

General service pressure gauge

Model : P110 series

Spec. sheet no. PD0-01

Service intended

P110 series are a general service pressure gauge.
P110 is a low cost and features high quality parts.
It is suitable for a non-corrosive fluid. Air, oil, gas or water services are the most common applications.



Nominal diameter

40, 50, 60, 75, 100, 150 and 200 mm

Accuracy

40 mm : ± 3.0 % of full scale

50, 60, 75, 100, 150 and 200 mm : ± 1.5 % of full scale

Scale range (MPa, kPa, bar)

40 mm : 0 ~ 0.2 to 0 ~ 3.5 MPa

50 mm : 0 ~ 0.2 to 0 ~ 10 MPa

60 and 75 mm : -0.1 ~ 0 to 0 ~ 25 MPa

100 mm (New) : -0.1 ~ 0 to 0 ~ 35 MPa

100 and 150 mm : -0.1 ~ 0 to 0 ~ 100 MPa

200 mm : -0.1 ~ 0 to 0 ~ 35 MPa

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass

Element

40 and 50 mm : Brass

60, 75 and 100 mm (New) : ≤ 10 MPa : Brass

>10 MPa : 316SS

100, 150 and 200 mm : ≤ 7 MPa : Brass

>7 MPa : 316SS

C type bourdon tube or helical bourdon tube

Case

Black finished steel

Black finished aluminium (Diameter 200 mm)

Cover

Black finished steel

Window

Glass

Movement

Brass

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

40 mm : $\frac{1}{8}$ " PT, NPT and PF

50 mm : $\frac{1}{4}$ ", $\frac{1}{8}$ " PT, NPT and PF

60 mm : $\frac{1}{4}$ " PT, NPT and PF

75 and 100 mm (New) : $\frac{3}{8}$ " PT, NPT and PF

100, 150 and 200 mm : $\frac{1}{2}$ ", $\frac{3}{8}$ " PT, NPT and PF

WISE[®]

Main order

Ordering information

1. Base model

P110 General service pressure gauge

2. Nominal diameter (mm)

- 0** 40
- 1** 50
- 2** 60
- 3** 75
- 4** 100
- 6** 150
- 7** 200

3. Type of mounting

- A** Bottom connection, direct, not available with diameter 200 mm
- B** Bottom connection, surface, case mounting plate, not available with diameter 40 mm
- F** Center back connection, direct, not available with diameter 100 mm (Old) , 150 and 200 mm
- G** Lower back connection, direct, only available with diameter 100 mm (Old) and 150 mm
- H** Center back connection, flush, case center mounting plate, only available with diameter 60, 75 and 100 mm (New)
- J** Center back connection, flush, cover mounting plate, not available with diameter 40, 100(Old), 150 and 200 mm
- M** Lower back connection, flush, case center mounting bracket, only available with diameter 100 mm (Old)
- N** Lower back connection, flush, cover mounting plate, only available with diameter 100(Old) and 150 mm

4. Accuracy

- 4** ±1.5 % of full scale, not available with diameter 40 mm
- 6** ±3.0 % of full scale

5. Process connection

- B** 1/8"
- C** 1/4"
- D** 3/8", not available with diameter 40, 50 and 60 mm
- E** 1/2", only available with diameter 100, 150 and 200 mm

6. Connection type

- B** PF
- C** PT
- D** NPT
- Z** Other (See note 1)

Note 1. Special connection type is available such as BSP and BSPT

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range

XXX Refer to pressure unit and range table

9. Dial color

- 1** 2 colors
- 5** 3 colors, available with compound and vacuum gauges

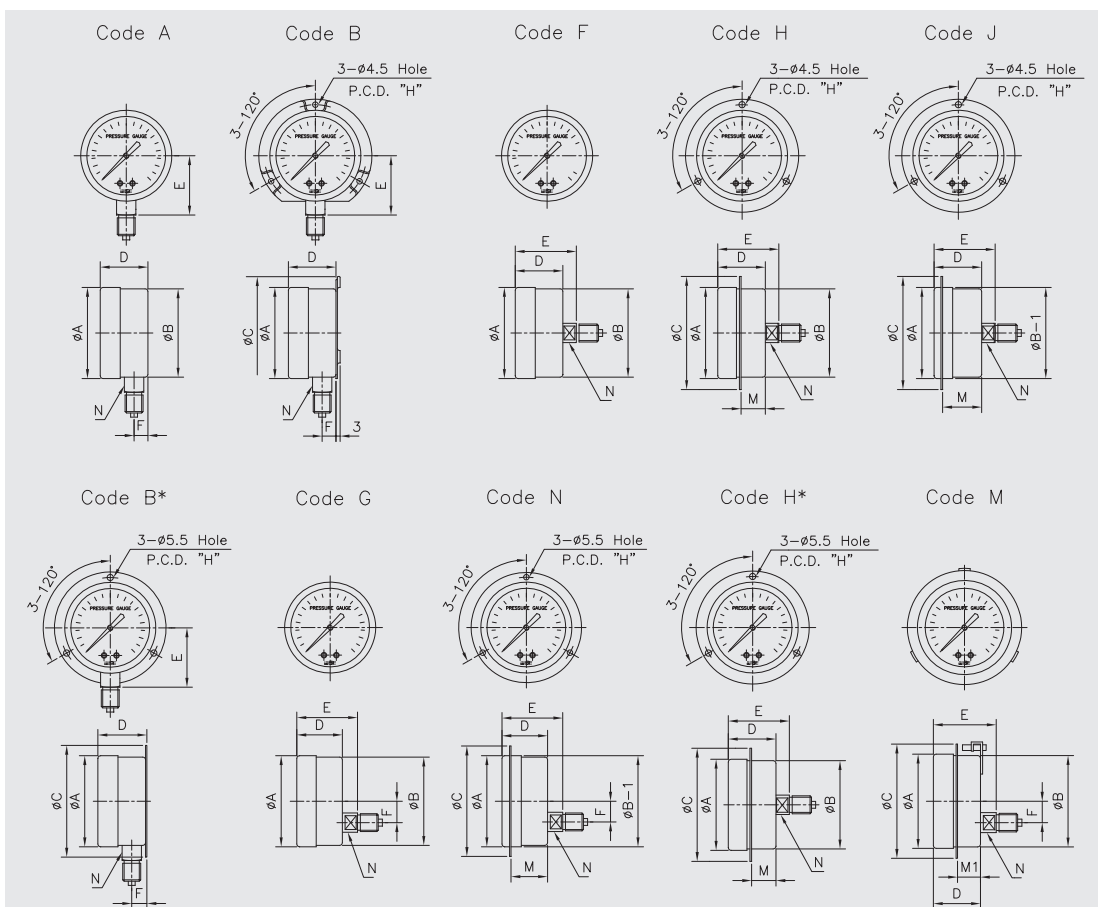
10. Option

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9	10
P110	1	A	6	B	C	H	XXX	1	0

Sample
ordering code

P110 : Type of mounting



* $\phi B-1$: Panel cutting size.

Dimensions (mm)

Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	H	M	N
40	A,F	44.3	43.5		24	29	9			12
50	A,B,F	54.5	53.5		27	37	9			14
	J	54.5	54.5	70	27	37	9	62	23.5	14
60	A,B	66	65	82	31.5	42	11	74		14
	F,J	66	70	82	34.5	44.5		74	28	14
	H	66	65	82	34.5	44.5		74	18.8	14
75	A,B	78	77	100	35	52	12.7	90		17
	F,J	78	82	100	35	47		90	29.5	17
	H	78	77	100	35	47		90	19	17
100	A	106(103.5)	105(102.4)		35(43.5)	64.5(75.5)	12.5(18)			17(22)
	B	106		128	36.5	64	14.5	115		17
(New)	F,J	106	110	128	35.5	47		115	29.2	17
	H*	106	105	128	35.5	47		115	18.7	17
100	A	106(103.5)			35(43.5)	64.5(75.5)	12.5(18)			17(22)
(Old)	B*	103.5		128	45.5	76	19.7	115		22
	G,N	103.5	107.5	128	41.5	61.5	36	115	36	17
	M	103.5	102	128	41.5	61.5	36		14	17
150	A	153	152		42.5(44)	88(105)	11.5(17)			19(22)
	B	153		178	44	93	13	165		19
	G,N	153	156	178	42	61.5	36	165	35.5	17
200	B*	203		235	49	128	15.5(17.5)	220		19(22)

Scale ranges

Range and code	Unit and code			40 mm	50 mm	60 mm	75 mm	100 mm (new)	100 mm	150 mm	200 mm
	H : bar	I : MPa	J : kPa								
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	X	X	O	O	O	O	O	X
041	0 ~ 1	0 ~ 0.1	0 ~ 100	X	X	O	O	O	O	O	X
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O	O	O	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	X	O	O	O	O	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O	O	O	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O	O	O	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O	O	O	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O	O	O	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O	O	O	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O	O	O	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O	O	O	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O	O	O	O	O	O
057	0 ~ 70	0 ~ 7	X	X	O	O	O	O	O	O	O
058	0 ~ 100	0 ~ 10	X	X	O	O	O	O	O	O	O
059	0 ~ 150	0 ~ 15	X	X	X	O	O	O	O	O	O
062	0 ~ 250	0 ~ 25	X	X	X	O	O	O	O	O	O
064	0 ~ 350	0 ~ 35	X	X	X	X	X	O	O	O	O
066	0 ~ 500	0 ~ 50	X	X	X	X	X	X	O	O	X
068	0 ~ 700	0 ~ 70	X	X	X	X	X	X	O	O	X
070	0 ~ 1,000	0 ~ 100	X	X	X	X	X	X	O	O	X
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	X	X	O	O	O	O	O	X
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	X	X	O	O	O	O	O	X
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	X	X	O	O	O	O	O	X
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	X	X	O	O	O	O	O	X
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	X	X	O	O	O	O	O	X
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	X	X	O	O	O	O	O	X
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5MPa	X	X	O	O	O	O	O	X
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2MPa	X	X	O	O	O	O	O	X

O : Available X : Not available

Ammonia service pressure gauge

Model : P111 series

Spec. sheet no. PD0-02

Service intended

P111 series are designed to withstand the shock, the vibration, and the pulsation which could be generated from the agricultural ammonia equipment.



Nominal diameter

60, 75 and 100 mm

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 1, 1.5, 2 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

316SS

Movement

Brass

Element

316SS

C type bourdon tube

Dial

White aluminium with black graduations

Case

Black finished steel

Pointer

Black painted aluminium alloy

Cover

Black finished steel

Window

Glass

Process connection

1/4" PT, 3/8" PT and PF

WISE[®]

1. Base model**P111** Ammonia service pressure gauge**2. Nominal diameter (mm)**

- 2** 60
3 75
4 100

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate
M Lower back connection, flush, case center mounting bracket, only available with diameter 100 mm

4. Accuracy

- 4** ±1.5 % of full scale

5. Process connection

- C** ¼"
D ⅜"

6. Connection type

- B** PF
C PT

7. Unit

- H** bar
I MPa
J kPa

8. Range

- 032** -0.1 ~ 1 MPa (-1 ~ 10 bar)
033 -0.1 ~ 1.5 MPa (-1 ~ 15 bar)
034 -0.1 ~ 2.0 MPa (-1 ~ 20 bar)

9. Dial color

- 6** 3 colors

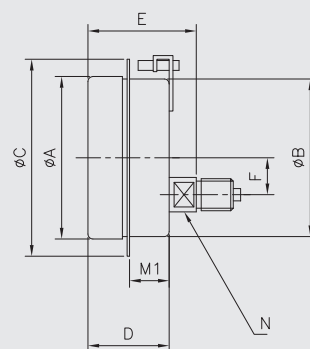
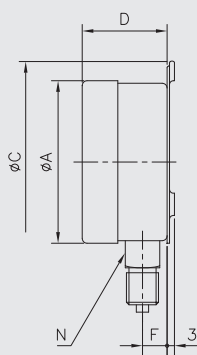
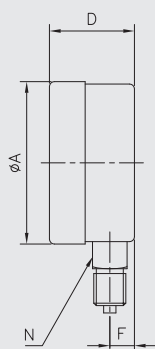
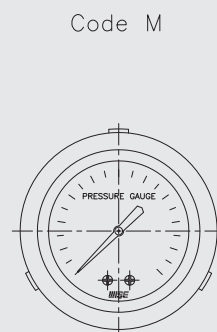
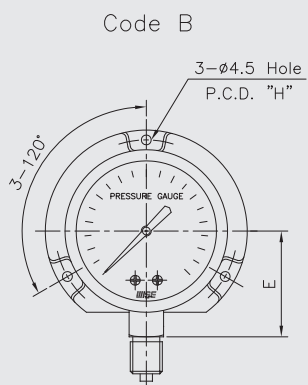
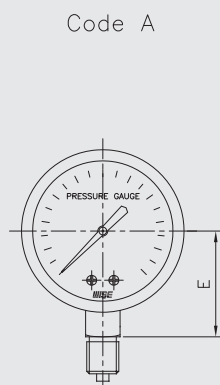
10. Option

- 0** None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P111	2	A	4	C	C	H	033	6	0

Sample
ordering code

P111 : Type of mounting



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	H	M1	N
60	A,B	66		82	31.5	42	11	74		14
75	A,B	78		100	34.7	52	12.7	90		17
100	A,B	106		128	35	64.5	12.7	115		17
	M	103.5	102	128	40.5	61.5	36		14	17

Bourdon tube pressure gauge

Model : P112 series

Spec. sheet no. PD0-03

Service intended

P112 series are designed to withstand the shock, the vibration and the pulsation which could be generated from freon gas service.

EAC

Nominal diameter

60 and 75 mm

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

60mm : -0.1 ~ 0.2, 0.4, 1.0, 1.5, 2.0 MPa

0 ~ 2.5, 0 ~ 3.5 MPa

75mm : -0.1 ~ 0.2, 0.4, 1.5 MPa

0 ~ 3.5 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10°C of full scale



Standard features

Pressure connection

Brass

Movement

Brass

Element

Brass

C type bourdon tube

Dial

White aluminium with black graduations

Case

Black finished steel

Pointer

Black painted aluminium alloy

Window

Polycarbonate (60 mm)

Glass (Only 75 mm)

Process connection

1/16" UNF

1/4" PT, NPT and PF

3/8" PT, NPT and PF (Only 75 mm)

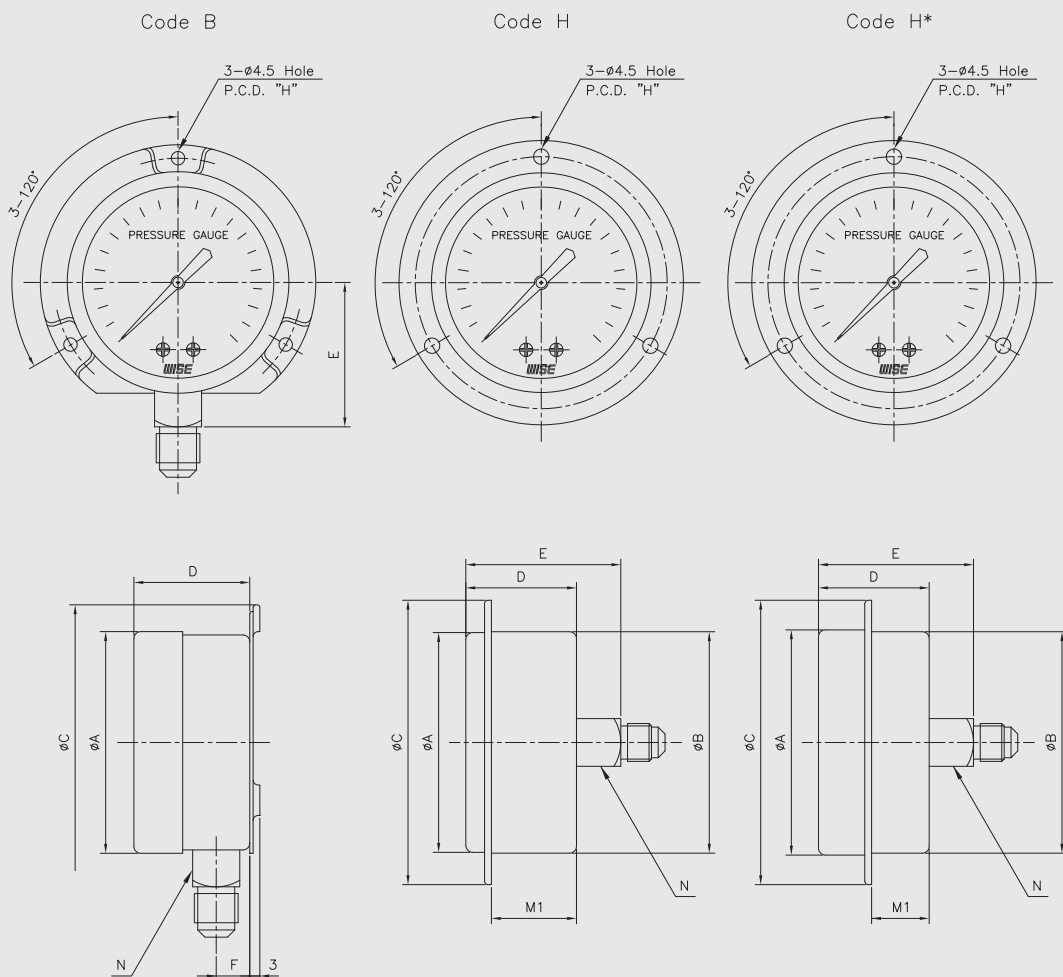
WISE[®]

1. Base model**P112** Bourdon tube pressure gauge**2. Nominal diameter (mm)****2** 60**3** 75**3. Type of mounting****B** Bottom connection, surface, case mounting plate**H** Center back connection, flush, case center mounting plate**4. Accuracy****4** ±1.5 % of full scale**5. Process connection****C** 1/4"**D** 3/8", Only 75 mm**P** 7/16" UNF**6. Connection type****B** PF**C** PT**D** NPT**E** UNF**7. Unit****H** bar**I** MPa**J** kPa**8. Range (MPa)****028** -0.1 ~ 0.2**030** -0.1 ~ 0.4**032** -0.1 ~ 1**033** -0.1 ~ 1.5**034** -0.1 ~ 2**052** 0 ~ 2.5**054** 0 ~ 3.5**9. Dial color****1** 2 colors**5** 3 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P112	2	H	4	P	E	I	033	5	0

Sample
ordering code

P112 : Type of mounting



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	H	M1	N
60	B	66		82	35.5	42	11	74		14
	H	66	65	83.5	34.5	44.5		74	27	14
75	B	78		100	34.7	52	12.7	90		17
	H*	78	77	100	34.7	46.7		90	19	17

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10,350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10,214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Air regulator service pressure gauge fully stainless steel wetted parts

Model : P113 series

Spec. sheet no. **PD01-04**

Service intended

P113 series are specifically designed for CDA (Clean dry air) application regulators used in electronic, medical, biotechnology and pharmaceutical industry.

EAC

Nominal diameter

50 mm (2")

Accuracy

±1.6 % of full scale

Scale range (MPa, bar)

0 ~ 40 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

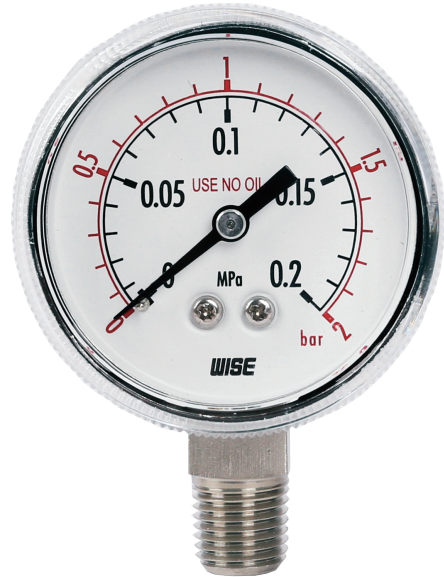
Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

316SS

Ring and window

Twist-lock polycarbonate

Element

316SS

<6 MPa : C-type bourdon tube

≥6 MPa : Helical type bourdon tube

Pointer

Black painted aluminium alloy

Case

304SS

Process connection

1/4" NPT

Movement

Brass

Dial

White aluminium with pointer stop pin

With black/red lettering, dual pressure scale (bar/psi and MPa/bar)

WISE®

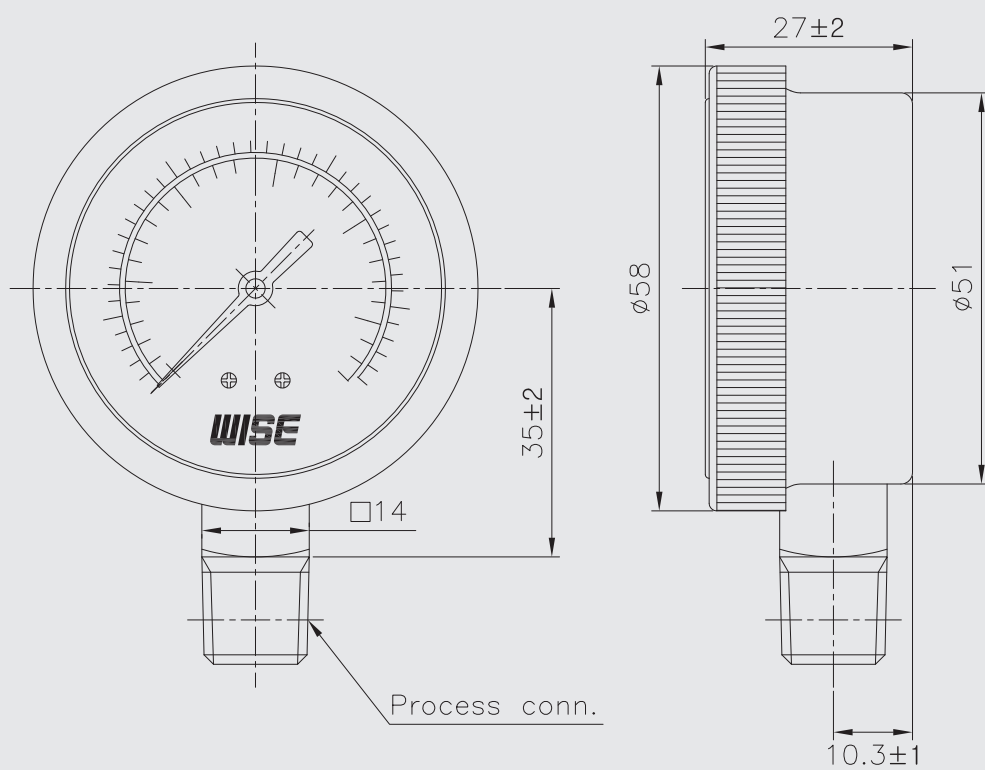
| P113_01

1. Base model**P113** Pressure gauge for regulator use**2. Nominal diameter (mm)****1** 50**3. Type of mounting****A** Bottom connection, direct**4. Accuracy****4** ±1.6 % of full scale**5. Process connection****C** 1/4"**6. Connection type****D** NPT**7. Unit****Q** bar/psi**Y** MPa/bar**8. Range****XXX** Refer to pressure unit and range table**9. Dial color****6** 3 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P113	1	A	4	C	D	Q	XXX	6	0

Sample
ordering code

Code A



Pressure unit and range table

Range and code	Unit and code	
	Q : bar	Y : MPa
042	0 ~ 2	0 ~ 0.2
044	0 ~ 4	0 ~ 0.4
046	0 ~ 7	0 ~ 0.7
142	0 ~ 14	0 ~ 1.4
051	0 ~ 20	0 ~ 2
151	0 ~ 40	0 ~ 4
057	0 ~ 70	0 ~ 7
170	0 ~ 140	0 ~ 14
172	0 ~ 210	0 ~ 21
174	0 ~ 270	0 ~ 27
065	0 ~ 400	0 ~ 40
028	-1 ~ 2	-0.1 ~ 0.2
012	-1 ~ 7	-0.1 ~ 0.7
016	-1 ~ 11	-0.1 ~ 1.1
033	-1 ~ 14	-0.1 ~ 1.4
034	-1 ~ 20	-0.1 ~ 2

General purpose pressure gauge

Model : P140 series

Spec. sheet no. PD01-05

Service intended

P140 series are designed to withstand a severe weather conditions and the rust under chemical or petrochemical circumstances allowing continuous exposure to the atmosphere.



Nominal diameter

60 and 100 mm

Accuracy

60 and 100 mm : ± 1.5 % of full scale

Scale range (MPa, kPa, bar)

60 mm : -0.1 ~ 0 to 0 ~ 25 MPa

100 mm : -0.1 ~ 0 to 0 - 35 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass

Movement

Brass

Element

C type bourdon tube

60 and 100 mm : ≤ 10 MPa : Brass

> 10 MPa : 316SS

Dial

White aluminium with black graduations

Case

Polycarbonate

Pointer

Black painted aluminium alloy

Cover

Polycarbonate

Process connection

60 mm : $\frac{1}{4}$ " PT, NPT and PF

100 mm : $\frac{3}{8}$ " PT, NPT and PF

1. Base model**P140** General purpose pressure gauge**2. Nominal diameter (mm)**

- 2 60
4 100

3. Type of mounting

- A Bottom connection, direct

4. Accuracy

- 4 ±1.5 % of full scale

5. Process connection

- C 1/4"
D 3/8" only available with diameter 100 mm

6. Connection type

- B PF
C PT
D NPT
Z Other

7. Unit

- H bar
I MPa
J kPa

8. Range**XXX** Refer to pressure unit and range table**9. Dial color**

- 1 2 colors
5 3 colors

10. Option

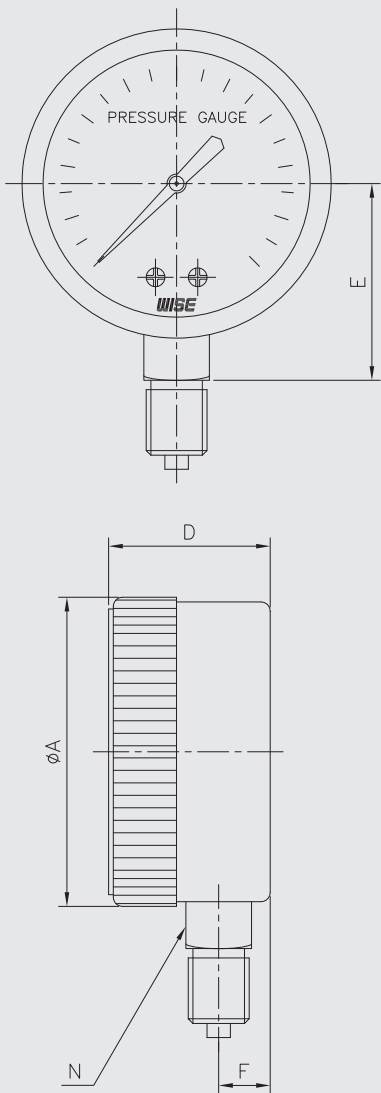
- 0 None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P140	2	A	4	C	D	H	XXX	5	0

Sample
ordering code

P140 : Type of mounting

Code A



Dimensions (mm)

Dial size	Available code	A	D±2	E±2	F±1	N
60	A	70	31.5	42	11.5	14
100	A	110	35	116.5	13.5	17

Pressure unit and range table

Range and code	Unit and code			Nominal diameter	
	H : bar	I : MPa	J : kPa	60 mm	100 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O

O : Available X : Not available

Heavy duty service pressure gauge

Model : P163 series

Spec. sheet no. **PD01-06**

Service intended

P163 series are designed to withstand the shock, the vibration, and the pulsation which could be generated from heavy duty services.

EAC

Nominal diameter

80 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 6 MPa

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass

Element

Brass

Case

Bronze

Cover

Black finished bronze

Window

Laminated safety glass

Movement

304SS

Dampers vibration and pulsation

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

1/8" PT, NPT and PF

1/4" PT, NPT and PF

3/8" PT, NPT and PF

M12 x 1.5

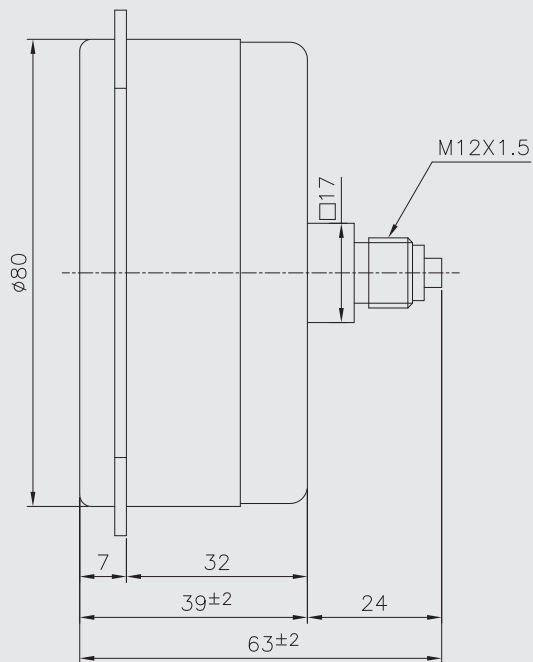
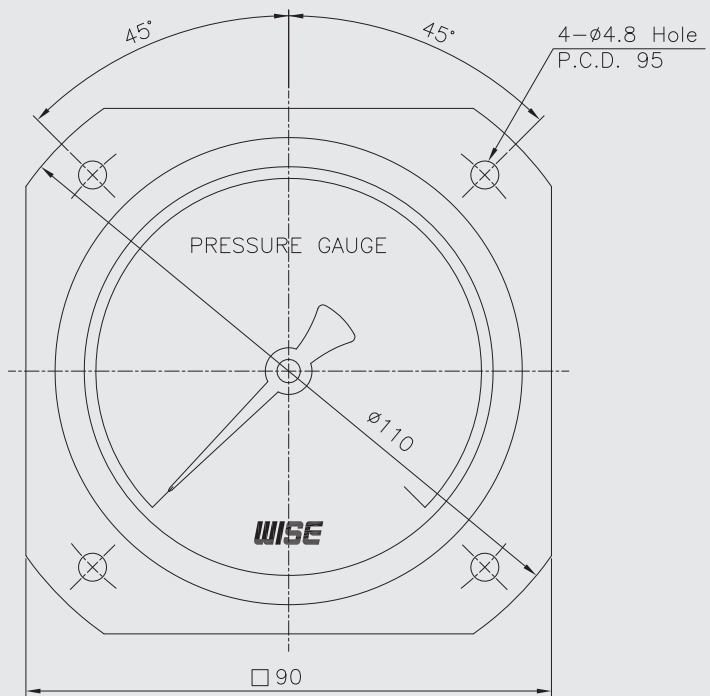
WISE®

1. Base model**P163** Heavy duty service pressure gauge**2. Nominal diameter (mm)****3** 80**3. Type of mounting****J** Center back connection, flush, cover mounting plate**4. Accuracy****3** ±1.0 % of full scale**5. Process connection****B** 1/8"**C** 1/4"**D** 3/8"**Z** M12 x 1.5**6. Connection type****B** PF**C** PT**D** NPT**Z** Other**7. Unit****H** bar**I** MPa**J** kPa**8. Range****XXX** Refer to pressure unit and range table**9. Dial color****1** 2 colors**2** 3 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P163	3	J	3	C	D	H	XXX	2	0

Sample
ordering code

P163 : Type of mounting



Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	80 mm
134	0 ~ 2	0 ~ 0.2	0 ~ 200	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O

O : Available X : Not available

General service pressure gauge with economic design diaphragm seal

Model : P170 series

Spec. sheet no. PD01-07

Service intended

P170 series are designed to withstand corrosive, contaminated, or heterogeneous pressure media by employing the welded bellows. Especially, it can be used for water treatment process machines and sludge water lines.

EAC

Nominal diameter

75 and 100 mm

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 2.5 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Special features

Design with internal diaphragm, upper and lower housing welded
Excellent cost-performance ratio

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Upper and Under flange : 304SS

Movement

Brass

Element

Diaphragm : 316L SS

Pointer

Black painted aluminium alloy

Case

Black painted steel

Process connection

¼" PT, NPT and PF

⅜" PT, NPT and PF

Cover

Black painted steel

Window

Glass

Option

Dial size : 60 and 75 mm

Another process connection size and type

WISE®

1. Base model

P170 General service pressure gauge with screwed diaphragm seal assembly

2. Nominal diameter (mm)

- 3 75
4 100

3. Type of mounting

- A Bottom connection, direct
F Center back connection, direct

4. Accuracy

- 4 ±1.5 % of full scale

5. Process connection

- C 1/4"
D 3/8"

6. Connection type

- B PF
C PT
D NPT

7. Unit

- H bar
I MPa
J kPa

8. Range

XXX Refer to pressure unit and range table

9. Dial color

- 1 2 colors
5 3 colors

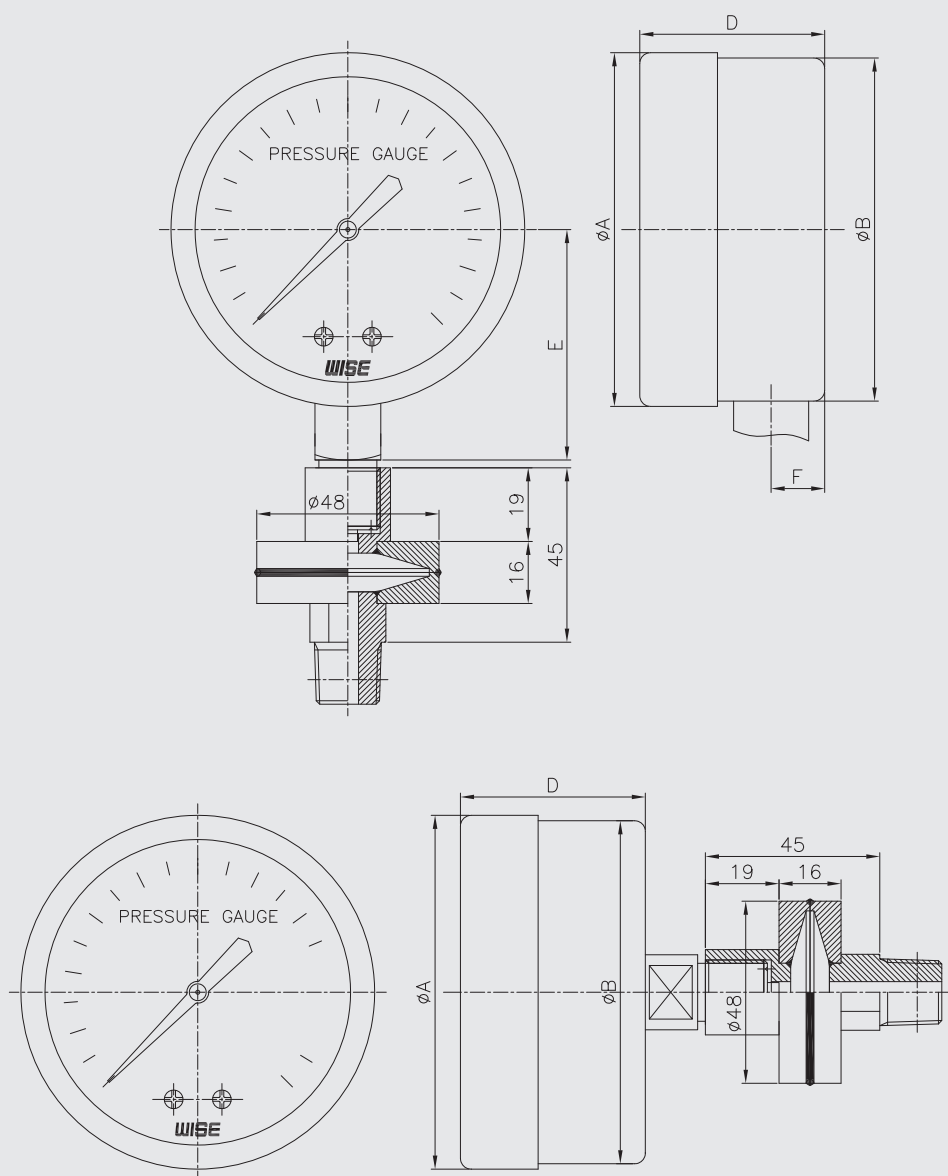
10. Option

- 0 None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P170	4	A	4	D	C	H	XXX	1	0

Sample
ordering code

P170 : Type of mounting



Dimensions (mm)

Dial size	Available code	A	B	D ± 2	E ± 2	F ± 1
75	A	78	77	35	52	12.7
	F	78	82	35	47	
100	A	106	105	35.5	64.5	12.5
	F	106	105	35.5	47	

Pressure unit and range table

Range and code	Unit and code			75 mm	100 mm
	H : bar	I : MPa	J : kPa		
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O

O : Available X : Not available

Industrial service pressure gauge (40, 50 mm)

Model : P221, P253 series

Spec. sheet no. **PD02-01**

Service intended

P221 and P253 series are suitable to be used in a corrosive environment, chemical, petro-chemical, refining facilities, power generation and marine and foods industry. Its stainless steel case and cover have a good appearance and an excellent protection against corrosion and chemical attack.

EAC

Nominal diameter

40 and 50 mm

Accuracy

40 mm : ± 3.0 % of full scale

50 mm : ± 1.5 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 0.2, 0.3, 0.4, 0.6, 1, 1.5, 3.5 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : Model P221 : -40 ~ 65 °C

Model P253 : -20 ~ 60 °C

Fluid : Model P221 : Max. 200 °C

Model P253 : Max. 60 °C



Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale

Standard features

Pressure connection

Model P221 : Stainless steel (316SS)

Model P253 : Nickel plated brass

Element

C type bourdon tube

Model P221 : Stainless steel (316SS)

Model P253 : Brass

Case

Stainless steel (304SS)

Cover

40 mm : Stainless steel (304SS) and polycarbonate

50 mm : Stainless steel (304SS)

Window

Polycarbonate (40 and 50 mm)

Movement

Model P221 : Stainless steel

Model P253 : Brass

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

$\frac{1}{8}$ ", $\frac{1}{4}$ " PT, NPT and PF

Option

Window : Safety glass with 304 stainless steel cover

WISE®

Main order

Ordering information

1. Base model

- P221** Industrial service pressure gauge
P253 Process industrial service pressure gauge

2. Nominal diameter (mm)

- 0** 40
1 50

3. Type of mounting

- A** Bottom connection direct
F Center back connection direct

4. Accuracy

- 4** ±1.5 % of full scale, only available with diameter 50 mm
6 ±3.0 % of full scale, only available with diameter 40 mm

5. Process connection

- B** 1/8"
C 1/4"

6. Connection type

- B** PF
C PT
D NPT
Z Other

7. Unit

- H** bar
I MPa
J kPa

8. Range

- 042** 0 ~ 0.2 MPa (0 ~ 2 bar)
043 0 ~ 0.3 MPa (0 ~ 3 bar)
044 0 ~ 0.4 MPa (0 ~ 4 bar)
045 0 ~ 0.6 MPa (0 ~ 6 bar)
047 0 ~ 1 MPa (0 ~ 10 bar)
050 0 ~ 1.5 MPa (0 ~ 15 bar)
051 0 ~ 2 MPa (0 ~ 20 bar)
054 0 ~ 3.5 MPa (0 ~ 35 bar)

9. Dial color

- 1** 2 colors (P253)
3 2 colors (P221)
5 3 colors (P253)
7 3 colors (P221)

10. Option

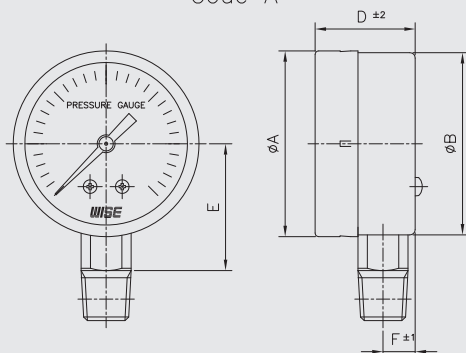
- 0** None
2 Safety glass with 304 stainless steel cover

1	2	3	4	5	6	7	8	9	10
P221	1	F	4	B	C	H	044	1	0

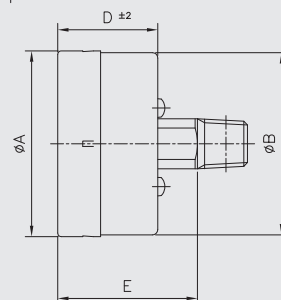
Sample
ordering code

P221, P253 : Type of mounting

Code A

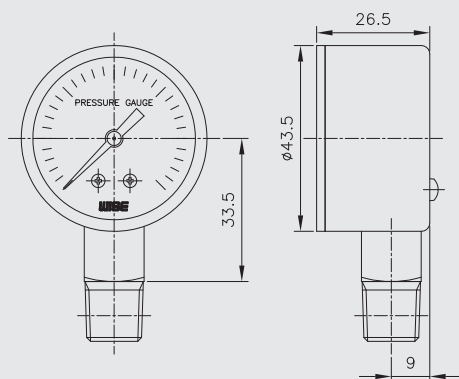


Code F

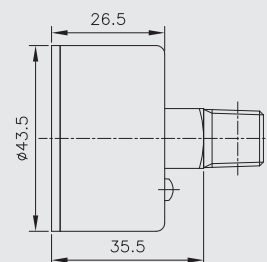


<Cover type—Stainless steel>

Code A



Code F



<Cover type—polycarbonate>
(Only 40mm)

Dimensions (mm)

Dial size	Available code	A	B	D	F	P221 E±2	P253 E±2
40	A	44.7	43.5	29	9	34.5	27.8
	F				—	38.1	37.5
50	A	52	51	29	9	34.5	27.8
	F				—	38.1	37.5

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10,350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10,214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Industrial service pressure gauge (125 mm)

Model : P222 series

Spec. sheet no. PD02-02

Service intended

P222 are suitable to be used in a corrosive environment, chemical, petro-chemical, refining facilities, power generation, marine and foods industry. Its stainless steel case and cover have a good appearance and an excellent protection against corrosion and chemical attack.

Nominal diameter

125 mm (4½")

Accuracy

±0.5 % of full scale

±1.0 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately

±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

316SS

< 10 MPa : C type bourdon tube

≥ 10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Safety glass

Blowout protection

Back, rubber disc

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

⅜", ½" PT, NPT and PF

Zero adjustment

Internal : Micro zero adjustable pointer

EAC

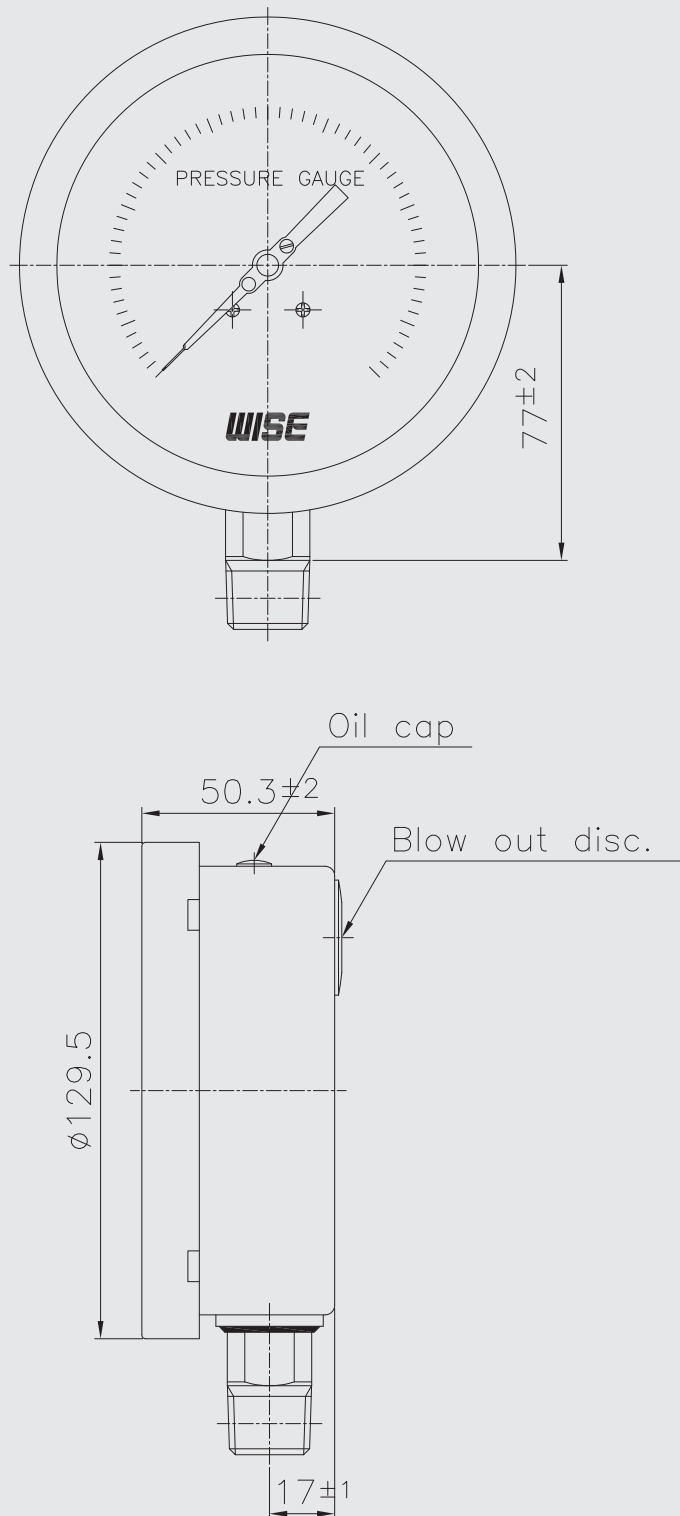
WISE®

1. Base model**P222** Industrial service pressure gauge**2. Nominal diameter****5** 125 mm (4½")**3. Type of mounting****A** Bottom connection, direct**4. Accuracy****2** ±0.5 % of full scale**3** ±1.0 % of full scale**5. Process connection****D** ¾"**E** ½"**6. Connection type****B** PF**C** PT**D** NPT**F** BSPT**G** BSP**Z** Other**7. Unit****H** bar**I** MPa**J** kPa**8. Range****XXX** Refer to pressure unit and range table**9. Dial color****3** 2 colors**7** 3 colors**10. Option****0** None**1** Accessories**2** Glycerin filling**3** Silicone filling**4** Accessories and glycerin filling**5** Accessories and silicone filling

1	2	3	4	5	6	7	8	9	10
P222	5	A	3	E	D	H	XXX	3	2

Sample
ordering code

P222 : Type of mounting



Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	125 mm (4½")
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
151	0 ~ 40	0 ~ 4	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
057	0 ~ 70	0 ~ 7	X	O
058	0 ~ 100	0 ~ 10	X	O
059	0 ~ 150	0 ~ 15	X	O
060	0 ~ 160	0 ~ 16	X	O
062	0 ~ 250	0 ~ 25	X	O
064	0 ~ 350	0 ~ 35	X	O
065	0 ~ 400	0 ~ 40	X	O
066	0 ~ 500	0 ~ 50	X	O
067	0 ~ 600	0 ~ 60	X	O
068	0 ~ 700	0 ~ 70	X	O
070	0 ~ 1,000	0 ~ 100	X	O
074	0 ~ 1,600	0 ~ 160	X	O
075	0 ~ 2,000	0 ~ 200	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O
007	-1 ~ 1.5	-1 ~ 0.15	-100 ~ 150	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4 MPa	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O

O : Available X : Not available

Receiver gauge

Model : P228 series

Spec. sheet no. **PD02-03**

Service intended

P228 series are designed to meet the general requirements of a process industry, and it could provide a remote or a local indication.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 10 % square root scale

0 ~ 100 % linear scale

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Movement

Stainless steel

Element

Stainless steel (316SS)

C type bourdon tube

Dial

White aluminium with black graduations

Case

Stainless steel (304SS)

Pointer

Black painted aluminium alloy

Cover

Stainless steel (304SS)

Process connection

¼", ⅜", ½" PT, NPT and PF

¼" PT(F), ¼" NPT(F)

Window

Safety glass

Process input

0.02 ~ 0.1 MPa

1. Base model**P228** Receiver gauge**2. Nominal diameter (mm)**

4 100
6 160

3. Type of mounting

A Bottom connection, direct
B Bottom connection, surface, case mounting plate
G Lower back connection, direct
L Lower back connection, surface, case mounting plate
M Lower back connection, flush, case center mounting bracket
N Lower back connection, flush, cover mounting plate
W Lower back connection, flush, cover mounting bracket

4. Accuracy**3** ±1.0 % of full scale**5. Process connection**

C 1/4"
D 3/8"
E 1/2"

6. Connection type

B PF
C PT
D NPT
Z PT(F)
Y NPT(F), only available with connection 1/4"

7. Process input

X 0.02 ~ 0.1MPa
W 0.2 ~ 1 kgf/cm²
Y 3 ~ 15 psi

8. Range

398 0 ~10, square root scale
399 0 ~100, linear scale

9. Dial color

3 2 colors
7 3 colors

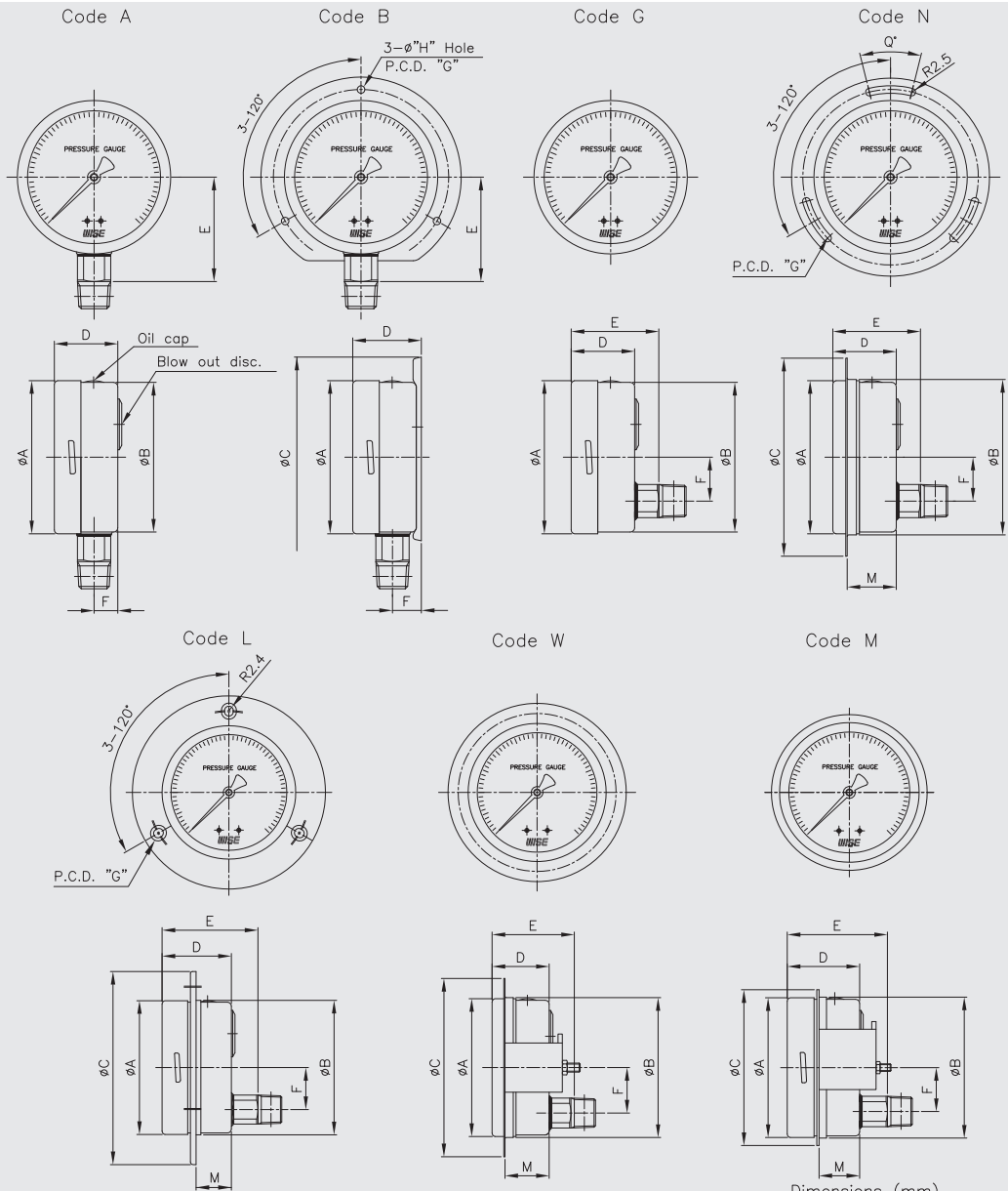
10. Option

0 None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P228	4	A	3	E	D	W	398	3	0

Sample
ordering code

P228 : Type of mounting



Dimensions (mm)											
Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G	H	Q
100	A	101.3	99		50	65	16				
	B	101.3		133	54.4	65	19.4		116	5	
	G	101.3	99		50	65	29				
	N	101.3	103.1	130.5	50	65	29	45	116		28
	L	101.3	100.4	132	50	65	29	27.7	115~116		
	W	101.3	103.1	130.5	50	65	29	45			
	M	101.3	101	107.5	50	65	29	29.5			
160	A	160.6	159		52.5	94	15.8				
	B	160.6		196	56	94	19.4		178	5.8	
	G	160.6	159		52.5	67.5	29				
	N	160.6	164	196	52.5	67.5	29	47.5	178		18
	L	160.6	162	192	52.5	67.5	29	28	175.5~176.5		
	W	160.6	164	172	52.5	67.5	29	47.5			
	M	160.6	162	172	52.5	67.5	29	30.8			

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10,350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10,214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Test pressure gauge

Model : P229 series

Spec. sheet no. **PD02-04**

Service intended

P229 series are designed to be used in instrument shops, laboratories and for other critical applications where a high degree of accuracy is required.



Nominal diameter

160 mm

Accuracy

±0.5 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 0.1 to 0 ~ 200 MPa

Working pressure

Full scale value

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67 (160 mm)

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Window

Laminated safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Zero adjustment

Internal : Micro zero adjustable pointer

Process connection

1/4", 3/8", 1/2" PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H
ATEX Ex II GD c IIc TX

Option

Pressure connection and element : Monel

WISE®

I P229_01

1. Base model**P229** Test pressure gauge**2. Nominal diameter (mm)****6** 160**3. Type of mounting**

- A** Bottom connection, direct
- B** Bottom connection, surface, case mounting plate
- G** Lower back connection, direct
- L** Lower back connection, flush, case center mounting plate
- M** Lower back connection, flush, case center mounting bracket
- N** Lower back connection, flush, cover mounting plate

4. Accuracy**2** ±0.5 % of full scale**5. Process connection**

- C** 1/4"
- D** 3/8"
- E** 1/2"

6. Connection type

- B** PF
- C** PT
- D** NPT

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
- 4** 316L SS and 2 colors
- 5** Monel and 2 colors
- 7** 316SS and 3 colors

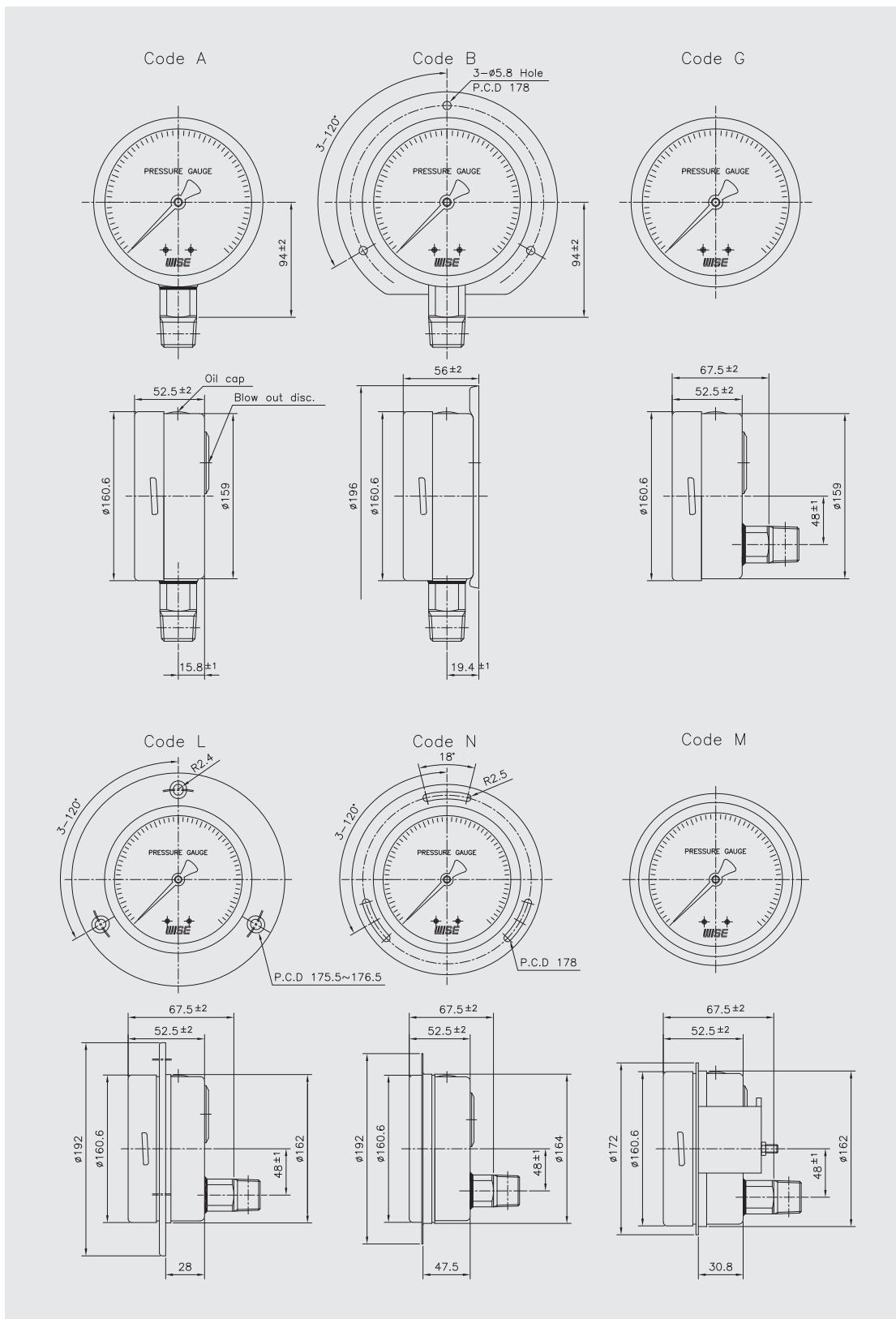
10. Option

- 0** None
- 1** Accessories
- 2** Glycerin filling
- 4** Silicone filling

1	2	3	4	5	6	7	8	9	10
P229	6	A	2	E	C	I	XXX	3	0

Sample
ordering code

P229 : Type of mounting



Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	P229
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O
133	0 ~ 1.6	0 ~ 0.16	1 ~ 160	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
151	0 ~ 40	0 ~ 4	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
057	0 ~ 70	0 ~ 7	X	O
058	0 ~ 100	0 ~ 10	X	O
059	0 ~ 150	0 ~ 15	X	O
060	0 ~ 160	0 ~ 16	X	O
062	0 ~ 250	0 ~ 25	X	O
064	0 ~ 350	0 ~ 35	X	O
065	0 ~ 400	0 ~ 40	X	O
066	0 ~ 500	0 ~ 50	X	O
067	0 ~ 600	0 ~ 60	X	O
068	0 ~ 700	0 ~ 70	X	O
070	0 ~ 1,000	0 ~ 100	X	O
074	0 ~ 1,600	0 ~ 160	X	O
075	0 ~ 2,000	0 ~ 200	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O
007	-1 ~ 1.5	-1 ~ 0.15	-100 ~ 150	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4 MPa	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O

O : Available X : Not available

Miniature pressure gauge

Model: P235S - 316SS Internal
P235B - Brass Internal

Spec. sheet no. **PD02-05**

Service intended

P235S and P235B series are miniature gauges. These gauges are designed to be installed in the narrow and the tight places where regular pressure gauges cannot be installed. Therefore, these gauges are useful for installation on small machines such as positioners. It shows the excellent performance where severe vibration is present.



Nominal diameter

35 mm

Accuracy

±3.0 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 0.2 MPa to 0 ~ 3.5 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : P235S : -40 ~ 65 °C

P235B : -20 ~ 60 °C

Fluid : P235S : Max. 200 °C

P235B : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

P235S - Stainless steel (316SS)

P235B - Brass

Dial

White aluminium with black graduations

Element

"C" type bourdon tube

P235S - Stainless steel (316SS)

P235B - Brass

Pointer

Black painted aluminium alloy

Case

Stainless steel (304SS)

Process connection

1/8", 1/4" PT, NPT and PF

Movement

Stainless steel (304SS)

Option

Window : Safety glass with stainless steel cover

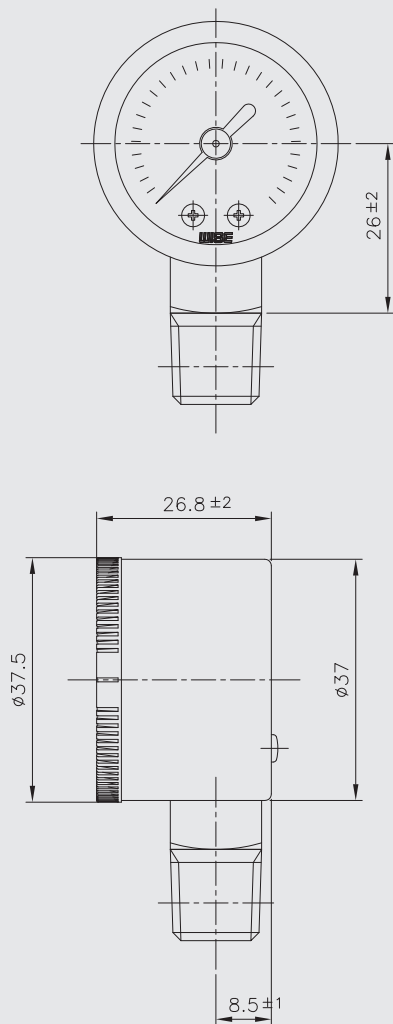
WISE®

1. Base model**P235S** Miniature pressure gauge (316SS internal)**P235B** Miniature pressure gauge (Brass internal)**2. Nominal diameter (mm)****M** 35**3. Type of mounting****A** Bottom connection, direct**F** Center back connection, direct**4. Process connection****B** 1/8"**C** 1/4"**5. Connection type****B** PF**C** PT**D** NPT**Z** Other**6. Unit****H** bar**I** MPa**J** kPa**7. Range****XXX** Refer to pressure unit and range table**8. Dial color****1** 2 colors (P235B)**3** 2 colors (P235S)**5** 3 colors (P235B)**7** 3 colors (P235S)**9. Option****0** None**1** Accessories

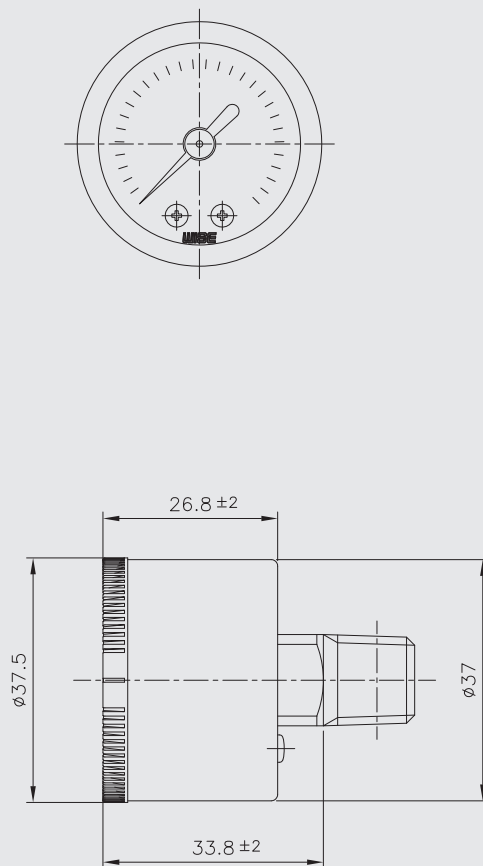
1	2	3	4	5	6	7	8	9
P235S	M	A	B	B	H	XXX	3	0

Sample
ordering code

Code A



Code F



Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	35 mm
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O

O : Available X : Not available

Euro gauge

Test pressure gauge

Model : P239 series

Spec. sheet no. **PD02-06**

Service intended

P239 test pressure gauges are designed to check the accuracy of pressure instruments. Its use expands to a laboratory instruments for research shops and test labs. External adjustable dial and zero adjustable pointers are available for some models. It is an excellent choice for the process applications where high accuracy is a must.

EAC

Nominal diameter

160 and 250 mm

Accuracy

±0.25 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 60 kPa to 0 ~ 100 MPa

Working pressure

Steady : Full scale value

Working temperature

Ambient : -40 ~ 65 °C

Medium : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Movement

Brass

Element

Stainless steel (316SS)

<100 bar : C type bourdon tube

≥100 bar : Helical type bourdon tube

Dial

270° mirror band scale

White aluminium with black graduations

Case

160 mm - Stainless steel (304SS)

250 mm - Black painted aluminium, Solid front

Pointer

Black painted aluminium alloy

Cover

160 mm - Stainless steel (304SS), Bayonet type

250 mm - Black painted aluminium

Zero adjustment

Internal (160 mm)

External (250 mm)

Window

Safety glass

Process connection

3/8", 1/2" PT, NPT and PF

WISE®

1. Base model**P239** Test pressure gauge**2. Nominal diameter (mm)**

- 6** 160
8 250

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate, only available with diameter 160 mm
G Lower back connection, direct
L Lower back connection, surface, case center mounting plate, only available with diameter 160 mm
M Lower back connection, flush, case center mounting bracket, only available with diameter 160 mm
N Lower back connection, flush, cover center mounting plate, only available with diameter 160 mm
W Lower back connection, flush, cover center mounting bracket, only available with diameter 160 mm

4. Accuracy

- 9** ±0.25 % of full scale

5. Process connection

- D** $\frac{3}{8}$ "
E $\frac{1}{2}$ "

6. Connection type

- B** PF
C PT
D NPT

7. Unit

- H** bar
I MPa
J kPa

8. Range**XXX** Refer to pressure unit and range table**9. Dial color**

- 1** 2 colors
5 3 colors

10. Option

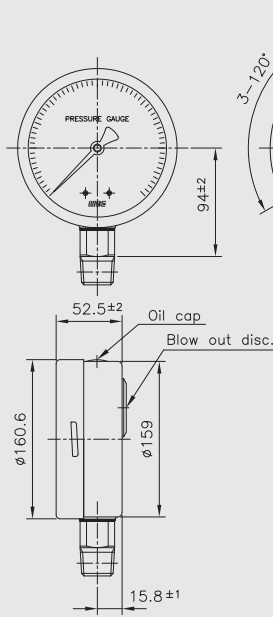
- 0** None
1 Accessories
2 Orifice
3 Accessories and orifice

1	2	3	4	5	6	7	8	9	10
P239	8	A	9	E	C	H	XXX	5	0

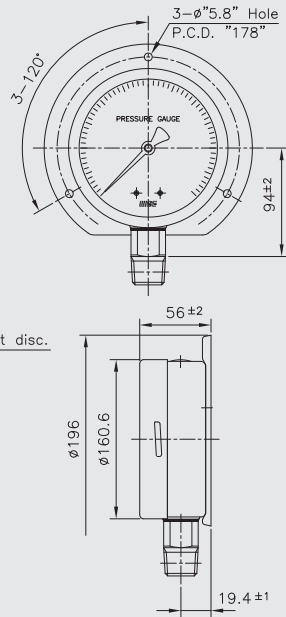
Sample
ordering code

P239 : Type of mounting

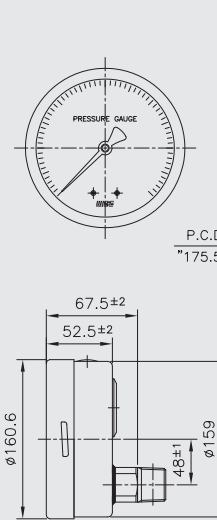
Code A



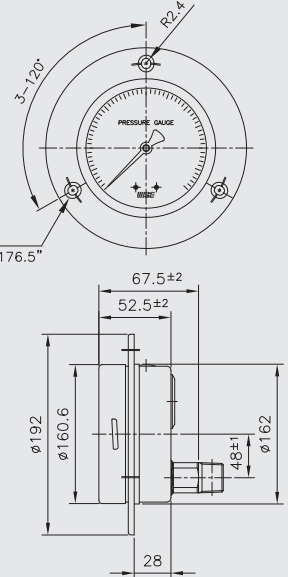
Code B



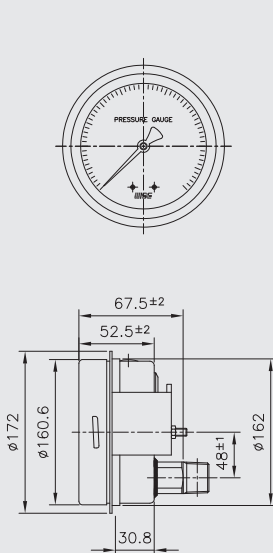
Code G



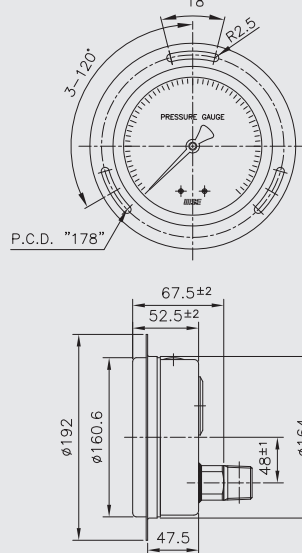
Code L



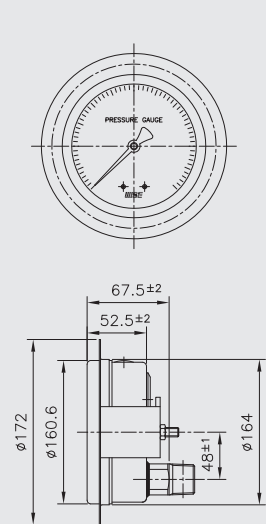
Code M



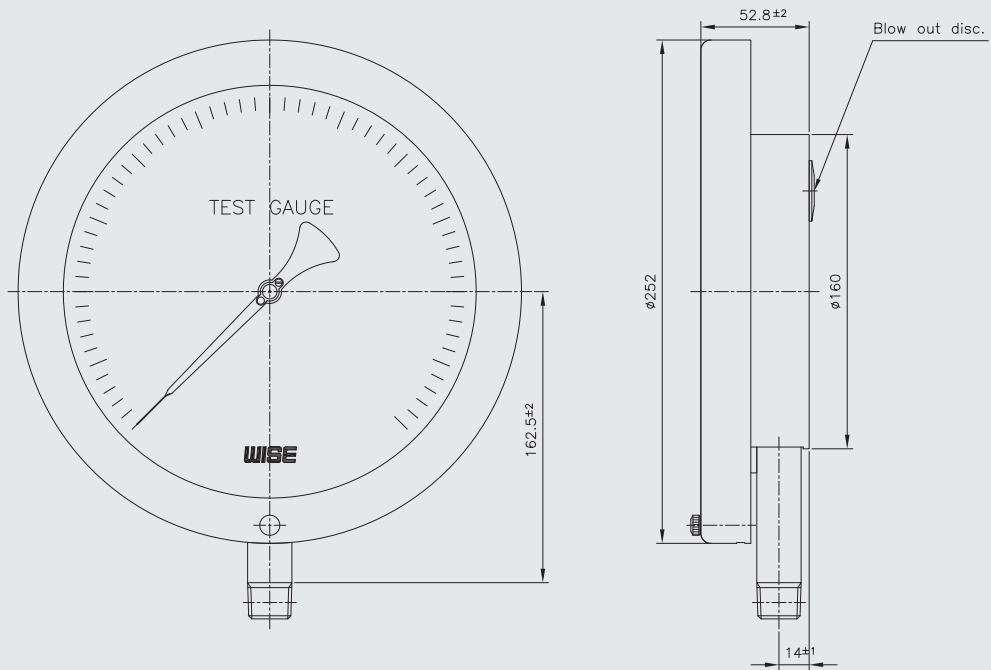
Code N



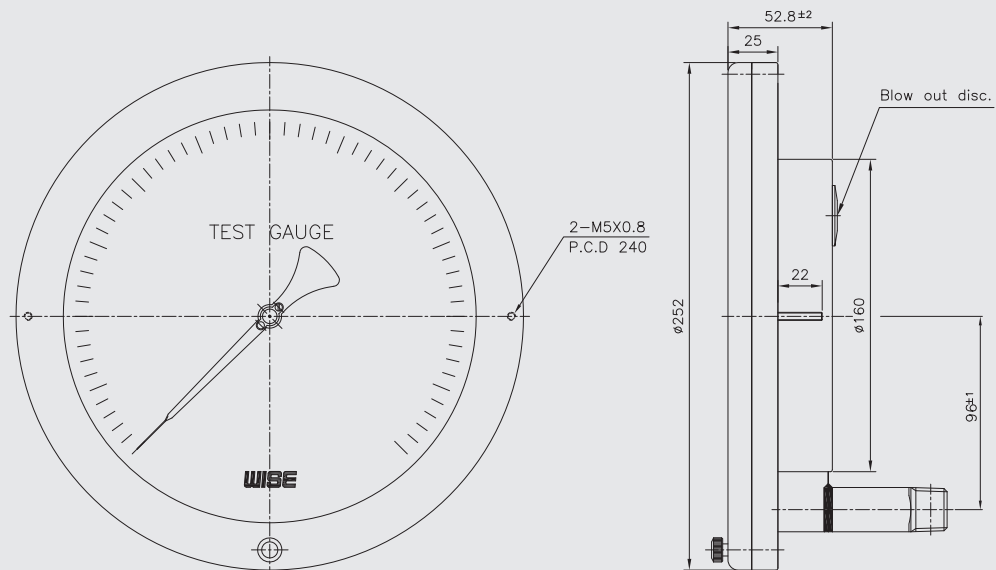
Code W



Code A



Code G



Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	P239
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O
133	0 ~ 1.6	0 ~ 0.16	1 ~ 160	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
151	0 ~ 40	0 ~ 4	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
057	0 ~ 70	0 ~ 7	X	O
058	0 ~ 100	0 ~ 10	X	O
059	0 ~ 150	0 ~ 15	X	O
060	0 ~ 160	0 ~ 16	X	O
062	0 ~ 250	0 ~ 25	X	O
064	0 ~ 350	0 ~ 35	X	O
065	0 ~ 400	0 ~ 40	X	O
066	0 ~ 500	0 ~ 50	X	O
067	0 ~ 600	0 ~ 60	X	O
068	0 ~ 700	0 ~ 70	X	O
070	0 ~ 1,000	0 ~ 100	X	O

O : Available X : Not available

Euro gauge

Industrial service pressure gauge

Model : P252 series

Spec. sheet no. **PD02-07**

Service intended

P252 series are suitable for a corrosive environment. Typical application includes: Chemical, petro-chemical, refining process, power generation, marine and foods industry. Its stainless case and cover have a good appearance and the excellent proof against corrosive and chemical attack.



