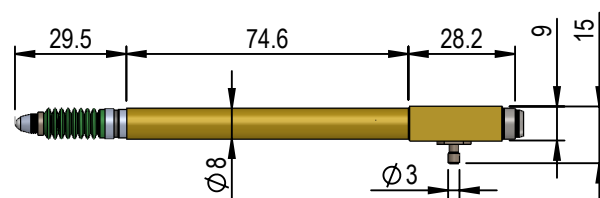
1003400

T523FS



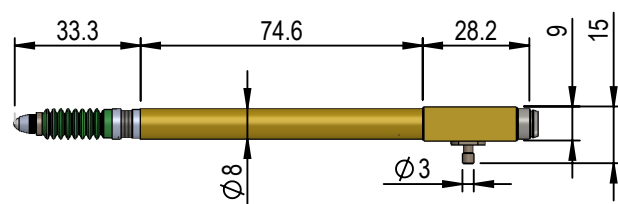
1003401

T523VS



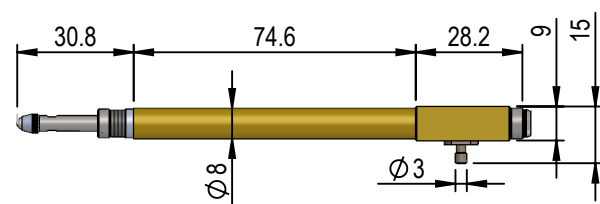
1003402

T523PS



1003404

T523LS



Matching Cable (drawing and details on page 72)

Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

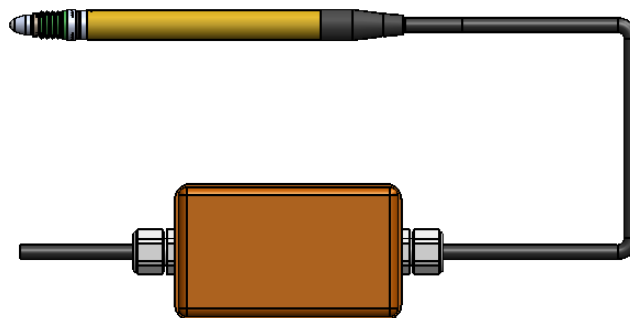
8 mm Stroke After Electrical Zero, Halfbridge, ± 1 mm Measuring Stroke, Setting 1 : 1
Technical Data

	T523FS	T523VS	T523PS	T523LS
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	± 1 mm	± 1 mm	± 1 mm	± 1 mm
Pretravel Default setting	adjustable -2.25 mm	adjustable -2.25 mm	adjustable +8 mm	adjustable +8 mm
Bearing	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped	ball bearing no side-play, lapped
Life	>10 Mio. Cycles	>10 Mio. Cycles	-	>10 Mio. Cycles
Tip rotation	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke	1 ° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable	3 mm tungsten car- bide ball, M2.5 fixing thread, exchangeable
Gaiter	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	M8 sensor plug	M8 sensor plug	M8 sensor plug	M8 sensor plug
Advance	-	-	pneumatic	pneumatic
Lift off	none	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ± 15 % (at electrical zero), others as option (see page 73)	1 N ± 15 % (at electrical zero), others as option (see page 73)	1.5 N at 0.9 bar 2.0 N at 1.2 bar (both at el. zero)	1.0 N at 1.3 bar 1.6 N at 1.7 bar (both at el. zero)
Repeatability	0.02 μ m	0.02 μ m	0.02 μ m	0.02 μ m
Linearity error	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)	0.25 % FS ± 1000 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS	3 V ± 0.5 % RMS
Coil form	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)	halfbridge (TESA® compatible)
Repair	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled	possible, unit can be disassembled

DC-Transducer

**T-series transducer with in-cable box signal conditioning,
signal output ± 10 VDC for full specification displacement**

Application	The same as T-series transducers	
Body diameter	8h6	
Dimension	In-cable box 58 x 35 x 16 mm	
Supply voltage	Supply voltage 5, 12 or 24 VDC (± 10 %) (Please specify with order) Current consumption 120, 50 or 25 mA	
Signal output	± 10 VDC for full specification displacement (Other specifications upon request)	
Connection	supply and signal output: cable PVC, length 1 m, prepared wires Transducer connected fix to the box, cable PUR, length 2 m	
Models	Transducer T071 / T072 Transducer T101 / T102 Transducer T201 / T202 Transducer T301 / T302 Transducer T501 / T502 Transducer T521 / T522 Transducer T523 / T524	Measuring stroke ± 1 mm Measuring stroke ± 1 mm Measuring stroke ± 1 mm Measuring stroke ± 2 mm Measuring stroke ± 5 mm Measuring stroke ± 2 mm Measuring stroke ± 1 mm
Ordering	See examples for ordering on page 58	
Drawing		

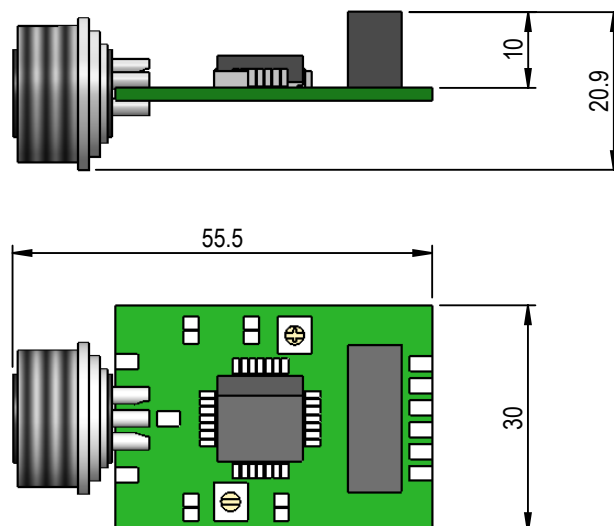


T-Module

Signal conditioning electronic for halfbridge transducers, mountable into frontpanels, output signal ± 10 VDC or ± 5 VDC, for full specification displacement of the transducer

