

SHDP/GP Differential Pressure /Pressure Transmitter with Remote Diaphragm seals



SHDP/GP Differential Pressure/Pressure Transmitter with Remote Diaphragm seals provides a kind of reliable measuring way to avoid the measured medium from directly contacting with seal diaphragm of the transmitter.

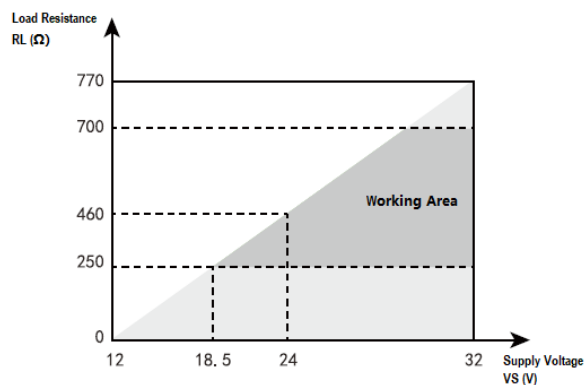
Transmitters with Remote Diaphragm seals are suitable for the following operation conditions:

- Mediums with high temperature should be isolated with transmitter.
- Measured mediums have corrosion to transmitters.
- Suspending liquid or mediums with high viscosity.
- Measured mediums solidize or crystalize due to change of environment or technological process temperature.
- Strict purification of measuring head is needed for replacing measured mediums.
- Measuring head must be kept clean and sanitary.
- Pressure measurement of sealed container.

Technical Specification

Accuracy	0.2%, 0.5%
Measuring Range	0~20Mpa
Stability	$\leq \pm 0.2\%$ /URL (12 months)
Effect of Mounting position:	Position effect can be adjusted by zero clean
Temperature drift	$\leq \pm 0.2\%$ F.S/10 °C
Response Time	0.25s
Effect of Power supply:	$\leq \pm 0.005\%$ /URL/V
Effect of Vibration	$\leq \pm 0.25\%$ /URL/g
Temperature Compensation	0-50 °C
Overload Capacity	150% of full range

Supply voltage and load resistance



Load Resistance RL Calculation Formula:

$$RL = (VS - 12) / 0.026 \text{ (}\Omega\text{)}$$

RL-Load Resistance value (Ω)

VS-Power Supply Voltage (V)

Operation Condition

Environmental temp.:	-40...+315°C
Storage temperature:	-40...+85°C
Humidity	≤ 95% RH

Transmitter Module

Output	4-20mA, 4-20mA+HART, MODBUS RS485
Display	LCD display
Power supply	10-32V, HART needs ≥18.5V
Diagnostic Function	Output alarm current if instruments is broken
View of units	Pa, kPa, Mpa, bar, mbar, %, psi, mmH ₂ O

Sensor Specifications

Sensor diaphragm Material	SUS316L, Hastelloy C-276, Tantalum, Monel, PTFE painting, gold plating
Ingress protection:	IP65, IP67
Filling oil	Silicon oil, High Temp. silicon oil, fluorocarbon oil, vegetable oil
Sealing Material	Fluororubber (Std.), EPDM
Name Plate Material	SUS 304
Process Connection Material	SUS304 (Std.), SUS316L
Flange sealing	RF, FM, M, RJ

Model Selection

Table 1

Code	Mark
SH	SH Series Pressure transmitter/DP transmitters
Code	Types
DP	Differential Pressure
GP	Gauge Pressure
Code	Measuring Range
4E	(0-6~40) Kpa
5E	(0-40~200) Kpa
6E	(0-0.16~1) Mpa
7E	(0-0.4~2.5) Mpa
8E	(0-1.6~8) Mpa
9E	(0-4~20) Mpa
Code	Accuracy
2	0.2 %
3	0.5 %