Nominal diameter

63, 80, 100 and 160 mm

Accuracy

P2522 (63 mm) and P2523 (80 mm) : ± 1.6 % of full scale
P2524 (100 mm) and P2526 (160 mm) : ± 0.5 % of full scale
 ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 and 80 mm : -0.1 ~ 0 to 0 ~ 100 MPa
100 and 160 mm : -0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale (63 and 80 mm)
100 % of full scale (100 and 160 mm)
Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C
Fluid : Max. 200 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS),
Model : P2524 (100 mm) and P2526 (160 mm)
<10 MPa : C type bourdon tube
 ≥ 10 MPa : Helical type bourdon tube
Model : P2522 (63 mm) and P2523 (80 mm)
<6 MPa : C type bourdon tube
 ≥ 6 MPa : Helical type bourdon tube

Blowout protection

Back, Rubber disc for 80, 100 and 160 mm
Top, Rubber disc for 63 mm

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)
Bayonet type

Window

Laminated safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : $\frac{1}{8}$ ", $\frac{1}{4}$ " PT, NPT and PF
80 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ " PT, NPT and PF
100 and 160 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H
ATEX Ex II GD c IIc TX

Option

Zero adjustable pointer
(Only available with diameter 100 and 160 mm)
Zero adjustment (External) : 100 and 160 mm
Pressure connection and element : Monel
(Only available with diameter 100 and 160 mm)
Maximum Pointer
(Not applicable to under 3 bar, Only available with diameter 100 mm)

WISE®

1. Base model**P252** Industrial service pressure gauge**2. Nominal diameter (mm)**

- 2 63
3 80
4 100
6 160

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate
C Bottom connection, flush, cover mounting plate
F Center back connection, direct, only available with diameter 63 mm
G Lower back connection, direct
H Center back connection, flush, case center mounting plate, only available with diameter 63 mm
I Center back connection, flush, case center mounting plate with bracket only available with diameter 63 mm
J Center back connection, flush, cover mounting plate, only available with diameter 63 mm
L Lower back connection, flush, case center mounting plate
M Lower back connection, flush, case center mounting bracket
N Lower back connection, flush, cover mounting plate
V Center back connection, flush, cover mounting bracket, only available with diameter 63 mm
W Lower back connection, flush, cover mounting bracket

4. Accuracy

- 2** ±0.5 % of full scale, only available with diameter 100 and 160 mm, not available with range 0.4 and 0.5 bar
3 ±1.0 % of full scale, not available with diameter 63 and 80 mm
4 ±1.6 % of full scale, only available with diameter 63 and 80 mm

5. Process connection

- B** 1/8"
C 1/4"
D 3/8", not available with diameter 63 mm
E 1/2", not available with diameter 63 and 80 mm

6. Connection type

- B** PF
C PT
D NPT
F BSPT
G BSP (G)
Z Other

7. Unit

- H** bar
I MPa
J kPa
Z Other

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
4 316L SS and 2 colors
7 316SS and 3 colors
8 316L SS and 3 colors
Z Monel (Only available with diameter 100 and 160 mm)

10. Option

- 0** None
1 Accessories

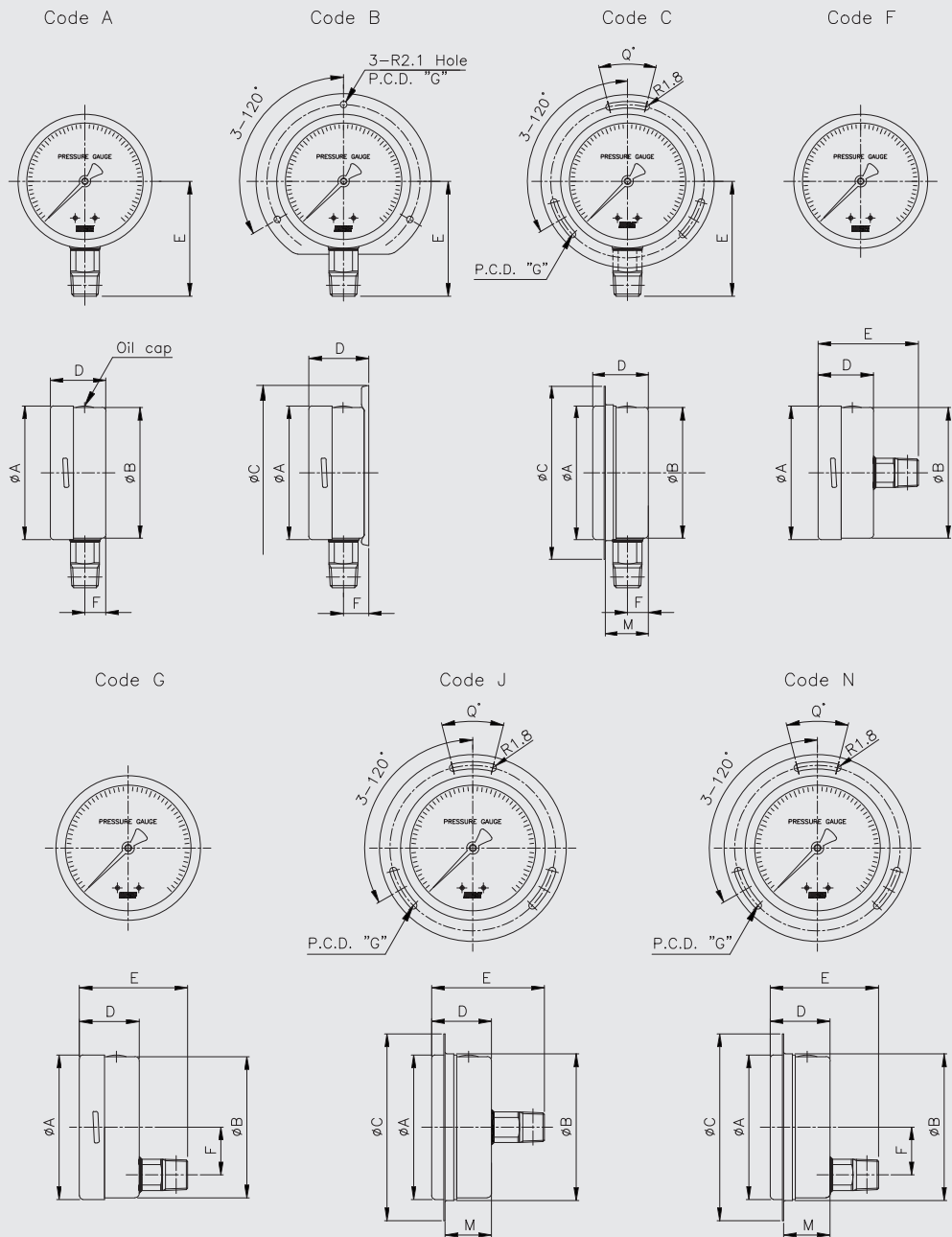
11. Adjustable pointer

- 0** None
1 Zero adjustable pointer
2 External zero adjustment

1	2	3	4	5	6	7	8	9	10	11
P252	4	A	3	E	C	H	XXX	3	0	1

Sample
ordering code

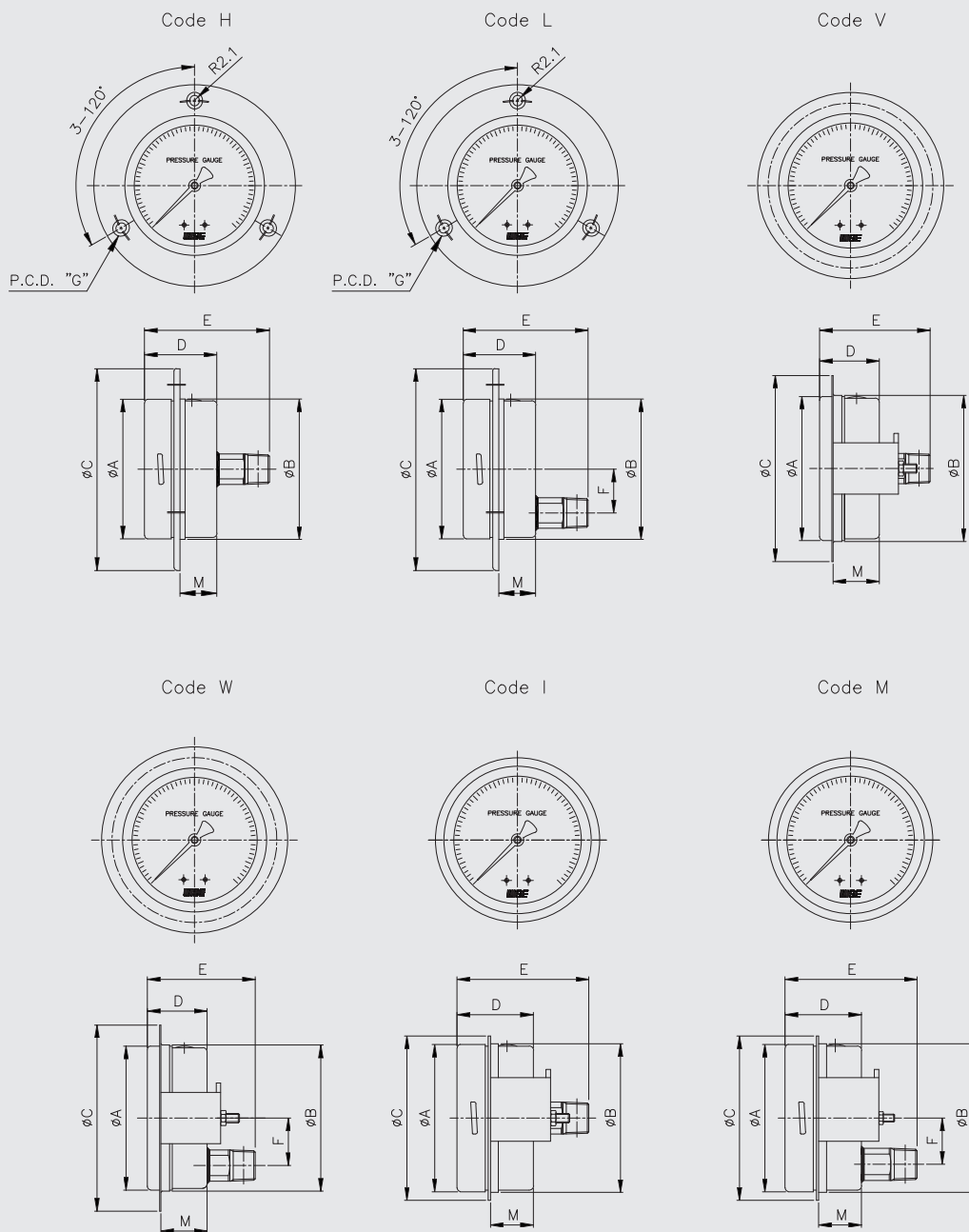
P252 : Type of mounting (1/3)



Dimensions (mm)

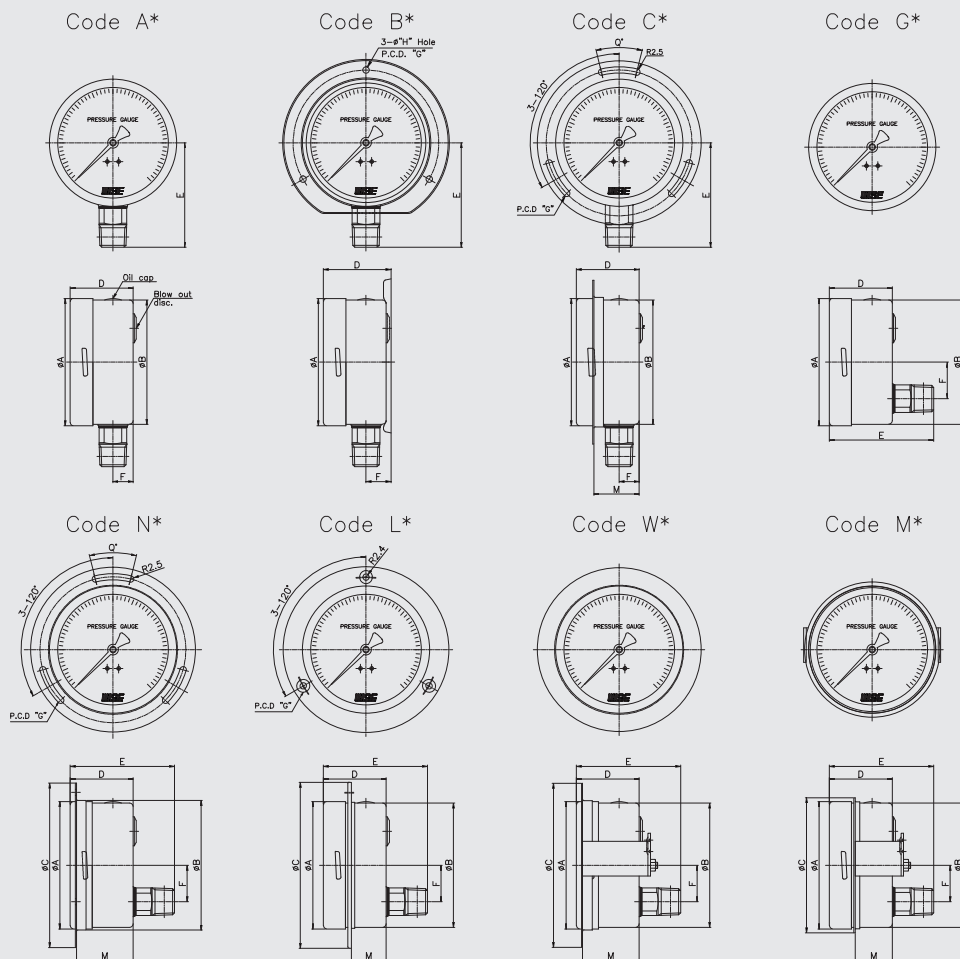
Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G	H	Q
63	A	64	62		34	61	11				
	B	64		85	37	61	15		74~75		
	C	64	62	86	34	61	11	28	75		15
	F	64	62		34	64					
	G	64	62		34	64	13				
	J	64	66	86	34	64		28	75		15
	N	64	66	86	34	64	13	28	75		15

P252 : Type of mounting (2/3)



		Dimensions (mm)							
Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G
63	H	64	64.5	92	34	64		16.8	77~78
	L	64	64.5	92	34	64	13	16.8	77~78
	V	64	66	86	34	64		28	
	W	64	66	86	34	64	13	28	
	I	64	64.5	71	34	64		18.5	
	M	64	64.5	71	34	64	13	18.5	

P252 : Type of mounting (3/3)



Dimensions (mm)															
Dial size	Available code	A	B	C	D ±2		E ±2		F ±1		M		G	H	Q
					S.T.D	External	S.T.D	External	S.T.D	External	S.T.D	External			
80	A*	81.2	78.5		39.5	—	71.5	—	12	—					
	B*	81.2		108	43	—	71.5	—	15.5	—			95	5	
	C*	81.2	78.5	108	39.5	—	71.5	—	12	—	35	—	95		10
	G*	81.2	78.5		39.5	—	74.5	—	22	—					
	N*	81.2	83.2	108	39.5	—	74.5	—	22	—	35	—	95		10
	L*	81.2	80.8	112	39.5	—	74.5	—	22	—	21.8	—	94.5~95.5		
	W*	81.2	83.2	108	39.5	—	74.5	—	22	—	35	—			
M*	81.2	81.5	88	39.5	—	74.5	—	22	—	22.5	—				
100	A*	101.3	99		50	63	88	16	30.6						
	B*	101.3		133	54.4	67.4	88	19.4	34				116	R2.5	
	C*	101.3	99	131	50	63	88	16	30.6	45	58	116			28
	G*	101.3	99		50	63	88	101.5	29						
	N*	101.3	103.1	131	50	63	88	101.5	29	45	58	116			28
	L*	101.3	100.4	132	50	63	88	101.5	29	27.7	40.7	115~116			
	W*	101.3	103.1	131	50	63	88	101.5	29	45	58				
M*	101.3	101	107.5	50	63	88	101.5	29	29.5	42.5					
160	A*	160.6	159		52.5	66	117	15.8	29.3						
	B*	160.6		196	56	69.5	117	19.4	32.9				178	5.8	
	C*	160.6	159	192	52.5	66	117	15.8	29.3	47.5	61	178			18
	G*	160.6	159		52.5	66	90.5	104	29						
	N*	160.6	164	192	52.5	66	90.5	104	29	47.5	61	178			18
	L*	160.6	162	192	52.5	66	90.5	104	29	28	41.5	175.5~176.5			
	W*	160.6	164	172	52.5	66	90.5	104	29	47.5	61				
M*	160.6	162	172	52.5	66	90.5	104	29	30.8	44.3					

Pressure unit and range table

Range and code	Unit and code			Nominal diameter			
	H : bar	I : MPa	J : kPa	63 mm	80 mm	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O	O
123	0 ~ 0.4	0 ~ 0.04	0 ~ 40	X	X	O	Δ
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	X	X	O	Δ
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	X	X	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	X	X	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O	O
056	0 ~ 60	0 ~ 6	X	O	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O	O
060	0 ~ 160	0 ~ 16	X	O	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O	O
065	0 ~ 400	0 ~ 40	X	O	O	O	O
066	0 ~ 500	0 ~ 50	X	O	O	O	O
067	0 ~ 600	0 ~ 60	X	O	O	O	O
068	0 ~ 700	0 ~ 70	X	O	O	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O	O	O
074	0 ~ 1,600	0 ~ 160	X	X	X	O	O
075	0 ~ 2,000	0 ~ 200	X	X	X	O	O
006	-1 ~ 0.6	-0.1 ~ 0.06	-100 ~ 60	X	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O	O
007	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	X	X	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5MPa	O	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2MPa	O	O	O	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4MPa	O	O	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5MPa	O	O	O	O

O : Available X : Not available Δ : Not available with ±0.5 % of full scale

Euro gauge

Industrial service pressure gauge (Internal brass)

Model : P253 series

Spec. sheet no. PD02-08

Service intended

Sturdy industrial pressure gauge designed in compliance with the operational safety requirements of EN 837-1.
Reliable pressure gauge for the machine and plant.
For gaseous and liquid media that are not highly viscous or crystallising and will not attack copper alloy parts.



Nominal diameter

63, 100 and 160 mm

Accuracy

P2532 (63 mm) : ± 1.6 % of full scale

P2534 (100 mm) and P2536 (160 mm) : ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 mm : -0.1 ~ 0 to 0 ~ 35 MPa

100 and 160 mm : -0.1 ~ 0 to 0 ~ 100 MPa

Working pressure

Steady : 75 % of full scale (63 mm)

100 % of full scale (100 and 160 mm)

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Degree of protection

EN60529/IEC529/IP65

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass

Element

Brass

Model : P2534 (100 mm) and P2536 (160 mm)

<10 MPa : C type bourdon tube

≥ 10 MPa : Helical type bourdon tube with 316SS

Model : P2532 (63 mm)

<6 MPa : C type bourdon tube

≥ 6 MPa : Helical type bourdon tube

Blowout protection

Back, Rubber disc for 100 and 160 mm

Top, Rubber disc for 63 mm

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Laminated safety glass

Movement

63 mm : Brass

100 and 160 mm : Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : $\frac{1}{4}$ " PT, NPT and PF

100 and 160 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Certificates

ATEX Ex II GD c IIc TX

Option

Zero adjustable pointer

(Only available with diameter 100 and 160 mm)

WISE®

1. Base model**P253** Industrial service pressure gauge (Internal brass)**2. Nominal diameter (mm)**

2 63
4 100
6 160

3. Type of mounting

A Bottom connection, direct
B Bottom connection, surface, case mounting plate
F Center back connection, direct, only available with diameter 63 mm
G Lower back connection, direct, only available with diameter 100 mm
H Center back connection, flush, case center mounting plate, only available with diameter 63 mm
I Center back connection, flush, case center mounting plate with bracket, only available with diameter 63 mm
J Center back connection, flush, cover mounting plate, only available with diameter 63 mm
L Lower back connection, flush, case center mounting plate, only available with diameter 100 mm
M Lower back connection, flush, case center mounting bracket, only available with diameter 100 mm
N Lower back connection, flush, cover mounting plate, only available with diameter 100 mm
V Center back connection, flush, cover mounting bracket, only available with diameter 63 mm
W Lower back connection, flush, cover mounting bracket, only available with diameter 100 mm

4. Accuracy

3 ±1.0 % of full scale, not available with diameter 63 mm
4 ±1.6 % of full scale, only available with diameter 63 mm

5. Process connection

C ¼"
D ⅜", Not available with diameter 63 mm
E ½", Not available with diameter 63 mm

6. Connection type

B PF
C PT
D NPT
F BSPT
G BSP (G)
Z Other

7. Unit

H bar
I MPa
J kPa
Z Other

8. Range**XXX** Refer to pressure unit and range table**9. Dial color**

1 2 colors
5 3 colors

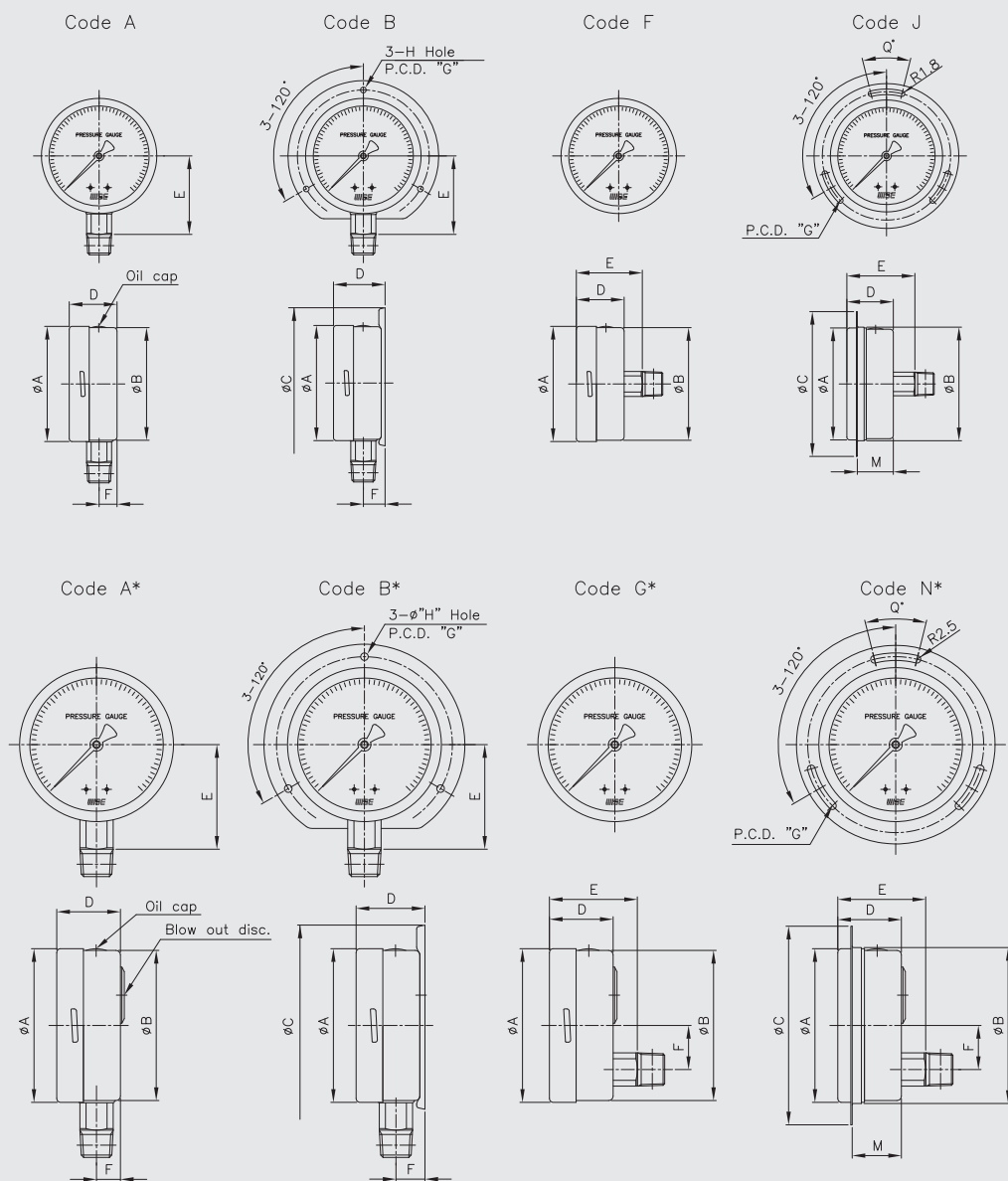
10. Option

0 None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P253	4	A	3	E	D	H	XXX	1	0

Sample
ordering code

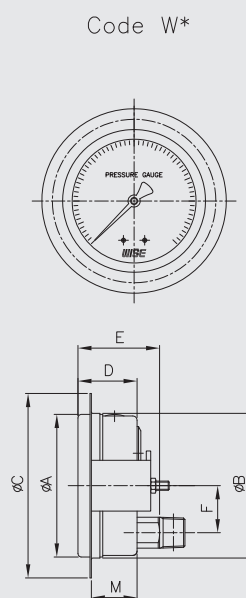
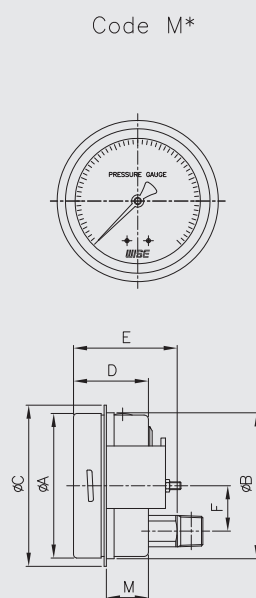
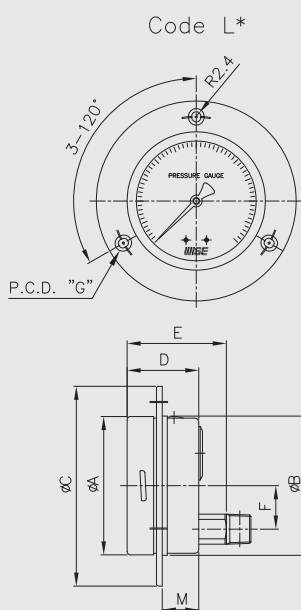
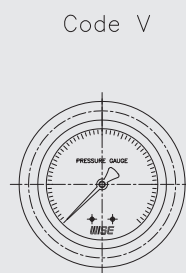
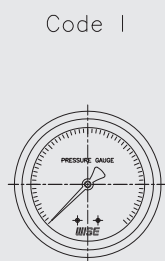
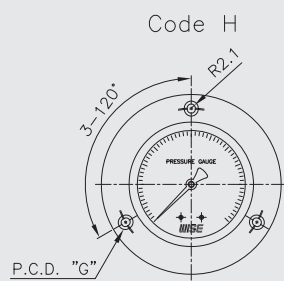
P253 : Type of mounting (1/2)



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G	H	Q
63	A	64	62		34	41.7	11				
	B	64		85	37	41.7	15		74~75		
	F	64	62		34	45					
	J	64	66	86	34	45		28	75		15
100	A*	101.3	99		50	65	16				
	B*	101.3		133	54.4	65	19.4		115~116	R2.5	
	G*	101.3	99		50	65	29				
	N*	101.3	103.1	130.5	50	65	29	45	116		28
160	A*	160.6	159		52.5	94	15.8				
	B*	160.6		196	56	94	19.3		178	5.8	

P253 : Type of mounting (2/2)



Dimensions (mm)									
Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G
63	H	64	64.5	92	34	45			77~78
	I	64	63.7	71	34	45		18.5	
	V	64	66	86	34	45		28	
100	L*	101.3	100.4	132	50	65	29	27.7	115~116
	M*	101.3	101	107.5	50	65	29	29.5	
	W*	101.3	103.1	130.5	50	65	29	45	

Pressure unit and range table

Range and code	Unit and code			Nominal diameter		
	H : bar	I : MPa	J : kPa	63 mm	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O
056	0 ~ 60	0 ~ 6	X	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O
060	0 ~ 160	0 ~ 16	X	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O
065	0 ~ 400	0 ~ 40	X	X	O	O
066	0 ~ 500	0 ~ 50	X	X	O	O
067	0 ~ 600	0 ~ 60	X	X	O	O
068	0 ~ 700	0 ~ 70	X	X	O	O
070	0 ~ 1,000	0 ~ 100	X	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O
007	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4 MPa	O	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O	O

O : Available X : Not available

General service liquid filled pressure gauge

Model : P254 series

Spec. sheet no. PD02-09

Service intended

P254 series are designed to measure a high dynamic pressure load and it can be used where severe vibrations are present. It is recommended to be used with a gaseous and a liquid media that are not highly viscous and not to be used where copper alloy parts could be corroded. Its application extends to hydraulics, compressors and shipbuilding.

EAC

Nominal diameter

50, 63, 75 and 100 mm

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 40 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 60 °C

-20 ~ 60 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 60 °C

Fluid

Glycerin

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately

±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass (50 and 63 mm)

Nickel plated brass (75 and 100 mm)

Element

Brass

<6 MPa : C type bourdon tube

≥6 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Crimp ring type

Window

Polycarbonate (50 and 63 mm)

Safety glass (75 and 100 mm)

Movement

Brass

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

50 and 63 mm : 1/8", 1/4" PT, NPT and PF

75 mm : 1/4", 3/8" PT, NPT and PF

100 mm : 1/4", 3/8", 1/2" PT, NPT and PF

One piece type connection (50 and 63 mm)

Two piece type connection (75 and 100 mm)

WISE®

Main order

Ordering information

1. Base model

P254 General service liquid filled pressure gauge

2. Nominal diameter (mm)

- 1 50
- 2 63
- 3 75
- 4 100

3. Type of mounting

- A** Bottom connection, direct
- B** Bottom connection, surface, case mounting plate, not available with diameter 50 mm
- F** Center back mount, direct
- H** Center back connection, flush, case center mounting plate, not available with diameter 50 mm
- I** Center back connection, case center mounting bracket, only available with diameter 63 mm

4. Accuracy

- 4** ±1.5 % of full scale

5. Process connection

- B** 1/8"
- C** 1/4"
- D** 3/8", not available with diameter 50 and 63 mm
- E** 1/2", not available with diameter 50, 63 and 75 mm
- P** 7/16" (UNF)

6. Connection type

- B** PF
- C** PT
- D** NPT
- F** BSPT
- G** BSP
- E** UNF
- Z** Other

7. Unit

- H** bar
- I** MPa
- J** kPa
- Z** Other

8. Range

XXX Refer to pressure unit and range table

9. Dial color

- 1** 2 colors
- 5** 3 colors

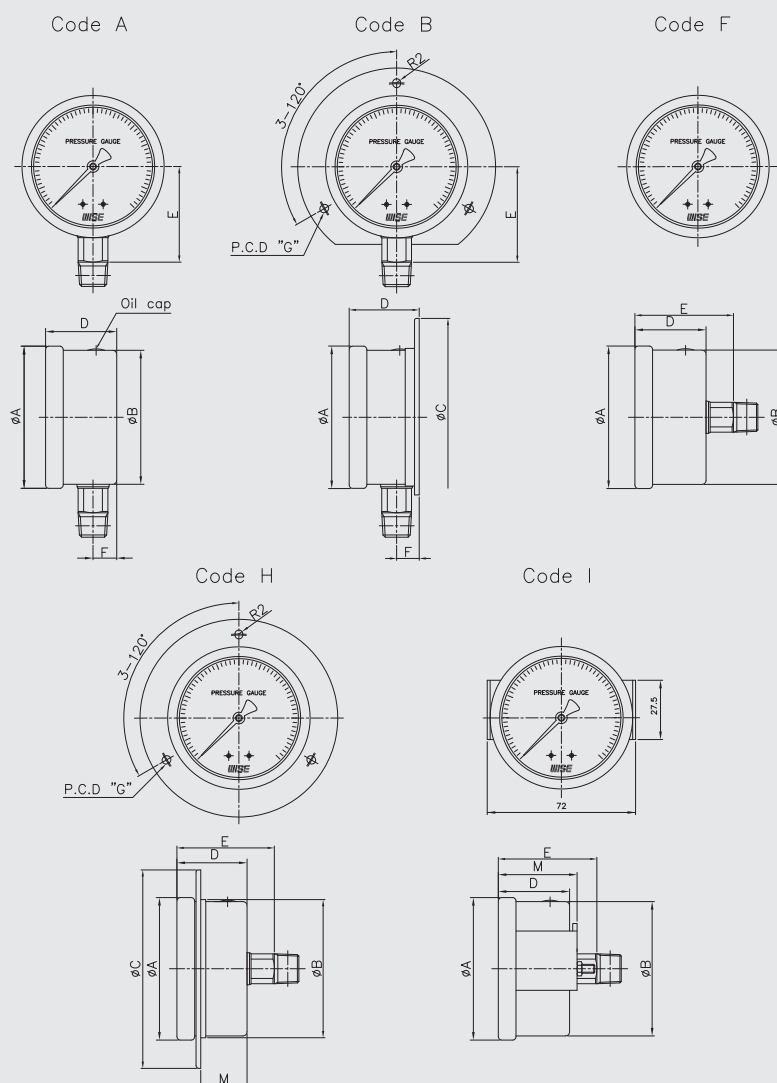
10. Option

- 0** None
- 1** Accessories
- 8** Silicone filling
- 9** Glycerin filling

1	2	3	4	5	6	7	8	9	10
P254	4	A	4	E	D	H	XXX	1	0

Sample
ordering code

P254 : Type of mounting



Dimensions (mm)									
Dial size	Available code	A	B	C	D±2	E±2	F ±1	M	G
50	A	58.3	52		29.5	37.5	10.4		
	F	58.3	52		29.5	38			
63	A	68	62		33	44.3	12.7		
	B	68		86	34	44.3	13.7		74~78
	F	68	62		33	42.5			
	H	68	64	86	33	42.5		26	74~78
	I	68	62		33	42.5		42	
75	A	85.5	76.5		34	56	10		
	B	85.5		105	36	56	12		93.5
	F	85.5	76.5		34	52			
	H	85.5	79	105	34	52		28	93.5
100	A	109.8	101.3		38.5	65	12.5		
	B	109.8		128	41.5	65	14		115
	F	109.8	101.3		38.5	52			
	H	109.8	103	128	38.5	52		27	114~117

Pressure unit and range table

Range and code	Unit and code			Nominal diameter			
	H : bar	I : MPa	J : kPa	50 mm	63 mm	75 mm	100 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	X	O	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	X	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O	O
057	0 ~ 70	0 ~ 7	X	X	O	O	O
058	0 ~ 100	0 ~ 10	X	X	O	O	O
059	0 ~ 150	0 ~ 15	X	X	O	O	O
062	0 ~ 250	0 ~ 25	X	X	O	O	O
064	0 ~ 350	0 ~ 35	X	X	O	O	O
065	0 ~ 400	0 ~ 40	X	X	O	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	X	O	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	X	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	X	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	X	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	X	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	X	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	X	X	O	O	O
034	-1 ~ 20	-0.1 ~ 2	X	X	O	O	O

O : Available X : Not available

Crimped-on-ring case pressure gauge

Model : P255-fully stainless steel construction

Spec. sheet no. **PD02-10**

Service intended

P255 liquid filled series are suitable for applications with high dynamic pressure loads or vibrations.
It is suitable for corrosive environments and gaseous or liquid media that will not obstruct the pressure system.
Suitable for machinery industry and parts for various facilities and equipments.

EAC

Nominal diameter

63, 80 and 100 mm

Accuracy

63 and 80 mm : ± 1.6 % of full scale

100 mm : ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 and 80 mm : -0.1 ~ 0 to 0 ~ 100 MPa

100 mm : -0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Window

Safety glass

Element

63 and 80 mm : ≤ 0.3 MPa : C type bourdon tube (316SS)

≥ 0.4 and < 6 MPa : C type bourdon tube (304SS)

≥ 6 MPa : Helical type bourdon tube (316SS)

100 mm : ≤ 0.1 MPa : C type bourdon tube (316SS)

≥ 0.2 and < 10 MPa : C type bourdon tube (304SS)

≥ 10 MPa : Helical type bourdon tube (316SS)

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Case and cover

Stainless steel (304SS)

Crimp ring type

Process connection

63 mm : $\frac{1}{4}$ " PT, NPT and PF

80 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ " PT, NPT and PF

100 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

WISE®

1. Base model**P255** Crimp-on-ring case pressure gauge**2. Nominal diameter (mm)**

- 2** 63
3 80
4 100

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate
F Center back connection, direct, only available with diameter 63 mm
G Lower back connection, direct
H Center back connection, case center mounting plate, only available with diameter 63 mm
I Center back connection, cover mounting with bracket, only available with diameter 63 mm
L Lower back connection, flush, case center mounting plate
W Lower back connection, flush, cover mounting bracket

4. Accuracy

- 3** ±1.0 % of full scale, only available with diameter 100 mm
4 ±1.6 % of full scale, only available with diameter 63 and 80 mm

5. Process connection

- C** 1/4"
D 3/8", not available with diameter 63 mm
E 1/2", not available with diameter 63 and 80 mm
P 7/16" (UNF)

6. Connection type

- B** PF
C PT
D NPT
E UNF
F BSPT
G BSP
Z Other

7. Unit

- H** bar
I MPa
J kPa
Z Other

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
7 316SS and 3 colors

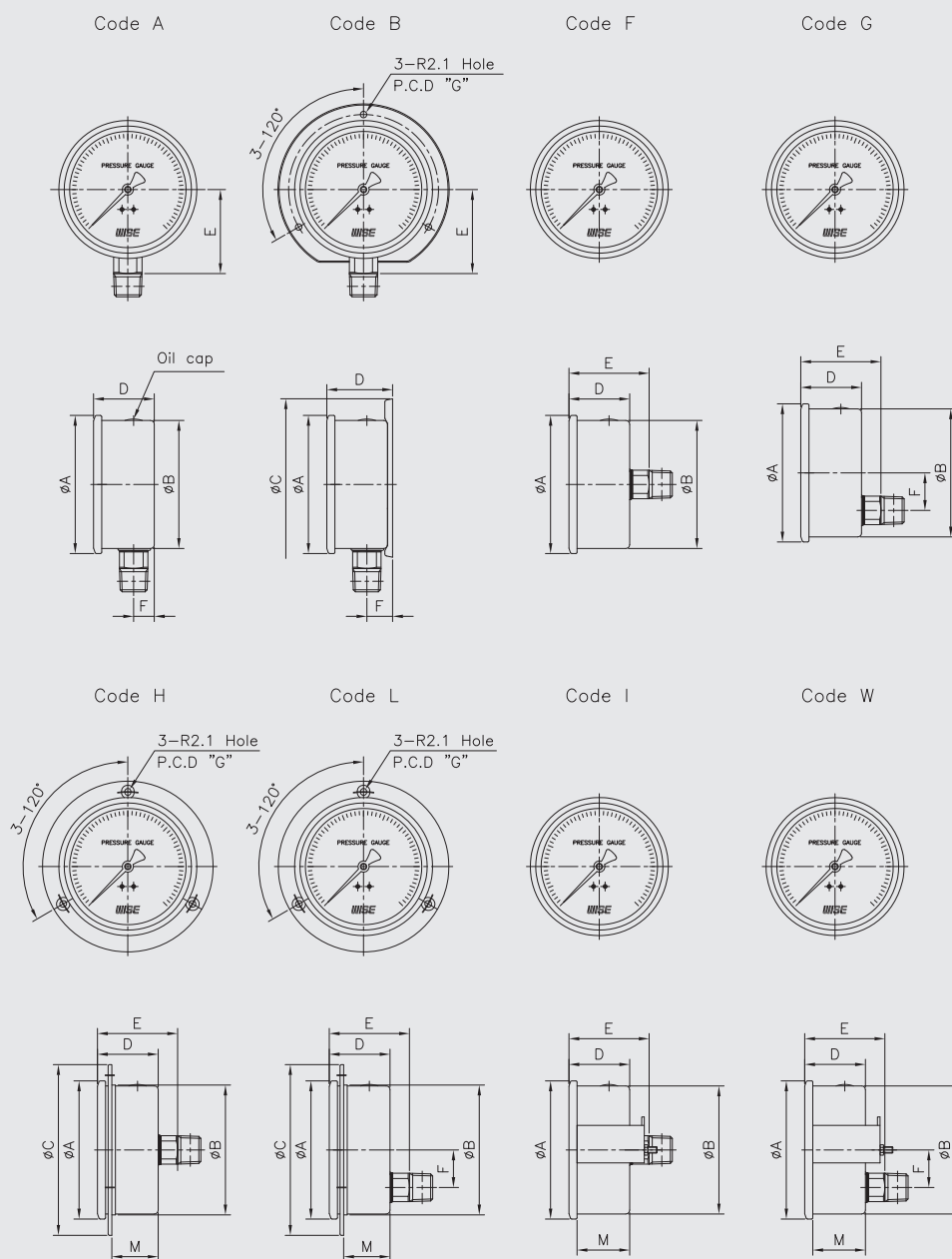
10. Option

- 0** None
8 Silicone filling
9 Glycerin filling

1	2	3	4	5	6	7	8	9	10
P255	2	A	4	C	D	H	XXX	3	9

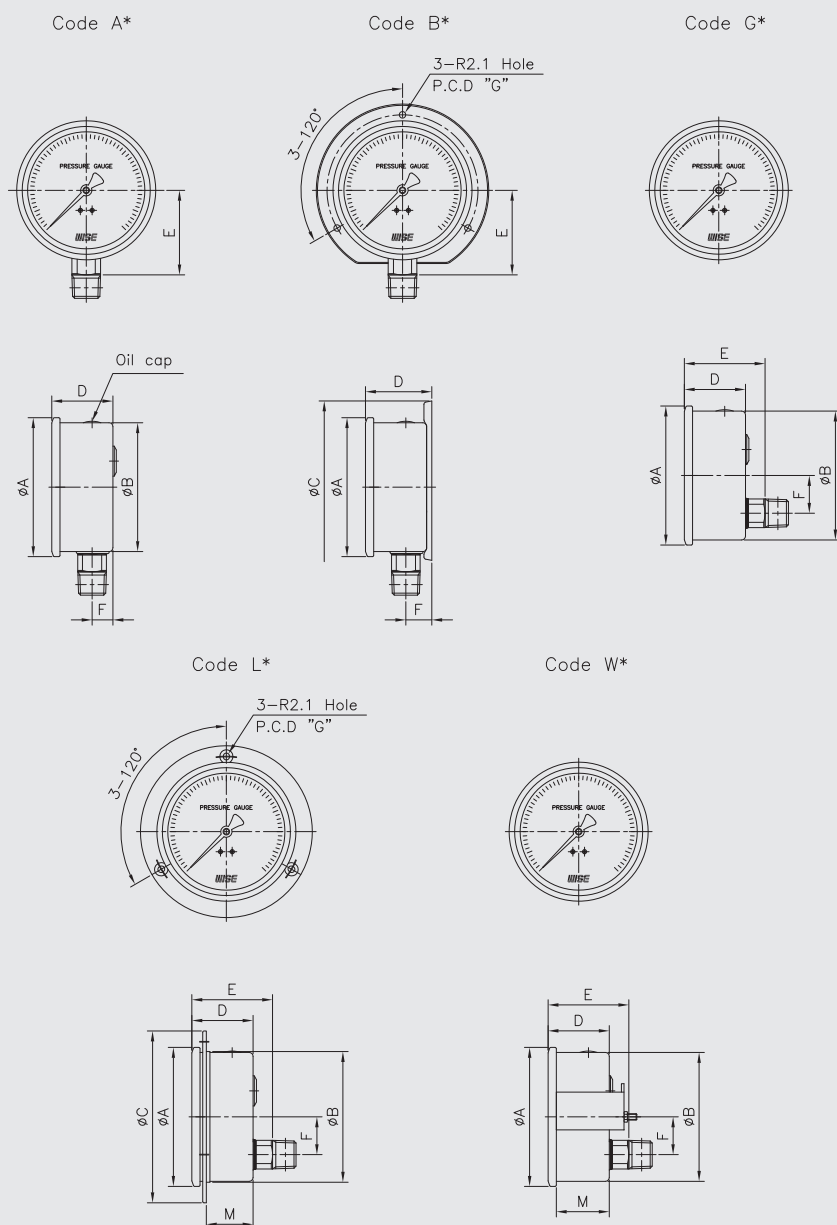
Sample
ordering code

P255 : Type of mounting (1/2)



Dimensions (mm)									
Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G
63	A	67.8	62		34	41.7	11		
	B	67.8		85	37	41.7	15		74~75
	F	67.8	62		34	45			
	G	67.8	62		34	45	13		
	H	67.8	64.5	92	34	45		22	77~78
	L	67.8	64.5	92	34	45	13	22	77~78
	I	67.8	62		34	45		26.5	
	W	67.8	62		34	45	13	26.5	

P255 : Type of mounting (2/2)



Dimensions (mm)

Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G
80	A*	84.8	78.5		36	50.5	12		
	B*	84.8		108	39.5	50.5	15.5		95
	G*	84.8	78.5		36	50	22		
	L*	84.8	80.8	112	36	50	22	26.8	94.5~95.5
	W*	84.8	78.5		36	50	22	31.5	
100	A*	106.8	99		47	65	16		
	B*	106.8		133	51	65	19.4		116
	G*	106.8	99		47	62	29		
	L*	106.8	100.4	132	47	62	29	36	115~116
	W*	106.8	99		47	62	29	40.5	

Pressure unit and range table

Range and code	Unit and code			63 mm	80 mm	100 mm
	H : bar	I : MPa	J : kPa			
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	X	X	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O
066	0 ~ 500	0 ~ 50	X	O	O	O
067	0 ~ 600	0 ~ 60	X	O	O	O
068	0 ~ 700	0 ~ 70	X	O	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O	O
074	0 ~ 1,600	0 ~ 160	X	X	X	O
075	0 ~ 2,000	0 ~ 200	X	X	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O	O

O : Available X : Not available

Euro gauge

Safety pattern type overpressure protection pressure gauge

Model : P256 series

Spec. sheet no. **PD02-11**

Service intended

P256 series are made with a solid plate wall and a blow-out back. Its stainless steel case and cover have a good appearance. It has the excellent proof against corrosion and chemical attack.

Suitable for protection against damage to the measuring element when high overpressure is applied to the gauge instantaneously.

Max overpressure is up to 4 times of measuring range.

Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of measuring range

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 4 MPa

Working pressure

Steady : 100 % of full scale

Over range protection : 4 times the measuring range

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale

* NOTE : P256 series is not applied with diaphragm seal.

Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Blowout protection

Solid front

Blow-out back

Window

Laminated safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations
overpressure range indicated by a black sector

Pointer

Black painted aluminium alloy

Process connection

½", ¾" PT, NPT and PF

Option

Zero adjustable pointer

Pressure connection and element : Monel

Case and cover material : 316SS



EAC

WISE®

1. Base model

P256 Safety pattern type overpressure protection
pressure gauge

2. Nominal diameter (mm)

4 100

6 160

3. Type of mounting

A Bottom connection, direct

C Bottom connection, surface, cover mounting plate

4. Accuracy

3 ±1.0 % of full scale

5. Process connection

D 3/8"

E 1/2"

6. Connection type

B PF

C PT

D NPT

F BSPT

G BSP(G)

7. Unit

H bar

I MPa

J kPa

Z Other

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

3 316SS and 2 colors

4 316L SS and 2 colors

7 316SS and 3 colors

8 316L SS and 3 colors

Z Monel

10. Option

0 None

1 Accessories

8 Silicone filling

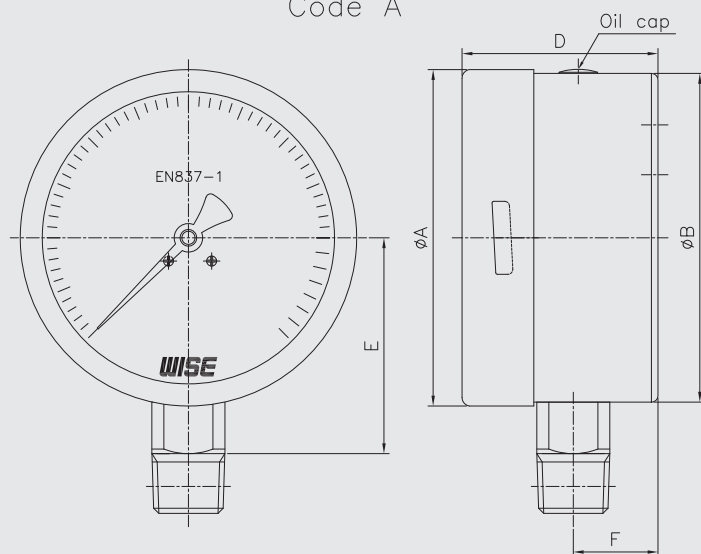
9 Glycerin filling

1	2	3	4	5	6	7	8	9	10
P256	4	A	3	D	B	H	XXX	3	0

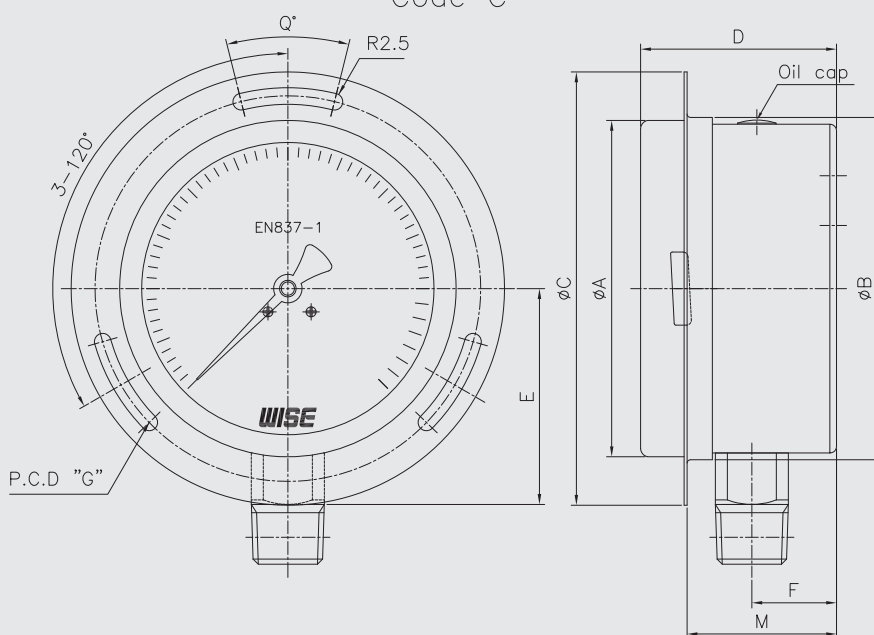
Sample
ordering code

P256 : Type of mounting

Code A



Code C



Dial size	Available code	Dimensions (mm)								
		A	B	C	D ± 2	E ± 2	F ± 1	G	M	Q
100	A	101.3	99		59	65	25.5			
	C	101.3	103.1	130.5	59	65	25.5	116	45	28
160	A	160.8	159.6		62	90	25.6			
	C	160.8	164	196	62	90	25.6	178	57	18

Pressure unit and range table

Range and code	Measuring range	Overpressure range
	H : bar	H : bar
026	-1 ~ 0	3
131	0 ~ 0.6	2.5
041	0 ~ 1	4
133	0 ~ 1.6	6
042	0 ~ 2	8
134	0 ~ 2.5	10
044	0 ~ 4	16
045	0 ~ 6	24
047	0 ~ 10	40
050	0 ~ 15	60
051	0 ~ 20	80
052	0 ~ 25	80
051	0 ~ 35	100
052	0 ~ 40	100

Euro gauge

Safety pattern type pressure gauge

Model : P257 series

Spec. sheet no. **PD02-12**

Service intended

P257 series are made with a solid plate wall and a blow-out back. Its stainless steel case and cover have a good appearance. It has the excellent proof against corrosion and chemical attack.

Nominal diameter

63, 100 and 160 mm

Accuracy

P2572 (63 mm) : ± 1.6 % of full scale

P2574 (100 mm) and P2576 (160 mm) : ± 0.5 % of full scale
 ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 mm : -0.1 ~ 0 to 0 ~ 100 MPa

100 and 160 mm : -0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale (63 mm)

100 % of full scale (100 and 160 mm)

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

63 mm : <6 MPa : C type bourdon tube

≥ 6 MPa : Helical type bourdon tube

100 and 160 mm : <10 MPa : C type bourdon tube

≥ 10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Blowout protection

Solid front

Blow-out back

Window

Laminated safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : $\frac{1}{8}$ ", $\frac{1}{4}$ " PT, NPT and PF

100 and 160 mm : $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{8}$ " PT, NPT and PF

Certificates

ATEX Ex II GD c IIc TX

Pressure equipment directive (2014/68/EU)-Annex III Module H

Option

Zero adjustable pointer

(Only available with diameter 100 and 160 mm)

Zero adjustment (External) : 100 and 160 mm

Pressure connection and element : Monel

(Only available with diameter 100 and 160 mm)

WISE®

Main order

Ordering information

1. Base model

P257 Safety pattern type pressure gauge

2. Nominal diameter (mm)

- 2** 63
- 4** 100
- 6** 160

3. Type of mounting

- A** Bottom connection, direct
- C** Bottom connection, surface, cover mounting plate, not available with diameter 63 mm
- G** Lower back connection, direct, not available with diameter 160 mm
- M** Lower back connection, flush, case center mounting bracket, not available with diameter 160 mm
- N** Lower back connection, flush, cover mounting plate, not available with diameter 160 mm

4. Accuracy

- 2** ±0.5 % of full scale. not available with diameter 63 mm, not available with range 0.4 and 0.5 bar
- 3** ±1.0 % of full scale. not available with diameter 63 mm
- 4** ±1.6 % of full scale. only available with diameter 63 mm

5. Process connection

- B** 1/8"
- C** 1/4"
- D** 3/8", not available with diameter 63 mm
- E** 1/2", not available with diameter 63 mm

6. Connection type

- B** PF
- C** PT
- D** NPT
- F** BSPT
- G** BSP(G)

7. Unit

- H** bar
- I** MPa
- J** kPa
- Z** Other

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material dial color

- 3** 316SS and 2 colors
- 4** 316L SS and 2 colors
- 7** 316SS and 3 colors
- 8** 316L SS and 3 colors
- Z** Monel

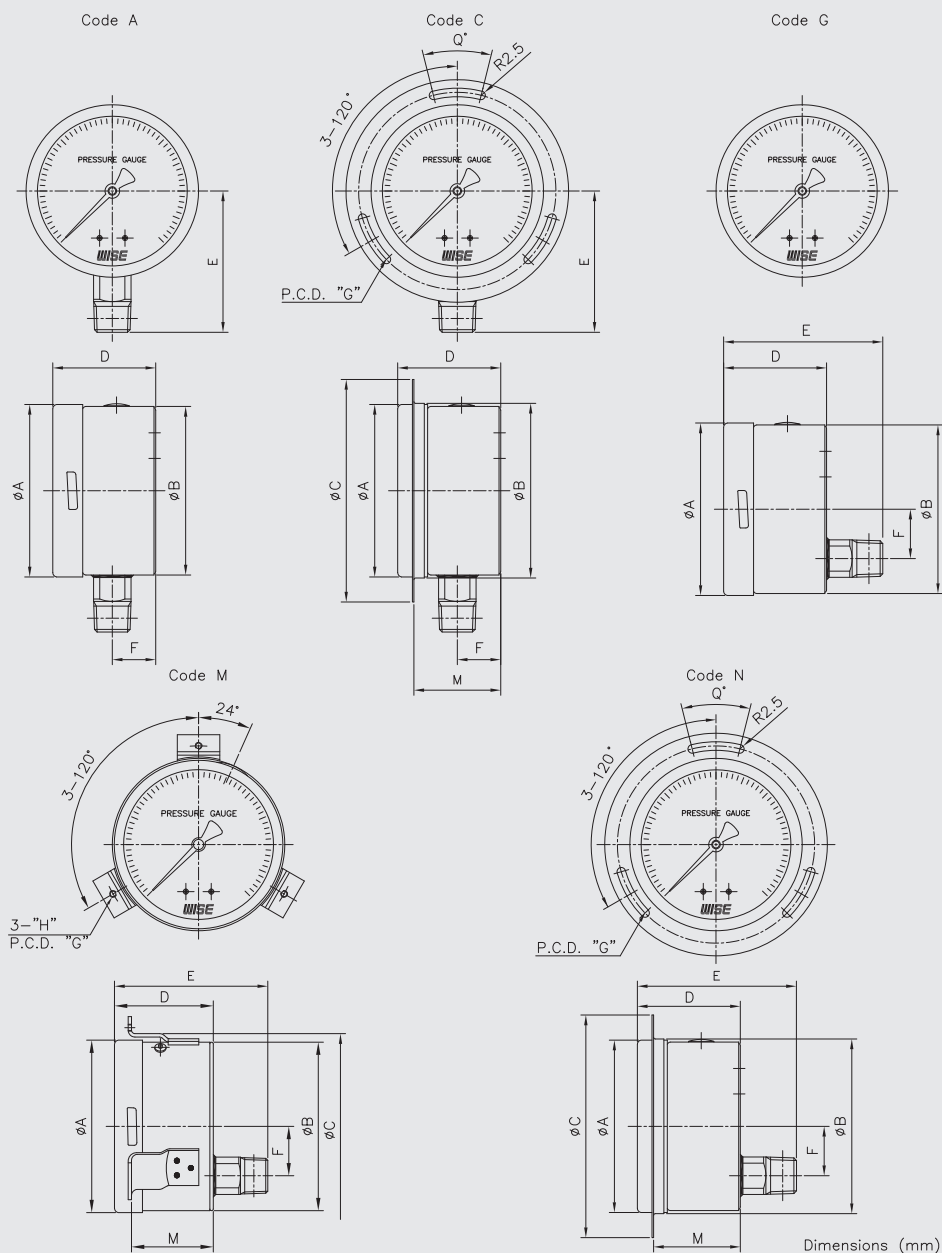
10. Option

- 0** None
- 1** Accessories
- 8** Silicone filling
- 9** Glycerin filling

1	2	3	4	5	6	7	8	9	10
P257	4	A	3	C	D	H	XXX	3	9

Sample
ordering code

P257 : Type of mounting



Dial size	Available code	A	B	C	D		E		F		M		G	H	Q
					S.T.D	External	S.T.D	External	S.T.D	External	S.T.D	External			
63	A	64	62		42.5	-	61	-	17.2	-					
	G	64	62		42.5	-	70	-	16.7	-					
	M	64	62	68	42.5	-	70	-	16.7	-	34	-	75	M3X0.5	
	N	64	66	68	42.5	-	70	-	16.7	-	36.5	-	75		
100	A	101.3	99		59	61	88		25.5	27.5					
	C	101.3	103.1	130.5	59	61	88		25.5	27.5	53.5	55.5	116		28
	G	101.3	99		59	61	98.5	100.5	29						
	M	101.3	99	108	59	61	98.5	100.5	29		48	50	116	M4X0.7	
160	N	101.3	103.1	130.5	59	61	98.5	100.5	29		53.5	55.5	116		28
	A	160.8	159.6		62	-	113	113	25.6	-					
	C	160.8	164	196	62	-	113	-	25.6	-	57	-	178		18

Pressure unit and range table

Range and code	Unit and code			Nominal diameter		
	H : bar	I : MPa	J : kPa	63 mm	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O
123	0 ~ 0.4	0 ~ 0.04	0 ~ 40	X	O	Δ
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	X	O	Δ
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	X	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	X	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O
047	0 ~ 10	0 ~ 1	X	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O
056	0 ~ 60	0 ~ 6	X	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O
060	0 ~ 160	0 ~ 16	X	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O
065	0 ~ 400	0 ~ 40	X	O	O	O
066	0 ~ 500	0 ~ 50	X	O	O	O
067	0 ~ 600	0 ~ 60	X	O	O	O
068	0 ~ 700	0 ~ 70	X	O	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O	O
074	0 ~ 1,600	0 ~ 160	X	X	O	O
075	0 ~ 2,000	0 ~ 200	X	X	O	O
006	-1 ~ 0.6	-0.1 ~ 0.06	-100 ~ 60	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O
007	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	X	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4 MPa	O	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O	O

O : Available X : Not available Δ : Not available with ±0.5 % of full scale

Euro gauge

Liquid filled industrial pressure gauge

Model : P258 series

Spec. sheet no. **PD02-13**

Service intended

P258 series are suitable for corrosive environments.
Typical application includes : Chemical, petro-chemical, refining process, power generation, marine and food industry. The filled liquid absorbs vibration and pulsation.



Nominal diameter

63, 80, 100 and 160 mm

Accuracy

P2582 (63 mm) and P2583 (80 mm) : ± 1.6 % of full scale
P2584 (100 mm) and P2586 (160 mm) : ± 0.5 % of full scale
 ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 and 80 mm : 0.1 ~ 0 to 0 ~ 100 MPa
100 and 160 mm : 0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale (63 and 80 mm)
100 % of full scale (100 and 160 mm)
Over range protection : 130 % of full scale

Filling liquid

Glycerin

Working temperature

Ambient : -20 ~ 65 °C (With glycerin filling)
-40 ~ 65 °C (With silicone filling)
Fluid : Max. 100 °C (With glycerin filling)
Max. 100 °C (With silicone filling)

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS),
Model : P2584 (100 mm) and P2586 (160 mm)
<10 MPa : C type bourdon tube
 ≥ 10 MPa : Helical type bourdon tube
Model : P2582 (63 mm) and P2583 (80 mm)
<6 MPa : C type bourdon tube
 ≥ 6 MPa : Helical type bourdon tube

Blowout protection

Back, Rubber disc for 80, 100 and 160 mm
Top, Rubber disc for 63 mm

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)
Bayonet type

Window

Laminated safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : $\frac{1}{8}$ ", $\frac{1}{4}$ " PT, NPT and PF
80 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ " PT, NPT and PF
100 and 160 mm : $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Certificates

ATEX Ex II GD c IIc TX
Pressure equipment directive (2014/68/EU)-Annex III Module H

Option

Zero adjustable pointer
(Only available with diameter 100 and 160 mm)
Zero adjustment (External) : 100 and 160 mm
Pressure connection and element : Monel
(Only available with diameter 100 and 160 mm)
Silicone filling
Maximum Pointer
(Not applicable to under 3 bar, Only available with diameter 100 mm)

WISE®

I P258_01

1. Base model**P258** Liquid filled industrial pressure gauge**2. Nominal diameter (mm)**

- 2 63
3 80
4 100
6 160

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate
C Bottom connection, flush, cover mounting plate
F Center back connection, direct, only available with diameter 63 mm
G Lower back connection, direct
H Center back connection, flush, case center mounting plate, only available with diameter 63 mm
I Center back connection, flush, case center mounting plate with bracket only available with diameter 63 mm
J Center back connection, flush, cover mounting plate, only available with diameter 63 mm
L Lower back connection, flush, case center mounting plate
M Lower back connection, flush, case center mounting bracket
N Lower back connection, flush, cover mounting plate
V Center back connection, flush, cover mounting bracket, only available with diameter 63 mm
W Lower back connection, flush, cover mounting bracket

4. Accuracy

- 2 ±0.5 % of full scale, only available with diameter 100 and 160 mm, not available with range 0.4 and 0.5 bar
3 ±1.0 % of full scale, not available with diameter 63 and 80 mm
4 ±1.6 % of full scale, only available with diameter 63 and 80 mm

5. Process connection

- B** 1/8"
C 1/4"
D 3/8", not available with diameter 63 mm
E 1/2", not available with diameter 63 and 80 mm

6. Connection type

- B** PF
C PT
D NPT
F BSPT
G BSP (G)
Z Other

7. Unit

- H** bar
I MPa
J kPa
Z Other

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
4 316L SS and 2 colors
7 316SS and 3 colors
8 316L SS and 3 colors
Z Monel (Only available with diameter 100 and 160 mm)

10. Option

- 0** None
1 Accessories
2 Silicone filling
3 Accessories and silicone filling

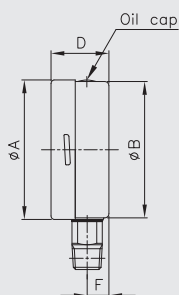
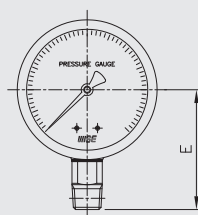
11. Adjustable pointer

- 0** None
1 Zero adjustable pointer
2 External zero adjustment

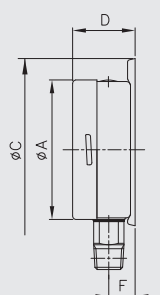
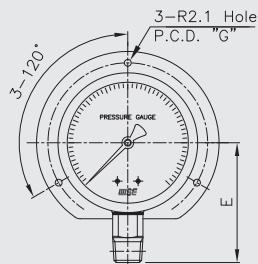
1	2	3	4	5	6	7	8	9	10	11	Sample ordering code
P258	4	A	3	C	D	H	XXX	3	0	1	

P258 : Type of mounting (1/3)

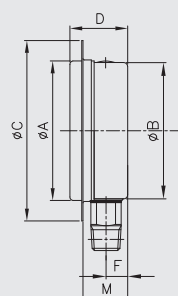
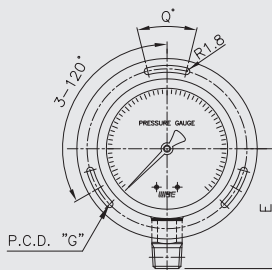
Code A



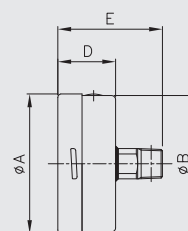
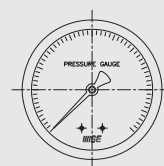
Code B



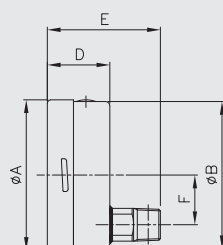
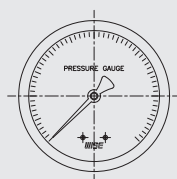
Code C



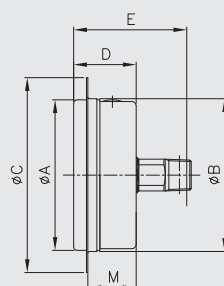
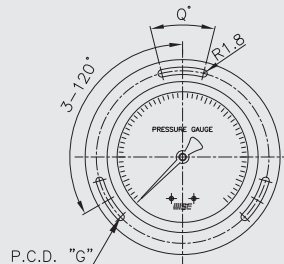
Code F



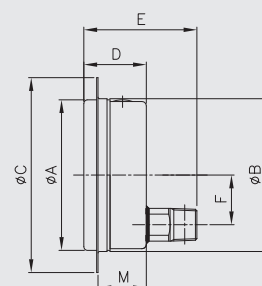
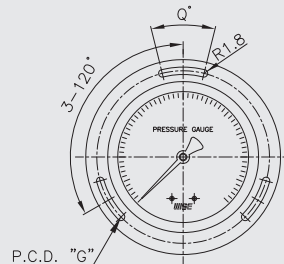
Code G



Code J



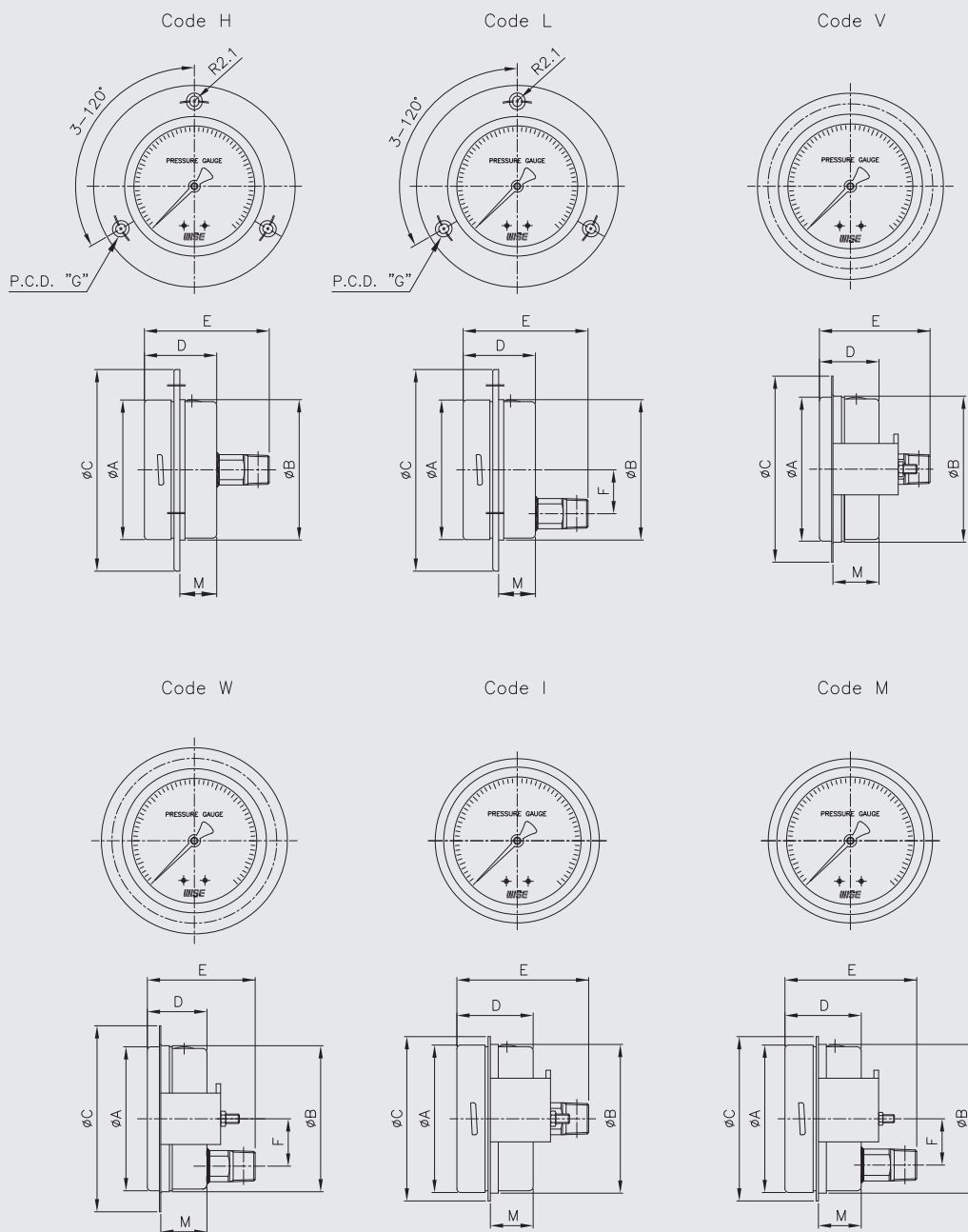
Code N



Dimensions (mm)

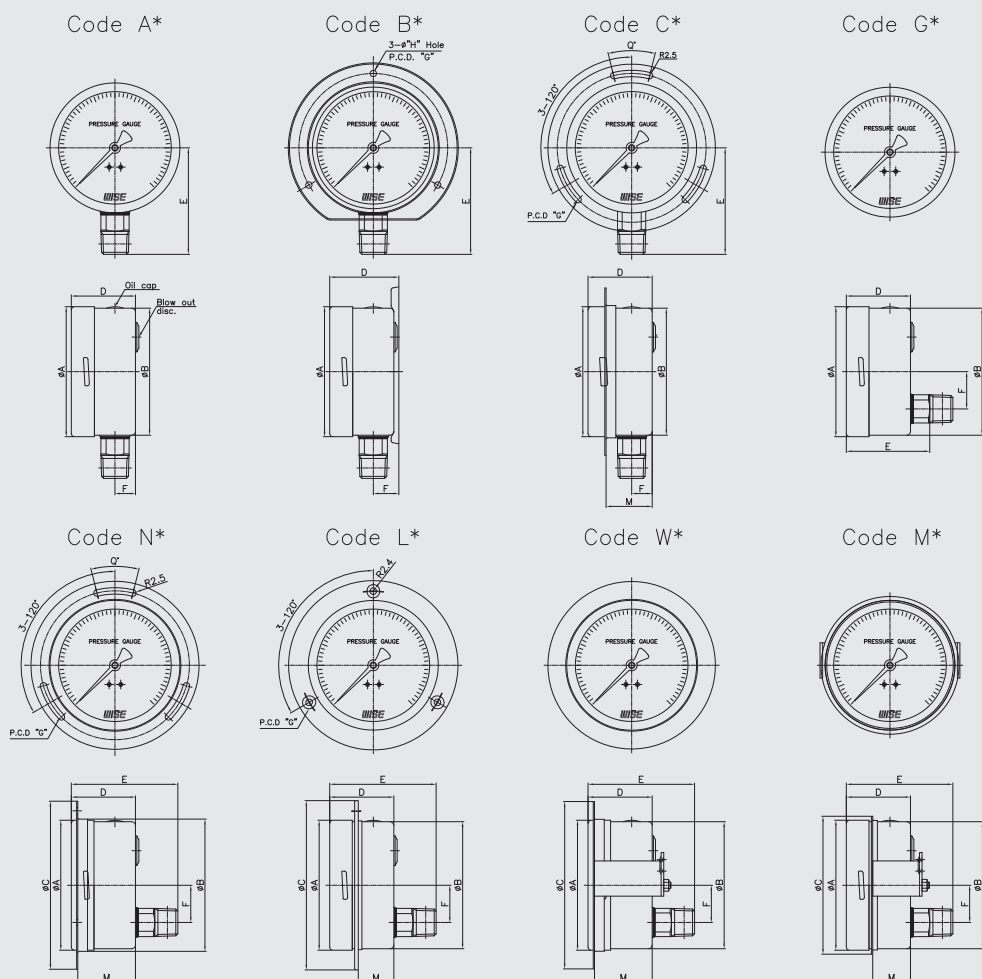
Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G	H	Q
63	A	64	62		34	61	11				
	B	64		85	37	61	15		74~75		
	C	64	62	86	34	61	11	28	75		15
	F	64	62		34	64					
	G	64	62		34	64	13				
	J	64	66	86	34	64		28	75		15
	N	64	66	86	34	64	13	28	75		15

P258 : Type of mounting (2/3)



Dimensions (mm)									
Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G
63	H	64	64.5	92	34	64		16.8	77~78
	L	64	64.5	92	34	64	13	16.8	77~78
	V	64	66	86	34	64		28	
	W	64	66	86	34	64	13	28	
	I	64	64.5	71	34	64		18.5	
	M	64	64.5	71	34	64	13	18.5	

P258 : Type of mounting (3/3)



Dimensions (mm)													
Dial size	Available code	A	B	C	D ±2		E ±2		F ±1		M		
					S.T.D	External	S.T.D	External	S.T.D	External	S.T.D	External	G
80	A*	81.2	78.5		39.5	—	71.5	—	12	—			
	B*	81.2		108	43	—	71.5	—	15.5	—			95
	C*	81.2	78.5	108	39.5	—	71.5	—	12	—	35	—	95
	G*	81.2	78.5		39.5	—	74.5	—	22	—			10
	N*	81.2	83.2	108	39.5	—	74.5	—	22	—	35	—	95
	L*	81.2	80.8	112	39.5	—	74.5	—	22	—	21.8	—	94.5~95.5
	W*	81.2	83.2	108	39.5	—	74.5	—	22	—	35	—	
100	M*	81.2	81.5	88	39.5	—	74.5	—	22	—	22.5	—	
	A*	101.3	99		50	63	88	16	30.6				
	B*	101.3		133	54.4	67.4	88	19.4	34				116
	C*	101.3	99	131	50	63	88	16	30.6	45	58		116
	G*	101.3	99		50	63	88	101.5	29				28
	N*	101.3	103.1	131	50	63	88	101.5	29	45	58		116
	L*	101.3	100.4	132	50	63	88	101.5	29	27.7	40.7	115~116	28
160	W*	101.3	103.1	131	50	63	88	101.5	29	45	58		
	M*	101.3	101	107.5	50	63	88	101.5	29	29.5	42.5		
	A*	160.6	159		52.5	66	117	15.8	29.3				
	B*	160.6		196	56	69.5	117	19.4	32.9				178
	C*	160.6	159	192	52.5	66	117	15.8	29.3	47.5	61		178
	G*	160.6	159		52.5	66	90.5	104	29				18
	N*	160.6	164	192	52.5	66	90.5	104	29	47.5	61		178
	L*	160.6	162	192	52.5	66	90.5	104	29	28	41.5	175.5~176.5	18
	W*	160.6	164	172	52.5	66	90.5	104	29	47.5	61		
	M*	160.6	162	172	52.5	66	90.5	104	29	30.8	44.3		

Pressure unit and range table

Range and code	Unit and code			Nominal diameter			
	H : bar	I : MPa	J : kPa	63 mm	80 mm	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O	O
123	0 ~ 0.4	0 ~ 0.04	0 ~ 40	X	X	O	Δ
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	X	X	O	Δ
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	X	X	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	X	X	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O	O
056	0 ~ 60	0 ~ 6	X	O	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O	O
060	0 ~ 160	0 ~ 16	X	O	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O	O
065	0 ~ 400	0 ~ 40	X	O	O	O	O
066	0 ~ 500	0 ~ 50	X	O	O	O	O
067	0 ~ 600	0 ~ 60	X	O	O	O	O
068	0 ~ 700	0 ~ 70	X	O	O	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O	O	O
074	0 ~ 1,600	0 ~ 160	X	X	X	O	O
075	0 ~ 2,000	0 ~ 200	X	X	X	O	O
006	-1 ~ 0.6	-0.1 ~ 0.06	-100 ~ 60	X	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O	O
007	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	X	X	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O	O	O
017	-1 ~ 24	-0.1 ~ 2.4	-100 ~ 2.4 MPa	O	O	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O	O	O

O : Available X : Not available Δ : Not available with ±0.5 % of full scale

Euro gauge

Liquid filled industrial pressure gauge (Internal brass)

Model : P259 series

Spec. sheet no. **PD02-14**

Service intended

P259 series are designed for long and reliable service under rugged conditions. P259 series are intended for adverse service conditions where pulsating or vibration exists, Hydraulic & compressors and are suitable for gaseous or liquid media that will not obstruct.

