

A PASSION FOR PERFECTION



ActiveLine

CMR capacitive transmitters
Temperature-regulated or temperature-compensated

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Total pressure measurement

CMR capacitive transmitters are the perfect solution for total pressure measurement when the need is for highly accurate measurements that are independent of the type of gas in question. They are suitable for all applications in the pressure range from 1,100 to $1 \cdot 10^{-5}$ mbar, and are characterized by their long service life. At the same time, they afford minimum zero drift and outstanding temperature stability. They are non-wearing, resistant to corrosive gases, insensitive to atmospheric pressure and do not require an additional shutoff valve. The integrated sensor shield affords increased protection against contamination.

The differences

The two series, 37x and 36x, offer you the choice:
In the case of the temperature-regulated CMR 37x transmitters, the entire sensor is heated to a temperature that is higher than the ambient temperature. This completely eliminates temperature-related effects on the sensor.

Which means: The utmost in measurement accuracy combined with insensitivity to disturbances caused by fluctuations in the environmental temperature.

The CMR 36x transmitters provide highly accurate, temperature-compensated pressure measurement, without the need for warm-up. In this case, the temperature is measured and is used as a correction factor for the measurement signal.



Advantages at a glance

- Measurement independent of gas type
- Sensor in ceramic technology
 - Maximum temperature stability
 - Resistant to corrosive gases
 - Outstanding service life
- Simple operation
 - Pushbutton zeroing
 - 0-10 V output signal with integral error signal
- Compatible with the Pfeiffer Vacuum ActiveLine series
- Sensor shield

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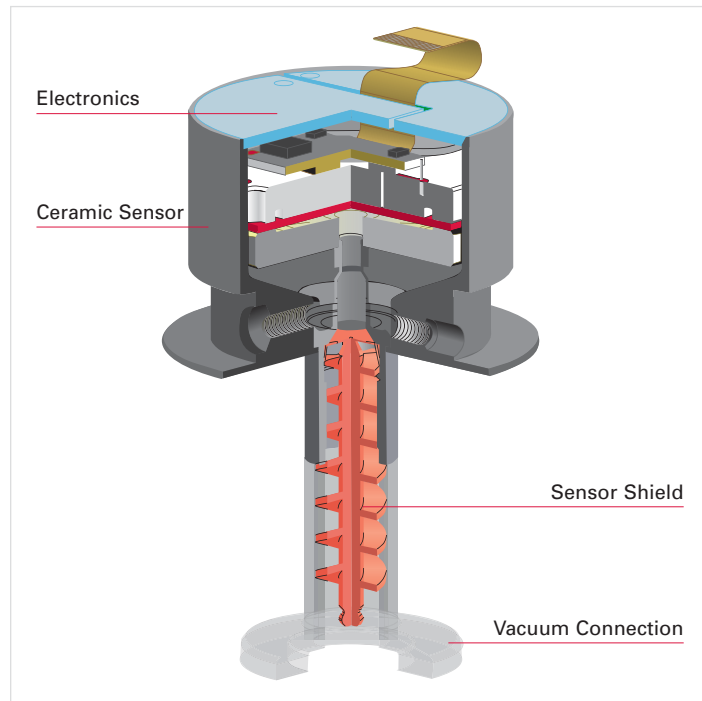
Operating principle

Our transmitters measure the deflection of the diaphragm in form of a change in electrical capacitance detected by the conductors that are vapor-deposited on the ceramic diaphragms. By varying the thicknesses (d) of the diaphragms it is possible to provide measurement ranges from 1,100 to 10^5 mbar. The thinnest diaphragms are barely as thick as a human hair (0.01 mm), and the measured deflections (ΔS) are a mere 0.001 mm.