Code	Explosion Proof			
P	Without Explosion proof (Std.)			
d	Explosion proof Exd II BT4			
i	Intrinsically safe explosion-proof Exia IIC T6			
Code	Display			
M5	Digital Display			
Code	Output			
E	(4-20mA)			
S	(4-20mA) & Hart			
R	MODBUS, RS485			
Code	Pressure/DP Transmitter Material			
	Flange/Connector	Drain/vent valve	Isolation Diaphragm	Filled Liquid
22	316 sst	316 sst	316L	Silicon oil
23	316 sst	316 sst	Hastelloy C	Silicon oil
24	316 sst	316 sst	Monel	Silicon oil
25	316 sst	316 sst	Tantalum	Silicon oil
x	others			
Code	Remote Diaphragm Seal (choose type 1 + type 2,such as “1+FFW”			
	Type 1	Code	Type 2	
1	Single Remote Diaphragm Seal	FFW	Flush Flange seal	
2	Double Remote Diaphragm Seals	EFW	Extended Flange seal	
		SCW	Sanitary tri-clamp seal	
Code	Remote Diaphragm seal Filling oil *1			
N	Normal silicon oil (-20~120℃)			
F	High Temp. silicon oil (15~315℃)			
S	fluorocarbon oil (-45~205℃)			
Code	Capillary (304 SST material)			
15	1.5 m length			
30	3 m length			
45	4.5 m length			
60	6 m length			
T	Special			
Code	Continued with Diaphragm seals detailed information (refer to below content			

*1 Remote Diaphragm seal Filling oil Characteristic

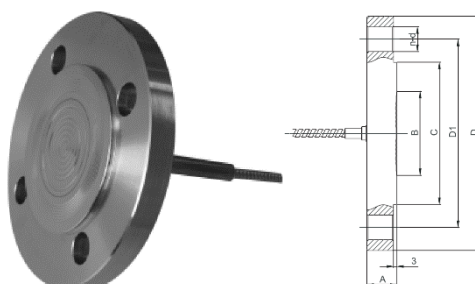
Table 2

Code	Filling oil	Temperature	Density (g/cm3)	Temp. expansion coefficient	25℃ Viscosity (mPa.s)
N	Normal silicon oil	(-20~120℃)	0.934	0.00108	<20
F	High Temp. silicon oil	(15~315℃)	1.07	0.00053	44~50
S	fluorocarbon oil	(-45~205℃)	1.85	0.000864	65

Note:

1. Temperature limited decrease in vacuum environment
2. When pressure is over 590Kpa, we can choose F type High Temp. silicon oil. When F type High Temp. silicon oil is selected, flange connector, capillary, pressure/DP transmitter operation environment temperature need to be over 10℃. Heating sheath for capillary is considered when transmitter is working in extreme low working temperature.

FFW Flush Flange Seal



Dimension

Table 3

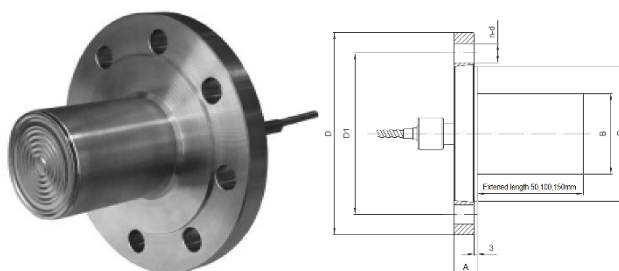
No.	Flange size	Flange size				Bolt Hole		
	Flange size	OD D (mm)	ID B (mm)	Seal face C (mm)	Thickness A (mm)	No.n	Diameter D (mm)	Bolt Circle D1 (mm)
1	2"/DN50	165	48	95	20	4	18	120
2	3"/DN80	200	66	127	22	8	18	152
3	4"/DN100	220	89	157	22	8	18	191

FFW Flush Flange Seal Model Selection

Table 4

FFW	Flush Flange seal
Code	Flange size
A	2", 150LB
B	3", 150LB
C	4", 150LB
T	Others, please specify
Code	Remote Seal Diaphragm Material
2	316L SST
3	Hastelloy C 276
4	Monel
5	Tantalum
Code	Flange sealing Face
A	RF -Raised Face (Std.)
B	FM- Concave/female
C	M- Convex/Male: M
D	FF- Full plane:
E	RJ- Ring connection surface

EFW Extended Flange seal



Dimension

Table 5

No.	Flange size	Flange size				Bolt Hole		
	Flange size	OD D(mm)	ID B(mm)	Seal face C(mm)	Thickness A(mm)	No.n	Diameter d(mm)	Bolt Circle D1(mm)
1	2"/DN50	165	48	95	20	4	18	120
2	3"/DN80	200	66	127	22	8	18	152
3	4"/DN100	220	89	157	22	8	18	191

EFW Extended Flange seal Model Selection

Table 6

PFW	Flush Flange seal
Code	Flange size
A	2", 150LB
B	3", 150LB
C	4", 150LB
D	Others, please specify
Code	Remote Seal Diaphragm Material
2	316L SST
3	Hastelloy C 276
4	Monel
5	Tantalum
Code	Extended Length
A1	50 mm
A2	100 mm
A3	150mm
T	Others, please specify