Nominal diameter

63, 100 and 160 mm

Accuracy

P2592 (63 mm) : ± 1.6 % of full scale

P2594 (100 mm) and P2596 (160 mm) : ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

63 mm : -0.1 ~ 0 to 0 ~ 40 MPa

100 and 160 mm : -0.1 ~ 0 to 0 ~ 100 MPa

Filling liquid

Glycerine

Working pressure

Steady : 75 % of full scale (63 mm)

100 % of full scale (100 and 160 mm)

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 60 °C (With glycerin filling)

-40 ~ 60 °C (With silicone filling)

Fluid : Max. 60 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Brass

Element

Brass

Model : P2594 (100 mm) and P2596 (160 mm)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube with 316SS

Model : P2592 (63 mm)

<6 MPa : C type bourdon tube

≥6 MPa : Helical type bourdon tube

Blowout protection

Back, Rubber disc for 100 and 160 mm

Top, Rubber disc for 63 mm

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Laminated safety glass

Movement

63 mm : Brass

100 and 160 mm : Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : 1/4" PT, NPT and PF

100 and 160 mm : 3/8", 1/2" PT, NPT and PF

Option

Zero adjustable pointer

(Only available with diameter 100 and 160 mm)

Silicone filling

WISE®

1. Base model**P259** Liquid filled industrial pressure gauge (Internal brass)**2. Nominal diameter (mm)**

2	63
4	100
6	160

3. Type of mounting

- A** Bottom connection, direct
- B** Bottom connection, surface, case mounting plate
- F** Center back connection, direct, only available with diameter 63 mm
- G** Lower back connection, direct, only available with diameter 100 mm
- H** Center back connection, flush, case center mounting plate, only available with diameter 63 mm
- I** Center back connection, flush, case center mounting plate with bracket, only available with diameter 63 mm
- J** Center back connection, flush, cover mounting plate, only available with diameter 63 mm
- L** Lower back connection, flush, case center mounting plate, only available with diameter 100 mm
- M** Lower back connection, flush, case center mounting bracket, only available with diameter 100 mm
- N** Lower back connection, flush, cover mounting plate, only available with diameter 100 mm
- V** Center back connection, flush, cover mounting bracket, only available with diameter 63 mm
- W** Lower back connection, flush, cover mounting bracket, only available with diameter 100 mm

4. Accuracy

- 3** ±1.0 % of full scale, not available with diameter 63 mm
- 4** ±1.6 % of full scale, only available with diameter 63 mm

5. Process connection

- C** 1/4"
- D** 3/8", not available with diameter 63 mm
- E** 1/2", not available with diameter 63 mm

6. Connection type

- B** PF
- C** PT
- D** NPT
- F** BSPT
- G** BSP (G)
- Z** Other

7. Unit

- H** bar
- I** MPa
- J** kPa
- Z** Other

8. Range**XXX** Refer to pressure unit and range table**9. Dial color**

- 1** 2 colors
- 5** 3 colors

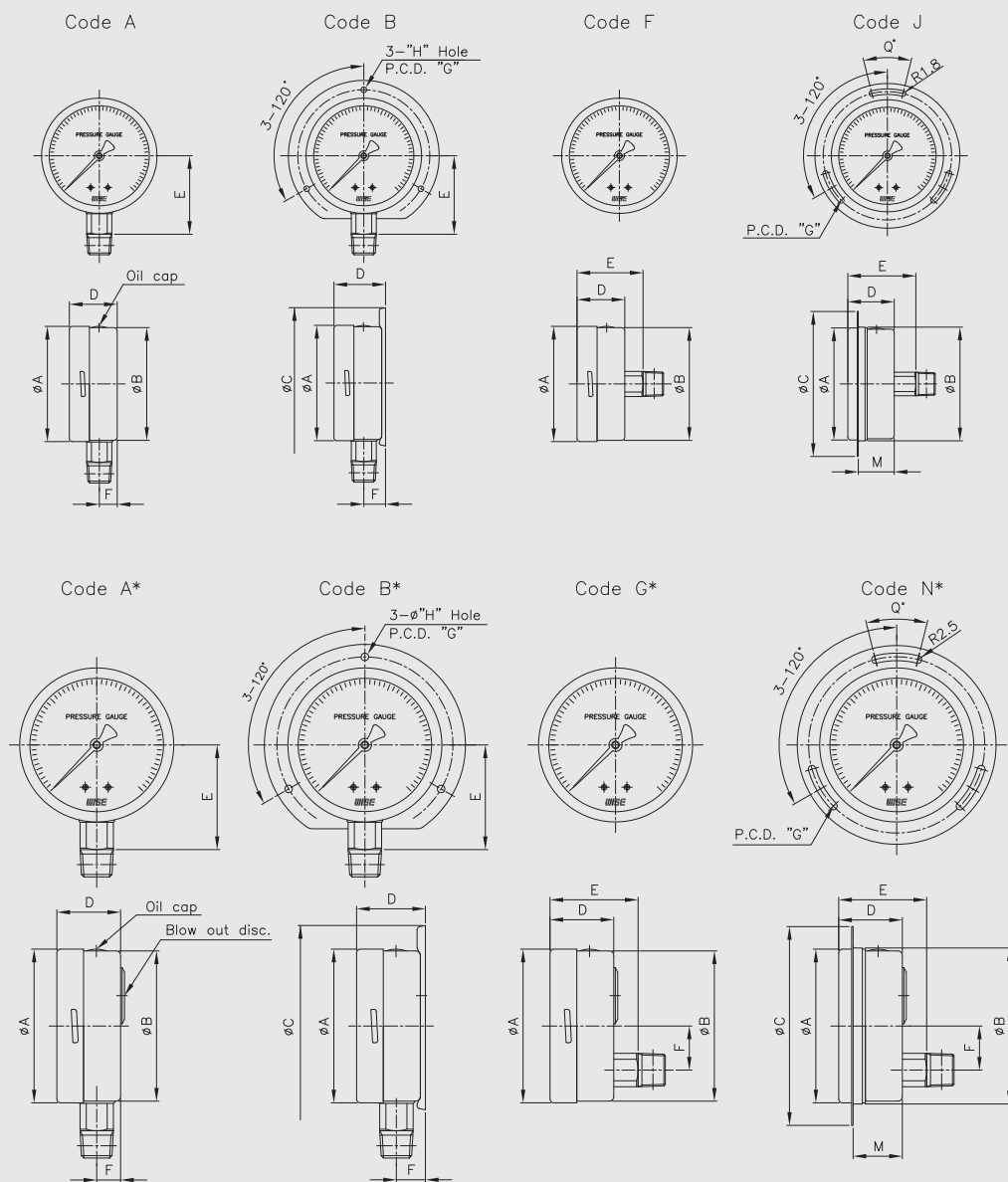
10. Option

- 0** None
- 1** Accessories
- 2** Silicone filling
- 3** Accessories and silicone filling

1	2	3	4	5	6	7	8	9	10
P259	4	A	3	C	D	H	XXX	5	0

Sample
ordering code

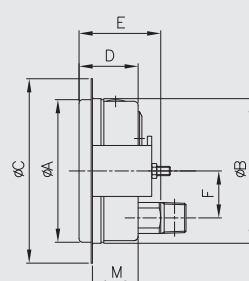
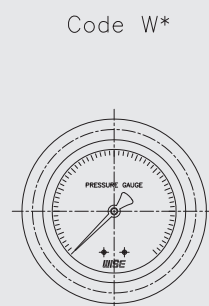
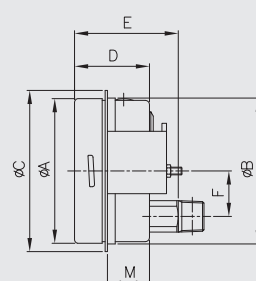
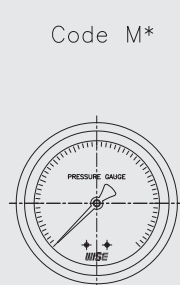
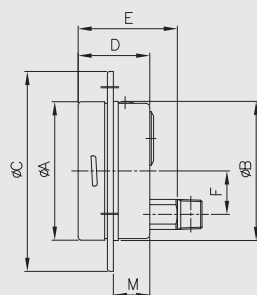
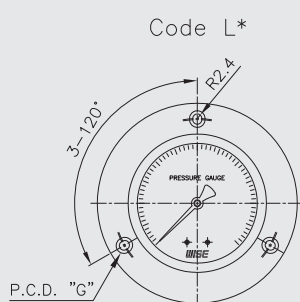
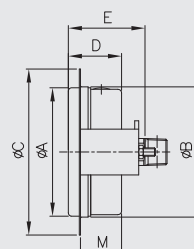
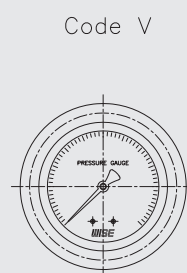
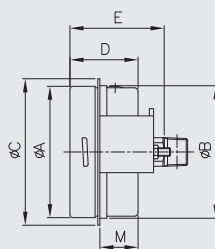
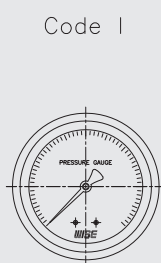
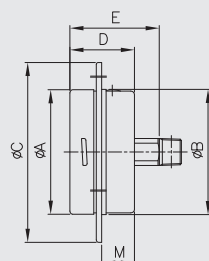
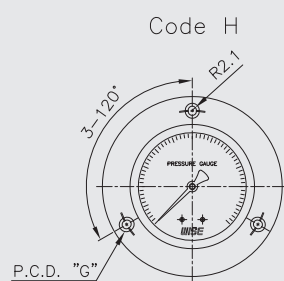
P259 : Type of mounting (1/2)



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	M	G	H	Q
63	A	64	62		34	41.7	11				
	B	64		85	37	41.7	15		74~75	R2.1	
	F	64	62		34	45					
	J	64	66	86	34	45		28	75		15
100	A*	101.3	99		50	65	16				
	B*	101.3		133	54.4	65	19.4		115~116	R2.5	
	G*	101.3	99		50	65	29				
	N*	101.3	103.1	130.5	50	65	29	45	116		28
160	A*	160.6	159		52.5	94	15.8				
	B*	160.6		196	56	94	19.3		178	5.8	

P259 : Type of mounting (2/2)



Dimensions (mm)

Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G
63	H	64	64.5	92	34	45			77~78
	I	64	63.7	71	34	45		18.5	
	V	64	66	86	34	45		28	
100	L*	101.3	100.4	132	50	65	29	27.7	115~116
	M*	101.3	101	107.5	50	65	29	29.5	
	W*	101.3	103.1	130.5	50	65	29	45	

Pressure unit and range table

Range and code	Unit and code			Nominal diameter		
	H : bar	I : MPa	J : kPa	63 mm	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O
056	0 ~ 60	0 ~ 6	X	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O
060	0 ~ 160	0 ~ 16	X	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O
065	0 ~ 400	0 ~ 40	X	O	O	O
066	0 ~ 500	0 ~ 50	X	X	O	O
067	0 ~ 600	0 ~ 60	X	X	O	O
068	0 ~ 700	0 ~ 70	X	X	O	O
070	0 ~ 1,000	0 ~ 100	X	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O
007	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	X	O	O	O
034	-1 ~ 20	-0.1 ~ 2	X	O	O	O
017	-1 ~ 24	-0.1 ~ 2.4	X	O	O	O
035	-1 ~ 25	-0.1 ~ 2.5	X	O	O	O

O : Available X : Not available

Conversion table

Pressure conversion chart

psi	atm	kgf/cm ²	inH ₂ O	mmHg	inHg	kPa	bar	mmH ₂ O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Volume conversion chart

Gallon (U.S)	Cubic feet	Cubic inches	Barrels (Oil)	Cubic cm	Cubic meter	Liter	IMP. Gallon
1	0.1337	231	0.02381	3,785	0.003785	3.785	0.8327
7.481	1	1,728	0.1781	28,320	0.02832	28.32	6.229
0.004329	0.000578	1	0.000103	16.39	0.000016	0.01639	0.003605
42	5.615	9,702	1	159,000	0.159	158.94	34.97
0.000264	0.000035	0.06102	0.000006	1	0.000001	0.001	0.00022
264.17	35.3144	61,023	6.2906	1,000,000	1	1,000	220.1
0.264	0.0353	61.03	0.0629	1,000	0.001	1	0.22
1.201	0.1606	277.4	0.0286	4,546	0.004546	4.546	1

Mass conversion chart

lb.	oz.	kg	gm	gal H ₂ O (32F)	Long ton	Metric tonne	ton
1	16	0.4536	453.6	0.1198	0.000446	0.000453	0.0005
0.0625	1	0.02835	28.35	0.00749	0.000027	0.000028	0.000031
2.205	35.27	1	1,000	0.2642	0.009839	0.001	0.001102
0.002205	0.03527	0.001	1	0.00264	0.000000	0.000001	0.000001
8.345	133.5	3.785	3,785	1	0.003726	0.003786	0.004171
2,240	35,840	1016.4	1,016,363	268.352	1	1.016	1.12
2,204.6	35,273	1,000	1,000,000	264.11	0.9842	1	1.1023
2,000	32,000	907.03	909,090.9	239.7	0.892857	0.907194	1

Density conversion chart

lb / ft ³	gm / cm ³	ka / m ³	lb / in ³
1	0.016018	16.0184	0.000578
62.43	1	1,000	0.03613
0.06243	0.001	1	0.000036
1728	27.68	27,679.8	1

Process industry pressure gauge

Model : P330 series

Model : P335 series

Spec. sheet no. **PD03-01**

Service intended

P330 and P335 series are designed for petroleum and chemical processing industries.



Nominal diameter

150 mm

Accuracy

±0.5 % of full scale (P335)

±1.0 % of full scale (P330)

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale

100 % of full scale (P335)

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Movement

Stainless steel

Element

Stainless steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Case

Black painted aluminium alloy

Zero adjustment

Internal

Cover

Black painted aluminium alloy

Process connection

3/8", 1/2" PT, NPT and PF

Window

Safety glass

Certificates

ATEX Ex II GD c IIc TX

WISE®

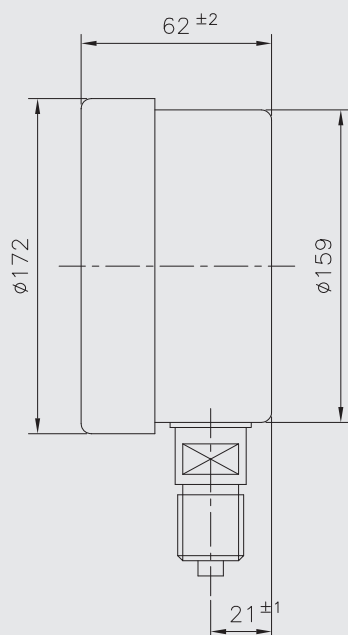
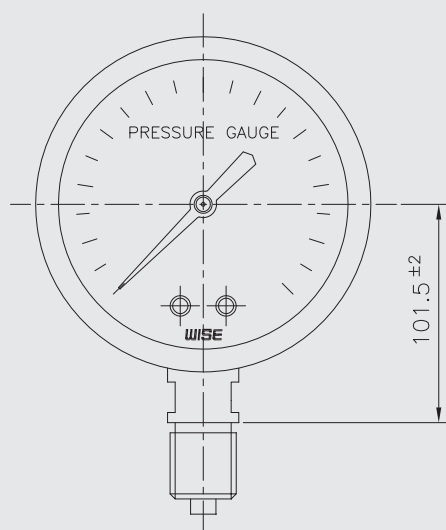
1. Base model**P330** Process industry pressure gauge**P335** Process industry pressure gauge (Test pressure gauge)**2. Nominal diameter (mm)****6** 150**3. Type of mounting****A** Bottom connection, direct**B** Bottom connection, surface, case mounting plate**4. Accuracy****2** ±0.5 % of full scale (P335)**3** ±1.0 % of full scale (P330)**5. Process connection****D** $\frac{3}{8}$ "**E** $\frac{1}{2}$ "**6. Connection type****B** PF**C** PT**D** NPT**7. Unit****H** bar**I** MPa**J** kPa**8. Range****XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color****2** 316SS and 2 colors**4** 316L SS and 2 colors**7** 316SS and 3 colors**8** 316L SS and 3 colors**10. Option****0** None**1** Accessories**2** Orifice**3** Accessories and orifice

1	2	3	4	5	6	7	8	9	10
P330	6	A	3	E	D	H	XXX	4	0

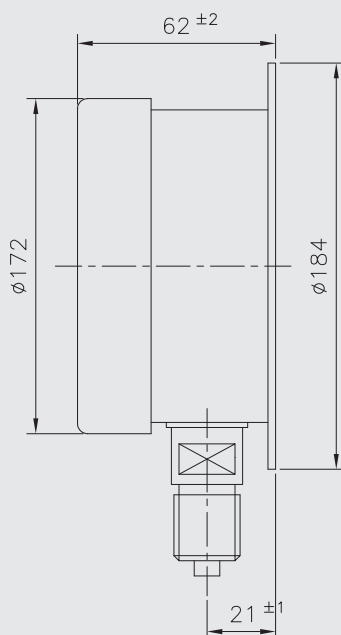
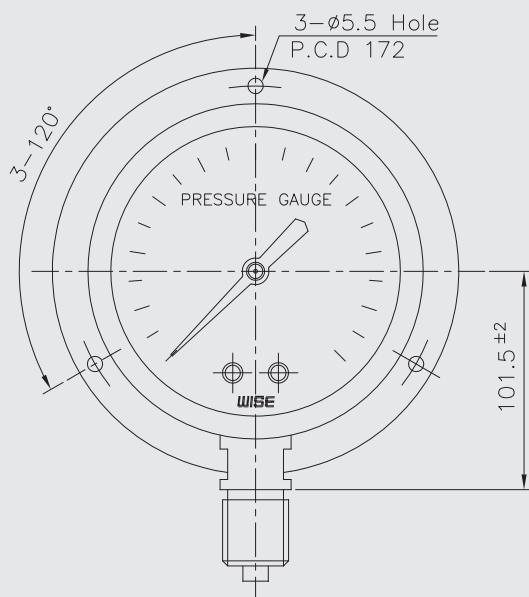
Sample
ordering code

P33X : Type of mounting

Code A



Code B



Pressure unit and range table

Range and code	Unit and code			Nominal diameter	
	H : bar	I : MPa	J : kPa	P330	P335
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
066	0 ~ 500	0 ~ 50	X	O	O
067	0 ~ 600	0 ~ 60	X	O	O
068	0 ~ 700	0 ~ 70	X	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O
074	0 ~ 1,600	0 ~ 160	X	O	O
075	0 ~ 2,000	0 ~ 200	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

Duplex pressure gauge

Model : P336 series – Round type

Model : P338 series – Square type

Spec. sheet no. **PD03-02**

Service intended

P336 and P338 series offer dual air brake system, differential pressure indication and it can be used for any other application where two independent pressures are indicated on a single dial.

EAC

Nominal diameter

100 mm (P336)

110 mm (W) x 110 mm (H) (P338)

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 0.4 to 0 ~ 3.5 MPa (P336)

0 ~ 1 and 0 ~ 1.2 MPa (P338)

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Model : P336



Model : P338

Standard features

Pressure connection

Stainless steel (316SS)

Movement

Brass

Element

Stainless steel (316SS)

Dial

White aluminium with black graduations

Case

Black painted aluminium

Pointer

Black painted aluminium alloy

Cover

Black painted aluminium (P336)

ABS resin (P338)

Window

Safety glass (P336)

Polycarbonate (P338)

Process connection

3/8" PF

WISE®

| P336.P338_01

1. Base model

- P336** Duplex pressure gauge, round type
P338 Duplex pressure gauge, square type

2. Nominal diameter (mm)

- 4** 100, round type
9 110 (W) x 110 (H), square type

3. Type of mounting

- A** Bottom connection, direct, only available with round type
B Bottom connection, surface, case mounting plate, only available with round type
E Bottom connection, surface, case mounting plate, only available with round type
G Lower back connection, direct
M Lower back connection, flush, case center mounting bracket, only available with round type

4. Accuracy

- 4** ±1.5 % of full scale

5. Process connection

- D** $\frac{3}{8}$ "

6. Connection type

- B** PF

7. Unit

- H** bar
I MPa
J kPa

8. Range

- 044** 0 ~ 0.4 MPa, not available with square type
045 0 ~ 0.6 MPa, not available with square type
047 0 ~ 1 MPa
049 0 ~ 1.2 MPa, only available with square type
050 0 ~ 1.5 MPa, not available with square type
051 0 ~ 2 MPa, not available with square type
052 0 ~ 2.5 MPa, not available with square type
054 0 ~ 3.5 MPa, not available with square type

9. Dial color

- 2** 2 colors
7 3 colors

10. Option

- 0** None
1 Accessories
2 Short connection (Only P338)
4 Orifice
5 Accessories and orifice
6 Short connection and orifice (Only P338)

1	2	3	4	5	6	7	8	9	10
P336	4	A	4	D	B	H	044	2	0

Sample
ordering code

Code A

Code B

Code E

Code G

Code M

Code G*
(P338)

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH ₂ O	mmHg	inHg	kPa	bar	mmH ₂ O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Volume conversion chart

Gallon (U.S)	Cubic feet	Cubic inches	Barrels (Oil)	Cubic cm	Cubic meter	Liter	IMP. Gallon
1	0.1337	231	0.02381	3,785	0.003785	3.785	0.8327
7.481	1	1,728	0.1781	28,320	0.02832	28.32	6.229
0.004329	0.000578	1	0.000103	16.39	0.000016	0.01639	0.003605
42	5.615	9,702	1	159,000	0.159	158.94	34.97
0.000264	0.000035	0.06102	0.000006	1	0.000001	0.001	0.00022
264.17	35.3144	61,023	6.2906	1,000,000	1	1,000	220.1
0.264	0.0353	61.03	0.0629	1,000	0.001	1	0.22
1.201	0.1606	277.4	0.0286	4,546	0.004546	4.546	1

Mass conversion chart

lb.	oz.	kg	gm	gal H ₂ O (32F)	Long ton	Metric tonne	ton
1	16	0.4536	453.6	0.1198	0.000446	0.000453	0.0005
0.0625	1	0.02835	28.35	0.00749	0.000027	0.000028	0.000031
2.205	35.27	1	1,000	0.2642	0.009839	0.001	0.001102
0.002205	0.03527	0.001	1	0.00264	0.000000	0.000001	0.000001
8.345	133.5	3.785	3,785	1	0.003726	0.003786	0.004171
2,240	35,840	1016.4	1,016,363	268.352	1	1.016	1.12
2,204.6	35,273	1,000	1,000,000	264.11	0.9842	1	1.1023
2,000	32,000	907.03	909,090.9	239.7	0.892857	0.907194	1

Density conversion chart

lb / ft³	gm / cm³	ka / m³	lb / in³
1	0.016018	16.0184	0.000578
62.43	1	1,000	0.03613
0.06243	0.001	1	0.000036
1728	27.68	27,679.8	1

Safety pattern type pressure gauge

Solid-front and turret style thermoplastic case

Model : P359 series

Spec. sheet no. PD03-03

Service intended

P359 safety pattern pressure gauge comes with 4½" thermoplastic case for corrosive environment and heat resistance. Its solid front and blowout back case are designed to meet the safety requirements.



Nominal diameter

125 mm (4½")

Accuracy

±0.5 % of full scale

±1.0 % of full scale

Scale range (MPa, kPa, bar)

-0.1~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 75 % of full scale

100 % of full scale

Over range protection : 130% of full scale

Working temperature

Ambient : -40 ~ 65 °C

-20 ~ 65 °C (With glycerin filling)

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With glycerin filling)

Max. 100 °C (With silicone filling)



Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale

Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless Steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Case

Black glass reinforced thermoplastic (PBTB)

Solid front, Blow-out back

Turret style case with built in rear flange lugs

Window

Polycarbonate

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Zero adjustment

Internal

Process connection

⅜", ½" PF, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H
ATEX Ex II GD c IIB TX

Option

Zero adjustment : External

Window : Safety glass

Pressure connection and element : Monel

WISE®

| P359_01

1. Base model**P359** Safety pattern type pressure gauge**2. Nominal diameter (mm)****5** 125**3. Type of mounting**

- B** Bottom connection, surface, case mounting lugs
L Lower back connection, surface, case mounting lugs

4. Accuracy

- 2** ±0.5 % of full scale
3 ±1.0 % of full scale

5. Process connection

- D** 3/8"
E 1/2"

6. Connection type

- B** PF
C PT
D NPT

7. Unit

- H** bar
I MPa
J kPa

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
4 316L SS and 2 colors
7 316SS and 3 colors
8 316L SS and 3 colors
Z Monel

10. Option

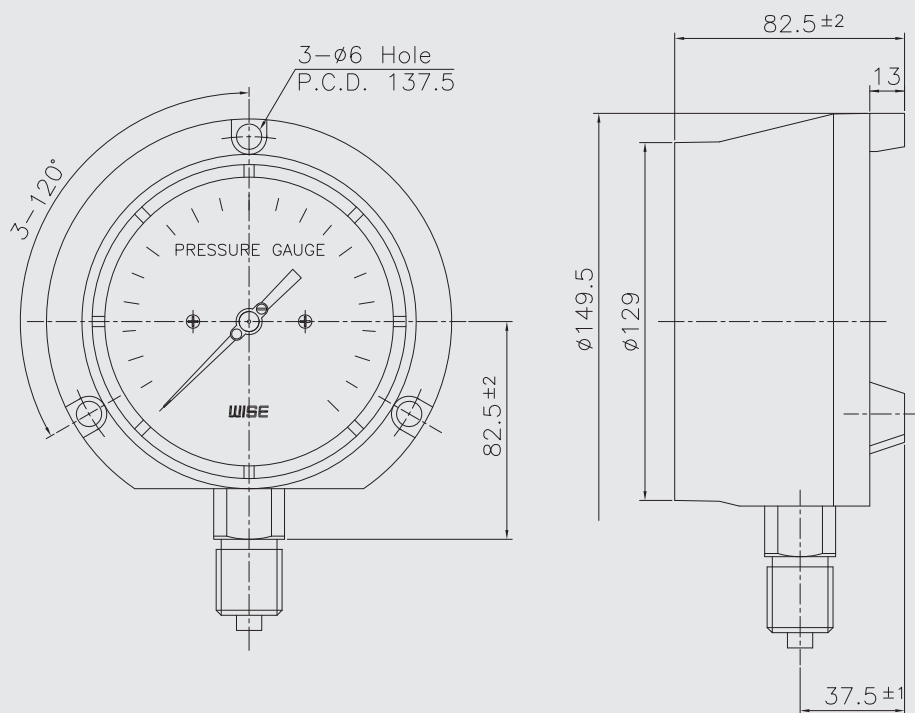
- 0** None
1 Accessories
2 Glycerin filling
3 Silicone filling

1	2	3	4	5	6	7	8	9	10
P359	5	B	3	E	C	I	XXX	3	0

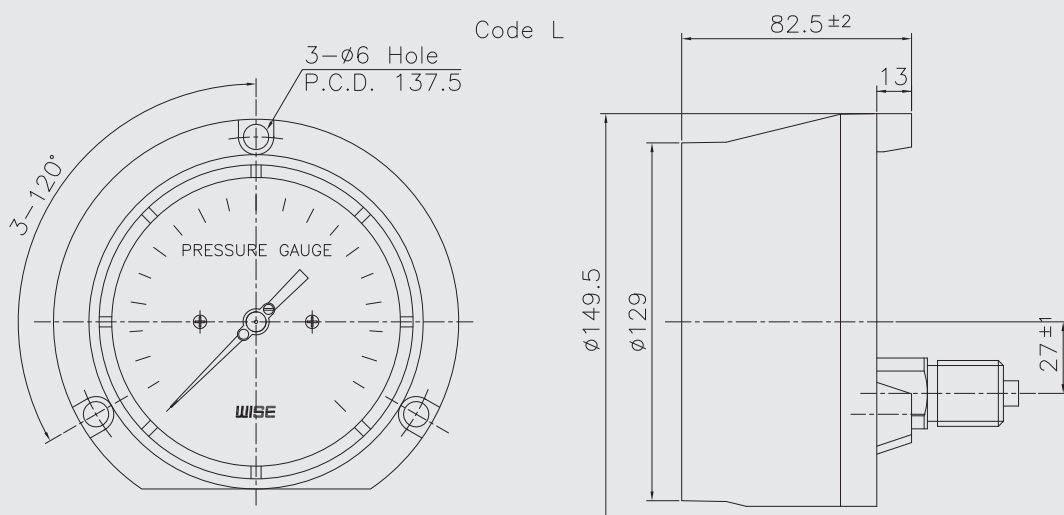
Sample
ordering code

P359 : Type of mounting

Code B



Code L



Pressure unit and range table

Range and code	Unit and code			Accuracy	
	H : bar	I : MPa	J : kPa	±0.5%	±1.0%
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
066	0 ~ 500	0 ~ 50	X	O	O
067	0 ~ 600	0 ~ 60	X	O	O
068	0 ~ 700	0 ~ 70	X	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O
074	0 ~ 1,600	0 ~ 160	X	O	O
075	0 ~ 2,000	0 ~ 200	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
127	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

Draft gauge

Model : P410, P420 series

Spec. sheet no. PD04-01

Service intended

P410 and P420 series are designed to measure low, vacuum or compound pressure.
These series are available in panel mounting.

EAC

Nominal diameter

192 (W) x 96 mm (H) (P type)
96 (W) x 192 mm (H) (R type)

Accuracy

±2.0 or ±3.0 % of full scale

Scale range (MPa, kPa, bar)

Vacuum : -1 ~ 0 to -0.5 ~ 0 kPa
Compound : -0.2 ~ 0.2 to -5 ~ 5 kPa
Pressure : 0 ~ 0.5 to 0 ~ 10 kPa

Working pressure

Steady : 75 % of full scale
Over range protection : 130% of full scale

Working temperature

Ambient : -20 ~ 65 °C
Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±1.0 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Dial

White aluminium with black graduations

Element

Stainless steel (316L SS)

Case

Black finished steel : P410
Black finished stainless steel (304SS) : P420

Pointer

Black painted PBs2 alloy

Window

Safety glass

Movement

Brass

Process connection

3/8", 1/2" PF, NPT and PF

WISE[®]

1. Base model

- P410** Square type low pressure gauge,
black finished steel case
- P420** Square type low pressure gauge,
stainless steel case

2. Nominal diameter (mm)

- 9** 192 (W) x 96 (H) and 96 (W) x 192 (H)

3. Type of mounting

- P** Horizontal mounting
- R** Vertical mounting

4. Accuracy

- 5** ±2.0 % of full scale
- 6** ±3.0 % of full scale, only compound and vacuum

5. Process connection

- D** 3/8"
- E** 1/2"

6. Connection type

- B** PF
- C** PT
- D** NPT
- Z** Other

7. Unit

- J** kPa
- S** mbar

8. Range

- XXX** Refer to pressure unit and range table

9. Pressure connection material and dial color

- 3** 316SS and 2 colors
- 7** 316SS and 3 colors

10. Option

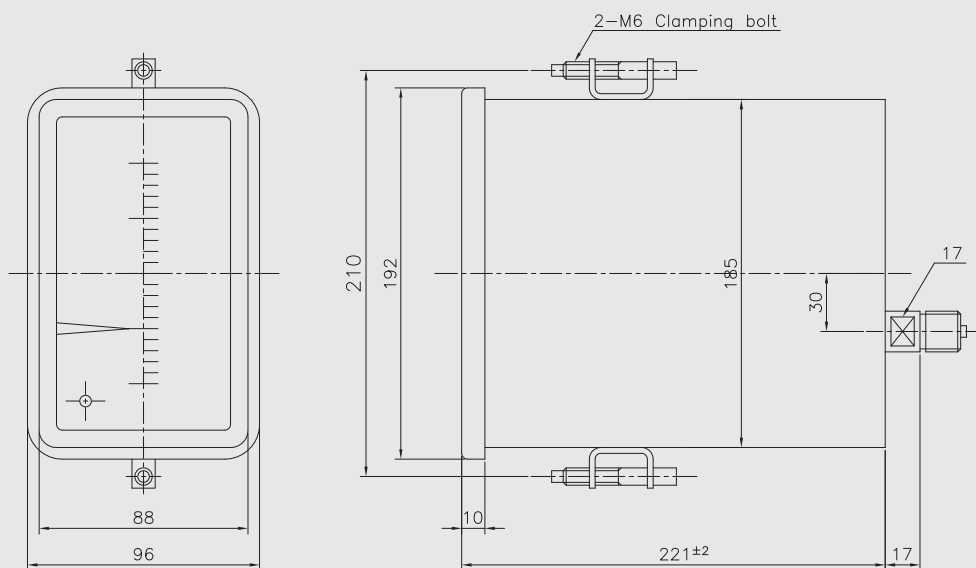
- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9	10
P410	9	P	5	E	C	J	XXX	3	0

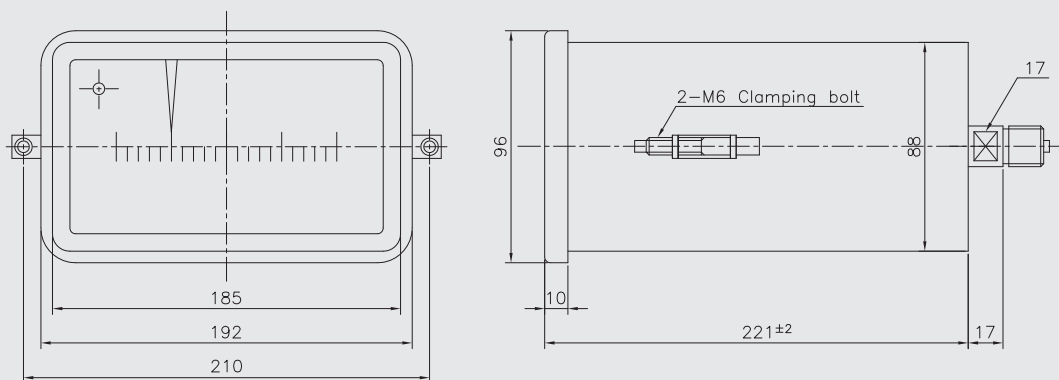
Sample
ordering code

P410, P420 : Type of mounting

Code R



Code P



Pressure unit and range table

Range and code	Unit and code		Model number
	S : mbar	J : kPa	P410 and P420
403	-100 ~ 0	-10 ~ 0	O
405	-50 ~ 0	-5 ~ 0	O
407	-30 ~ 0	-3 ~ 0	O
408	-20 ~ 0	-2 ~ 0	O
409	-10 ~ 0	-1 ~ 0	O
410	-5 ~ 0	-0.5 ~ 0	O
413	-50 ~ 50	-5 ~ 5	O
417	-30 ~ 30	-3 ~ 3	O
419	-20 ~ 20	-2 ~ 2	O
421	-10 ~ 10	-1 ~ 1	O
422	-5 ~ 5	-0.5 ~ 0.5	O
423	-3 ~ 3	-0.3 ~ 0.3	O
424	-2 ~ 2	-0.2 ~ 0.2	O
456	0 ~ 5	0 ~ 0.5	O
457	0 ~ 10	0 ~ 1	O
460	0 ~ 20	0 ~ 2	O
462	0 ~ 30	0 ~ 3	O
465	0 ~ 50	0 ~ 5	O
469	0 ~ 100	0 ~ 10	O

O : Available

Low pressure gauge

Model : P421 series

Spec. sheet no. PD04-02

Service intended

P421 series are designed to measure low, vacuum or compound pressure. These models have a stainless steel measuring element which consists of two formed diaphragms and diaphragms are welded together.



Nominal diameter

100 and 150 mm

Accuracy

±1.0 % of full scale

±1.5 % of full scale

Scale range (kPa, mbar)

-50 ~ 0 to -1 ~ 0 kPa

-15 ~ 15 to -0.5 ~ 0.5 kPa

-0.2 ~ 0 to -0.6 ~ 0 kPa

0 ~ 1 to 0 ~ 35 kPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.6 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316L SS)

Movement

Brass

Element

Stainless steel (316L SS)

Pressure chamber : Up to 35 kPa

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Case

Stainless steel (304SS)

Process connection

¼", ⅜", ½" PT, NPT and PF

Cover

Stainless steel (304SS)

Certificates

ATEX Ex II GD c IIc TX

Window

Safety glass

Option

- Internal zero adjustment, only available with diameter 100 mm
- Laminate safety glass

WISE®

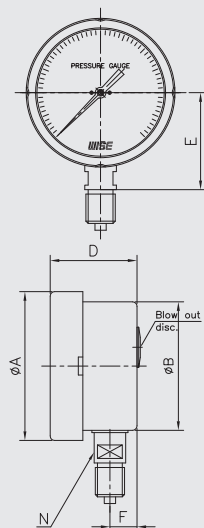
1. Base model**P421** Low pressure gauge**2. Nominal diameter (mm)****4** 100**6** 150**3. Type of mounting****A** Bottom connection, direct**B** Bottom connection, surface, case mounting plate**F** Center back connection, direct**H** Center back connection, flush, case center mounting plate**4. Accuracy****3** ±1.0% of full scale**4** ±1.5% of full scale**5. Process connection****C** 1/4"**D** 3/8"**E** 1/2"**6. Connection type****B** PF**C** PT**D** NPT**Z** Other**7. Unit****J** kPa**S** mbar**8. Range****XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color****3** 316SS and 2 colors**4** 316L SS and 2 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P421	4	A	3	E	C	J	XXX	4	0

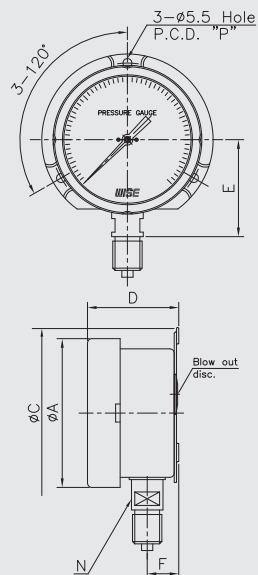
Sample
ordering code

P421 : Type of mounting

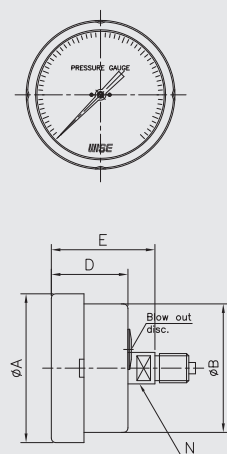
Code A



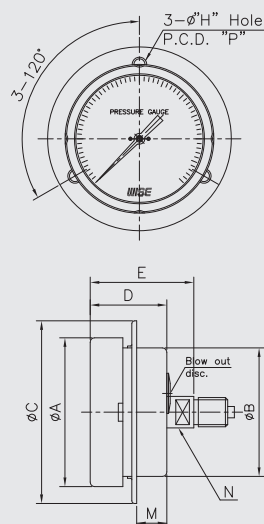
Code B



Code F



Code H



Dimensions (mm)

Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	P	H	M	N
100	A	111	100		59	73.5	13.7				17
	B	111		128	62	73.5	16.7	115			17
	F	111	100		61	84					22
	H	111	100	132	61	84		116	4.8	34	22
150	A	168.5	153.4		62.5	105.5	27				17
	B	168.5		178	66.5	105.5	31	165			17
	F	168.5	153.4		62.5	85.5					22
	H	168.5	153.8	195	62.5	85.5		178	5.5	37.5	22

Pressure unit and range table

Range and code	Unit and code		Nominal diameter	
	S : mbar	J : kPa	100 mm	150 mm
503	-350 ~ 0	-35 ~ 0	O	O
400	-300 ~ 0	-30 ~ 0	O	O
502	-250 ~ 0	-25 ~ 0	O	O
401	-200 ~ 0	-20 ~ 0	O	O
402	-150 ~ 0	-15 ~ 0	O	O
403	-100 ~ 0	-10 ~ 0	O	O
405	-50 ~ 0	-5 ~ 0	O	O
406	-40 ~ 0	-4 ~ 0	O	O
407	-30 ~ 0	-3 ~ 0	O	O
408	-20 ~ 0	-2 ~ 0	O	O
409	-10 ~ 0	-1 ~ 0	X	O
472	-150 ~ 150	-15 ~ 15	O	O
470	-100 ~ 100	-10 ~ 10	O	O
413	-50 ~ 50	-5 ~ 5	O	O
415	-40 ~ 40	-4 ~ 4	O	O
417	-30 ~ 30	-3 ~ 3	O	O
418	-25 ~ 25	-2.5 ~ 2.5	O	O
419	-20 ~ 20	-2 ~ 2	O	O
421	-10 ~ 10	-1 ~ 1	O	O
422	-5 ~ 5	-0.5 ~ 0.5	X	O
457	0 ~ 10	0 ~ 1	X	O
460	0 ~ 20	0 ~ 2	O	O
462	0 ~ 30	0 ~ 3	O	O
464	0 ~ 40	0 ~ 4	O	O
465	0 ~ 50	0 ~ 5	O	O
469	0 ~ 100	0 ~ 10	O	O
515	0 ~ 150	0 ~ 15	O	O
437	0 ~ 200	0 ~ 20	O	O
517	0 ~ 250	0 ~ 25	O	O
518	0 ~ 300	0 ~ 30	O	O
519	0 ~ 350	0 ~ 35	O	O

O : Available X : Not available

Low pressure gauge (Capsule system)

Model : P422 series

Spec. sheet no. PD04-03

Service intended

P422 series are designed to measure low, vacuum or compound pressure. These models have a 316L SS measuring element which consists of two formed diaphragms and diaphragms are welded together.



Nominal diameter

63, 80, 100 and 160 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (kPa, mbar)

-35 ~ 0 to -2 ~ 0 kPa

-15 ~ 15 to -0.5 ~ 0.5 kPa

0 ~ 1 to 0 ~ 2 kPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130% of full scale

Working temperature

Ambient : -20 ~ 65 °C

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65 (100 mm)

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately

±0.6 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Movement

Stainless steel

Element

Stainless steel (316L SS)

Capsule system : Up to 35 kPa

Dial

White aluminium with black graduations

Case

Stainless steel (304SS)

Pointer

Black painted aluminium alloy

Cover

Stainless steel (304SS)

Process connection

¼", ⅜", ½" PT, NPT and PF

Window

Safety glass

Option

Silicone filling

WISE®

| P422_01

Main order

Ordering information

1. Base model

P422 Low pressure gauge (Capsule system)

2. Nominal diameter (mm)

- 2 63
- 3 80
- 4 100
- 6 160

3. Type of mounting

- A** Bottom connection, direct, not available with diameter 63 mm
- B** Bottom connection, surface, case mounting plate, not available with diameter 63 mm
- F** Center back connection, direct, only available with diameter 63 mm

4. Accuracy

- 3** ±1.0 % of full scale, not available with diameter 63 and 80 mm
- 4** ±1.6 % of full scale

5. Process connection

- B** 1/8"
- C** 1/4"
- D** 3/8", not available with diameter 63 mm
- E** 1/2", not available with diameter 63 and 80 mm

6. Connection type

- B** PF
- C** PT
- D** NPT
- Z** Other

7. Unit

- J** kPa
- S** mbar

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

- 3** 316SS and 2 colors
- 4** 316L SS and 2 colors
- 7** 316SS and 3 colors
- 8** 316L SS and 3 colors
- Z** Monel

10. Option

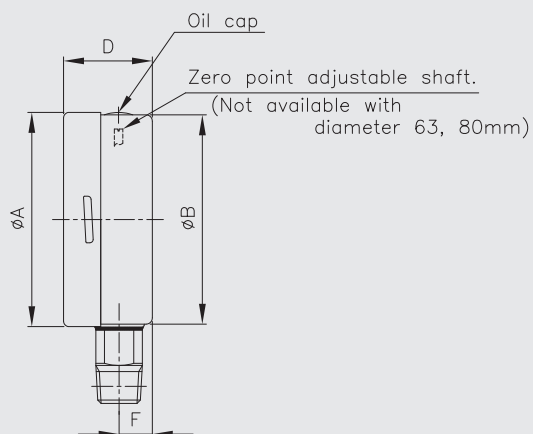
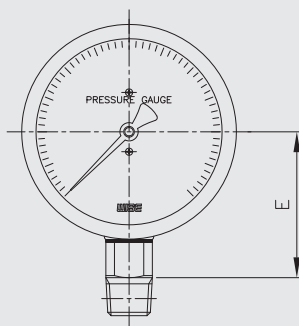
- 0** None
- 1** Accessories
- 2** Silicone filling

1	2	3	4	5	6	7	8	9	10
P422	4	A	3	E	C	J	XXX	3	0

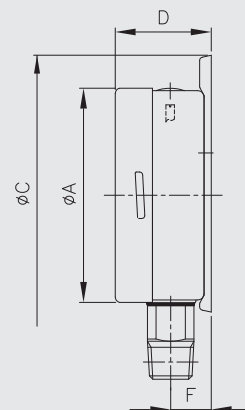
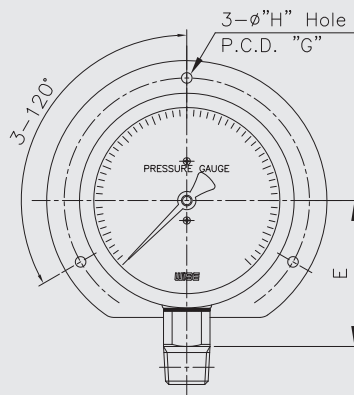
Sample
ordering code

P422 : Type of mounting

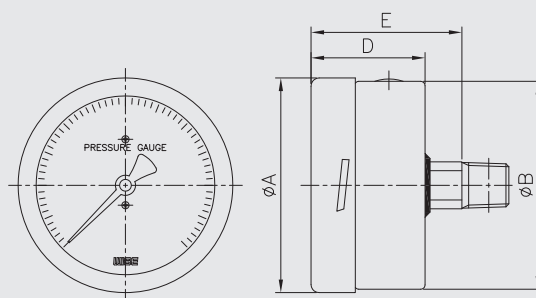
Code A



Code B



Code F



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	G	H
63	F	64	62		34	45			
	A	81.2	78.5		44.5	50.5	12		
80	B	81.2		108	48	50.5	15.5	95	5
	A	101.3	99		50	73.5	16		
100	B	101.3		133	54.4	73.5	19.4	116	5
	A	160.6	159		52.5	105.5	15.8		
160	B	160.6		196	56	105.5	19.4	178	5.8

Pressure unit and range table

Range and code	Unit and code		Nominal diameter			
	S : mbar	J : kPa	63 mm	80 mm	100 mm	160 mm
503	-350 ~ 0	-35 ~ 0	O	O	O	O
400	-300 ~ 0	-30 ~ 0	O	O	O	O
502	-250 ~ 0	-25 ~ 0	O	O	O	O
401	-200 ~ 0	-20 ~ 0	O	O	O	O
402	-150 ~ 0	-15 ~ 0	O	O	O	O
403	-100 ~ 0	-10 ~ 0	O	O	O	O
405	-50 ~ 0	-5 ~ 0	O	O	O	O
406	-40 ~ 0	-4 ~ 0	O	O	O	O
407	-30 ~ 0	-3 ~ 0	O	O	O	O
408	-20 ~ 0	-2 ~ 0	O	O	O	O
472	-150 ~ 150	-15 ~ 15	O	O	O	O
470	-100 ~ 100	-10 ~ 10	O	O	O	O
413	-50 ~ 50	-5 ~ 5	O	O	O	O
415	-40 ~ 40	-4 ~ 4	O	O	O	O
417	-30 ~ 30	-3 ~ 3	O	O	O	O
418	-25 ~ 25	-2.5 ~ 2.5	O	O	O	O
419	-20 ~ 20	-2 ~ 2	O	O	O	O
421	-10 ~ 10	-1 ~ 1	O	O	O	O
460	0 ~ 20	0 ~ 2	O	O	O	O
462	0 ~ 30	0 ~ 3	O	O	O	O
464	0 ~ 40	0 ~ 4	O	O	O	O
465	0 ~ 50	0 ~ 5	O	O	O	O
469	0 ~ 100	0 ~ 10	O	O	O	O
515	0 ~ 150	0 ~ 15	O	O	O	O
437	0 ~ 200	0 ~ 20	O	O	O	O
517	0 ~ 250	0 ~ 25	O	O	O	O
518	0 ~ 300	0 ~ 30	O	O	O	O
519	0 ~ 350	0 ~ 35	O	O	O	O

O : Available X : Not available

Diaphragm type low pressure gauge

Model: P428, Screwed process connection

Model: P429, "I" type flange process connection

Spec. sheet no. **PD04-04**

Service intended

P428 and P429 series are consisted of diaphragms which are designed to protect device and designed to isolate pressure gauge from corrosive, contaminative and viscous pressure media.



Nominal diameter

100 and 150 mm

Accuracy

±1.5 % of full scale

Scale range (kPa, mbar)

-1 ~ 0 to -35 ~ 0 kPa

0.5 to ±15 kPa

0 ~1 to 0 ~ 35 kPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.8 % per 10 °C of full scale



Standard features

Process connection

Model P428 : PT and NPT, others feasible

Model P429 : Flanges to ANSI, JIS or other standard

Diaphragm

316L SS

Upper flange (Gauge side)

Stainless steel (304SS, 316SS)

Certificates

ATEX Ex II GD c IIc TX

Under flange (Process side)

Stainless Steel (304SS, 304L SS, 316SS, 316L SS)

Monel, Hastelloy-C

Option

Diaphragm : PTFE lining

Under flange : PTFE lining PTFE coating

WISE®

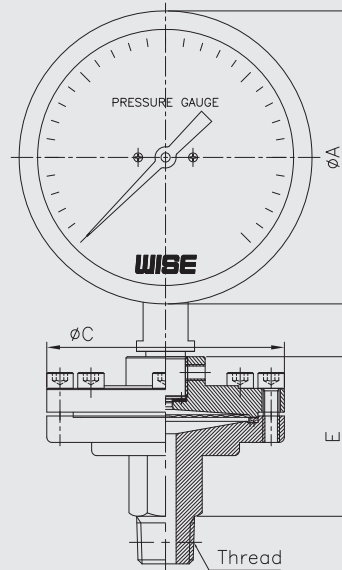
1. Base model**P428** Screwed process connection diaphragm**P429** "I" type flange process connection diaphragm**2. Nominal diameter (mm)****XA** 100**XB** 150**3. Upper flange and diaphragm material****B** 304SS and 316L SS**H** 304SS and 316L SS + PTFE Sheet**J** 316SS and 316L SS**Q** 316SS and 316L SS + PTFE Sheet**4. Process connection type****XXX** Refer to process connection type table**5. Unit****J** kPa**S** mbar**6. Range****XXX** Refer to pressure unit and range table**7. Under flange material****BX** 304SS**CX** 316SS**EX** 316L SS**51** 316L SS + coating**RX** 304SS + coating**PX** 304SS + lining (Only P429)**SX** 316SS + coating**QX** 316SS + lining (Only P429)**50** 316L SS + lining (Only P429)**ZZ** Other**8. Option****0** None**1** Accessories**4** Electropolished under flange

1	2	3	4	5	6	7	8
P428	XA	B	XXX	H	XXX	BX	0

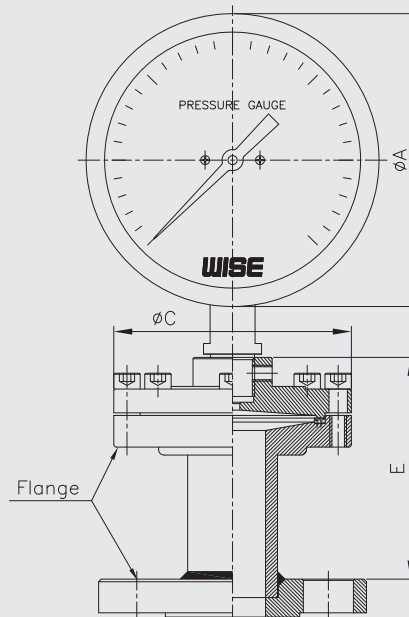
Sample
ordering code

P428, P429 : Type of mounting

Code P428



Code P429



Dimensions (mm)

Available code	Dial size	A	C (Below 20 mbar)	E $\pm$ 2
P428	$\phi 100$	111	100(140)	60
	$\phi 150$	150.6	100(140)	60
P429	$\phi 100$	111	100(140)	83
	$\phi 150$	150.6	100(140)	83

Pressure unit and range table

Range and code	Unit and code		Nominal diameter	
	S : mbar	J : kPa	100 mm	150 mm
503	-350 ~ 0	-35 ~ 0	O	O
400	-300 ~ 0	-30 ~ 0	O	O
502	-250 ~ 0	-25 ~ 0	O	O
401	-200 ~ 0	-20 ~ 0	O	O
402	-150 ~ 0	-15 ~ 0	O	O
403	-100 ~ 0	-10 ~ 0	O	O
405	-50 ~ 0	-5 ~ 0	O	O
406	-40 ~ 0	-4 ~ 0	O	O
407	-30 ~ 0	-3 ~ 0	O	O
408	-20 ~ 0	-2 ~ 0	O	O
472	-150 ~ 150	-15 ~ 15	O	O
470	-100 ~ 100	-10 ~ 10	O	O
413	-50 ~ 50	-5 ~ 5	O	O
415	-40 ~ 40	-4 ~ 4	O	O
417	-30 ~ 30	-3 ~ 3	O	O
418	-25 ~ 25	-2.5 ~ 2.5	O	O
419	-20 ~ 20	-2 ~ 2	O	O
421	-10 ~ 10	-1 ~ 1	O	O
422	-5 ~ 5	-0.5 ~ 0.5	O	O
457	0 ~ 10	0 ~ 1	O	O
460	0 ~ 20	0 ~ 2	O	O
462	0 ~ 30	0 ~ 3	O	O
464	0 ~ 40	0 ~ 4	O	O
465	0 ~ 50	0 ~ 5	O	O
469	0 ~ 100	0 ~ 10	O	O
515	0 ~ 150	0 ~ 15	O	O
437	0 ~ 200	0 ~ 20	O	O
517	0 ~ 250	0 ~ 25	O	O
518	0 ~ 300	0 ~ 30	O	O
519	0 ~ 350	0 ~ 35	O	O

O : Available X : Not available

Pressure unit and range table

8 th character		9 th , 10 th character			
Code	Connection size	For model P428		For model P429	
		Code	Connection type	Code	Flange rating
C *	1/4" (8A)	PF	PF	AC	B16.5 Class 150 RF
D *	3/8" (10A)	AB	PT	AE	B16.5 Class 150 FF
E	1/2" (15A)	AA	NPT	AD	B16.5 Class 150 RFSF
F	3/4" (20A)	FF	BSPT	AF	B16.5 Class 300 RF
G	1" (25A)	GG	BSPF	AH	B16.5 Class 300 FF
H	1 1/4" (32A)	HH	NPS	AG	B16.5 Class 300 RFSF
J	1 1/2" (40A)	JJ	M	AJ	B16.5 Class 600 RF
K	2" (50A)			AL	B16.5 Class 600 FF
L	2 1/2" (65A)			AK	B16.5 Class 600 RFSF
M	3" (80A)			KL	JIS 10K RF
N	4" (100A)			KN	JIS 10K FF
Z	Other			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
				ZZ	Other

* Code C and D, only available with model P428

Low pressure gauge with aluminium case

Model: P430 series

Spec. sheet no. PD04-05

Service intended

P430 series are designed to measure low, vacuum or compound pressure. These models have a stainless steel 316L measuring element which consists of two formed diaphragms and diaphragms are welded together.

EAC

Nominal diameter

100 and 150 mm

Accuracy

±1.0 % of full scale

±1.5 % of full scale

Scale range (kPa, mbar)

-35 ~ 0 to -1 ~ 0 kPa

-15 ~ 15 to -0.5 ~ 0.5 kPa

0 ~ 1 to 0 ~ 35 kPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Movement

Brass

Element

Stainless steel (316L SS)

Pressure chamber : Up to 35 kPa

Dial

White aluminium with black graduations

Case

Black finished aluminium

Pointer

Black painted aluminium alloy

Cover

Black finished aluminium

Window

Safety glass

Process connection

3/8", 1/2" PT, NPT and PF

WISE®

| P430_01

1. Base model

P430 Low pressure gauge with aluminium case

2. Nominal diameter (mm)

4 100

6 150

3. Type of mounting

A Bottom connection, direct

F Center back connection, direct, not available
with diameter 150 mm

4. Accuracy

3 ±1.0 % of full scale

4 ±1.5 % of full scale

5. Process connection

D 3/8"

E 1/2"

6. Connection type

B PF

C PT

D NPT

7. Unit

J kPa

S mbar

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

3 316SS and 2 colors

10. Option

0 None

1 Accessories

2 Orifice

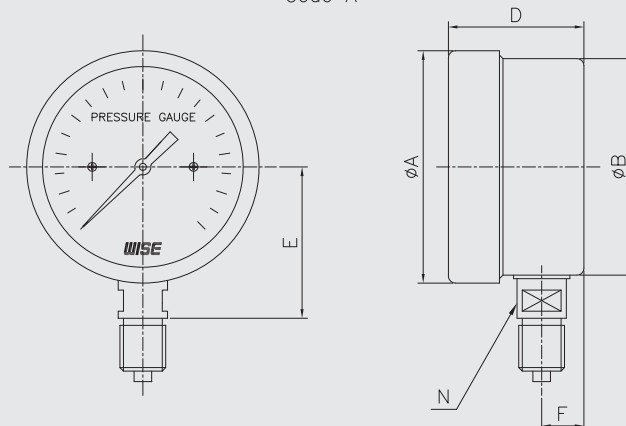
3 Accessories and orifice

1	2	3	4	5	6	7	8	9	10
P430	4	A	3	D	B	J	XXX	3	0

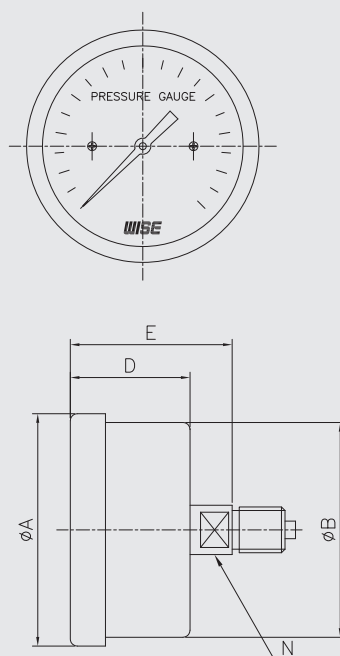
Sample
ordering code

P430 : Type of mounting

Code A



Code F



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	H	M	N
100	A	110	105	130	63	80	26	118		17
	F	110	105	136	63	79		120	55	17
150	A	172	159	182	65	116	27	172		17

Pressure unit and range table

Range and code	Unit and code		Nominal diameter	
	S : mbar	J : kPa	100 mm	150 mm
503	-350 ~ 0	-35 ~ 0	O	O
400	-300 ~ 0	-30 ~ 0	O	O
502	-250 ~ 0	-25 ~ 0	O	O
401	-200 ~ 0	-20 ~ 0	O	O
402	-150 ~ 0	-15 ~ 0	O	O
403	-100 ~ 0	-10 ~ 0	O	O
405	-50 ~ 0	-5 ~ 0	O	O
406	-40 ~ 0	-4 ~ 0	O	O
407	-30 ~ 0	-3 ~ 0	O	O
408	-20 ~ 0	-2 ~ 0	O	O
409	-10 ~ 0	-1 ~ 0	X	O
472	-150 ~ 150	-15 ~ 15	O	O
470	-100 ~ 100	-10 ~ 10	O	O
413	-50 ~ 50	-5 ~ 5	O	O
415	-40 ~ 40	-4 ~ 4	O	O
417	-30 ~ 30	-30 ~ 30	O	O
418	-25 ~ 25	-2.5 ~ 2.5	O	O
419	-20 ~ 20	-2 ~ 2	O	O
421	-10 ~ 10	-1 ~ 1	O	O
457	0 ~ 10	0 ~ 1	X	O
460	0 ~ 20	0 ~ 2	O	O
462	0 ~ 30	0 ~ 3	O	O
464	0 ~ 40	0 ~ 4	O	O
465	0 ~ 50	0 ~ 5	O	O
469	0 ~ 100	0 ~ 10	O	O
515	0 ~ 150	0 ~ 15	O	O
437	0 ~ 200	0 ~ 20	O	O
517	0 ~ 250	0 ~ 25	O	O
518	0 ~ 300	0 ~ 30	O	O
519	0 ~ 350	0 ~ 35	O	O

O : Available X : Not available

Low pressure gauge with nickel plated steel case

Model: P440 series

Spec. sheet no. PD04-06

Service intended

P440 series are designed to measure low, vacuum or compound pressure. These models have beryllium copper element and nickel plated steel case.

EAC

Nominal diameter

63, 75 and 100 mm

Accuracy

±1.5 % of full scale

Scale range (kPa, mbar)

-50 ~ 0 to -5 ~ 0 kPa

-15 ~ 15 to -2.5 ~ 2.5 kPa

0 ~ 5 to 0 ~ 50 kPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130% of full scale

Working temperature

Ambient : -20 ~ 60 °C

Fluid : Max. 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.6 % per 10 °C of full scale



Model : P440



Model : P440 (PC cover)

Standard features

Pressure connection

Nickel plated brass

316SS, only available with 63 mm "F" type

Element

Beryllium copper

Case

Nickel plated steel

Stainless steel (304SS), only available with 63 mm "F" and "J" type

Cover

Nickel plated steel

Stainless steel (304SS), only available with 63 mm "F" and "J" type

Window

Glass

Polycarbonate

Movement

Brass

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

63 mm : 1/8", 1/4" PT, NPT and PF

75 mm : 1/4", 3/8" PT, NPT and PF

100 mm : 3/8", 1/2" PT, NPT and PF

1. Base model

P440 Low pressure gauge with nickel plated steel case

2. Nominal diameter, case and cover material

- 2** 63 mm, steel case and cover, only available with "A" type
- 3** 75 mm, steel case and cover
- 4** 100 mm, steel case and cover

3. Type of mounting

- A** Bottom connection, direct
- F** Center back, direct, only available with diameter 63 mm and stainless steel case
- J** Center back, flush, only available with diameter 63 mm

4. Accuracy

- 4** ±1.5 % of full scale

5. Process connection

- B** 1/8"
- C** 1/4"
- D** 3/8", not available with diameter 63 mm
- E** 1/2", only available with diameter 100 mm

6. Connection type

- B** PF
- C** PT
- D** NPT

7. Unit

- J** kPa
- S** mbar

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and Dial color

- 1** Brass and 2 colors
- 5** Brass and 3 colors
- 3** 316SS and 2 colors
- 7** 316SS and 3 colors

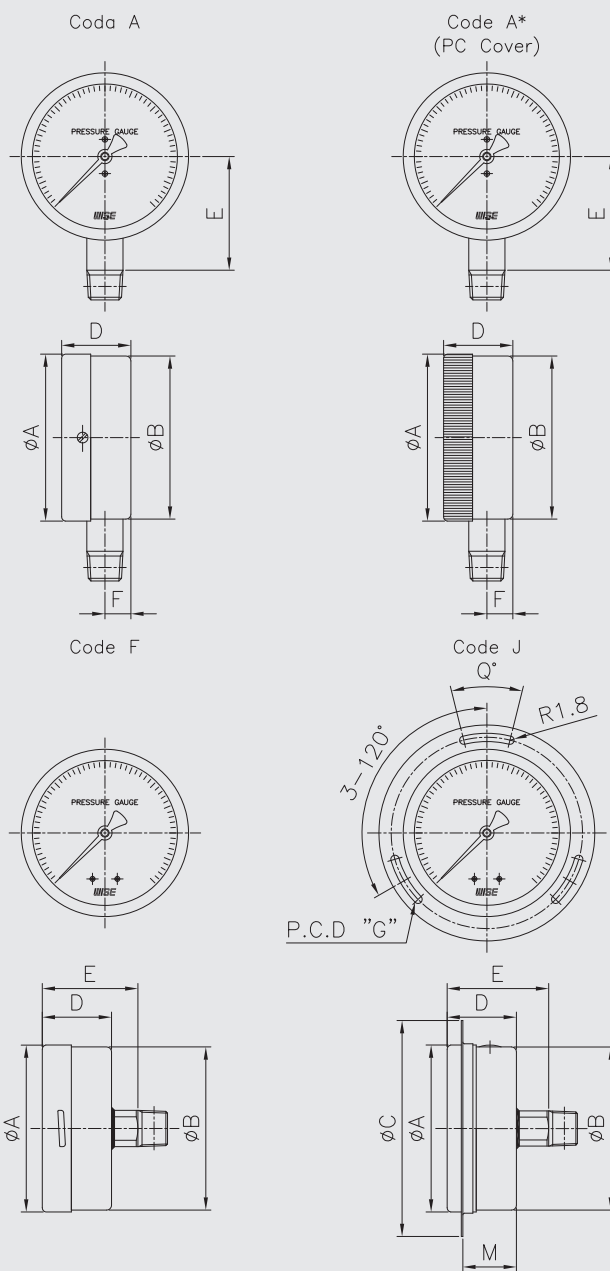
10. Option

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9	10
P440	2	A	4	D	B	J	XXX	1	0

Sample
ordering code

P440 : Type of mounting



Dimensions (mm)

Dial size	Available code	A	B	C	D ± 2	E ± 2	F ± 1	M	G	Q
63	A	66	65		31.5	73.5	11			
75		78	77		40	54.5	11			
100		100.3	99		45	60	14			
63	F	64	62		34	78				
	J	64	66	86	34	45		28	75	15
75	A*	84	77		38.5	49	11			

Pressure unit and range table

Range and code	Unit and code		Nominal diameter			
	S : mbar	J : kPa	63 mm	75 mm	100 mm	75 mm (PC cover)
105	-500 ~ 0	-50 ~ 0	O	O	O	O
400	-300 ~ 0	-30 ~ 0	O	O	O	O
401	-200 ~ 0	-20 ~ 0	O	O	O	O
402	-150 ~ 0	-15 ~ 0	O	O	O	O
403	-100 ~ 0	-10 ~ 0	O	O	O	O
405	-50 ~ 0	-5 ~ 0	O	O	O	O
472	-150 ~ 150	-15 ~ 15	O	O	O	O
470	-100 ~ 100	-10 ~ 10	O	O	O	O
413	-50 ~ 50	-5 ~ 5	O	O	O	O
417	-30 ~ 30	-3 ~ 3	O	O	O	O
418	-25 ~ 25	-2.5 ~ 2.5	O	O	O	O
465	0 ~ 50	0 ~ 5	O	O	O	O
469	0 ~ 100	0 ~ 10	O	O	O	O
515	0 ~ 150	0 ~ 15	O	O	O	O
437	0 ~ 200	0 ~ 20	O	O	O	O
517	0 ~ 250	0 ~ 25	O	O	O	O
518	0 ~ 300	0 ~ 30	O	O	O	O
121	0 ~ 400	0 ~ 40	O	O	O	O
040	0 ~ 500	0 ~ 50	O	O	O	O

O : Available

Euro gauge

Inductive contact type pressure gauge

Model: P500 series

Spec. sheet no. PD05-01

Service intended

P500 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the setpoints.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale for pressure indication

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 100 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 200 °C

Max. 100 °C (With silicone filling)



Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale

Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Bezel ring

Stainless steel (304SS)

Bayonet type

Window

Safety glass : Only available with diameter 100 mm

Polycarbonate : 100 and 160 mm

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

Process connection

3/8", 1/2" PT, NPT and PF

Certificates

KCS Ex ia IIC T6

NEPSI Ex ia IIC T6 Ga

Tamb = -25 ~ 56 °C

Option

Damping movement

WISE®

| P500_01

Main order

Ordering information

1. Base model

P500 Inductive contact type pressure gauge

2. Nominal diameter and window material

- 4** 100 mm and safety glass
- 5** 100 mm and polycarbonate window
- 6** 160 mm and polycarbonate window

3. Type of mounting

- A** Bottom connection, direct
- B** Bottom connection, surface, case mounting plate
- G** Lower back connection, direct, only available with diameter 100 mm
- N** Lower back connection, flush, cover mounting plate, only available with diameter 100 mm

4. Contact function

- 1** High alarm, Normal open contact
- 2** Low and High alarm
- 3** Low alarm, Normal close contact
- 4** Two high alarm
- 5** Two low alarm
- 6** Failsafe high and low alarm

5. Process connection

- D** $\frac{3}{8}$ "
- E** $\frac{1}{2}$ "

6. Connection type

- B** PF
- C** PT
- D** NPT
- F** BSPT
- G** BSP
- Z** Other

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

- 3** 316SS and 2 colors
- 4** 316L SS and 2 colors
- 7** 316SS and 3 colors
- 8** 316L SS and 3 colors
- Z** Monel

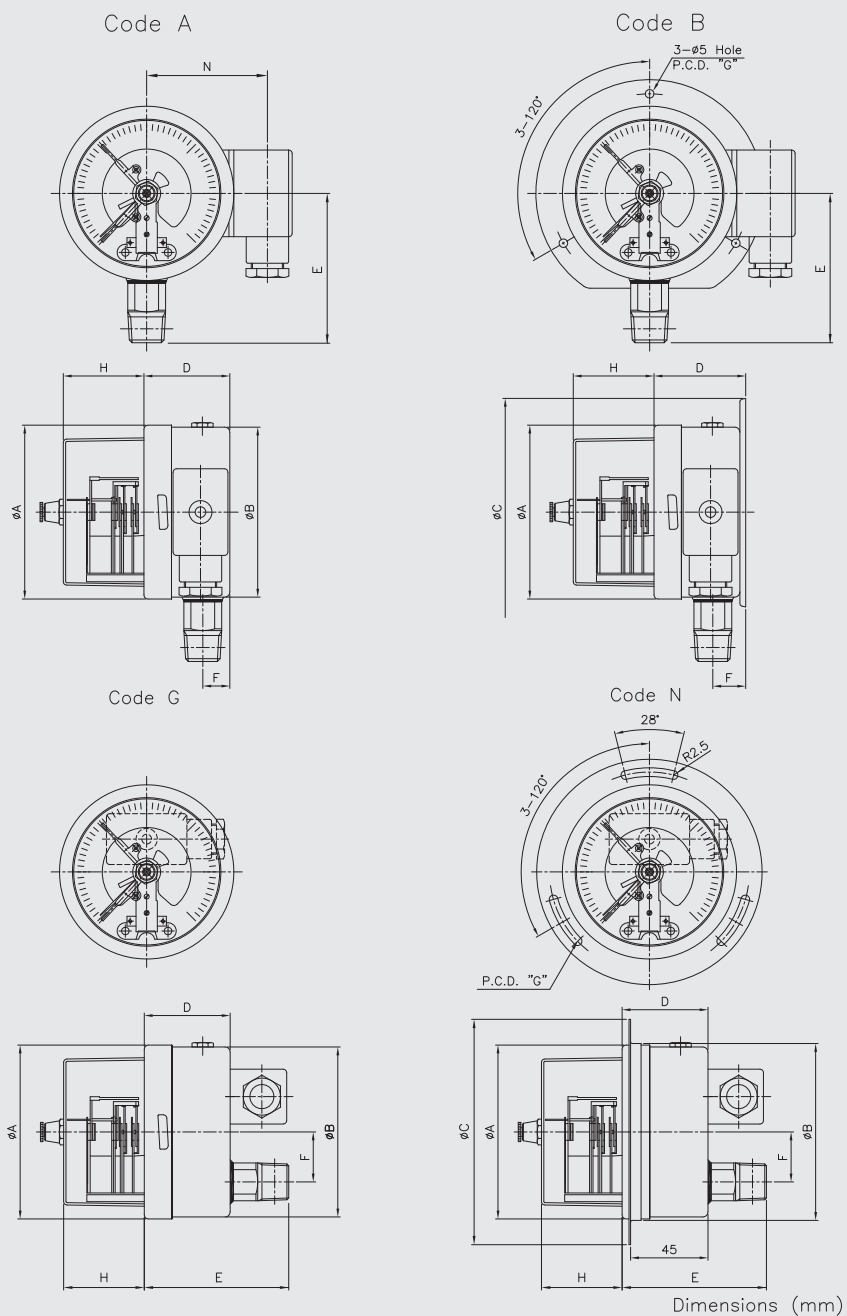
10. Option

- 0** None
- 1** Amplifier (AC 230 V)

1	2	3	4	5	6	7	8	9	10
P500	4	A	4	D	B	J	XXX	3	0

Sample
ordering code

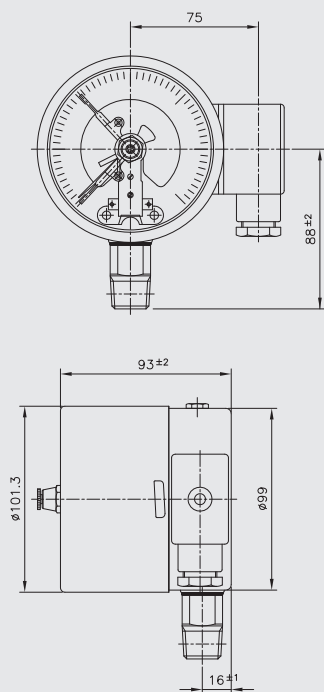
P500 : Type of mounting (Polycarbonate window 1/2)



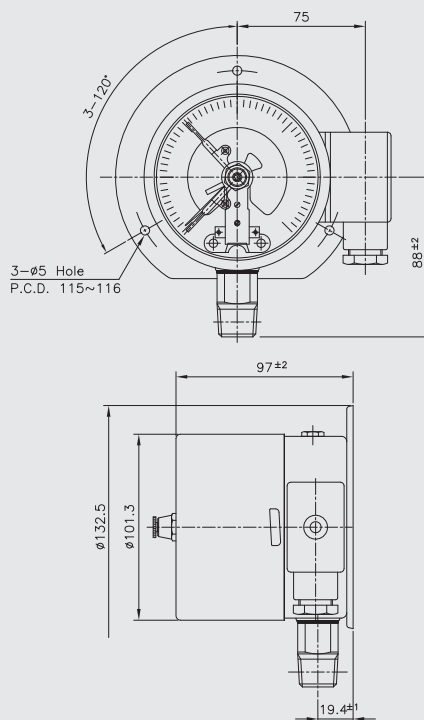
Dial size	Available code	A	B	C	D±2	E±2	F±1	G	H	N
100	A	101.3	99		50	88	16		34.5	75
	B	101.3		133	54.4	88	19.4	116	34.5	
	G	101.3	99		50	88	29		34.5	
	N	101.3	103.1	131	50	88	29	116	34.5	
160	A	160.6	159		52.5	117	15.8		34	105
	B	160.6		196	56	117	19.4	178	34	105

P500 : Type of mounting (Safety glass window 2/2)

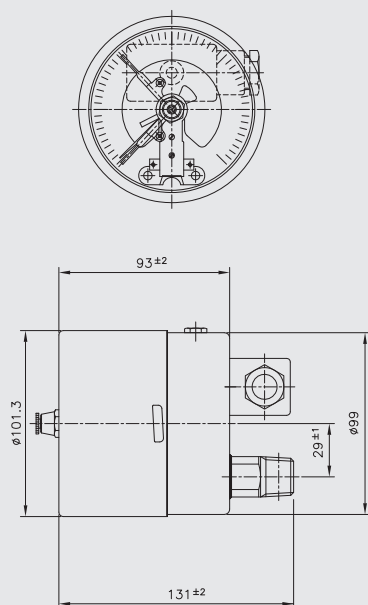
Code A (Only 100mm)



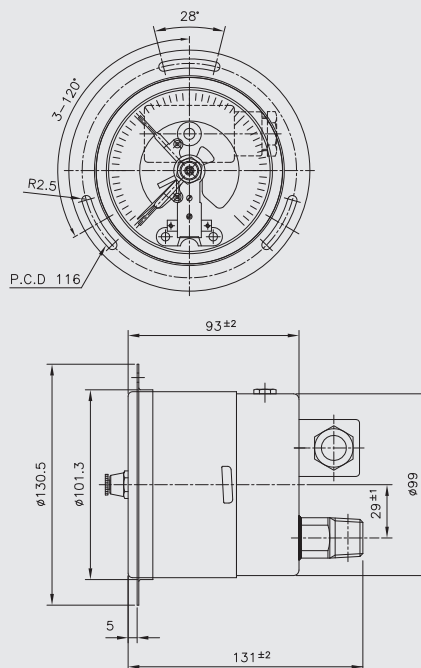
Code B



Code G



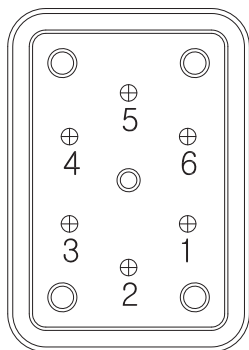
Code N



Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Slot sensor	
		1 st contact	2 nd contact			
Single contact						
1	Control vane inside the slot sensor - Contact make (Normal open)			I-1	SJ2N for 100 mm SJ3.5N for 160 mm	
3	Control vane out of the slot sensor - Contact break (Normal colse)			I-2	SJ2N for 100 mm SJ3.5N for 160 mm	
Double contact						
4	1 st and 2 nd Control vane inside the slot sensor - 1 st and 2 nd Contact make	1st 1 (+) 3 (-) 2nd 4 (+) 6 (-)			I-11	SJ2N for 100 mm SJ3.5N for 160 mm
6	1 st Control vane inside and 2 nd control vane out of the slot sensor - 1 st Contact make 2 nd Contact break	1st 1 (+) 3 (-) 2nd 4 (+) 6 (-)			I-12	SJ2N for 100 mm SJ3.5N for 160 mm Failsafe contact
2	1 st Control vane out of the vane and 2 nd control vain inside of the vane - 1 st Contact break 2 nd Contact make	1st 1 (+) 3 (-) 2nd 4 (+) 6 (-)			I-21	SJ2N for 100 mm SJ3.5N for 160 mm
5	1 st and 2 nd Control vane out of the slot sensor - 1 st and 2 nd Contact break	1st 1 (+) 3 (-) 2nd 4 (+) 6 (-)			I-22	SJ2N for 100 mm SJ3.5N for 160 mm

Terminal block arrangement



1. High alarm (I-1)

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

2. Low and high alarm (I-21)

Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

High alarm

- ④ Normal open (+)
- ⑥ Common (-)

3. Low alarm (I-2)

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

4. Two high alarm (I-11)

No.1 High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

No.2 High alarm

- ④ Normal open (+)
- ⑥ Common (-)

5. Two low alarm (I-22)

No.2 Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

No.1 Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

6. Failsafe high and low alarm (I-12)

High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

Inductive alarm sensor model P500 series

Service intended

WISE inductive contacts are certified for use in hazardous areas of zone 0.

power supply must be made by means of a power source certified intrinsically safe such as pepper and fuchs model KFA6-SR2-Ex1.W

Inductive contact are also recommended for critical non-hazardous applications where an utmost of failsafe heavy duty operation is required.

In combination with liquid filled instruments these contacts are particularly suited for process control circuits in the chemical and petroleum industry.

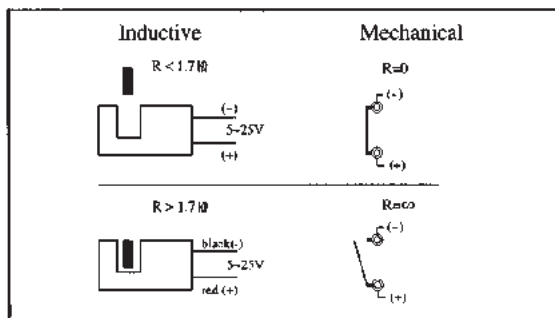
Operating principle

At the heart of the WISE inductive contact system is a non-contact sensor attached to an pressure gauge. Both sensor and gauge are adjustable over the full length of the scale. Contact actuation is achieved by means of a Control vane linked to the pointer of the gauge.

The control vane affects the electric field of the sensor when the instruments pointer overlaps with the contacts indicator.

Contact actuation is made without any mechanical force that would affect accuracy of the gauge.

The scheme below reflects the operating principle in comparison with conventional mechanical contacts :



Dimensions of the basic instrument and provisions for contacts adjustment are identical to contacts of model P500.

Operating temperature: -25 °C... +70 °C

Used sensor (slot-type initiator) :

Type SJ of the company Pepper and Fuchs,

EC-type-examination certificate PTB 99 ATEX 2219 X

Advantage of the WISE inductive system

- Long service life by means of non-contact sensor
- Very little effect on gauge accuracy
- No reduced rating with liquid filled gauges
- Fully suitable in corrosive or hazardous atmosphere
- Ex-approved for service in hazardous area of zone 1 or 2

Components of the WISE inductive contact system

Operation of the inductive contact system requires an appropriate electronic power supply and control unit.

The Safety Barrier consists of

- Line transformer
- Amplifier circuit
- Relay to switch external circuit

The isolated line transformer provides for power supply whereas the amplifier conditions the signal of the inductive sensor to energise the output relay.

