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Piezoresistive OEM Measuring Cell

Piezoresistive Transducer

CUSTOMER BENEFITS

- High accuracy and excellent long-term stability
- Reliable and highly resistant to corrosion
- Effective media isolation without degrading performance

Release: 10.80.0550.A - 2019.06

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5), (± % FS)	≤ 0.5	≤ 0.5 / ≤ 0.25	≤ 0.5 / ≤ 0.25
Thermal shift, (6) (± % FS/°C)			
Zero point 0 ... 70°C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point -25 ... 85°C	≤ 0.08	≤ 0.04	≤ 0.02
Span 0 ... 70°C	≤ 0.015	≤ 0.015	≤ 0.015
Span -25 ... 85°C	≤ 0.02	≤ 0.02	≤ 0.02
Long term stability, (7)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (2), (3)	> 600 ... 1000
Overpressure	3 x FS (≤ 850 / ≤ 1500 bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5), (± % FS)	≤ 0.5 / ≤ 0.25	≤ 1.0 / ≤ 0.5
Thermal shift, (6) (± % FS/°C)		
Zero point 0 ... 70°C	≤ 0.015	≤ 0.015
Zero point -25 ... 85°C	≤ 0.02	≤ 0.02
Span 0 ... 70°C	≤ 0.015	≤ 0.015
Span -25 ... 85°C	≤ 0.02	≤ 0.02
Long term stability, (7)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) 50 mbar on request
(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)
(3) Overpressure and burst pressure 1500 bar (stainless steel) optional
(4) Transducer
(5) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature
(6) With compensation
(7) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

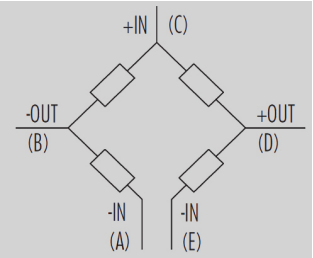
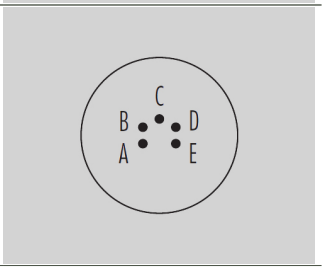
TYPICAL OUTPUT SIGNAL (BAR)

	0.1	0.25	0.6
Output signal, (1), (mV)	25	50	60

	1	2.5	≥ 6
Output signal, (1), (mV)	65	75	100

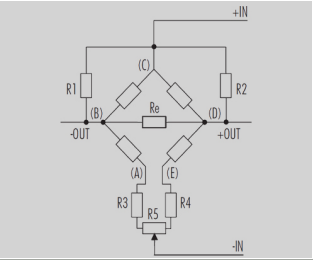
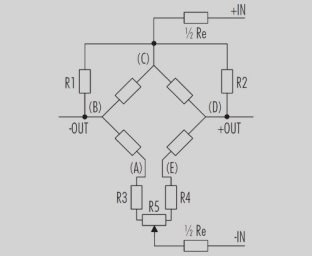
(1) At nominal pressure, 1 mA current excitation, uncompensated

ELECTRICAL SPECIFICATIONS

Voltage excitation, (typ. / max.)(1)	10 V DC / 15 V DC
Current excitation, (typ. / max.) (1)	1 mA / 2 mA
Bridge resistance (typ.)	3 kΩ
Frequency range	≥ 10 kHz
Natural frequency (typ.)	≥ 10 kHz
Circuit	
Electrical connections	

(1) With compensation

KOMPENSATION

R1, R2	Resistors for compensation of the zero temperature coefficient. Only the resistor indicated on the supplied measuring protocol (R1 or R2) has to be inserted into the circuit.
R3, R4	Zero-compensation resistors. Only the resistor indicated on the supplied measuring protocol (R3 or R4) has to be inserted into the circuit; the other resistor has to be inserted as a jumper (0 Ω resistor).
RE	Resistor for compensation of the temperature coefficient of the sensitivity. This resistor has a standard value of 9.4 kΩ.
R5	Potentiometer for the zero-adjustment (recommended value: 100 Ω).
Current excitation	
Voltage excitation	

QUALIFICATIONS

Vibration	> 30 G

PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), Titanium (Gr. 2), (1)
Seals	Viton (standard), EPDM, Kalrez