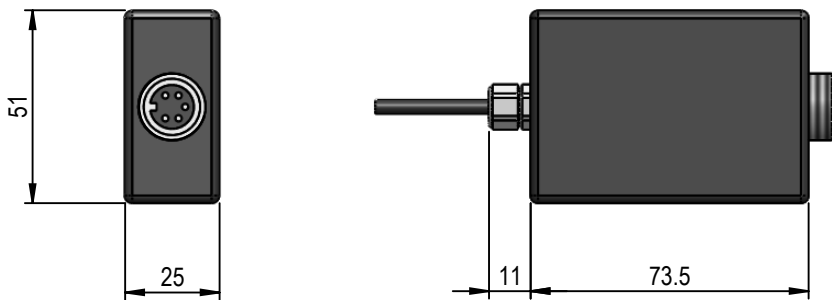
Application	Signal conditioning for T-series transducers for TESA® compatible halfbridge transducers	
Dimension	30 x 55.5 mm (No casing)	
Fixing	With threaded ring, hole diameter for socket fixing 18 mm	
Supply voltage	Supply voltage 5, 12 or 24 VDC (± 10 %) (please specify with order) current consumption 120, 50 or 25 mA	
Signal output	± 10 VDC for transducers T071 / T072 Measuring stroke ± 1 mm T101 / T102 Measuring stroke ± 1 mm T201 / T202 Measuring stroke ± 1 mm T301 / T302 Measuring stroke ± 2 mm T401 / T402 Measuring stroke ± 1 mm T501 / T502 Measuring stroke ± 5 mm T521 / T522 Measuring stroke ± 2 mm T523 / T524 Measuring stroke ± 1 mm (Other specifications upon request)	
Connection	Supply and signal: pads on PCB Transducer: socket 5 pin, 270 °	
Transducer supply	3 V ± 0.5 % RMS / 13 kHz ± 5 %	
Sensitivity	73.75 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	
Ordering	See examples for ordering on page 58	

Drawing



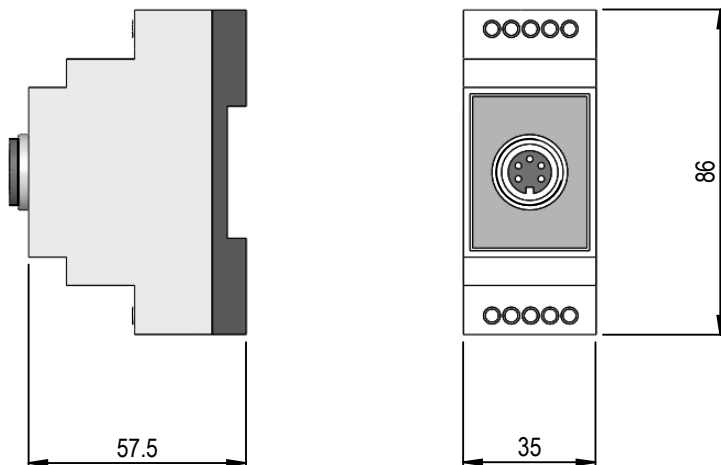
Cable-Module

Signal conditioning for T-series transducers, socket to accept transducer plug, output signal ± 10 VDC or ± 5 VDC, for full specification displacement of the transducer

Application	Signal conditioning for T-series transducer For TESA® compatible halfbridge models	
Dimension	Box 73.5 x 51 x 25 mm	
Supply voltage	Supply voltage 5, 12 or 24 VDC (± 10 %) (Please specify with order) Current consumption 120, 50 or 25 mA	
Signal output	± 10 VDC for transducer T071 / T072 Measuring stroke ± 1 mm T101 / T102 Measuring stroke ± 1 mm T201 / T202 Measuring stroke ± 1 mm T301 / T302 Measuring stroke ± 2 mm T401 / T402 Measuring stroke ± 1 mm T501 / T502 Measuring stroke ± 5 mm T521 / T522 Measuring stroke ± 2 mm T523 / T524 Measuring stroke ± 1 mm (Other specifications upon request)	
Connection	Supply and signal: cable PVC, length 1 m, prepared wires Transducer: socket 5 pin, 270 °	
Transducer supply	3 V ± 0.5 % RMS / 13 kHz ± 5 %	
Sensitivity	73.75 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	
Ordering	See examples for ordering on page 58	
Drawing		

DIN-Rail Module

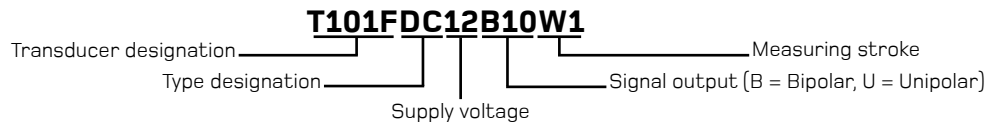
Signal conditioning electronic for halfbridge transducers, housed in DIN-Rail case, signal output ± 10 VDC or ± 5 VDC, for full specification displacement of the transducer

Application	Signal conditioning for T-series transducers for TESA® compatible halfbridge transducers	
Dimension	86 x 35 x 57.5 mm (Height from rail top surface)	
Supply voltage	Supply voltage 5, 12 or 24 VDC (± 10 %) (Please specify when ordering) current consumption 120, 50 or 25 mA	
Signal output	± 10 VDC for transducer T071 / T072 Measuring stroke ± 1 mm T101 / T102 Measuring stroke ± 1 mm T201 / T202 Measuring stroke ± 1 mm T301 / T302 Measuring stroke ± 2 mm T401 / T402 Measuring stroke ± 1 mm T501 / T502 Measuring stroke ± 5 mm T521 / T522 Measuring stroke ± 2 mm T523 / T524 Measuring stroke ± 1 mm (Other specifications upon request)	
Connection	Supply and signal: screw terminals Transducer: socket 5 pin, 270 °	
Transducer supply	3 V ± 0.5 % RMS / 13 kHz ± 5 %	
Sensitivity	73.75 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)	
Ordering	See examples for ordering on page 58	
Drawing		

