MICRO-EPSILON

More Precision

induSENSOR // Linear inductive displacement sensors

Displacement sensors with external controller
induSENSOR DTA (LVDT)

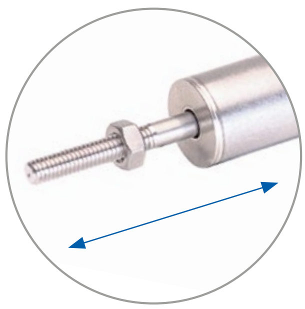
- Proven LVDT technology
- Measuring ranges ±1 … ±25 mm
- Extremely accurate also under difficult ambient conditions
- Long-term stability
- IP67 Robust design IP67

LVDT displacement sensors have a plunger which moves freely in the sensor housing. The plunger is joined to the object by a thread to transfer the movement of the measuring object. The measurement process in the sensor takes place without contact and is therefore wear-free.

The displacement sensors are primarily used to measure and monitor movements, displacements, positions, strokes, deflections, dislocations, etc. in vehicles, machines and systems.

The high sensor resolution is only limited by the noise of the sensor controller. Another advantage of the symmetric LVDT sensors is their zero point stability.

With appropriate setting possibilities for the excitation frequency and excitation voltage, the sensors can also be operated with alternative controllers.



Freely moving plunger

Article designation

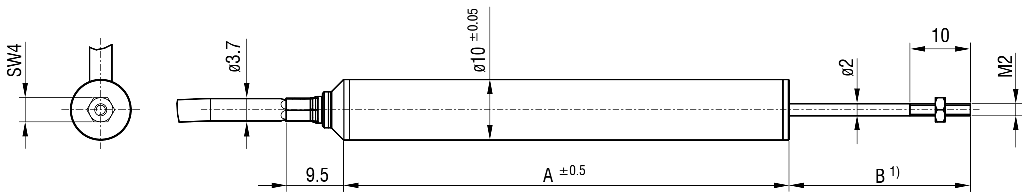
DT	A	-10	-DX	-3	-CA3

- -CA3: Connection (axial): CA Integrated cable (3 m)
- -3: Linearity: 4 (±0.4%) 3 (±0.3 %) 2 (±0.2 %) 1.5 (±0.15 %)
- -DX: Function: displacement sensor
- -10: Measuring range in mm
- A: Excitation AC
- DT: Principle: Differential Transformer (LVDT)

Model		DTA-1DX	DTA-3DX	DTA-5DX	DTA-10DX	DTA-15DX	DTA-25DX
Measuring range		±1 mm	±3 mm	±5 mm	±10 mm	±15 mm	±25 mm
Linearity [1]	≤ ±0.4 % FSO	-	-	-	≤ ±80 µm	≤ ±120 µm	≤ ±200 µm
	≤ ±0.3 % FSO	≤ ±6 µm	≤ ±18 µm	≤ ±30 µm	-	-	-
	≤ ±0.2 % FSO	-	-	-	≤ ±40 µm	≤ ±60 µm	≤ ±100 µm
	≤ ±0.15 % FSO	≤ ±3 µm	≤ ±9 µm	≤ ±15 µm	-	-	-
	≤ ±0.05 % FSO [2]	≤ ±1 µm	≤ ±3 µm	≤ ±5 µm	≤ ±10 µm	≤ ±15 µm	≤ ±25 µm
Temperature stability [3]	Zero	≤ 70 ppm FSO/K					
	Max. temp. error	≤ 150 ppm FSO/K					
Sensitivity		127 mV / mm/V	81 mV / mm/V	55 mV / mm/V	45 mV / mm/V	45 mV / mm/V	29 mV / mm/V
Excitation frequency		5 kHz	5 kHz	5 kHz	2 kHz	1 kHz	1 kHz
Excitation voltage		550 mV					
	Connection	integrated cable 3 m with open ends; axial cable outlet; drag chain suitable; cable diameter 3.1 mm; min. bending radii: fixed installation 25 mm, moved 38 mm, drag chain 47 mm					
Temperature range	Storage	-20 … +90 °C					
	Operation [4] [5]	(-40)...-20 … +90 … (105) °C					
Pressure resistance		5 bar (front)					
Shock (DIN EN 60068-2-27)		40 g / 6 ms in 3 axes, 1000 shocks each 100 g / 6 ms in 3 axes, 3 shocks each					
Vibration (DIN EN 60068-2-6)		±1.5 mm / 10 … 58 Hz in 2 axes, 10 cycles each ± 20 g / 58 … 500 Hz in 2 axes, 10 cycles each					
Protection class (DIN EN 60529)		IP67					
Material		Stainless steel (housing), PVC-P/TPE-E (cable)					
Weight	Sensor CA	approx. 80 g	approx. 85 g	approx. 90 g	approx. 95 g	approx. 135 g	approx. 145 g
	Plunger	approx. 1 g	approx. 2 g	approx. 2 g	approx. 3 g	approx. 12 g	approx. 16 g
Compatibility		MSC7401, MSC7802, MSC7602					