Available are two versions of control units

- Ex-approved intrinsic safety
- Standard for non-intrinsically safe version (optional)

Safety barrier for inductive contacts

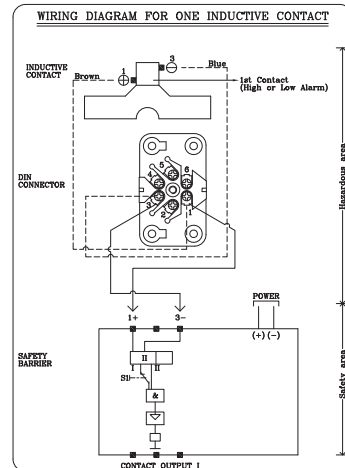
Ex-certified versions

Safety barrier model KFA6-SR2-Ex1.W

- Intended for instruments having one inductive contact incorporated
- Alarm circuit certified intrinsically safe [EEx id] IIC to EN 50 227 and NAMUR
- Provides 1 SPDT relay output contact
- LED indicating circuit status (green), relay output (yellow) and lead breakage (red)
- Case surface mounting type Form A

Note

Directions of action adjustable by sliding switch S1 :
 Open circuit causes alarm : Switch S1 in position I
 Closed circuit causes alarm : Switch S1 in position II



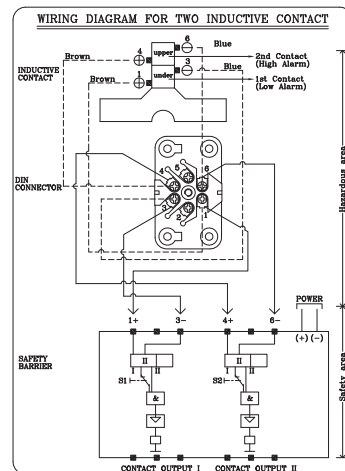
SAFETY BARRIER MODEL	Contact Output I (High or Low Alarm)	POWER
KFA6-SR2-Ex1.W(115V, AC)	7(COMMON) 8(OPEN) 9(CLOSE)	14(+) 15(-)
KFA6-SR2-Ex1.W(230V, AC)		
KFD2-SR2-Ex1.W(24V, DC)		

Safety barrier model KFA6-SR2-Ex2.W

- Intended for 1 instrument having two or two instruments having one each contact incorporated
- Alarm circuit certified intrinsically safe [EEx id] IIC to EN 50 227 and NAMUR
- Provides 2 SPDT relay output contacts
- LED indicating circuit status (green), 2 x relay output (yellow) and 2 x lead breakage (red)
- Case surface mounting type Form B

Note

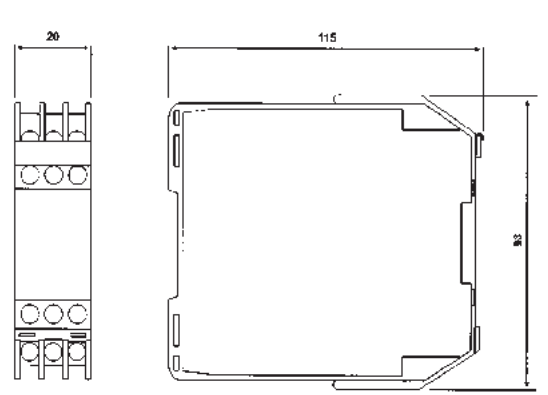
Directions of action adjustable by sliding switch S1 and S2 :
 Open circuit causes alarm : Switch S1 and S2 in position I
 Closed circuit causes alarm : Switch S1 and S2 in position II



SAFETY BARRIER MODEL	Contact Output I (Low Alarm)	Contact Output II (High Alarm)	POWER
KFA6-SR2-Ex2.W(115V, AC)	7(COMMON) 8(OPEN) 9(CLOSE)	10(COMMON) 11(OPEN) 12(CLOSE)	14(+) 15(-)
KFA6-SR2-Ex2.W(230V, AC)			
KFD2-SR2-Ex2.W(24V, DC)			

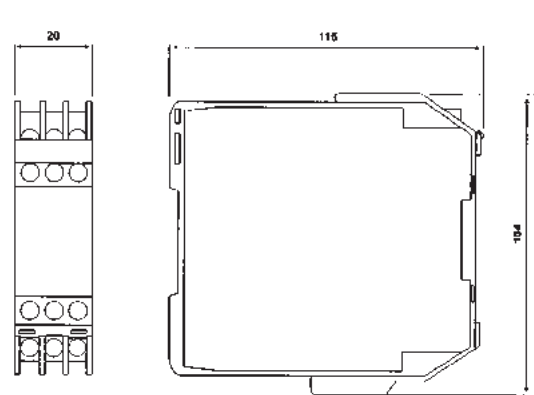
Dimensions of safety barrier for inductive contact

Model : KFA6-SR2-Ex1.W



Form A

Model : KFA6-SR2-Ex2.W



Form B

Specifications for safety barrier	Model KFA6-SR2-Ex1.W	Model KFA6-SR2-Ex2.W
Power supply		
Line voltage 1)	AC 230 V $\pm 0\%$, 45...65 Hz	AC 230 V $\pm 0\%$, 45...65 Hz
Consumption	1 VA	1.3 VA
Input		
No. of contacts	1	2
Voltage (reactive)	DC 8 V	DC 8 V
Maximum current	8 mA	8 mA
Contact actuation	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$
Contact hysteresis	ca. 0.2 mA	ca. 0.2 mA
Control line impedance	100 Ω	100 Ω
Ex-IS data (as PTB-certified)		
Voltage	$U_o \leq \text{DC } 10.6 \text{ V}$	$U_o \leq \text{DC } 10.6 \text{ V}$
Current	$I_o \leq 19.1 \text{ mA}$	$I_o \leq 19.1 \text{ mA}$
Power rating	$P_o \leq 51 \text{ mW}$	$P_o \leq 51 \text{ mW}$
IS-classification	[EEx ia] IIC	[EEx ia] IIC
Ext. capacitance	2.9 μF	2.9 μF
Ext. inductance	100 mH	100 mH
Output		
Relay contacts	1 SPDT	1 ea. SPDT
Contact rating AC	253 V, 2 A, 500 VA, $\cos\theta > 0.7$	253 V, 2 A, 500 VA, $\cos\theta > 0.7$
Contact rating DC	4 V, 2 A, ohmic	4 V, 2 A, ohmic
Delay making circuit	Approx. 20 ms	Approx. 20 ms
Delay breaking circuit	Approx. 20 ms	Approx. 20 ms
Max. on-off frequency	10 Hz	10 Hz
Operating conditions		
Min. temperature	-20 °C	-20 °C
Max. temperature	+60 °C	+60 °C
Max. humidity	Max. 75 %	Max. 75 %
Ingress protection	IP 20 (EN 60 529 / IEC529)	IP 20 (EN 60 529 / IEC529)
Enclosure		
Style	Surface mounting	Surface mounting
Dimensions per drawing	Form A	Form B
Mounting	Snap-fit on 35 mm x 7.5 mm (EN 50 022) rail. direct mounting feasible	
Weight	Approx. 0.15 kg	Approx. 0.15 kg

Pressure unit and range table

Range and code	Unit and code			Nominal diameter	
	H : bar	I : MPa	J : kPa	100 mm	160 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
066	0 ~ 500	0 ~ 50	X	O	O
067	0 ~ 600	0 ~ 60	X	O	O
068	0 ~ 700	0 ~ 70	X	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O
074	0 ~ 1,600	0 ~ 160	X	O	O
075	0 ~ 2,000	0 ~ 200	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
127	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

Euro gauge

Inductive contact type diaphragm pressure gauge

Model: P501, P502 series

Spec. sheet no. PD05-02

Service intended

P501 and P502 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contact to be used. The contact block is mounted on the dial. The windows is fitted with a knob for external adjustment of the setpoints.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 1 kPa to 0 ~ 40 kPa (Flange 150 mm)

0 ~ 50 kPa to 0 ~ 2.5 MPa (Flange 100 mm)

Working pressure

Steady : Full scale value

Fluctuating : 90 % of full scale value

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection and under flange

Material : 304SS, 316SS and 316L SS

Upper flange (Gauge side)

Material : 304SS, 316SS

Diaphragm material

≤40 kPa Stainless steel (316Ti SS)

>40 kPa Duratherm 600

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Safety glass : Only available with diameter 100 mm

Polycarbonate : 100 and 160 mm

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

Certificates

NEPSI Ex ia IIC T6 Ga

Tamb = -25 ~ 56 °C

Option

External zero adjustable

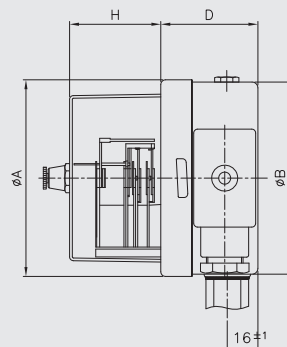
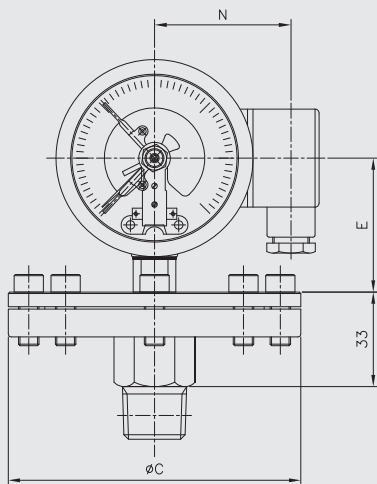
1. Base model**P501** Screwed process connection**P502** "I" type flange process connection**2. Nominal diameter and window material****4** 100 mm and safety glass**5** 100 mm and polycarbonate window**6** 160 mm and polycarbonate window**3. Type of mounting****A** Bottom entry**4. Contact function****1** High alarm, normal open contact**2** Low and High alarm**3** Low alarm, normal close contact**4** Two high alarm**5** Two low alarm**6** Failsafe high and low alarm**5. Process connection****XX** Refer to connection type table**6. Under flange material (Wetted parts)****BX** 304SS**CX** 316SS**EX** 316L SS**7. Unit****H** bar**I** MPa**J** kPa**S** mbar**8. Range****XXX** Refer to pressure unit and range table**9. Liquid filling****0** None**10. Option****0** None**1** Amplifier (AC 230 V)

1	2	3	4	5	6	7	8	9	10
P501	4	A	3	XX	BX	H	XXX	0	0

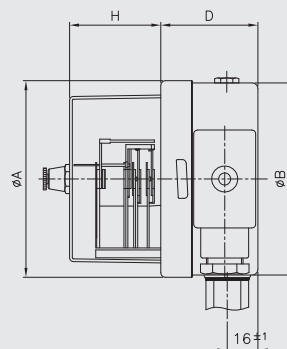
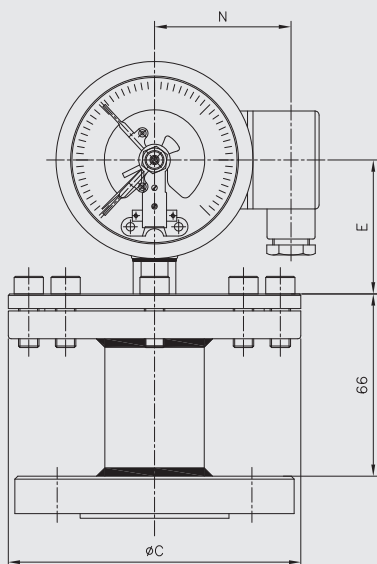
Sample
ordering code

P501, P502 : Type of mounting (Polycarbonate window 1/2)

P501



P502

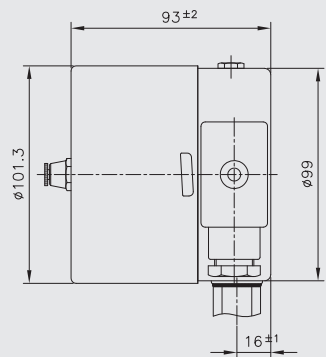
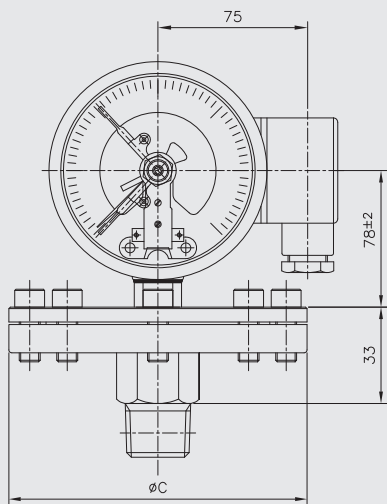


Dimensions (mm)

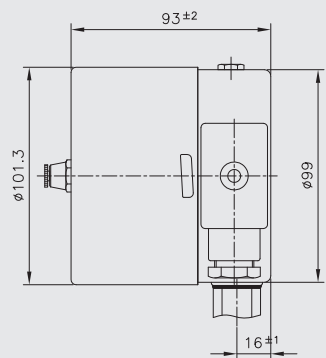
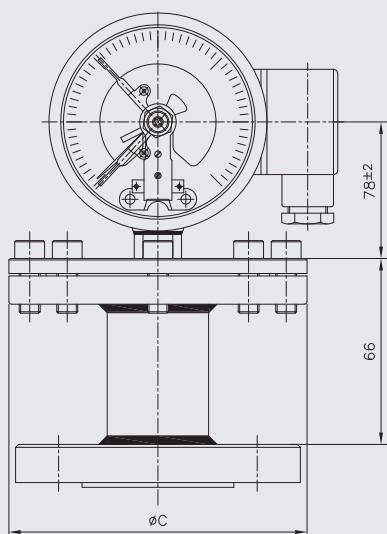
Dial size	A	B	D ± 2	E ± 2	H	N	C	
							$\leq 40\text{kPa}$	$> 40\text{kPa}$
100	101.3	99	50	78	34.5	75	150	100
160	160.6	159	52.5	108	34	105		

P501, P502 : Type of mounting (Safety glass window 2/2)

P501



P502



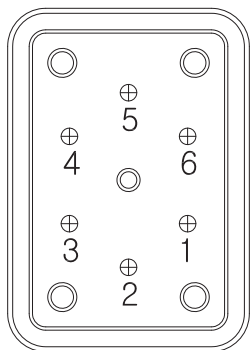
Dimensions (mm)

Dial size	C	
	≤ 40kPa	> 40kPa
100	150	100

Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Slot sensor	
		1 st contact	2 nd contact			
Single contact						
1	Control vane inside the slot sensor - Contact make (Normal open)			I-1	SJ2N for 100 mm SJ3.5N for 160 mm	
3	Control vane out of the slot sensor - Contact break (Normal colse)			I-2	SJ2N for 100 mm SJ3.5N for 160 mm	
Double contact						
4	1 st and 2 nd Control vane inside the slot sensor - 1 st and 2 nd Contact make	 			I-11	SJ2N for 100 mm SJ3.5N for 160 mm
6	1 st Control vane inside and 2 nd control vane out of the slot sensor - 1 st Contact make 2 nd Contact break	 			I-12	SJ2N for 100 mm SJ3.5N for 160 mm Failsafe contact
2	1 st Control vane out of the vane and 2 nd control vain inside of the vane - 1 st Contact break 2 nd Contact make	 			I-21	SJ2N for 100 mm SJ3.5N for 160 mm
5	1 st and 2 nd Control vane out of the slot sensor - 1 st and 2 nd Contact break	 			I-22	SJ2N for 100 mm SJ3.5N for 160 mm

Terminal block arrangement



1. High alarm (I-1)

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

2. Low and high alarm (I-21)

Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

High alarm

- ④ Normal open (+)
- ⑥ Common (-)

3. Low alarm (I-2)

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

4. Two high alarm (I-11)

No.1 High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

No.2 High alarm

- ④ Normal open (+)
- ⑥ Common (-)

5. Two low alarm (I-22)

No.2 Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

No.1 Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

6. Failsafe high and low alarm (I-12)

High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

Inductive alarm sensor model P500 series

Service intended

WISE inductive contacts are certified for use in hazardous areas of zone 0.

power supply must be made by means of a power source certified intrinsically safe such as pepper and fucus model KFA6-SR2-Ex1.W

Inductive contact are also recommended for critical non-hazardous applications where an utmost of failsafe heavy duty operation is required.

In combination with liquid filled instruments these contacts are particularly suited for process control circuits in the chemical and petroleum industry.

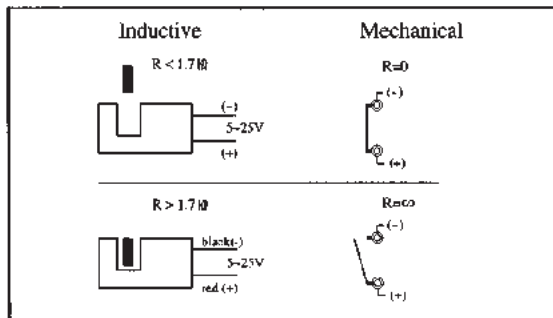
Operating principle

At the heart of the WISE inductive contact system is a non-contact sensor attached to an pressure gauge. Both sensor and gauge are adjustable over the full length of the scale. Contact actuation is achieved by means of a Control vane linked to the pointer of the gauge.

The control vane affects the electric field of the sensor when the instruments pointer overlaps with the contacts indicator.

Contact actuation is made without any mechanical force that would affect accuracy of the gauge.

The scheme below reflects the operating principle in comparison with conventional mechanical contacts :



Dimensions of the basic instrument and provisions for contacts adjustment are indetical to contacts of model P500.

Operating temperature: -25 °C... +70 °C

Used sensor (slot-type initiator) :

Type SJ of the company Pepper and Fuchs,

EC-type-examination certificate PTB 99 ATEX 2219 X

Advantage of the WISE inductive system

- Long service life by means of non-contact sensor
- Very little effect on gauge accuracy
- No reduced rating with liquid filled gauges
- Fully suitable in corrosive or hazardous atmosphere
- Ex-approved for service in hazardous area of zone 1 or 2

Components of the WISE inductive contact system

Operation of the inductive contact system requires an appropriate electronic power supply and control unit.

The Safety Barrier consists of

- Line transformer
- Amplifier circuit
- Relay to switch external circuit

The isolated line transformer provides for power supply whereas the amplifier conditions the signal of the inductive sensor to energise the output relay.

Available are two versions of control units

- Ex-approved intrinsic safety
- Standard for non-intrinsically safe version (optional)

Safety barrier for inductive contacts

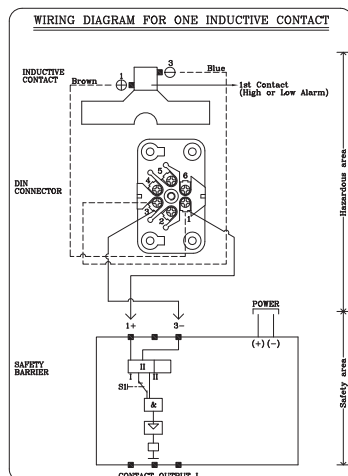
Ex-certified versions

Safety barrier model KFA6-SR2-Ex1.W

- Intended for instruments having one inductive contact incorporated
- Alarm circuit certified intrinsically safe [EEx id] IIC to EN 50 227 and NAMUR
- Provides 1 SPDT relay output contact
- LED indicating circuit status (green), relay output (yellow) and lead breakage (red)
- Case surface mounting type Form A

Note

Directions of action adjustable by sliding switch S1 :
 Open circuit causes alarm : Switch S1 in position I
 Closed circuit causes alarm : Switch S1 in position II



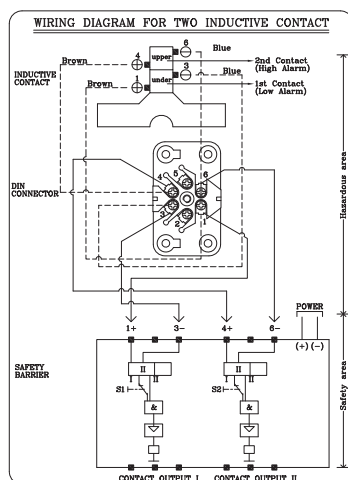
SAFETY BARRIER MODEL	Contact Output I (High or Low Alarm)	POWER
KFA6-SR2-Ex1.W(115V, AC)	7(COMMON)	14(+), 15(-)
KFA6-SR2-Ex1.W(230V, AC)	8(OPEN)	
KFD6-SR2-Ex1.W(24V, DC)	9(CLOSE)	

Safety barrier model KFA6-SR2-Ex2.W

- Intended for 1 instrument having two or two instruments having one each contact incorporated
- Alarm circuit certified intrinsically safe [EEx id] IIC to EN 50 227 and NAMUR
- Provides 2 SPDT relay output contacts
- LED indicating circuit status (green), 2 x relay output (yellow) and 2 x lead breakage (red)
- Case surface mounting type Form B

Note

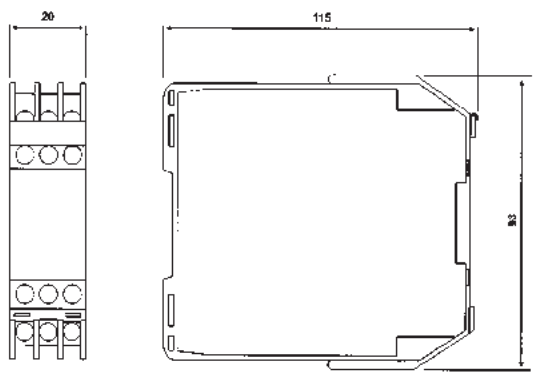
Directions of action adjustable by sliding switch S1 and S2 :
 Open circuit causes alarm : switch S1 and S2 in position I
 Closed circuit causes alarm : switch S1 and S2 in position II



SAFETY BARRIER MODEL	Contact Output I (Low Alarm)	Contact Output II (High Alarm)	POWER
KFA6-SR2-Ex2.W(115V, AC)	7(COMMON)	8(CLOSE)	14(+), 15(-)
KFA6-SR2-Ex2.W(230V, AC)	9(OPEN)	10(OPEN)	
KFD6-SR2-Ex2.W(24V, DC)	11(CLOSE)	12(CLOSE)	

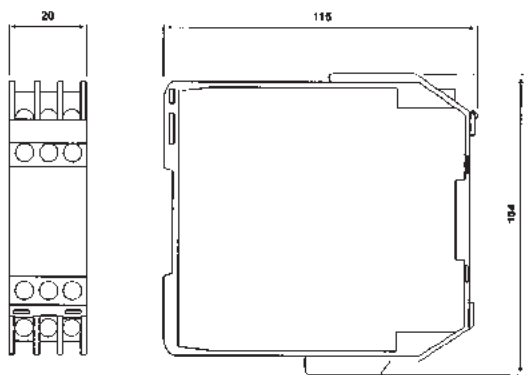
Dimensions of safety barrier for inductive contact

Model : KFA6-SR2-Ex1.W



Form A

Model : KFA6-SR2-Ex2.W



Form B

Specifications for safety barrier	Model KFA6-SR2-Ex1.W	Model KFA6-SR2-Ex2.W
Power supply		
Line voltage 1)	AC 230 V $\pm 0\%$, 45...65 Hz	AC 230 V $\pm 0\%$, 45...65 Hz
Consumption	1 VA	1.3 VA
Input		
No. of contacts	1	2
Voltage (reactive)	DC 8 V	DC 8 V
Maximum current	8 mA	8 mA
Contact actuation	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$
Contact hysteresis	ca. 0.2 mA	ca. 0.2 mA
Control line impedance	100 Ω	100 Ω
Ex-IS data (as PTB-certified)		
Voltage	$U_o \leq \text{DC } 10.6 \text{ V}$	$U_o \leq \text{DC } 10.6 \text{ V}$
Current	$I_o \leq 19.1 \text{ mA}$	$I_o \leq 19.1 \text{ mA}$
Power rating	$P_o \leq 51 \text{ mW}$	$P_o \leq 51 \text{ mW}$
IS-classification	[EEx ia] IIC	[EEx ia] IIC
Ext. capacitance	2.9 μF	2.9 μF
Ext. inductance	100 mH	100 mH
Output		
Relay contacts	1 SPDT	1 ea. SPDT
Contact rating AC	253 V, 2 A, 500 VA, $\cos\theta > 0.7$	253 V, 2 A, 500 VA, $\cos\theta > 0.7$
Contact rating DC	4 V, 2 A, ohmic	4 V, 2 A, ohmic
Delay making circuit	Approx. 20 ms	Approx. 20 ms
Delay breaking circuit	Approx. 20 ms	Approx. 20 ms
Max. on-off frequency	10 Hz	10 Hz
Operating conditions		
Min. temperature	-20 °C	-20 °C
Max. temperature	+60 °C	+60 °C
Max. humidity	Max. 75 %	Max. 75 %
Ingress protection	IP 20 (EN 60 529 / IEC529)	IP 20 (EN 60 529 / IEC529)
Enclosure		
Style	Surface mounting	Surface mounting
Dimensions per drawing	Form A	Form B
Mounting	Snap-fit on 35 mm X 7.5 mm (EN 50 022) rail. direct mounting feasible	
Weight		
	Approx. 0.15 kg	Approx. 0.15 kg

Pressure unit and range table

Range and code	Unit and code				Diaphragm material
	J : kPa	S : mbar	H : bar	I : MPa	
797	0 ~ 1	0 ~ 10	X	X	316Ti (130Ø)
817	0 ~ 2.5	0 ~ 25	X	X	
826	0 ~ 4	0 ~ 40	X	X	
828	0 ~ 5	0 ~ 50	X	X	
830	0 ~ 6	0 ~ 60	X	X	
792	0 ~ 10	0 ~ 100	X	X	
810	0 ~ 16	0 ~ 160	X	X	
793	0 ~ 20	0 ~ 200	X	X	
818	0 ~ 25	0 ~ 250	X	X	
820	0 ~ 30	0 ~ 300	X	X	
130	0 ~ 40	0 ~ 400	0 ~ 0.4	X	
040	0 ~ 50	0 ~ 500	0 ~ 0.5	X	Duratherm 600 (75Ø)
131	0 ~ 60	0 ~ 600	0 ~ 0.6	X	
041	X	X	0 ~ 1	0 ~ 0.1	
042	X	X	0 ~ 2	0 ~ 0.2	
134	X	X	0 ~ 2.5	0 ~ 0.25	
043	X	X	0 ~ 3	0 ~ 0.3	
045	X	X	0 ~ 6	0 ~ 0.6	
143	X	X	0 ~ 16	0 ~ 1.6	
052	X	X	0 ~ 25	0 ~ 2.5	

O : Available X : Not available

Process connection type table

8 th character		9 th , 10 th character			
Code	Connection size	For model P501		For model P502	
		Code	Connection type	Code	Flange rating
C *	¼" (8A)	PF	PF	AC	B16.5 Class 150 RF
D *	⅜" (10A)	AB	PT	AE	B16.5 Class 150 FF
E	½" (15A)	AA	NPT	AD	B16.5 Class 150 RFSF
F	¾" (20A)	FF	BSPT	A8	B16.5 Class 150 RTJ
G	1" (25A)	GG	BSPF	AF	B16.5 Class 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)			A9	B16.5 Class 300 RTJ
L	2½" (65A)			AJ	B16.5 Class 600 RF
M	3" (80A)			AL	B16.5 Class 600 FF
N	4" (100A)			AK	B16.5 Class 600 RFSF
Z	Other			AV	B16.5 Class 600 RTJ
				AS	B16.5 Class 900 RF
				KA	JIS 5K RF
				KT	JIS 5K FF
				KL	JIS 10K RF
				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
				KD	JIS 40K RF
				KV	JIS 40K FF
				ZZ	Other

* Code C and D, only available with model P501

Euro gauge

Electrical contact type pressure gauge (Modular system)

Model: P510 series

Spec. sheet no. PD05-03

Service intended

P510 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the setpoints.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 100 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Bezel ring

Stainless steel (304SS)

Bayonet type

Window

Polycarbonate

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

Process connection

3/8", 1/2" PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

Option

Damping movement

WISE®

| P510_01

1. Base model**P510** Electrical contact type pressure gauge**2. Nominal diameter (mm)**

- 4** 100
6 160

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate
G Lower back connection, direct, only available with diameter 100 mm
N Lower back connection, flush, cover mounting plate, only available with diameter 100 mm

4. Contact function

- 1** High alarm, normal open contact
2 Low and High alarm
3 Low alarm, normal close contact
4 Two high alarm
5 Two low alarm
6 Failsafe high and low alarm

5. Process connection

- D** $\frac{3}{8}$ "
E $\frac{1}{2}$ "

6. Connection type

- B** PF
C PT
D NPT
Z Other

7. Unit

- H** bar
I MPa
J kPa

8. Range**XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color**

- 3** 316SS and 2 colors
4 316L SS and 2 colors
7 316SS and 3 colors
8 316L SS and 3 colors

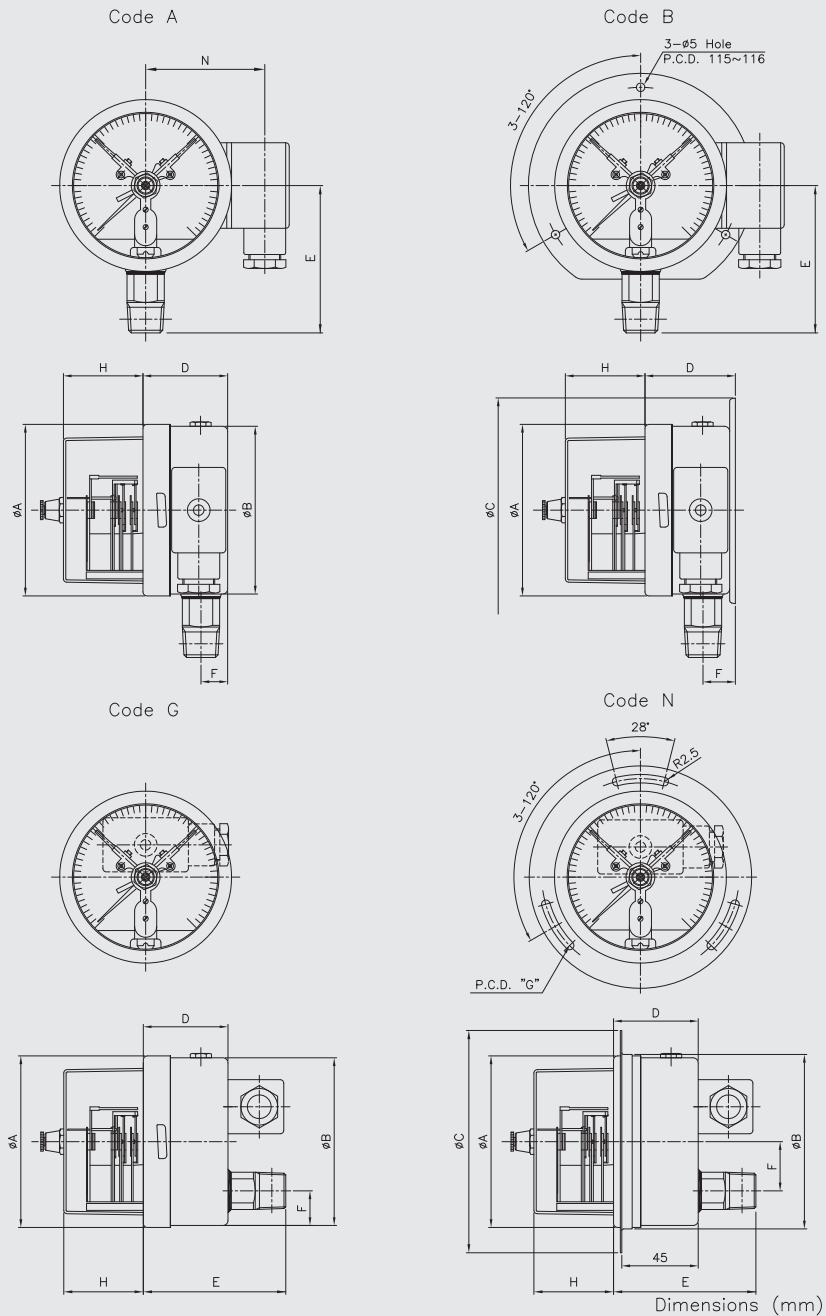
10. Option

- 0** None
1 Accessories
2 Damping movement

1	2	3	4	5	6	7	8	9	10
P510	4	A	3	D	D	H	XXX	3	0

Sample
ordering code

P510 : Type of mounting



Dial size	Available code	A	B	C	D±2	E±2	F±1	G	H	N
100	A	101.3	99		50	88	16		34.5	75
	B	101.3		133	54.4	88	19.4	116	34.5	
	G	101.3	99		50	88	29		34.5	
	N	101.3	103.1	131	50	88	29	116	34.5	
160	A	160.6	159		52.5	117	15.8		34	105
	B	160.6	159	196	56	117	19.4	178	34	

Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

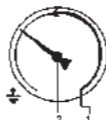
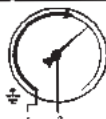
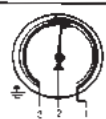
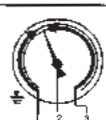
Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type pressure gauge model P510 series	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuous load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-Nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20 °C...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

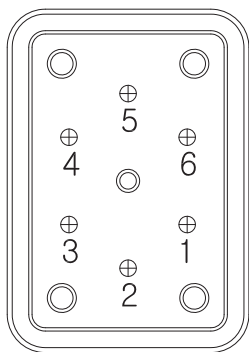
Voltage (DIN IEC 38) DC / AC	Electrical contacts type pressure gauge model P510 series					
	Dry gauges			Liquid filled gauges		
	Ohmic load		Inductive load	Ohmic load		Inductive load
	DC	AC		DC	AC	
			cosØ > 0.7			cosØ > 0.7
V	mA	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90	40
110 / 110	200	240	130	130	180	85
48 / 48	300	450	200	190	330	130
24 / 24	400	600	250	250	450	150

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

CODE	Wiring Scheme	Contact Function		Wiebrock Code No.	Remark	
		1st Contact	2nd Contact			
Single Contact						
1	Contact make when pointer reachse setpoint (Normal open - NO)			S/M-1	Normal use high alarm system	
3	Contact break when pointer reachse setpoint (Normal close - NC)			S/M-2	Normal use low alarm system	
Double Contact - Common Circuit						
4	1 st and 2 nd contact make when pointer reaches setpoint				S/M-11	Normal use two high alarm system
6	1 st contact make 2 nd contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1 st contact break 2 nd contact make when pointer reaches setpoint				S/M-21	Normal use Low and High alarm system
5	1 st and 2 nd contact break when pointer reaches setpoint				S/M-22	Normal use two low alarm system

Terminal block arrangement



1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

2. Low and high alarm (S/M-21)

Low alarm

- ① Normal close
- ② Common
- ④ Ground

High alarm

- ② Common
- ③ Normal open

3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

No.2 High alarm

- ② Common
- ③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

No.1 Low alarm

- ② Common
- ③ Normal close

6. Failsafe high and low alarm (S/M-12)

High alarm

- ② Common
- ③ Normal close
- ④ Ground

Low alarm

- ① Normal open
- ② Common

Pressure unit and range table

Range and code	Unit and code			100 mm	160 mm
	H : bar	I : MPa	J : kPa		
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
066	0 ~ 500	0 ~ 50	X	O	O
067	0 ~ 600	0 ~ 60	X	O	O
068	0 ~ 700	0 ~ 70	X	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O
074	0 ~ 1,600	0 ~ 160	X	O	O
075	0 ~ 2,000	0 ~ 200	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
127	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

Euro gauge

Electrical contact type pressure gauge

Model: P520 series

Spec. sheet no. PD05-04

Service intended

P520 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the setpoints.



Nominal diameter

100 mm

Accuracy

±1.0% of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 200 MPa

Working pressure

Steady : 100 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

<10 MPa : C type bourdon tube

≥10 MPa : Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

Process connection

3/8", 1/2" PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

Option

Damping movement

WISE®

| P520_01

Main order

Ordering information

1. Base model

P520 Electrical contact type pressure gauge

2. Nominal diameter (mm)

4 100

3. Type of mounting

- A** Bottom connection, direct
- B** Bottom connection, surface, case mounting plate
- G** Lower back connection, direct
- N** Lower back connection, flush, cover mounting plate

4. Contact function

- 1** High alarm, normal open contact
- 2** Low and High alarm
- 3** Low alarm, normal close contact
- 4** Two high alarm
- 5** Two low alarm
- 6** Failsafe high and low alarm

5. Process connection

- D** $\frac{3}{8}$ "
- E** $\frac{1}{2}$ "

6. Connection type

- B** PF
- C** PT
- D** NPT
- F** BSPT
- G** BSP
- Z** Other

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

- 3** 316SS and 2 colors
- 7** 316SS and 3 colors

10. Option

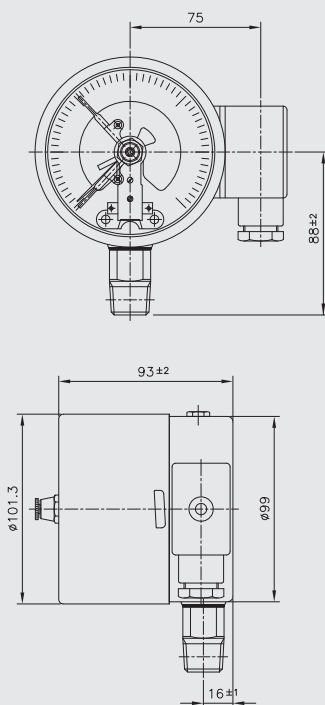
- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9	10
P520	4	A	3	D	D	H	XXX	3	0

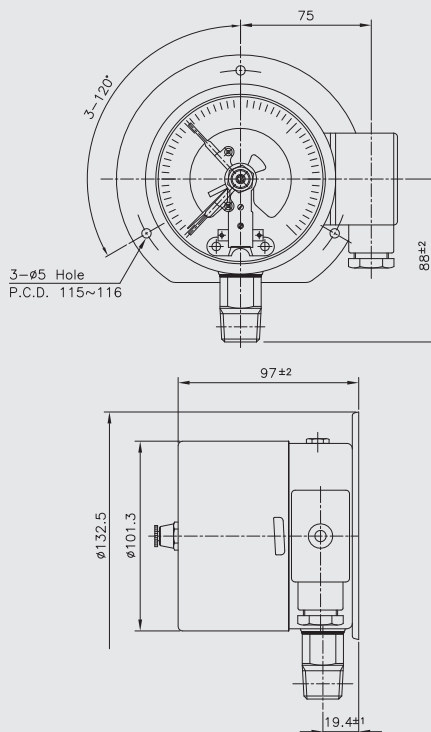
Sample
ordering code

P520 : Type of mounting

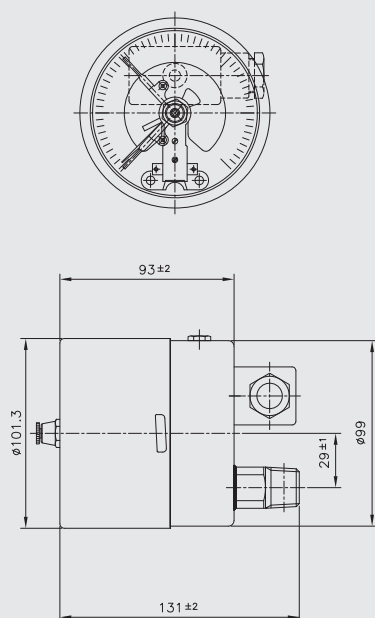
Code A



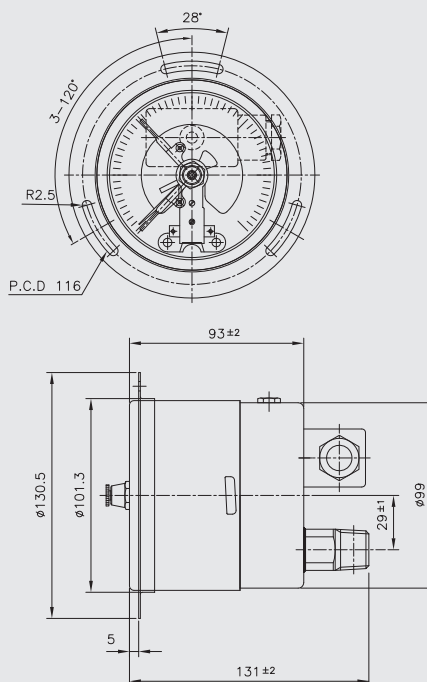
Code B



Code G



Code N



Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

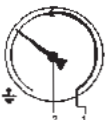
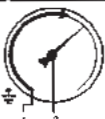
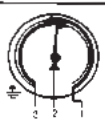
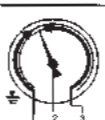
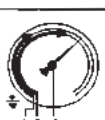
Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type pressure gauge model P520 series
		Dry gauges
Maximum voltage		250 V
Current ratings	Make ratings	1.0 A
	Break ratings	1.0 A
	Continuous load	0.6 A
Maximum load		30 W 50 VA
Material of contact points		Silver-Nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated
Ambient operating temperature		-20...+70 °C
Max. no. of contacts		2
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute
		Circuit /circuit - 2,000 vac 1 minute

Recommended contact ratings with ohmic and inductive load

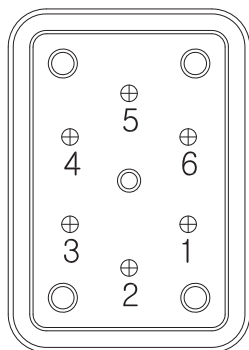
Voltage (DIN IEC 38) DC / AC	Electrical contacts type pressure gauge model P520 series		
	Dry gauges		
	Ohmic load		Inductive load
	DC	AC	
			cosØ > 0.7
V	mA	mA	mA
220 / 230	100	120	65
110 / 110	200	240	130
48 / 48	300	450	200
24 / 24	400	600	250

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

CODE	Wiring Scheme	Contact Function		Wiebrock Code No.	Remark	
		1st Contact	2nd Contact			
Single Contact						
1	Contact make when pointer reachse setpoint (Normal open - NO)			S/M-1	Normal use high alarm system	
3	Contact break when pointer reachse setpoint (Normal close - NC)			S/M-2	Normal use low alarm system	
Double Contact - Common Circuit						
4	1 st and 2 nd contact make when pointer reaches setpoint				S/M-11	Normal use two high alarm system
6	1 st contact make 2 nd contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1 st contact break 2 nd contact make when pointer reaches setpoint				S/M-21	Normal use Low and High alarm system
5	1 st and 2 nd contact break when pointer reaches setpoint				S/M-22	Normal use two low alarm system

Terminal block arrangement



1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

2. Low and high alarm (S/M-21)

Low alarm

- ① Normal close
- ② Common
- ④ Ground

High alarm

- ② Common
- ③ Normal open

3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

No.2 High alarm

- ② Common
- ③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

No.1 Low alarm

- ② Common
- ③ Normal close

6. Failsafe high and low alarm (S/M-12)

High alarm

- ② Common
- ③ Normal close
- ④ Ground

Low alarm

- ① Normal open
- ② Common

Pressure unit and range table

Range and code	Unit and code			Nominal diameter
	H : bar	I : MPa	J : kPa	100 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O
133	0 ~ 1.6	0 ~ 0.16	0 ~ 160	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O
050	0 ~ 15	0 ~ 1.5	X	O
143	0 ~ 16	0 ~ 1.6	X	O
051	0 ~ 20	0 ~ 2	X	O
052	0 ~ 25	0 ~ 2.5	X	O
054	0 ~ 35	0 ~ 3.5	X	O
151	0 ~ 40	0 ~ 4	X	O
055	0 ~ 50	0 ~ 5	X	O
056	0 ~ 60	0 ~ 6	X	O
057	0 ~ 70	0 ~ 7	X	O
058	0 ~ 100	0 ~ 10	X	O
059	0 ~ 150	0 ~ 15	X	O
060	0 ~ 160	0 ~ 16	X	O
062	0 ~ 250	0 ~ 25	X	O
064	0 ~ 350	0 ~ 35	X	O
065	0 ~ 400	0 ~ 40	X	O
066	0 ~ 500	0 ~ 50	X	O
067	0 ~ 600	0 ~ 60	X	O
068	0 ~ 700	0 ~ 70	X	O
070	0 ~ 1,000	0 ~ 100	X	O
074	0 ~ 1,600	0 ~ 160	X	O
075	0 ~ 2,000	0 ~ 200	X	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O
127	-1 ~ 1.5	-0.1 ~ 0.15	-100 ~ 150	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O

O : Available X : Not available

Electrical contact pressure gauge with aluminium case

Model: P531, P532, P533, P534, P537, P539 series

Spec. sheet no. PD05-05

Service intended

P530 series are designed for a local reading of measured pressure and equipped with the inductive contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the setpoints.



Nominal diameter

100 and 150 mm

Accuracy

±1.5 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to -0.1 ~ 2 MPa

0 ~ 0.1 to 0 ~ 100 MPa

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

C type bourdon tube

Stainless steel (316SS)

Case

Black finished aluminium

Cover

Black finished aluminium

Screwed

Window

Acrylic resin

Safety glass (P539)

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

BsT3 alloy, black painted pointer with golden plated

Contacts

Contact rating : AC 110 V, 0.5 A/AC 220 V 0.25 A

DC 110 V, 0.3 A/DC 220 V 0.15 A

Dielectric strength : AC 1,000 V/min

Insulation resistance : More than 100 MΩ at DC 500 V

Process connection

3/8", 1/2" PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

WISE®

1. Base model

- P531** High alarm contact type pressure gauge
P532 High and low alarm contact type pressure gauge
P533 Low alarm contact type pressure gauge
P534 Two high alarm contact type pressure gauge
P537 Two low alarm contact type pressure gauge
P539 Multi-purpose contact type pressure gauge
 for transformer, only available with diameter 100 mm

2. Nominal diameter

- 4** 100 mm
6 150 mm, not available with model P539 series

3. Type of mounting

- A** Bottom connection, direct
B Bottom connection, surface, case mounting plate,
 not available with diameter 150 mm
G Lower back connection, direct, only available with
 diameter 150 mm and model P539
L Lower back connection, flush, case center mounting
 plate, not available with diameter 150 mm
M Lower back connection, flush, cover center mounting
 bracket, only available with diameter 150 mm

4. Accuracy

- 4** ±1.5 % of full scale

5. Process connection

- D** $\frac{3}{8}$ "
E $\frac{1}{2}$ ", only lower back mounting type

6. Connection type

- B** PF
C PT
D NPT
Z Other

7. Unit

- H** bar
I MPa
J kPa

8. Range

XXX Refer to pressure unit and range table

9. Pressure connection material and dial color

- 3** 316SS and 2 colors
7 316SS and 3 colors

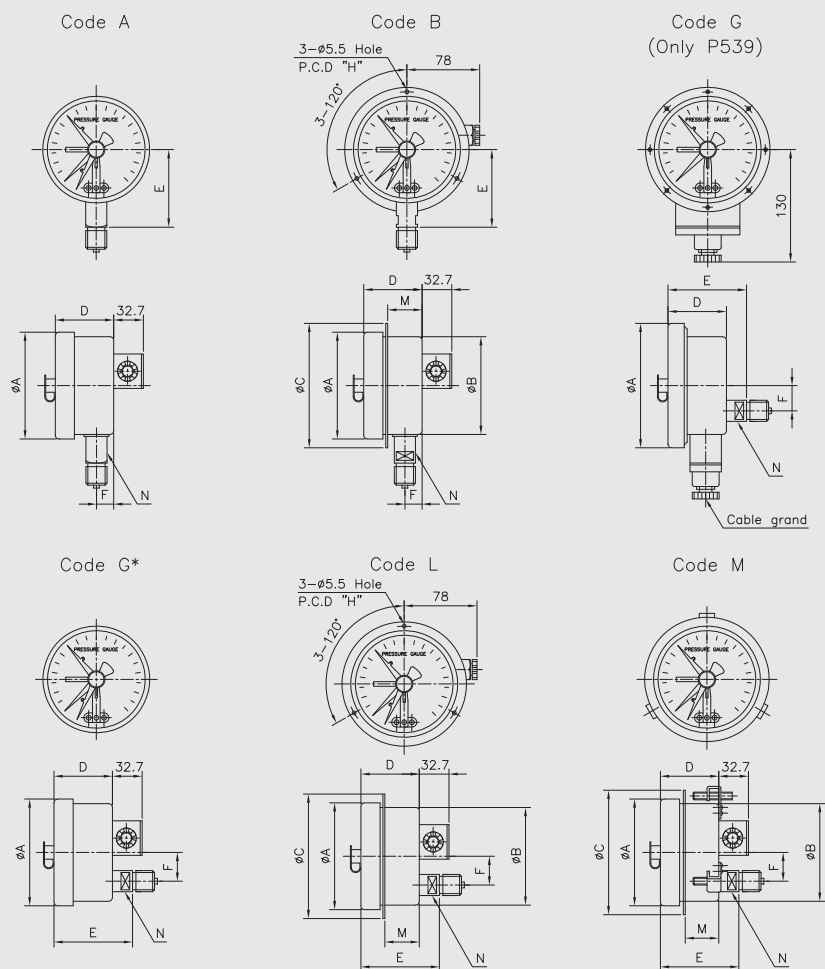
10. Option

- 0** None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P531	4	A	4	D	D	H	XXX	3	0

Sample
ordering code

P53X : Type of mounting



Dimensions (mm)

Dial size	Available code	A	B	C	D±2	E±2	F±1	H	M	N
100	P531 P533	A	110		78.5	74	15			14
		B	110	107	136	78.5	74	15	120	58.5
		L	110	107	136	78.5	97.3	36	120	58.5
	P532 P534	A	110		78.5	74	15			14
		B	110	107	136	78.5	74	15	120	58.5
		L	110	107	136	78.5	97.3	36	120	58.5
	P537	A	110		78.5	74	15			14
		B	110	107	136	78.5	74	15	120	58.5
		L	110	107	136	78.5	97.3	36	120	58.5
	P539	G	134		68	86	36			14
150	P531 P533	A	172		68.5	107	18.2			22
		G*	172		68.5	86.3	45			17
		M	172	159	184	69	86.8	45	42	17
	P532 P534	A	172		68.5	107	18.2			22
		G*	172		68.5	86.3	45			17
		M	172	159	184	69	86.8	45	42	17
	P537	A	172		68.5	107	18.2			22
		G*	172		68.5	86.3	45			17
	M	172	159	184	69	86.8	45		42	17

Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type pressure gauge model P530 series	
		Dry gauges	
Maximum voltage		250 V	
Current ratings	Make ratings	1.0 A	
	Break ratings	1.0 A	
	Continuous load	0.6 A	
Maximum load		30 W 50 VA	
Material of contact points		Silver-Nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20 °C...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

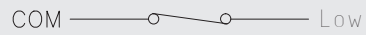
Voltage (DIN IEC 38) DC / AC		Electrical contacts type pressure gauge model P530 series		
		Dry gauges		
		Ohmic load		Inductive load
		DC	AC	
				cosØ > 0.7
V		mA	mA	mA
220 / 230		100	120	65
110 / 110		200	240	130
48 / 48		300	450	200
24 / 24		400	600	250

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

SPST switching element

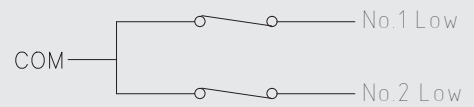
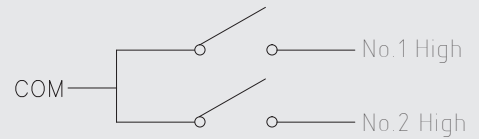
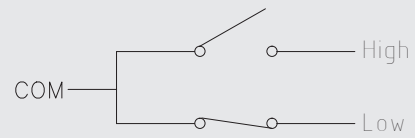
Single-pole, single throw (SPST) has two connection : C-common, NO-normally open, which allows the switching element to be electrically to the circuit NO state.

One SPST



Two SPST

NO : Normal open
NC : Normal close



Pressure unit and range table

Range and code	Unit and code			P531, P532, P533, P534, P537		P539
	H : bar	I : MPa	J : kPa	100 mm	150 mm	100 mm
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O	O
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50	O	X	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O
055	0 ~ 50	0 ~ 5	X	O	O	O
057	0 ~ 70	0 ~ 7	X	O	O	O
058	0 ~ 100	0 ~ 10	X	O	O	O
059	0 ~ 150	0 ~ 15	X	O	O	O
062	0 ~ 250	0 ~ 25	X	O	O	O
064	0 ~ 350	0 ~ 35	X	O	O	O
066	0 ~ 500	0 ~ 50	X	O	O	O
068	0 ~ 700	0 ~ 70	X	O	O	O
070	0 ~ 1,000	0 ~ 100	X	O	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O	O

O : Available X : Not available

Indicating type pressure switch

Model: P535, P536 series

Spec. sheet no. PD05-06

Service intended

P535 and P536 series are micro contact type switches, and suitable for a corrosive fluid and a high pressure measurement. Deadband is fixed.



Nominal diameter

100 and 150 mm

Accuracy

Indicator : ± 1.0 % of full scale

Alarm setting : ± 3.0 % of full scale

Repeatability

± 1.0 % of adjustable range

Adjustable range (MPa, kPa, bar)

-0.1 ~ 0 to -0.1 ~ 2 MPa

0 ~ 0.1 to 0 ~ 35 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

C type bourdon tube

Stainless steel (316SS)

Case and cover

ALDC 12.1, silver gray painted for 150 mm

ALDC 12.1, black painted for 100 mm

Contact

Micro contact type

One SPDT or two SPDT

Contact rating

150 mm - **SPDT contact rating**

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

100 mm - AC 250 V, 3 A / AC 125 V, 5 A

DC 250 V, 0.2 A / DC 125 V, 0.4 A

DC 30 V, 4 A

Dielectric strength : AC 500 V/min

Conduit connection

150 mm : $\frac{3}{4}$ " PF

100 mm : M20 x 1.5

Process connection

$\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

WISE[®]

| P535.P536_01

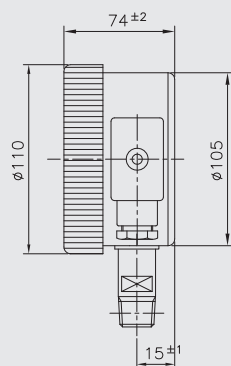
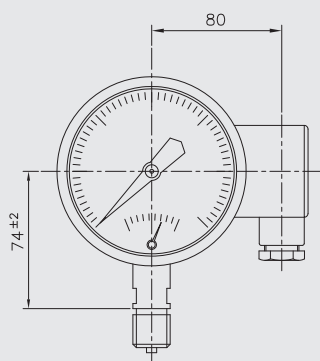
1. Base model**P535** Indicating type pressure switch (Single setpoint)**P536** Indicating type pressure switch (Dual setpoint)**2. Nominal diameter (mm)****4** 100**6** 150**3. Type of mounting****A** Bottom connection, direct, only available with diameter 100 mm**B** Bottom connection, surface, case mounting plate**L** Lower back connection, flush, case center mounting plate, only available with diameter 100 mm**4. Accuracy****3** ±1.0 % of full scale**5. Process connection****D** 3/8"**E** 1/2"**6. Connection type****B** PF**C** PT**D** NPT**7. Unit****H** bar**I** MPa**J** kPa**8. Range****XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color****3** 316SS and 2 colors**7** 316SS and 3 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P535	6	B	3	D	D	H	XXX	3	0

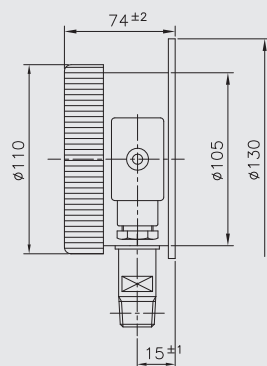
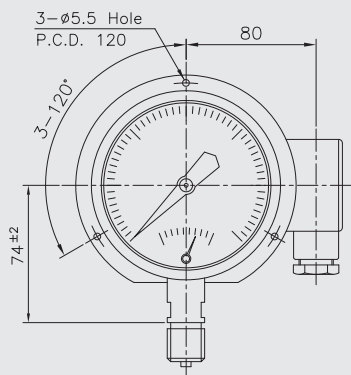
Sample
ordering code

P535, P536 : Type of mounting

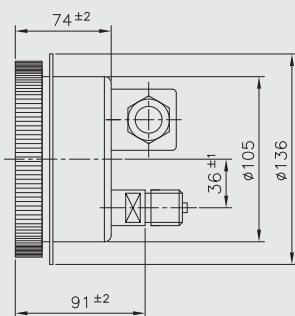
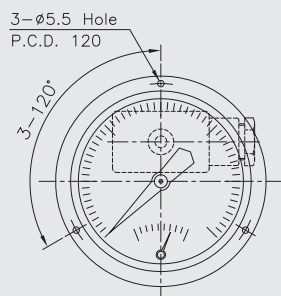
Code A ($\phi 100$)



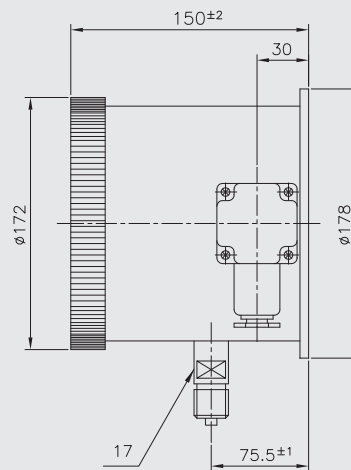
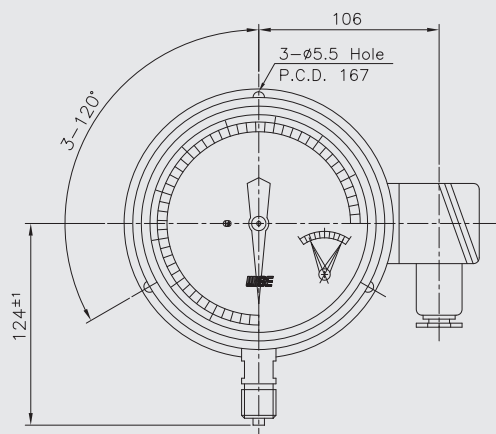
Code B ($\phi 100$)



Code L ($\phi 100$)



Code B* ($\phi 150$)



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Proof pressure (Pmax)

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

Burst pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of set point may occur, or the device may be rendered inoperative.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure unit and range table

Range and code	Unit and code			P535	P536
	H : bar	I : MPa	J : kPa		
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

Micro contact : 100 mm

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.1 mm to 1 m/s
Mechanical operating frequency	400 operations/min
Insulation resistance	100 MΩ at 500 VDC
Contact resistance	50 MΩ max
Shock resistance	200 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	85 % max

Specifications

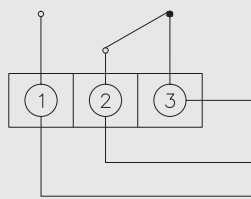
Rated voltage	Resistive load (A)	
	NC	NO
125 V AC		5
250 V AC		3
8 V DC		5
14 V DC		5
30 V DC		4
125 V DC		0.4
250 V DC		0.2

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

One SPDT

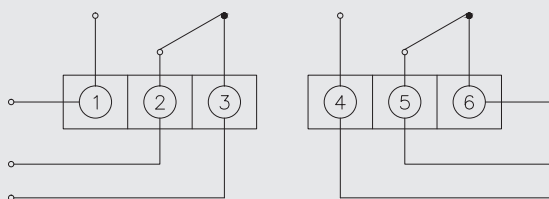
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



①:NO ②:COM ③:NC

Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



①,④:NO ②,⑤:COM ③,⑥:NC

NO : Normal open
NC : Normal close

Micro contact : 150 mm

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	15 MΩ max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

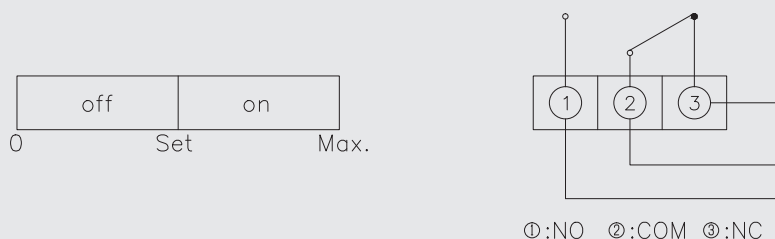
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

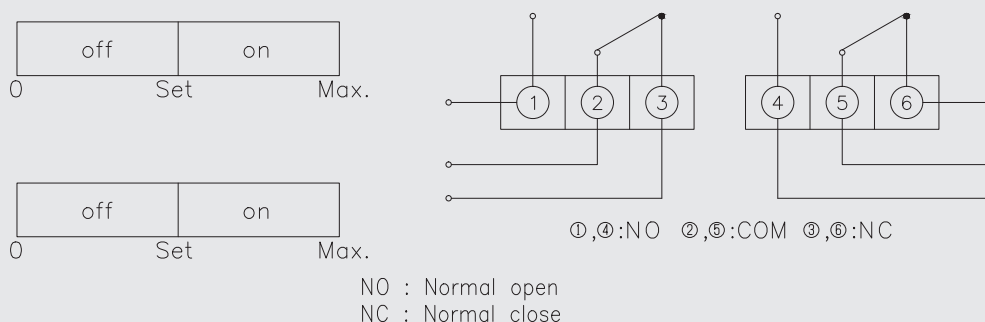
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.

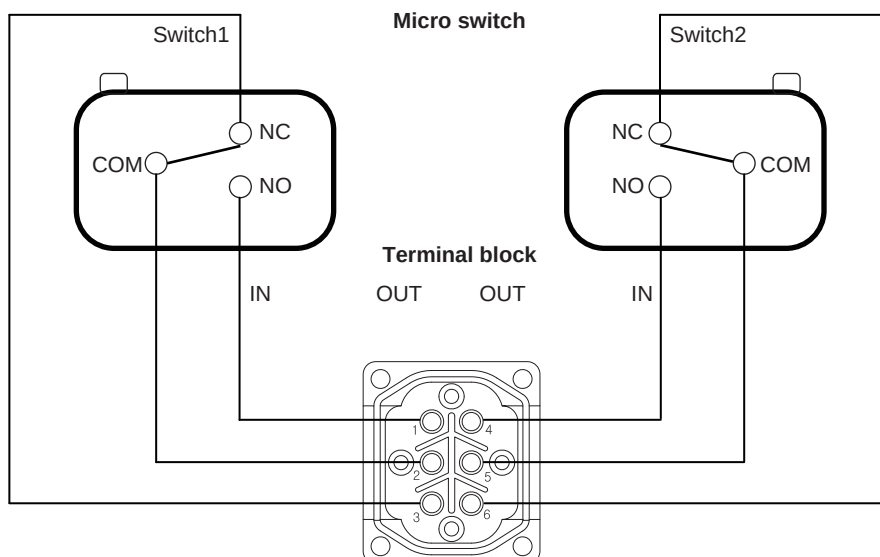


Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.

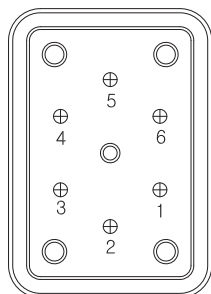


Terminal block arrangement

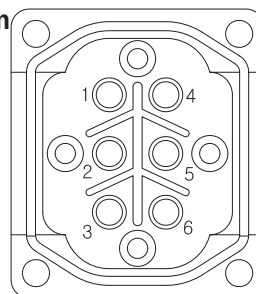


	NO	COM	NC
Switch 1	1	2	3
	NC	COM	NO
Switch 2	4	5	6

100 mm



150 mm



1. High alarm

- ① Normal open
- ② Common
- ③ Normal close

2. High and low alarm

High alarm

- ① Normal open
- ② Common
- ③ Normal close

Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

3. Low alarm

- ① Normal open
- ② Common
- ③ Normal close

4. Two high alarm

No.1 High alarm

- ① Normal open
- ② Common
- ③ Normal close

No.2 High alarm

- ④ Normal close
- ⑤ Common
- ⑥ Normal open

5. Two low alarm

No.2 Low alarm

- ① Normal open
- ② Common
- ③ Normal close

No.1 Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

Electrical contact type pressure gauge with nickel plated zinc case Model: P542, P543 series

Spec. sheet no. PD05-07

Service intended

P542 and P543 series are designed for a local reading of measured pressure and equipped with the electrical contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the set points. These are also designed to direct the leakage of insulating oil inside the electric cable.

EAC

Nominal diameter

100 and 150 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0.6 MPa to -0.1 ~ 1 MPa

-0.1 ~ 0.3 MPa

Working pressure

Steady : 75 % of full scale value

Over range protection : 130% of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Threaded entry, radial

Element

Stainless steel (316SS)

C type bourdon tube

Case

Nickel plated zinc for 100 mm (P542)

Triple setpoint only 316SS 100 and 150 mm (P543)

Cover

Nickel plated zinc for 100 mm

Triple setpoint only 316SS 150 mm (P543)

Window

Safety glass

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

BsT3 alloy, black painted pointer with gold plated

Contact

Contact : Dual set point or triple set point

Contact rating : AC 110 V, 0.5 A/AC 220 V, 0.25 A

Dielectric strength : AC 2,000 V/min insulation

Insulation resistance : More than 100 MΩ at DC 500 V

Process connection

3/8" PF

WISE®

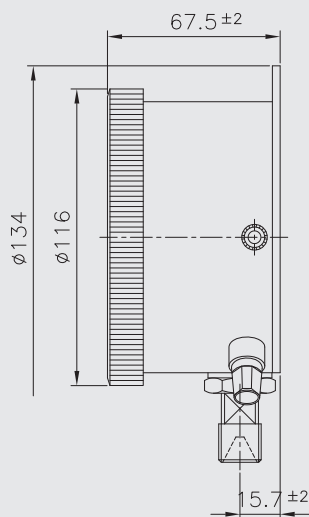
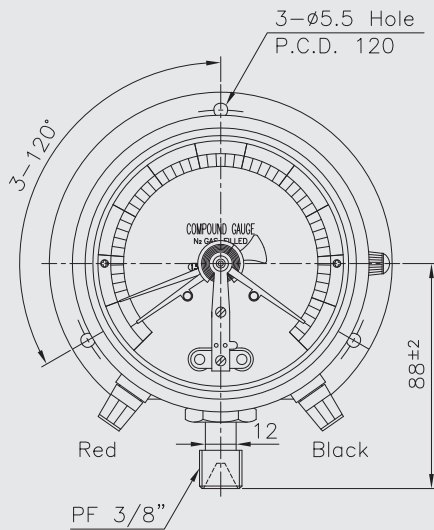
1. Base model**P542** Electrical contact type pressure gauge (Dual contact)**P543** Electrical contact type pressure gauge (Triple contact)**2. Nominal diameter (mm)****4** 100**6** 150**3. Type of mounting****B** Bottom entry and surface mounting flange**4. Accuracy****3** ±1.0 % of full scale**5. Process connection****D** 3/8"**6. Connection type****B** PF**7. Unit****H** bar**I** MPa**J** kPa**8. Range****029** -0.1 ~ 0.3 MPa (-1 ~ 3 bar)**031** -0.1 ~ 0.6 MPa (-1 - 6 bar)**032** -0.1 ~ 1 MPa (-1 ~ 10 bar)**9. Dial color****6** 3 colors**10. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9	10
P542	6	B	3	D	B	H	029	6	0

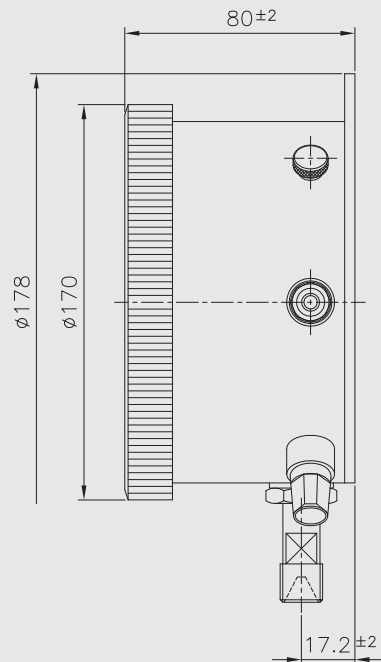
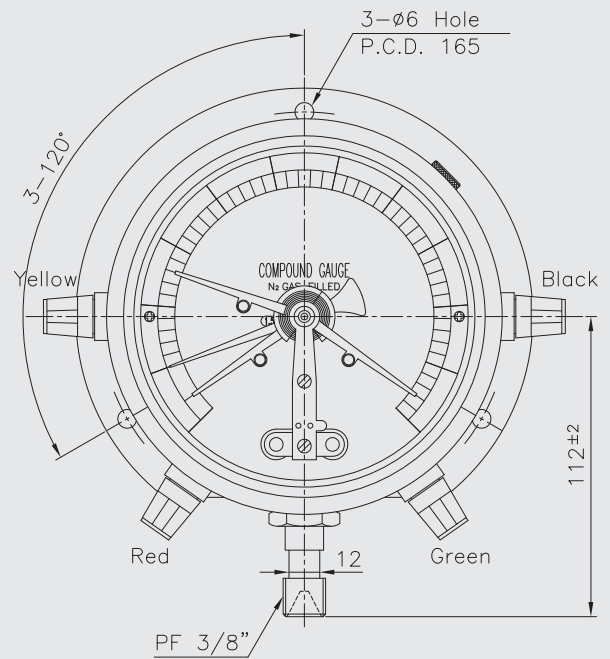
Sample
ordering code

P542 : Type of mounting

Code 4



Code 6



Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type pressure gauge model P540 series	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuous load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-Nickel alloy (80% Ag / 20%Ni / 10µm) gold-plated	
Ambient operating temperature		-20 °C...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

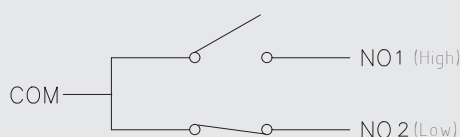
Voltage (DIN IEC 38) DC / AC	Electrical contacts type pressure gauge model P540 series					
	Dry gauges			Liquid filled gauges		
	Ohmic load		Inductive load	Ohmic load		Inductive load
	DC	AC		DC	AC	
			cosØ > 0.7			cosØ > 0.7
V	mA	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90	40
110 / 110	200	240	130	130	180	85
48 / 48	300	450	200	190	330	130
24 / 24	400	600	250	250	450	150

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

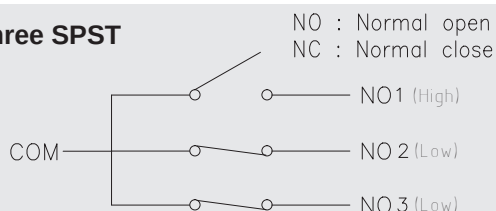
SPST switching element

Single-pole, single throw (SPST) has two connection : C-common, NO-normally open, which allows the switching element to be electrically to the circuit NO state.

Two SPST



Three SPST



NO : Normal open
NC : Normal close

Conversion table

Pressure conversion chart

psi	atm	kgf/cm ²	inH ₂ O	mmHg	inHg	kPa	bar	mmH ₂ O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Euro gauge

Electrical contact type diaphragm pressure gauge

Model: P570 series

Spec. sheet no. PD05-08

Service intended

P570 series are equipped with a specially designed dry-type diaphragm, and also equipped with the electrical contact block which allows all the combinations of contact to be used. The contact block is mounted on the dial, and the window is fitted with a knob for the external adjustment or the set point.

Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

Scale range (MPa, kPa, bar)

0 ~1 kPa to 0 ~ 40 kPa (Flange 150 mm)

0 ~ 50 kPa to 0 ~ 2.5 MPa (Flange 100 mm)

Working pressure

Steady : Full scale value

Fluctuating : 90 % of full scale value

Over range protection

Overpressure safety 500% of full scale value, however Max. 4 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale

Standard features

Pressure connection and under flange

Material : 304SS, 316SS, 316L SS

Upper flange (Gauge side)

Material : 304SS, 316SS

Diaphragm material

≤40 kPa stainless steel (316Ti SS)

> 40 kPa duratherm 600

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type



Window

Safety glass : Only available with diameter 100 mm

Polycarbonate : 100 and 160 mm

Movement

Stainless steel

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

EAC

WISE®

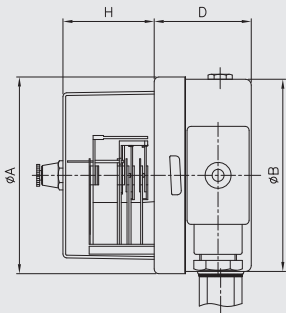
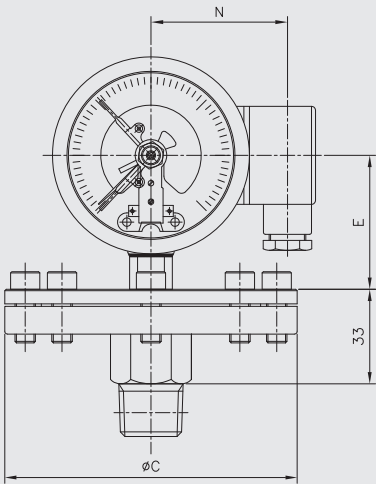
1. Base model**P571** Screwed process connection**P572** "I" type flange process connection**2. Nominal diameter and window material****4** 100 mm and safety glass**5** 100 mm and polycarbonate window**6** 160 mm and polycarbonate window**3. Contact function****1** High alarm, Normal open contact**2** High and low alarm**3** Low alarm, Normal close contact**4** Two high alarm**5** Two low alarm**6** Failsafe high and low alarm**4. Process connection****XX** Refer to process connection type table**5. Flange material****B** 304SS**D** 316SS**E** 316L SS**6. Unit****H** bar**I** MPa**J** kPa**S** mbar**7. Range****XXX** Refer to pressure unit and range table**8. Liquid filling****0** None**9. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8	9
P571	6	1	XX	D	H	XXX	0	0

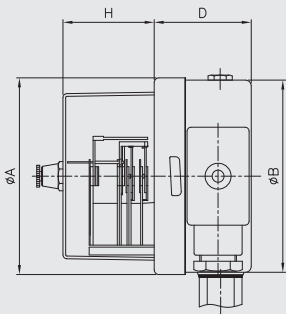
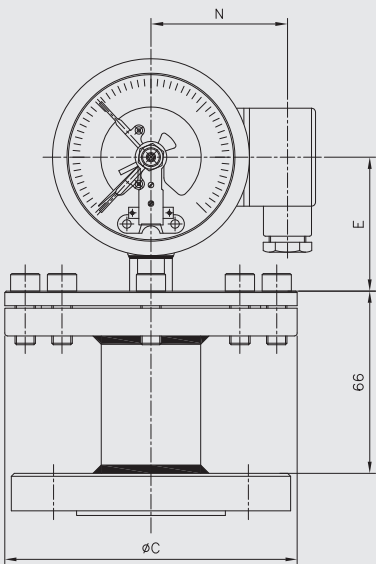
Sample
ordering code

P57X : Type of mounting (Polycarbonate window 1/2)

P571



P572

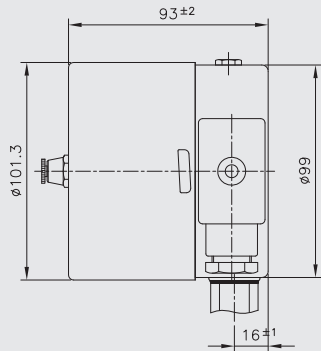
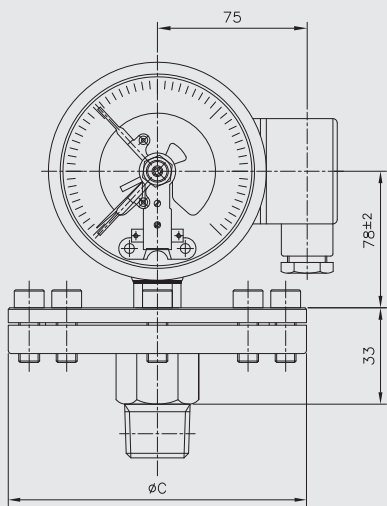


Dimensions (mm)

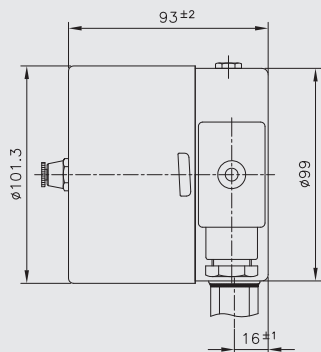
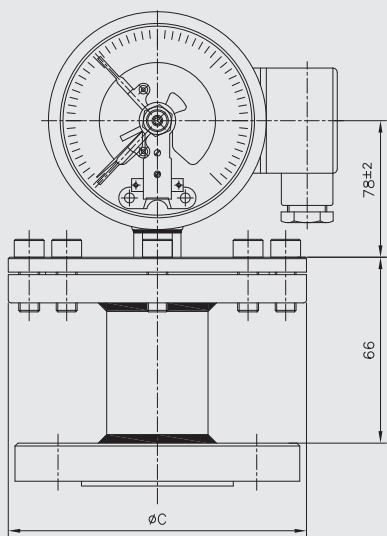
Dial size	A	B	D $\pm$ 2	E $\pm$ 2	H	N	C	
							$\leq 40\text{kPa}$	$> 40\text{kPa}$
100	101.3	99	50	78	34.5	75	150	100
160	160.6	159	52.5	108	34	105		

P57X : Type of mounting (Safety glass window 2/2)

P571



P572



Dimensions (mm)

Dial size	C	
	≤ 40kPa	> 40kPa
100	150	100

Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

Maximum contact rating with non-inductive (ohmic) load		Electric contacts type pressure gauge model P570 series	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuos load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20 °C...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

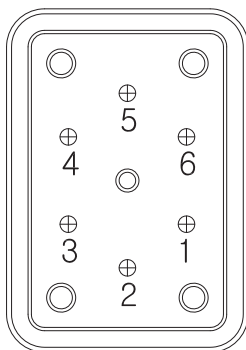
Voltage (DIN IEC 38) DC / AC	Electric contacts type pressure gauge model P570 series					
	Dry gauges			Liquid filled gauges		
	Ohmic load		inductive load	Ohmic load		inductive load
	DC	AC	cosØ > 0.7	DC	AC	cosØ > 0.7
V	mA	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90	40
110 / 110	200	240	130	130	180	85
48 / 48	300	450	200	190	330	130
24 / 24	400	600	250	250	450	150

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Slot sensor	
		1 st contact	2 nd contact			
Single Contact						
1	Contact make when pointer reachse setpoint (Normal open - NO)			S/M-1	Normal use high alarm system	
3	Contact break when pointer reachse setpoint (Normal close - NC)			S/M-2	Normal use low alarm system	
Double Contact - Common Circuit						
4	1 st and 2 nd contact make when pointer reaches setpoint				S/M-11	Normal use high and hihigh alarm system
6	1 st contact make 2 nd contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1 st contact break 2 nd contact make when pointer reaches setpoint				S/M-21	Normal use high and low alarm system
5	1 st and 2 nd contact break when pointer reaches setpoint				S/M-22	Normal use low and lolow alarm system

Terminal block arrangement



1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

2. High and low alarm (S/M-21)

Low alarm

- ① Normal close
- ② Common
- ④ Ground

High alarm

- ② Common
- ③ Normal open

3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

No.2 High alarm

- ② Common
- ③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

No.1 Low alarm

- ② Common
- ③ Normal close

6. Failsafe high and low alarm (S/M-12)

High alarm

- ② Common
- ③ Normal close
- ④ Ground

Low alarm

- ① Normal open
- ② Common

Pressure unit and range table

Range and code	Unit and code				Diaphragm material
	J : kPa	S : mbar	H : bar	I : MPa	
797	0 ~ 1	0 ~ 10	X	X	316Ti (130Ø)
817	0 ~ 2.5	0 ~ 25	X	X	
826	0 ~ 4	0 ~ 40	X	X	
828	0 ~ 5	0 ~ 50	X	X	
830	0 ~ 6	0 ~ 60	X	X	
792	0 ~ 10	0 ~ 100	X	X	
810	0 ~ 16	0 ~ 160	X	X	
793	0 ~ 20	0 ~ 200	X	X	
818	0 ~ 25	0 ~ 250	X	X	
820	0 ~ 30	0 ~ 300	X	X	
130	0 ~ 40	0 ~ 400	0 ~ 0.4	X	Duratherm 600 (75Ø)
040	0 ~ 50	0 ~ 500	0 ~ 0.5	X	
131	0 ~ 60	0 ~ 600	0 ~ 0.6	X	
041	X	X	0 ~ 1	0 ~ 0.1	
042	X	X	0 ~ 2	0 ~ 0.2	
134	X	X	0 ~ 2.5	0 ~ 0.25	
043	X	X	0 ~ 3	0 ~ 0.3	
045	X	X	0 ~ 6	0 ~ 0.6	
143	X	X	0 ~ 16	0 ~ 1.6	
052	X	X	0 ~ 25	0 ~ 2.5	

O : Available X : Not available

Process connection type table - 8th and 9th characters

Code	8 th character Connection size	9 th character			
		For model P571		For model P572	
		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 Class 150 RFSF
G	1" (25A)	GG	BSPF	AF	B16.5 Class 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
Z	Other			KL	JIS 10K RF
				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
				ZZ	Other

* Code C and D, only available with model P571

Density monitoring system

Model: P580 series

Spec. sheet no. **PD05-09**

Service intended

P580 series are designed to monitor the gas density of closed SF₆ tank (for switchgear). It is capable of the measuring real time status of SF₆ gas density. These series are equipped with the relay contact which has the three configurable independent units to sense and measure the instantaneous pressure rise.

Display

Analog indicator, operation and alarm status LED

Accuracy

±1.0 % at ambient temperature +20 °C (Indicator)
 ±2.5 % at ambient temperature -20 °C / +60 °C (Indicator)
 ±0.25 % at ambient temperature 0 °C ~ +50 °C (Current output)

Scale range

-0.1 ~ 0.1 MPa to -0.1 ~ 1.2 MPa

Working temperature

Ambient : -20 ~ 65 °C (Gas phase)
 Storage : -50 ~ 60 °C maximum

System configuration

HART communication

Degree of protection

EN60529/IEC529/IP67



Standard features

Mechanical

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)
 C-type bourdon tube

Case and cover

Stainless steel (304SS)
 Bayonet type

Window

Safety glass

Movement

Stainless steel (304SS)
 Bimetal link (Temperature compensation)

Pointer

Black painted aluminium alloy

Process connection

G $\frac{1}{2}$ "

Helium leak rate

Tested to confirm leakage rates of less than
 10⁻⁸ mbar.L/sec

Electrical

Input power and current consumption

12 ~ 36 V DC input, Max. 60 mA@DC 24 V

Display

Operating and alarm status LED

Parameter input

HART configurator

Output

Current output (4 ~ 20 mA, DC)
 One instantaneous pressure rising alarm relay
 Three pressure limit alarm relay

Relay contact rate

Contact resistance : Max. 70MΩ
 Contact rating : 2 A 30 VDC, 0.5 A 125 DC (Res.load)
 Max switching voltage : 220 VDC / 250 VAC
 Max switching power : 60 W / 62.5 VA

1. Base model**P580** Gas density monitoring system**2. Contact**

- 1** Single contact
- 2** Double contact (seperated circuit)
- 3** Triple contact (seperated circuit)

3. Type of mounting

- A** Bottom connection, direct
- B** Bottom connection, case mounting plate
- G** Lower back connection, direct
- L** Lower back connection, 4 hole bracket

4. Accuracy

- 3** ±1.0 % of full scale at ambient temperature +20 °C (Indicator)
- ±0.25 % of full scale at ambient temperature
- 0 ~ 50 °C (current output)

5. Connection type**EI** G½"**6. Unit**

- H** bar
- I** Mpa
- J** kPa

7. Range

- 007** -0.1 ~ 0.15 MPa
- 014** -0.1 ~ 0.9 MPa
- 029** -0.1 ~ 0.3 MPa
- 030** -0.1 ~ 0.4 MPa
- 031** -0.1 ~ 0.6 MPa
- 000** Special range

8. Pressure connection material and dial colors

- 7** 316SS and 5 colors

9. Option

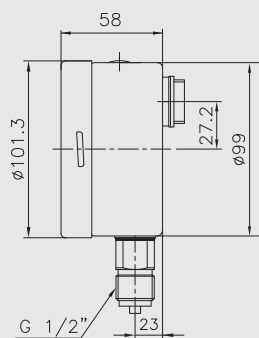
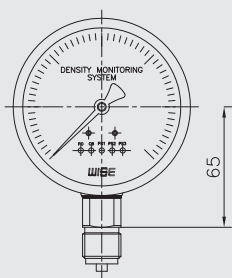
- 0** None
- 1** Special requirement

1	2	3	4	5	6	7	8	9
P580	2	B	3	EI	H	014	7	0

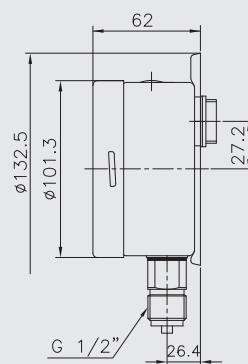
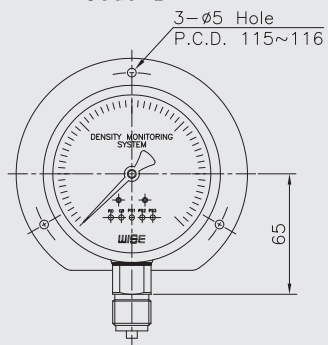
Sample
ordering code

P580 : Type of mounting

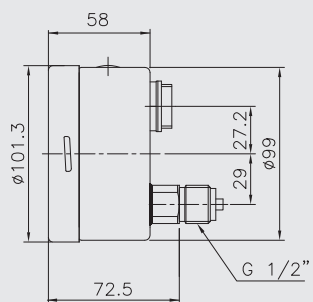
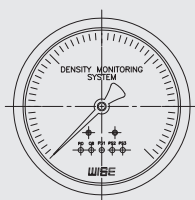
Code A



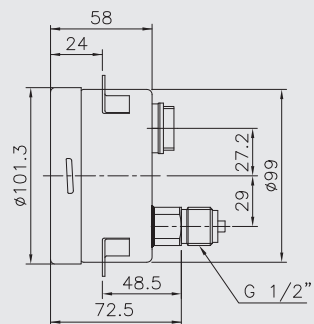
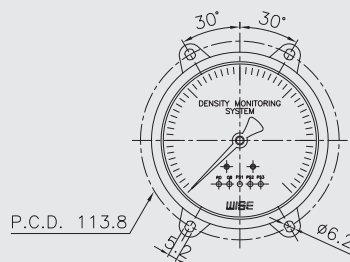
Code B



Code G



Code L



SF₆ gas density monitor

Model: P590 series

Spec. sheet no. **PD05-10**

Service intended

P590 series monitor are designed to monitor the gas density of closed SF₆ tank for switchgear.