Examples for ordering

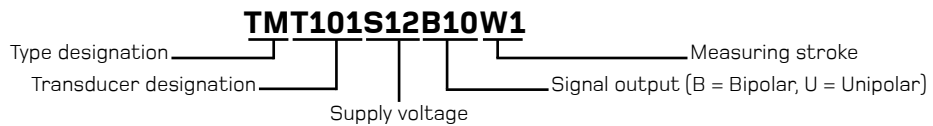
DC-Transducer

T101F as DC-Transducer with supply voltage 12 V, signal output ± 10 V and measuring stroke ± 1 mm:



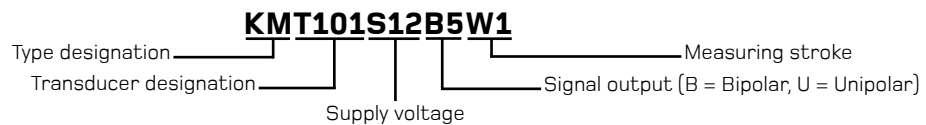
T-Module

T-Module with supply voltage 12 V, signal output ± 10 V and measuring stroke ± 1 mm for a T101:



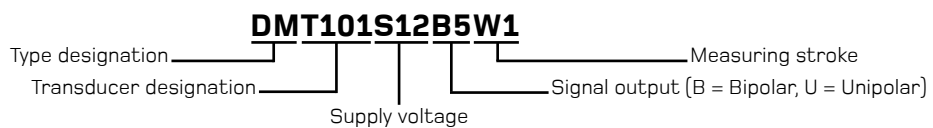
Cable Module

Cable Module with supply voltage 12 V, signal output ± 5 V and measuring stroke ± 1 mm for a T101:



DIN-Rail Module

DIN-Rail Module with supply voltage 12 V, signal output ± 5 V and measuring stroke ± 1 mm for a T101:

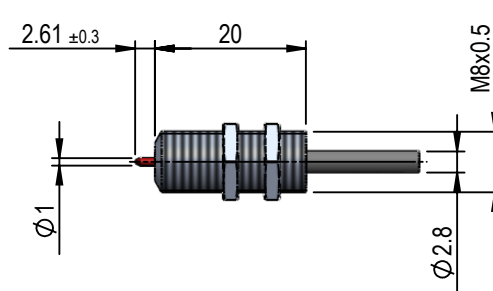


MICRON Switch

Small signal switch with highest repeatability of the crossover position

Order Number	1002864
Application	Reference switch for position stages Precision end stops Reference settings etc.
Repeatability	± 0.0005 mm
Overtravel	1.5 mm (Longer overtravel upon request)
Operation force	0.7 N (Other values upon request)
Temperature range	-20 bis +70 °C, storage and operation
Voltage rating	24 VAC / 15 VDC
Current rating	50 mA
Lifetime	> 10 Mio. cycles
Mounting position	Any
Function	NC (normally closed)
Cable	PUR, length 1 m, prepared wires
Wires	2 x 0.14 mm ²
Body OD	M8 x 0.5
Case material	Stainless steel (1.4305)
Clamping nuts	2 pieces included

Drawing

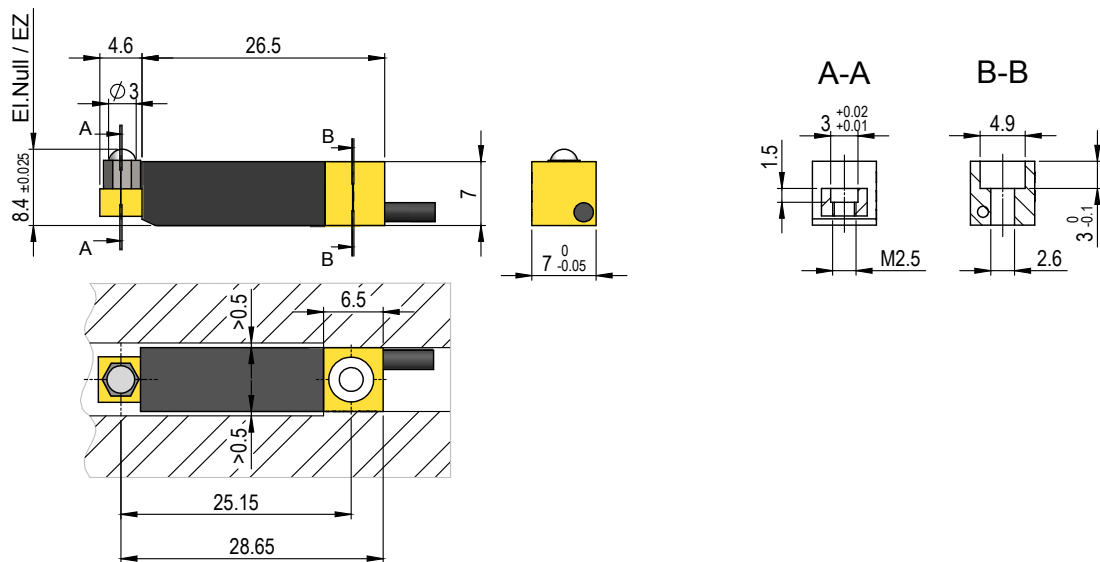


Bore measuring transducer BMT200

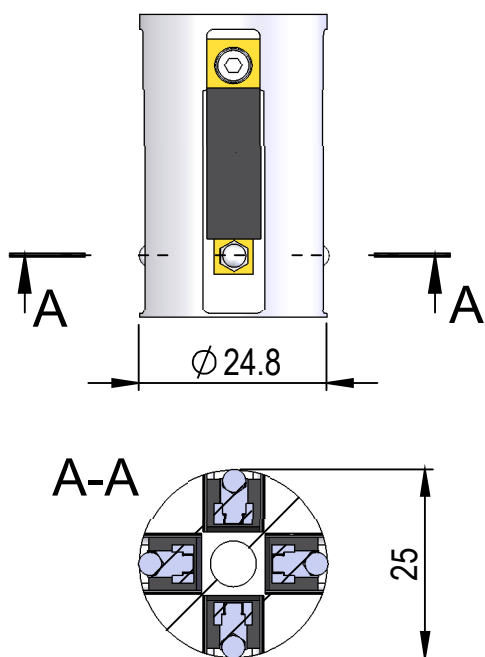
Drawing (Scale 1:1)