[1] Independent linearity
[2] Only valid with linearized controller (factory service can be added to the overall system), observe installation environment
[3] Determined using the box method (-20 ... +90 °C)
[4] -40 °C with cable at rest
[5] up to 105 °C over max. 500h

Measuring ranges from ±1 to ±10 mm

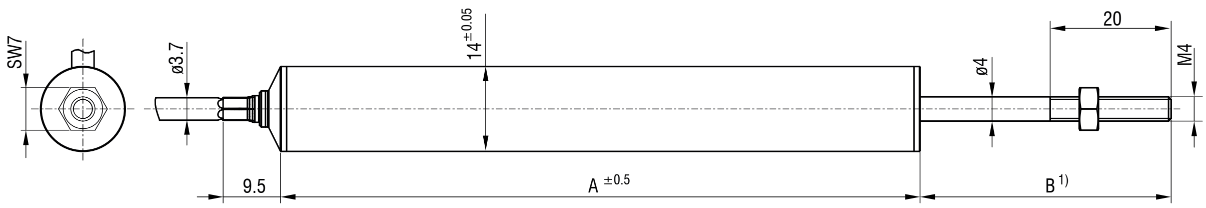


Inner diameter: 2.7 mm

Model	A	B 1)
DTA-1DX	41.6 mm	17.3 mm
DTA-3DX	58.2 mm	27.2 mm
DTA-5DX	73.7 mm	30.0 mm
DTA-10DX	87.7 mm	35.1 mm

1) Plunger in zero position (±1mm ±10 % FSO)

Measuring ranges from ±15 to ±25 mm



Inner diameter: 4.6 mm

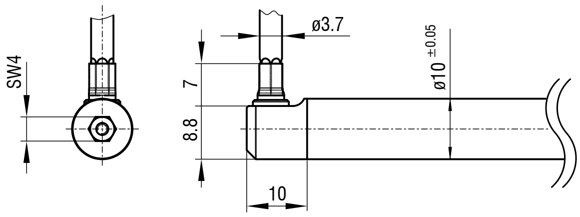
Model	A	B 1)
DTA-15DX	105.7 mm	46.5 mm
DTA-25DX	140.7 mm	61.5 mm

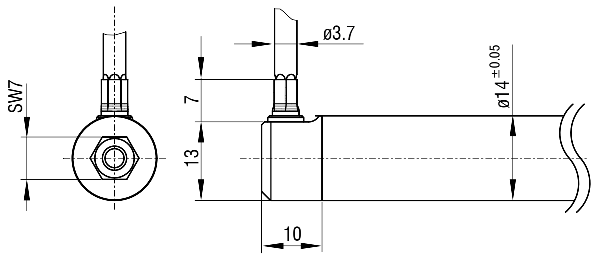
1) Plunger in zero position (±1mm ±10 % FSO)

Dimensions in mm, not to scale

Sensors with radial cable outlet (on request)