Nominal diameter

100 mm

Accuracy

±1.0 % at ambient temperature +20 °C
±2.5 % at ambient temperature -20 °C ... +60 °C
and calibration pressure as reference isochore

Scale range (MPa, bar)

-0.1 ~ 0.1 MPa to -0.1 ~ 2 MPa
at SF₆ gas pressure +20 °C

Permissible temperature

Ambient : -20 ~ 65 °C (Gas phase)
Storage : -50 ~ 60 °C maximum

High voltage test

2 kV, 50 Hz / wiring versus case

Degree of protection

EN60529/IEC529/IP67

Electrical connection

Cable box with cable gland : M20 x 1.5
Conductor cross - section : Max. 1.5 mm²



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)
<10MPa C type bourdon tube
≥10MPa Helical type bourdon tube

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)
Bayonet type

Window

Safety glass

Movement

Stainless steel (304SS)
Bimetal link (For environment temperature compensation)

Dial

White aluminium with red, yellow and green graduations

Pointer

Black painted aluminium alloy

Process connection

G¹/₂"

Helium leak rate

Tested to confirm leakage rates of less than
10⁻⁸ mbar-L/sec

1. Base model**P590** SF₆ gas density monitor**2. Contact function (Refer to contact function table)**

- 1 Single contact
- 2 Double contact (Common circuit)
- 3 Double contact (Separated circuit)
- 4 Triple contact (Common circuit)
- 5 Triple contact (Separated circuit)

3. Type of mounting

- A Bottom connection, direct
- B Bottom connection, case mounting plate
- G Lower back connection, direct
- L Lower back connection, 4 hole bracket

4. Accuracy

- 3 ±1.0 % of full scale at ambient temperature +20°C

5. Connection type

- EI G½"

6. Unit

- H bar
- I MPa

7. Range

- 000 Special range
- 007 -0.1 ~0.15 MPa
- 014 -0.1 ~ 0.9 MPa
- 028 -0.1 ~ 0.2 MPa
- 029 -0.1 ~ 0.3 MPa
- 030 -0.1 ~ 0.4 MPa
- 031 -0.1 ~ 0.6 MPa

8. Pressure connection material and dial colors

- 7 316SS and 5 colors

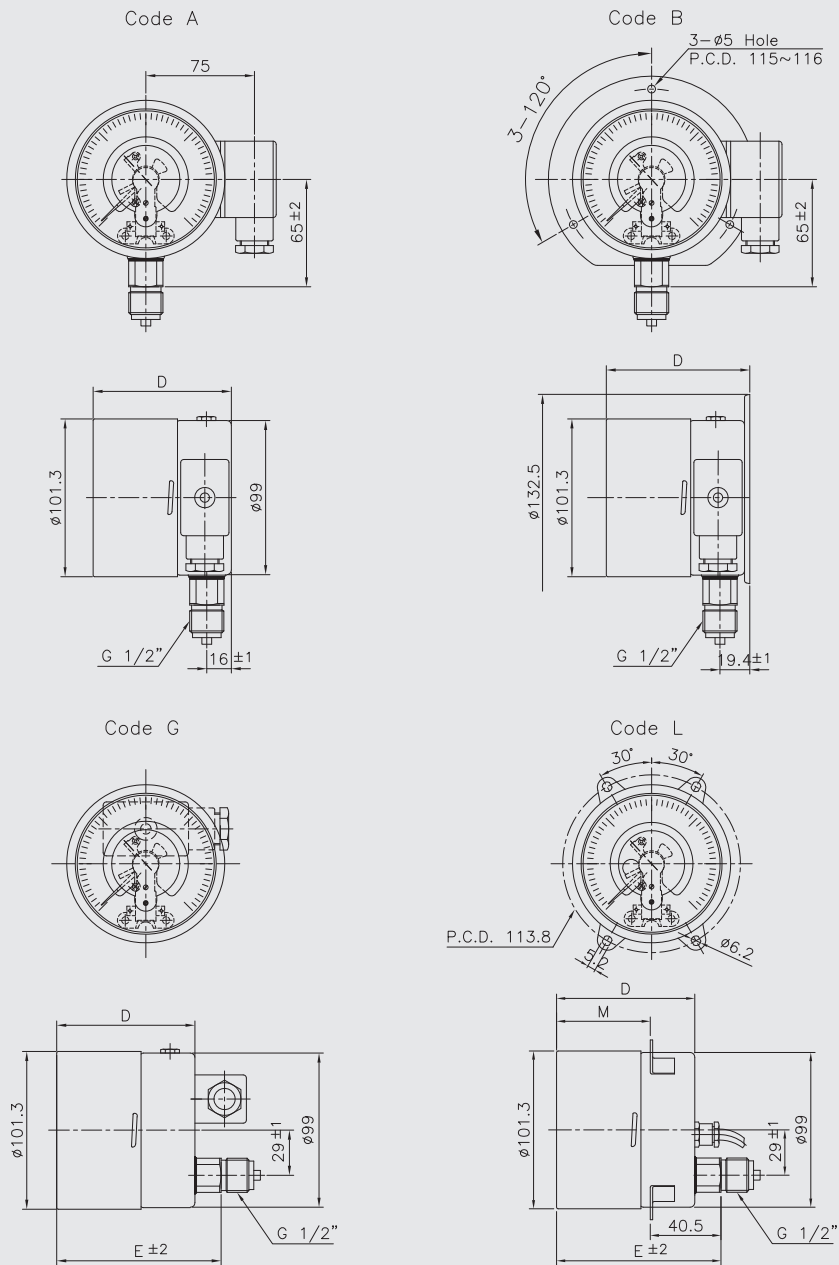
9. Option

- 0 None
- 1 Silicone filling

1	2	3	4	5	6	7	8	9
P590	2	B	3	EI	H	014	7	0

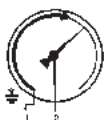
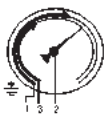
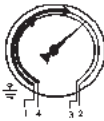
Sample
ordering code

P590 : Type of mounting



Contact	Dimensions (mm)		
	D±2	E±2	M
Single, Double	88	102.5	62
Double(Separated)	95	109.5	69
Triple	103	117.5	77
Triple(Separated)	111	125.5	85

Contact function table

Code	Wiring scheme	Contact function			Wiebrock code no.	
		Ps1	Ps2	Ps3		
Single contact						
1	Low alarm - Normal close				S/M-2	
Double contact - Common circuit						
2	1 st low alarm - Normal close 2 nd low alarm - Normal close				S/M-22	
Double contact - Separated circuit						
3	1 st low alarm - Normal close 2 nd low alarm - Normal close				S/M-S22	
Triple contact - Common circuit						
4	1 st low alarm - Normal close 2 nd low alarm - Normal close 3 rd high alarm - Normal open					S/M-221
Triple contact - Separated circuit						
5	1 st low alarm - Normal close 2 nd low alarm - Normal close 3 rd high alarm - Normal open					S/M-S221

Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

Maximum contact rating with non-inductive (ohmic) load		Electric contacts type pressure gauge (Model P590 series)	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuos load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20 ...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

Voltage (DIN IEC 38) DC / AC	Electric contacts type pressure gauge (Model P590 series)					
	Dry gauges			Liquid filled gauges		
	Ohmic load		inductive load	Ohmic load		inductive load
	DC	AC		DC	AC	
			cosØ > 0.7			cosØ > 0.7
V	mA	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90	40
110 / 110	200	240	130	130	180	85
48 / 48	300	450	200	190	330	130
24 / 24	400	600	250	250	450	150

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Differential pressure gauge

Model: P620, P630 series

Spec. sheet no. **PD06-01**

Service intended

P620 and P630 series are designed to measure differential pressure from 1 kPa to 1.5 MPa at static pressure up to 5 and 25 MPa. A set of stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 1 kPa to 0 ~ 50 kPa

0 ~ 0.1 MPa to 0 ~ 1.5 MPa

Static pressure

P620 : 5 MPa

P630 : 25 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

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



Standard features

Pressure connection

Stainless steel (316SS)

Element

Bellows

Stainless steel (316L SS)

Case

Stainless steel (304SS)

Cover

Stainless steel (304SS)

Bayonet type

Window

Safety glass

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Process connection

¼" NPT(F)

½" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe

mounting with silver gray finished steel

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

Option

- Remote seal
- Mounting bracket with 316SS for 2" pipe mounting
- 3-way manifold valve (316SS, Monel)
- 5-way manifold valve (316SS, Monel)

WISE®

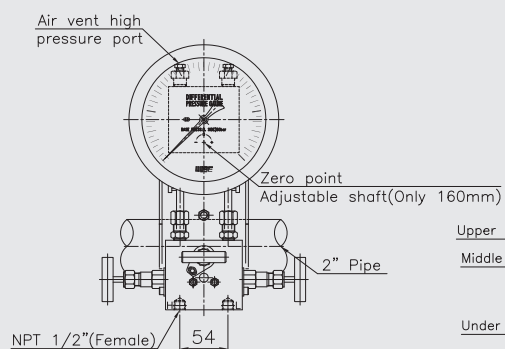
1. Base model**P620** Differential pressure gauge (Static pressure : 5 MPa)**P630** Differential pressure gauge (Static pressure : 25 MPa)**2. Nominal diameter (mm)****4** 100**6** 160**3. Type of mounting****D** Bottom connection, mounting bracket for 2" pipe**L** Bottom connection, flush, case center mounting plate**4. Accuracy****3** ±1.0 % of full scale**4** ±1.6 % of full scale**5. Process connection****C** ¼" NPT(F)**E** ½" NPT(F), only at 3-way and 5-way manifold valve**6. Mounting bracket****D** Standard bracket**E** 304SS mounting bracket**F** 316SS mounting bracket**W** Wall mounting bracket (316SS)**N** None**7. Unit****H** bar**I** MPa**J** kPa**S** mbar**8. Range****041** 0 ~ 0.1 MPa**042** 0 ~ 0.2 MPa**043** 0 ~ 0.3 MPa**044** 0 ~ 0.4 MPa**045** 0 ~ 0.6 MPa**047** 0 ~ 1 MPa**050** 0 ~ 1.5 MPa**457** 0 ~ 1 kPa, not available with remote seal type**460** 0 ~ 2 kPa, not available with remote seal type**462** 0 ~ 3 kPa, not available with remote seal type**464** 0 ~ 4 kPa, not available with remote seal type**465** 0 ~ 5 kPa, not available with remote seal type**469** 0 ~ 10 kPa**437** 0 ~ 20 kPa**518** 0 ~ 30 kPa**040** 0 ~ 50 kPa**9. Dial color****3** 2 colors**10. Option****0** Standard (2" mounting bracket)**1** Accessories (3-way or 5-way manifold valve)**2** Standard and glycerin filling**3** Manifold valve and glycerin filling**6** Standard and silicone filling**7** Manifold valve and silicone filling

1	2	3	4	5	6	7	8	9	10
P620	6	D	4	E	D	I	047	3	2

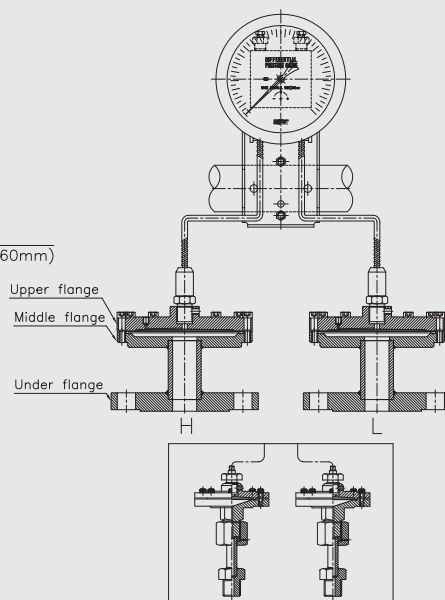
Sample
ordering code

P620, P630 : Type of mounting (1/2)

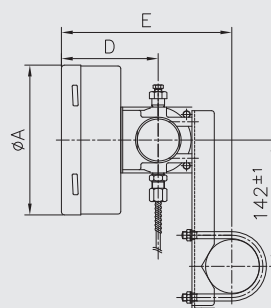
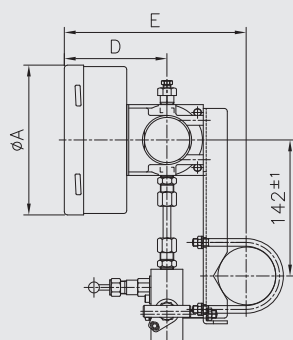
Code (D)P620 and P630



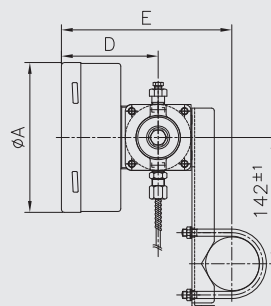
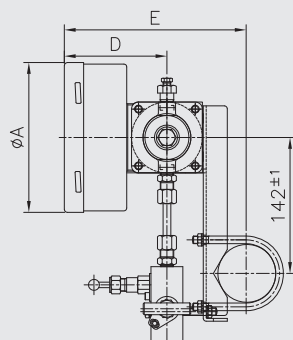
Code (D)P620 and P630(Remote seal)



P620 (Static pressure : 5 MPa)



P630 (Static pressure : 25 MPa)



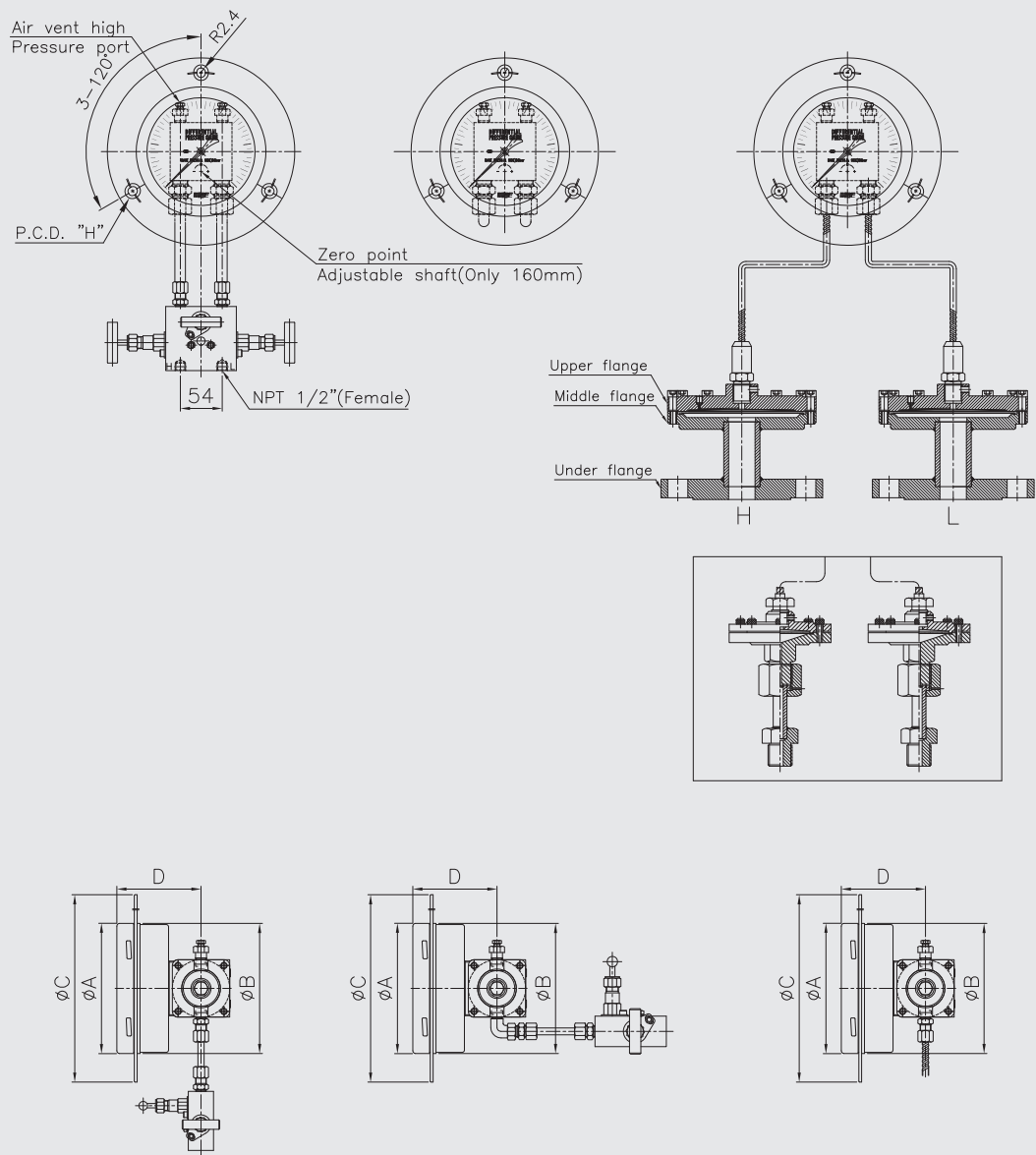
Dimensions (mm)

Dial size	A	D±2	E±2
100	101.3	98	180.5
160	160.6	106	190

P620, P630 : Type of mounting (2/2)

Code (L)P620 and P630

Code (L)P620 and P630(Remote seal)



Dimensions (mm)

Dial size	A	B	C	D±2	H
100	101.3	100.5	132	98	115~116
160	160.6	162	192	106	175.5~176.5

Indicating type differential pressure switch with bellows element

Model: P640 series

Spec. sheet no. PD06-02

Service intended

The P640 series are designed to measure differential pressure from 25 kPa to 2.0 MPa at Max.working pressure 10 MPa and have electrical contact. A set of two stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure.



Nominal diameter

150 mm

Accuracy

±1.0 % of full scale

±1.5 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 25 kPa to 0 ~ 0.25 MPa (P641 model)

0 ~ 0.4 MPa to 0 ~ 2.0 MPa (P642 model)

Max. working pressure (Static pressure)

Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP55

Temperature effect

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



Standard features

Pressure connection

Stainless steel (316L SS), Monel and Hastelloy-C

Element

Bellows

Stainless steel (316L SS), Monel and Hastelloy-C

Case and cover

ALDC12.1, Black painted

Screwed type

Window

Safety glass

Dial

White aluminium with black graduations

Filling liquid for differential cell

Silicone oil

Pointer

Black painted aluminium alloy (Zero adjustable)

Contact

Contact rating : AC 250 V 3 A / 125 V 5 A

DC 250 V 0.2 A / 125 V 0.4 A / 30 V 4 A

Dielectric strength : AC 500 V / MIN

Type : Micro contact, One and two SPDT

Conduit connection

¾" PF(F)

Process connection

¼" NPT(F)

½" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe

mounting with silver gray finished steel

Option

- Remote seal - Not available with less than 40 kPa of differential pressure range
- Mounting bracket with 316SS for 2" pipe
- 3-way manifold valve (316SS, Monel)
- 5-way manifold valve (316SS, Monel)

WISE®

| P640_01

1. Base model

P641 Differential pressure indicating switch with bellows element
(0 ~ 25 kPa to 0 ~ 0.25 MPa)

P642 Differential pressure indicating switch with bellows element
(0 ~ 0.4 MPa to 0 ~ 2.0 MPa)

2. Switch form

- 1 High alarm contact differential pressure switch
- 2 High and low alarm contact differential pressure switch
- 3 Low alarm contact differential pressure switch
- 4 Two high alarm contact differential pressure switch
- 5 Two low alarm contact differential pressure switch

3. Type of mounting

- D Bottom connection, mounting bracket for 2" pipe

4. Accuracy

- 3 ±1.0 % of full scale (Optional)
- 4 ±1.5 % of full scale (Standard)

5. Process connection

- C ¼" NPT(F)
- E ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D Standard bracket
- E 304SS mounting bracket
- F 316SS mounting bracket
- W Wall mounting bracket (316SS)
- N None

7. Unit

- H bar
- I MPa
- J kPa
- S mbar

8. Range

XXX Refer to pressure unit and range table

9. Element and flange material

- 1 316L SS
- 2 Monel
- 3 Hastelloy-C

10. Option

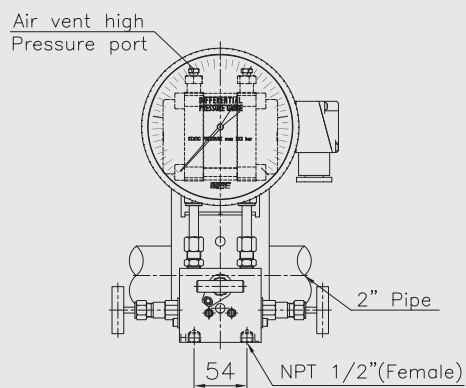
- 0 None
- 1 Manifold valve
- 8 ½" or ¾" NPT(F) conduit connection

1	2	3	4	5	6	7	8	9	10
P641	1	D	4	C	D	H	XXX	1	0

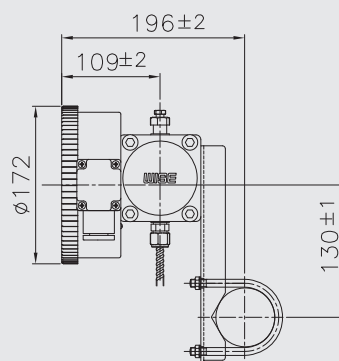
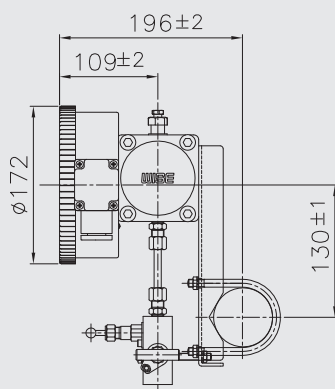
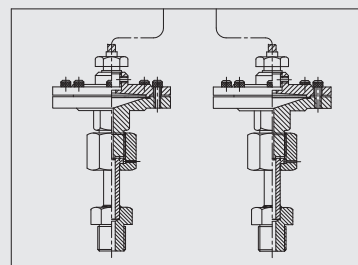
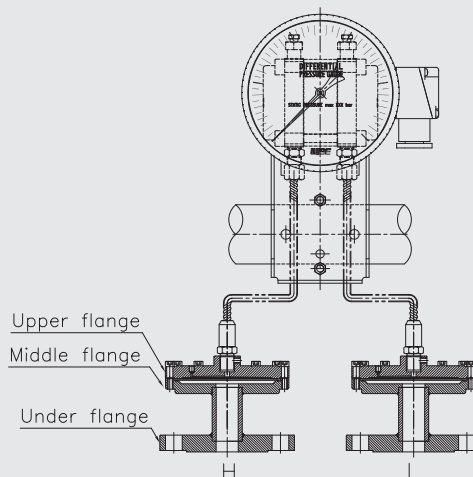
Sample
ordering code

P64X : Type of mounting

Code:(D) P640



Code:(D) P640(Remote seal)



Pressure unit and range table

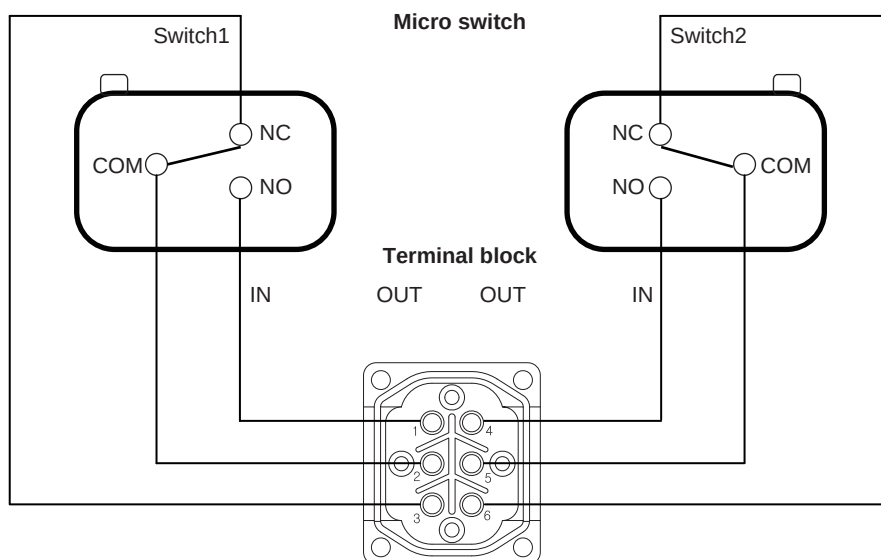
Range and code	Unit and code				Model
	J : kPa	S : mbar	H : bar	I : MPa	
118	0 ~ 25	0 ~ 250	X	X	P641
121	0 ~ 40	0 ~ 400	X	X	
125	0 ~ 60	0 ~ 600	X	X	
041	0 ~ 100	X	0 ~ 1	0 ~ 0.1	
133	0 ~ 160	X	0 ~ 1.6	0 ~ 0.16	
042	0 ~ 200	X	0 ~ 2	0 ~ 0.2	
134	0 ~ 250	X	0 ~ 2.5	0 ~ 0.25	
044	0 ~ 400	X	0 ~ 4	0 ~ 0.4	P642
045	0 ~ 600	X	0 ~ 6	0 ~ 0.6	
047	0 ~ 1,000	X	0 ~ 10	0 ~ 1	
143	X	X	0 ~ 16	0 ~ 1.6	
051	X	X	0 ~ 20	0 ~ 2	

X : Not available

Contact rating

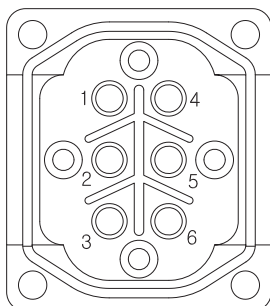
Rated voltage	Resistance load (A)		Inductive load (A)	
	NC	NO	NC	NO
125 V AC	5		3	
250 V AC	3		2	
8 V DC	5		5	4
14 V DC	5		4	4
30 V DC	4		3	3
125 V DC	0.4		0.4	0.4
250 V DC	0.2		0.2	0.2

Terminal block arrangement



	NO	COM	NC
Switch 1	1	2	3
	NO	COM	NC
Switch 2	4	5	6

Terminal block arrangement



1. High alarm (P64X1)

- ① Normal open
- ② Common
- ③ Normal close

2. High and low alarm (P64X2)

High alarm

- ① Normal open
- ② Common
- ③ Normal close

Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

3. Low alarm (P64X3)

- ① Normal open
- ② Common
- ③ Normal close

4. Two high alarm (P64X4)

No.1 High alarm

- ① Normal open
- ② Common
- ③ Normal close

No.2 High alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

5. Two low alarm (P64X5)

No.2 Low alarm

- ① Normal open
- ② Common
- ③ Normal close

No.1 Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

Differential pressure gauge with electrical contact type

Model: P650 series

Spec. sheet no. PD06-03

Service intended

The P650 series are designed to measure a differential pressure from 25 kPa to 2.0 MPa at Max. working pressure up to 10 MPa, and have electrical contact. A set of two stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure. These models are designed to control and alarm for a differential pressure.



Nominal diameter

160 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 25 kPa to 0 ~ 0.25 MPa (P651 model)

0 ~ 0.4 MPa to 0 ~ 2.0 MPa (P652 model)

Max. working pressure (Static pressure)

Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

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



Standard features

Pressure connection

Stainless steel (316SS), Monel and Hastelloy-C

Element

Bellows

Stainless steel (316L SS), Monel and Hastelloy-C

Case

Stainless steel (304SS)

Bezel ring

Stainless steel (304SS)

Bayonet type

Window

Polycarbonate

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Conduit connection

M20 x 1.5

Process connection

¼" NPT(F)

½" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe
mounting with silver gray finished steel

Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

Option

- Remote seal
- Mounting bracket with 316SS for 2" pipe mounting
- 3-way manifold valve (316SS, Monel)
- 5-way manifold valve (316SS, Monel)

WISE®

| P650_01

1. Base model

- P651** Electrical contact type pressure gauge
(0 ~ 25 kPa to 0 ~ 0.25 MPa)
- P652** Electrical contact type pressure gauge
(0 ~ 0.4 MPa to 0 ~ 2.0 MPa)

2. Nominal diameter (mm)

- 6** 160

3. Type of mounting

- D** Bottom connection, mounting bracket for 2" pipe

4. Contact function

- X** Refer to contact function table

5. Process connection

- C** ¼" NPT(F)
- E** ½" NPT(F) (only at 3-way and 5-way manifold valve)

6. Mounting bracket

- D** Standard bracket
- E** 304SS mounting bracket
- F** 316SS mounting bracket
- W** Wall mounting bracket (316SS)
- N** None

7. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

8. Range

- 041** 0 ~ 0.1 MPa
- 133** 0 ~ 0.16 MPa
- 134** 0 ~ 0.25 MPa
- 044** 0 ~ 0.4 MPa
- 045** 0 ~ 0.6 MPa
- 047** 0 ~ 1 MPa
- 143** 0 ~ 1.6 MPa
- 051** 0 ~ 2.0 MPa
- 118** 0 ~ 25 kPa
- 121** 0 ~ 40 kPa
- 125** 0 ~ 60 kPa

9. Dial color

- 3** 2 colors

10. Option

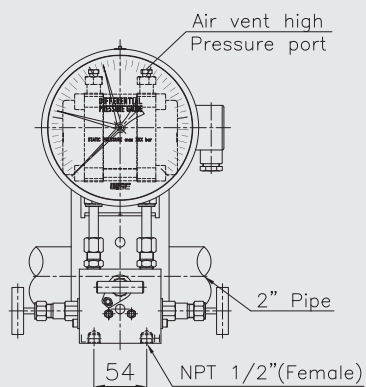
- 0** None
- 1** Manifold valve
- 8** ½" or ¾" NPT(F) conduit connection

1	2	3	4	5	6	7	8	9	10
P651	6	D	4	E	D	I	047	3	1

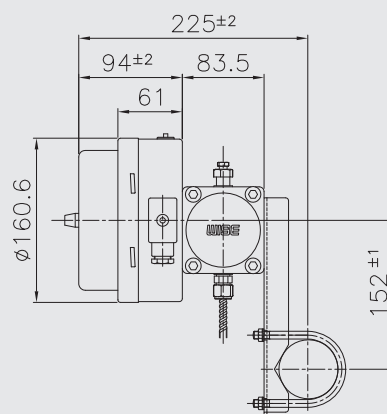
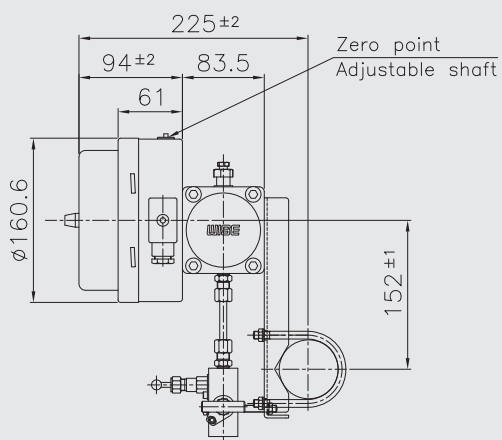
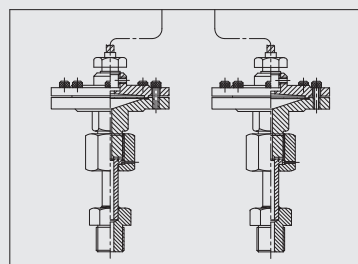
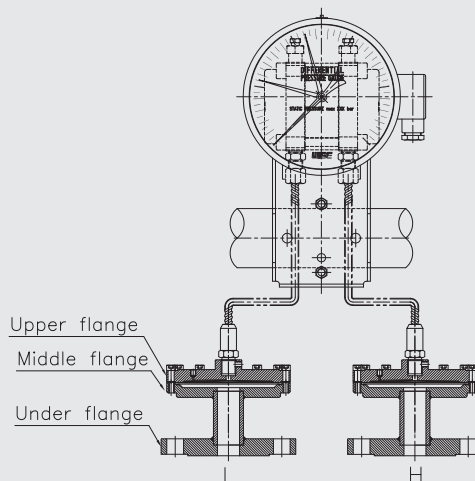
Sample
ordering code

P65X : Type of mounting

Code:(D) P650



Code:(D) P650(Remote seal)



Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

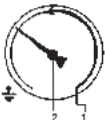
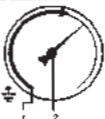
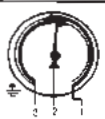
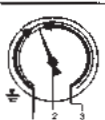
Maximum contact rating with non-inductive (ohmic) load		Electrical contacts type pressure gauge model P650 series	
		Dry gauges	Liquid filled gauges
Maximum voltage		250 V	250 V
Current ratings	Make ratings	1.0 A	1.0 A
	Break ratings	1.0 A	1.0 A
	Continuos load	0.6 A	0.6 A
Maximum load		30 W 50 VA	20 W 20 VA
Material of contact points		Silver-nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20 ...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

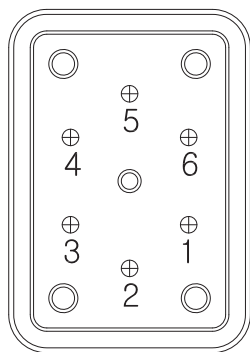
Voltage (DIN IEC 38) DC / AC	Electrical contacts type pressure gauge model P650 series				
	Dry gauges			Liquid filled gauges	
	Ohmic load		Inductive load	Ohmic load	Inductive load
	DC	AC		DC	AC
			$\cos\varnothing > 0.7$		$\cos\varnothing > 0.7$
V	mA	mA	mA	mA	mA
220 / 230	100	120	65	65	90
110 / 110	200	240	130	130	180
48 / 48	300	450	200	190	330
24 / 24	400	600	250	250	450

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Remark	
		1 st contact	2 nd contact			
Single Contact						
1	Contact make when pointer reachse setpoint (Normal open - NO)			S/M-1	Normal use high alarm system	
3	Contact break when pointer reachse setpoint (Normal close - NC)			S/M-2	Normal use low alarm system	
Double Contact - Common Circuit						
4	1 st and 2 nd contact make when pointer reaches setpoint				S/M-11	Normal use high and hihigh alarm system
6	1 st contact make 2 nd contact break when pointer reaches setpoint				S/M-12	Normal use failsafe high and low alarm system
2	1 st contact break 2 nd contact make when pointer reaches setpoint				S/M-21	Normal use Low and High alarm system
5	1 st and 2 nd contact break when pointer reaches setpoint				S/M-22	Normal use low and lolow alarm system

Terminal block arrangement



1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

2. Low and high alarm (S/M-21)

Low alarm

- ① Normal close
- ② Common
- ④ Ground

High alarm

- ② Common
- ③ Normal open

3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

No.2 High alarm

- ② Common
- ③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

No.1 Low alarm

- ② Common
- ③ Normal close

6. Failsafe high and low alarm (S/M-12)

High alarm

- ② Common
- ③ Normal close
- ④ Ground

Low alarm

- ① Normal open
- ② Common

Differential pressure gauge with diaphragm element

Model: P660 series

Spec. sheet no. PD06-04

Service intended

P660 gauge series are differential pressure gauge is designed to measure differential pressure from 4 kPa to 2.5 MPa at Max. working pressure of 10, 25 MPa. A set of two stainless steel diaphragm mounted on a force balance allows direct reading of the actual differential pressure.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 4 kPa to 0 ~ 40 kPa

Flange size / DN 140, Max. static / 10 and 25 MPa

0 ~ 60 kPa to 0 ~ 2.5 MPa

Flange size / DN80, Max. static / 25 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

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



Standard features

Pressure connection (Flange)

Stainless steel (316L SS)

Element

Diaphragm

316 Ti : Flange size / DN140 (Low side and high side)

316L SS : Flange size / DN80 (Low side)
/ Duratherm 600 (High side)

Case and cover

Stainless steel (304SS)

Window

Safety glass

Dial

White aluminium with black graduations

Filling liquid for differential cell

Silicone oil

Pointer

Black painted aluminium alloy (Zero adjustable)

Process connection

1/4" NPT(F)

1/2" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe

mounting with silver gray finished steel

Option

- Remote seal - Not available with less than 40 kPa of differential pressure range
- Mounting bracket with 316SS for 2" pipe
- 3-way and 5-way manifold valve
- 3-way and 5-way manifold valve (Monel)

WISE®

| P661.P662_01

1. Base model

- P661** Differential pressure gauge
(Max.working pressure : 10 and 25 MPa) (DN 140)
- P662** Differential pressure gauge
(Max.working pressure : 25 MPa) (DN 80)

2. Nominal diameter (mm)

- 4** 100
- 6** 160

3. Type of mounting

- D** Bottom connection, mounting bracket for 2" pipe
- L** Bottom connection, flush, case center mounting plate

4. Accuracy

- 3** ±1.0 % of full scale (Optional)
- 4** ±1.6 % of full scale (Standard)

5. Process connection

- C** ¼" NPT(F)
- E** ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D** Standard bracket
- E** 304SS mounting bracket
- F** 316SS mounting bracket
- W** Wall mounting bracket (316SS)
- N** None

7. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

8. Range

XXX Refer to pressure unit and range table

9. Element and flange material

- | | Element | Flange |
|----------|----------|---------|
| 1 | Standard | 316L SS |
| 2 | Standard | Monel |

10. Option

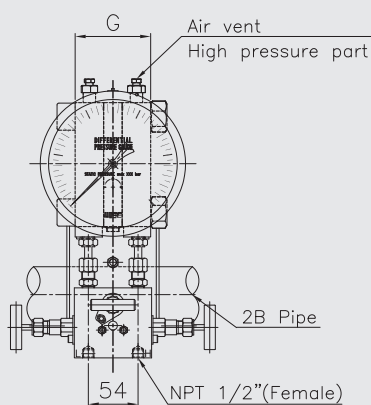
- 0** None
- 1** Manifold valve
- 6** Silicone filling
- 7** Manifold valve and silicone filling

1	2	3	4	5	6	7	8	9	10
P661	6	D	4	E	D	H	XXX	1	0

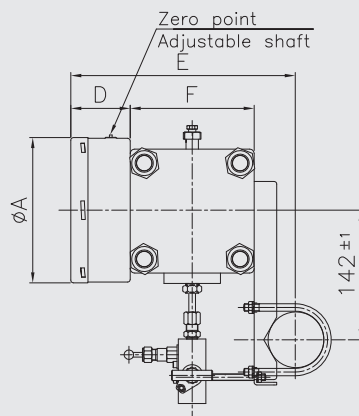
Sample
ordering code

P661 : Type of mounting

Code:(D) P661



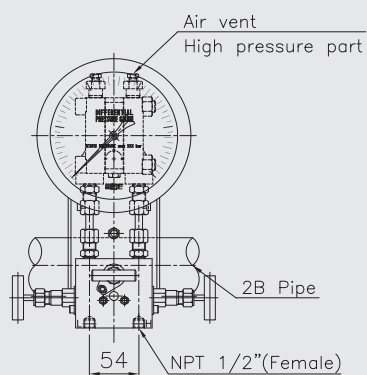
Static(MPa)	G
10	83.5
25	118.5



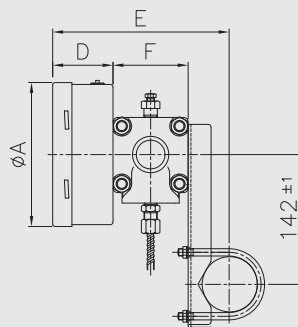
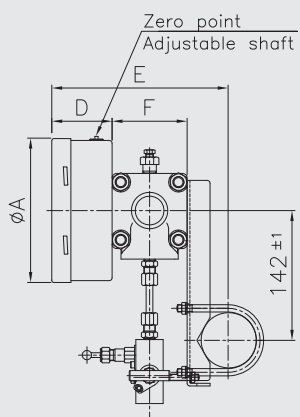
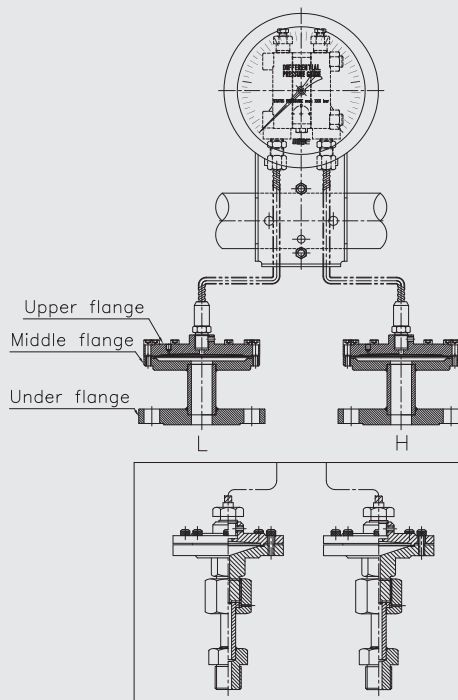
Model	Dial size	Pressure range	dimensions (mm)±2			
			A	D	E	F
P661	ø100	Less than 40kPa	101.3	63	245	137
	ø160		160.6	65	248	

P662 : Type of mounting (1/2)

Code:(D) P662



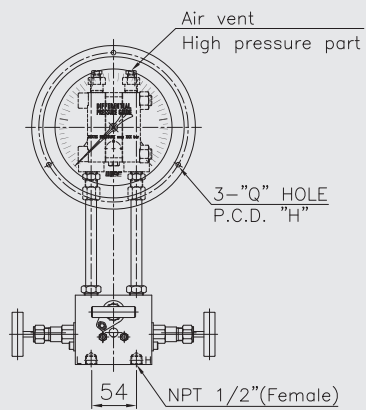
Code:(D) P662(Remote seal)



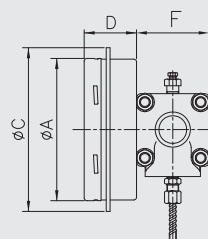
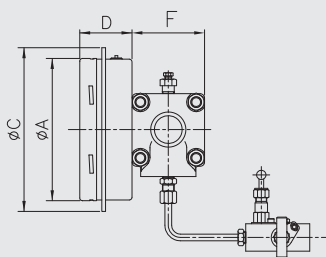
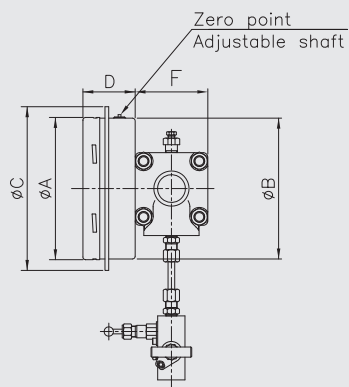
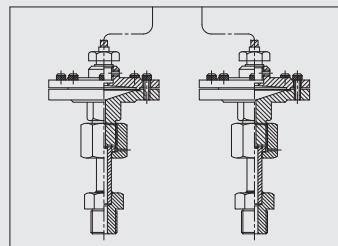
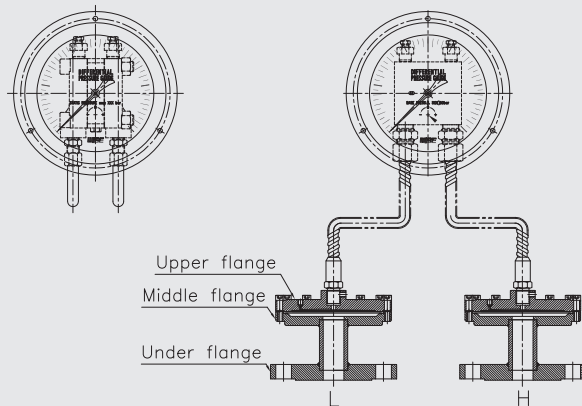
Model	Dial size	Pressure range	dimensions (mm)±2			
			A	D	E	F
P662	ø100	Over 40kPa	101.3	63	194	86
	ø160		160.6	65	197	

P662 : Type of mounting (2/2)

Code:(L) P662



Code:(L) P662(Remote seal)



Model	Dial size	Pressure range	dimensions (mm)±2					
			A	B	C	D	F	H
P662	ø100	Over 40kPa	101.3	99	132	63	86	116
	ø160		160.6	159	192	65		175.5~176.5

Pressure unit and range table

Range and code	Unit and code					
	J : kPa	S : mbar	H : bar	I : MPa	Flange size	Max. static pressure
464	0 ~ 4	0 ~ 40	X	X	DN 140	10 and 25 MPa
466	0 ~ 6	0 ~ 60	X	X		
469	0 ~ 10	0 ~ 100	X	X		
517	0 ~ 25	0 ~ 250	X	X		
121	0 ~ 40	0 ~ 400	X	X		
131	0 ~ 60	0 ~ 600	X	X	DN 80	25 MPa
041	0 ~ 100	X	0 ~ 1	0 ~ 0.1		
133	0 ~ 160	X	0 ~ 1.6	0 ~ 0.16		
042	0 ~ 200	X	0 ~ 2	0 ~ 0.2		
134	0 ~ 250	X	0 ~ 2.5	0 ~ 0.25		
044	0 ~ 400	X	0 ~ 4	0 ~ 0.4		
045	0 ~ 600	X	0 ~ 6	0 ~ 0.6		
047	0 ~ 1,000	X	0 ~ 10	0 ~ 1		
143	X	X	0 ~ 16	0 ~ 1.6		
052	X	X	0 ~ 25	0 ~ 2.5		

X : Not available

Differential pressure gauge with bellows element

Model: P670 series

Spec. sheet no. PD06-05

Service intended

P670 differential pressure gauge series are designed to measure differential pressure from 4 kPa to 2.0 MPa at static pressure of 4 and 10 MPa. A set of two stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure.



Nominal diameter

100 and 160 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 4 kPa, 6 kPa, 10 kPa (P671 model)

0 ~ 25 kPa to 0 ~ 0.25 MPa (P672 model)

0 ~ 0.4 MPa to 0 ~ 2.0 MPa (P673 model)

Static pressure

P671 : Max. 4 MPa

P672 and P673 : Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

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



Standard features

Pressure connection

Stainless steel (316L SS), Monel and Hastelloy-C

Element

Bellows

Stainless steel (316L SS), Monel and Hastelloy-C

Case and cover

Stainless steel (304SS)

Window

Safety glass

Dial

White aluminium with black graduations

Filling liquid for differential cell

Silicone oil

Pointer

Black painted aluminium alloy (Zero adjustable)

Process connection

1/4" NPT(F)

1/2" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe
mounting with silver gray finished steel

Option

- Remote seal - Not available with less than 40 kPa of differential pressure range
- Mounting bracket with 316SS for 2" pipe
- 3-way and 5-way manifold valve
- 3-way and 5-way manifold valve (Monel)
- Accuracy ±0.5 % of full scale

WISE®

1. Base model

- P671** Lower range differential pressure gauge
(4, 6 and 10 kPa)
- P672** Higher range differential pressure gauge
(25 kPa ~ 0.25 MPa)
- P673** Higher range differential pressure gauge
(0.4 MPa ~ 2.0 MPa)

2. Nominal diameter (mm)

- 4** 100
- 6** 160

3. Type of mounting

- D** Bottom connection, mounting bracket for 2" pipe
- L** Bottom connection, flush, case center mounting plate

4. Accuracy

- 2** ±0.5 % of full scale (Optional)
- 3** ±1.0 % of full scale (Optional)
- 4** ±1.6 % of full scale (Standard)

5. Process connection

- C** ¼" NPT(F)
- E** ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D** Standard bracket
- E** 304SS mounting bracket
- F** 316SS mounting bracket
- W** Wall mounting bracket (316SS)
- N** None

7. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

8. Range

XXX Refer to pressure unit and range table

9. Element and flange material

- 1** 316L SS
- 2** Monel
- 3** Hastelloy-C

10. Option

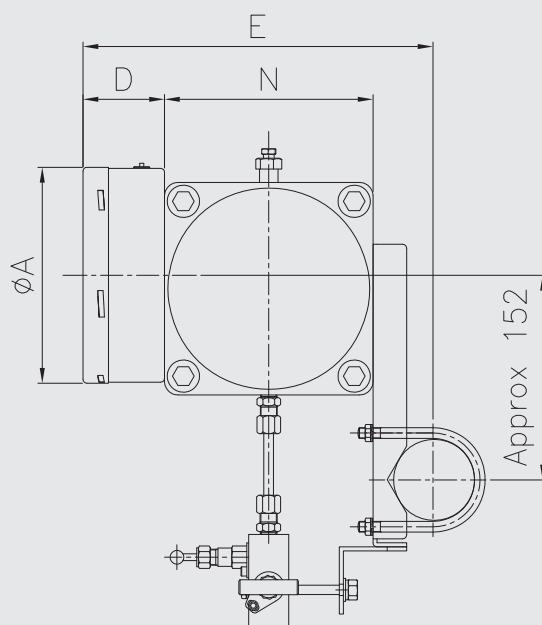
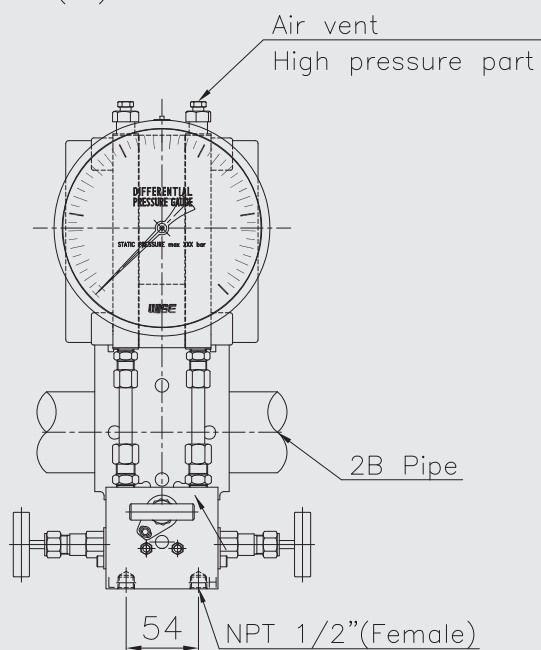
- 0** None
- 1** Manifold valve
- 2** Glycerin filling
- 3** Manifold valve and glycerin filling
- 6** Silicone filling
- 7** Manifold valve and silicone filling

1	2	3	4	5	6	7	8	9	10
P671	6	D	4	E	D	H	XXX	1	0

Sample
ordering code

P67X : Type of mounting (1/3)

Code:(D) P671

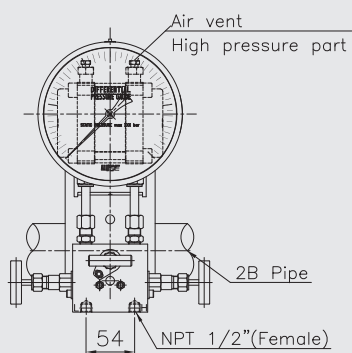


dimensions(mm)

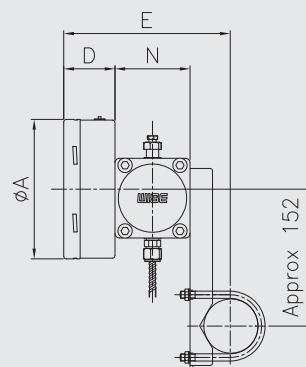
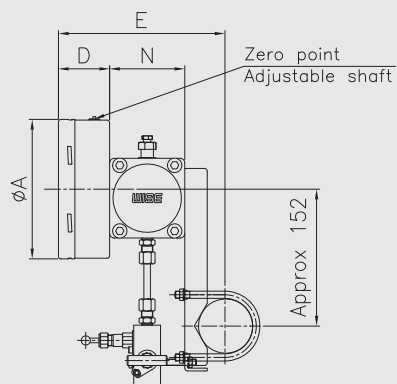
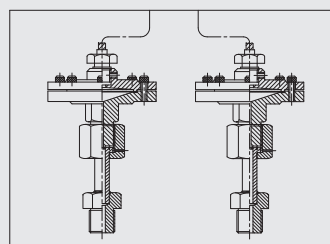
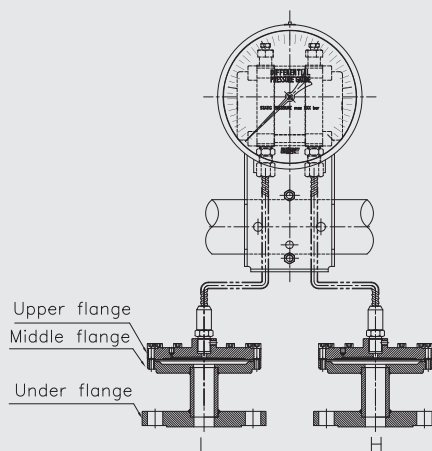
Model	Range	Dial size	A	D±2	E±2	N
P671	≤ 10kPa	ø100	101.3	58	260	155
		ø160	160.6	60.5	262.5	

P67X : Type of mounting (2/3)

Code:(D) P672, P673



Code:(D) P672, P673(Remote seal)



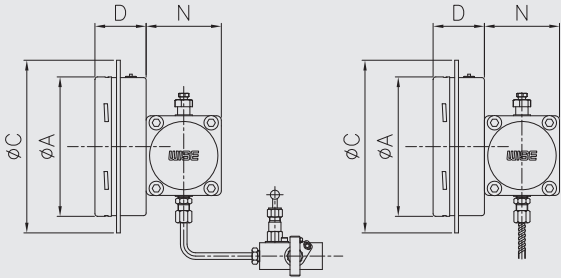
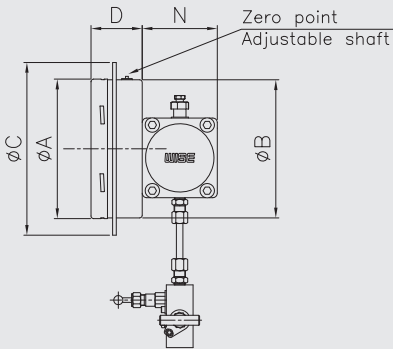
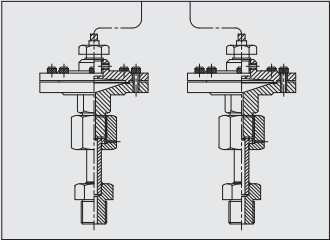
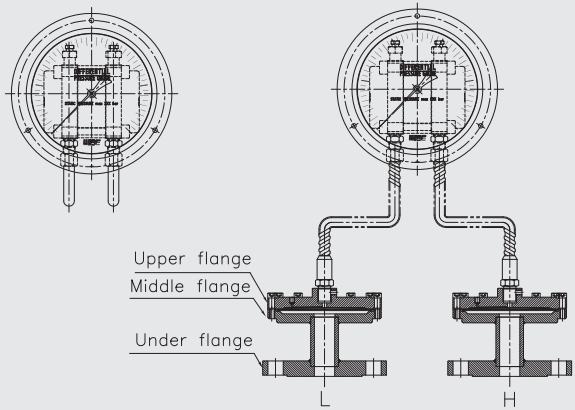
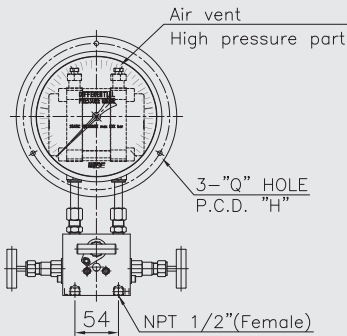
dimensions(mm)

Model	Range	Dial size	A	D ± 2	E ± 2	N
P672, P673	> 10kPa	$\phi 100$	101.3	58	187.5	83.5
		$\phi 160$	160.6	60.5	190	

P67X : Type of mounting (3/3)

Code:(L) P672, P673

Code:(L) P672, P673(Remote seal)



dimensions(mm)

Model	Range	Dial size	A	B±2	C	D±2	N	H	Q
P672, P673	> 10kPa	ø100	101.3	101	132	58	83.5	115~116	4.8
		ø160	160.6	162	192	60.5		175.5~176.5	5.5

Pressure unit and range table

Range and code	Unit and code					
	J : kPa	S : mbar	H : bar	I : MPa	Model	Max. static pressure
065	0 ~ 4	0 ~ 40	X	X	P671	4 MPa
067	0 ~ 6	0 ~ 60	X	X		
070	0 ~ 10	0 ~ 100	X	X		
118	0 ~ 25	0 ~ 250	X	X	P672	10 MPa
121	0 ~ 40	0 ~ 400	X	X		
125	0 ~ 60	0 ~ 600	X	X		
041	0 ~ 100	X	0 ~ 1	0 ~ 0.1		
133	0 ~ 160	X	0 ~ 1.6	0 ~ 0.16		
042	0 ~ 200	X	0 ~ 2	0 ~ 0.2		
134	0 ~ 250	X	0 ~ 2.5	0 ~ 0.25	P673	10 MPa
044	0 ~ 400	X	0 ~ 4	0 ~ 0.4		
045	0 ~ 600	X	0 ~ 6	0 ~ 0.6		
047	0 ~ 1,000	X	0 ~ 10	0 ~ 1		
143	X	X	0 ~ 16	0 ~ 1.6		
051	X	X	0 ~ 20	0 ~ 2		

X : Not available

Differential pressure gauge with reed switch

Model: P680 series

Spec. sheet no. **PD06-06**

Service intended

P680 series differential pressure gauge is designed to measure differential pressure from 25 kPa to 2.0 MPa at Max. working pressure 10 MPa. A set of two stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure. The contacts use a reed switch for warning and control applications.



Nominal diameter

150 mm

Accuracy

±1.0 % of full scale

±1.6 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 25 kPa to 0 ~ 0.25 MPa (P681 model)

0 ~ 0.4 MPa to 0 ~ 2.0 MPa (P682 model)

Max. working pressure (Static pressure)

Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP55

Temperature effect

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



Standard features

Pressure connection

Stainless steel (316SS), Monel and Hastelloy-C

Element

Bellows

Stainless steel (316SS), Monel and Hastelloy-C

Case and cover

ALDC12.1, black painted

Screwed type

Window

Safety glass

Dial

White aluminium with black graduations

Filling liquid for differential cell

Silicone oil

Pointer

Black painted aluminium alloy (Zero adjustable)

Contact

Reed switch, One and two SPST

Conduit connection

3/4" PF(F)

Process connection

1/4" NPT(F)

1/2" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe
mounting with silver gray finished steel

Option

- Remote seal - Not available with less than 40 kPa of differential pressure range
- Mounting bracket with 316SS for 2" pipe
- 3-way and 5-way manifold valve
- 3-way and 5-way manifold valve (Monel)

WISE®

| P680_01

1. Base model

P681 Differential pressure gauge with reed switch
(0 ~ 25 kPa to 0 ~ 0.25 MPa)

P682 Differential pressure gauge with reed switch
(0 ~ 0.4 MPa to 0 ~ 2.0 MPa)

2. Contact function

- 1 High alarm
- 2 Low alarm
- 3 High and low alarm
- 4 Two high alarm
- 5 Two low alarm

3. Type of mounting

- D Bottom connection, mounting bracket for 2" pipe

4. Accuracy

- 3 ±1.0 % of full scale (Optional)
- 4 ±1.6 % of full scale (Standard)

5. Process connection

- C ¼" NPT(F)
- E ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D Standard bracket
- E 304SS mounting bracket
- F 316SS mounting bracket
- W Wall mounting bracket (316SS)
- N None

7. Unit

- H bar
- I MPa
- J kPa
- S mbar

8. Range

XXX Refer to pressure unit and range table

9. Element and flange material

- 1 316L SS
- 2 Monel
- 3 Hastelloy-C

10. Option

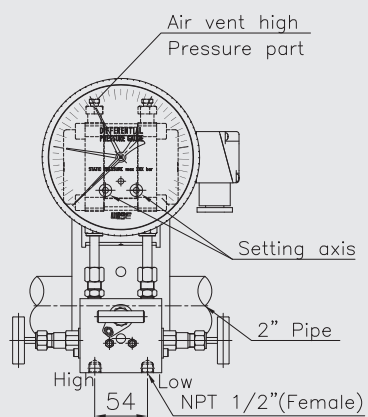
- 0 None
- 1 Manifold valve
- 8 ½" or ¾" NPT(F) conduit connection

1	2	3	4	5	6	7	8	9	10
P681	1	D	4	C	D	H	XXX	1	0

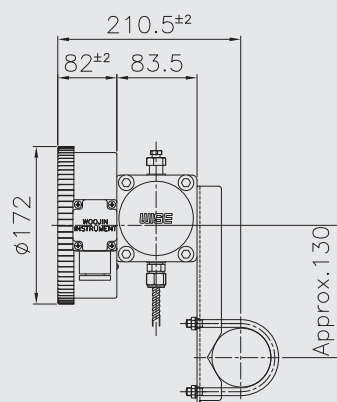
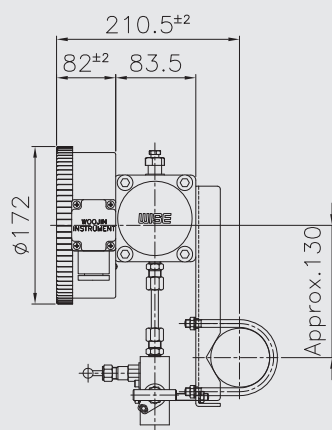
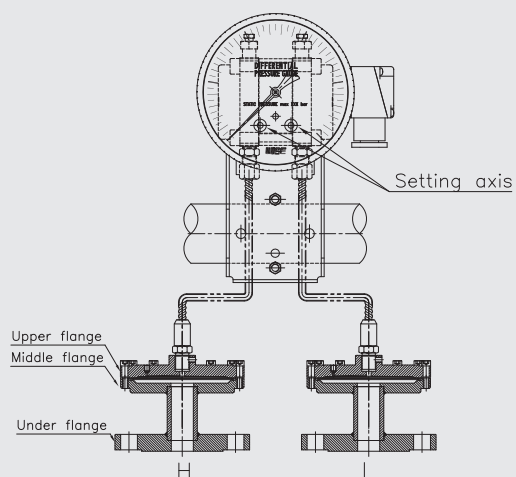
Sample
ordering code

P680 : Type of mounting

Code:(D) P680



Code:(D) P680(Remote seal)



Electrical

Switch	Rating	Withstand voltage	Insulation resistance
Reed switch	125 V AC 0.2 A	Between noncontiguous terminals	500 V DC 100 MΩ or over Between terminals and case
	200 V DC 0.25 A	400 V AC for 1 minute	
	100 V DC 0.7 A	Between terminals and case	
	(Resistance load)	600 V AC for 1 minute	

Withstand voltage

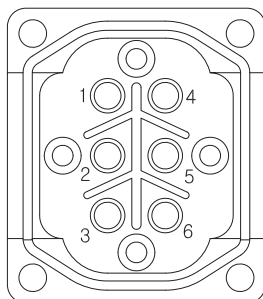
* A contact protection circuit is required when using an inductive load or a load (Capacitive load, long cable, etc) through which a surge current (Inrush current) flows as the reed switch load.

* These gauges cannot be used with 220 V AC.

Contact function

Code	Type of contact	Mark	Operation system and operation diagram	Connection terminal number	Setting pointer
1	High alarm	H	When the differential pressure increases (decreases) to the set pressure, the contacts operate and turn ON(OFF) the circuit. 	①-②	Red pointer
2	Low alarm	L	When the differential pressure increases (increases) to the set pressure, the contacts operate and turn ON(OFF) the circuit. 	④-⑤	Yellow pointer
3	High and Low alarm	H L	Combines the upper limit type (reverse lower limit type) and lower limits type (reverse upper limit type). Each type operates independently.	①-② ④-⑤	Red pointer Yellow pointer
4	Two high alarm	2 H	Combines two upper limit type (reverse lower limit type). Each type operates independently.	①-② ④-⑤	Red pointer Yellow pointer
5	Two low alarm	2 L	Combines two lower limit type (reverse upper limit type). Each type operates independently.	①-② ④-⑤	Red pointer Yellow pointer

Terminal block arrangement



1. High alarm

- ① Normal open
- ② Common

2. Low alarm

- ④ Normal close
- ⑤ Common

3. High and low alarm

High alarm

- ① Normal open
- ② Common

Low alarm

- ④ Normal close
- ⑤ Common

4. Two high alarm

No.1 High alarm

- ① Normal open
- ② Common

No.2 High alarm

- ④ Normal open
- ⑤ Common

5. Two low alarm

No.2 Low alarm

- ① Normal close
- ② Common

No.1 Low alarm

- ④ Normal close
- ⑤ Common

Pressure unit and range table

Range and code	Unit and code				Model	Max. static pressure	
	J : kPa	S : mbar	H : bar	I : MPa			
118	0 ~ 25	0 ~ 250	X	X	P681	10 MPa	
121	0 ~ 40	0 ~ 400	X	X			
125	0 ~ 60	0 ~ 600	X	X			
041	0 ~ 100	X	0 ~ 1	0 ~ 0.1			
133	0 ~ 160	X	0 ~ 1.6	0 ~ 0.16			
042	0 ~ 200	X	0 ~ 2	0 ~ 0.2			
134	0 ~ 250	X	0 ~ 2.5	0 ~ 0.25			
044	0 ~ 400	X	0 ~ 4	0 ~ 0.4	P682		
045	0 ~ 600	X	0 ~ 6	0 ~ 0.6			
047	0 ~ 1,000	X	0 ~ 10	0 ~ 1			
143	X	X	0 ~ 16	0 ~ 1.6			
051	X	X	0 ~ 20	0 ~ 2			

X : Not available

Differential pressure gauge with inductive contact type

Model: P690 series

Spec. sheet no. PD06-07

Service intended

P690 differential pressure gauge series are designed to measure differential pressure from 25 kPa to 2.0 MPa at Max. working pressure up to 10 MPa and have inductive contact. P690 series are designed to control alarm for differential pressure, providing the right time to replace air and sludge filter during the process.

Nominal diameter

160 mm

Accuracy

±1.6 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 25 kPa to 0 ~ 0.25 MPa

0 ~ 0.4 MPa to 0 ~ 2 MPa

Max. working pressure (Static pressure)

Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

-40 ~ 65 °C (With silicone filling)

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67

Temperature effect

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

Standard features

Pressure connection

Stainless steel (316SS)

Element

Bellows

Stainless steel (316L SS)

Case and cover

Stainless steel (304SS)

Bayonet type

Dial

White aluminium with black graduations

Window

Polycarbonate

Pointer

Black painted aluminium alloy

Contact

Inductive contact

Conduit connection

M20 x 1.5P

Process connection

¼" NPT(F)

½" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe mounting with silver gray finished steel

Certificates

NEPSI Ex ia IIC T6 Ga

KCS Ex ia IIC T6

Tamb = -25 ~ 56 °C

Option

- Remote seal
- ½" (N)PT female conduit connection
- ¾" (N)PT female conduit connection
- Mounting bracket with 316SS for 2" pipe mounting
- 3-way manifold valve (316SS)
- 5-way manifold valve (316SS)
- 3-way manifold valve (Monel)
- 5-way manifold valve (Monel)



WISE®

| P690_01

1. Base model

- P691** Differential pressure gauge with inductive contact type
(0 ~ 25 kPa to 0 ~ 0.25 MPa)
- P692** Differential pressure gauge with inductive contact type
(0 ~ 0.4 MPa to 0 ~ 2.0 MPa)

2. Nominal diameter (mm)

6 160

3. Type of mounting

D Bottom connection, mounting bracket for 2" pipe

4. Contact function

X Refer to contact function table

5. Process connection

- C** ¼" NPT(F)
- E** ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D** Standard bracket
- E** 304SS mounting bracket
- F** 316SS mounting bracket
- W** Wall mounting bracket (316SS)

7. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

8. Range

XXX Refer to pressure unit and range table

9. Dial color

3 2 colors

10. Option

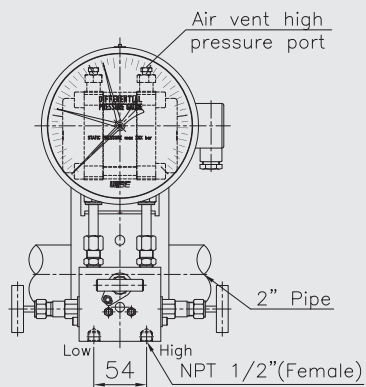
- 0** None
- 1** Manifold valve
- 6** Silicone filling
- 7** Manifold valve and silicone filling
- 8** ½" or ¾" NPT(F) conduit connection

1	2	3	4	5	6	7	8	9	10
P691	6	D	X	C	D	H	XXX	1	0

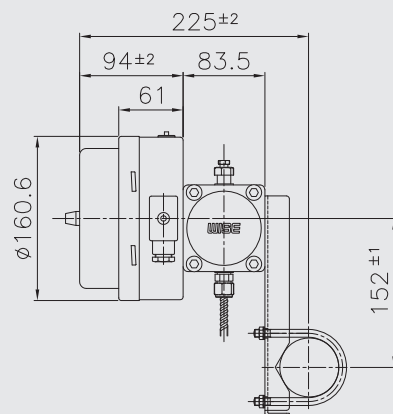
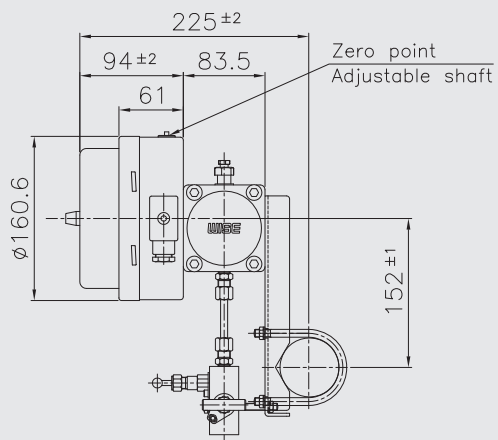
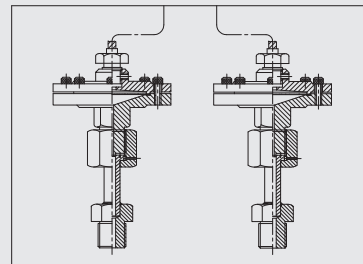
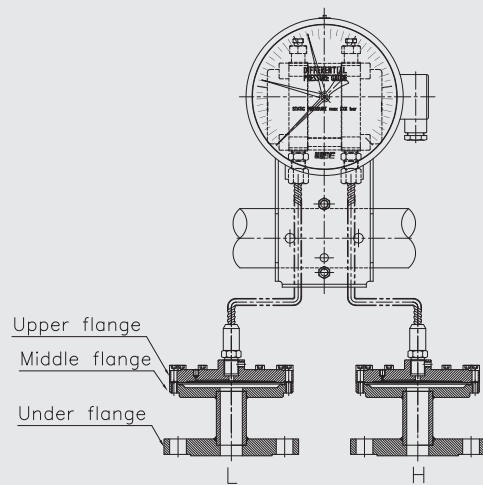
Sample
ordering code

P69X : Type of mounting

Code:(D) P690



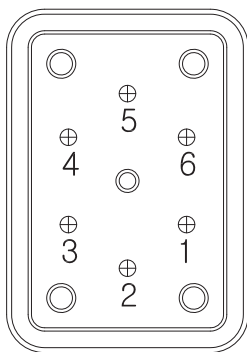
Code:(D) P690(Remote seal)



Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Slot sensor	
		1 st contact	2 nd contact			
Single contact						
1	Control vane inside the slot sensor - Contact make (Normal open)			I-1	SJ3.5N for 160 mm	
3	Control vane out of the slot sensor - Contact break (Normal open)			I-2	SJ3.5N for 160 mm	
Double contact						
4	1 st and 2 nd Control vane inside the slot sensor - 1 st and 2 nd Contact make	1 st 			I-11	SJ3.5N for 160 mm
		2 nd 				
6	1 st Control vane inside and 2 nd control vane out of the slot sensor - 1 st Contact make 2 nd Contact break	1 st 			I-12	SJ3.5N for 160 mm Failsafe contact
		2 nd 				
2	1 st Control vane out of the vane and 2 nd control vane inside of the vane - 1 st Contact break 2 nd Contact make	1 st 			I-21	SJ3.5N for 160 mm
		2 nd 				
5	1 st and 2 nd Control vane out of the slot sensor - 1 st and 2 nd Contact break				I-22	SJ3.5N for 160 mm

Terminal block arrangement



1. High alarm (I-1)

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

2. Low and high alarm (I-21)

Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

High alarm

- ④ Normal open (+)
- ⑥ Common (-)

3. Low alarm (I-2)

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

4. Two high alarm (I-11)

No.1 High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

No.2 High alarm

- ④ Normal open (+)
- ⑥ Common (-)

5. Two low alarm (I-22)

No.2 Low alarm

- ① Normal close (+)
- ③ Common (-)
- ⑤ Ground

No.1 Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

6. Failsafe high and low alarm (I-12)

High alarm

- ① Normal open (+)
- ③ Common (-)
- ⑤ Ground

Low alarm

- ④ Normal close (+)
- ⑥ Common (-)

Inductive alarm sensor model P690 series

Service intended

WISE inductive contacts are certified for use in hazardous areas of zone 1 and zone 2.

Power supply must be made by means of a power source certified intrinsically safe such as Pepper and Fucus model KFA6-SR2-EX1.W

Inductive contact are also recommended for critical non-hazardous applications where an utmost of failsafe heavy duty operation is required.

In combination with liquid filled instruments these contacts are particularly suited for process control circuits in the chemical and petroleum industry.

Operating principle

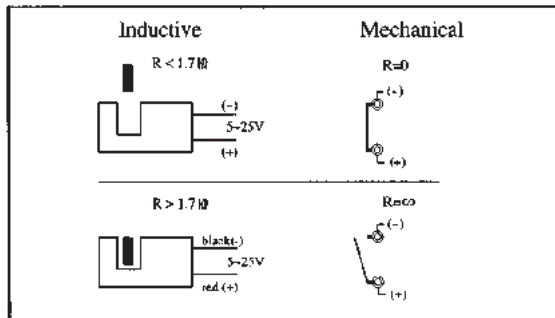
At the heart of the WISE inductive contact system is a noncontact sensor attached to an pressure gauge.

Both sensor and gauge are adjustable over the full length of the scale. Contact actuation is achieved by means of a Control vane linked to the pointer of the gauge.

The Control vane affects the electric field of the sensor when the instruments pointer overlaps with the contacts indicator.

Contact actuation is made without any mechanical force that would affect accuracy of the gauge.

The scheme below reflects the operating principle in comparison with conventional mechanical contacts :



Dimensions of the basic instrument and provisions for contacts adjustment are identical to contacts of model P500.

Operating temperature: $-25^{\circ}\text{C} \dots +70^{\circ}\text{C}$

Used sensor (slot-type initiator):

Type SJ of the company Pepper and Fuchs, EC-Type

Examination certificate PTB 00 ATEX 2081

Advantage of the WISE inductive system

- Long Service life by means of non-contact sensor
- Very little effect on gauge accuracy
- No reduced rating with liquid filled gauges
- Fully suitable in corrosive or hazardous atmosphere
- Ex-approved for service in hazardous area of Zone 1 or 2

Components of the WISE inductive contact system

Operation of the inductive contact system requires an appropriate electronic power supply and control unit

The Safety Barrier consists of

- Line transformer
- Amplifier circuit
- Relay to switch external circuit

The isolated line transformer provides for power supply whereas the amplifier conditions the signal of the inductive sensor to energise the output relay

Available are two versions of control units

- Ex-approved intrinsic safety
- Standard for non-intrinsically safe version (optional)

Safety barrier for inductive contacts

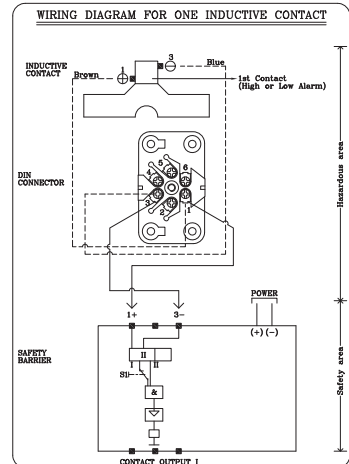
Ex-certified versions

Safety barrier model KFA6-SR2-Ex1.W

- Intended for instruments having one inductive contact incorporated
- Alarm circuit certified intrinsically safe [EEx a] IIC
- Provides 1 SPDT relay output contact
- LED indicating circuit status (green), relay output (yellow) and lead breakage (red)
- Case surface mounting type Form A

Note

Directions of action adjustable by sliding switch S1 :
 Open circuit causes alarm : Switch S1 in position I
 Closed circuit causes alarm : Switch S1 in position II



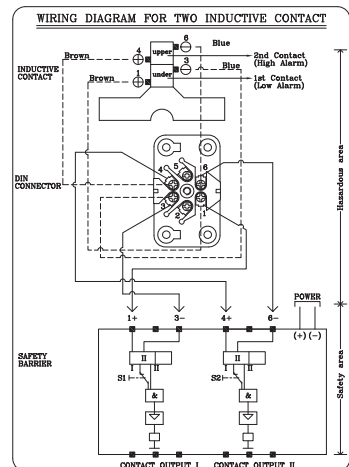
SAFETY BARRIER MODEL	Contact Output I (High or Low Alarm)	POWER
KFA5-SR2-Ex1.W(115V, AC)	7(COMMON) 8(OPEN) 9(CLOSE)	14(+) 15(-)
KFA6-SR2-Ex1.W(230V, AC)		
KFD2-SR2-Ex1.W(24V, DC)		

Safety barrier model KFA6-SR2-Ex2.W

- Intended for 1 instrument having two inductive contacts, or two instruments having one inductive contact incorporated
- Alarm circuit certified intrinsically safe [EEx a] IIC to EN 50 227 and NAMUR
- Provides 2 SPDT relay output contacts
- LED indicating circuit status (green), 2 x relay output (yellow) and 2 x lead breakage (red)
- Case surface mounting type Form B

Note

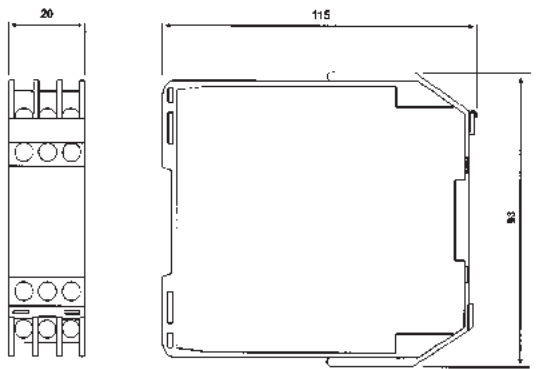
Directions of action adjustable by sliding switch S1 and S2 :
 Open circuit causes alarm : Switch S1 and S2 in position I
 Closed circuit causes alarm : Switch S1 and S2 in position II



SAFETY BARRIER MODEL	Contact Output I (Low Alarm)	Contact Output II (High Alarm)	POWER
KFA5-SR2-Ex2.W(115V, AC)	7(COMMON) 8(OPEN) 9(CLOSE)	10(COMMON) 11(OPEN) 12(CLOSE)	14(+) 15(-)
KFA6-SR2-Ex2.W(230V, AC)			
KFD2-SR2-Ex2.W(24V, DC)			

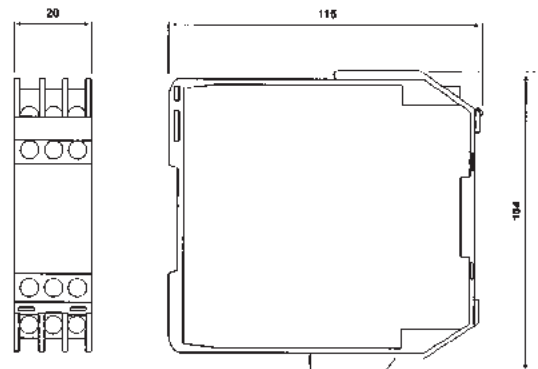
Dimensions of safety barrier for inductive contact

Model : KFA6-SR2-Ex1.W



Form A

Model : KFA6-SR2-Ex2.W



Form B

Specifications for safety barrier	Model KFA6-SR2-Ex1.W	Model KFA6-SR2-Ex2.W
Power supply		
Line voltage	AC 230 V $\pm 10\%$, 45...65 Hz	AC 230 V $\pm 10\%$, 45...65 Hz
Consumption	≤ 1 W	≤ 1.3 W
Input		
No. of contacts	1	2
Voltage (reactive)	DC 8 V	DC 8 V
Maximum current	8 mA	8 mA
Contact actuation	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$	$1.2 \text{ mA} \leq I_s \leq 2.1 \text{ mA}$
Contact hysteresis	Ca. 0.2 mA	Ca. 0.2 mA
Control line impedance	100 Ω	100 Ω
Ex-IS data (as PTB-certified)		
Voltage	$U_o \leq \text{DC } 10.6 \text{ V}$	$U_o \leq \text{DC } 10.6 \text{ V}$
Current	$I_o \leq 19.1 \text{ mA}$	$I_o \leq 19.1 \text{ mA}$
Power rating	$P_o \leq 51 \text{ mW}$	$P_o \leq 51 \text{ mW}$
IS-classification	[EEx ia] IIC	[EEx ia] IIC
Ext. capacitance	2.9 μF	2.9 μF
Ext. inductance	100 mH	100 mH
Output		
Relay contacts	1 SPDT	1 SPDT
Contact rating AC	253 V, 2 A, 500 VA, $\cos\theta > 0.7$	253 V, 2 A, 500 VA, $\cos\theta > 0.7$
Contact rating DC	4 V, 2 A, ohmic	4 V, 2 A, ohmic
Delay making circuit	Approx. 20 ms	Approx. 20 ms
Delay breaking circuit	Approx. 20 ms	Approx. 20 ms
Max. on-off frequency	≤ 10 Hz	≤ 10 Hz
Operating conditions		
Min. temperature	-20 °C	-20 °C
Max. temperature	+60 °C	+60 °C
Max. humidity	Max. 75 % (IEC 60529:2001)	Max. 75 % (IEC 60529:2001)
Protection degree	IP 20 (EN 60 529 / IEC 529)	IP 20 (EN 60 529 / IEC 529)
Enclosure		
Style	Surface mounting	Surface mounting
Dimensions per drawing	Form A	Form B
Mounting	on 35 mm DIN mounting rail acc. to EN 60715-2001	
Weight	Approx. 0.15 kg	Approx. 0.15 kg

Pressure unit and range table

Range and code	Unit and code				Model	Max. static pressure
	J : kPa	S : mbar	H : bar	I : MPa		
118	0 ~ 25	0 ~ 250	X	X	P691	10 MPa
121	0 ~ 40	0 ~ 400	X	X		
125	0 ~ 60	0 ~ 600	X	X		
041	0 ~ 100	X	0 ~ 1	0 ~ 0.1		
133	0 ~ 160	X	0 ~ 1.6	0 ~ 0.16		
042	0 ~ 200	X	0 ~ 2	0 ~ 0.2		
134	0 ~ 250	X	0 ~ 2.5	0 ~ 0.25	P692	
044	0 ~ 400	X	0 ~ 4	0 ~ 0.4		
045	0 ~ 600	X	0 ~ 6	0 ~ 0.6		
047	0 ~ 1,000	X	0 ~ 10	0 ~ 1		
143	X	X	0 ~ 16	0 ~ 1.6		
051	X	X	0 ~ 20	0 ~ 2		

X : Not available

Compact design diaphragm seal pressure gauge

Model: P701 series

Spec. sheet no. **PD07-01**

Service intended

P701 series are designed for diaphragm seal to be combined with a pressure gauge.
It is suitable for corrosive, contaminated, hot or viscous pressure media in chemical and food process.

