DIAPHRAGM SEAL PRESSURE GAUGE

Model: P710 Series – Screwed process connection
Model: P720 Series - "I" type process connection
Model: P730 Series – Flat type flange process connection

Spec. sheet no. PD07-02

Service intended

Diaphragm seal type gauges are suitable for the situation where the process medium would corrode the instrument connection and pressure sensing element. Furthermore, this type of gauge is highly recommended in a situation where the process medium contains suspended solids, or if it is sufficiently viscous to clog the instrument connection and pressure sensing element. Additionally, it is recommended to be used where the process medium might freeze or solidify the instrument connection and pressure sending element due to the ambient or process temperature change, and where the process medium requires the flushing from the system to prevent any contamination.



Model : P710



Model : P720



Model : P730

Design
Internal diaphragm

Accuracy
Refer to gauge model

Suitable pressure range (MPa, kPa, bar)
-0.1 ~ 0 to -0.1 ~ 2.5 MPa
0 ~ 0.1 to 0 ~ 35 MPa

Filling liquid
Silicone oil

Working temperature
Ambient : -20 ~ 65 °C (With Glycerin filling)
-40 ~ 65 °C (With Silicone filling)
Fluid : Max. 200 °C

Diaphragm material
Diaphragms are available in many corrosion resistant materials. Compatibility of selected material and process fluid is the responsibility of user.

Temperature effect
Accuracy at temperature above and below the reference temperature (20 ℃) will be effected by approximately ±0.5 % per 10 ℃ of full scale

Standard features

Process connection
Model P710 : PT, NPT and others feasible
Model P720, P730 : Flanges to ANSI,
JIS or other standard

Upper flange (Gauge side)
Stainless steel (304SS, 316SS, Titanium))

Diaphragm
316L SS, Monel, Hastelloy-C276
Titanium, Tantalum, Nickel, Alloy20

Under flange (Process side)
Stainless steel (304SS, 304L SS, 316SS, 316L SS)
Monel, Hastelloy-C276, Titanium, Nickel

Certificates
ATEX II 2G Ex h IIC T6...T1 Gb
ATEX II 2D Ex h IIIC T85°C...T450°C Db

Option
- Diaphragm and under flange are available in PTFE coating or PTFE lining (★See note)
- Under flange (Process side) are available in purging plug or heating/cooling jacket

Main order — Ordering information

1. Base model

P711	Screwed process connection diaphragm seal
P712	Screwed process connection remote diaphragm seal
P721	"I" type process connection diaphragm seal
P722	"I" type process connection remote diaphragm seal
P731	Flat type flange process connection diaphragm seal
P732	Flat type flange process connection remote diaphragm seal

2. Gauge model and mounting type

XX	Refer to gauge model and mounting type table

3. Upper flange / Diaphragm material

B	304SS / 316L SS
E	316L SS / 316L SS
H	304SS / 316L SS with PTFE sheet
I	Alloy 825 / Alloy 825
J	316SS / 316L SS
K	316SS / Monel
L	316SS / Hastelloy-C
M	316L SS / Monel
N	316SS / Tantalum
Q	316SS / 316L SS with PTFE sheet
R	Titanium / Titanium
S	316L SS / Tantalum
T	316SS / Nickel
U	316SS / Alloy 20
V	PVC / PTFE
X	316L SS / Hastelloy-C
Y	PVDF / PTFE

4. Process connection type

XXX	Refer to process connection type table

5. Unit

H	bar
I	MPa
J	kPa

6. Range

XXX	Refer to pressure range table

7. Under flange material

7X	Alloy 20
BX	304SS
DX	304L SS
CX	316SS
EX	316L SS
LX	Monel
KX	Hastelloy-C
MX	Titanium
51	316L SS with PTFE coating (see note1)
JX	Inconel 600
RX	304SS with PTFE coating (see note1)
PX	304SS with PTFE lining (see note1)
SX	316SS with PTFE coating (see note1)
QX	316SS with PTFE lining (see note1)
50	316L SS with PTFE lining (see note1)
53	PTFE (see note2)
22	Nickel
18	317SS
54	PVC (UPVC) (see note2)
55	CPVC (see note2)
39	Alloy 825
56	PVDF (see note2)
ZZ	Other

Note1 : PTFE lining and coating is available for the pressure range less than 7 MPa and is not available for fluid temperatures above 150°C.

Note2 : Plastic material is available for the pressure range less than 2 MPa and is not available for fluid temperatures above 150°C.