1000064

BMT200



Application example



Halfbridge, ± 0.2 mm Measuring Stroke

Technical Data

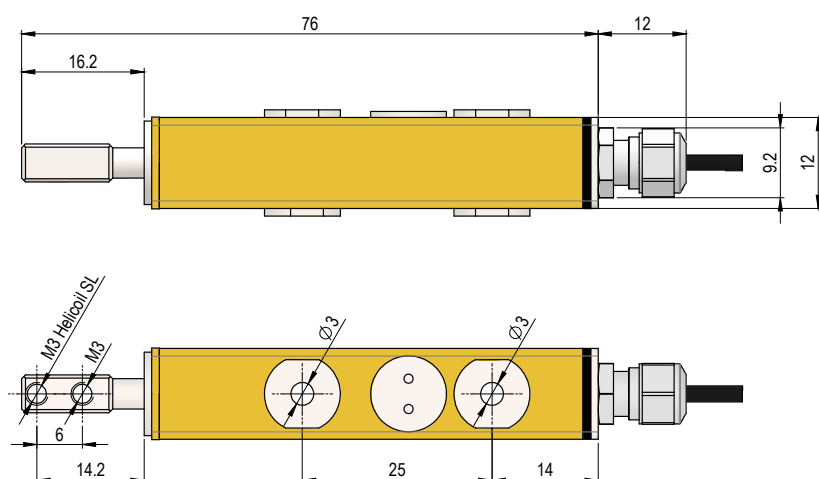
	BMT200
Maximum Stroke	0.6 mm
Measuring Stroke	± 0.2 mm
Life	>10 Mio. cycles
Temperatur range	-10 to +65 °C, storage and operation
Tip	3 mm tungsten carbide ball, exchangeable
Sleeve and sealing	FPM
Mounting position	any
Fixing	with thread M2.5
Cable	PUR, length 2 m
Plug	5 pin, 270 °
Measuring force	0.8 N $\pm 30\%$ (at electrical zero)
Repeatability	0.05 μ m
Linearity error	1.0 % FS ± 200 μ m range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS
Coil form	Halfbridge (TESA® compatible)

Bore measuring transducer BMT500

Drawing (Scale 1:1)

1004492

BMT500



Halfbridge, ± 0.5 mm Measuring Stroke

Technical Data

	BMT500
Maximum stroke	1.1 mm
Measuring stroke	± 0.5 mm
Life	>10 Mio. cycles
Temperature range	-10 to +65 °C, operation and storage
Tip	without, M3 helicoil
Mounting position	any
Fixing	with two threads M3
Cable	PUR, length 2 m
Plug	5 pin, 270 °
Measuring force	1.0 N $\pm 30\%$ (at electrical zero)
Repeatability	0.05 μm
Linearity error	1.0 % FS $\pm 500 \mu\text{m}$ range (at 20 °C ± 1 °C)
Sensitivity	73.75 ± 0.15 mV/(Vmm) (into R = 2 kOhm ± 0.1 %)
Drive frequency	13 kHz ± 5 %
Supply voltage	3 V ± 0.5 % RMS
Coil form	Halfbridge (TESA® compatible)

Digital Transducer

Digital transducer to connect to compatible gateways or electronics

Application	As T-series displacement transducers
Body diameter	8h6
Measuring system	Inductive halfbridge coil system with core. Intergrated conditioning electronics with system error correction.
Connection	Connection to transducer Sensor plug M5, 4 pole Cable PUR, pigtail with 200 mm length Connection to electronics Sensor plug M8, 4 pole
Interface	Freely documented point-to-point protocol on RS485 base, termination 120 ohm Connection to sensor with 4 wire cable, M5 plug on the sensor side, M8 plug on the electronic side Baud rates 9600 bit/s, 115200 bit/s, 10 kbit/s, 500 kbit/s and 1 Mbit/s Sensor-Information for test equipment monitoring, SPS-profiles and -objects

Transducer digital, Sensor plug M5

Spring Push	Vacuum Retract	Pneumatic Push Bellow Sealed	Pneumatic Push Air Gap Seal	Description
T501FDG	T501VDG	T501PDG	T501LDG	±5 mm measuring stroke
T502FDG	T502VDG	T502PDG	T502LDG	±5 mm measuring stroke

Connection cable

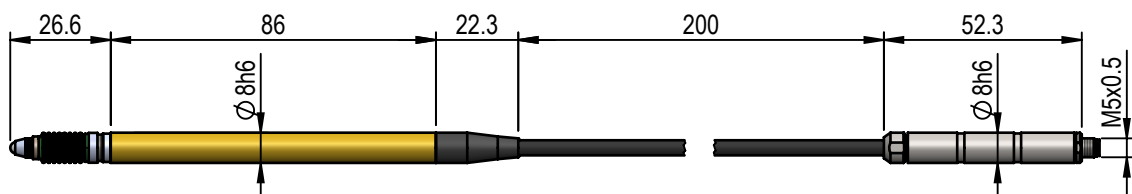
Order number	Plug M5	Plug M8	Length
1005027	axial	axial	2.5 m

Digital Transducer T500

Drawing (Scale 1:2)