EAC

Design

Internal diaphragm, upper and under flange welded
no sealing and compact design

Accuracy

P2522 (63 mm) and P2523 (80 mm) : $\pm 1.6\%$ of full scale
P2524 (100 mm) : $\pm 1.0\%$ of full scale

Scale range (MPa, kPa, bar)

-0.1 ~ 0 to -0.1 ~ 2.4 Mpa
0 ~ 0.1 to 0 ~ 25 Mpa

Filling liquid

Silicone oil

Working pressure

Steady : 75 % of full scale (63 and 80 mm)
100 % of full scale (100 mm)
Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 65 °C
Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately $\pm 0.5\%$ per 10 °C of full scale



Standard features

Pressure connection (Gauge side)

Stainless steel (316SS)

Under flange (Process side)

316SS, 316L SS, Monel, Hastelloy-C

Diaphragm

316L SS, Hastelloy-C, Tantalum, Monel

Process connection

$\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF
 $\frac{1}{4}$ " PT and NPT (F)

Diaphragm outer diameter

40 or 48 mm

WISE®

1. Base model**P701** Compact design diaphragm seal pressure gauge**2. Nominal diameter****XX** Refer to gauge model and mounting type table**3. Upper flange / Diaphragm material**

J 316SS / 316L SS
K 316SS / Monel
L 316SS / Hastelloy-C
N 316SS / Tantalum

4. Process connection type

CC ¼" PT
BC ⅜" PT
BD ⅜" NPT
EC ½" PT
ED ½" NPT
CP ¼" PT (F)

5. Unit

H bar
I MPa
J kPa

6. Range**XXX** Refer to pressure range table (Max : 25 MPa)**7. Under flange material**

E 316L SS
F Monel
G Hastelloy-C

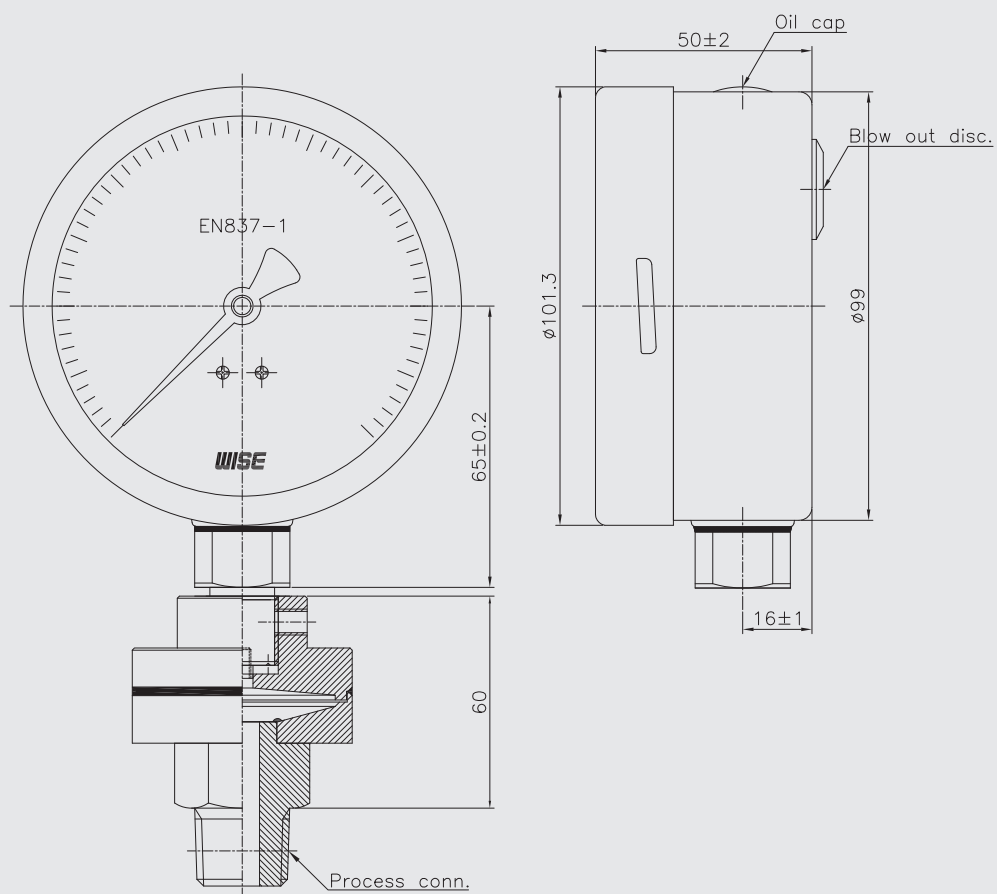
8. Option

0 None
1 Accessories

1	2	3	4	5	6	7	8
P701	XX	J	CC	H	XXX	E	0

Sample
ordering code

P701 : Type of mounting



Pressure unit and range table

Range and code	Unit and code		
	H : bar	J : kPa	I : MPa
041	0 ~ 1	0 ~ 100	0 ~ 0.1
042	0 ~ 2	0 ~ 200	0 ~ 0.2
043	0 ~ 3	0 ~ 300	0 ~ 0.3
044	0 ~ 4	0 ~ 400	0 ~ 0.4
045	0 ~ 6	0 ~ 600	0 ~ 0.6
047	0 ~ 10	0 ~ 1,000	0 ~ 1
050	0 ~ 15	X	0 ~ 1.5
051	0 ~ 20	X	0 ~ 2
052	0 ~ 25	X	0 ~ 2.5
054	0 ~ 35	X	0 ~ 3.5
055	0 ~ 50	X	0 ~ 5
057	0 ~ 70	X	0 ~ 7
058	0 ~ 100	X	0 ~ 10
059	0 ~ 150	X	0 ~ 15
062	0 ~ 250	X	0 ~ 25
028	-1 ~ 2	-100 ~ 200	-0.1 ~ 0.2
029	-1 ~ 3	-100 ~ 300	-0.1 ~ 0.3
030	-1 ~ 4	-100 ~ 400	-0.1 ~ 0.4
031	-1 ~ 6	-100 ~ 600	-0.1 ~ 0.6
032	-1 ~ 10	-100 ~ 1,000	-0.1 ~ 1
033	-1 ~ 15	X	-0.1 ~ 1.5
034	-1 ~ 20	X	-0.1 ~ 2
017	-1 ~ 24	X	-0.1 ~ 2.4

X : Not available

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

7A	P252 63A	7P	P258 63A
7F	P252 63F	7E	P258 63F
7G	P252 63G	7T	P258 63G
7U	P252 80A	8U	P258 80A
7V	P252 80G	8V	P258 80G
8A	P252 100A	8P	P258 100A

Diaphragm seal type 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 sensing element due to the ambient or process temperature change, and where the process medium requires the flushing from the system to prevent any contamination.

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

Fluid : Max. 100 °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 °C) will be effected by approximately $\pm 0.5\%$ per 10 °C of full scale



Model : P710



Model : P720



Model : P730

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-C

Titanium, Tantalum, Nickel, Alloy20

Under flange (Process side)

Stainless steel (304SS, 304L SS, 316SS, 316L SS)

Monel, Hastelloy-C, Titanium, Nickel

Certificates

ATEX Ex II GD c IIC TX

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

WISE®

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	Teflon
22	Nickel
18	317SS
54	PVC
55	CPVC
39	Alloy 825
56	PVDF
ZZ	Other

Note1 : PTFE lining and coating is available for the pressure range less than 7 MPa.

Note2 : Using Plastic as its material, the pressure range is available up to 2 MPa.

8. Option

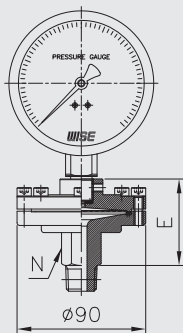
0	None
1	Accessories
2	Liquid (Glycerin in gauge)
E	Liquid (Silicone in gauge)
F	Flushing ring
H	PVC jacked capillary tube

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

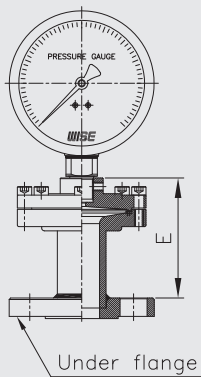
Sample
ordering code

P7XX : Type of mounting (1/2)

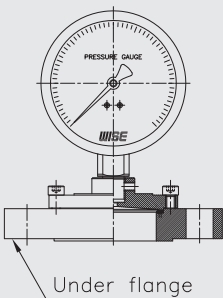
Code P711



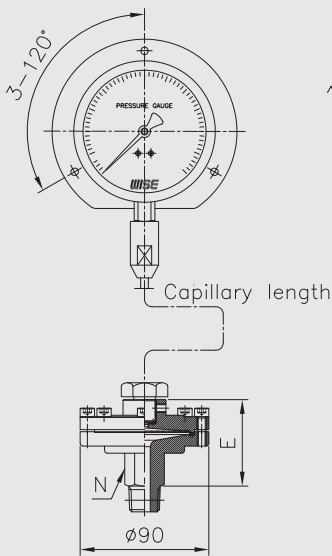
Code P721



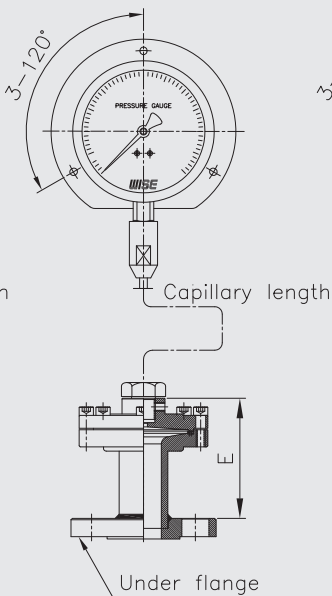
Code P731



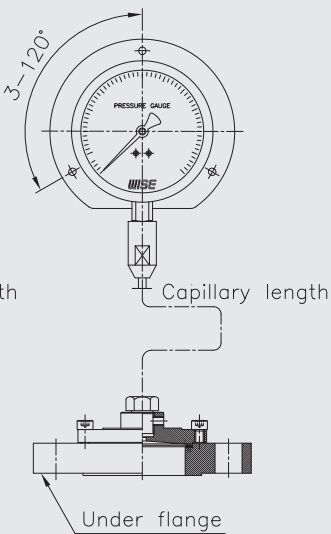
Code P712



Code P722



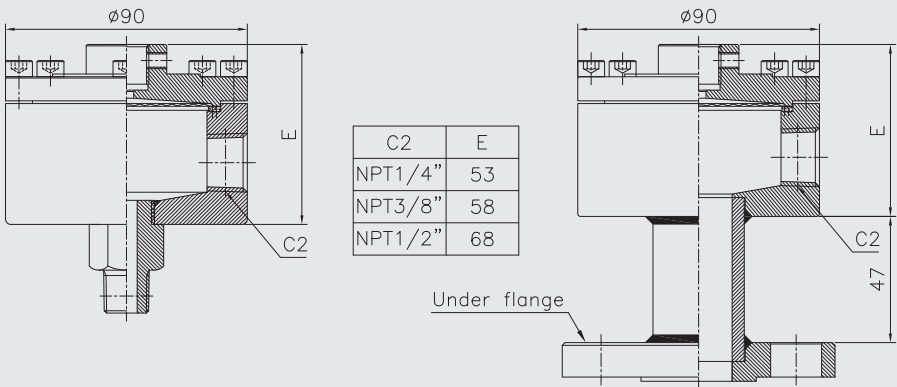
Code P732



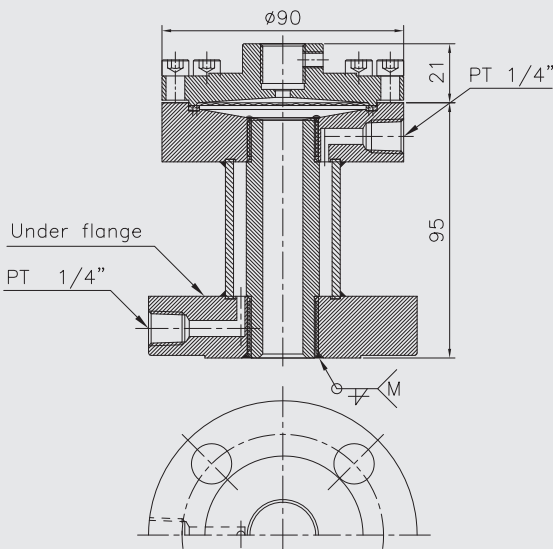
Dimensions (mm)

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 :)

* Options
<Flushing ring type>



<Heat/Cooling type>



Process connection type table - 8th and 9th characters

8 th character		9 th character			
Code	Connection size	For model P711, P712		For model P721, P722, P731, P732	
		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 Class 150 RFSF
G	1" (25A)	GG	BSPF	AF	B16.5 Class 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	⅞"			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		MF	P524 100B	Only available remote diaphragm seal type
3C	P229 160A		NF	P525 100B	Only available remote diaphragm seal type
4C	P235 35A		FG	P521 100G	
6C	P222 114A		HG	P522 100G	
7A	P252 63A		KG	P523 100G	
7B	P252 63B	Only available remote diaphragm seal type	MG	P524 100G	
7F	P252 63F		NG	P525 100G	
7G	P252 63G		EN	P513 100N	
7J	P252 63J	Only available remote diaphragm seal type	FN	P521 100N	Only available remote diaphragm seal type
7N	P252 63N	Only available remote diaphragm seal type	GN	P522 100N	Only available remote diaphragm seal type
7U	P252 80A		HN	P523 100N	Only available remote diaphragm seal type
7V	P252 80G		FA	P531 100A	
7W	P252 80N	Only available remote diaphragm seal type	FB	P531 100B	Only available remote diaphragm seal type
7X	P252 80B	Only available remote diaphragm seal type	FL	P531 100L	Only available remote diaphragm seal type
7Y	P252 80M	Only available remote diaphragm seal type	GA	P531 150A	
8A	P252 100A		GL	P531 150M	Only available remote diaphragm seal type
8B	P252 100B	Only available remote diaphragm seal type	HA	P532 100A	
8C	P252 100W	Only available remote diaphragm seal type	HB	P532 100B	Only available remote diaphragm seal type
8D	P252 100L	Only available remote diaphragm seal type	HL	P532 100L	Only available remote diaphragm seal type
8G	P252 100G		JA	P532 150A	
8M	P252 100M	Only available remote diaphragm seal type	JB	P532 150B	Only available remote diaphragm seal type
8N	P252 100N	Only available remote diaphragm seal type	JL	P532 150M	Only available remote diaphragm seal type
7P	P258 63A		KA	P533 100A	
7Q	P258 63B	Only available remote diaphragm seal type	KB	P533 100B	Only available remote diaphragm seal type
7E	P258 63F		KL	P533 100L	Only available remote diaphragm seal type
7R	P258 63J	Only available remote diaphragm seal type	LA	P533 150A	
7S	P258 63N	Only available remote diaphragm seal type	LL	P533 150M	Only available remote diaphragm seal type
7T	P258 63G		MA	P534 100A	
8U	P258 80A		MB	P534 100B	Only available remote diaphragm seal type
8V	P258 80G		ML	P534 100L	Only available remote diaphragm seal type
8W	P258 80N	Only available remote diaphragm seal type	NA	P534 150A	
8X	P258 80B	Only available remote diaphragm seal type	NL	P534 150M	Only available remote diaphragm seal type
8P	P258 100A		9N	P253 63N	Only available remote diaphragm seal type
8Q	P258 100B	Only available remote diaphragm seal type	AA	P253 100A	
8R	P258 100M	Only available remote diaphragm seal type	AB	P253 100B	Only available remote diaphragm seal type
8S	P258 100N	Only available remote diaphragm seal type	AN	P253 100N	Only available remote diaphragm seal type
8T	P258 100G		AP	P259 100A	
8Y	P258 100W	Only available remote diaphragm seal type	AQ	P259 100B	Only available remote diaphragm seal type
8Z	P258 100L	Only available remote diaphragm seal type	AS	P259 100N	Only available remote diaphragm seal type
9A	P253 63A		CA	P330 150A	
9B	P253 63B	Only available remote diaphragm seal type	CB	P330 150B	Only available remote diaphragm seal type
9F	P253 63F		CM	P330 150M	Only available remote diaphragm seal type
9J	P253 63J	Only available remote diaphragm seal type	CP	P336 100A	
FE	P521 100A		CQ	P336 100B	Only available remote diaphragm seal type
HE	P522 100A		CR	P336 100G	
KE	P523 100A		CS	P336 100M	Only available remote diaphragm seal type
ME	P524 100A		DD	P500-1 100A	
NE	P525 100A		DE	P500-2 100A	
FF	P521 100B	Only available remote diaphragm seal type	DF	P500-3 100A	
HF	P522 100B	Only available remote diaphragm seal type	DG	P500-4 100A	
KF	P523 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		RK	P6211 100D	
DK	P500-2 160A		RL	P6221 100D	
DL	P500-3 160A		RM	P6231 100D	
DM	P500-4 160A		RN	P6241 100D	
DN	P500-5 160A		RO	P6251 100D	
EA	P359 125B		RC	P6211 160D	
EC	P257 100A		RD	P6221 160D	
ED	P511 100A		RE	P6231 160D	
EE	P512 100A		RF	P6241 160D	
EF	P513 100A		RG	P6251 160D	
EG	P514 100A		GW	P6212 100D	
EH	P515 100A		GX	P6222 100D	
EI	P257 100C	Only available remote diaphragm seal type	GY	P6232 100D	
EJ	P511 100B	Only available remote diaphragm seal type	GZ	P6242 100D	
EK	P512 100B	Only available remote diaphragm seal type	SA	P6252 100D	
EL	P257 160A		SB	P6212 160D	
EP	P257 160C	Only available remote diaphragm seal type	SC	P6222 160D	
GA	P601 150D		SD	P6232 160D	
PA	P535 100B	Only available remote diaphragm seal type	SE	P6242 160D	
PB	P535 150B	Only available remote diaphragm seal type	SF	P6252 160D	
PC	P535 100A		RH	P6311 150D	
PD	P535 100L	Only available remote diaphragm seal type	RJ	P6321 150D	
QA	P536 100B	Only available remote diaphragm seal type	RI	P6331 150D	
QB	P536 150B	Only available remote diaphragm seal type	RP	P6341 150D	
QC	P537 100B	Only available remote diaphragm seal type	RT	P6351 150D	
QD	P536 100A		RQ	P6312 150D	
QE	P536 100L		6Z	P6322 150D	
GB	P601 100D		RV	P6332 150D	
GC	P602 100D		RW	P6342 150D	
GD	P603 100D		RX	P6352 150D	
GE	P604 100D		RY	P6411 150D	
GF	P605 100D		RZ	P6412 150D	
6X	P601 160D		SG	P6413 150D	
GG	P602 160D		SH	P6414 150D	
GH	P603 160D		SI	P6415 150D	
GI	P604 160D		SJ	P6421 150D	
GJ	P605 160D		SK	P6422 150D	
GK	P611 100D		SL	P6423 150D	
6Y	P612 100D		SM	P6424 150D	
GM	P613 100D		SN	P6425 150D	
GV	P614 100D		SO	P6511 160D	
GO	P615 100D		SP	P6512 160D	
GP	P611 160D		SQ	P6513 160D	
GQ	P612 160D		SR	P6514 160D	
GR	P613 160D		SS	P6515 160D	
GS	P614 160D		ST	P6521 160D	
GT	P615 160D		SU	P6522 160D	
RA	P620 100D		SV	P6523 160D	
RB	P620 160D		SW	P6524 160D	
RR	P630 100D		SX	P6525 160D	
RS	P630 160D		6A	P661 100D	

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		XI	P252 160G	
6I	P6911 160D		XJ	P945	
6O	P6912 160D		XK	P946	
6P	P6913 160D		XZ	P953 1B	
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		YD	P970 2B	
6V	P6924 160D		YE	P947	
6W	P6925 160D		YF	P981	
TZ	P941		YG	P982	

High temperature service pressure gauge

Model: P740 series

Spec. sheet no. **PD07-03**

Service intended

P740 series have diaphragm seal to be combined with a pressure gauge, and measure the melted plastics, fiber, and synthetic under high pressure. It is suitable to be used for the situation where corrosive, contaminated, hot and viscous pressure mediums are present during the chemical or food process.



Pressure range (MPa, bar)

Refer to range table
Depending on diaphragm size and process conditions

Accuracy

±1.0 % of full scale

Filling liquid

Silicone oil

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 300 °C

Temperature effect

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



Standard features

Process connection

¾" PF and 1" PF male screw

Pocket

80, 150 and 300 mm

Body

Stainless steel (316SS)

Certificates

ATEX Ex II GD c IIC TX

Diaphragm

Stainless steel (316L SS)

1. Base model

- P741** High temperature service pressure gauge
P742 High temperature service pressure gauge with remote seal

2. Gauge model and mounting type

- 8A** 100 mm (P252 model), bottom connection
8B 100 mm (P252 model), bottom connection, surface, case mounting plate (P742)

3. Body and process connection material, pocket length

- A** 316SS and 80 mm
B 316SS and 150 mm
C 316SS and 300 mm

4. Process connection

- FB** ¾" PF
GB 1" PF
ZZ Other

5. Unit

- H** bar
I MPa

6. Range

- XXX** Refer to pressure range table

7. Diaphragm material

- E** 316L SS

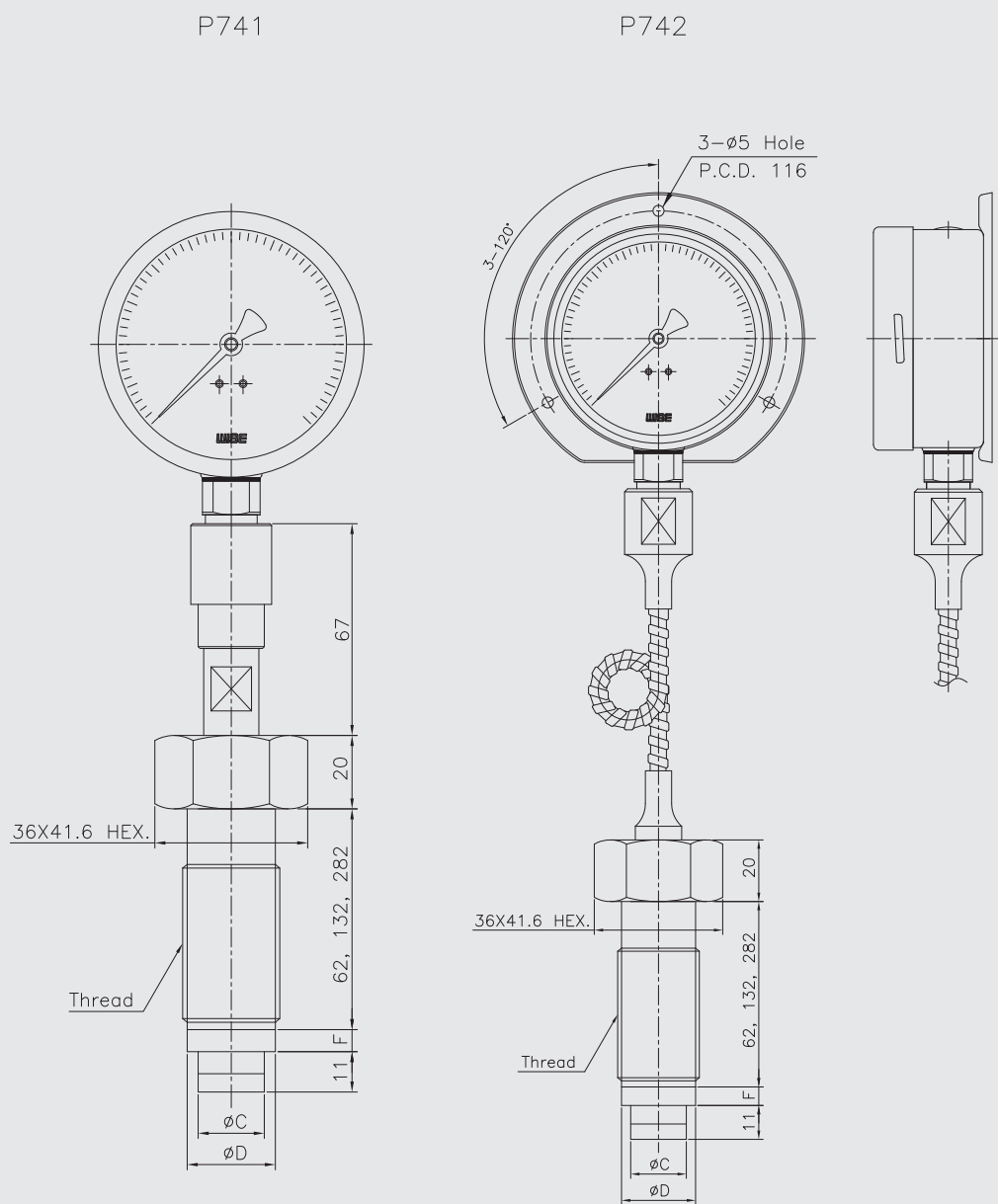
8. Option

- 0** None
1 Accessories
7 Capillary length 2 metre, only available with P742 model
8 Capillary length 3 metre, only available with P742 model
9 Other

Note 1. Max. temperature and process of pressure medium must be specified on order sheet.

1	2	3	4	5	6	7	8	Sample ordering code
P741	8A	B	FB	H	XXX	E	0	

P740 : Type of mounting



Dimensions (mm)

Thread size	Available code	øD	øC	F
PF 3/4"	P741	24	18	6
	P742	24	18	6
PF 1"	P741	30.2	23.6	8
	P742	30.2	23.6	8

Pressure unit and range table

Range and code	Unit and code	
	H : bar	I : MPa
058	0 ~ 100	0 ~ 10
059	0 ~ 150	0 ~ 15
060	0 ~ 160	0 ~ 16
062	0 ~ 250	0 ~ 25
064	0 ~ 350	0 ~ 35
065	0 ~ 400	0 ~ 40
066	0 ~ 500	0 ~ 50

Sanitary pressure gauge

Model: P750 series

Spec. sheet no. **PD07-04**

Service intended

P750 series have diaphragm seal to be combined with a pressure gauge. These series are suitable to be used for the situation where corrosive, contaminated, hot, and viscous pressure mediums are present, and it could be used for a chemical, food, beverage, biochemical, and pharmaceutical industry.



Nominal diameter

63, 80 and 100 mm

Accuracy

63 and 80 mm : ± 1.6 % of full scale

100 mm : ± 1.0 % of full scale

Pressure range (MPa, kPa, bar)

Steady : 75 % of full scale (63 and 80 mm)

100 % of full scale (100 mm)

Over range protection : 130 % of full scale

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 121 °C

Temperature effect

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



Model : P751



Model : P752



Model : P753



Model : P754



Model : P755



Model : P756

Standard features

Process connection

316SS

P751 : 1½" and 2" Nut

P752 : 1", 1½", 2", clamp connection

P753 : PF¾", PF1", PF1½", male screw

P754 : Standard and non standard flange

P755 : Homogenizer

P756 : Homogenizer flange (95 x 43 x 28 mm)

System filling

Food grade oil (FDA certified)

Certificates

ATEX Ex II GD c IIC TX

Body

Stainless steel (316SS)

Diaphragm

Stainless steel (316L SS)

Electropolished diaphragm

Ra 12 ~ 20 µm

1. Base model

P751	Nut type sanitary pressure gauge
P752	Clamp (IDF flange) type sanitary pressure gauge
P753	Male screw type sanitary pressure gauge
P754	Cooling fin type sanitary pressure gauge
P755	Homogenizer type sanitary pressure gauge
P756	Homogenizer flange type sanitary pressure gauge

2. Gauge model and mounting type

7A	63 mm, bottom connection
7U	80 mm, bottom connection
8A	100 mm, bottom connection
7G	63 mm, lower back connection, only available with P751 and P752
7V	80 mm, lower back connection, only available with P751 and P752
8G	100 mm, lower back connection, only available with P751 and P752
7P	63 mm, bottom connection, liquid filling
8U	80 mm, bottom connection, liquid filling
8P	100 mm, bottom connection, liquid filling
7T	63 mm, lower back connection, only available with P751 and P752, liquid filling
8V	80 mm, lower back connection, only available with P751 and P752, liquid filling
8T	100 mm, lower back connection, only available with P751 and P752, liquid filling

3. Body and process connection material, pocket length

D	316SS
----------	-------

4. Process connection

NA	1" Nut(IDF), only available with P751
NB	1½" Nut(IDF), only available with P751
NC	2" Nut(IDF), only available with P751
ND	1" Nut(DIN), only available with P751
NE	1½" Nut(DIN), only available with P751
NF	2" Nut(DIN), only available with P751
FB	¾"PF, only available with P753
GB	1"PF, only available with P753
JB	1½"PF, only available with P753
GN	1" Clamp, only available with P752
JN	1½" Clamp, only available with P752
KN	2" Calmp, only available with P752
MN	2.5", only available with P752
LN	3", only available with P752
PU	Homogenizer, only available with P755
PS	Homogenizer flange (95 x 43 x 28), only available with P756
PN	Standard flange, only available with P754
PM	Non standard flange, only available with P754 (See note2)
ZZ	Other

Note 1. Max. temperature and process of pressure medium must be specified on order sheet.

2. Flange size will be specified on order sheet.

5. Unit

H	bar
I	MPa
J	kPa

6. Range

XXX Refer to pressure range table

7. Diaphragm material

E	316L SS
----------	---------

8. Options

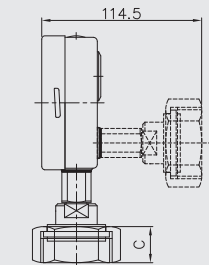
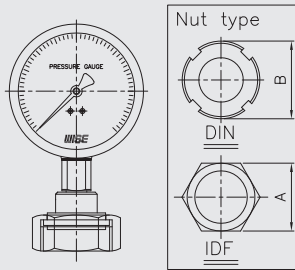
0	None
1	Accessories

1	2	3	4	5	6	7	8
P751	1A	D	FB	H	XXX	E	0

Sample
ordering code

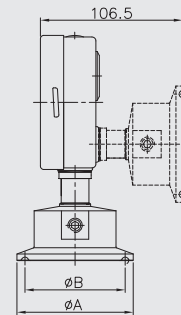
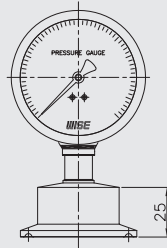
P75X : Type of mounting

P751



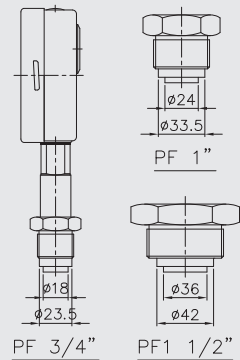
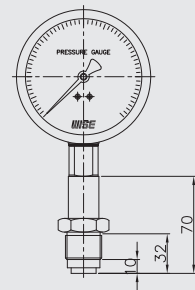
Type	1"	1.5"	2"	2.5"
DIN				
A	45	56	75	90
C	21	21	22	26
IDF				
B	63	78	92	112
C	30	30	30	30

P752

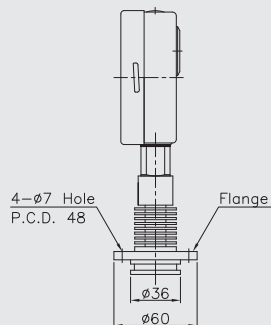
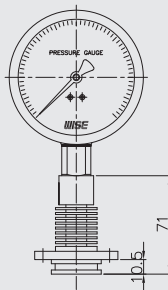


Size	3/4"	1"	1.5"	2"	2.5"	3"
A	25	50.5	50.5	64	77.5	91
B	19.5	43.5	43.5	56.5	70.5	83.5

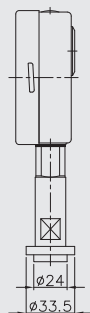
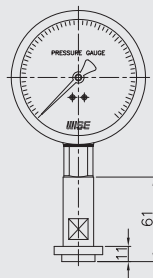
P753



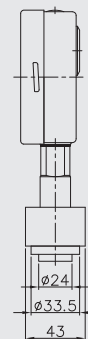
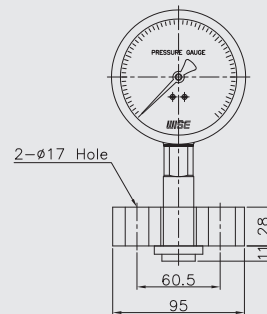
P754



P755



P756



Pressure unit and range table

Range and code	Unit and code			P751		P752			P753			P754	P755	P756
	H : bar	J : kPa	I : MPa	1½"	2"	1"	1½"	2"	PF ¾"	PF 1"	PF 1½"			
041	0 ~ 1	0 ~ 100	0 ~ 0.1	X	O	X	O	O	X	X	X	X	X	X
133	0 ~ 1.6	0 ~ 160	0 ~ 0.16	X	O	X	X	O	X	X	X	X	X	X
042	0 ~ 2	0 ~ 200	0 ~ 0.2	O	O	O	O	O	X	X	X	O	X	X
134	0 ~ 2.5	0 ~ 250	0 ~ 0.25	X	O	X	X	O	X	X	X	X	X	X
043	0 ~ 3	0 ~ 300	0 ~ 0.3	O	O	O	O	O	X	X	X	O	X	X
044	0 ~ 4	0 ~ 400	0 ~ 0.4	O	O	O	O	O	X	X	O	O	X	X
045	0 ~ 6	0 ~ 600	0 ~ 0.6	O	O	O	O	O	X	X	O	O	X	X
047	0 ~ 10	0 ~ 1,000	0 ~ 1	O	O	O	O	O	X	X	O	O	X	X
050	0 ~ 15	X	0 ~ 1.5	O	O	O	O	O	X	X	O	O	X	X
051	0 ~ 20	X	0 ~ 2	O	O	O	O	O	X	X	O	O	X	X
052	0 ~ 25	X	0 ~ 2.5	O	O	O	O	O	X	X	O	O	X	X
054	0 ~ 35	X	0 ~ 3.5	O	O	O	O	O	X	O	O	O	X	X
055	0 ~ 50	X	0 ~ 5	O	O	O	O	O	X	O	O	O	X	X
057	0 ~ 70	X	0 ~ 7	X	X	X	X	X	O	O	O	O	O	O
058	0 ~ 100	X	0 ~ 10	X	X	X	X	X	O	O	O	O	O	O
059	0 ~ 150	X	0 ~ 15	X	X	X	X	X	O	O	O	X	O	O
062	0 ~ 250	X	0 ~ 25	X	X	X	X	X	O	O	O	X	O	O
064	0 ~ 350	X	0 ~ 35	X	X	X	X	X	O	O	O	X	O	O
065	0 ~ 400	X	0 ~ 40	X	X	X	X	X	O	O	O	X	O	O
066	0 ~ 500	X	0 ~ 50	X	X	X	X	X	O	O	O	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100~100	X	O	X	O	O	X	X	O	X	X	X
127	-1 ~ 1.6	-0.1 ~ 0.16	-100~160	X	O	X	O	O	X	X	O	X	X	X
028	-1 ~ 2	-0.1 ~ 0.2	-100~200	X	O	X	O	O	X	X	O	X	X	X
129	-1 ~ 2.5	-0.1 ~ 0.25	-100~250	X	O	X	O	O	X	X	O	X	X	X
029	-1 ~ 3	-0.1 ~ 0.3	-100~300	X	O	X	O	O	X	X	O	X	X	X
030	-1 ~ 4	-0.1 ~ 0.4	-100~400	X	O	X	O	O	X	X	O	X	X	X
010	-1 ~ 5	-0.1 ~ 0.5	-100~500	X	O	X	O	O	X	X	O	X	X	X
031	-1 ~ 6	-0.1 ~ 0.6	-100~600	X	O	X	O	O	X	X	O	X	X	X
014	-1 ~ 9	-0.1 ~ 0.9	-100~900	X	O	X	O	O	X	X	O	X	X	X
032	-1 ~ 10	-0.1 ~ 1	-100~1000	X	O	X	O	O	X	X	O	X	X	X
033	-1 ~ 15	-0.1 ~ 1.5	X	X	O	X	O	O	X	X	O	X	X	X
034	-1 ~ 20	-0.1 ~ 0.1	X	X	O	X	O	O	X	X	O	X	X	X
035	-1 ~ 1	-0.1 ~ 0.1	X	X	O	X	O	O	X	X	O	X	X	X

O : Available X : Not available

Sanitary pressure gauge (3-A marking)

Model: P752S series

Spec. sheet no. PD07-05

Service intended

P752S series have diaphragm seal to be combined with a pressure gauge. These series are suitable to be used for the situation where corrosive, contaminated, hot, and viscous pressure mediums are present, and it could be used for a chemical, food, beverage, biochemical, and pharmaceutical industry.



Special features

3-A certificated

Suitable for SIP and CIP

All stainless steel and welded construction

Nominal diameter

50, 63, 80 and 100 mm

Accuracy

P752 (50 mm) : ± 3.0 % of full scale

P752 (63 mm) and P752 (80 mm) : ± 1.6 % of full scale

P752 (100 mm) : ± 1.0 % of full scale

Scale range

-0.1 ~ 7 MPa

Working pressure

Steady pressure : 75 % of full scale value

Fluctuating pressure : 67 % of full scale value

Working temperature

Ambient : -25 ~ 65 °C

Fluid : Max. 121 °C

Temperature effect

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



Standard features

Process connection

$\frac{3}{4}$ ", 1", 1½" and 2"

Low and back

Diaphragm and seal housing

Diaphragm : Stainless steel (316L SS)

Ra 12 ~ 20 μ m

Seal housing : Stainless steel (316SS)

Case

Stainless steel (304SS)

Electropolished with pressure relief

Cover

50 mm : Twist-lock polycarbonate (Diameter 50 mm)

63, 80 and 100 mm : Stainless steel 304SS

Window

Safety glass (63, 80 and 100 mm)

Polycarbonate (50 mm)

Movement

Stainless steel

Dial

White aluminium with black and red graduations, dual pressure scale

Pointer

Black painted aluminium alloy

Helium leak rate

Tested to confirm leakage rates of less than 10^{-8} mbar • l /sec

System filling

Food grade oil (FDA certified)

Option

Material of wetted parts : electropolished 316L SS

WISE®

1. Base model**P752S** Sanitary pressure gauge (3-A marking)**2. Nominal diameter and mounting type**

- 1A** 50 mm, bottom connection (refer to code A)
- 7A** 63 mm, bottom connection (refer to code A)
- 7G** 63 mm, lower back connection (refer to code G)
- 7U** 80 mm, bottom connection (refer to code A)
- 7V** 80 mm, lower back connection (refer to code G)
- 8A** 100 mm, bottom connection (refer to code A)
- 8G** 100 mm, lower back connection (refer to code G)

3. Body and process connection material**D** 316SS**4. Process connection**

- F** ¾" Tri-clamp, only available with diameter 50 mm
- G** 1" Tri-clamp, only available with diameter 63,80 and 100 mm
- J** 1½" Tri-clamp, only available with diameter 63,80 and 100 mm
- K** 2" Tri-clamp, only available with diameter 63,80 and 100 mm

5. Unit

- H** bar
- I** MPa
- J** kPa

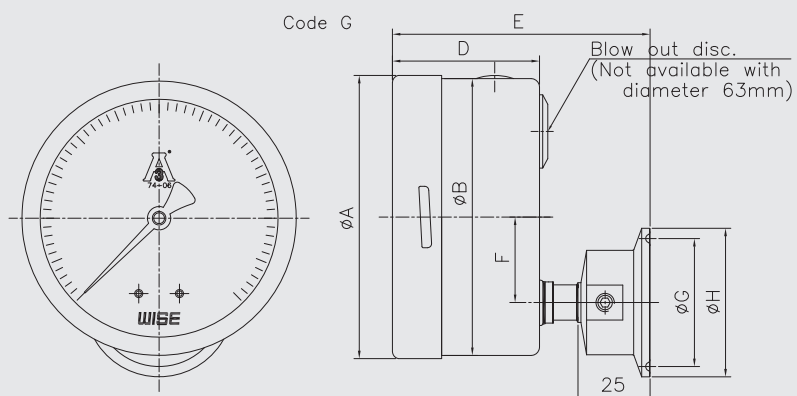
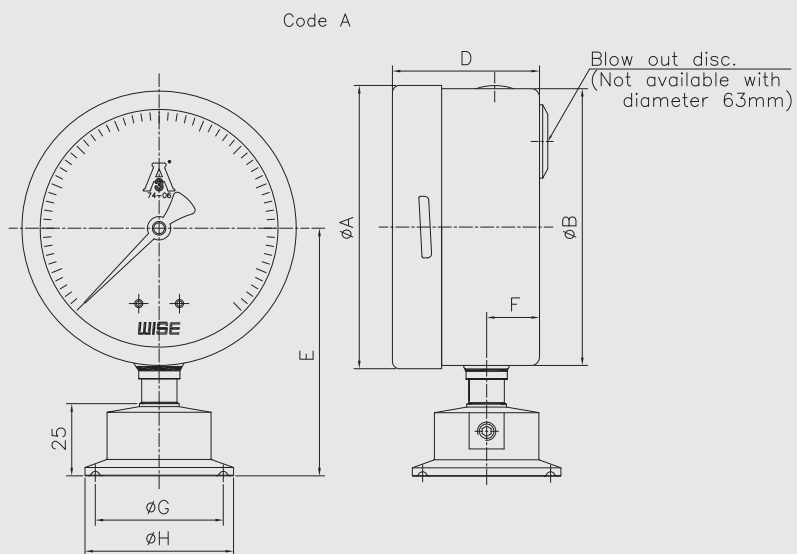
6. Range**XXX** Refer to pressure range table**7. Diaphragm material****E** 316L SS**8. Option**

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8
P752S	1A	D	F	H	XXX	E	0

Sample
ordering code

P752S : Type of mounting



Dimensions (mm)									
Dial size	Clamp type	Available code	A	B	D ± 2	E ± 2	F ± 1	G	H
50	3/4"	A	53	50.8	29	68.3	9	19.5	25
	1"	A	64	62	33	75.7	11	43.5	50.5
	1 1/2"							43.5	50.5
	2"							56.5	64
	1"	G	64	62	33	82.5	13	43.5	50.5
	1 1/2"							43.5	50.5
63	2"							56.5	64
	1"	A	81.2	78.5	39.5	84	12	43.5	50.5
	1 1/2"							43.5	50.5
	2"							56.5	64
	1"	G	81.2	78.5	39.5	91	22	43.5	50.5
	1 1/2"							43.5	50.5
80	2"							56.5	64
	1"	A	101.3	99	50	100	16	43.5	50.5
	1 1/2"							43.5	50.5
	2"							56.5	64
	1"	G	101.3	99	50	106.5	24	43.5	50.5
	1 1/2"							43.5	50.5
100	2"							56.5	64

Range table

Range and code	Unit and code			Pressure connection			
	H : bar	I : MPa	J : kPa	¾"	1"	1½"	2"
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	X	X	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	X	O	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O	O	O
134	0 ~ 2.5	0 ~ 0.25	0 ~ 250	X	O	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O	O	O
051	0 ~ 20	0 ~ 2	X	O	O	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O	O	O
151	0 ~ 40	0 ~ 4	X	X	O	O	O
055	0 ~ 50	0 ~ 5	X	X	O	O	O
056	0 ~ 60	0 ~ 6	X	X	O	O	O
057	0 ~ 70	0 ~ 7	X	X	O	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	X	X	O	O
127	-1 ~ 1.6	-0.1 ~ 0.16	-100 ~ 160	X	X	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	X	X	O	O
129	-1 ~ 2.5	-0.1 ~ 0.25	-100 ~ 250	X	X	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	X	X	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	X	X	O	O
010	-1 ~ 5	-0.1 ~ 0.5	-100 ~ 500	X	X	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	X	X	O	O
014	-1 ~ 9	-0.1 ~ 0.9	-100 ~ 900	X	X	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	X	X	O	O
033	-1 ~ 15	-0.1 ~ 1.5	X	X	X	O	O
034	-1 ~ 20	-0.1 ~ 2	X	X	X	O	O
035	-1 ~ 25	-0.1 ~ 2.5	X	X	X	O	O

O : Available X : Not available

Sanitary pressure gauge - Male connection (3-A marking)

Model: P753S series

Spec. sheet no. PD07-06

Service intended

P753S series have diaphragm seal to be combined with a pressure gauge. These series are suitable to be used for the situation where corrosive, contaminated, hot, and viscous pressure mediums are present, and it could be used for a chemical, food, beverage, biochemical, and pharmaceutical industry.



Special features

3-A certificated
Suitable for SIP and CIP
All stainless steel and welded construction

Nominal diameter

63 and 100 mm

Accuracy

±1.6 % of full scale
If scale range less than 100 psi : ±2.0% of full scale

Scale range

0 ~ 3.5 MPa, single

Working pressure

Steady pressure : 75 % of full scale value
Fluctuating pressure : 67 % of full scale value

Operating temperature

Ambient : -20 ~ 65 °C
Fluid : Max. 121 °C

Temperature effect

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



Standard features

Process connection

DIN Round thread 28-8

Pointer

Black painted aluminium alloy

Case and cover

Stainless steel (304SS)
Electropolished with pressure relief

Helium leak rate

Tested to confirm leakage rates of less than 10⁻⁸ mbar • ℓ /sec

Window

Safety glass

System filling

Food grade oil (FDA certified)

Movement

Stainless steel

O-ring

Supplied by FDA approved Supplier (Viton)

Dial

White aluminium, with pointer stop pin
With black/red lettering, dual pressure scale

Option

Material of wetted parts : Electropolished 316L SS

WISE[®]

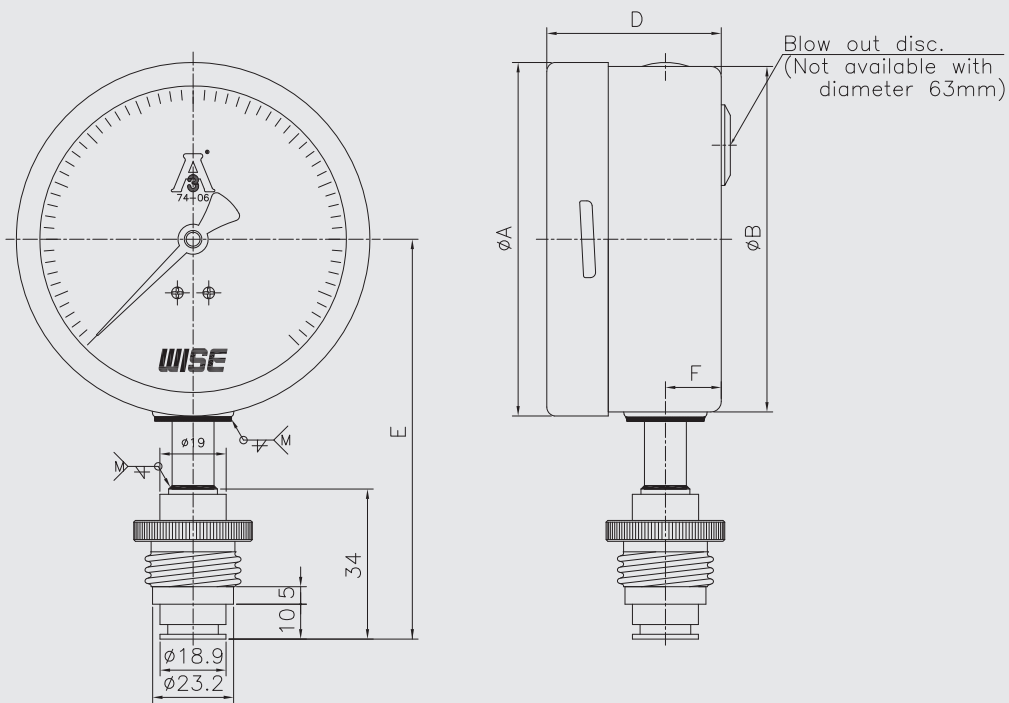
1. Base model**P753S** Sanitary pressure gauge - Male connection (3-A marking)**2. Nominal diameter and mounting type****7A** 63 mm, bottom connection (refer to code A)**8A** 100 mm, bottom connection (refer to code A)**3. Body and process connection material****D** 316SS**4. Process connection****F** DIN Round thread 28-8**5. Unit****H** bar**I** MPa**J** kPa**6. Range****XXX** Refer to pressure range table**7. Diaphragm material****E** 316L SS**8. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8
P753S	8A	D	F	H	XXX	E	0

Sample
ordering code

P753S : Type of mounting

Code A



Dimensions (mm)

Dial size	Available code	A	B	D ± 2	E ± 2	F ± 1
63	A	64	62	34	77.5	11
100	A	101.3	99	50	102.5	16

Range table

Range and code	Unit and code		Pressure connection
	H : bar	I : MPa	$\frac{3}{4}$ "
042	0 ~ 2	0 ~ 0.2	O
044	0 ~ 4	0 ~ 0.4	O
045	0 ~ 6	0 ~ 0.6	O
047	0 ~ 10	0 ~ 1	O
050	0 ~ 15	0 ~ 1.5	O
051	0 ~ 20	0 ~ 2	O
052	0 ~ 25	0 ~ 2.5	O
054	0 ~ 35	0 ~ 3.5	O

O : Available

Flush diaphragm type pressure gauge

Model: P757 series

Spec. sheet no. **PD07-07**

Service intended

P757 series have diaphragm seal to be combined with a pressure gauge. These series are suitable to be used for the situation where corrosive, contaminated, hot, and viscous pressure mediums are present such as a chemical and food process.



Nominal diameter

63, 80 and 100 mm

Accuracy

63 and 80 mm : ± 1.6 % of full scale

100 mm : ± 1.0 % of full scale

Scale range (MPa, kPa, bar)

Refer to pressure unit and range table

Depending on diaphragm size and process conditions

Working pressure

Steady : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : $-20 \sim 65$ °C

Fluid : Max. 100 °C

Temperature effect

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



Standard features

Body

Stainless steel (316SS)

Diaphragm

Stainless steel (316L SS)

Process connection

Stainless steel (316SS)

Screw connection

Certificates

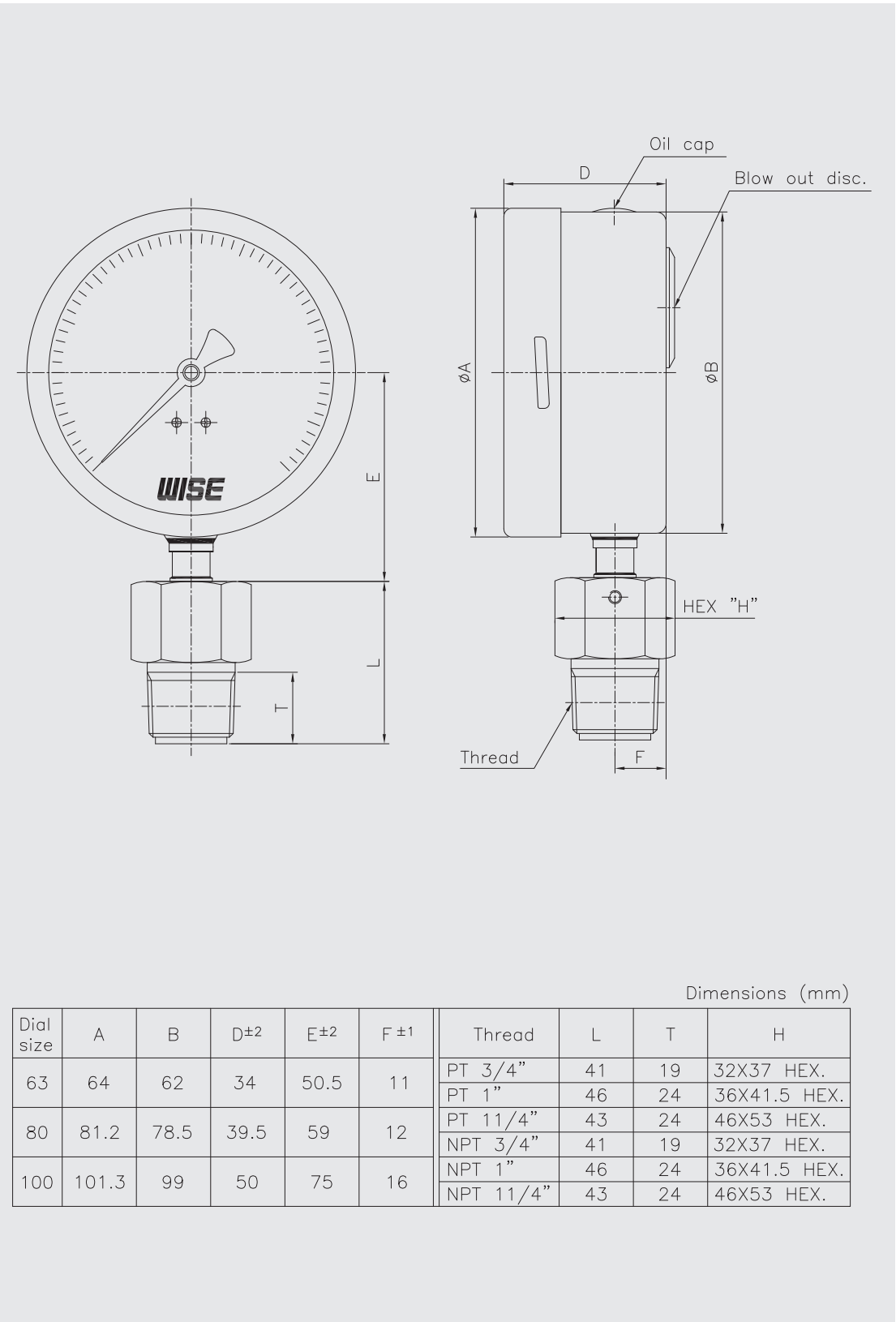
ATEX Ex II GD c IIC TX

1. Base model**P757** Flush diaphragm type pressure gauge**2. Nominal diameter and mounting type****7A** 63 mm, bottom connection**7U** 80 mm, bottom connection**8A** 100 mm, bottom connection**7P** 63 mm, bottom connection (Liquid filling)**8U** 80 mm, bottom connection (Liquid filling)**8P** 100 mm, bottom connection (Liquid filling)**3. Body and process connection material****D** 316SS**4. Process connection****FC** ¾" PT**GC** 1" PT**HC** 1¼" PT**FD** ¾" NPT**GD** 1" NPT**HD** 1¼" NPT**ZZ** Other**5. Unit****H** bar**I** MPa**J** kPa**6. Range****XXX** Refer to pressure range table**7. Diaphragm material****E** 316L SS**Z** Other**8. Option****0** None**1** Accessories

Note 1. . Max temperature and pressure of process medium will be specified on order sheet.

1	2	3	4	5	6	7	8	Sample ordering code
P757	8A	D	FC	H	XXX	E	0	

P757 : Type of mounting



Dimensions (mm)

Dial size	A	B	D±2	E±2	F ±1	Thread	L	T	H
63	64	62	34	50.5	11	PT 3/4"	41	19	32X37 HEX.
						PT 1"	46	24	36X41.5 HEX.
80	81.2	78.5	39.5	59	12	PT 1 1/4"	43	24	46X53 HEX.
						NPT 3/4"	41	19	32X37 HEX.
100	101.3	99	50	75	16	NPT 1"	46	24	36X41.5 HEX.
						NPT 1 1/4"	43	24	46X53 HEX.

Range table

Range and code	Unit and code		Pressure connection		
	H : bar	I : MPa	PT ¾"	PT 1"	PT 1¼"
045	0 ~ 6	0 ~ 0.6	O	O	O
047	0 ~ 10	0 ~ 1	O	O	O
050	0 ~ 15	0 ~ 1.5	O	O	O
143	0 ~ 16	0 ~ 1.6	O	O	O
051	0 ~ 20	0 ~ 2	O	O	O
052	0 ~ 25	0 ~ 2.5	O	O	O
054	0 ~ 35	0 ~ 3.5	O	O	O
151	0 ~ 40	0 ~ 4	O	O	O
055	0 ~ 50	0 ~ 5	O	O	O
056	0 ~ 60	0 ~ 6	O	O	O
057	0 ~ 70	0 ~ 7	O	O	O
058	0 ~ 100	0 ~ 10	O	O	O
059	0 ~ 150	0 ~ 15	O	O	O
060	0 ~ 160	0 ~ 16	O	O	O
062	0 ~ 250	0 ~ 25	O	O	O

O : Available

Pressure gauge with diaphragm seal

Model: P761 (Pressure gauge with inline type diaphragm seal)

P762 (Pressure gauge with extension type diaphragm seal)

P763 (Pressure gauge with pad type diaphragm seal)

Spec. sheet no. PD07-08

Service intended

Pressure gauge with diaphragm seal are suitable for the situation where the process medium would corrode the instrument connection and pressure sensing element. Furthermore, this type of gauge is suitable for corrosive, highly viscous, crystallising or hot pressure media. Additionally, it is recommended to be used where the process medium might freeze or solidify the instrument connection and pressure sensing element due to the ambient or process temperature change and where the process medium requires the flusing from the system to prevent any contamination.

EAC

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

Temperature rating of the diaphragm seals depends on the fill fluid, the diaphragm material and the lower housing material. Standard fill fluids are available for temperature range -20 ~ 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 °C) will be effected by approximately ± 0.5 % per 10 °C of full scale



Model : P761



Model : P762



Model : P763

Standard features

Upper flange (Gauge side)

Stainless steel (304SS, 316SS)

Under flange and process flange

Stainless steel (304SS, 304L SS, 316SS, 316L SS)
Monel, Hastelloy-C, Titanium, Nickel

Diaphragm

316L SS, Monel, Hastelloy-C
Titanium, Tantalum, Nickel, Alloy20

Option

Diaphragm and under flange are available in PTFE coating
Under flange (Process side) are available in purging plug or heating/cooling jacket

Main order

Ordering information

1. Base model

P761 Pressure gauge with inline type diaphragm seal

2. Gauge mounting type

- D** Direct
- R** Remote with capillary tube
- P** Remote with PVC jacketed capillary tube

3. Gauge model

- 8A** P252 100A
- 8B** P252 100B
- 8P** P258 100A (Glycerin filling)
- 8Q** P258 100B (Glycerin filling)
- 8V** P258 100A (Silicone filling)
- 8W** P258 100B (Silicone filling)

4. Upper flange / Diaphragm material

- B** 304SS / 316L SS
- E** 316L SS / 316L SS
- J** 316SS / 316L SS
- K** 316SS / Monel
- L** 316SS / Hastelloy-C
- M** 316L SS / Monel
- N** 316SS / Tantalum
- R** Titanium / Titanium
- S** 316L SS / Tantalum
- X** 316L SS / Hastelloy-C

5. Process connection

XXX Refer to process connection type table

6. Process flange and pipe material

- A** 304SS
- B** 304L SS
- C** 316SS
- D** 316L SS
- E** 316L SS with PTFE coating
- F** 304SS with PTFE coating
- G** 316SS with PTFE coating

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range table

XXX Refer to pressure range table

9. Option

- 0** None (Direct mounting)
- 1** Capillary length 2 meter
- 2** Capillary length 3 meter
- 3** Capillary length 10 meter
- 4** Teflon coating

1	2	3	4	5	6	7	8	9
P761	D	8B	B	XXX	A	I	XXX	1

Sample
ordering code

Main order

Ordering information

1. Base model

P762 Pressure gauge extension diaphragm seal

2. Gauge mounting type

- D** Direct
- R** Remote with capillary tube
- P** Remote with PVC jacketed capillary tube

3. Gauge model

- 8A** P252 100A
- 8B** P252 100B
- 8P** P258 100A (Glycerin filling)
- 8Q** P258 100B (Glycerin filling)
- 8V** P258 100A (Silicone filling)
- 8W** P258 100B (Silicone filling)

4. Flange / Diaphragm material

- B** 304SS / 316L SS
- E** 316L SS / 316L SS
- J** 316SS / 316L SS
- K** 316SS / Monel
- L** 316SS / Hastelloy-C
- M** 316L SS / Monel
- N** 316SS / Tantalum
- R** Titanium / Titanium
- S** 316L SS / Tantalum
- X** 316L SS / Hastelloy-C

5. Process connection

XXX Refer to process connection type table

6. Diaphragm extension length (mm)

- 02** Flat
- 03** 50
- 04** 100
- 05** 150
- 06** 200
- 07** 250
- 08** 300
- ZZ** Other

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range table

XXX Refer to pressure range table

9. Option

- 0** None (Direct mounting)
- 1** Capillary length 2 meter
- 2** Capillary length 3 meter
- 3** Capillary length 10 meter
- 4** Teflon coating

1	2	3	4	5	6	7	8	9
P762	D	8B	B	XXX	03	H	XXX	0

Sample
ordering code

WISE®

Main order

Ordering information

1. Base model

P763 Pressure gauge with pad type diaphragm seal

2. Gauge mounting type

- D** Direct
- R** Remote with capillary tube
- P** Remote with PVC jacketed capillary tube

3. Gauge model

- 8A** P252 100A
- 8B** P252 100B
- 8P** P258 100A (Glycerin filling)
- 8Q** P258 100B (Glycerin filling)
- 8V** P258 100A (Silicone filling)
- 8W** P258 100B (Silicone filling)

4. Upper flange / Diaphragm material

- B** 304SS / 316L SS
- E** 316L SS / 316L SS
- J** 316SS / 316L SS
- K** 316SS / Monel
- L** 316SS / Hastelloy-C
- M** 316L SS / Monel
- N** 316SS / Tantalum
- R** Titanium / Titanium
- S** 316L SS / Tantalum
- X** 316L SS / Hastelloy-C

5. Retainer flange and pipe size (inch)

- 02** 2
- 03** 3
- 04** 4
- 05** 5
- 06** 6
- 07** 8
- 08** 10
- ZZ** Other

6. Process flange and pipe material

- BX** 304SS
- DX** 304L SS
- CX** 316SS
- EX** 316L SS
- LX** Monel
- KX** Hastelloy-C
- MX** Titanium
- 51** 316L SS with PTFE coating
- RX** 304SS with PTFE coating
- SX** 316SS with PTFE coating

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range table

XXX Refer to pressure range table

9. Option

- 0** None (Direct mounting)
- 1** Capillary length 2 meter
- 2** Capillary length 3 meter
- 3** Capillary length 10 meter
- 4** Teflon coating

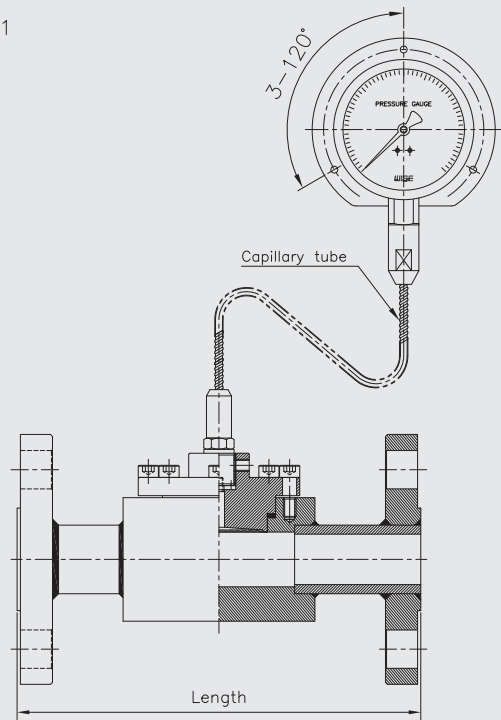
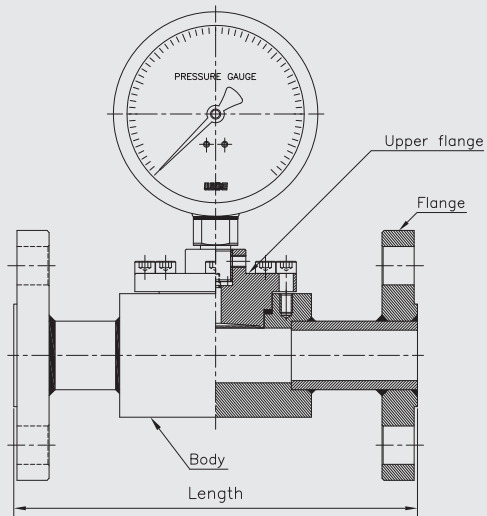
1	2	3	4	5	6	7	8	9
P763	D	8B	B	03	BX	H	XXX	0

Sample
ordering code

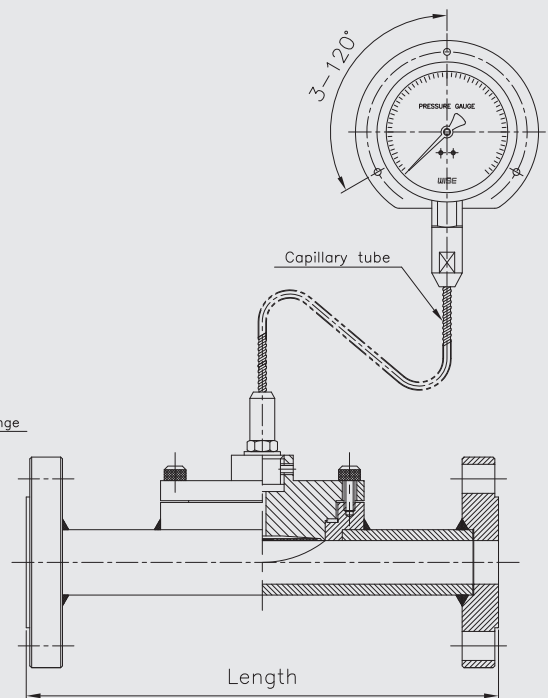
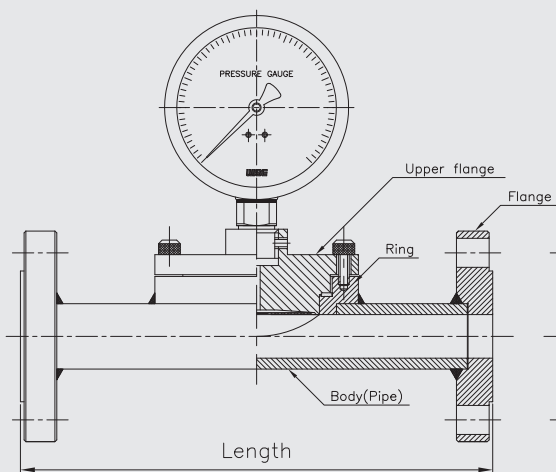
P761 : Type of mounting (1/2)

Code P761

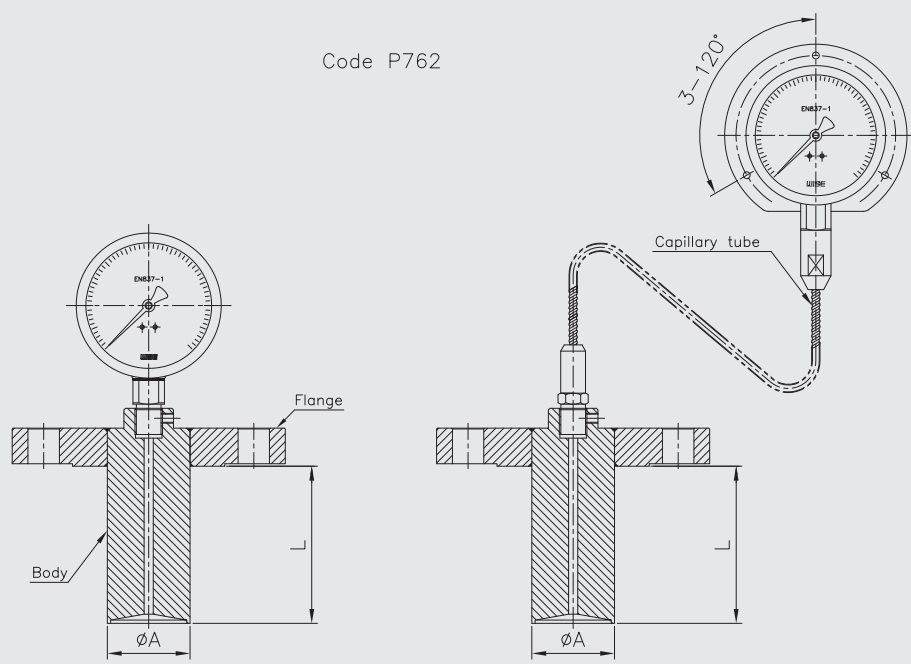
Pipe size : $\leq 1''$



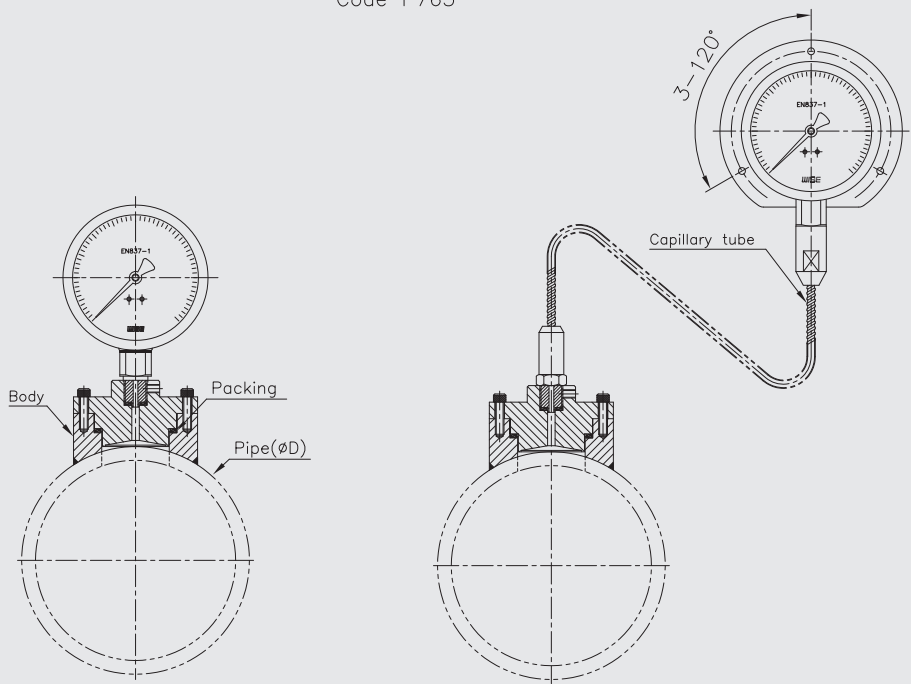
Pipe size : $> 1''$



Code P762



Code P763



Process connection type table (For P761 model)

Code	9 th character	10 th , 11 th character	
	Connection size	Code	Flange rating
D	3/8" (10A)	KA	JIS 5K RF
E	1/2" (15A)	AC	B16.5 Class 150 RF
F	3/4" (20A)	AE	B16.5 Class 150 FF
G	1" (25A)	AD	B16.5 Class 150 RFSF
H	1 1/4" (32A)	AF	B16.5 Class 300 RF
J	1 1/2" (40A)	AH	B16.5 Class 300 FF
K	2" (50A)	AG	B16.5 Class 300 RFSF
L	2 1/2" (65A)	AJ	B16.5 Class 600 RF
M	3" (80A)	KT	JIS 5K FF
N	4" (100A)	AL	B16.5 Class 600 FF
Z	Other	AK	B16.5 Class 600 RFSF
		KL	JIS 10K RF
		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

Process connection type table (For P762 model)

9 th character		10 th , 11 th character	
Code	Connection size	Code	Flange rating
G	1" (25A)	AC	B16.5 Class 150 RF
H	1¼" (32A)	AE	B16.5 Class 150 FF
J	1½" (40A)	AD	B16.5 Class 150 RFSF
K	2" (50A)	AF	B16.5 Class 300 RF
L	2½" (65A)	AH	B16.5 Class 300 FF
M	3" (80A)	AG	B16.5 Class 300 RFSF
N	4" (100A)	AJ	B16.5 Class 600 RF
Z	Other	AL	B16.5 Class 600 FF
		AK	B16.5 Class 600 RFSF
		KL	JIS 10K RF
		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

Diaphragm pressure gauge with dry type

Model: P770 series

Spec. sheet no. PD07-09

Service intended

P770 series are equipped with the specially designed dry type diaphragm. This special diaphragm offers a unique capability to use with all types of liquids, high-viscosity fluids, solids, and even corrosive chemicals. P770 is a perfect solution for a wide range of process industry such as Petro-chemical, environmental technology, offshore, mechanical engineering, power stations, and plant construction.