8. Option

0	None
1	Accessories
2	Liquid (Glycerin in gauge)
E	Liquid (Silicone in gauge)
F	Flushing ring
H	PVC jacked capillary tube

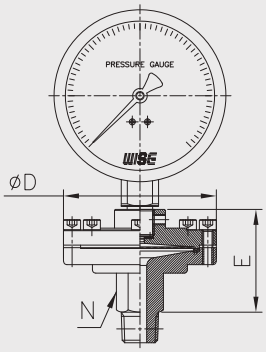
Sample ordering code

1	2	3	4	5	6	7	8
P711	**XX**	**B**	**XXX**	**H**	**XXX**	**7X**	**0**

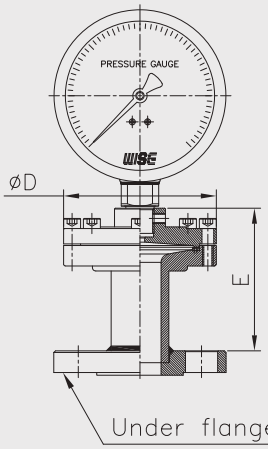
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P7XX : Type of mounting (1/3)

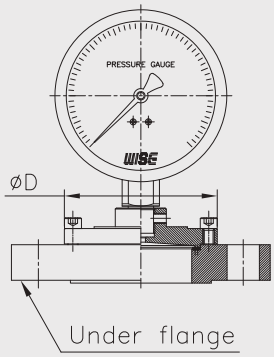
Code P711



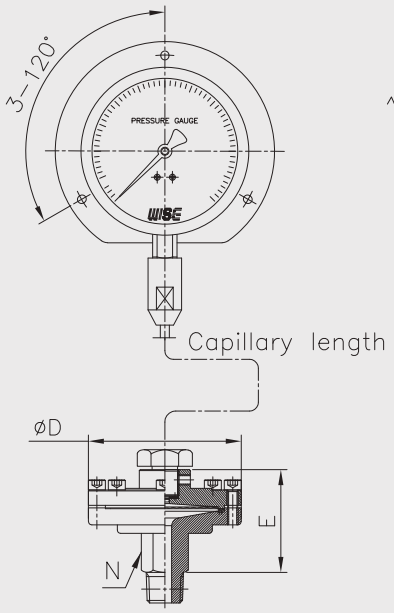
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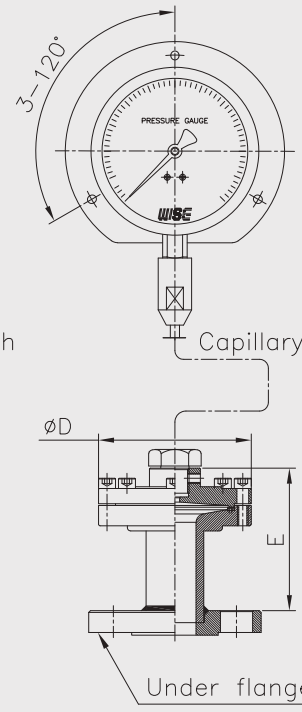
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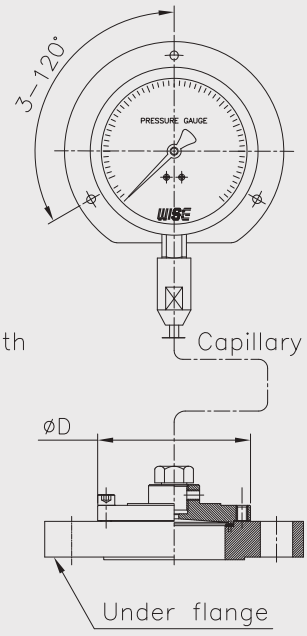
Code P712



Code P722



Code P732



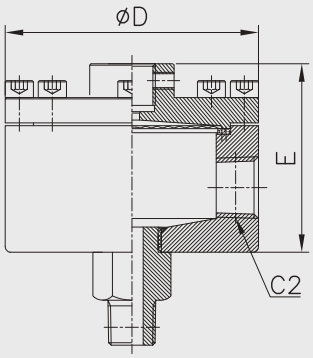
Dimensions (mm)

Available code	E	N	Capillary length
P711,P712	60	24	2000,3000,6000(Other :)
P721,P722	83	–	2000,3000,6000(Other :)
P731,P732	–	–	2000,3000,6000(Other :)

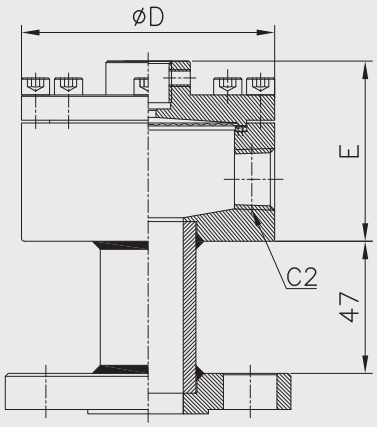
P7XX : Type of mounting (2/3)