DTA-xDX-CR



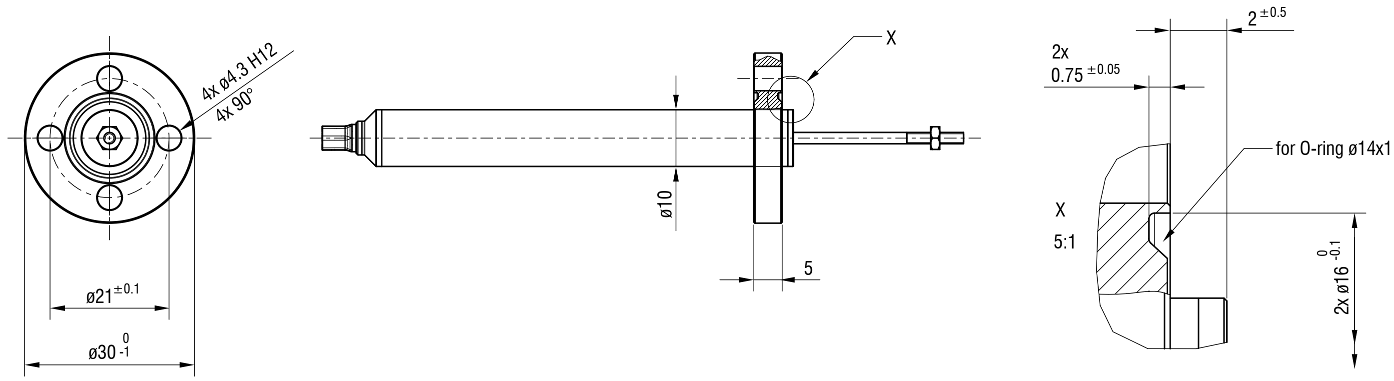


Service: Assembly of mounting and pressure flange

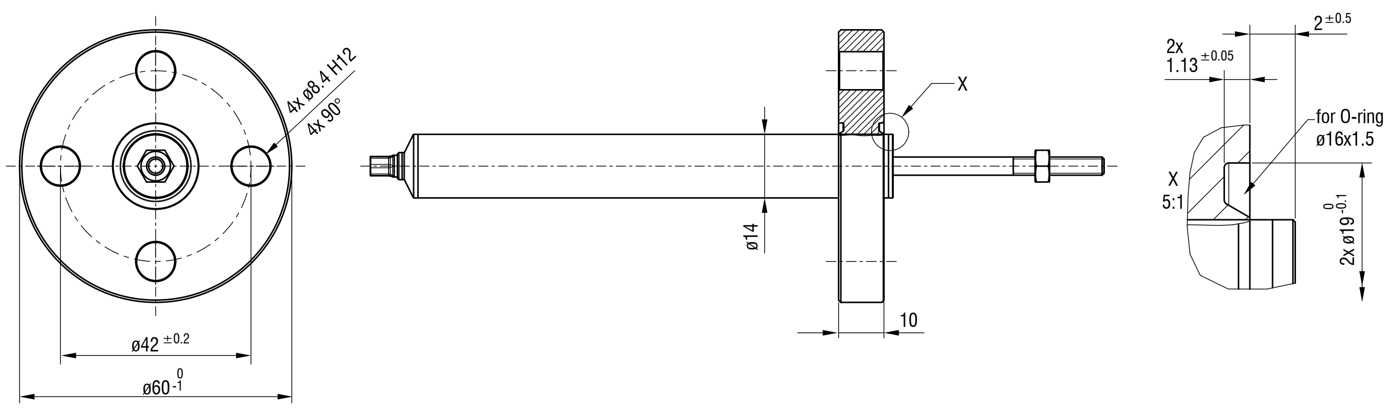
2981031 Mounting pressure flange DTA-1DX, 3DX, 5DX, 10DX