Nominal diameter

100 and 160 mm

Accuracy

±1.6% of full scale

Scale range

0 ~ 1 kPa to 0 ~ 40 kPa (Flange 150 mm)

0 ~ 50 kPa to 0 ~ 2.5 MPa (Flange 100 mm)

Working pressure

Steady : Full scale value

Fluctuating : 90 % of full scale value

Over range protection

Overpressure safety 130 % of full scale value

Overpressure safety 500 % of full scale value, Max. 5 MPa (Option)

Option : Overpressure safety 500 % of full scale value, Max. 5 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.8 % per 10 °C of full scale



Model : P771

Model : P772

Standard features

Upper flange (Gauge side)

Material : Stainless steel (304SS, 316SS)

Window

Safety glass

Diaphragm material

≤ 40 kPa : Stainless steel (316Ti SS)

> 40 kPa : Duratherm 600

Movement

Stainless steel

Pressure connection and under flange

Material : Stainless steel

(316SS, 316L SS, 304SS, 304L SS) and others

Lower screw and flange mount

Dial

White aluminium with black graduations

Pointer

Black painted aluminium alloy

Case

Stainless steel (304SS)

Option

External zero adjustable

Cover

Stainless steel (304SS)

Bayonet type

Certificates

ATEX Ex II GD c IIC TX

WISE[®]

1. Base model

- P771** Screwed process connection
diaphragm pressure gauge with dry type
- P772** "I" type flange process connection
diaphragm pressure gauge with dry type

2. Gauge model and mounting type

- 8A** P252 100A
- XA** P252 160A

3. Process connection

- XXX** Refer to process connection type table

4. Under flange material (Wetted parts)

- BX** 304SS
- CX** 316SS
- EX** 316L SS

5. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

6. Range

- XXX** Refer to pressure range table

7. Over range protection

- 0** Overpressure safety 130 % of full scale value
- 1** Overpressure safety 500 % of full scale value, Max. 5 MPa

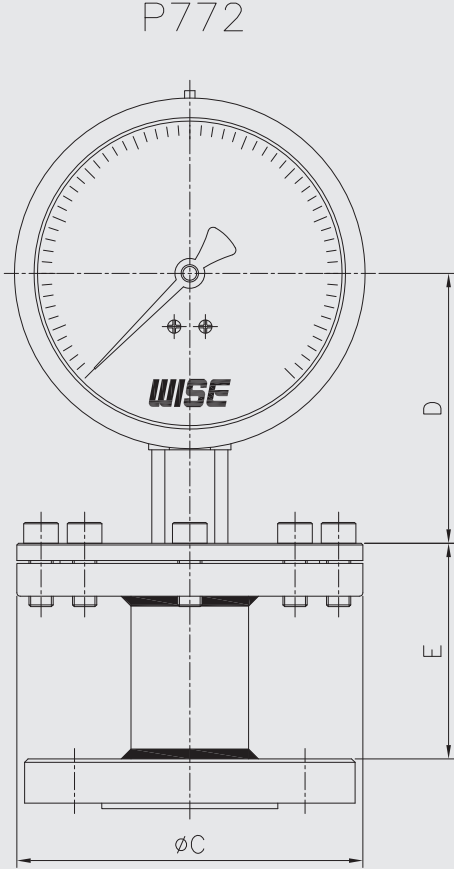
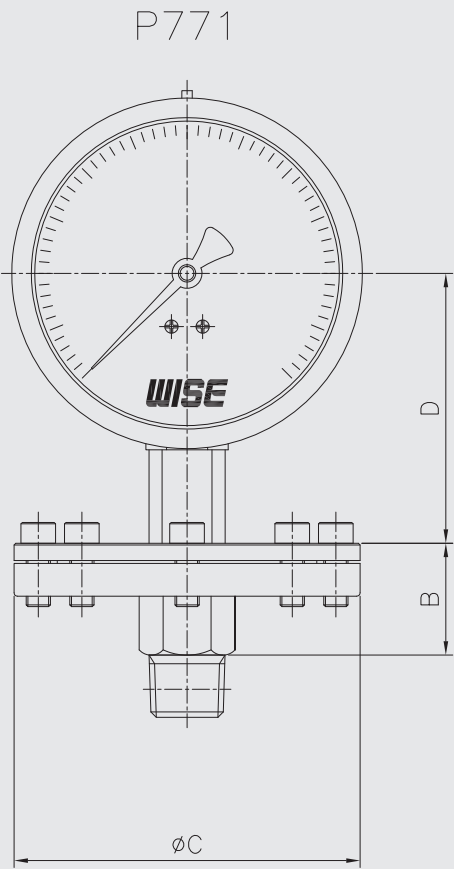
8. Option

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8
P771	8A	XXX	BX	H	XXX	0	0

Sample
ordering code

P77X : Type of mounting



Dial size	Pressure range	Dimensions (mm)			
		B	C	D±2	E
100	≤ 40KPa	33	150	78	66
100	> 40KPa < 1.6MPa	32	100	78	66
100	≥ 1.6MPa	43.5	100	78	77.5
160	≤ 40KPa	33	150	108	66
160	> 40KPa < 1.6MPa	32	100	108	66
160	≥ 1.6MPa	43.5	100	78	77.5

Range table

Range and code	Unit and code				Diaphragm material
	J : kPa	s : mbar	H : bar	I : MPa	
406	-4 ~ 0	-40 ~ 0	X	X	316Ti (130Ø)
404	-6 ~ 0	-60 ~ 0	X	X	
403	-10 ~ 0	-100 ~ 0	X	X	
501	-16 ~ 0	-160 ~ 0	X	X	
401	-20 ~ 0	-200 ~ 0	X	X	
502	-25 ~ 0	-250 ~ 0	X	X	
104	-40 ~ 0	-400 ~ 0	-0.4 ~ 0	X	
419	-2 ~ 2	-20 ~ 20	X	X	
417	-3 ~ 3	-30 ~ 30	X	X	
413	-5 ~ 5	-50 ~ 50	X	X	
581	-5 ~ 10	-50 ~ 100	X	X	
470	-10 ~ 10	-100 ~ 100	X	X	
604	-10 ~ 15	-100 ~ 150	X	X	
206	-20 ~ 20	-200 ~ 200	-0.2 ~ 0.2	X	
826	0 ~ 4	0 ~ 40	X	X	
830	0 ~ 6	0 ~ 60	X	X	
792	0 ~ 10	0 ~ 100	X	X	
810	0 ~ 16	0 ~ 160	X	X	
793	0 ~ 20	0 ~ 200	X	X	
818	0 ~ 25	0 ~ 250	X	X	
130	0 ~ 40	0 ~ 400	0 ~ 0.4	X	
040	0 ~ 50	0 ~ 500	0 ~ 0.5	X	Duratherm 600 (75Ø)
131	0 ~ 60	0 ~ 600	0 ~ 0.6	X	
041	0 ~ 100	0 ~ 1,000	0 ~ 1	0 ~ 0.1	
042	X	X	0 ~ 2	0 ~ 0.2	
134	X	X	0 ~ 2.5	0 ~ 0.25	
045	X	X	0 ~ 6	0 ~ 0.6	
143	X	X	0 ~ 16	0 ~ 1.6	
052	X	X	0 ~ 25	0 ~ 2.5	

X : Not available

Process connection type table - 7th and 8th characters

7 th character		8 th character			
Code	Connection size	For model P771		For model P772	
		Code	Connection type	Code	Flange rating
C *	1/4"	PF	PF	KA	JIS 5K RF
D *	3/8" (10A)	AB	PT	AC	B16.5 Class 150 RF
E	1/2" (15A)	AA	NPT	AE	B16.5 Class 150 FF
F	3/4" (20A)	FF	BSPT	AD	B16.5 Class 150 RFSF
G	1" (25A)	GG	BSPF	AF	B16.5 Class 300 RF
H	1 1/4" (32A)	HH	NPS	AH	B16.5 Class 300 FF
J	1 1/2" (40A)	JJ	M	AG	B16.5 Class 300 RFSF
K	2" (50A)	Z	Other	AJ	B16.5 Class 600 RF
L	2 1/2" (65A)			KT	JIS 5K FF
M	3" (80A)			AL	B16.5 Class 600 FF
N	4" (100A)			AK	B16.5 Class 600 RFSF
Z	Other			KL	JIS 10K RF
				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
				ZZ	Other

* Code C and D, only available with model P771

Ultra high purity pressure gauge (EP grade)

Model: P810 series (316L type)

Spec. sheet no. PD08-01

Service intended

P810 series are specially designed for the ultra-high purity gas distribution system used in a semiconductor, electronic, medical, biotechnology, and pharmaceutical industry.



Nominal diameter

35 (1½"), 50 (2") and 63 mm (2½")

Accuracy

Grade A : 50 (2") and 63 mm (2½")

Grade B : 35 (1½"), 50 (2") and 63 mm (2½")

Scale range

-0.1 ~ 0 to 0 ~ 28 MPa

Working pressure

Steady pressure : 75 % of full scale value

Fluctuating pressure : 67 % of full scale value

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Type 316L SS electropolished
low mount or center back mount

surface finish Ra≤0.25 μm

■ ¼" NPT male thread

■ VCR® male or female face seal fitting

Element

Type 316L SS

<6 MPa : C-type bourdon tube

≥6 MPa : Helical type bourdon tube

Case

Type 304SS, Electropolished with pressure relief

Cover and window

Twist-lock polycarbonate

Movement

Stainless steel

Dial

White aluminium with pointer stop pin

With black/red lettering, Dual pressure scale (bar/psi)

Pointer

Black painted aluminium alloy

Helium leak rate

Tested to confirm leakage rates of less than
10⁻⁹ mbar • ℓ /sec

Option

100 mm : P252 dimension

Certificates

ATEX Ex II GD c IIC TX

WISE®

1. Base model**P810** Ultra high purity gauge (316L type)**2. Nominal diameter and mounting type**

- M** 35 mm (1½"), only available to center back mount
- 1** 50 mm (2")
- 2** 63 mm (2½")

3. Type of mounting

- A** Low mount (LM)
- F** Center back mount (CBM)
- I** Center back connection, flush, case center mounting plate with bracket, only available with diameter 50 mm

4. Accuracy

- 3** Grade A
- 4** Grade B

5. Connection type

- CD** ¼" NPT (Male)
- SF** Swivel female face seal
- SM** Swivel male face seal
- TW** Tube welding

6. Unit

- H** bar
- I** MPa

7. Range**XXX** Refer to pressure range table**8. Pressure connection material and dial color**

- 4** 316L SS and 2 colors
- 8** 316L SS and 3 colors

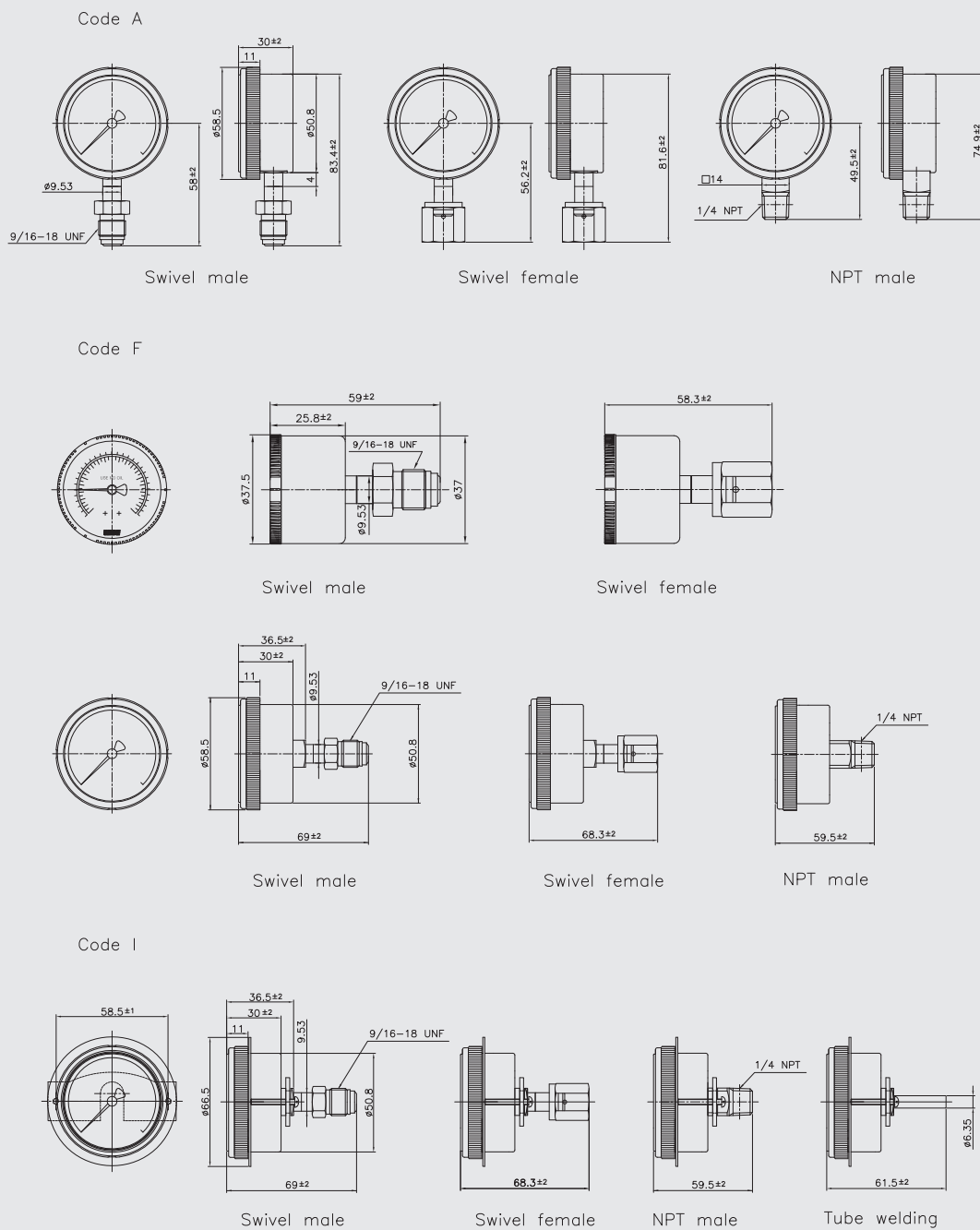
9. Option

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9
P810	M	A	3	CD	H	XXX	4	0

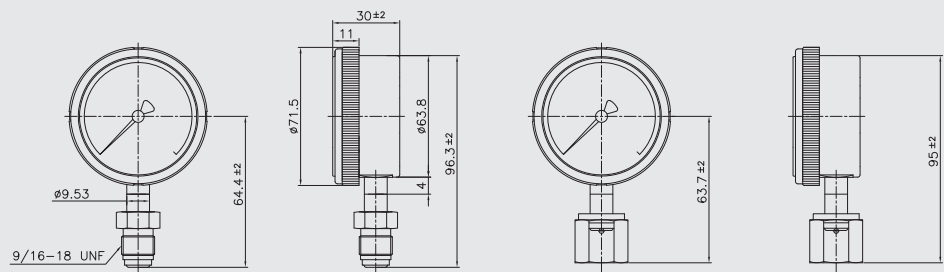
Sample
ordering code

P810 : Type of mounting (1/2)



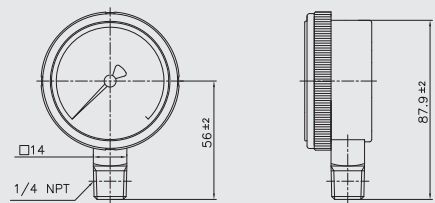
P810 : Type of mounting (2/2)

Code A



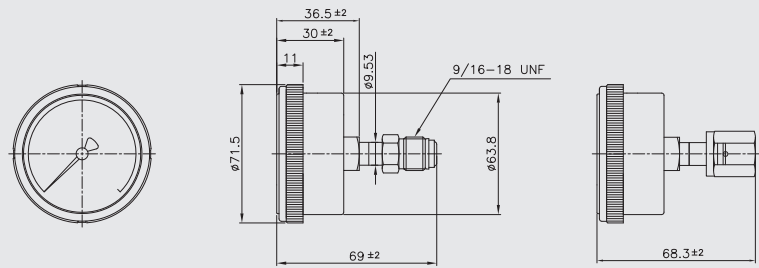
Swivel male

Swivel female



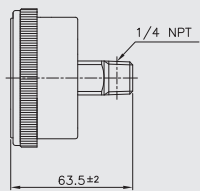
NPT male

Code F



Swivel male

Swivel female



NPT male

Range table

Range and code	Unit and code		Nominal diameter		
	H : bar	I : MPa	35 mm	50 mm	63 mm
026	-1 ~ 0	-0.1 ~ 0	X	X	O
041	0 ~ 1	0 ~ 0.1	X	X	O
133	0 ~ 1.6	0 ~ 0.16	X	X	O
042	0 ~ 2	0 ~ 0.2	O	O	O
134	0 ~ 2.5	0 ~ 0.25	X	X	O
043	0 ~ 3	0 ~ 0.3	X	O	O
044	0 ~ 4	0 ~ 0.4	O	O	O
045	0 ~ 6	0 ~ 0.6	O	O	O
047	0 ~ 10	0 ~ 1	O	O	O
050	0 ~ 15	0 ~ 1.5	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	O	O	O
054	0 ~ 35	0 ~ 3.5	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	X	O	O
127	-1 ~ 1.6	-0.1 ~ 0.16	X	X	O
028	-1 ~ 2	-0.1 ~ 0.2	X	O	O
029	-1 ~ 3	-0.1 ~ 0.3	X	O	O
030	-1 ~ 4	-0.1 ~ 0.4	X	O	O
010	-1 ~ 5	-0.1 ~ 0.5	X	O	O
031	-1 ~ 6	-0.1 ~ 0.6	X	O	O
014	-1 ~ 9	-0.1 ~ 0.9	X	O	O
032	-1 ~ 10	-0.1 ~ 1	X	O	O
033	-1 ~ 15	-0.1 ~ 1.5	X	O	O
034	-1 ~ 20	-0.1 ~ 2	X	O	O
035	-1 ~ 25	-0.1 ~ 2.5	X	X	O

O : Available X : Not available

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Ultra high purity pressure gauge (EP grade)

Model: P820 series (316L type double melt)

Spec. sheet no. PD08-02

Service intended

P820 series are specially designed for the ultra-high purity gas distribution system used in a semiconductor, electronic, medical, biotechnology and pharmaceutical industry.



Nominal diameter

50 (2") and 63 mm (2½")

Accuracy

Grade A (ASME B40.1) : 50 (2") and 63 mm (2½")

Grade B (ASME B40.1) : 50 (2") and 63 mm (2½")

Scale range

-0.1 ~ 0 to 0 ~ 28 MPa

Working pressure

Steady pressure : 75 % of full scale value

Fluctuating pressure : 67 % of full scale value

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Type 316L SS double melt electropolished
low mount or center back mount

surface finish $Ra \leq 0.25 \mu m$

■ ¼" NPT male thread

■ VCR® male or female face seal fitting

Movement

Stainless steel

Dial

White aluminium with pointer stop pin

With black/red lettering, dual pressure scale (bar/psi)

Element

Type 316L SS

<6 MPa : C-type bourdon tube

≥6 MPa : Helical type bourdon tube

Pointer

Black painted aluminium alloy

Case

Type 304SS, Electropolished with pressure relief

Helium leak rate

Tested to confirm leakage rates of less than
 10^{-9} mbar • ℓ /sec

Cover and window

Twist-lock polycarbonate

Certificates

ATEX Ex II GD c IIC TX

WISE®

1. Base model**P820** Ultra high purity gauge (316L type double melt)**2. Nominal diameter**

- 1** 50 mm (2")
2 63 mm (2½")

3. Type of mounting

- A** Low mount (LM)
F Center back mount (CBM)
I Center back connection, flush, case center mounting plate with bracket, only available with diameter 50 mm

4. Accuracy

- 3**
- Grade A

5. Connection type

- CD** ¼" NPT (Male)
SF Swivel female face seal
SM Swivel male face seal
TW Tube welding

6. Unit

- H** bar
I MPa

7. Range**XXX** Refer to pressure range table**8. Pressure connection material and dials color**

- 4** 316L SS and 2 colors
8 316L SS and 3 colors

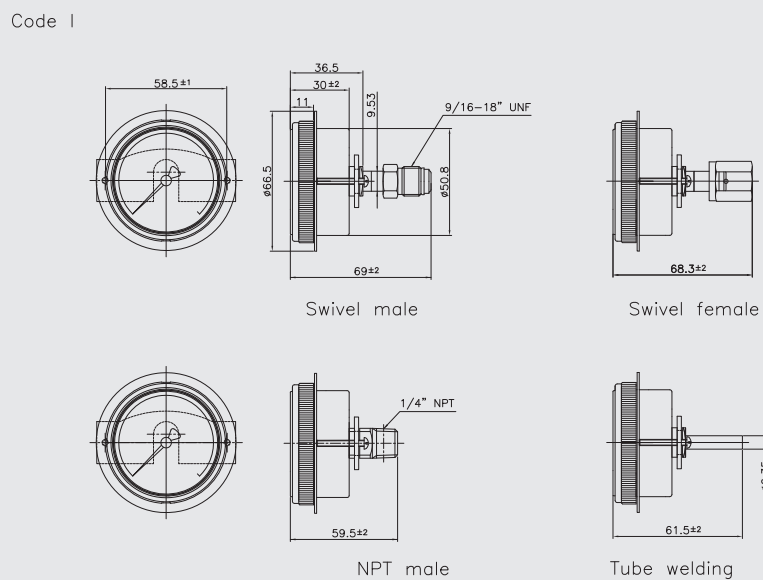
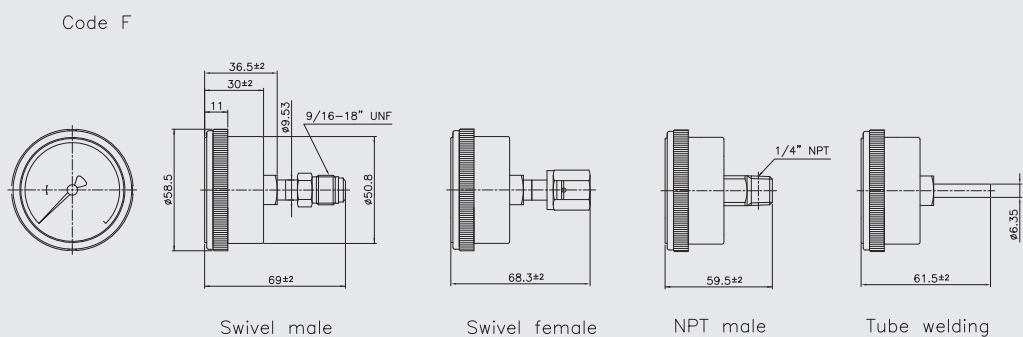
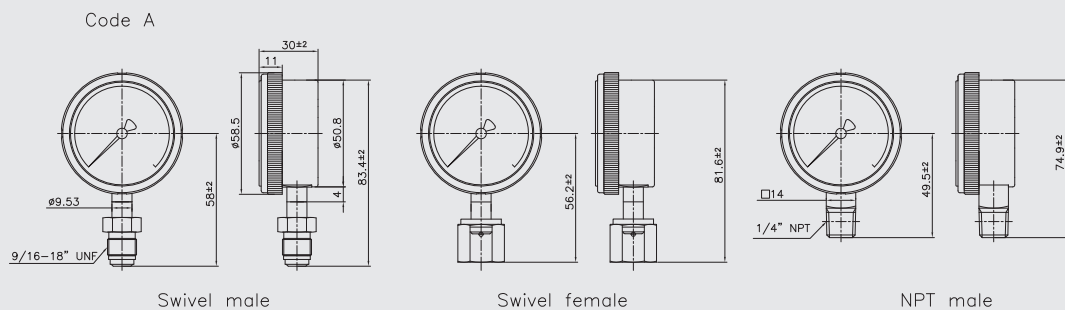
9. Options

- 0** None
1 Accessories

1	2	3	4	5	6	7	8	9
P820	1	A	3	CD	H	XXX	4	0

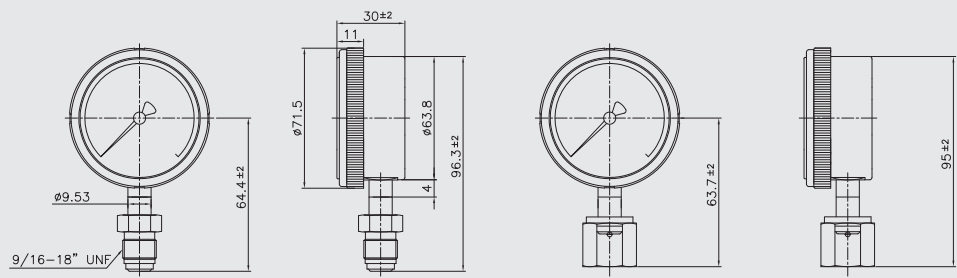
Sample
ordering code

P820 : Type of mounting (1/2)



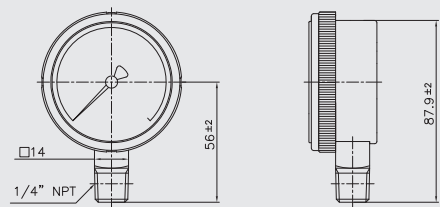
P820 : Type of mounting (2/2)

Code A



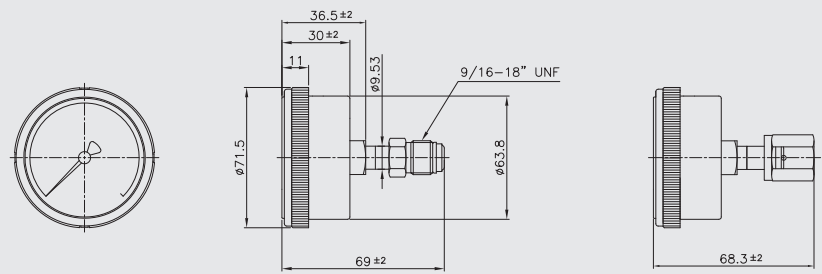
Swivel male

Swivel female



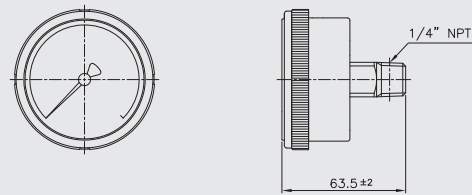
NPT male

Code F



Swivel male

Swivel female



NPT male

Range table

Range and code	Unit and code		Nominal diameter	
	H : bar	I : MPa	50 mm	63 mm
026	-1 ~ 0	-0.1 ~ 0	X	O
041	0 ~ 1	0 ~ 0.1	X	O
133	0 ~ 1.6	0 ~ 0.16	X	O
042	0 ~ 2	0 ~ 0.2	O	O
134	0 ~ 2.5	0 ~ 0.25	X	O
043	0 ~ 3	0 ~ 0.3	O	O
044	0 ~ 4	0 ~ 0.4	O	O
045	0 ~ 6	0 ~ 0.6	O	O
047	0 ~ 10	0 ~ 1	O	O
050	0 ~ 15	0 ~ 1.5	O	O
143	0 ~ 16	0 ~ 1.6	O	O
051	0 ~ 20	0 ~ 2	O	O
052	0 ~ 25	0 ~ 2.5	O	O
054	0 ~ 35	0 ~ 3.5	O	O
151	0 ~ 40	0 ~ 4	O	O
055	0 ~ 50	0 ~ 5	O	O
056	0 ~ 60	0 ~ 6	O	O
057	0 ~ 70	0 ~ 7	O	O
058	0 ~ 100	0 ~ 10	O	O
059	0 ~ 150	0 ~ 15	O	O
060	0 ~ 160	0 ~ 16	O	O
062	0 ~ 250	0 ~ 25	O	O
027	-1 ~ 1	-0.1 ~ 0.1	O	O
127	-1 ~ 1.6	-0.1 ~ 0.16	X	O
028	-1 ~ 2	-0.1 ~ 0.2	O	O
029	-1 ~ 3	-0.1 ~ 0.3	O	O
030	-1 ~ 4	-0.1 ~ 0.4	O	O
010	-1 ~ 5	-0.1 ~ 0.5	O	O
031	-1 ~ 6	-0.1 ~ 0.6	O	O
014	-1 ~ 9	-0.1 ~ 0.9	O	O
032	-1 ~ 10	-0.1 ~ 1	O	O
033	-1 ~ 15	-0.1 ~ 1.5	O	O
034	-1 ~ 20	-0.1 ~ 2	O	O
035	-1 ~ 25	-0.1 ~ 2.5	X	O

O : Available X : Not available

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

High purity pressure gauge (BA grade)

Model: P830 series (316L type)

Spec. sheet no. **PD08-03**

Service intended

P830 series are specially designed for the high purity gas distribution system used in a semiconductor, electronic, medical, biotechnology and pharmaceutical industry.



Nominal diameter

35 (1½"), 50 (2") and 63 mm (2½")

Accuracy

Grade A : 50 (2") and 63 mm (2½")

Grade B : 35 (1½"), 50 (2") and 63 mm (2½")

Scale range

-0.1 ~ 0 to 0 ~ 28 MPa

Working pressure

Steady pressure : 75 % of full scale value

Fluctuating pressure : 67 % of full scale value

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Pressure connection

Type 316L SS

low mount or center back mount

BA grade of surface finish

■ ¼" NPT male thread

■ VCR® male or female face seal fitting

Element

Type 316L SS

<6 MPa : C-type bourdon tube

≥6 MPa : Helical type bourdon tube

Case

Type 304SS, Electropolished with pressure relief

Cover and window

Twist-lock polycarbonate

Movement

Stainless steel

Dial

White aluminium with pointer stop pin

With black/red lettering, Dual pressure scale (bar/psi)

Pointer

Black painted aluminium alloy

Helium leak rate

Tested to confirm leakage rates of less than

10⁻⁹ mbar • ℓ /sec

Option

100 mm : P252 dimension

Certificates

ATEX Ex II GD c IIC TX

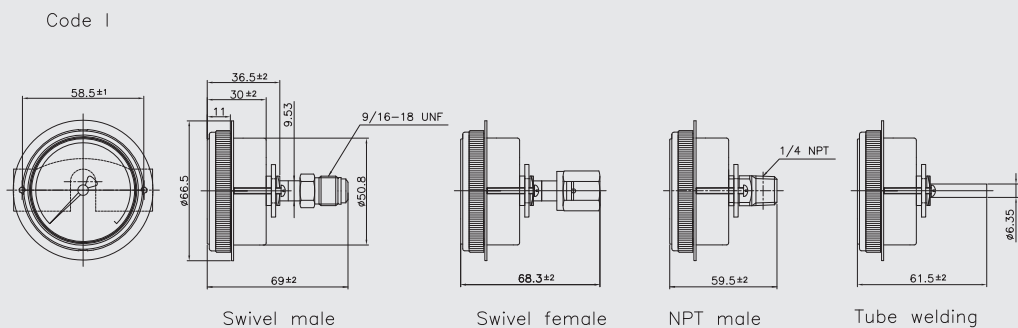
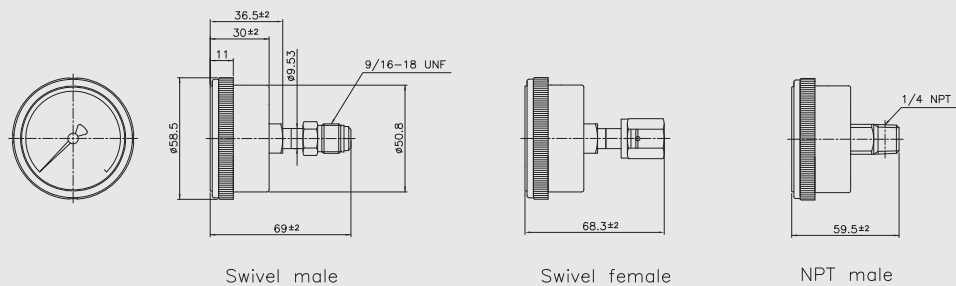
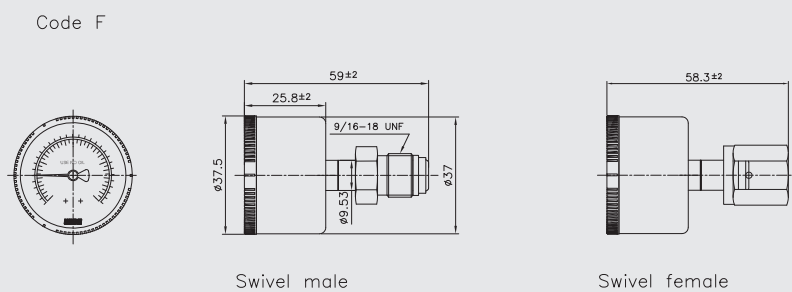
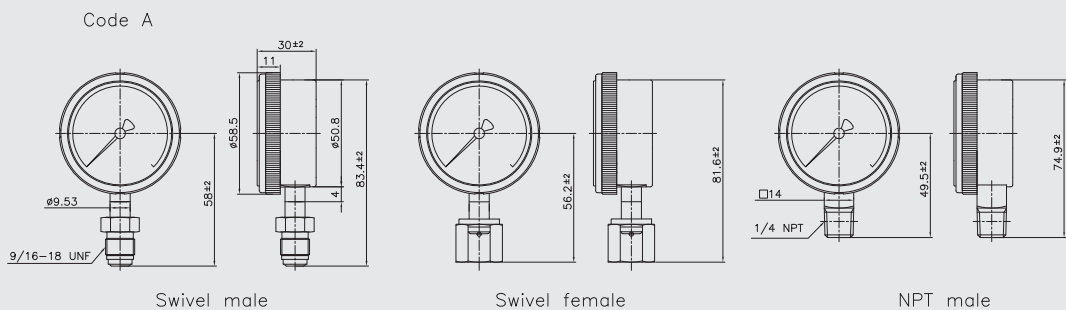
WISE®

1. Base model**P830** High purity gauge (316L type)**2. Nominal diameter****M** 35 mm (1½"), only available to center back mount**1** 50 mm (2")**2** 63 mm (2½")**3. Type of mounting****A** Low mount (LM)**F** Center back mount (CBM)**I** Center back connection, flush, case center mounting plate with bracket, only available with diameter 50 mm**4. Accuracy****3** Grade A**4** Grade B**5. Connection type****CD** ¼" NPT (Male)**SF** Swivel female face seal**SM** Swivel male face seal**TF** Tube fitting**TW** Tube welding**6. Unit****H** bar**I** MPa**7. Range****XXX** Refer to pressure range table**8. Pressure connection material and dial color****4** 316L SS and 2 colors**8** 316L SS and 3 colors**9. Options****0** None**1** Accessories

1	2	3	4	5	6	7	8	9
P830	1	A	3	CD	H	XXX	4	0

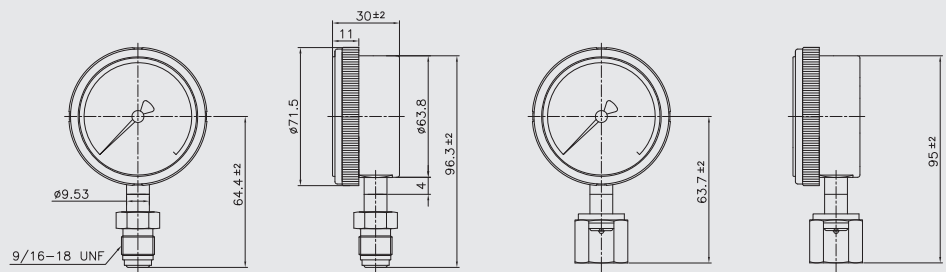
Sample
ordering code

P830 : Type of mounting (1/2)



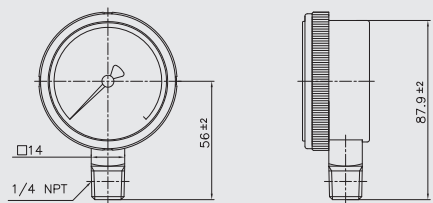
P830 : Type of mounting (2/2)

Code A



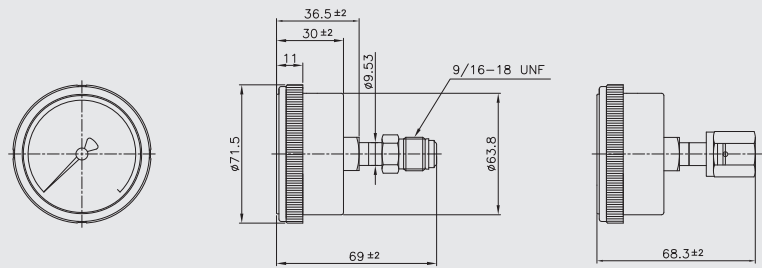
Swivel male

Swivel female



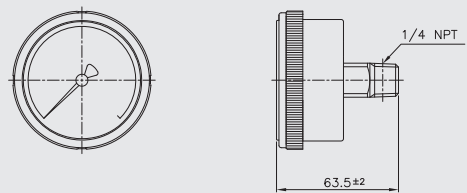
NPT male

Code F



Swivel male

Swivel female



NPT male

Range table

Range and code	Unit and code		Nominal diameter		
	H : bar	I : MPa	35 mm	50 mm	63 mm
026	-1 ~ 0	-0.1 ~ 0	X	X	O
041	0 ~ 1	0 ~ 0.1	X	X	O
133	0 ~ 1.6	0 ~ 0.16	X	X	O
042	0 ~ 2	0 ~ 0.2	O	O	O
134	0 ~ 2.5	0 ~ 0.25	X	X	O
043	0 ~ 3	0 ~ 0.3	X	O	O
044	0 ~ 4	0 ~ 0.4	O	O	O
045	0 ~ 6	0 ~ 0.6	O	O	O
047	0 ~ 10	0 ~ 1	O	O	O
050	0 ~ 15	0 ~ 1.5	O	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	O	O	O
054	0 ~ 35	0 ~ 3.5	O	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	X	O	O
127	-1 ~ 1.6	-0.1 ~ 0.16	X	X	O
028	-1 ~ 2	-0.1 ~ 0.2	X	O	O
029	-1 ~ 3	-0.1 ~ 0.3	X	O	O
030	-1 ~ 4	-0.1 ~ 0.4	X	O	O
010	-1 ~ 5	-0.1 ~ 0.5	X	O	O
031	-1 ~ 6	-0.1 ~ 0.6	X	O	O
014	-1 ~ 9	-0.1 ~ 0.9	X	O	O
032	-1 ~ 10	-0.1 ~ 1	X	O	O
033	-1 ~ 15	-0.1 ~ 1.5	X	O	O
034	-1 ~ 20	-0.1 ~ 2	X	O	O
035	-1 ~ 25	-0.1 ~ 2.5	X	X	O

O : Available X : Not available

Ultra high purity pressure switch

Model: P840 series (316L type)

Spec. sheet no. **PD08-04**

Service intended

P840 series are specially designed for the ultra-high purity gas distribution system used in a semiconductor, electronic, medical, biotechnology and pharmaceutical industry.

EAC

Nominal diameter

50 mm (2")

Switch point accuracy

±2.0 % of full scale

Scale range

0 ~ 28 MPa

Working pressure

Steady pressure : 75 % of full scale value

Fluctuating pressure : 67 % of full scale value

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.4 % per 10 °C of full scale



Standard features

Mechanical

Pressure connection

Type 316L SS electropolished
low mount or center back mount
surface finish Ra≤0.25 μm

■ 1/4" NPT male thread

■ VCR® male or female face seal fitting

Element

Type 316L SS

<6 MPa : C-type bourdon tube

≥6 MPa : Helical type bourdon tube

Case

Type 304SS, Electropolished with pressure relief

Cover and window

Twist-lock polycarbonate

Movement

Stainless steel

Pointer

Black painted aluminium alloy

Dial

White PVC, with pointer stop pin

With black/red lettering, dual pressure scale (bar)

Helium leak rate

Tested to confirm leakage rates of less than

10⁻⁹ mbar • ℓ /sec

Electrical

Connection

26 AWG, PVC

6 feet (2 m)

Maximum switching current

0.5 amps AC/DC noninductive load

Maximum power

10 W/DC, 12 VA/AC

Maximum switching voltage

28 V AC/DC

WISE®

1. Base model

- P841** Ultra high purity pressure switch - single (High alarm)
P842 Ultra high purity pressure switch - single (High and low alarm)
P843 Ultra high purity pressure switch - single (Low alarm)

2. Nominal diameter

- 1** 50 mm (2")

3. Type of mounting

- A** Low mount (LM)
F Center back mount (CBM)

4. Accuracy

- 5** ± 2.0 % of full scale

5. Connection type

- CD** 1/4" NPT (Male)
SF Swivel female face seal
SM Swivel male face seal

6. Unit

- H** bar
I MPa

7. Range

- XXX** Refer to pressure range table

8. Pressure connection material and dial color

- 4** 316L SS and 2 colors
8 316L SS and 3 colors

9. Option

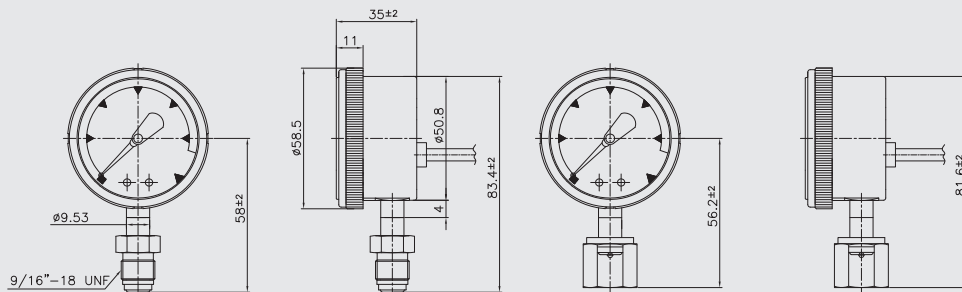
- 0** None
1 Accessories

1	2	3	4	5	6	7	8	9
P841	1	A	5	CD	H	XXX	4	0

Sample
ordering code

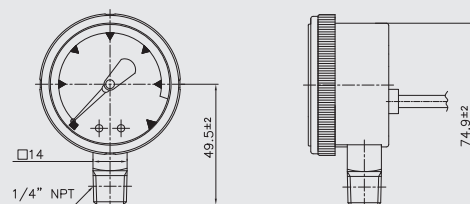
P84X : Type of mounting

Code A



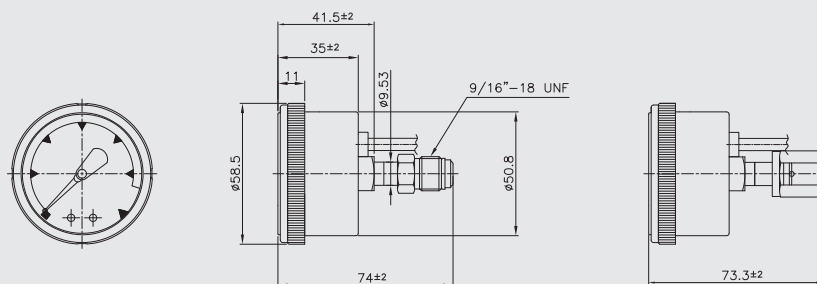
Swivel male

Swivel female



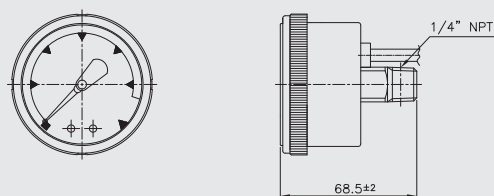
NPT male

Code F



Swivel male

Swivel female



NPT male

Range table

Range and code	Unit and code		Nominal diameter
	H : bar	I : MPa	50 mm
026	-1 ~ 0	-0.1 ~ 0	X
041	0 ~ 1	0 ~ 0.1	X
133	0 ~ 1.6	0 ~ 0.16	X
042	0 ~ 2	0 ~ 0.2	O
134	0 ~ 2.5	0 ~ 0.25	X
043	0 ~ 3	0 ~ 0.3	O
044	0 ~ 4	0 ~ 0.4	O
045	0 ~ 6	0 ~ 0.6	O
047	0 ~ 10	0 ~ 1	O
050	0 ~ 15	0 ~ 1.5	O
143	0 ~ 16	0 ~ 1.6	O
051	0 ~ 20	0 ~ 2	O
052	0 ~ 25	0 ~ 2.5	O
054	0 ~ 35	0 ~ 3.5	O
151	0 ~ 40	0 ~ 4	O
055	0 ~ 50	0 ~ 5	O
056	0 ~ 60	0 ~ 6	O
057	0 ~ 70	0 ~ 7	O
058	0 ~ 100	0 ~ 10	O
059	0 ~ 150	0 ~ 15	O
060	0 ~ 160	0 ~ 16	O
062	0 ~ 250	0 ~ 25	O
027	-1 ~ 1	-0.1 ~ 0.1	O
028	-1 ~ 2	-0.1 ~ 0.2	O
029	-1 ~ 3	-0.1 ~ 0.3	O
030	-1 ~ 4	-0.1 ~ 0.4	O
010	-1 ~ 5	-0.1 ~ 0.5	O
031	-1 ~ 6	-0.1 ~ 0.6	O
014	-1 ~ 9	-0.1 ~ 0.9	O
032	-1 ~ 10	-0.1 ~ 1	O
033	-1 ~ 15	-0.1 ~ 1.5	O
034	-1 ~ 20	-0.1 ~ 2	O
035	-1 ~ 25	-0.1 ~ 2.5	X

O : Available X : Not available

Anti-corrosion pressure gauge

Model: P870 series

Spec. sheet no. PD08-07

Service intended

P870 series provide a superior chemical resistant and non-viscous pressure gauge which employs fluorine resin for the wetted parts. It can be used with highly corrosive fluids. The case material is PP resin and resistance to corrosive environments.

EAC

Nominal diameter

50 mm

Accuracy

±1.5 % of full scale (Only available with 0.6 and 1 MPa)

±2.0 % of full scale

Scale range (MPa, kPa, bar)

0 ~ 0.1 MPa to 0 ~ 1 MPa

Working pressure

Steady pressure : 75 % of full scale

Working temperature limits

Ambient : 10 ~ 30 °C

Fluid

Max. 150 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.8 % per 10 °C of full scale



Standard features

Pressure connection

Fluorine resin (PTFE, PFA)

Dial

White aluminium with black graduations

Element

Bellows : Fluorine resin (PFA)

Pointer

Black painted aluminium alloy

Case and cover

PP resin

Process connection

3/8" PT, PF, tube (please consult about other connection)

Window

Screw type PET resin

Treatment

Assembly and adjustment : Clean room (Class 10,000)

Treatment : Use no oil and water

Packing : after N₂ gas flushing, clean polyethylene hermetical sealed packaging

Movement

Brass

WISE[®]

I P870_01

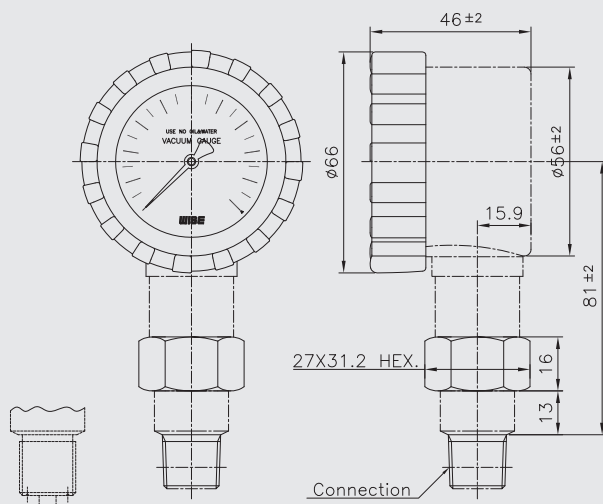
1. Base model**P870** Anti-corrosion pressure gauge**2. Nominal diameter****1** 50 mm**3. Type of mounting****A** Bottom connection, direct**4. Accuracy****4** ±1.5 % of full scale (Only available with 0.6 and 1 MPa)**5** ±2.0 % of full scale**5. Connection type****D3** PF ⅜"**D8** PT ⅜"**TA** Tube ¼" x ⅜"**TB** Tube ⅜" x ¼"**TC** Tube ½" x ⅜"**TN** Tube 6 mm x 4 mm**TM** Tube 8 mm x 6 mm**EE** ½" UNF**6. Unit****H** bar**I** MPa**J** kPa**7. Range****XXX** Refer to pressure range table**8. Dial color****3** 2 colors**9. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8
P870	1	A	4	D8	XXX	4	0

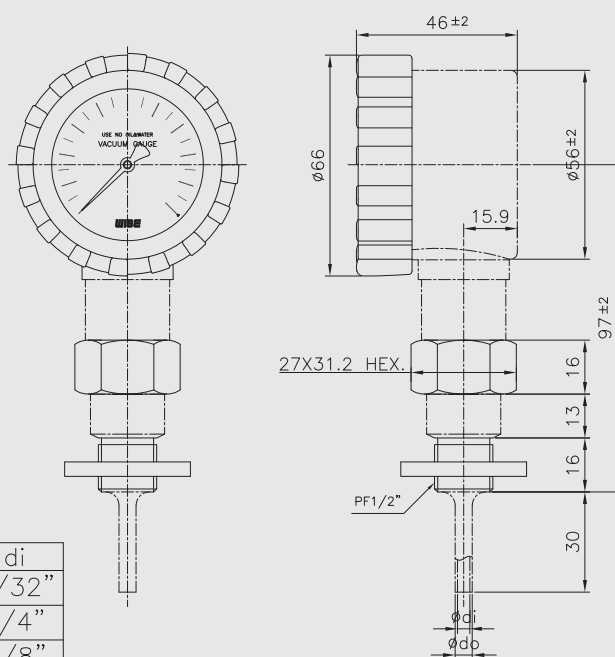
Sample
ordering code

P870 : Type of mounting

Code : D



Code : T



Code NO.	do	di
TA	1/4"	5/32"
TB	3/8"	1/4"
TC	1/2"	3/8"
TN	6	4
TM	8	6

Pressure unit and range table

Range and code	Unit and code			
	H : bar	I : MPa	J : kPa	Accuracy
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	2.0 %
041	0 ~ 1	0 ~ 0.1	0 ~ 100	
042	0 ~ 2	0 ~ 0.2	0 ~ 200	
044	0 ~ 4	0 ~ 0.4	0 ~ 400	
045	0 ~ 6	0 ~ 0.6	0 ~ 600	1.5 %
047	0 ~ 10	0 ~ 1	0 ~ 1,000	

Low differential pressure gauge

Model: P880 series

Spec. sheet no. **PD08-08**

Service intended

This gauge is used to measure a pressure of air and gas duct, furnace draft, negative pressure room, also, a differential pressure of filter, venturi tube and etc. This gauge have a high quality, low cost, good appearance and wide scale range.

Nominal diameter

100 mm

Accuracy

±2.0 % of full scale

-5 ~ 5, -25 ~ 25 and 0 ~ 10 mm : ±3.0 % of full scale

0 ~ 3000 mm : ±4.0 % of full scale

Scale range (kPa)

-0.25 to 0.25 kPa, 0~50 kPa

Working pressure

- Steady pressure : 75 % of full scale
- Over pressure protection : 100 kPa

Working temperature

Ambient : -10 ~ 60 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±1.0 % per 10 °C of full scale



Standard features

Pressure connection

1/8" NPT(F)

Dial

White aluminium with black graduations

Case and cover

Gray painted aluminium die casting

Pointer

Black painted aluminium alloy

Window

Acrylic resin

Element (Wetted parts)

Silicone rubber

1. Base model**P880** Low differential pressure gauge**2. Nominal diameter****4** 100 mm**3. Type of mounting****L** Back connection, flush, case center mounting plate**4. Accuracy****5** ±2.0 % of full scale**6** ±3.0 % of full scale (-5 ~ 5, -25 ~ 25 and 0 ~ 10 mm)**7** ±4.0 % of full scale (0 ~ 3000 mm)**5. Process connection****B** 1/8"**6. Connection type****D** NPT(F)**7. Unit****G** mm**J** kPa**8. Range (mm)**

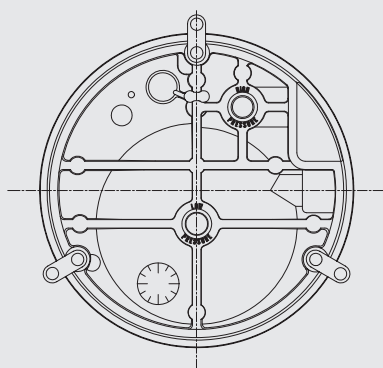
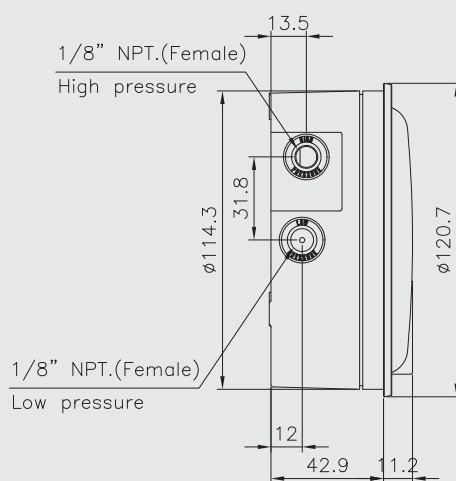
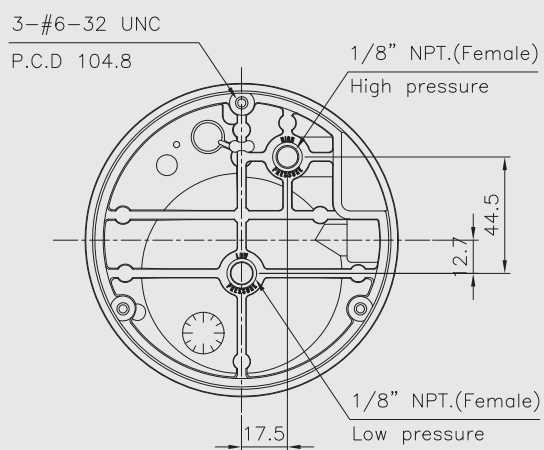
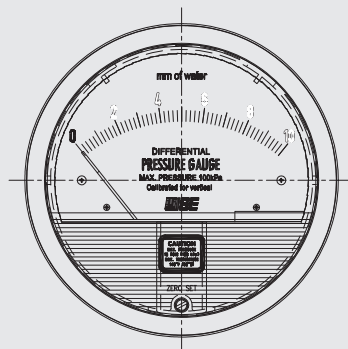
432	-5 ~ 5	457	0 ~ 100
553	-25 ~ 25	460	0 ~ 200
422	-50 ~ 50	462	0 ~ 300
421	-100 ~ 100	465	0 ~ 500
418	-250 ~ 250	469	0 ~ 1000
413	-500 ~ 500	437	0 ~ 2000
506	0 ~ 10	043	0 ~ 3000
510	0 ~ 50	XXX	Other

9. Dial color**1** 2 colors**3** 3 colors**10. Options****0** None**1** Mounting bracket

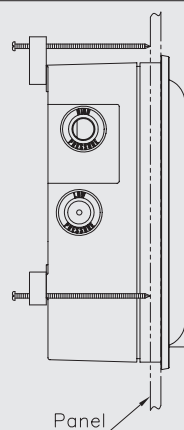
1	2	3	4	5	6	7	8	9	10
P880	4	L	5	B	D	J	432	1	0

Sample
ordering code

P880 : Type of mounting



* Bracket mounting type



Dead weight tester (Up to 10 MPa)

Model: P910, P911 series

Spec. sheet no. PD09-01

Service intended

These series are designed to be used for gauge calibration. Operating range of these series is available up to 10 Mpa. It is designed to perform the tasks such as setting, testing, and repairing pressure measurement.

EAC

Dimensions

Base 186 mm (W) x 275 mm (H) x 286 mm (D)
Excluding hand wheel

Color

Black



Reservoir

These series have a centrally isolated mounting valve and a transparent cover which can be sealed in order that tester is moved without oil leakage.

Screw pump

The use of a large diameter ram eliminates the need for a priming pump.

Accuracy

0.04 %

Piston cylinder unit

The tester is fitted with an oil reservoir, this is linked to the piston cylinder unit. A stop valve is provided to prevent excessive pressure driving the piston out of the cylinder.

Standard specification

Dead weight tester

Model number			P910	P911
Range	Maximum		5 MPa	10 MPa
Range	Minimum		0.05 MPa	0.1 MPa
Minimum unit pressure			0.05 MPa	1 MPa
Area of ram			½ cm²	¼ cm²
Diameter of ram			7.979 mm	5.6420 mm
Dead-weight corresponds to (MPa)	Ram	0.05 MPa	1 pcs	
		0.1 MPa		1 pcs
	Dead weight	0.05 MPa	1 pcs	
		0.1 MPa	2 pcs	2 pcs
		0.2 MPa	1 pcs	1 pcs
		0.5 MPa	9 pcs	1 pcs
	1 MPa		9 pcs	
Total			5 MPa	10 MPa
Tester	Weight		10 kg	10 kg
	Box weight		7.5 kg	7.5 kg
Ram	Weight		26 kg	26 kg
	Box weight		2.8 kg	2.8 kg

Spare parts and tool

Standard accessories	Quantity (pcs)
PF ½"	2
PF ⅜"	1
PF ¼"	1
300 mm wrench	1
250 mm wrench	1
L type union ½"	1
Packing for union	10
Packing for piston	3
Hammer	1
Pointer remover	1
Oil drum	1

Main order

Ordering information

1. Base model

P910 Dead weight tester (Calibration range: 5 MPa)

P911 Dead weight tester (Calibration range: 10 MPa)

2. Unused character

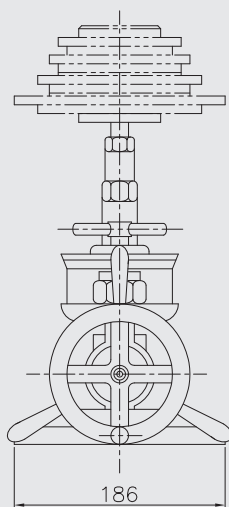
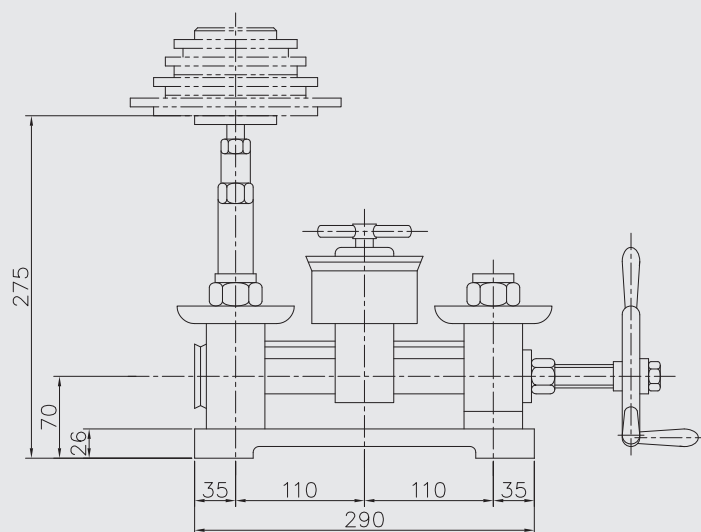
00000000000

1	2
P910	00000000000

Sample
ordering code

P910, P911 : Type of mounting

Code P910,P911



Dimensions (mm)

Available code	Range (MPa)	Increment (MPa)	Piston area (cm ²)
P910	0.05 ~ 5	0.05	1/2
P911	0.1 ~ 10	0.1	1/4

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Dead weight tester (Up to 100 MPa)

Model: P912, P913, P914 series

Spec. sheet no. PD09-02

Service intended

These series are designed to be used for gauge calibration. Operating range of these series is available up to 100 MPa. It is designed to perform the tasks such as setting, testing, and repairing pressure measurement.

EAC

Dimensions

Base 400 mm (W) x 178 mm (H) x 280 mm (D)
excluding hand wheel

Color

Black

Reservoir

These series have a centrally isolated mounting valve and a transparent cover which can be sealed in order that tester can be moved without oil leakage.

Screw pump

The use of a large diameter ram eliminates the need for a priming pump.

Accuracy

0.04 %

Piston cylinder unit

The tester is fitted with an oil reservoir, this is linked to the piston cylinder unit. A stop valve is provided to prevent excessive pressure driving the piston out of the cylinder.



Standard specification

Dead weight tester

Model number		P912	P913	P914	
Range	Maximum	30 MPa	50 MPa	100 MPa	
Range	Minimum	0.5 MPa	0.5 MPa	1 MPa	
Minimum unit pressure					
Area of ram		⅛ cm²	⅛ cm²	⅙ cm²	
Diameter of ram		3.989 mm	3.9894 mm	2.8209 mm	
Dead-weight corresponds to (MPa)	Ram	0.2 MPa	1 pcs	1 pcs	
		1 MPa		1 pcs	
	Dead weight	0.1 MPa	1 pcs	1 pcs	
		0.2 MPa	2 pcs	2 pcs	
		0.3 MPa	1 pcs	1 pcs	
		0.5 MPa	1 pcs	1 pcs	1 pcs
		1 MPa	1 pcs	1 pcs	1 pcs
		2 MPa	2 pcs	2 pcs	1 pcs
		4 MPa			2 pcs
		5 MPa	5 pcs	9 pcs	
10 MPa			9 pcs		
Total		31.8	51.8	102.5	
Tester	Weight	18 kg	18 kg	18 kg	
	Box weight	9.5 kg	9.5 kg	9.5 kg	
Ram	Weight	40 kg	66 kg	64 kg	
	Box weight	4.5 kg	5.5 kg	5.5 kg	

Spare parts and tool

Standard accessories	Quantity (pcs)
PF $\frac{1}{2}$ "	2
PF $\frac{3}{8}$ "	1
PF $\frac{1}{4}$ "	1
300 mm wrench	1
250 mm wrench	1
L type union $\frac{1}{2}$ "	1
Packing for union	10
Packing for piston	1
Hammer	1
Pointer remover	1
Oil drum	1

Main order

Ordering information

1. Base model

P912 Dead weight tester (Calibration range : 30 MPa)

P913 Dead weight tester (Calibration range : 50 MPa)

P914 Dead weight tester (Calibration range : 100 MPa)

2. Unused character

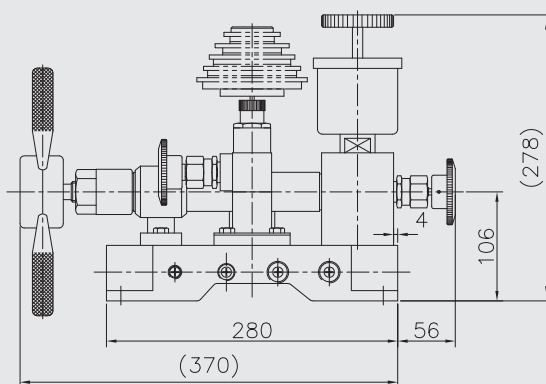
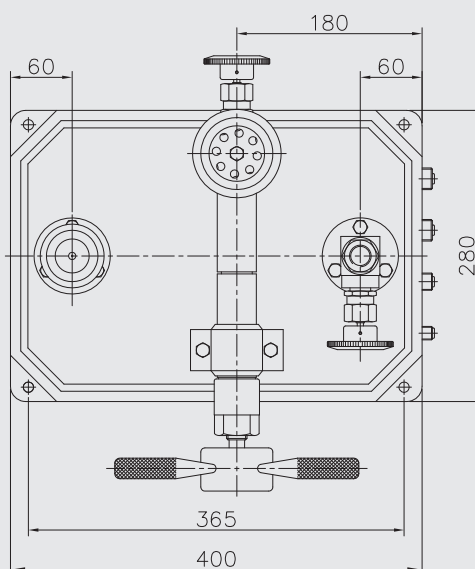
S0000000000

1	2
P912	S0000000000

Sample
ordering code

P912, P913 and P914 : Type of mounting

Code P912,P913 & P914



Dimensions (mm)

Available code	Range	Increment (MPa)	Piston area (cm ²)
	(MPa)		
P912	0.2 ~ 30	0.2	1/8
P913	0.2 ~ 50	0.2	1/8
P914	1 ~ 100	1	1/16

Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Chart recorder

Model: P930 series

Spec. sheet no. PD09-03

Service intended

P930 series pressure recorder provides a single or dual pen 200 mm circular chart recorder for measurement. It is suitable for hazardous environment such as gas or chemical process lines.

EAC

Nominal diameter

246 (W) X 271 mm (H)

Accuracy

±2.0 % of full scale

Scale range (MPa, kPa, bar)

Pressure : 0 ~ 5 kPa to 0 ~ 100 MPa

Working pressure

Steady pressure : 75 % of full scale

Over range protection : 130 % of full scale

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 200 °C



Standard features

Pressure connection

Stainless steel (316SS)

Element

Bourdon tube : Stainless steel (316SS)

Bellows : Brass

Case and cover

ALDC 12.1

Hinged door

Window

Acrylic resin

Movement

Brass

Chart drive

1. Spring wound type : 24, 168 (7 day) hours rotation
2. Battery type : 30 min, 96 min, 1, 2, 4, 6, 8, 12 hours and 1, 2, 7, 8, 14, 16, 31, 32 days selectable for portable type

Chart paper

200 mm circular

Mounting

Surface mounting and portable type

Process connection

3/8", 1/2" PT, NPT and PF

WISE[®]

1. Base model

- P931** Chart recorder (Surface mounting, one pen type)
P932 Chart recorder (Surface mounting, two pen type)
P933 Chart recorder (Portable, one pen type)
P934 Chart recorder (Portable, two pen type)

2. Sensor type

- 8** Temperature and pressure
9 Pressure

3. Type of mounting

- B** Bottom entry and surface mounting plate

4. Accuracy

- 5** ±2.0 % of full scale

5. Process connection

- D** 3/8"
E 1/2"

6. Connection type

- B** PF
C PT
D NPT

7. Unit

- H** bar
I MPa
J kPa
Z Other

8. Range

- XXX** Refer to pressure range table

9. Pressure connection material

- 3** 316SS

10. Option

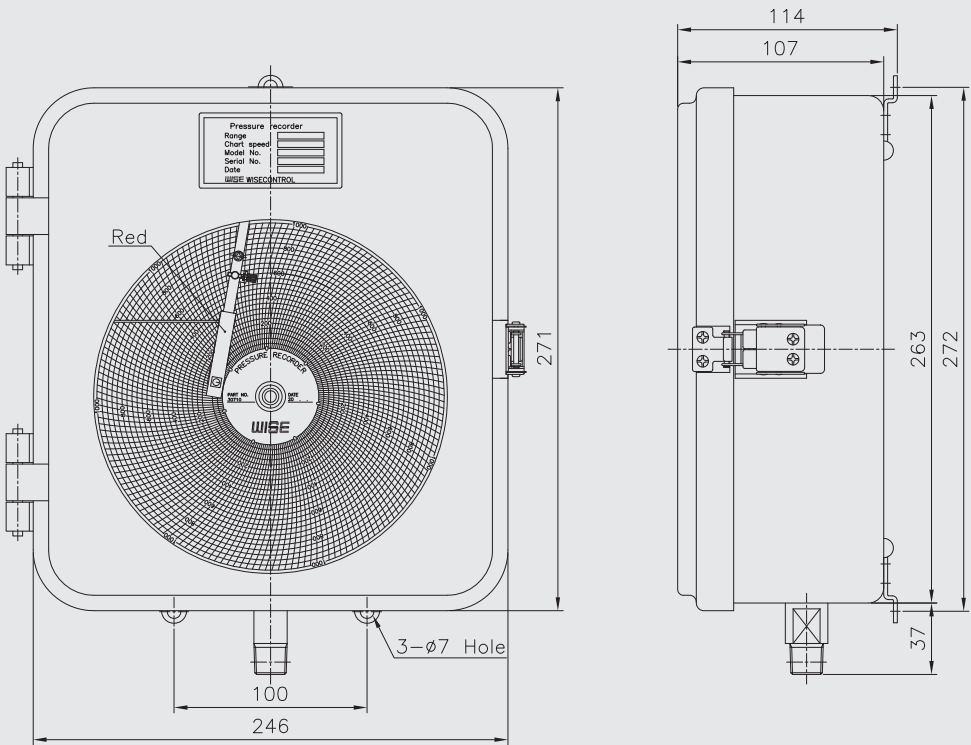
- 0** None
1 Accessories
2 Temperature sensor

1	2	3	4	5	6	7	8	9	10
P931	8	B	5	D	B	H	XXX	3	0

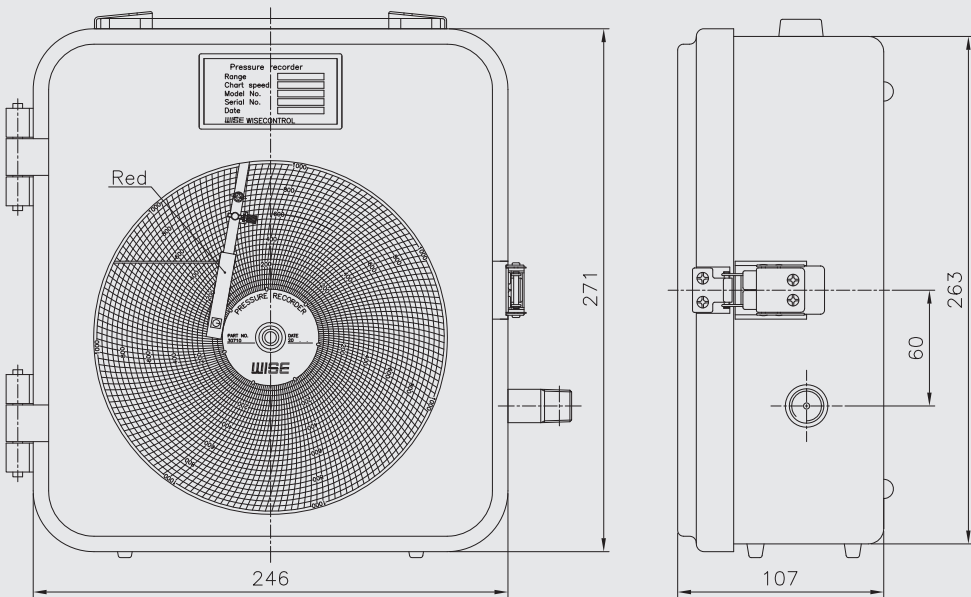
Sample
ordering code

P93X : Type of mounting (1/3)

Code P931

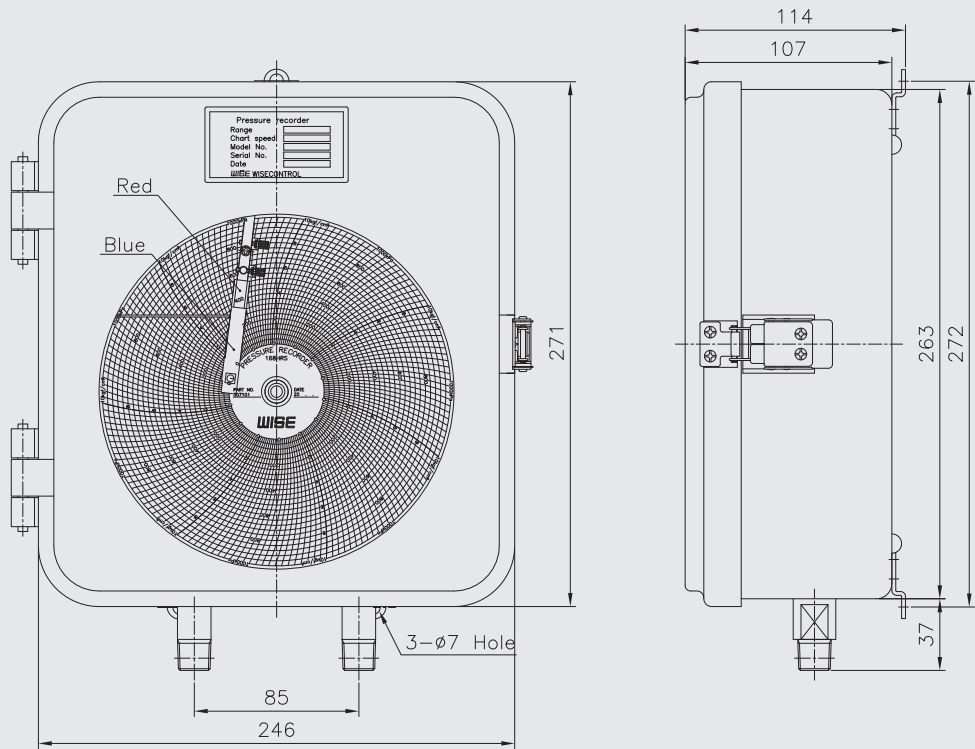


Code 933 (Portable type)

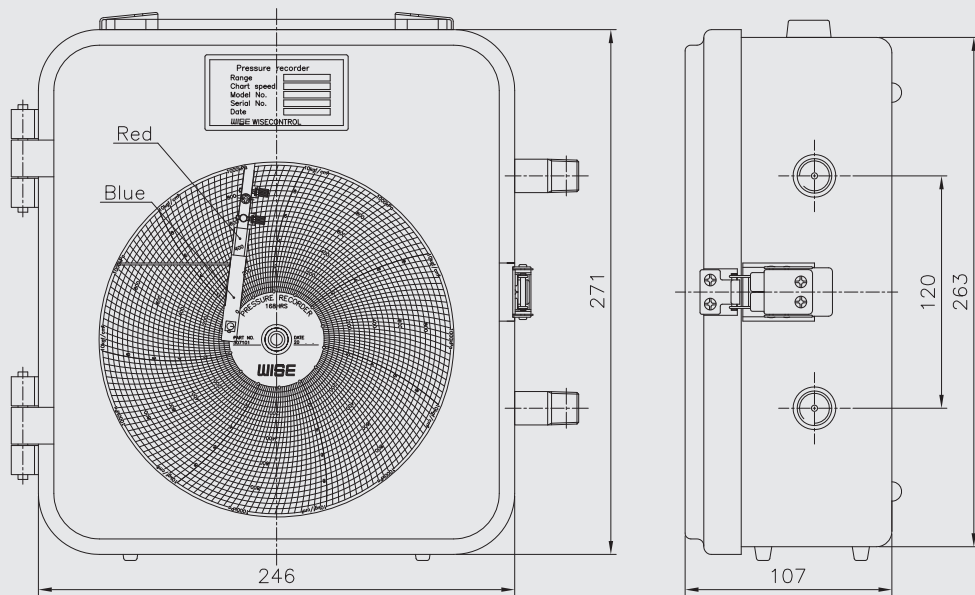


P93X : Type of mounting (2/3)

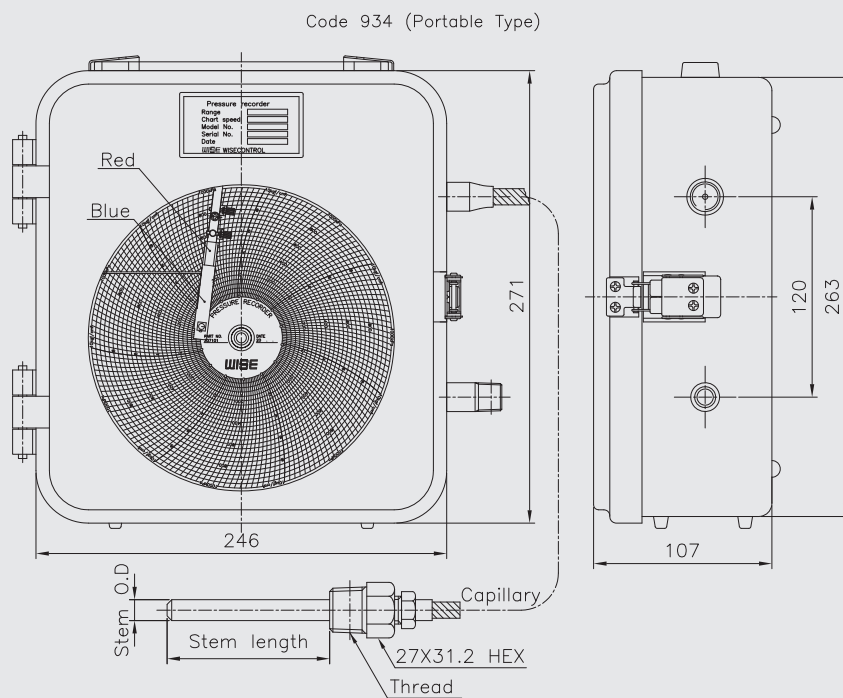
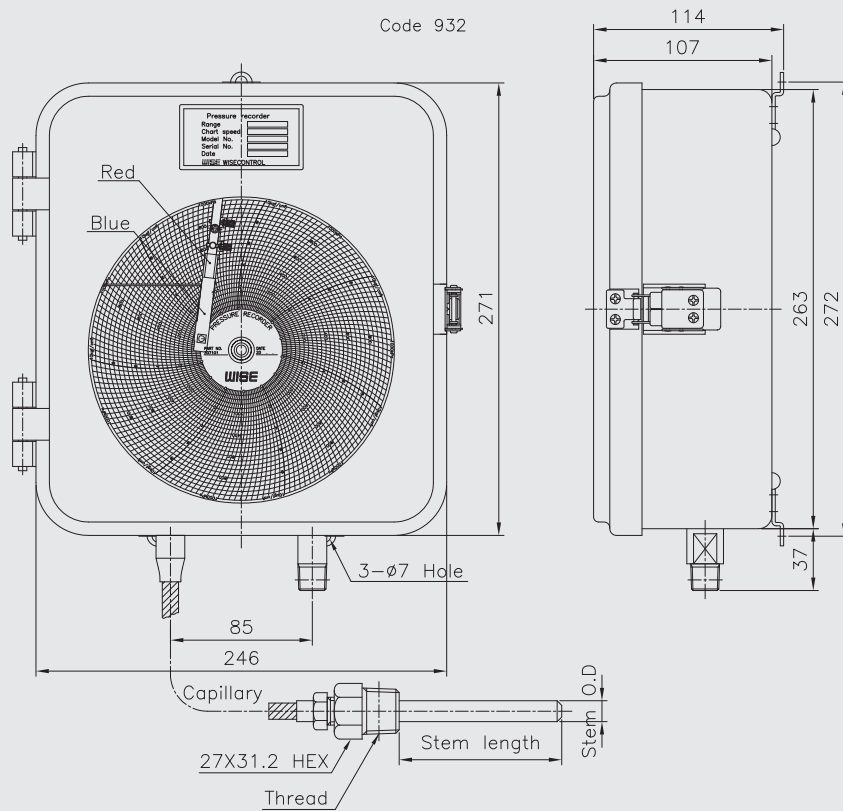
Code 932



Code 934 (Portable type)



P93X : Type of mounting (3/3)



Pressure range table

Scale	P931	P932	P933	P934	Order code
0 ~ 5 kPa	X	Refer to under table	O	Refer to under table	465
0 ~ 10 kPa	X		O		469
0 ~ 50 kPa	O		O		040
0 ~ 0.1 MPa	O		O		041
0 ~ 0.2 MPa	O		O		042
0 ~ 0.5 MPa	O		O		136
0 ~ 1 MPa	O		O		047
0 ~ 1.5 MPa	O		O		050
0 ~ 2 MPa	O		O		051
0 ~ 2.5 MPa	O		O		052
0 ~ 3.5 MPa	O		O		054
0 ~ 5 MPa	O		O		055
0 ~ 7 MPa	O		O		057
0 ~ 10 MPa	O		O		058
0 ~ 15 MPa	O		O		059
0 ~ 16 MPa	O		O		060
0 ~ 25 MPa	O		O		062
0 ~ 35 MPa	O		O		064
0 ~ 40 MPa	O		O		065
0 ~ 50 MPa	O		O		066
0 ~ 60 MPa	O		O		067
0 ~ 70 MPa	O		O		068
0 ~ 100 MPa	O		O		070
0 ~ 160 MPa	O		O		074
0 ~ 200 MPa	O		O		075

O : Available X : Not available

Scale (2 pen) type - P932, P934		Code
Higher	Lower	
0 ~ 0.1 MPa	0 ~ 10 kPa	201
0 ~ 1 MPa	0 ~ 5 kPa	202
0 ~ 1 MPa	0 ~ 10 kPa	203
0 ~ 1 MPa	0 ~ 0.1 MPa	204
0 ~ 1.5 MPa	0 ~ 5 kPa	205
0 ~ 1.5 MPa	0 ~ 10 kPa	206
0 ~ 1.5 MPa	0 ~ 0.1 MPa	207

Pressure range table

Ordering chart paper

Range	Order code	Range		Order code
0 ~ 5kPa	3071010380	0 ~ 25 MPa		3071011780
0 ~ 10 kPa	3071010390	0 ~ 35 MPa		3071012370
0 ~ 50 kPa	3071011740	0 ~ 40 MPa		3071012820
0 ~ 0.1 MPa	3071010020	0 ~ 50 MPa		3071011850
0 ~ 0.2 MPa	3071012260	0 ~ 60 MPa		3071013250
0 ~ 0.5 MPa	3071012060	0 ~ 70 MPa		3071011470
0 ~ 1 MPa	3071012080	0 ~ 100 MPa		3071011270
0 ~ 1.5 MPa	3071011480	0 ~ 160 MPa		3071013090
0 ~ 2 MPa	3071011770	0 ~ 200 MPa		3071013100
0 ~ 2.5 MPa	3071012090	0 ~ 0.1 MPa	0 ~ 10 kPa	3071010540
0 ~ 3.5 MPa	3071011690	0 ~ 1 MPa	0 ~ 5 kPa	3071010550
0 ~ 5 MPa	3071012100	0 ~ 1 MPa	0 ~ 10 kPa	3071010560
0 ~ 7 MPa	3071012110	0 ~ 1 MPa	0 ~ 0.1 MPa	3071010570
0 ~ 10 MPa	3071012120	0 ~ 1.5 MPa	0 ~ 5 kPa	3071010580
0 ~ 15 MPa	3071012130	0 ~ 1.5 MPa	0 ~ 10 kPa	3071010590
0 ~ 16 MPa	3071012360	0 ~ 1.5 MPa	0 ~ 0.1 MPa	3071010600

Ordering pen

Pen description	Order code	Pen description	Order code
Red color (short pen)	3069040070	Blue color (Long pen)	3069040090

Ordering clock

Clock description	Order code	Clock description	Order code
168 (7 days) hours (P931, P932)	3102040020	Portable (Battery) type (P933.P934)	3102040030

Weatherproof type pressure switch (Local setpoint adjustable)

Model: P940 series

Spec. sheet no. PD09-04

Service intended

P940 series pressure switches are micro contact type, and these are suitable for corrosive fluids and high pressure measurements. Dead band is fixed.