* Options

<Flushing ring type>

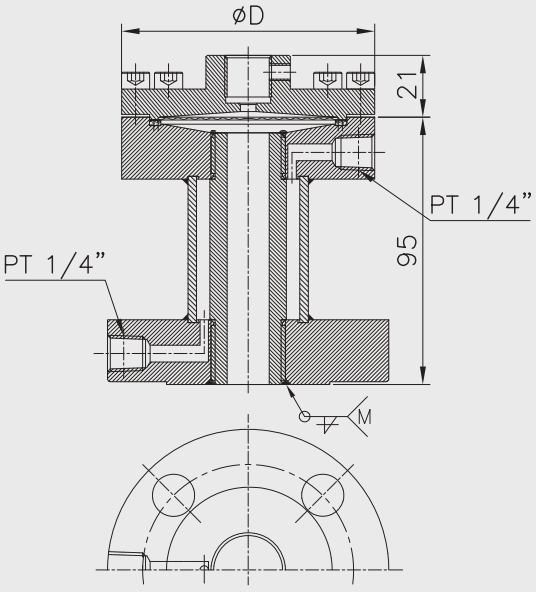


C2	E
NPT1/4"	53
NPT3/8"	58
NPT1/2"	68



C2	E
NPT1/4"	53
NPT3/8"	58
NPT1/2"	68

<Heat/Cooling type>

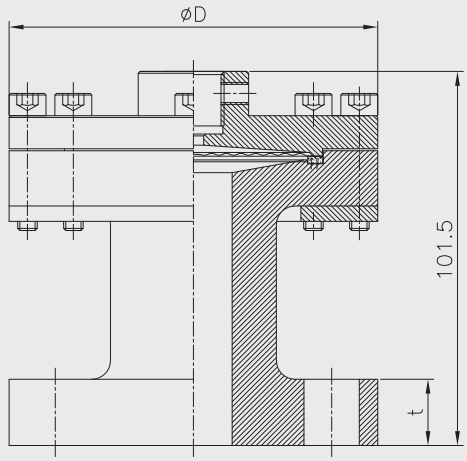


– Diaphragm diameter according to pressure range

Range (MPa)	Diaphragm Diameter	øD
0.04 ~ 0.1	ø89	ø110
0.1 ~ 10	ø70	ø90
10 ~ 15	ø48	ø80

P7XX : Type of mounting (3/3)

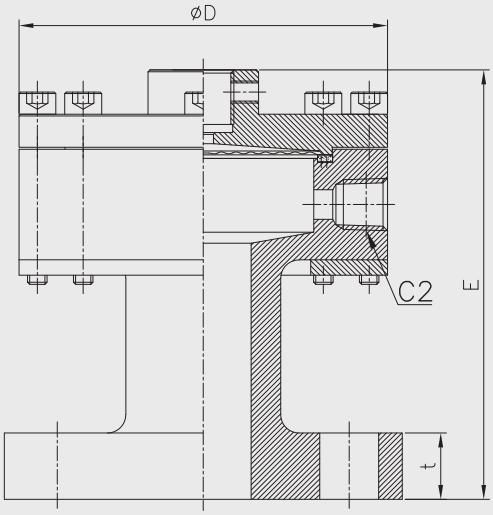
* P720 "I" Type flange – Non metal type (Teflon, PVC, CPVC, PVDF,,,)
– Max. working pressure : 20bar



* Flange facing : FF type

Flange rating			t
B16.5	1/2", 3/4", 1", 1 1/2"	150#	18
	2"		20
JIS	15A, 20A, 25A	10K	18
	50A		20

<Flushing ring type>



* Flange facing : FF type

C2	E
NPT1/4"	95
NPT3/8"	100
NPT1/2"	115

Flange rating			t
B16.5	1/2", 3/4", 1", 1 1/2"	150#	18
	2"		20
JIS	15A, 20A, 25A	10K	18
	50A		20