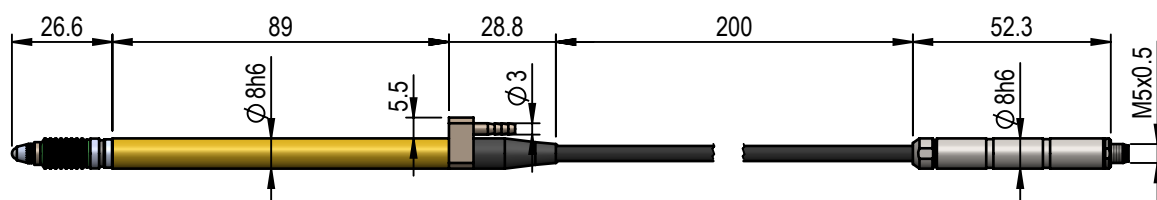
1004861

T501FDG



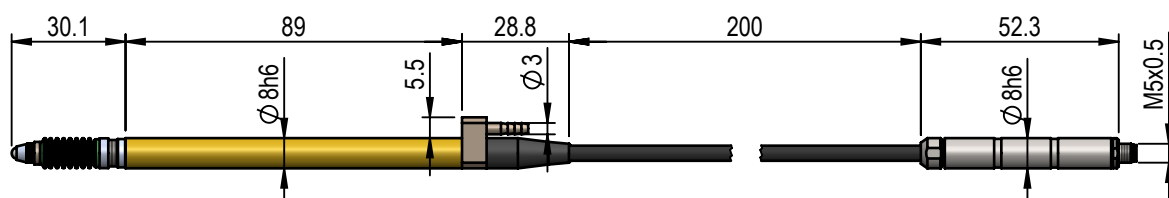
1004863

T501VDG



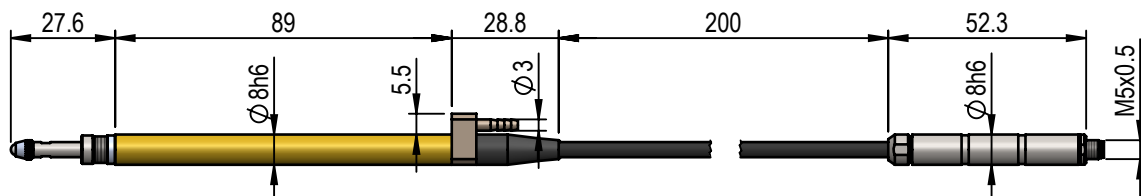
1004865

T501PDG



1004867

T501LDG



±5 mm Measuring Stroke

Technical Data

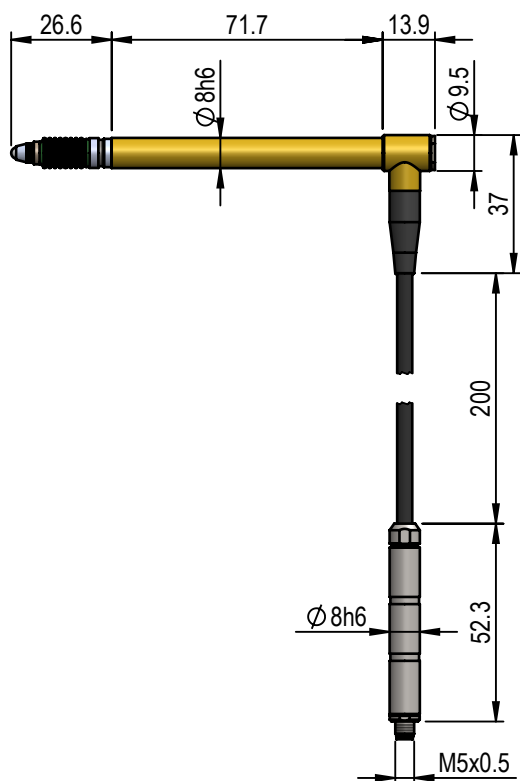
	T501FDG	T501VDG	T501PDG	T501LDG
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	±5 mm	±5 mm	±5 mm	±5 mm
Pretravel	-5.5 mm	-5.5 mm	+5.5 mm	+5.5 mm
Bearing	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped
Life	>10 Mio. cycles	>10 Mio. cycles	-	>10 Mio. cycles
Tip rotation	1° over full stroke	1° over full stroke	1° over full stroke	1° over full stroke
Temperature range	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation	-10 to +65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable
Gaitor	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	DIN M5	DIN M5	DIN M5	DIN M5
Advance	-	-	pneumatic	pneumatic
Lift off	no	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ±15 % (at zero position), others as option (see page 73)	1 N ±15 % (at zero position), others as option (see page 73)	approx. 1.5 N at 0.9 bar approx. 2.0 N at 1.2 bar (at zero position)	approx. 1.0 N at 1.3 bar approx. 1.6 N at 1.7 bar (at zero position)
Measuring system	inductive halfbridge	inductive halfbridge	inductive halfbridge	inductive halfbridge
Repeatability	0.05 µm	0.05 µm	0.05 µm	0.05 µm
Error limit	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 20 °C ±1 °C)
Interface	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers
Transfer rate	4000 measurings / sec	4000 measurings / sec	4000 measurings / sec	4000 measurings / sec
Supply / Power consumption	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)
Repair	partially possible	partially possible	partially possible	partially possible

Digital Transducer T500

Drawing (Scale 1:2)