EAC

Nominal diameter

Refer to dimension drawing

Repeatability

±1.0 % of adjustable range

Adjustable setting range (MPa, kPa, bar)

-0.1 ~ 0 to -0.1 ~ 2.5 MPa

0 ~ 0.1 to 0 ~ 35 MPa

Dead band

Fixed

One SPDT : Approx. 5 % adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C



Standard features

Pressure connection

Stainless steel (316SS)

Element

Stainless steel (316SS)

Case and cover

ALDC 12.1

Silver gray painted

Contact

Micro contact type

One SPDT or two SPDT

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for resistance load

Conduit connection

½" PF (Single setpoint) P941

¾" PF (Dual setpoint) P942

Process connection

⅜", ½" PT, NPT and PF

WISE®

| P940_01

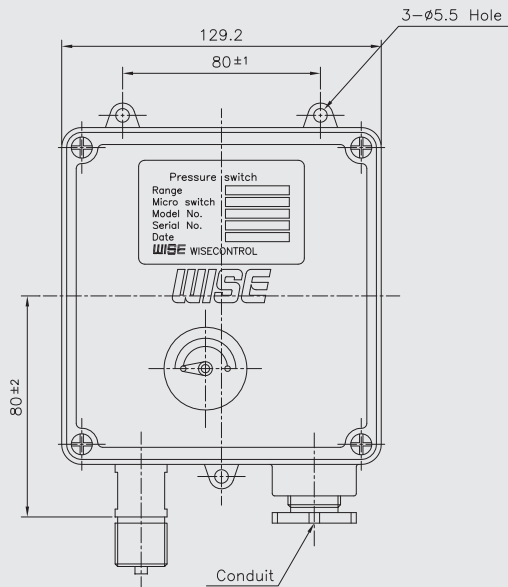
1. Base model**P941** Weatherproof type pressure switch (Single setpoint)**P942** Weather proof type pressure switch (Dual setpoint)**2. Unused character****9B3** None**3. Process connection****D** 3/8"**E** 1/2"**4. Connection type****B** PF**C** PT**D** NPT**5. Measuring unit****X** Refer to pressure unit and range table**6. Range****XXX** Refer to pressure unit and range table**7. Pressure connection material****3** 316SS**8. Option****0** None**1** Accessories

1	2	3	4	5	6	7	8
P941	9B3	D	B	X	XXX	3	0

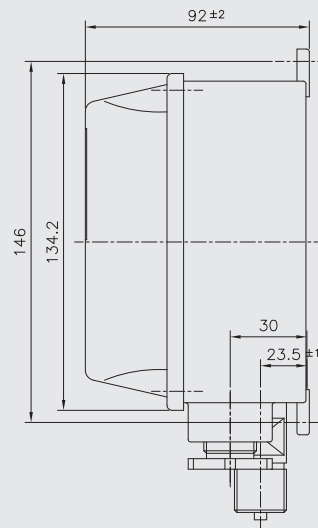
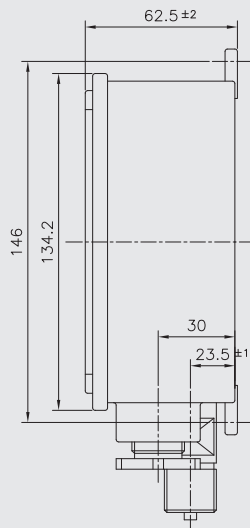
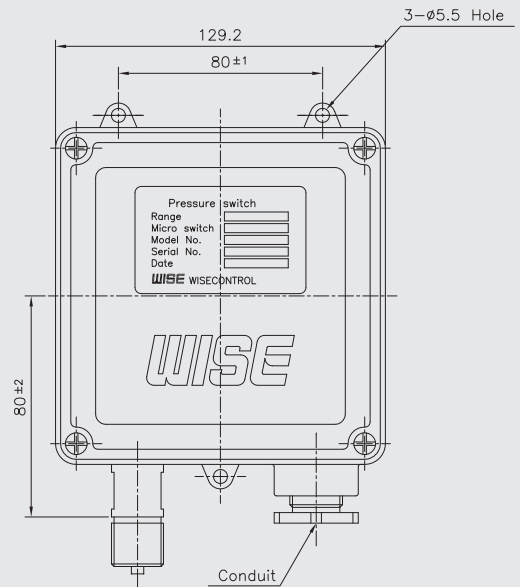
Sample
ordering code

P94X : Type of mounting

Code P941



Code P942



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure unit and range table

Range and code	Unit and code		Model number	
	H : bar	I : MPa	P941	P942
026*	-1 ~ 0	-0.1 ~ 0	O	O
041*	0 ~ 1	0 ~ 0.1	O	O
042	0 ~ 2	0 ~ 0.2	O	O
043	0 ~ 3	0 ~ 0.3	O	O
044	0 ~ 4	0 ~ 0.4	O	O
045	0 ~ 6	0 ~ 0.6	O	O
047	0 ~ 10	0 ~ 1	O	O
050	0 ~ 15	0 ~ 1.5	O	O
051	0 ~ 20	0 ~ 2	O	O
052	0 ~ 25	0 ~ 2.5	O	O
054	0 ~ 35	0 ~ 3.5	O	O
055	0 ~ 50	0 ~ 5	O	O
057	0 ~ 70	0 ~ 7	O	O
058	0 ~ 100	0 ~ 10	O	O
059	0 ~ 150	0 ~ 15	O	O
062	0 ~ 250	0 ~ 25	O	O
064	0 ~ 350	0 ~ 35	O	O
027	-1 ~ 1	-0.1 ~ 0.1	O	O
028	-1 ~ 2	-0.1 ~ 0.2	O	O
029	-1 ~ 3	-0.1 ~ 0.3	O	O
030	-1 ~ 4	-0.1 ~ 0.4	O	O
031	-1 ~ 6	-0.1 ~ 0.6	O	O
032	-1 ~ 10	-0.1 ~ 1	O	O
033	-1 ~ 15	-0.1 ~ 1.5	O	O
034	-1 ~ 20	-0.1 ~ 2	O	O

O : Available

* Note : Dead band

One SPDT : Approx. 10 % of adjustable range.

Two SPDT : Approx. 20 % of adjustable range.

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

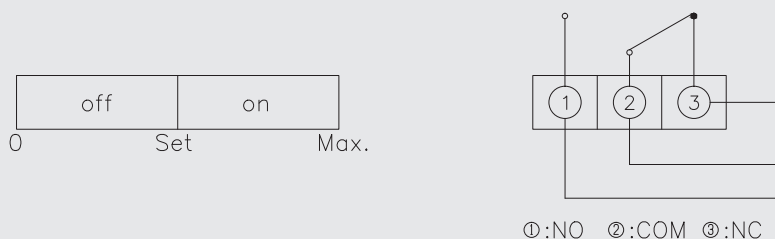
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

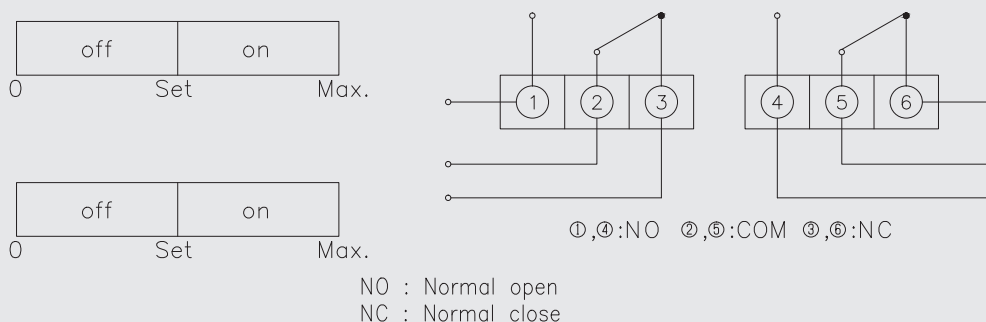
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Weatherproof type pressure switch

Model: P945 series

Spec. sheet no. PD09-05

Service intended

P945 diaphragm type pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids such as atmospheric pressure and water pressure. The pressure sensing part is a piston actuated assembly.

EAC

Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

-0.1 to -0.15 bar

0.3 kPa to 15 MPa

Dead band

Fixed

One SPDT : Approx. 5 % of adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65



Standard features

Pressure connection

Stainless steel (316SS), Monel and Hastelloy-C

Element

Stainless steel (316L SS)

Case and cover

ALDC 12.1 (Silver gray painted)

Contact

Micro contact type

One SPDT

Two SPDT (Only available with single setpoint)

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

Conduit connection

3/4" NPT (F)

Process connection

3/8", 1/2" PT, NPT and PF

WISE[®]

I P945_01

1. Base model**P945** Weatherproof type pressure switch**2. Deadband****F** Fixed**3. Switch form**

- 1** One SPDT
2 Two SPDT (Only available with single setpoint)

4. Process connection

- C** ¼"
D ⅜"
E ½"

5. Connection type

- B** PF
C PT
D NPT
E NPT (F)

6. Unit

- H** bar
I MPa
J kPa
S mbar

7. Setting range**XXX** Refer to pressure range table**8. Process connection and element material**

- 3** 316SS / 316L SS
V 316SS / Viton
L 316SS / Hastelloy-C
K 316SS / Monel
Z Monel / Monel
H Hastelloy-C / Hastelloy-C

9. Options

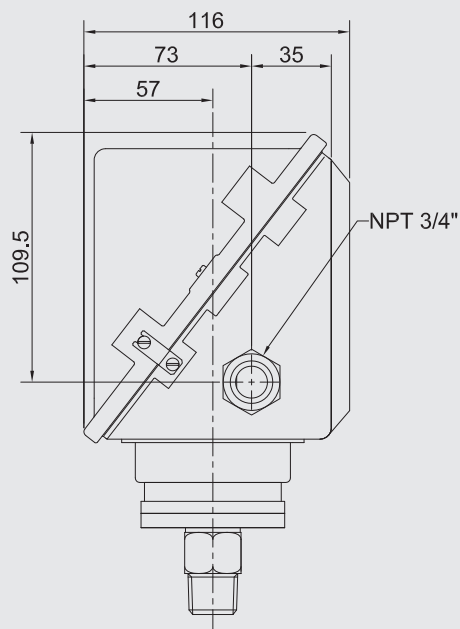
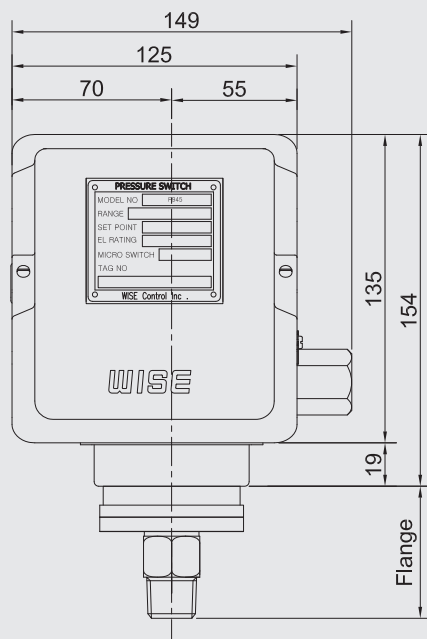
- 0** None
1 Mounting bracket
4 ½" NPT (F) conduit connection

1	2	3	4	5	6	7	8	9
P945	F	1	C	B	H	XXX	3	0

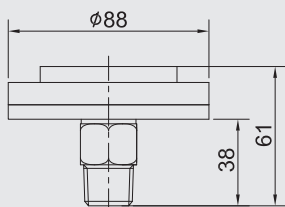
Sample
ordering code

P945 : Type of mounting

Model : P945-A

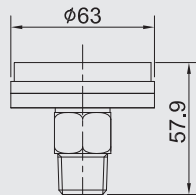


Low Pressure Range
0.3~14 kPa



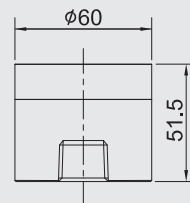
Type A

Middle Pressure Range
1~20 bar



Type B

High Pressure Range
20~150 bar



Type C

Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Working range

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

Max. Working pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of set point may occur, or the device may be rendered inoperative.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable setting range		Dead band		Working range	Flange size (mm)	Max. Working pressure	
			One SPDT Setpoint	Two SPDT Setpoint				
	bar	kPa	bar		bar	bar	bar	MPa
900	-0.1 ~ -0.15	-100 ~ -15	Within 10 % adjustable range	Within 20 % adjustable range	10	88 ~ 98	35	3.5
901	0.075 ~ 0.15	7.5 ~ 15	Within 5 % adjustable range	Within 10 % adjustable range				
938	0.045 ~ 0.3	4.5 ~ 30						
941	0.075 ~ 0.5	7.5 ~ 50						
949	0.09 ~ 0.6	9 ~ 60						
942	0.12 ~ 0.8	12 ~ 80						
902	0.15 ~ 1	15 ~ 100						
903	0.3 ~ 2	30 ~ 200						
904	0.45 ~ 3	45 ~ 300						
906	0.9 ~ 6	90 ~ 600						
908	1.5 ~ 10	0.15 ~ 1 MPa						
911	2.25 ~ 15	0.225 ~ 1.5 MPa						
912	3 ~ 20	0.3 ~ 2 MPa						
914	4.5 ~ 30	0.45 ~ 3 MPa						
916	7.5 ~ 50	0.75 ~ 5 MPa						
918	8.5 ~ 70	0.85 ~ 7 MPa						
919	10.5 ~ 100	1.05 ~ 10 MPa						
926	15.5 ~ 150	1.55 ~ 15 MPa						

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

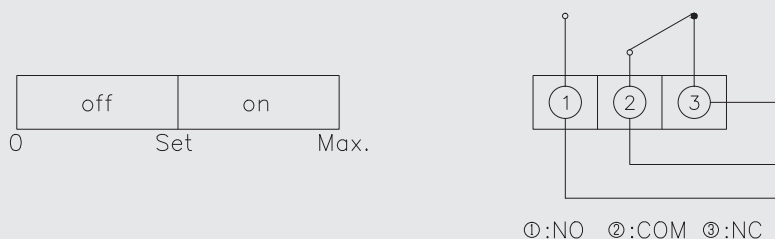
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

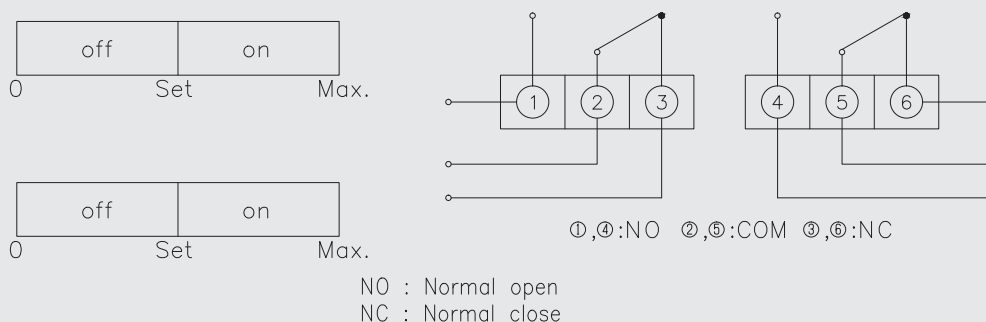
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Weatherproof type differential pressure switch

Model: P946 series

Spec. sheet no. PD09-06

Service intended

P946 diaphragm type differential pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids, such as atmospheric pressure and water pressure. The pressure sensing part is a force balanced and piston actuated assembly.

EAC

Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

15 kPa to 0.4 MPa

Dead band

Fixed

One SPDT : Approx. 5 % of adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65



Standard features

Process connection

Stainless steel (316SS), Monel and Hastelloy-C

Element

Stainless steel (316L SS)

Case and cover

ALDC 12.1 (Silver gray finished)

Contact

Micro contact type

One SPDT

Two SPDT (Only available with single setpoint)

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

Conduit connection

3/4" NPT (F)

Process connection

1/4" NPT (F)

Option

Bracket : 304SS and 316SS

Wall mounting bracket

Remote diaphragm seal

WISE®

I P946_01

1. Base model**P946** Differential switch**2. Deadband****F** Fixed**3. Switch form**

- 1** One SPDT
- 2** Two SPDT (Only available with setpoint)

4. Process connection**C** 1/4"**5. Connection type****D** NPT (F)**6. Unit**

- H** bar
- I** MPa
- J** kPa
- S** mbar

7. Setting range**XXX** Refer to pressure range table**8. Element and flange material**

- 3** 316SS / 316L SS
- V** 316SS / Viton
- L** 316SS / Hastelloy-C
- K** 316SS / Monel
- Z** Monel / Monel
- H** Hastelloy-C / Hastelloy-C

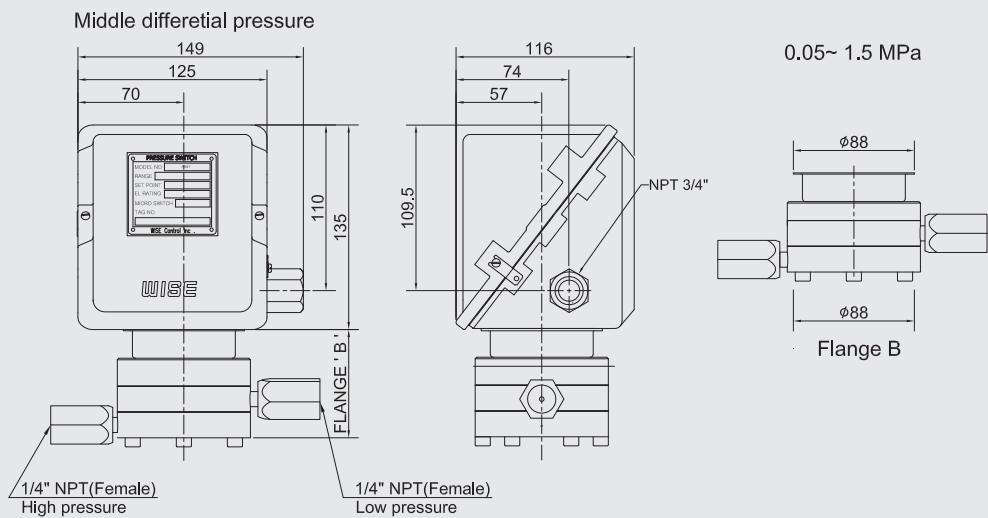
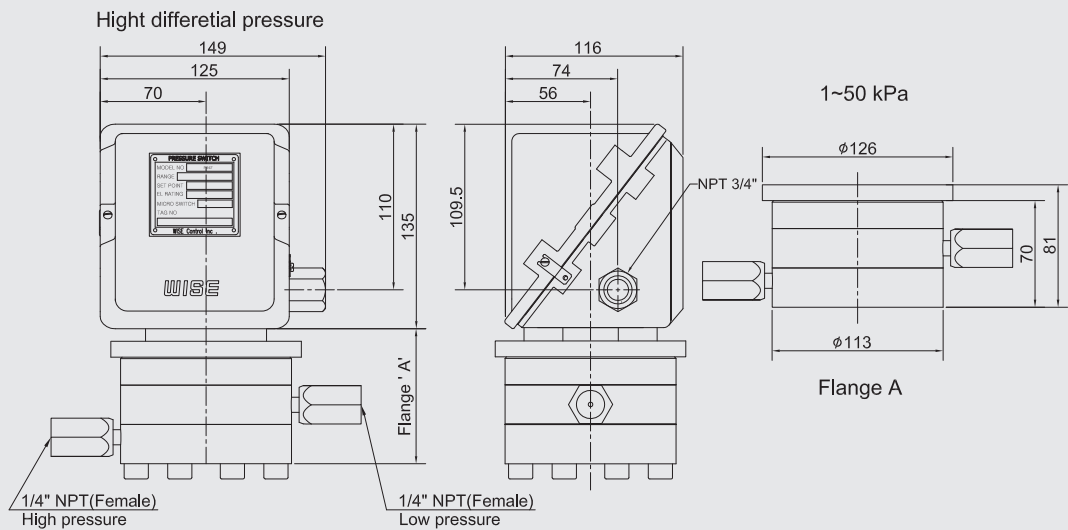
9. Options

- 0** None
- 1** Mounting bracket

1	2	3	4	5	6	7	8	9
P946	F	1	C	D	H	XXX	3	0

Sample
ordering code

P946 : Type of mounting



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Working range

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable setting range			Working range	Flange size
	H : bar	I : MPa	J : kPa	bar	Diameter (mm)
932	0.002 ~ 0.015		0.2 ~ 1.5	2	113
994	0.01 ~ 0.15		1 ~ 15	5	
907	0.1 ~ 0.25		10 ~ 25		
909	0.2 ~ 0.35		20 ~ 35		
910	0.3 ~ 0.5		30 ~ 50		
922	0.4 ~ 2	0.04 ~ 0.2		50	89
905	1.5 ~ 4	0.15 ~ 0.4			

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

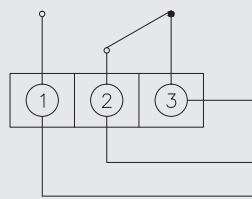
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

One SPDT

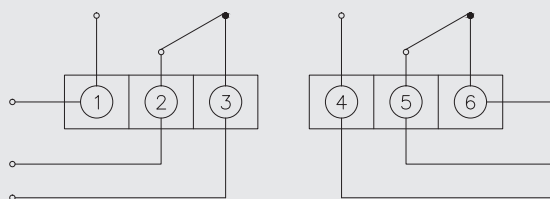
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



①:NO ②:COM ③:NC

Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



①,④:NO ②,⑤:COM ③,⑥:NC

NO : Normal open
NC : Normal close

Adjustable dead band weatherproof type pressure switch

Model: P947

Spec. sheet no. **PD09-07**

Service intended

P947 bellows type pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids such as atmospheric pressure and water pressure. The pressure sensing part is a piston actuated assembly.

EAC

Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

-0.1 ~ - 0.15 bar to 1.5 ~ 15 MPa

Dead band

Within 8 to 20 % of adjustable range

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65



Standard features

Pressure connection

Stainless steel (316L SS), Monel and Hastelloy-C

Element

Bellows

Stainless steel (316L SS), Monel and Hastelloy-C

Case and cover

ALDC 12.1

Silver gray finished aluminium

Contact

Micro contact type

One SPDT

One DPDT

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

DPDT contact rating

Resistance load

AC 125 V / 250 V, 10 A

DC 125 V, 0.5 A

DC 8 V, 10 A

DC 14 V, 10 A

DC 30 V, 10 A

Inductive load

AC 125 V, 6 A / AC 250 V, 4 A

DC 125 V, 0.05 A

DC 8 V, 6 A

DC 14 V, 6 A

DC 30 V, 4 A

Conduit connection

3/4" PF (F)

Process connection

1/4", 3/8", 1/2" PT, NPT and PF

Option

Bracket : Wall mounting, 304SS and 316SS

±0.5 % of adjustable range

WISE®

I P947_01

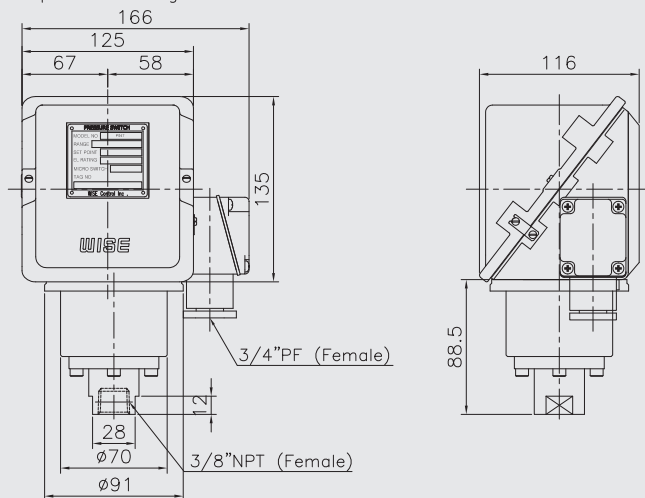
1. Base model**P947** Adjustable dead band weatherproof type pressure switch**2. Dead band****A** Adjustable (Within 8 ~ 20 % of adjustable range)**3. Switch form****1** One SPDT**2** One DPDT (Only available with single setpoint)**4. Process connection****C** ¼"**D** ⅜"**E** ½"**5. Connection type****B** PF**C** PT**D** NPT**E** NPT (F)**6. Unit****H** bar**I** MPa**J** kPa**S** mbar**7. Setting range****XXX** Refer to pressure range table**8. Process connection and element material****3** 316SS and 316L SS**Z** Monel and Monel**H** Hastelloy-C and Hastelloy-C**9. Options****0** None**1** Mounting bracket**4** ½" NPT (F) conduit connection

1	2	3	4	5	6	7	8	9
P947	A	1	C	B	H	XXX	3	0

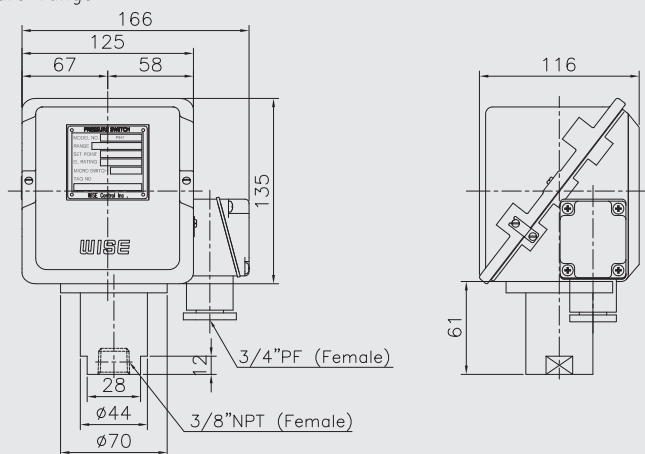
Sample
ordering code

P947 : Type of mounting

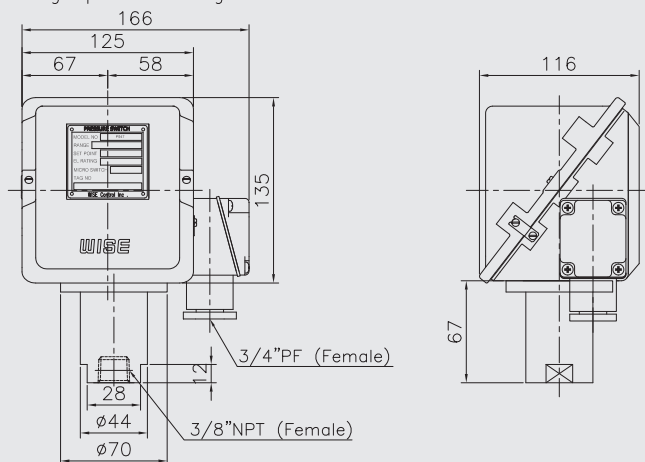
① Vacuum & Low pressure range



② Middle pressure range



③ Middle-High & High pressure range



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing setpoint.

Working range

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

Max.Working pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of set point may occur, or the device may be rendered inoperative.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable setting range		Dead band		Working range	Flange size (mm)	Max.Working pressure		
			One SPDT Setpoint	One DPDT Setpoint					
	bar	kPa	bar		bar		bar	MPa	
900	-0.1 ~ 1	-10 ~ 100	Within 5% Max adjustable range	Within 10% Max adjustable range	5	91	35	3.5	
957	0.1 ~ 1	10 ~ 100							
928	0.2 ~ 2	20 ~ 200							
958	0.3 ~ 3	30 ~ 300							
959	0.4 ~ 4	40 ~ 400			10				
960	0.6 ~ 6	60 ~ 600							
961	1 ~ 10	0.1 ~ 1 MPa			100	70	170	17	
962	1.5 ~ 15	0.15 ~ 1.5 MPa							
963	2 ~ 20	0.2 ~ 2 MPa							
964	3 ~ 30	0.3 ~ 3 MPa							
965	5 ~ 50	0.5 ~ 5 MPa							
966	7 ~ 70	0.7 ~ 7 MPa							
967	10 ~ 100	1 ~ 10 MPa			200		200	20	
968	15 ~ 150	1.5 ~ 15 MPa					400	40	

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	10		2	1	6		3	1.5
250 V AC	10		1.5	0.7	4		2	1
8 V DC	10		3	1.5	6		5	2.5
30 V DC	10		3	1.5	4		3	1.5
125 V DC	0.5		0.5		0.05		0.05	
250 V DC	0.25		0.25		0.03		0.03	

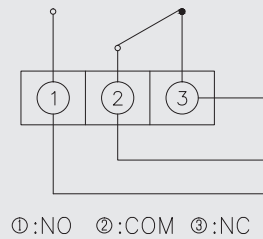
DPDT switching element

Double-pole, double throw (DPDT) is two SPDT switching elements operated by a common lever assembly so simultaneous actuation / deactuation occurs at both the increasing and the decreasing set point.

Two independent electrical circuits can be switches, i.e. one AC and one DC.

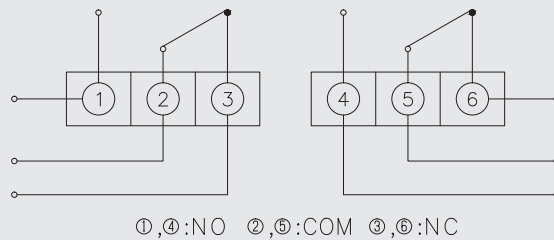
One SPDT

When the input pressure reach the upper or lower limit setpoint.
The circuit is colsed and opened.



One DPDT

When the input pressure reach the upper or lower limit setpoint.
The circuit are simultaneously closed and opened.



NO : Normal open
NC : Normal close

Explosion proof pressure switch

Model: P953 (953 series)

Spec. sheet no. **PD09-08**

Service intended

P953 diaphragm type pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids, such as atmospheric pressure and water pressure. The pressure sensing part is a force balanced and piston actuated assembly.

Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

0.3 kPa to 15 MPa

-1.0 ~ -0.15 bar

Dead band

Fixed

One SPDT : Approx. 5 % adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP67



Standard features

Pressure connection

Stainless steel (316SS)

316L SS, Monel and Hastelloy-C

Element

Stainless steel (316L SS)

Monel, Hastelloy-C

Viton (Up to 4 kPa adjustable range)

Case and cover

ALDC 12.1

Silver gray finished aluminium

Process connection

¼", ⅜", ½" PT, NPT and PF

Contact

Micro contact type

One SPDT (P953-1B3)

Two SPDT (P953-2B3)(Only available with single setpoint)

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

Conduit connection

¾" NPT (F)

Certificates

KCS Ex d IIC T6

ATEX II 2G Ex d IIC T6 Gb

IECEx Ex d IIC T6 Gb

WISE®

| P953_01

1. Base model**P953** Explosion proof pressure switch**2. Switch form**

- 1** One SPDT
- 2** Two SPDT (Only available with single setpoint)

3. Unused character**B3** None**4. Process connection**

- C** ¼"
- D** ⅜"
- E** ½"

5. Connection type

- B** PF
- C** PT
- D** NPT
- E** NPT (F) - ½" NPT (F) only

6. Unit

- H** bar
- I** MPa
- J** kPa
- S** mbar

7. Range**XXX** Refer to pressure range table**8. Pressure connection and element material**

- 3** 316SS / 316L SS
- V** 316SS / Viton
- L** 316SS / Hastelloy-C
- K** 316SS / Monel
- Z** Monel / Monel
- H** Hastelloy-C / Hastelloy-C

9. Options

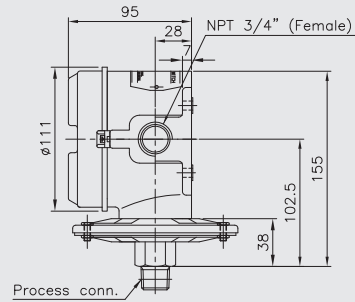
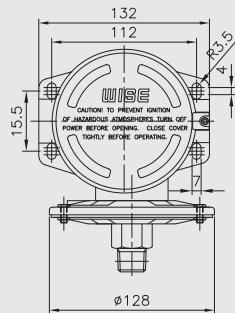
- 0** None
- 2** 2" pipe mounting bracket 304SS
- 3** 2" pipe mounting bracket 316SS

1	2	3	4	5	6	7	8	9
P953	2	B3	C	D	H	XXX	3	0

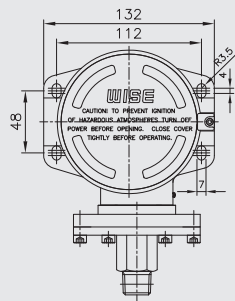
Sample
ordering code

P953 : Type of mounting

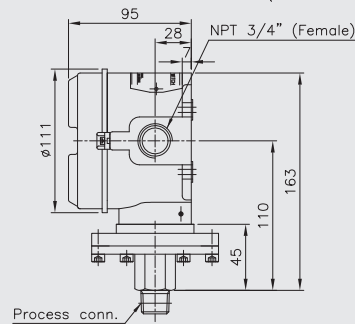
① 0.3 ~ 3 kPa (Pmax. 2 bar)



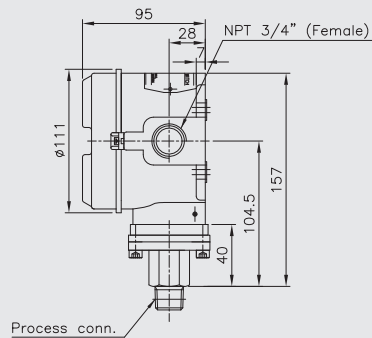
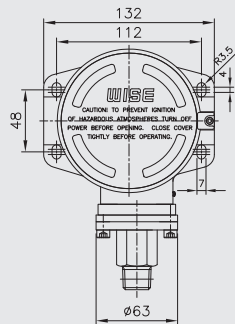
② Nominal diameter $\phi 113$: 2 ~ 7 kPa (Pmax. 5 bar)



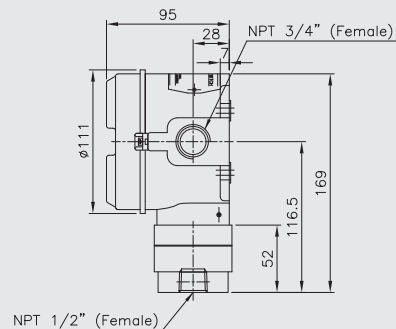
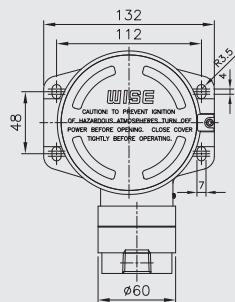
②-1 Nominal diameter $\phi 88$ ($\phi 98$) : 7.5 ~ 50 kPa (Pmax. 10 bar)



③ 0.45 ~ 50 bar (Pmax. 20 bar)



④ 8.5~150 bar (Pmax. 50 ~ 150 bar)



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing setpoint.

Working range

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of setpoint, leakage or material failure.

Max.Working pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of set point may occur, or the device may be rendered inoperative.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable Setting range		Dead band		Working range	Flange size (mm)	Max. Working pressure	
			One SPDT Setpoint	Two SPDT Setpoint				
	bar	kPa	bar		bar	bar	bar	MPa
900	-0.1 ~ -1	-10 ~ 100	Within 10 % adjustable range	Within 20 % adjustable range	10	88 ~ 98	35	3.5
927	0.003 ~ 0.03	0.3 ~ 3			2	128	6	0.6
930	0.02 ~ 0.07	2 ~ 7			5	113		
929	0.003 ~ 0.07	0.3 ~ 7						
901	0.075 ~ 0.15	7.5 ~ 15	Within 5 % adjustable range	Within 10 % adjustable range	10	88 ~ 98	35	3.5
938	0.045 ~ 0.3	4.5 ~ 30						
941	0.075 ~ 0.5	7.5 ~ 50						
949	0.09 ~ 0.6	9 ~ 60						
942	0.12 ~ 0.8	12 ~ 80			20	63	70	7
902	0.15 ~ 1	15 ~ 100						
903	0.3 ~ 2	30 ~ 200						
904	0.45 ~ 3	45 ~ 300						
906	0.9 ~ 6	90 ~ 600						
908	1.5 ~ 10	0.15 ~ 1 MPa			50	60	170	17
911	2.25 ~ 15	0.225 ~ 1.5 MPa						
912	3 ~ 20	0.3 ~ 2 MPa						
914	4.5 ~ 30	0.45 ~ 3 MPa						
916	7.5 ~ 50	0.75 ~ 5 MPa			100		200	20
918	8.5 ~ 70	0.85 ~ 7 MPa						
919	10.5 ~ 100	1.05 ~ 10 MPa			150		400	40
926	15.5 ~ 150	1.55 ~ 15 MPa						

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

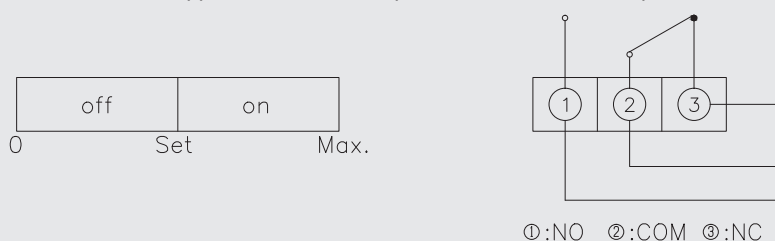
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

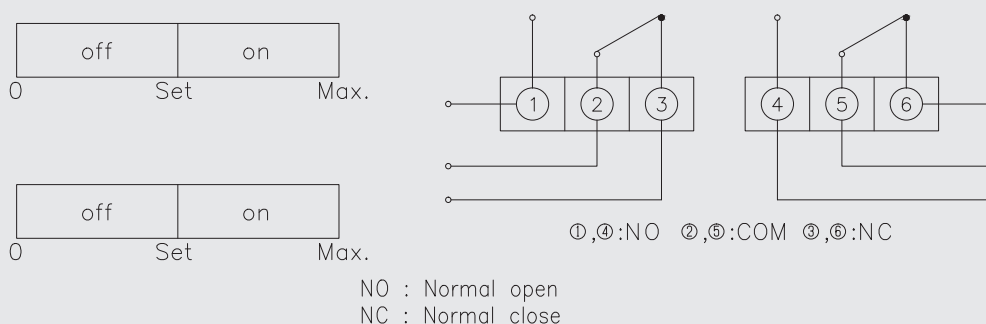
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Conversion table

Pressure conversion chart

psi	atm	kgf/cm²	inH₂O	mmHg	inHg	kPa	bar	mmH₂O
1	0.068046	0.070307	27.7276	51.715	2.03602	6.835	0.06895	704.28104
14.696	1	1.0332	407.484	760	29.921	101.325	1.01325	10350.0936
14.2233	0.96784	1	394.38	735.559	28.959	98.096	0.98067	10,000
0.036092	0.002454	0.00253	1	1.8651	0.07343	0.249	0.00249	25.4
0.019336	0.001315	0.001359	0.53616	1	0.03937	0.1333	0.001333	13.618464
0.491154	0.0033421	0.03453	13.6185	25.4	1	3.3864	0.033864	345.9099
0.145	0.00987	0.010197	4.0186	7.5006	0.2953	1	0.01	102.07244
14.5038	0.98692	1.01972	402.156	750.062	29.53	100	1	10214.7624
0.00142	0.000097	0.0001	0.03937	0.0734	0.0029	0.0098	0.000098	1

Memo

Manometer

Model: P961 series – "U" type

Model: P962, P963, P964 series – Inclined type

Model: P965 series – Wall type

Spec. sheet no. PD09-09

Service intended

P960 series manometer is a pressure measuring instrument, and it measures the for calibration of all pressure instruments.
It is suitable for measuring low and vacuum pressure.

Scale range

U type : 0 ~ ±100 to 0 ~ ±600 mm

Inclined type : 0 ~ 30, 60 and 150 mm

Wall type : 0 ~ 500, 1,000 and 1,500 mm

EAC



Standard features

Pressure connection

Stainless steel (304SS)
tube connection for 8 mm

Scale plate

White aluminium with stainless steel
Black graduation
2 mm

Tube

Material : Glass
Outer diameter : 12 mm
In diameter : 9.4 mm (P961)
5.0 mm (P962, P963, P964, P965)

Base plate

SCP2, Black painted
Option : 304SS

Working temperature

Ambient : 15 ~ 25 °C
Fluid : Max. 35 °C

Mounting

Surface mounting

Measuring liquid

Anti freezing liquid
Water

Option

304SS, Black painted

WISE®

1. Base model

- P961** U type manometer
P962 Inclined manometer (Inclined rates, 1:2)
P963 Inclined manometer (Inclined rates, 1:5)
P964 Inclined manometer (Inclined rates, 1:10)
P965 Wall type manometer

2. Measuring liquid

- 8** Antifreezing liquid (Specific gravity = 1.120)
9 Water (Standard)

3. Type of mounting

- S** U type, only available with P961 series
T Inclined type, only available with P962, P963 and P964 series
U Wall type, only available with P965 series

4. Base plate material

- 0** Steel (Black painted)
1 304SS (Black painted)

5. Process connection

- M** 8 mm

6. Connection type

- K** Tube connection

7. Measuring unit

- M** mm
J kPa

8. Range

- XXX** Refer to pressure range table

9. Color

- 2** 2 colors

10. Options

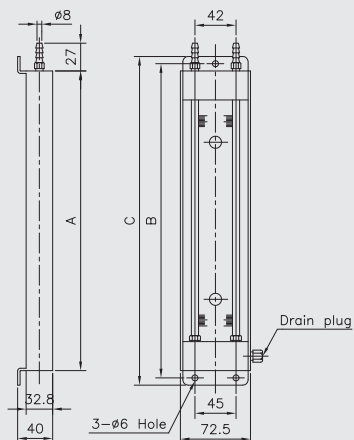
- 0** None
1 Accessories

1	2	3	4	5	6	7	8	9	10
P961	8	S	0	M	K	M	XXX	2	0

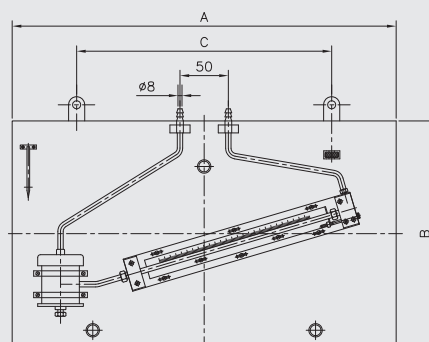
Sample
ordering code

P96X : Type of mounting

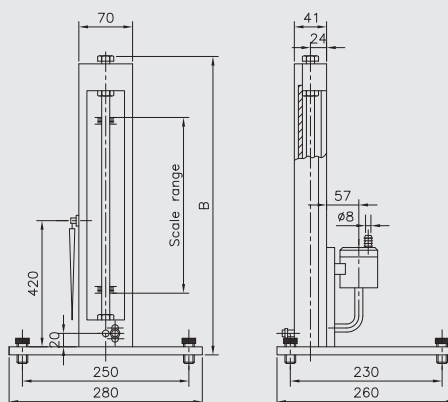
Code S (P961)



Code T (P962, P963, P964)



Code U (P965)



Dimensions (mm)

Available code	Range (mm)	A	B	C	Available code	Inclined rates	Range (mm)	A	B	C
P961 (Code S)	200mm(-100~0~100)	315	330	345	P962 (Code T)	1:2	0~30	290	300	230
	300mm(-150~0~150)	415	430	445			0~60	350	300	280
	400mm(-200~0~200)	520	535	550			0~150	600	400	400
	500mm(-250~0~250)	620	635	650	P963 (Code T)	1:5	0~30	500	300	400
	600mm(-300~0~300)	725	740	755			0~60	600	350	440
	700mm(-350~0~350)	830	845	860			0~150	1100	400	800
	800mm(-400~0~400)	930	945	960	P964 (Code T)	1:10	0~30	570	300	440
	900mm(-450~0~450)	1035	1050	1065			0~60	860	300	600
	1000mm(-500~0~500)	1135	1150	1165			0~100	1300	400	1150
P965 (Code U)	1200mm(-600~0~600)	1345	1360	1375						
	-760~0		978							
	0~500		718							
	0~1000		1208							
	0~1500		1708							

Pressure range table

Order code	Nominal length (mm)	Measuring range (Water column)(kPa)	Model
421	-100 ~ 100	±1	P961 (U type)
420	-150 ~ 150	±1.5	
419	-200 ~ 200	±2	
418	-250 ~ 250	±2.5	
417	-300 ~ 300	±3	
416	-350 ~ 350	±3.5	
415	-400 ~ 400	±4	
414	-450 ~ 450	±4.5	
413	-500 ~ 500	±5	
412	-600 ~ 600	±6	
508	0 ~ 30	0 ~ 0.3	P962, P963 (Inclined type)
511	0 ~ 60	0 ~ 0.6	
458	0 ~ 150	0 ~ 1.5	
508	0 ~ 30	0 ~ 0.3	P964 (Inclined type)
511	0 ~ 60	0 ~ 0.6	
458	0 ~ 150	0 ~ 1.5	
026	-760 ~ 0	-7.4 ~ 0	P965 (Wall type)
465	0 ~ 500	0 ~ 5	
469	0 ~ 1,000	0 ~ 9.8	
515	0 ~ 1,500	0 ~ 14.6	

Explosion proof type differential pressure switch

Model: P970 (953 series)

Spec. sheet no. PD09-10

Service intended

P970 diaphragm type differential pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids, such as atmospheric pressure and water pressure. The pressure sensing part is a force balanced and piston actuated assembly.



Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

15 kPa to 0.4 MPa

Dead band

Fixed

One SPDT : Approx. 5 % of adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -40 ~ 65 °C

Fluid : Max. 100 °C

Static pressure

Max. 0.2, 5 MPa

Degree of protection

EN60529/IEC529/IP67



Standard features

Pressure connection

Stainless steel (316SS)
316L SS, Monel and Hastelloy-C

Element

Stainless steel (316L SS)
Monel, Hastelloy-C
Viton (Up to 4 kPa adjustable range)

Case and cover

ALDC 12.1
Silver gray painted aluminium

Process connection

1/4" NPT (F)

Contact

Micro contact type
One SPDT (P970-1B3)
Two SPDT (P970-2B3)(Only available with single setpoint)

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A
DC 125 V, 0.4 A for resistance load
DC 125V, 0.03 A for inductive load

Conduit connection

3/4" NPT (F)

Certificates

KCS Ex d IIC T6
ATEX II 2G Ex d IIC T6 Gb
IECEX Ex d IIC T6 Gb

WISE®

| P970_01

1. Base model**P970** Explosion proof type differential pressure switch**2. Switch form**

- 1** One SPDT
- 2** Two SPDT (Only available with single setpoint)

3. Unused character**B3** None**4. Process connection****C** ¼"**5. Connection type****D** NPT (F)**6. Unit**

- H** bar
- I** MPa
- J** kPa
- S** mbar

7. Range**XXX** Refer to pressure unit and range table**8. Pressure connection / Element material**

- 3** 316SS / 316L SS
- V** 316SS / Viton
- L** 316SS / Hastelloy-C
- K** 316SS / Monel
- Z** Monel / Monel
- H** Hastelloy-C / Hastelloy-C

9. Options

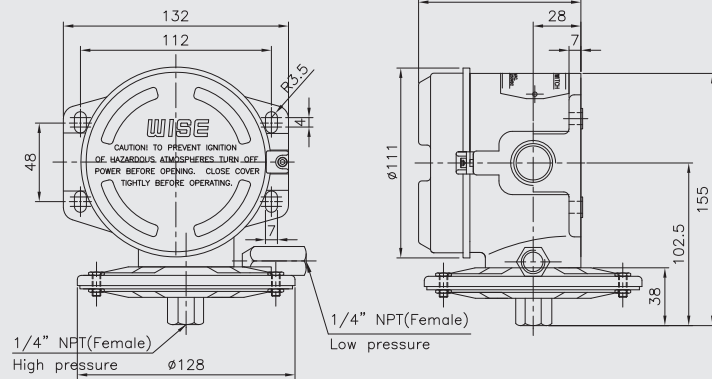
- 0** None
- 1** 3 way / 5 way manifold valve

1	2	3	4	5	6	7	8	9
P970	1	B3	C	D	H	XXX	3	0

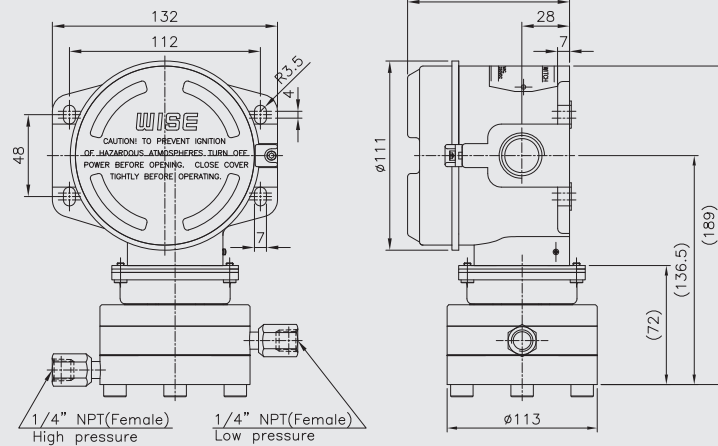
Sample
ordering code

P970 : Type of mounting

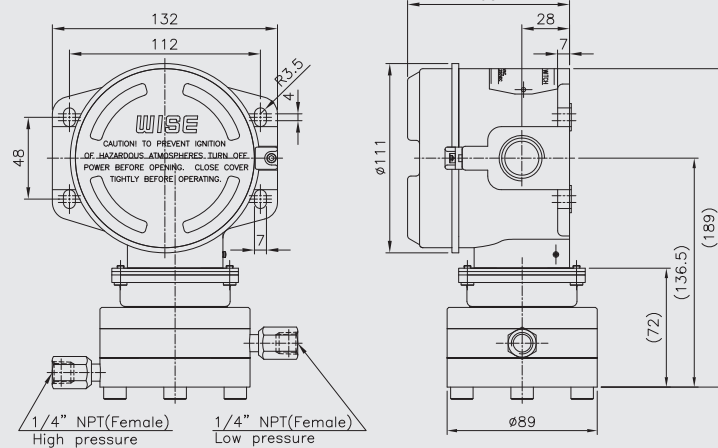
① 30 mmH₂O ~ 1000 mmH₂O



② 100 mmH₂O ~ 1000 mmH₂O



③ 10 ~ 400 kPa



Pressure switch

A bi-stable electro mechanical device than actuates/ deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing setpoint.

Working pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of setpoint, leakage or material failure.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable setting range			Working pressure	Flange size
	H : bar	I : MPa	J : kPa	bar	Diameter (mm)
932	0.002 ~ 0.015		0.2 ~ 1.5	2	128
994	0.01 ~ 0.15		1 ~ 15	5	113
907	0.1 ~ 0.25		10 ~ 25		
909	0.2 ~ 0.35		20 ~ 35		
910	0.3 ~ 0.5		30 ~ 50		
922	0.4 ~ 2	0.04 ~ 0.2		50	88 ~ 98
905	1.5 ~ 4	0.15 ~ 0.4			

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

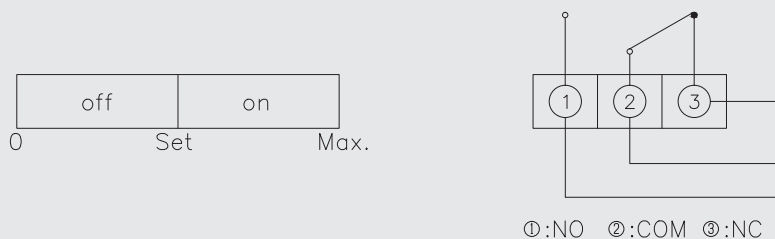
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

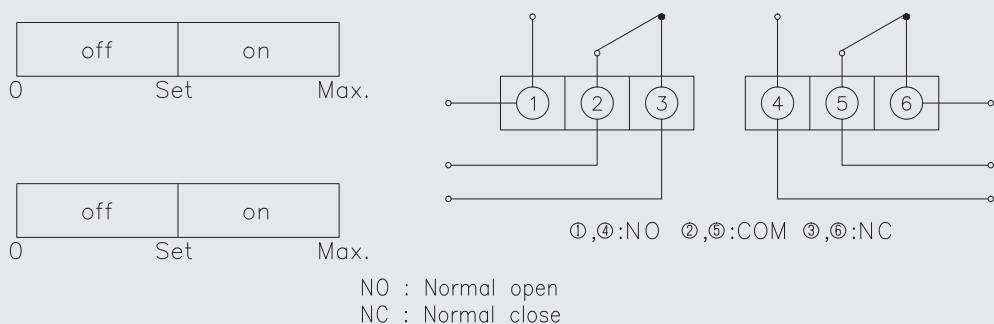
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Explosion proof type indicating pressure switch (100 mm)

Model: P980 series

Spec. sheet no. PD09-11

Service intended

P980 series explosion proof indicating pressure switches measure a corrosive fluid and a high pressure. It is equipped with a micro contact or an electrical contact block, which is suitable for all types of contacts.



Nominal diameter

100 mm

Accuracy

Indicator : ± 1.0 % of full scale

Alarm setting : ± 3.0 % of full scale

Repeatability

± 1.0 % of adjustable range (Micro contact type)

Adjustable range (MPa, kPa, bar)

-0.1 ~ 0 to 0 ~ 2 MPa

0 ~ 0.1 to 0 ~ 35 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Pressure connection

Stainless steel (316SS)

Element

C type bourdon tube

Stainless steel (316SS)

Case and cover

ALDC12.1

Silver gray painted aluminium

Surface mounting

Contact

- Micro contact
 - One SPDT or Two SPDT
- Electrical contact
 - One SPST or Two SPST

Contact rating

- Micro contact type
 - AC 125 V, 5 A / 250 V, 3 A and DC 30 V, 4 A
 - DC 125 V, 0.4 A for resistance load
 - AC 125 V, 3 A / 250 V, 2 A and DC 30 V, 3 A
 - DC 125 V, 0.05 A for inductive load

- Electrical contact
 - AC 250 V, 1.0 A

Conduit connection

$\frac{1}{2}$ " NPT(F), Lead wire length (Max. 1 m)

* Refer to "Switching element" for wiring diagram.

Process connection

$\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Setpoint adjustment

Certificates

KCS Ex d IIC T6

Option

Explosion proof type cable gland

- 304SS
- $\frac{1}{2}$ " NPT(M)

1. Base model

- P981** Explosion proof type indicating pressure switch with micro contact
- P982** Explosion proof type indicating pressure switch with electrical contact

2. Nominal diameter (mm)

- 4** 100

3. Mounting

- B** Bottom connection, case mounting plate

4. Contact function

- 1** High alarm
- 2** High and low alarm
- 3** Low alarm
- 4** Two high alarm
- 5** Two low alarm

5. Process connection

- D** $\frac{3}{8}$ "
- E** $\frac{1}{2}$ "

6. Connection type

- B** PF
- C** PT
- D** NPT

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range

- XXX** Refer to pressure unit and range table

9. Dial color

- 3** 2 color
- 7** 3 color

10. Option

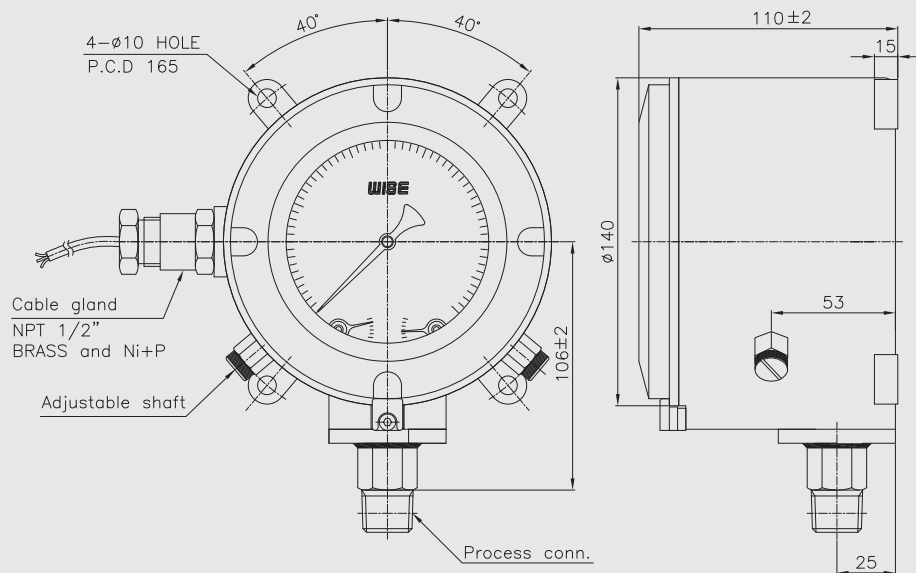
- 0** None
- 1** Accessories
- 2** Explosion proof cable gland / 304SS, NPT $\frac{1}{2}$ "(M)

1	2	3	4	5	6	7	8	9	10
P981	4	B	1	D	B	H	XXX	3	0

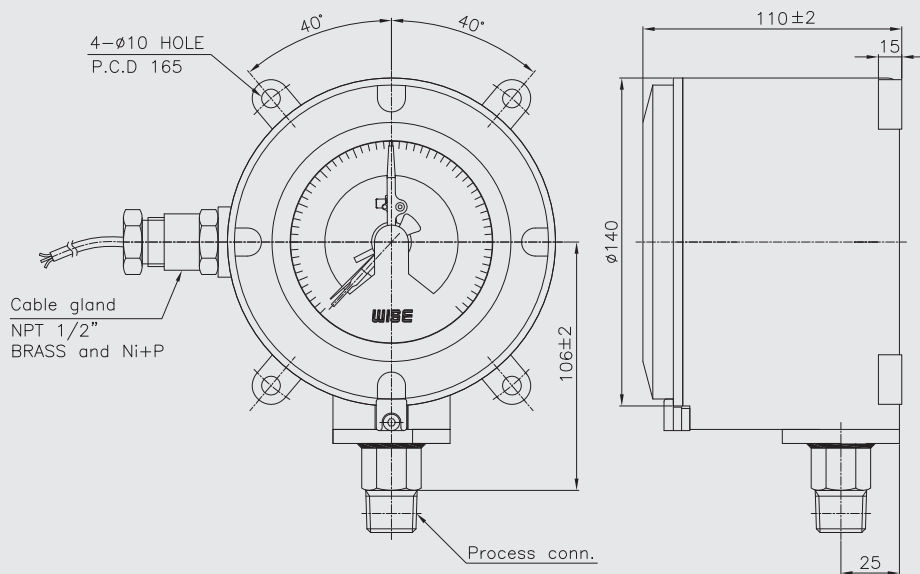
Sample
ordering code

P980 : Type of mounting

< Micro contact type >



< Electrical contact type >



* Refer to "Switching element" for wiring diagram.

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.1 mm to 1 m/s
Mechanical operating frequency	400 operations/min
Insulation resistance	100 MΩ at 500 VDC
Contact resistance	50 MΩ max
Shock resistance	200 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	85 % max

Specifications

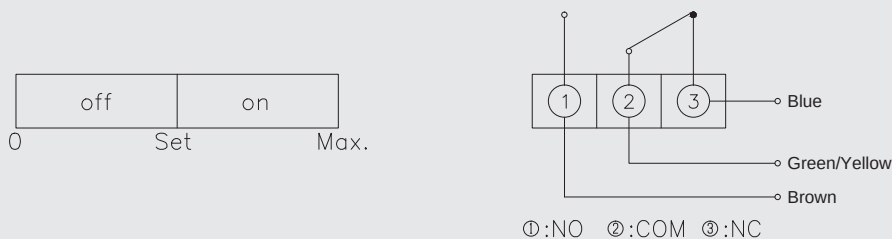
Rated voltage	Resistive load (A)		Inductive load (A)	
	NC	NO	NC	NO
125 V AC		5		3
250 V AC		3		2
8 V DC		5	5	4
14 V DC		5	4	4
30 V DC		4	3	3
125 V DC		0.4	0.4	0.4
250 V DC		0.2	0.2	0.2

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

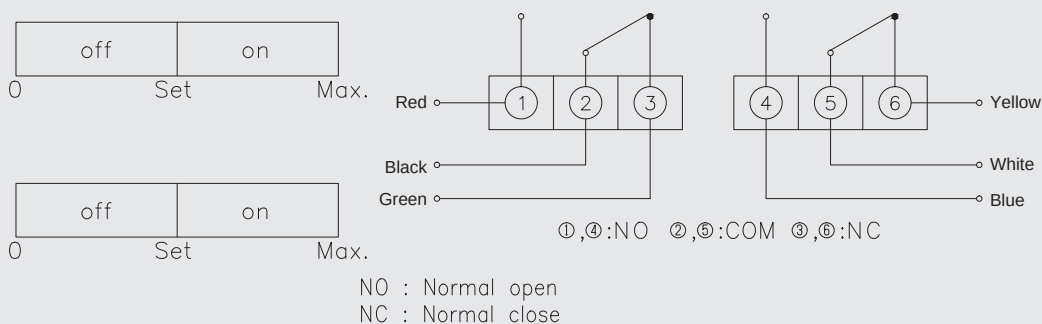
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Snap - action contacts

General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.

The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.

Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.

To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.

Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.

The switching safety is increased by the increased contact pressure.

When the circuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

Specifications

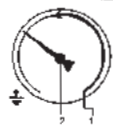
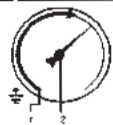
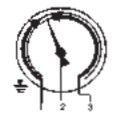
Maximum contact rating with non-inductive (ohmic) load		Electric contacts type pressure gauge	
		Dry gauges	
Maximum voltage		250 V	
Current ratings	Make ratings	1.0 A	
	Break ratings	1.0 A	
	Continuos load	0.6 A	
Maximum load		30 W 50 VA	
Material of contact points		Silver-Nickel alloy (80 % Ag / 20 %Ni / 10 µm) gold-plated	
Ambient operating temperature		-20...+70 °C	
Max. no. of contacts		2	
Voltage test		Circuit / protective earth conductor - 2,000 vac 1 minute	
		Circuit /circuit - 2,000 vac 1 minute	

Recommended contact ratings with ohmic and inductive load

Voltage (DIN IEC 38) DC / AC	Electric contacts type pressure gauge		
	Dry gauges		
	Ohmic load		Inductive load
	DC	AC	
			cosØ > 0.7
V	mA	mA	mA
220 / 230	100	120	65
110 / 110	200	240	130
48 / 48	300	450	200
24 / 24	400	600	250

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

Contact function table

Code	Wiring scheme	Contact function		Wiebrock code no.	Remark
		1 st contact	2 nd contact		
Single Contact					
1	Contact make when pointer reachse setpoint (Normal open - NO)			S/M-1	Normal use high alarm system
3	Contact break when pointer reachse setpoint (Normal close - NC)			S/M-2	Normal use low alarm system
Double Contact - Common Circuit					
4	1 st and 2 nd contact make when pointer reaches setpoint			S/M-11	Normal use two high alarm system
2	1 st contact break 2 nd contact make when pointer reaches setpoint			S/M-21	Normal use high and low alarm system
5	1 st and 2 nd contact break when pointer reaches setpoint			S/M-22	Normal use two low alarm system

Terminal block arrangement

1. High alarm (S/M-1)

- ① Normal open
- ② Common
- ④ Ground

2. High and low alarm (S/M-21)

Low alarm

- ① Normal close
- ② Common
- ④ Ground

High alarm

- ② Common
- ③ Normal open

3. Low alarm (S/M-2)

- ① Normal close
- ② Common
- ④ Ground

4. Two high alarm (S/M-11)

No.1 High alarm

- ① Normal open
- ② Common
- ④ Ground

No.2 High alarm

- ② Common
- ③ Normal open

5. Two low alarm (S/M-22)

No.2 Low alarm

- ① Normal close
- ② Common
- ④ Ground

No.1 Low alarm

- ② Common
- ③ Normal close

Cable identification

Contact function	NO	COM	NC	EARTH
	Brown	Black	Blue	Green

Range table

Range and code	Unit and code		
	H : bar	I : MPa	J : kPa
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0
041	0 ~ 1	0 ~ 0.1	0 ~ 100
042	0 ~ 2	0 ~ 0.2	0 ~ 200
043	0 ~ 3	0 ~ 0.3	0 ~ 300
044	0 ~ 4	0 ~ 0.4	0 ~ 400
045	0 ~ 6	0 ~ 0.6	0 ~ 600
047	0 ~ 10	0 ~ 1	0 ~ 1,000
050	0 ~ 15	0 ~ ~ 1.5	X
051	0 ~ 20	2	X
052	0 ~ 25	0 ~ 2.5	X
054	0 ~ 35	0 ~ 3.5	X
055	0 ~ 50	0 ~ 5	X
057	0 ~ 70	0 ~ 7	X
058	0 ~ 100	0 ~ 10	X
059	0 ~ 150	0 ~ 15	X
062	0 ~ 250	0 ~ 25	X
064	0 ~ 350	0 ~ 35	X
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa

Explosion proof type indicating pressure switch (125 mm)

Model: P990 series

Spec. sheet no. PD09-12

Service intended

P990 series explosion proof type indicating pressure switches are micro contact type. It is suitable to be used with corrosive fluid and it can measure a high pressure. Dead band is fixed.



Nominal diameter

125 mm

Accuracy

Indicator : ± 1.0 % of full scale
Switch setting : ± 3 % of full scale

Repeatability

± 1.0 % of adjustable range

Adjustable range (MPa, kPa, bar)

-0.1 ~ 0 to -0.1 ~ 2 MPa
0 ~ 0.1 to 0 ~ 40 MPa

Switch differential

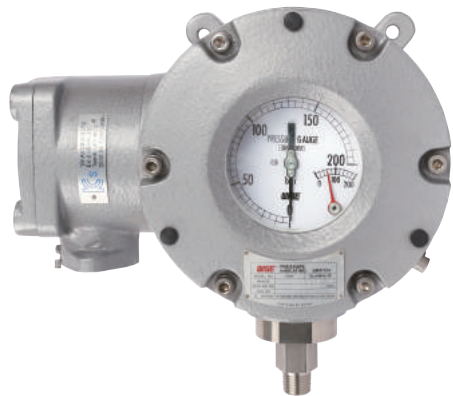
Fixed, less than 6 ~ 15 % of full scale

Working temperature

Ambient : -20 ~ 65 °C
Fluid : Max. 100 °C

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ± 0.4 % per 10 °C of full scale



Standard features

Element

C type bourdon tube,
Helical type bourdon tube

Case and cover

ALDC12.1
Silver gray painted aluminium

Setpoint adjustment

External

Contact

Micro contact type
One SPDT or Two SPDT

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A
DC 125 V, 0.4 A for resistance load
DC 125V, 0.03 A for inductive load

Conduit connection

$\frac{3}{4}$ " PF (F)

Process connection

$\frac{3}{8}$ ", $\frac{1}{2}$ " PT, NPT and PF

Certificates

KCS Ex d IIB+H₂ T₆

1. Base model**P990** Explosion proof type indicating pressure switch**2. Nominal diameter (mm)****5** 125**3. Mounting****B** Bottom connection, surface, case mounting plate**4. Alarm type**

- 1** High alarm
- 2** High and low alarm
- 3** Low alarm
- 4** Two high alarm
- 5** Two low alarm

5. Process connection

- D** $\frac{3}{8}$ "
- E** $\frac{1}{2}$ "

6. Connection type

- B** PF
- C** PT
- D** NPT

7. Unit

- H** bar
- I** MPa
- J** kPa

8. Range**XXX** Refer to pressure unit and range table**9. Dial color**

- 3** 2 color
- 7** 3 color

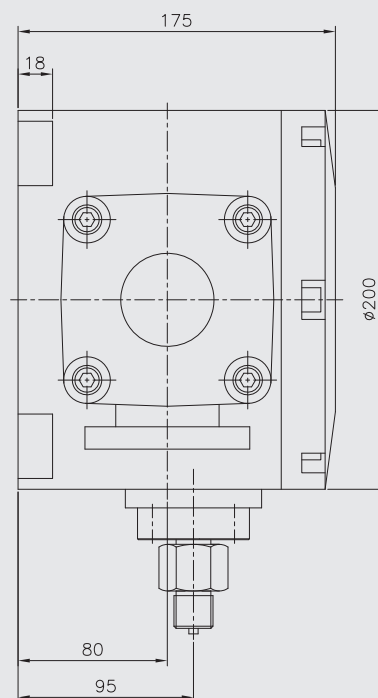
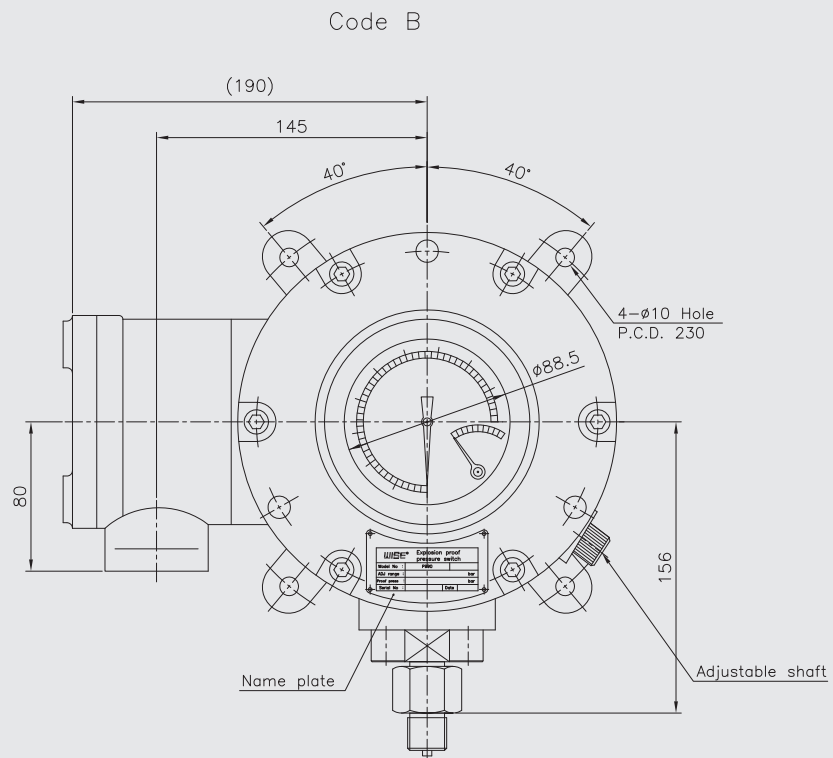
10. Option

- 0** None
- 1** Accessories

1	2	3	4	5	6	7	8	9	10
P990	5	B	1	D	B	H	XXX	3	0

Sample
ordering code

P990 : Type of mounting



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Range table

Range and code	Unit and code		
	H : bar	I : MPa	J : kPa
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0
040	0 ~ 0.5	0 ~ 0.05	0 ~ 50
041	0 ~ 1	0 ~ 0.1	0 ~ 100
042	0 ~ 2	0 ~ 0.2	0 ~ 200
043	0 ~ 3	0 ~ 0.3	0 ~ 300
044	0 ~ 4	0 ~ 0.4	0 ~ 400
045	0 ~ 6	0 ~ 0.6	0 ~ 600
047	0 ~ 10	0 ~ 1	0 ~ 1,000
050	0 ~ 15	0 ~ 1.5	X
051	0 ~ 20	2	X
052	0 ~ 25	0 ~ 2.5	X
054	0 ~ 35	0 ~ 3.5	X
055	0 ~ 50	0 ~ 5	X
057	0 ~ 70	0 ~ 7	X
058	0 ~ 100	0 ~ 10	X
059	0 ~ 150	0 ~ 15	X
062	0 ~ 250	0 ~ 25	X
064	0 ~ 350	0 ~ 35	X
065	0 ~ 400	0 ~ 40	X
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa

X : Not Available

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

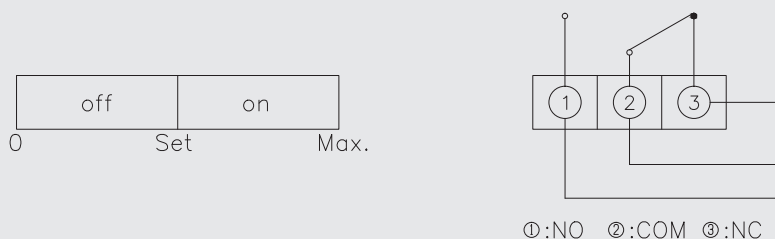
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

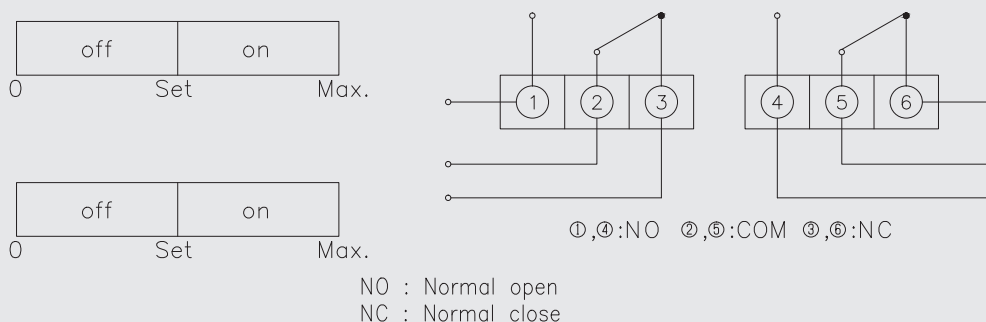
One SPDT

Pressure reach the upper or lower limit setpoint, circuit closed and opened.



Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



Explosion proof type differential pressure switch (Up to 20 kPa)

Model: P991 series

Spec. sheet no. PD09-13

Service intended

P991 explosion proof type differential switch series are bellows type, and these are primarily used for detecting the draft pressure in thermal power plants.



Fluid

Air and gas

Repeatability

±1.5 % of full range

Dead band

Fixed. 0.25 ~ 0.8 kPa or less

Differential pressure range (kPa)

0 ~ 4 kPa to 0 ~ 20 kPa

Max. Working pressure (Static pressure)

500 kPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 60 °C

Degree of protection

EN60529/IEC529/min IP65



Standard features

Pressure connection

Stainless steel (316L SS)

Conduit connection

¾" PF (F)

Element

Bellows : Stainless steel (316L SS)

Gasket : PTFE

Process connection

¼" NPT (F)

Mounting

Surface wall mounting

Operating environment

Hazardous area refer to the explosion-proof item for information

Setpoint adjustment

Internal

Contact

One SPDT

Two SPDT (Only available with single setpoint)

Certificates

KCS Ex d IIC T6

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

Option

3-way manifold valve

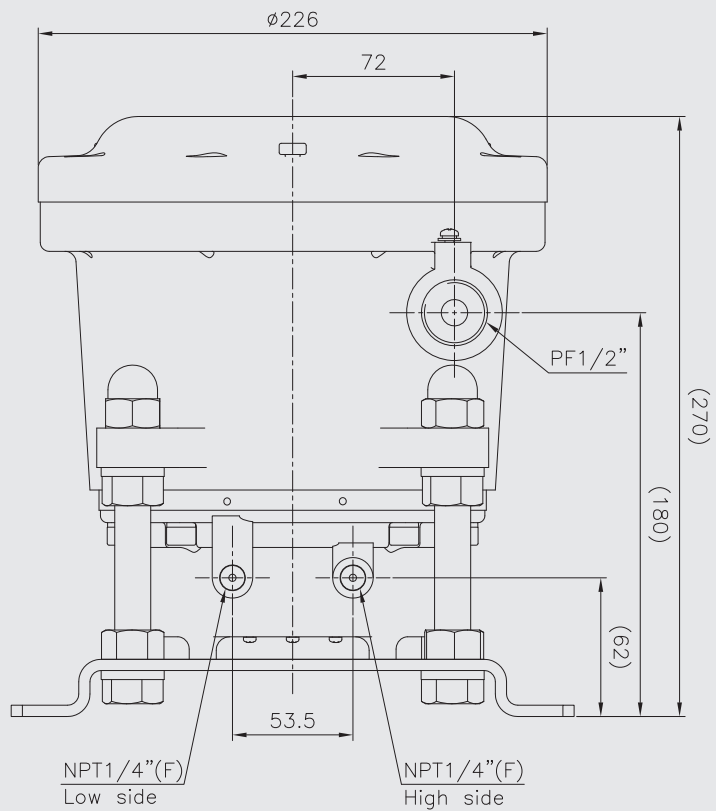
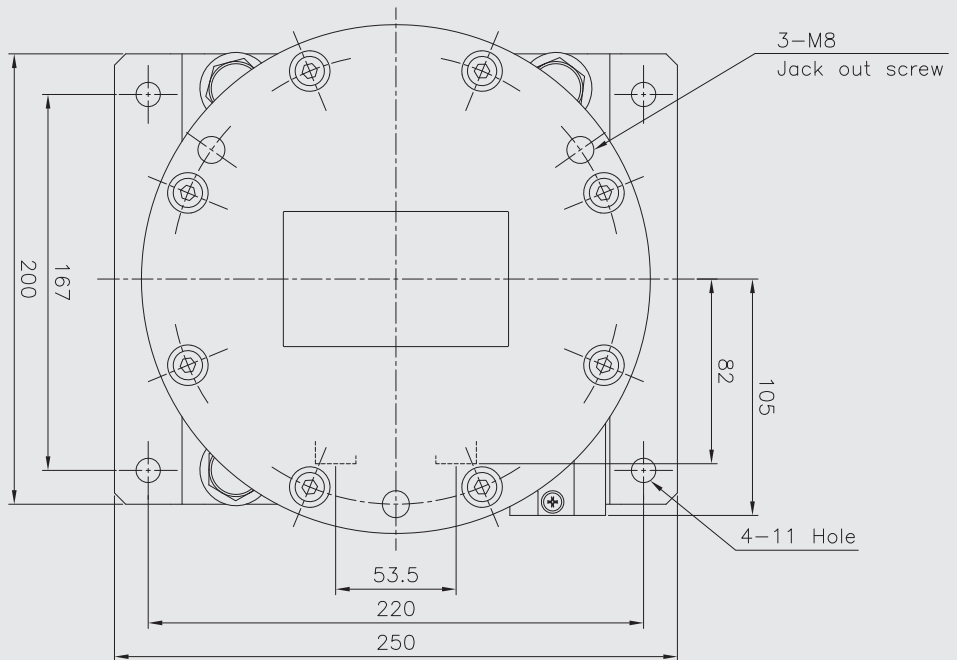
5-way manifold valve

1. Base model**P991** Explosion proof type differential pressure switch**2. Type of mounting****B** Panel mounting**3. Switch form****4** One SPDT**5** Two SPDT (Only available with single setpoint)**4. Contact****1** High alarm with single contact**2** Low alarm with single contact**5. Process connection****C** ¼" NPT (F)**6. Mounting bracket type****D** Standard bracket**E** 304SS mounting bracket**F** 316SS mounting bracket**7. Differential pressure range (kPa)****464** 0 ~ 4**465** 0 ~ 5**467** 0 ~ 7**469** 0 ~ 10**437** 0 ~ 20**419** -2 ~ +2**413** -5 ~ +5**000** Other**8. Switch type****0** Standard**1** High sensitivity**9. Option****0** Standard**1** Accessories (3-way and 5-way manifold valve)

1	2	3	4	5	6	7	8	9
P991	B	4	1	C	D	464	0	0

Sample
ordering code

P991 : Type of mounting



Pressure switch

A bi-stable electro mechanical device than actuates/deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	15 MΩ max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	10		2	1	6		3	1.5
250 V AC	10		1.5	0.7	4		2	1
8 V DC	10		3	1.5	6		5	2.5
30 V DC	10		3	1.5	4		3	1.5
125 V DC	0.5		0.5		0.05		0.05	
250 V DC	0.25		0.25		0.03		0.03	

DPDT switching element

Double-pole, double throw (DPDT) is two SPDT switching elements operated by a common lever assembly so simultaneous actuation / deactuation occurs at both the increasing and the decreasing set point.

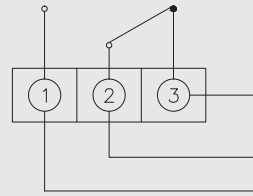
Two independent electrical circuits can be switches, i.e. one AC and one DC.

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

One SPDT

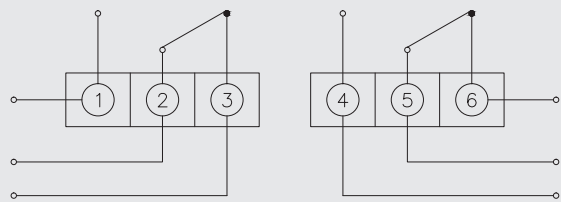
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



①:NO ②:COM ③:NC

Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



①,④:NO ②,⑤:COM ③,⑥:NC

NO : Normal open
NC : Normal close