– Diaphragm diameter according to pressure range

Range (MPa)	Diaphragm Diameter	øD
0.04 ~ 0.1	ø89	ø110
0.1 ~ 2	ø70	ø100

Process connection type table - 8th and 9th characters

8th character		9th character			
		For model P711, P712		For model P721, P722, P731, P732	
Code	Connection size	Code	Connection type	Code	Flange rating
C *	¼"	PF	PF	KA	JIS 5K RF
D *	⅜" (10A)	AB	PT	AC	B16.5 Class 150 RF
E	½" (15A)	AA	NPT	AE	B16.5 Class 150 FF
F	¾" (20A)	FF	BSPT	AD	B16.5 Clsss 150 RFSF
G	1" (25A)	GG	BSPF	AF	B16.5 Clsss 300 RF
H	1¼" (32A)	HH	NPS	AH	B16.5 Class 300 FF
J	1½" (40A)	JJ	M	AG	B16.5 Class 300 RFSF
K	2" (50A)			AJ	B16.5 Class 600 RF
L	2½" (65A)			KT	JIS 5K FF
M	3" (80A)			AL	B16.5 Class 600 FF
N	4" (100A)			AK	B16.5 Class 600 RFSF
P	7/16"			KL	JIS 10K RF
Z	Other			KN	JIS 10K FF
				KM	JIS 10K RFSF
				KP	JIS 20K RF
				KR	JIS 20K FF
				KQ	JIS 20K RFSF
				KC	JIS 30K RF
				KU	JIS 30K FF
				KJ	JIS 30K RFSF
				AS	B16.5 Class 900 RF
				KD	JIS 40K RF
				KV	JIS 40K FF
				A8	B16.5 Class 150 RTJ
				A9	B16.5 Class 300 RTJ
				AV	B16.5 Class 600 RTJ
				AT	B16.5 Class 1,500 RF
				AN	B16.5 Class 1,500 FF
				AB	B16.5 Class 1,500 RFSF
				AX	B16.5 Class 1,500 RTJ
				AY	B16.5 Class 2,500 RTJ
				ZZ	Other

* Only available with model P711, P712
* Connection size 10A can be apply according to JIS standard

Available gauges model and mounting type table - 5th and 6th characters

Code	Model	Remark	Code	Model	Remark
2C	P221 50A		NF	P525 100B	Only available remote diaphragm seal type
6C	P222 114A		FG	P521 100G	
7A	P252 63A		HG	P522 100G	
7B	P252 63B	Only available remote diaphragm seal type	KG	P523 100G	
7F	P252 63F		MG	P524 100G	
7G	P252 63G		NG	P525 100G	
7J	P252 63J	Only available remote diaphragm seal type	EN	P513 100N	Only available remote diaphragm seal type
7N	P252 63N	Only available remote diaphragm seal type	FN	P521 100N	Only available remote diaphragm seal type
7U	P252 80A		GN	P522 100N	Only available remote diaphragm seal type
7V	P252 80G		HN	P523 100N	Only available remote diaphragm seal type
7W	P252 80N	Only available remote diaphragm seal type	FA	P531 100A	
7X	P252 80B	Only available remote diaphragm seal type	FB	P531 100B	Only available remote diaphragm seal type
7Y	P252 80M	Only available remote diaphragm seal type	FL	P531 100L	Only available remote diaphragm seal type
8A	P252 100A		GA	P531 150A	
8B	P252 100B	Only available remote diaphragm seal type	GL	P531 150M	Only available remote diaphragm seal type
8C	P252 100W	Only available remote diaphragm seal type	HA	P532 100A	
8D	P252 100L	Only available remote diaphragm seal type	HB	P532 100B	Only available remote diaphragm seal type
8G	P252 100G		HL	P532 100L	Only available remote diaphragm seal type
8M	P252 100M	Only available remote diaphragm seal type	JA	P532 150A	
8N	P252 100N	Only available remote diaphragm seal type	JB	P532 150B	Only available remote diaphragm seal type
7P	P258 63A		JL	P532 150M	Only available remote diaphragm seal type
7Q	P258 63B	Only available remote diaphragm seal type	KA	P533 100A	
7E	P258 63F		KB	P533 100B	Only available remote diaphragm seal type
7R	P258 63J	Only available remote diaphragm seal type	KL	P533 100L	Only available remote diaphragm seal type
7S	P258 63N	Only available remote diaphragm seal type	LA	P533 150A	
7T	P258 63G		LL	P533 150M	Only available remote diaphragm seal type
8U	P258 80A		MA	P534 100A	
8V	P258 80G		MB	P534 100B	Only available remote diaphragm seal type
8W	P258 80N	Only available remote diaphragm seal type	ML	P534 100L	Only available remote diaphragm seal type
8X	P258 80B	Only available remote diaphragm seal type	NA	P534 150A	
8P	P258 100A		NL	P534 150M	Only available remote diaphragm seal type
8Q	P258 100B	Only available remote diaphragm seal type	9N	P253 63N	Only available remote diaphragm seal type
8R	P258 100M	Only available remote diaphragm seal type	AA	P253 100A	
8S	P258 100N	Only available remote diaphragm seal type	AB	P253 100B	Only available remote diaphragm seal type
8T	P258 100G		AN	P253 100N	Only available remote diaphragm seal type
8Y	P258 100W	Only available remote diaphragm seal type	AP	P259 100A	
8Z	P258 100L	Only available remote diaphragm seal type	AQ	P259 100B	Only available remote diaphragm seal type
9A	P253 63A		AS	P259 100N	Only available remote diaphragm seal type
9B	P253 63B	Only available remote diaphragm seal type	CA	P330 150A	
9F	P253 63F		CB	P330 150B	Only available remote diaphragm seal type
9J	P253 63J	Only available remote diaphragm seal type	CM	P330 150M	Only available remote diaphragm seal type
FE	P521 100A		CP	P336 100A	
HE	P522 100A		CQ	P336 100B	Only available remote diaphragm seal type
KE	P523 100A		CR	P336 100G	
ME	P524 100A		CS	P336 100M	Only available remote diaphragm seal type
NE	P525 100A		DD	P500-1 100A	
FF	P521 100B	Only available remote diaphragm seal type	DE	P500-2 100A	
HF	P522 100B	Only available remote diaphragm seal type	DF	P500-3 100A	
KF	P523 100B	Only available remote diaphragm seal type	DG	P500-4 100A	
MF	P524 100B	Only available remote diaphragm seal type	DH	P500-5 100A	

