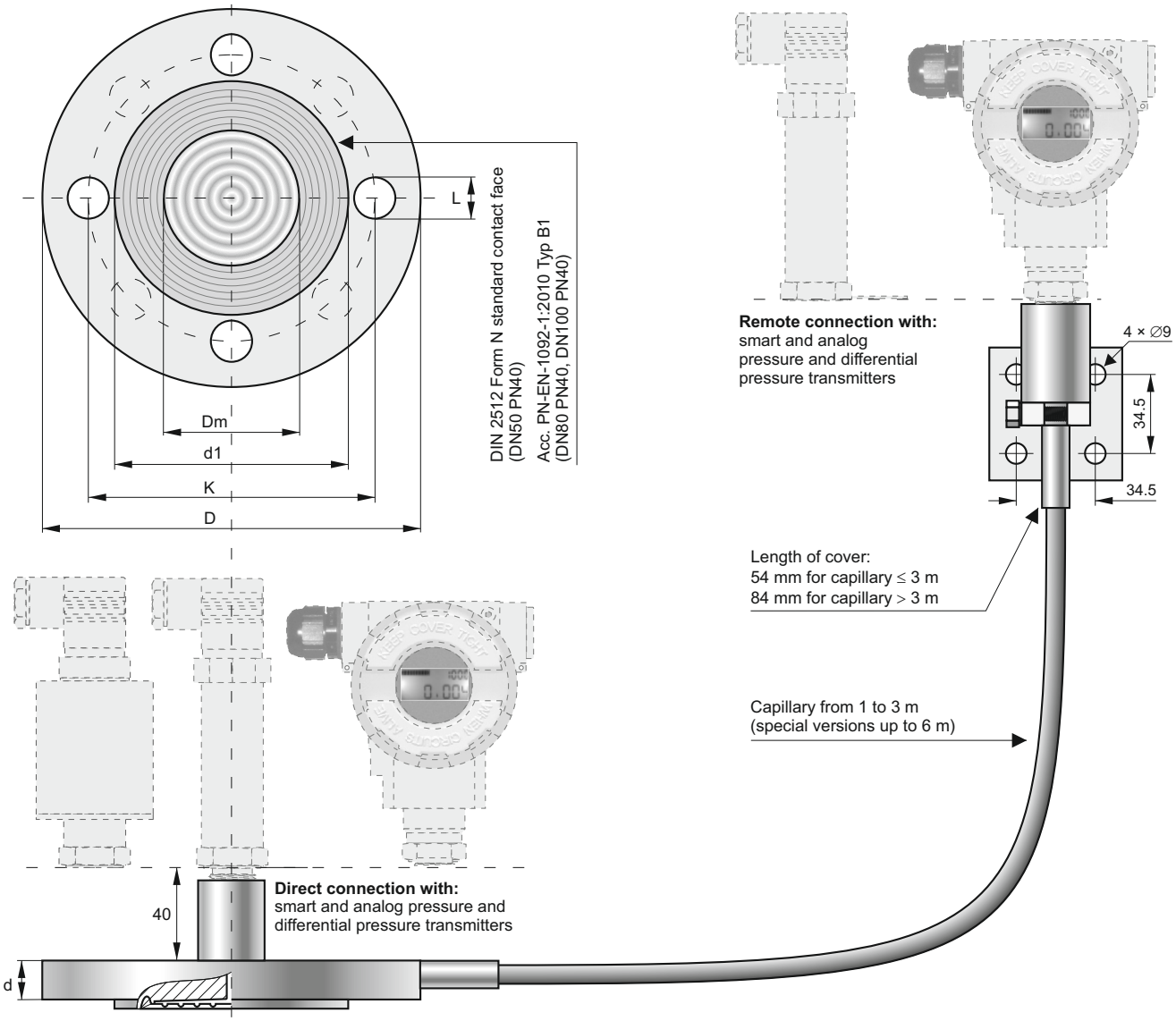
Technical **Datasheet**

delta-controls

D-Series
Flanged Seals with Flush Diaphragm
Models: S-Ch



Dimensions

Version	Diaphragm diameter **Dm**	Contact face diameter **d1**	Diameter of bolt circle **K**	External diameter **D**	Thickness **d**	Diameter of holes **L**	Number of holes
DN50 PN40/	59	102	125	165	22	18	4
2"ANSI 150	59	92	120,5	150	20	20	4
DN80 PN40	89	138	160	200	24	18	8
3" ANSI 150	75	127	152,5	190	24	20	4
DN100 PN40	89	162	190	235	24	22	8
4" ANSI 150	89	158	190,5	230	24	20	8

