

## 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



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# Technical Specifications

## PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS ( $\geq 3$ bar)	3 x FS
Burst pressure, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5), ( $\pm$ % FS)	$\leq 0.5$	$\leq 0.5 / \leq 0.25$	$\leq 0.5 / \leq 0.25$
Thermal shift, (6) ( $\pm$ % FS/ $^{\circ}$ C)			
Zero point 0 ... 70 $^{\circ}$ C	$\leq 0.06$	$\leq 0.03$	$\leq 0.015$
Zero point -25 ... 85 $^{\circ}$ C	$\leq 0.08$	$\leq 0.04$	$\leq 0.02$
Span 0 ... 70 $^{\circ}$ C	$\leq 0.015$	$\leq 0.015$	$\leq 0.015$
Span -25 ... 85 $^{\circ}$ C	$\leq 0.02$	$\leq 0.02$	$\leq 0.02$
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 ( $\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (4)	> 850 / $\leq 1500$ bar	> 1500 bar
Accuracy, (5), ( $\pm$ % FS)	$\leq 0.5 / \leq 0.25$	$\leq 1.0 / \leq 0.5$
Thermal shift, (6) ( $\pm$ % FS/ $^{\circ}$ C)		
Zero point 0 ... 70 $^{\circ}$ C	$\leq 0.015$	$\leq 0.015$
Zero point -25 ... 85 $^{\circ}$ C	$\leq 0.02$	$\leq 0.02$
Span 0 ... 70 $^{\circ}$ C	$\leq 0.015$	$\leq 0.015$
Span -25 ... 85 $^{\circ}$ C	$\leq 0.02$	$\leq 0.02$
Long term stability, (7)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) 50 mbar on request

(2) Titanium available  $\leq 400$  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

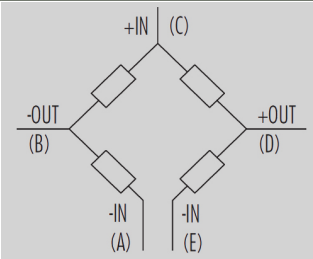
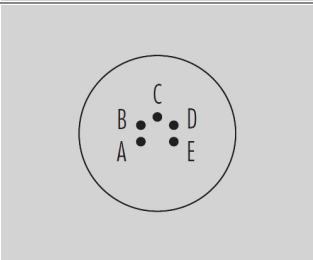
## TYPICAL OUTPUT SIGNAL (BAR)

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

	1	2.5	$\geq 6$
Output signal, (1), (mV)	65	75	100

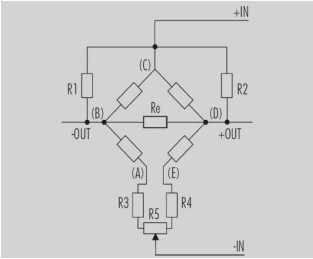
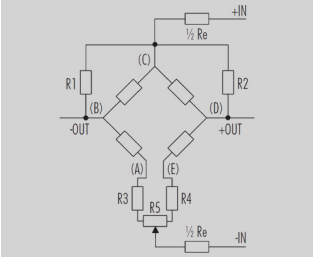
(1) At nominal pressure, 1 mA current excitation, uncompensated

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
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## 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
<b>Type</b>						
	TD	10				
<b>Pressure type</b>						
	Gauge	1				
	Absolute (vacuum)	2				
	Sealed gauge	3				
<b>Pressure measuring range</b>						
	50 mbar ... < 100 mbar	XX				
	100 mbar ... 600 bar	XX				
	> 600 bar	XX				
	Negative ranges, offset, special adjustment	99				
<b>Model</b>						
	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				
<b>Electrical connection</b>						
	5 gold plated pins, (Fig. 6)		30			
	Silicone wires 50 mm		33			
	Silicone wires 100 mm		98			
	Customized		99			
<b>Output signal</b>						
	0 to ... mV (according to specifications)		98			
<b>Accuracy</b>						
	$\leq \pm 0.5 \% \text{ FS}$ (> 600 bar $\leq \pm 1\% \text{ FS}$ )			0		
	$\leq \pm 0.25 \% \text{ FS}$			1		
	$\leq \pm 0.1 \% \text{ FS}$ (on request)			2		
<b>Temperature range</b>						
	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		
<b>Option 1</b>						
	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	
<b>Option 2</b>						
	Vent tube, (Fig. 7)				P	
<b>Option 3</b>						
	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

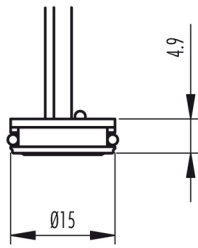


Fig. 1  
TD15 with flush diaphragm

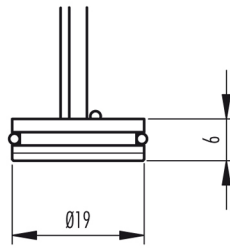


Fig. 2  
TD19 with welding ring (frontal)

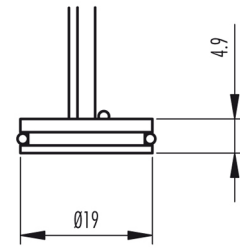


Fig. 3  
TD19 with flush diaphragm

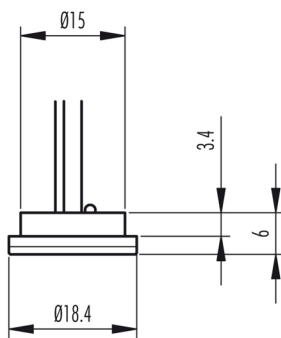


Fig. 4  
TD18 with welding ring (frontal)

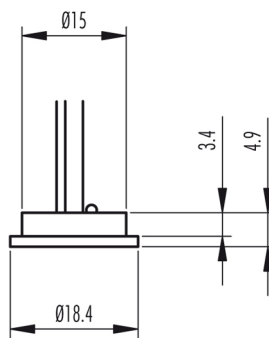


Fig. 5  
TD18 with flush diaphragm

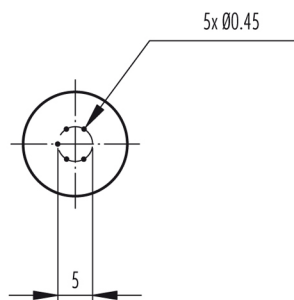


Fig. 6  
Pin dimensions

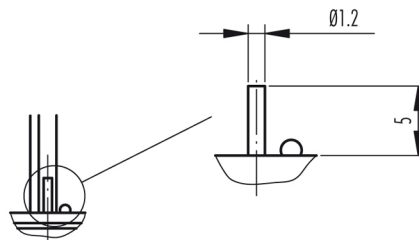


Fig. 7  
Vent tube dimensions (optional)