Available gauges model and mounting type table - 5th and 6th characters

Code	Model	Remark	Code	Model	Remark
DJ	P500-1 160A		GG	P602 160D	
DK	P500-2 160A		GK	P611 100D	
DL	P500-3 160A		6Y	P612 100D	
DM	P500-4 160A		GP	P611 160D	
DN	P500-5 160A		GQ	P612 160D	
EA	P359-1 125B		RA	P620 100D	
EB	P359-2 125B		RB	P620 160D	
EC	P257 100A		RR	P630 100D	
ED	P511 100A		RS	P630 160D	
EE	P512 100A		RY	P6411 150D	
EF	P513 100A		RZ	P6412 150D	
EG	P514 100A		SG	P6413 150D	
EH	P515 100A		SH	P6414 150D	
EI	P257 100C	Only available remote diaphragm seal type	SI	P6415 150D	
EJ	P511 100B	Only available remote diaphragm seal type	SJ	P6421 150D	
EK	P512 100B	Only available remote diaphragm seal type	SK	P6422 150D	
EL	P257 160A		SL	P6423 150D	
EP	P257 160C	Only available remote diaphragm seal type	SM	P6424 150D	
GA	P531 150A		SN	P6425 150D	
PA	P535 100B	Only available remote diaphragm seal type	SO	P6511 160D	
PB	P535 150B	Only available remote diaphragm seal type	SP	P6512 160D	
PC	P535 100A		SQ	P6513 160D	
PD	P535 100L	Only available remote diaphragm seal type	SR	P6514 160D	
QA	P536 100B	Only available remote diaphragm seal type	SS	P6515 160D	
QB	P536 150B	Only available remote diaphragm seal type	ST	P6521 160D	
QC	P537 100B	Only available remote diaphragm seal type	SU	P6522 160D	
QD	P536 100A		6A	P661 100D	
QE	P536 100L				
GB	P601 100D				
GC	P602 100D				
6X	P601 160D				

Available gauges model and mounting type table - 5th and 6th characters

Code	Model	Remark	Code	Model	Remark
6B	P662 100D		UZ	P942	
6K	P661 160D		XA	P252 160A	
RU	P662 160D		XB	P252 160B	Only available remote diaphragm seal type
6E	P671 160D		XC	P258 160A	
6F	P672 160D		XD	P258 160B	Only available remote diaphragm seal type
6G	P673 160D		XE	P252 160N	Only available remote diaphragm seal type
6H	P6811 150D		XF	P258 160N	Only available remote diaphragm seal type
6L	P6812 150D		XG	P252 160M	Only available remote diaphragm seal type
6M	P6821 150D		XH	P258 160M	Only available remote diaphragm seal type
6N	P6822 150D		8G	P252 160G	
6I	P6911 160D		XJ	P945 2B	
6O	P6912 160D		XK	P946 1B	
6P	P6913 160D		XZ	P953 IB	
6Q	P6914 160D		XY	P953 2B	
6R	P6915 160D		YA	P970 1B	
6J	P6921 160D		YB	P990 single	
6T	P6922 160D		YC	P990 double	
6U	P6923 160D		YG	P970 2B	
6V	P6924 160D		YE	P947	
6W	P6925 160D		YF	P981	
TZ	P941		YG	P982	

Memo