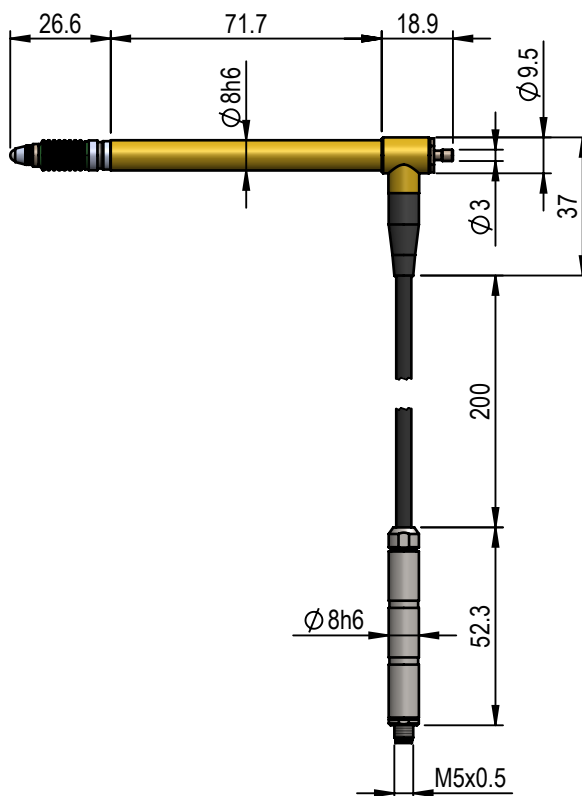
1004862

T502FDG



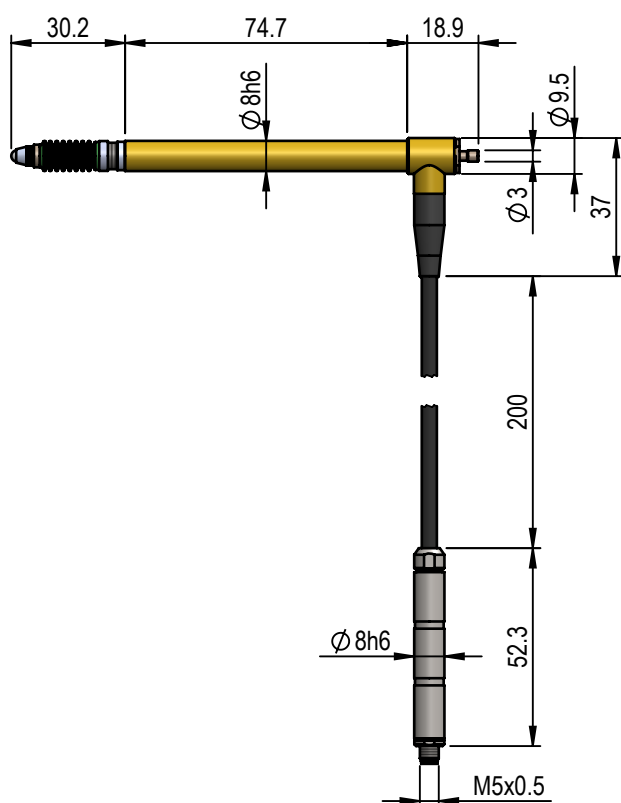
1004864

T502VDG



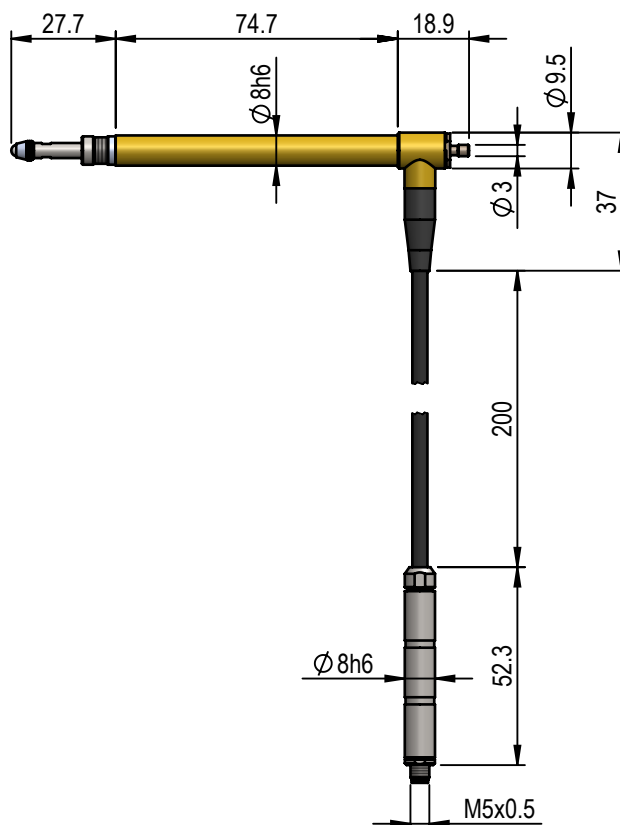
1004866

T502PDG



1004868

T502LDG



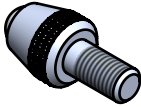
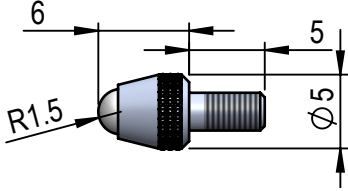

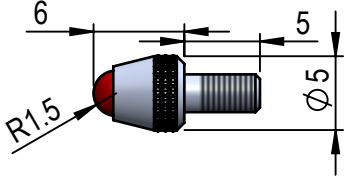

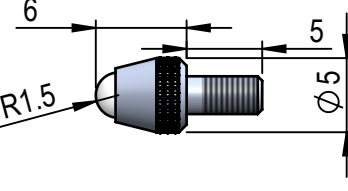
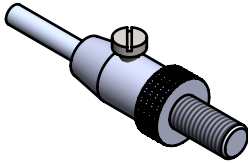
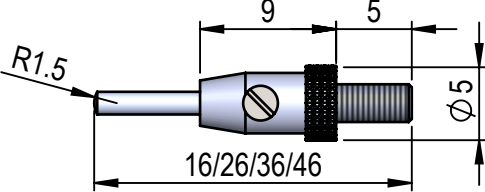