Application

The diaphragm seal is a pressure transmitting, diaphragm-type device. The pressure signal is sent to the cooperating pressure measuring device (pressure transmitter, pressure gauge) through manometric liquid filling the space between the separating diaphragm of the seal and the pressure measuring device. The diaphragm seal task is to isolate the pressure measuring device from damaging impacts caused by either medium or installation:

- Low or high temperature, increased viscosity, and impurities
- Vibrations of the installation (remote diaphragm seal)

Measuring Ranges

Recommended minimum measuring range (bar), depending on the type of the set: pressure measuring device - diaphragm seal

Pressure measuring device	Diaphragm seal type	Diaphragm seal version		
		DN50 / 2”	DN80 / 3”	DN100 / 4”
Smart transmitters *	direct	0.25	0.1	0.1
	remote (2 m)	1	0.25	0.25
DPCE-28	direct	0.1	0.1	0.1
	remote (2 m)	1	0.25	0.25

*The ranges given in the table for the smart transmitters should be taken as set ranges

Additional absolute zero error resulting from ambient temperature fluctuations, depending on the type of the set: pressure transmitter - diaphragm seal

Diaphragm seal type	Absolute zero error per 10°C for the diaphragm seal		
	DN50 / 2”	DN80/ 3”	DN100 / 4”
direct	0.5 mbar	0.4 mbar	0.4 mbar
remote (2 m capillary)	3 mbar	1 mbar	1 mbar

An additional zero error, resulting from temperature fluctuations in a medium, depends on the temperature gradient in the oil-based diaphragm sealing system. The error value is, in any case, significantly smaller than the error value shown in the table.

Temperature range of measured medium

Remote diaphragm seal			Direct diaphragm seal
Manometric liquid	Underpressure measurements	Overpressure measurements	
high-temperature (DC)	-10...150°C	-10...315°C	-30...150°C
low-temperature (AK)	not recommended for measurement of pressures < 0.5 bar ABS	-60...200°C	
Note: When operating with an ambient temperature of <15°C, heating of capillaries filled with DC fluid is recommended.			

Maximum pressure for PN40 – 40 bar

Maximum pressure for ANSI 150 – 150 psi

Material of diaphragm and flange 316Lss

Special versions

- Other standard ANSI or DIN
- Filled with edible oil (medium temp. -10...150°C)
- Direct diaphragm seal for medium temp. over 150°C
- Others

Important:

- contact face in diaphragram seal DN50 have a milled slot for a gasket (acc. to DIN 2512 FormN). Version without any slot available on request. (acc. to DIN 2526 FormE)
- standard outlet capillary from flange:
  direct mounted diaphragm seal - axial
  remote mounted diaphragm seal - radial

Recommendations

The essential metrological problem with diaphragm seal operational use is the absolute thermal zero error, which results from the thermal expansion of the manometer liquid. The expansion effect must be compensated for by the separating diaphragm’s flexibility.

To minimise this effect, it is advisable to:

- Use capillaries which are as short as possible - in this way, the volume of manometer liquid will be reduced
- Use seals with greater diameters in order to maximise the flexibility of the separating diaphragm
- Place the capillaries in places in which the temperature fluctuations will be minimal

How to Order

Direct diaphragm seal: **pressure measuring device / S-P – DN..... / special version (description)**

Remote diaphragm seal: **pressure measuring device / S-PK – DN..... / K = ... m / ..... / special version (description)**

Transmitter or gauge – see the code in the appropriate catalogue sheet

Diaphragm seal version

Capillary length

Type of manometric liquid – **DC** (high-temperature), **AK** (low-temperature)

Example: DPCE-28 pressure transmitter, EEx version, measuring range 0 ÷ 1 bar, cable connection, direct flanged seal with flush diaphragm

DPCE-28 / EEx / 0 ÷ 1 bar / PK / S-P – DN50

D-Series
Models: S-P

ISO9001

FM00720

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