2981032 Mounting pressure flange DTA-15DX, 25DX

Mounting pressure flange DTA-1DX, 3DX, 5DX, 10DX



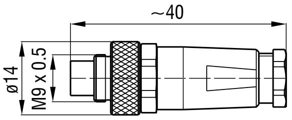
Mounting pressure flange DTA-15DX, 25DX



Service (see page 34/35)

Connector assembly M9 and cable reduction XXXX mm - DTA-x

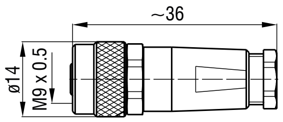
Connector assembly M9 - DTA-x



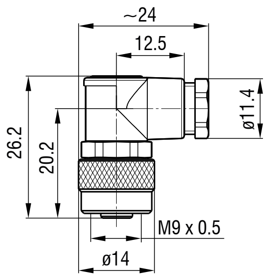
Sensor Cable

C701-3	Sensor cable, 3 m, with cable connector and tin-plated free ends
C701-6	Sensor cable, 6 m, with cable connector and tin-plated free ends
C701/90-3	Sensor cable, 3 m, with 90° cable connector and tin-plated free ends

Cable socket C701



Angle socket C701/90



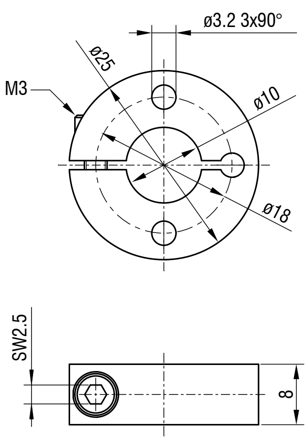
Spare plungers

Plunger for DTA-1DX	Spare plunger	Plunger for DTA-10DX	Spare plunger
Plunger for DTA-3DX	Spare plunger	Plunger for DTA-15DX	Spare plunger
Plunger for DTA-5DX	Spare plunger	Plunger for DTA-25DX	Spare plunger

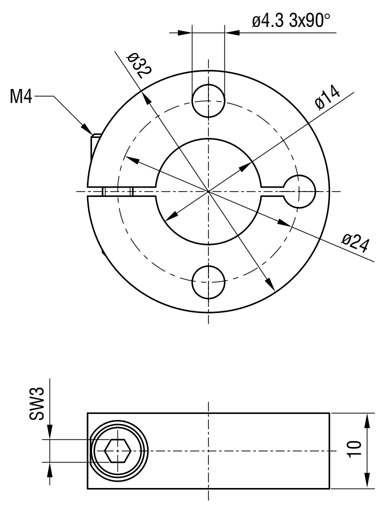
Sensor Mounting

0483090.01	DTA-F10 Mounting flange, slotted for DTA-1DX, DTA-3DX, DTA-5DX, DTA-10DX
04833082	DTA-F14 Mounting flange, slotted for DTA-15DX, DTA-25DX

Flange DTA-F10



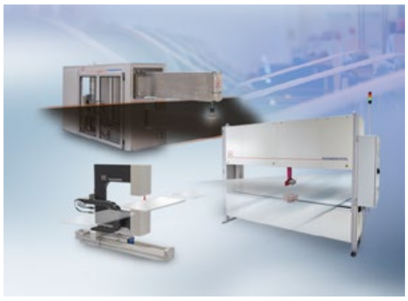
Flange DTA-F14



Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

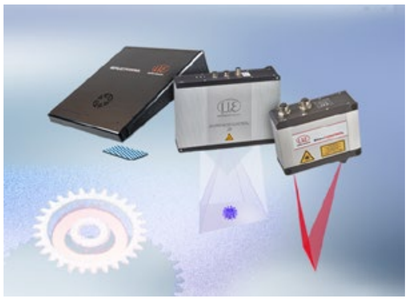
Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for quality assurance

Optical micrometers, fiber optics, measuring and test amplifiers

Color recognition sensors,LED Analyzers and inline color spectrometers



3D measurement technology for dimensional testing and surface inspection

Modifications reserved / Y9761177-F022115GKE

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