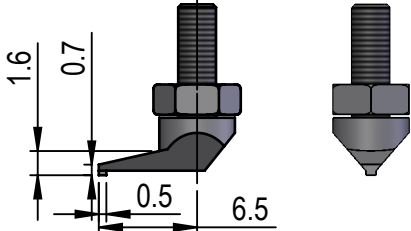

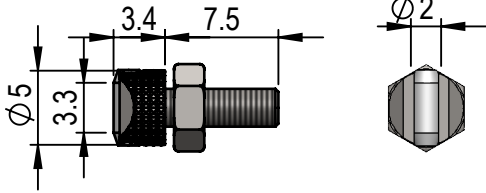

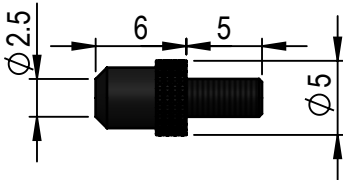
±5 mm Measuring Stroke

Technical Data

	T502FDG	T502VDG	T502PDG	T502LDG
Maximum stroke	10.6 mm	10.6 mm	10.6 mm	10.6 mm
Measuring stroke	±5 mm	±5 mm	±5 mm	±5 mm
Pretravel	-5.5 mm	-5.5 mm	+5.5 mm	+5.5 mm
Bearing	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped	ball bearing, no side-play, lapped
Life	>10 Mio. cycles	>10 Mio. cycles	-	>10 Mio. cycles
Tip rotation	1° over full stroke	1° over full stroke	1° over full stroke	1° over full stroke
Temperature range	-10 to+65 °C, storage and operation	-10 to+65 °C, storage and operation	-10 to+65 °C, storage and operation	-10 to+65 °C, storage and operation
Mounting position	any	any	any	any
Tip	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable	3 mm tungsten carbide ball, M2.5 fixing thread, exchangeable
Gaitor	FPM / FKM	FPM / FKM	FPM / FKM	-
Body diameter	8h6	8h6	8h6	8h6
Plug	DIN M5	DIN M5	DIN M5	DIN M5
Advance	-	-	pneumatic	pneumatic
Lift off	no	vacuum	-	-
Maximum pressure	-	-	1.5 bar	4.5 bar
Spring rate	1 N ±15 % (at zero position), others as option (see page 73)	1 N ±15 % (at zero position), others as option (see page 73)	approx. 1.5 N at 0.9 bar approx. 2.0 N at 1.2 bar (at zero position)	approx. 1.0 N at 1.3 bar approx. 1.6 N at 1.7 bar (at zero position)
Measuring system	inductive halfbridge	inductive halfbridge	inductive halfbridge	inductive halfbridge
Repeatability	0.05 µm	0.05 µm	0.05 µm	0.05 µm
Error limit	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 20 °C ±1 °C)	±2.0 µm (at 21 °C ±1 °C)
Interface	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers	Communication protocol for digital HIRT transducers
Transfer rate	4000 measurings / sec	4000 measurings / sec	4000 measurings / sec	4000 measurings / sec
Supply / Power consumption	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)	5V 120 mW (Run) 15 mW (Idle)
Repair	partially possible	partially possible	partially possible	partially possible

Measuring Inserts M2.5

Measuring inserts with thread M2.5 (Drawings scale 2:1)

1002449 TN10W		
1003315 Tip with ruby ball		
1003313 Tip with PEEK ball		
1002450 TN12		
1002452 TN20		
1002454 TN30W		
1002456 TN70		

Accessories

Measuring inserts with thread M2.5 (Drawings scale 2:1)

1002458 TN91	
1002460 TN93	

Fixing and Connection elements (Drawings scale 1:1)

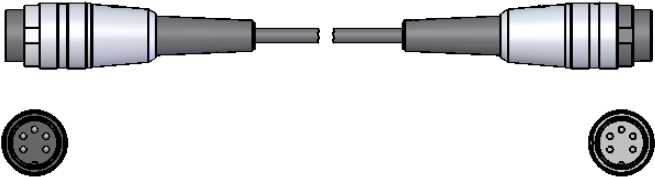
1000890 Clamp bush T100/63000		
1003782 Clamp screw T100/63100		
1000841 Nipple, rotating T100/48100		
1002224 Grove stone T800		

Cables / Connection cables

Extension cables for halfbridge transducers (Drawing scale 1:2)

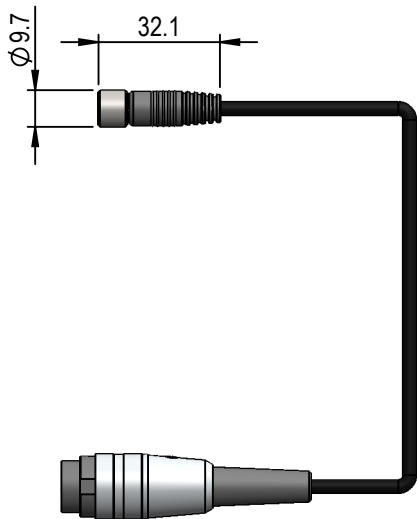
Compatible with TESA(R) halfbridge transducers

Order number	Length
1000916	1.0 m
1000917	2.5 m
1000918	5.0 m
1000919	7.5 m
1000920	10.0 m

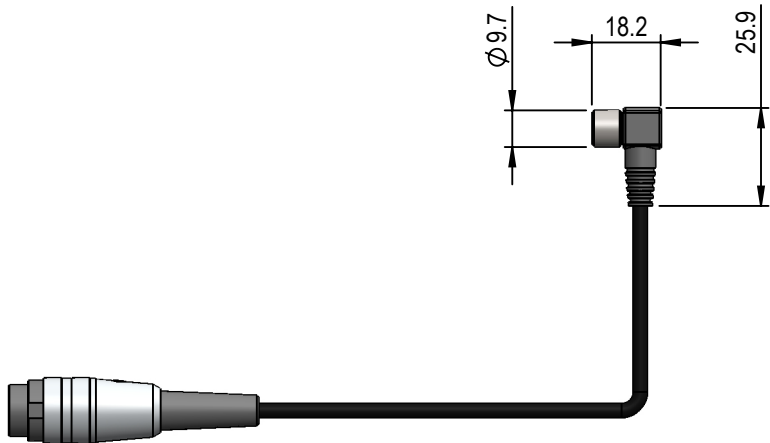


Connection cable for pluggable transducers (Drawings scale 1:2)