(1) Hastelloy (C-276) on request

Ordering information

			X.	XXXX.	XXXX.	XX.	XXX
Type							
	TD	10					
Pressure type							
	Gauge		1				
	Absolute (vacuum)		2				
	Sealed gauge		3				
Pressure measuring range							
	50 mbar ... < 100 mbar			XX			
	100 mbar ... 600 bar			XX			
	> 600 bar			XX			
	Negative ranges, offset, special adjustment			99			
Model							
	Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1)			60			
	Ø 19 mm with welding ring, (Fig. 2)			63			
	Ø 19 mm with flush diaphragm, (Fig. 3)			64			
	Ø 18.4 mm with welding ring, (Fig. 4)			67			
	Ø 18.4 mm with flush diaphragm, (Fig. 5)			68			
	Customized			99			
Electrical connection							
	5 gold plated pins, (Fig. 6)				30		
	Silicone wires 50 mm				33		
	Silicone wires 100 mm				98		
	Customized				99		
Output signal							
	0 to ... mV (according to specifications)				98		
Accuracy							
	≤ ± 0.5 % FS (> 600 bar ≤ ± 1% FS)					0	
	≤ ± 0.25 % FS					1	
	≤ ± 0.1 % FS (on request)					2	
Temperature range							
	0 ... 70°C compensated (allowed process temperature: -40 ... 150°C)					0	
	25 ... 100°C compensated (allowed process temperature: -40 ... 150°C)					7	
	-25 ... 85°C compensated (allowed process temperature: -40 ... 150°C)					5	
	Customized					9	
Option 1							
	Special oil filling: Anderol Food (for food applications)						G
	Special oil filling: AS 100 (suitable for media temp. -55 ... 150°C)						J
	Special oil filling: PAO4 (Silicone free)						Q
Option 2							
	Vent tube, (Fig. 7)						P
Option 3							
	Seals: Viton (Standard)						U
	Seals: EPDM						S

	Seals: Kalrez				T
	Titanium Construction style Ø 19 mm, Ø 18.4 mm				K
	Titanium Construction style Ø 15 mm				K

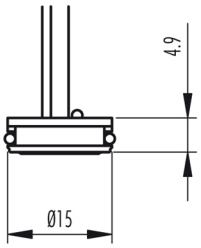


Fig. 1
TD15 with flush diaphragm

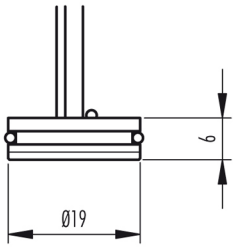


Fig. 2
TD19 with welding ring (frontal)

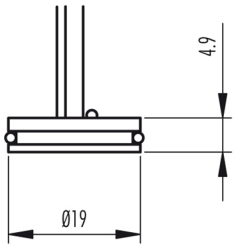


Fig. 3
TD19 with flush diaphragm

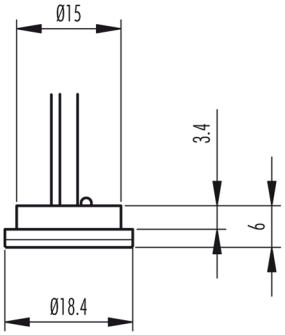


Fig. 4
TD18 with welding ring (frontal)

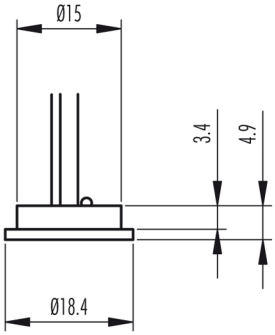


Fig. 5
TD18 with flush diaphragm

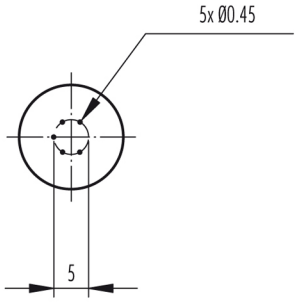


Fig. 6
Pin dimensions

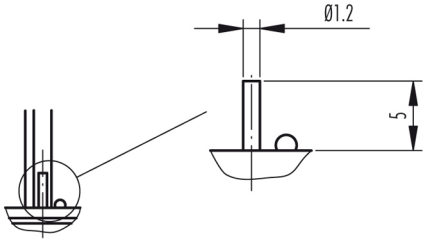


Fig. 7
Vent tube dimensions (optional)