Pressure Measurement in Oil Processing

Application:

Flange type chemical seal with high soft membrane with pressure and differential pressure transmitter, using the original cap flanges

for refineries

In this oil processing plant, pressure and differential pressure transmitters are used at ambient temperatures of -28 °C (-18.4 °F) up to +70 °C (158 °F). The medium (crude oil) can reach a temperature of up to +360 °C (680 °F).

The problem:

In former plants, it has been necessary to install an additional trace heating for the capillary line and the chemical seal to obtain an accurate measurement. Furthermore, the original cap flanges had to be replaced by volume-reduced cap flanges that were produced in one-off production.

Application:

Flange type chemical seal with high soft membrane with pressure- and differential pressure transmitter, using the original cap flanges

for refineries

Our solution:

Compared to the sinus membrane, our high soft membrane with its performance can compensate the additional great oil volume in the cap flange (9 cm^3 per side) temperature wise, with the result that no additional error occurs, caused by the ambient temperatures -28/+70 °C (-18.4 °F/+158 °C). This error would have to be viewed more critically at an ambient temperature of +70 °C (+158 °F) than +400 °C (+752 °F, medium temperature) at the chemical seal, due to the high oil volume in the cap flange. In combination with our special oil [-40 °C/+400 °C (-40 °F/+752 °F)], an operation is made possible without the trace heating, which is usually required. The trace heating can also be left out at a process connection of PN 50, which would also lead to further cost reductions.

Our advantages at a glance:

- **No need of trace heating**
- **No need of volume-reduced cap flanges that are produced in one-off production**
- **No additional errors**

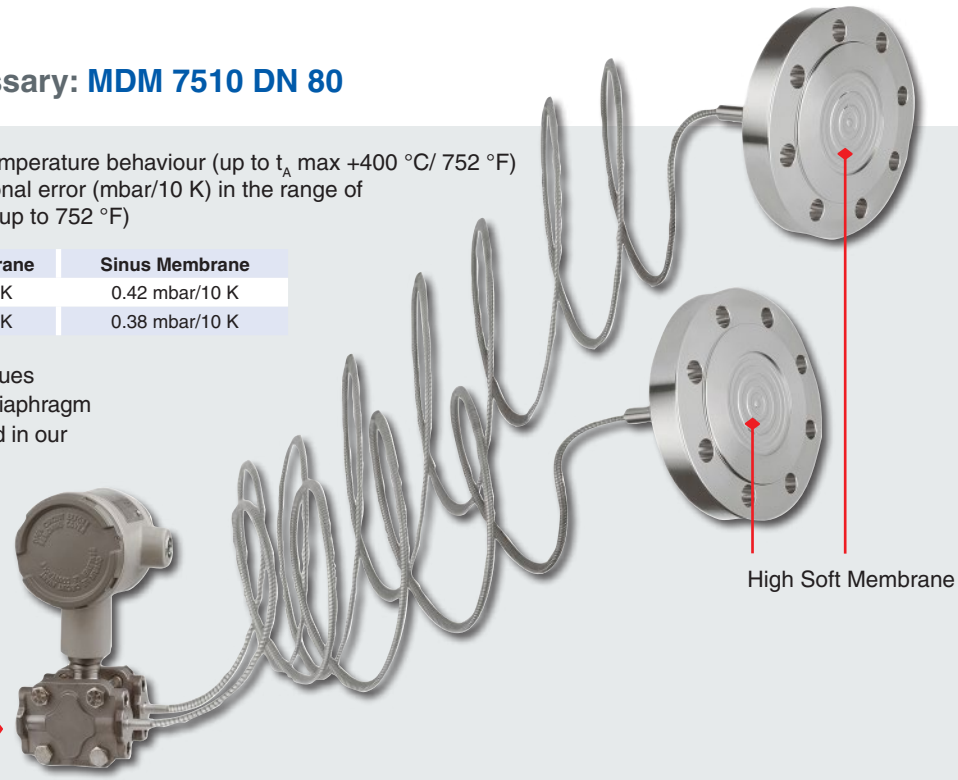
Our instrument in detail:

No trace heating necessary: MDM 7510 DN 80

- Up to 10-times improved temperature behaviour (up to t_A max +400 °C/ 752 °F)
- Temperature-related additional error (mbar/10 K) in the range of -40 °C up to 400 °C (-40 °F up to 752 °F)

	High Soft Membrane	Sinus Membrane
DN 50	0.038 mbar/10 K	0.42 mbar/10 K
DN 80	0.024 mbar/10 K	0.38 mbar/10 K

- We can guarantee these values when pressure gauge and diaphragm seal are completed and filled in our factory.



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