Axial cable exit



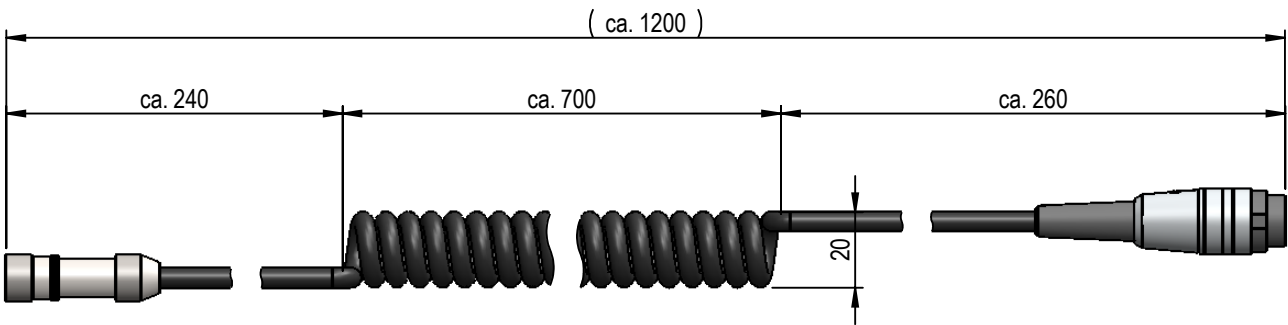
Radial cable exit



Order number	Cable exit	Length
1000895	axial	2.0 m
1000896	radial	2.0 m

Spiral cable for pluggable transducers T070, T100, T200, T300 and T500

1000899



Accessories

Other spring forces for T100-Serie

Order number	Spring force [N]	applicable for
1000921	0.25	T101F, T102F, T101V, T102V, T151F, T152F, T151V, T152V, T161F, T162F, T161V, T162V T100FS, T100VS
1000924	1.00	T101F, T102F, T151F, T152F, T161F, T162F T100FS
1000925	1.60	T101F, T102F, T151F, T152F, T161F, T162F T100FS
1000922	2.50	T101F, T102F, T151F, T152F, T161F, T162F T100FS
1000926	4.00	T101F, T102F, T151F, T152F, T161F, T162F T100FS

Other spring forces for T500-Serie

Order number	Spring force [N]	applicable for
1001727	1.60	T501F, T502F, T521F, T522F, T523F, T524F T500FS, T521FS, T523FS T501FDG, T502FDG (only ex works)

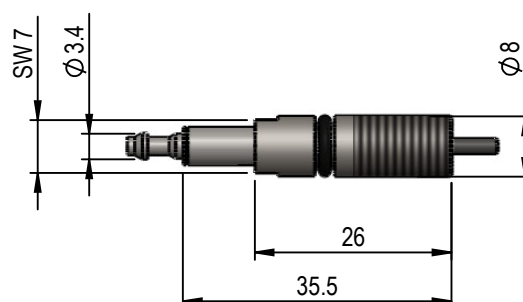
Other spring forces for T800-Serie

Order number	Spring force [N]	applicable for
1004467	0.40	T801, T802, T851, T852
1004468	0.63	T801, T802, T851, T852
1004469	1.60	T801, T802, T851, T852
1004470	2.00	T801, T802, T851, T852
1004471	2.50	T801, T802, T851, T852
1004472	4.00	T801, T802, T851, T852

Pneumatic cylinder T800

1002214

Pneumatic cylinder for T800 - series. Can be used for either pneumatic retraction or advance. Operating pressure max 4.5 bar.

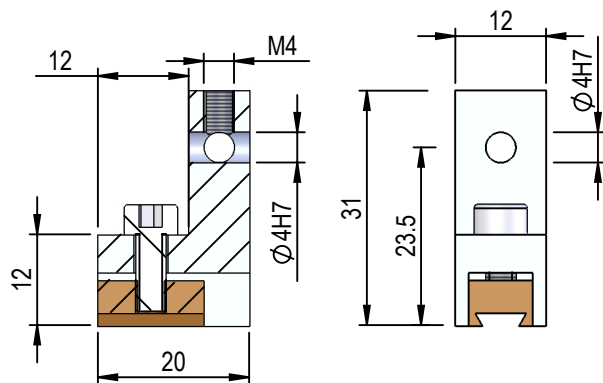


Transducer Accessories

T800 Series tip holder (Drawings scale 1:1)

1003422

Tip holder T800 horizontal 4 mm

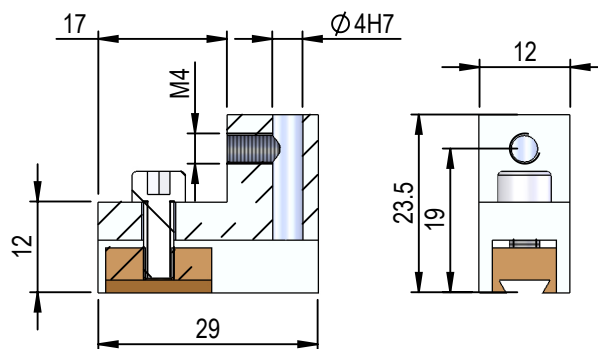


composed of

Order number	Description
1002218	Holder horizontal 4 mm
1002224	Grove stone
1003426	Screw Inbus M4x10

1003423

Tip holder T800 vertical 4 mm

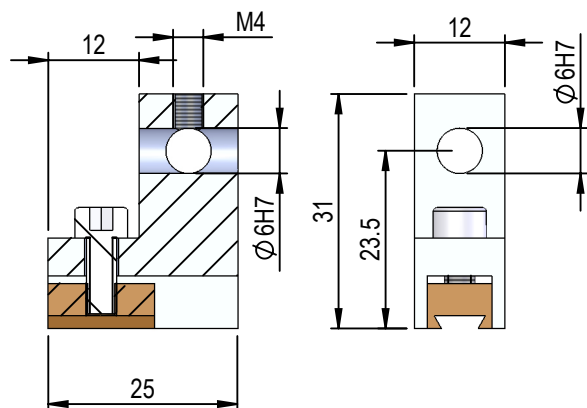


composed of

Order number	Description
1002219	Holder vertical 4 mm
1002224	Grove stone
1003426	Screw Inbus M4x10

1003424

Tip holder T800 horizontal 6 mm

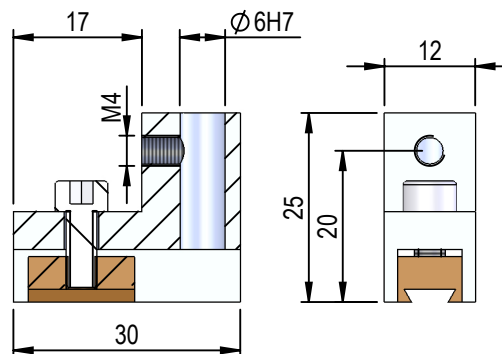


composed of

Order number	Description
1002220	Holder horizontal 6 mm
1002224	Grove stone
1003426	Screw Inbus M4x10

1003425

Tip holder T800 vertical 6 mm



composed of

Order number	Description
1002221	Holder vertical 6 mm
1002224	Grove stone
1003426	Screw Inbus M4x10

