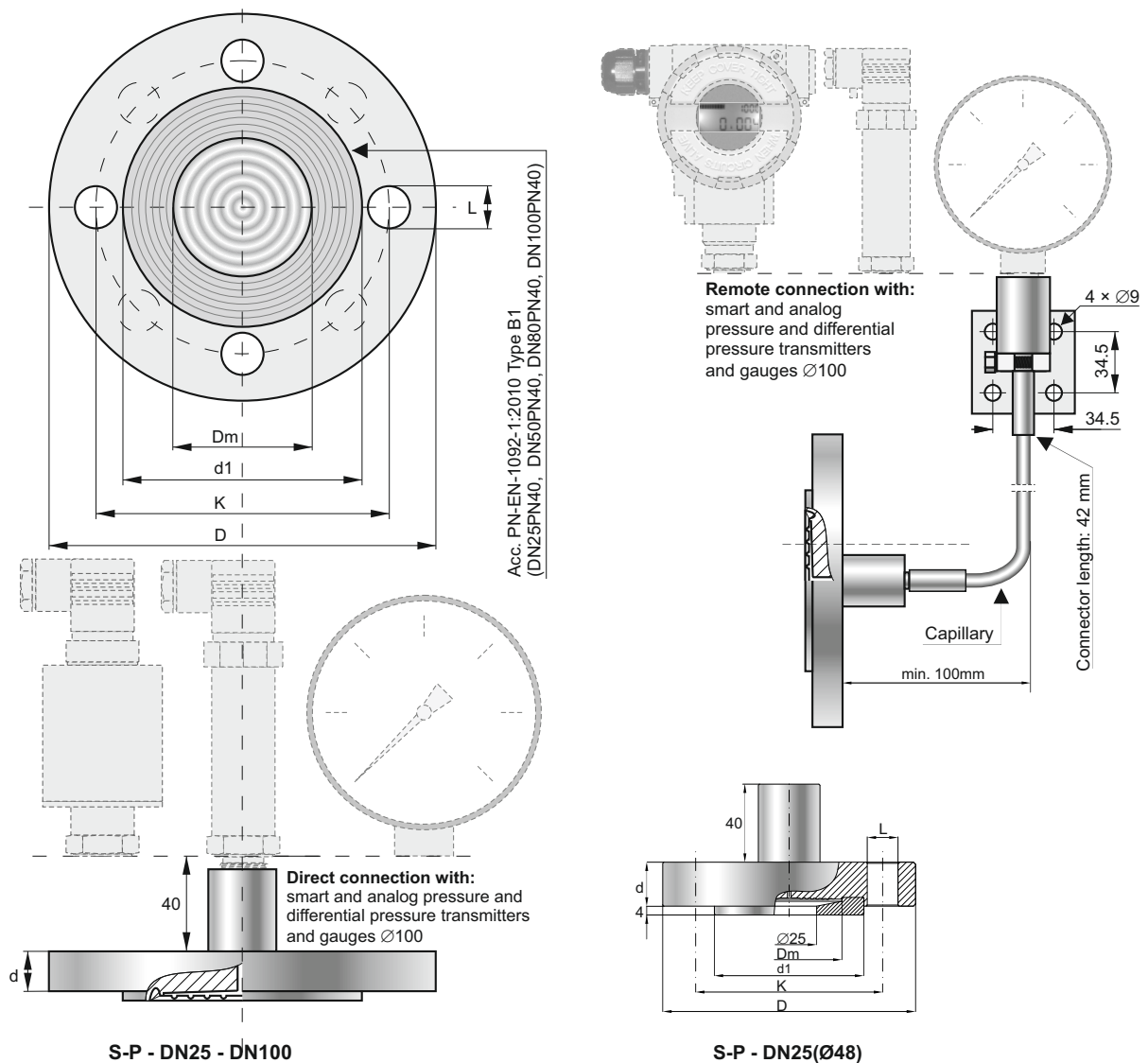


# Flanged seals with flush diaphragm S-P



## Diaphragm seal dimensions

Version	Diaphragm diameter <b>Dm</b>	Contact face diameter <b>d1</b>	Diameter of bolt circle <b>K</b>	External diameter <b>D</b>	Thickness <b>d</b>	Diameter of holes <b>L</b>	Number of holes
<b>DN25 PN40*</b>	35	68	85	115	16	14	4
<b>DN25(Ø48) PN40</b>	48	65	85	115	20	14	4
<b>DN50 PN40/ 2" ANSI 150</b>	59	102	125	165	18	18	4
	59	92	120,5	150	18	20	4
<b>DN80 PN40</b>	89	138	160	200	22	18	8
<b>3" ANSI 150</b>	89	127	152,5	190	22	20	4
<b>DN100 PN40</b>	89	162	190	235	22	22	8
<b>4" ANSI 150</b>	89	158	190,5	230	22	20	8

\*only direct connection

## 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, impurities;
- vibrations of the installation (remote diaphragm seal).

**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			
		DN25 / DN25(Ø48)	DN50 / 2"	DN80 / 3"	DN100 / 4"
Smart transmitters*	direct	0.25 / 0.15	0.10	0.025	0.025
	remote (2 m)	- / 1,5	1	0.25	0.25
PCE-28	direct	0.25 / 0.15	0.1	0.1	0.1
	remote (2 m)	- / 1,5	0,4	0.1	0.1
Ø100 gauge	direct	6 / 1	1	1	1
	remote (2 m)	- / 2,5	1	1	1

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

**Recommendations**

The essential metrological problem at diaphragm seals operational use is an absolute thermal zero error, resulting from the thermal expansion of the manometer liquid. The expansion effect must be compensated for with the separating diaphragm flexibility.

To minimise this effect, it is advisable to:

- use capillaries as short as possible, in this way the volume of manometer liquid will be reduced (maximum capillary length for DN25(Ø48) is 5m, for DN50 / 2" is 10m);
- use the greater diameter seals, in order to maximise the separating diaphragm flexibility;
