

## Force Sensor KD12a 20N

Item number: 14514



### Highlights

- Ultraminiature force sensor
- Robust deformation body made of titanium Ti6Al-4V
- Potting and connecting cable made of PUR
- Protection class IP65, resistant to oils and fats
- Autoclavable version with Teflon cable and silicone casting available

The KD12s force sensor is currently the smallest S-shaped force sensor.

The end faces of the force sensor each contain an M2.5 internal thread for attaching the sensor or for attaching a tool. The assembly of the sensor or a tool or a tool holder can be easily achieved thanks to the shoulders, a positive connection with an anti-twist device.

The sensor is available in two versions:

Standard version with a PUR cable and a potting with PUR plastic for use in temperature ranges up to 80°C

Autoclavable version KD12S 20N/AC with a Teflon cable and a silicone seal for use up to 150°C

The KD12s force sensor is made of titanium 3.7165 (Ti6Al-4V).

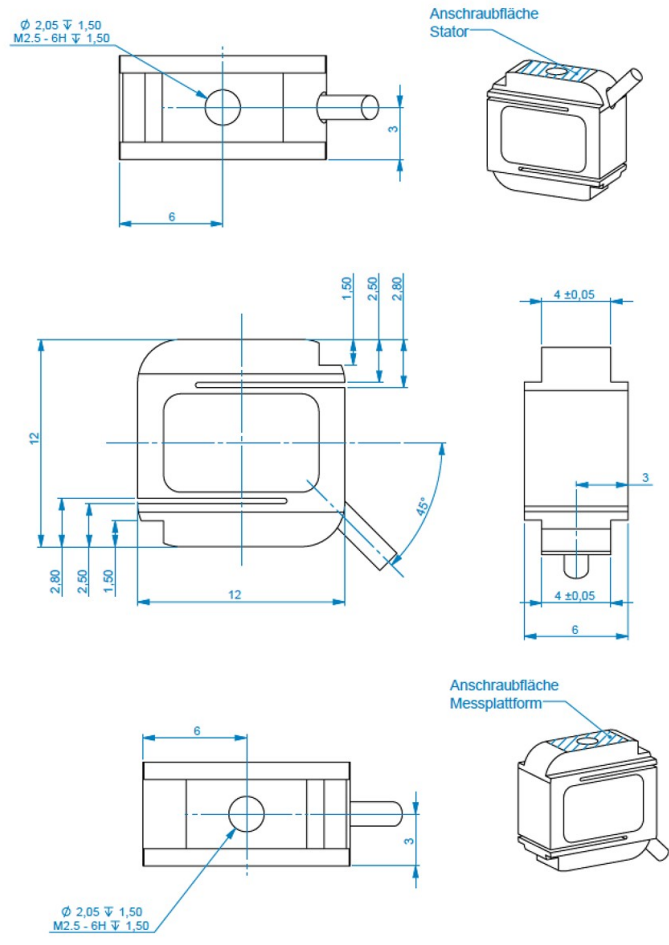
The KD12s force sensor is dimensioned for a nominal force of 20 N and can be used without defects up to a limit force of 60 N.

Areas of application for the sensor include tactile processes in microelectronics or optics and in minimally invasive surgery.

A version with semiconductor strain gauges for a nominal force of 1 N is also available as an option.

It is recommended to mount the sensor so that the connection cable is assigned to the immovable, permanently mounted side of the sensor.

# Technical Drawing



## Technical Data

Basic Data		Unit
Type	Kraftsensor	
Force direction	Tension/Compression	
Rated force F <sub>x</sub>	20	N
Force introduction	Internal thread	
Dimension 1	M2,5	
Sensor Fastening	Internal thread	
Dimension 2	M2,5	
Operating force	80	N
Rated displacement	0.05	mm
Lateral force limit	100	%FS
Material	titanium	
Natural frequency f <sub>x</sub>	5	kHz
Dimensions	12mm x 12mm x 6mm	
Variants	20N	

Electrical Data		Unit
Input resistance	1000	Ohm
Tolerance input resistance	20	Ohm
Output resistance	1000	Ohm
Tolerance output resistance	20	Ohm
Insulation resistance	2	GOhm
Rated range of excitation voltage from	2.5	V
Rated range of excitation voltage to	5	V
Operating range of excitation voltage from	1	V
Operating range of excitation voltage to	10	V
Zero signal tolerance	0.05	mV/V
Characteristic value range from	0.5	mV/V
Characteristic value range to	1	mV/V

Accuracy Data		Unit
Accuracy class	0,1	
Relative linearity error	0.02	%FS
Relative zero signal hysteresis	0.02	%FS
Temperature effect on zero signal	0.02	%FS/K
Temperature effect on characteristic value	0.01	%RD/K
Relative creep	0.05	%FS
Environmental Data		Unit
Rated temperature range from	-10	°C
Rated temperature range to	70	°C
Operating temperature range from	-20	°C
Operating temperature range to	85	°C
Storage temperature range from	-10	°C
Storage temperature range to	85	°C
Environmental protection	IP65	

Abbreviation: RD: „Reading“; FS: „Full Scale“;  
The exact characteristic value is indicated in the test report;

## Pin Assignment

Channel	Symbol	Description	Wire color	PIN
	+Us	positive bridge supply	brown	
	-Us	negative bridge supply	white	
	+Ud	positive bridge output	green	
	-Ud	negative bridge output	yellow	

Screen - transparent. Pressure load : positive output signal