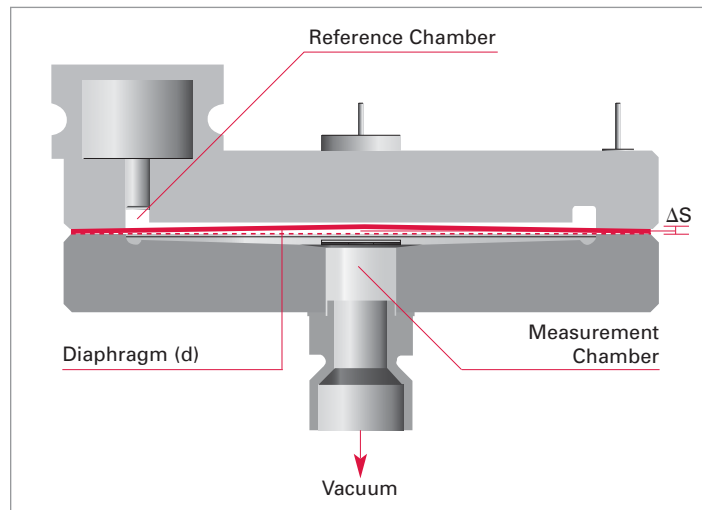
In order to be able to reproducibly measure these small effects, the entire sensors in the CMR transmitters are of ceramic design, as this material has a very small coefficient of expansion. This means that temperature changes have only a minimum influence on deflection of the diaphragm, which is not pressure-dependent. And ceramic also offers a further advantage over other materials: Even after being flooded with atmospheric pressure, the diaphragms quickly return to their initial position. There are no memory effects of the kind that are typical of metallic sensors. Which means: No long waits until the transmitter is measuring accurately again.



Operating principle



- In Pfeiffer Vacuum transmitters, the electronics and sensor form a compact unit
- A sensor shield safeguards against contamination and increases service life



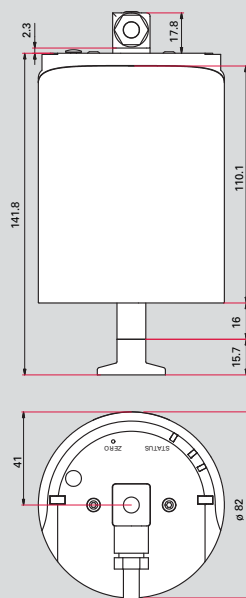
- The sensor consists of 3 basic components, which are all of ceramic design
- Together with the diaphragm, the upper section forms the reference chamber
- The pressure in the reference chamber is much lower than the vacuum to be measured
- The ceramic is coated on the reference chamber side, and curvature of the diaphragm caused by the change in pressure is detected in the form of a change in electrical capacitance
- The measurement chamber is also of ceramic design, which means that the majority of the materials coming into contact with the media are ceramic, as well

CMR capacitive transmitters Temperature-regulated or temperature-compensated

The new series of CMR 37x temperature-regulated transmitters

- Temperature-regulated to 45 °C – to minimize temperature influences
- Greater temperature stability makes it insensitive to fluctuations in ambient temperature
- High measurement accuracy of up to 10^{-5} mbar