- locate the capillaries in the places, in which the temperature fluctuations will be minimal.

**Zero error from ambient temperature change**

Diaphragm seal type	Absolute zero error per 10°C for the diaphragm seal			
	DN25 / DN25(Ø48)	DN50 / 2"	DN80 / 3"	DN100 / 4"
direct	3mbar / 2mbar	0.5mbar	0.4mbar	0.4mbar
remote (2 m capillary)	- / 10mbar	3mbar	1mbar	1mbar

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	
very high temperature (DH)	max. 200°C for p > 0,05bar ABS max. 250°C for p > 0,1bar ABS	15...380°C	-30...150°C
high temperature (DC)		-10...315°C	
low temperature (AK)	not recommended for measurement of pressures < 0,2 bar ABS	-60...200°C	

Note: When operating with an ambient temperature of < 0°C, heating of capillaries filled with DC or DH fluid is recommended.

**Special versions**

**Maximum pressure for PN40 – 40 bar**  
**Maximum pressure for ANSI 150 – 150 psi**  
**Material of diaphragm and flange: 316Lss**

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

**Ordering procedure**

Model	Code	Description	
S-P		Direct diaphragm seal	
S-PK		Remote diaphragm seal	
flange size	/DN25 PN40.....	Acc. PN-EN-1092-1:2010 Type B1, only direct connection max. capillary length: 5m	
	/DN25(Ø48) PN40.....		
	/DN40 PN40.....	Acc. PN-EN-1092-1:2010 Type B1	
	/DN50 PN40.....		
	/DN80 PN40.....		
	/DN100PN40.....		
	/1" 150#.....		Acc. ASME B16.5 type RF
	/1,5" 150#.....		
	/2" 150#.....		
	/2" 300#.....		
	/2" 600#.....		
	/3" 150#.....		
	/3" 300#.....		
	/3" 600#.....		
/4" 150#.....			
/4" 300#.....			
/4" 600#.....			
capillary length for S-PK	/K=.....	Input required capillary length in [m]	
special versions	/.....	Description of required parameters	