

Dual shear force transducer

DK



For tension and compression loads
Measurement ranges from 4 kN to 200 kN
Symmetrical application of force
Design pursuant to customer requirements

Container scales
Floor scales
Metering scales
Vehicle and railway scales

Designed,
developed and
made in Germany

The dual shear force transducers measure tensile and compressive forces. They operate on the same principles as single shear force transducers, but are easier to mount and more stable. In particular, dual shear force transducers are especially suitable for use in weighbridges.

The advantages of this design lie in the parallel load paths and insensitivity to transverse forces.

Dual shear force transducers are robust solutions designed for a variety of applications in rough weighing and industrial environments. We dimension and manufacture dual shear force transducers to meet your requirements. The transducers are usually mounted using the four screw connections. On request, we will be pleased to quote for alternative designs adapted to special force

transmission requirements.

Where the measurement signal must be transmitted over a long distance, we can, optionally, equip these transducers with an integral measuring amplifier.

Technical data

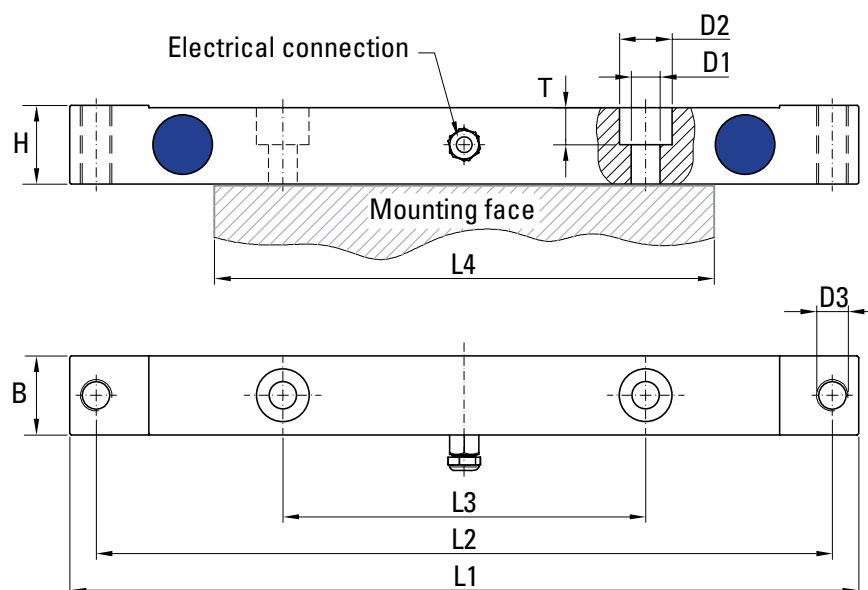
- » Nominal load 4 kN to 200 kN
- » Material Aluminium or Steel
- » Maximum working load*, limit load*, breaking load* following consultation
- » Accuracy $\pm 0.25\%$ f.s.** (under tension or compression)
- » Reference temperature 20°C
- » Nominal temperature range -10°C to +50°C
- » Working temperature range -30°C to +80°C
- » Temperature coefficient of gain $< 0.1\%$ f.s.**/10 K
- » Temperature coefficient of zero $< 0.2\%$ f.s.**/10 K
- » Nominal deflection < 0.1 mm
- » Degree of protection IP 67

* * The sum of the dynamic and static load is decisive

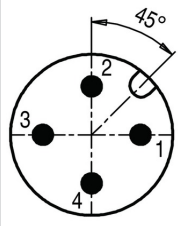
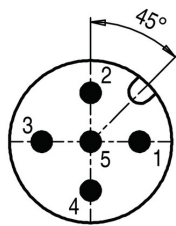
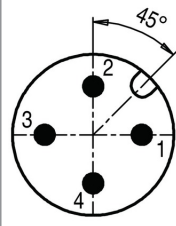
** f.s. = full scale value

Dimensions

The following dimensions are defined pursuant to customer requirements



Output variants without measuring amplifiers / with integrated measuring amplifiers

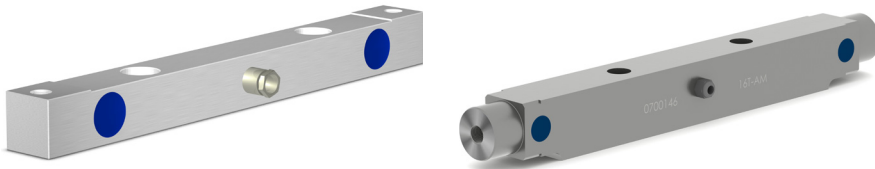
Version	Without measuring amplifier*		Measuring amplifier with current output		Measuring amplifier with voltage output			Measuring amplifier with RS 485 interface		
			3-conductor	2-conductor						
Output signal Sig	≈ 2 mV/V		1...9 mA 4...20 mA 12 ± 8 mA	4...20 mA 12 ± 8 mA	0...5 V 2.5 ± 2.5 V	0...10 V 5 ± 5 V	±10 V	0...32767 digits		
Supply U _b [V]	< 10		10...30	10...30	6...30	11...30	12...30	6...30		
Resolution [bit]	–		11		11			14		
Measuring rate	–		1000 (optional 30...2000) Hz							
Insulation resistance	> 1 GΩ		> 1 GΩ							
Load	–		< (U _b – 6V) / Sig _{max}	< (U _b – 8V) / Sig _{max}	> 10000 Ω			–		
Max. power consumption	40 mA		40 mA							
Electrical protection	Reverse voltage, overvoltage and short circuit protection					Reverse voltage and overvoltage protection		Reverse voltage, overvoltage and short circuit protection		
Cable type (if provided)	FDCCP plus, 4 x 0.25 mm ² , length 5 m									
Connection variants	Cable	M 12 x 1 4-pole	Cable	M 12 x 1 5-pole	Cable	M 12 x 1 5-pole	Cable	M 12 x 1 5-pole	Cable	M 12 x 1 4-pole
	U _b	BN	1	BN	1	BN	1	BN	1	BN
Sig(+)	GN	4	GN	4	BN	1	GN	4		
GND	WH	3	WH	3	WH	3	WH	3	WH	3
Sig-	YE	2								
A									YE	4
B									GN	2
Shield	BK	Housing	BK	Housing	BK	Housing	BK	Housing	BK	Housing
not connected				2; 5		2; 4; 5		2; 5		
Pole assignment										

* Input bridge resistor ≈ 400 Ω | Output bridge resistor ≈ 350 Ω

Options

- » Accuracy ±0.1% f.s.
- » Output available with test signal on request

Design examples



Installation example

