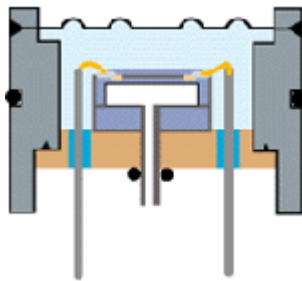


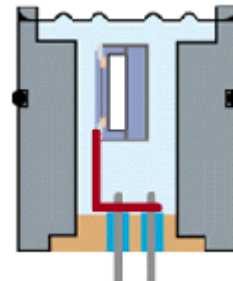
## Pressure Sensor Technology and -Terminology.

### The Piezoresistive OEM Pressure Transducer.

The silicon sensor on the glass feed-through is mounted in a stainless steel housing, isolated by a thin stainless steel diaphragm and filled with silicone oil. The pressure acts on the diaphragm and is transferred through the oil onto the sensor. The OEM transducers are fully tested for temperature and linearity and the compensation resistor values given on the individual test sheets.



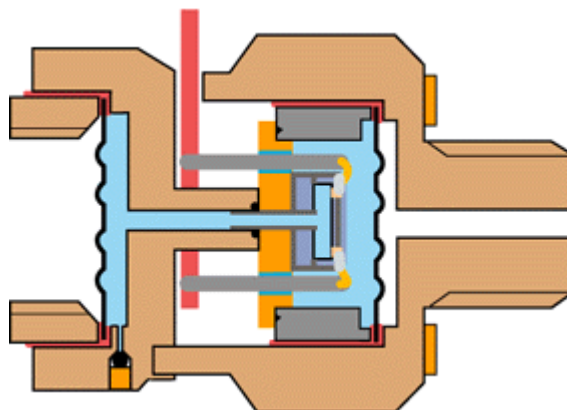
**Series 9**  
( $\varnothing$  19 mm)



**Series 8**  
( $\varnothing$  15 mm TAB)

### Low Cost Transducers.

Nickel diaphragms in brass housings brazed under high temperature (Series 6 M) or brazed steel diaphragms in steel housings (Series 6 S) nowadays allow the fabrication of isolated pressure sensors with low production costs, without substantially limiting the applications.



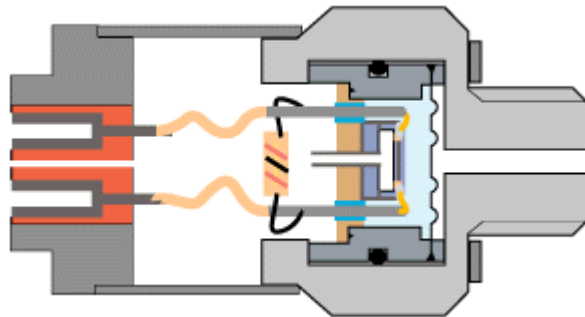
## Isolated Pressure Sensor in Brass Housing

Differential Pressure Transducer wet/wet

### Pressure Transducers.

Pressure transducers are pressure measuring instruments, ready to use. It is an OEM transducer with pressure port, integrated compensation resistors and a cable or plug.

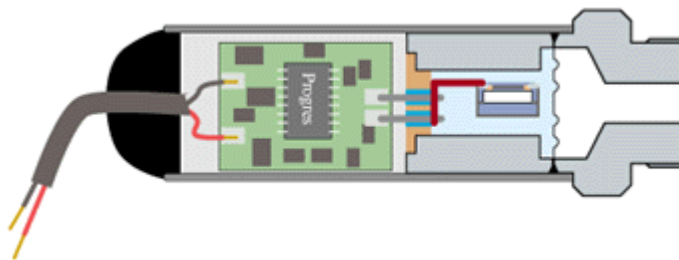
Transducers give an unamplified signal into a separate instrumentation amplifier or indicator. They can be considered as passive bridges, interchangeable between different manufacturers.



**Series 11 Transducer** (relative)  
Compensated, with Plug

### Pressure Transmitters.

In pressure transmitters, the full signal conditioning is integrated in the housing. The sensor signal is conditioned into standard output signals of 0...100 mV, 0...10 V, 0,5...4,5 V, 4...20 mA. Normally, the signal is independent from the excitation (i.e. 8...28 V), but in ratiometric transmitters, the signal is proportional to the excitation.



**Series 21 Transmitter**  
Absolute, sealed, with Cable

The accuracy of a transmitter is best described by an error band. The error band covers all errors over the full pressure and temperature range. Typical errors are also given. The typical error describes the accuracy which one can normally expect in a measurement.

Instruments are classified by the error band at room temperature, which includes zero and span offsets, linearity and repeatability.

KELLER has three basic classes of transmitters. The error bands and typical errors for the three classes are listed in the table (below).

For EMC-protection, an additional circuit is included in the housing.

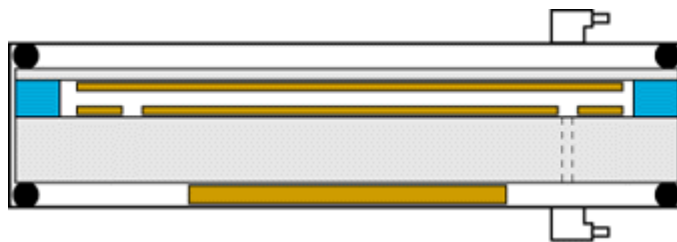
CLASSE		1,0%	0,5%	0,1%
SERIES		21R/21M	21/23/25/26	53/55/56
18...22°C	max.	1,0 %	0,5 %	0,10 %
	typ.	0,5 %	0,3 %	0,05 %
0...50°C	max.	2,0 %	1,0 %	0,10 %
	typ.	1,0 %	0,6 %	0,05 %
-20...80°C	max.	4,0 %	2,5 %	0,20 %
	typ.	2,5 %	1,5 %	0,10 %

### Capacitive Transmitters.

For pressure in the mbar ranges, a strain gauge diaphragm sensor is technically unsuitable. A large diameter capacitive sensor solves this problem.

KAVLICO / USA is a manufacturer of such sensors in very large numbers for automotive applications, where class 2% accuracy is sufficient.

KELLER utilises this very stable sensor and is manufacturing pressure transmitters of very high accuracy for industrial applications.



Construction of a Capacitive Ceramic Cell