Dimensions



Dimensions in mm

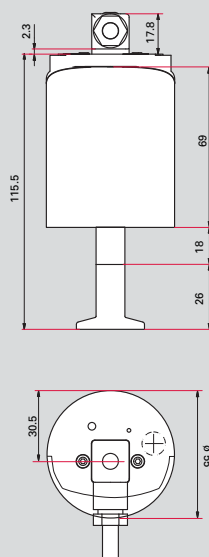
Technical Data/Order Numbers

Model	Flange	Measurement Range max.	min.	Accuracy	Order Number
CMR 371	Pipe OD 1/2"	1100 mbar	10^{-1} mbar	0.15 % of measured value	PT R25 100
	DN 16 ISO-KF	1100 mbar	10^{-1} mbar	0.15 % of measured value	PT R25 101
	DN 16 CF-R	1100 mbar	10^{-1} mbar	0.15 % of measured value	PT R25 102
	Cajon 8 VCR	1100 mbar	10^{-1} mbar	0.15 % of measured value	PT R25 103
CMR 372	Pipe OD 1/2"	110 mbar	10^{-2} mbar	0.15 % of measured value	PT R25 110
	DN 16 ISO-KF	110 mbar	10^{-2} mbar	0.15 % of measured value	PT R25 111
	DN 16 CF-R	110 mbar	10^{-2} mbar	0.15 % of measured value	PT R25 112
	Cajon 8 VCR	110 mbar	10^{-2} mbar	0.15 % of measured value	PT R25 113
CMR 373	Pipe OD 1/2"	11 mbar	10^{-3} mbar	0.15 % of measured value	PT R25 120
	DN 16 ISO-KF	11 mbar	10^{-3} mbar	0.15 % of measured value	PT R25 121
	DN 16 CF-R	11 mbar	10^{-3} mbar	0.15 % of measured value	PT R25 122
	Cajon 8 VCR	11 mbar	10^{-3} mbar	0.15 % of measured value	PT R25 123
CMR 374	Pipe OD 1/2"	1.1 mbar	10^{-4} mbar	0.15 % of measured value	PT R25 130
	DN 16 ISO-KF	1.1 mbar	10^{-4} mbar	0.15 % of measured value	PT R25 131
	DN 16 CF-R	1.1 mbar	10^{-4} mbar	0.15 % of measured value	PT R25 132
	Cajon 8 VCR	1.1 mbar	10^{-4} mbar	0.15 % of measured value	PT R25 133
CMR 375	Pipe OD 1/2"	0.11 mbar	10^{-5} mbar	0.15 % of measured value	PT R25 140
	DN 16 ISO-KF	0.11 mbar	10^{-5} mbar	0.15 % of measured value	PT R25 141
	DN 16 CF-R	0.11 mbar	10^{-5} mbar	0.15 % of measured value	PT R25 142
	Cajon 8 VCR	0.11 mbar	10^{-5} mbar	0.15 % of measured value	PT R25 143

The CMR 36x temperature-compensated transmitters

- No warm-up
- Measurement range up to 10^{-5} mbar

Dimensions



Dimensions in mm

Technical Data/Order Numbers

Model	Flange	Measurement Range max.	min.	Accuracy	Order Number
CMR 361	Pipe OD 1/2"	1100 mbar	10^{-1} mbar	0.2 % of measured value	PT R24 600
	DN 16 ISO-KF	1100 mbar	10^{-1} mbar	0.2 % of measured value	PT R24 601
	DN 16 CF-R	1100 mbar	10^{-1} mbar	0.2 % of measured value	PT R24 602
	Cajon 8 VCR	1100 mbar	10^{-1} mbar	0.2 % of measured value	PT R24 603
CMR 362	Pipe OD 1/2"	110 mbar	10^{-2} mbar	0.2 % of measured value	PT R24 610
	DN 16 ISO-KF	110 mbar	10^{-2} mbar	0.2 % of measured value	PT R24 611
	DN 16 CF-R	110 mbar	10^{-2} mbar	0.2 % of measured value	PT R24 612
	Cajon 8 VCR	110 mbar	10^{-2} mbar	0.2 % of measured value	PT R24 613
CMR 363	Pipe OD 1/2"	11 mbar	10^{-3} mbar	0.2 % of measured value	PT R24 620
	DN 16 ISO-KF	11 mbar	10^{-3} mbar	0.2 % of measured value	PT R24 621
	DN 16 CF-R	11 mbar	10^{-3} mbar	0.2 % of measured value	PT R24 622
	Cajon 8 VCR	11 mbar	10^{-3} mbar	0.2 % of measured value	PT R24 623
CMR 364	Pipe OD 1/2"	1.1 mbar	10^{-4} mbar	0.2 % of measured value	PT R24 630
	DN 16 ISO-KF	1.1 mbar	10^{-4} mbar	0.2 % of measured value	PT R24 631
	DN 16 CF-R	1.1 mbar	10^{-4} mbar	0.2 % of measured value	PT R24 632
	Cajon 8 VCR	1.1 mbar	10^{-4} mbar	0.2 % of measured value	PT R24 633
CMR 365	Pipe OD 1/2"	0.11 mbar	10^{-5} mbar	0.5 % of measured value	PT R24 640
	DN 16 ISO-KF	0.11 mbar	10^{-5} mbar	0.5 % of measured value	PT R24 641
	DN 16 CF-R	0.11 mbar	10^{-5} mbar	0.5 % of measured value	PT R24 642
	Cajon 8 VCR	0.11 mbar	10^{-5} mbar	0.5 % of measured value	PT R24 643