

# Diaphragm seal for Pressure Instrument

## Model: P790 series

Spec. sheet no. **PD07-10**

### Service intended

P790 series diaphragm seal are suitable for conditions where the process medium can cause corrosion to the instrument connection and the pressure sensing element, which the process medium contains suspended solid particles are viscous and be clogged. It is also suitable for where the process medium can freeze or solidify the internal parts of the instrument and where the medium requires flushing from the system to prevent contamination.

### Design

Instrument welded diaphragm with threaded process connection, require hydraulic fluid to transmit pressure to instrument.

### Filling liquid

Silicone oil

### Working temperature

Ambient : -20 ~ 65 °C

Fluid : Refer to filling liquid reference table

### Diaphragm material

Diaphragms are available in many corrosion resistant materials. Compatibility of selected material and process fluid should be determined by the 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

## Standard features

### Upper flange (Gauge side)

Stainless steel (304, 316), Titanium, Monel

### Capillary

Capillary :  $\varnothing 3.0$  mm, 316L

Flexible tube :  $\varnothing 7.5$  mm, 304, PVC coated



### Diaphragm material

Stainless steel(316L)

Hastelloy C-276, Titanium,

Tantalum, Monel

### Pressure connection

Thread type : PT, PF, and NPT others feasible

Flange type : ANSI(ASME), JIS or other standard

### Note

PTFE lining is available up to 7 MPa (Coating)

## Main order

## Ordering information

### 1. Base model

- P791** Diaphragm seal for gauge pressure  
**P792** Diaphragm seal for differential pressure

### 2(11). High pressure side flange configuration

- 1** Thread connector type (Figure A)  
**2** "I" flange type (Figure B)  
**3** Flat flange type (Figure C,D)  
**4** Wafer type (Figure E)  
**5** Flush diaphragm type (Figure F,G)  
**6** Extended diaphragm type (Figure H,I)

### 3(12). Upper flange and Diaphragm material

- B** 304SS and 316L SS  
**E** 316SS and 316L SS  
**G** Monel and Monel  
**H** 304SS and 316L SS + PTFE sheet  
 (Only available to figure A, B, C and D)  
**L** 316SS and Hastelloy C-276  
**N** 316SS and Tantalum  
**Q** 316SS and 316L SS + PTFE sheet  
 (Only available to figure A, B, C and D)  
**R** Titanium and Titanium  
**Z** Other

### 4(13). Process connection

- XXX** Refer to process connection type table

### 5(14). Under flange material

- XX** None (Only available to figure E,F,G,H and I)  
**BX** 304SS  
**CX** 316SS  
**DX** 304L SS  
**EX** 316L SS  
**KX** Hastelloy C-276  
**LX** Monel  
**MX** Titanium  
**PX** 304SS + PTFE lining (Only available to figure B,C and D)  
**SX** 316SS + PTFE coating  
**50** 316L SS + PTFE lining (Only available to figure B,C and D)  
**ZZ** Other

### 6(15). Extended length (mm), Only available to figure H and I

- 1** None  
**2** 50  
**3** 100  
**4** 150  
**5** 200  
**6** Other

### 7(16). Flexible tube length (m)

- A** None  
**Q** 3  
**R** 4  
**S** 5  
**T** 6  
**U** 7  
**Y** 8  
**W** 9  
**X** 10  
**Z** Other

### 8. Filling liquid

- X** Refer to filling liquid reference table

### 9(17). Option

- A** None  
**B** Flushing ring (Not available with figure E,H and I)  
**C** Flushing ring + Isolation valve  
 (Not available with figure E,H and I)

### 10. Low pressure side flange configuration

- 0** None (Gauge pressure, Single diaphragm seal for differential pressure)  
**1** Identical to high pressure side flange configuration  
**2** Different from high pressure side flange configuration  
 (See note)

**Note :**  
 Please, enter the ordering code consecutively from No.11.  
 Refer to sample ordering code.

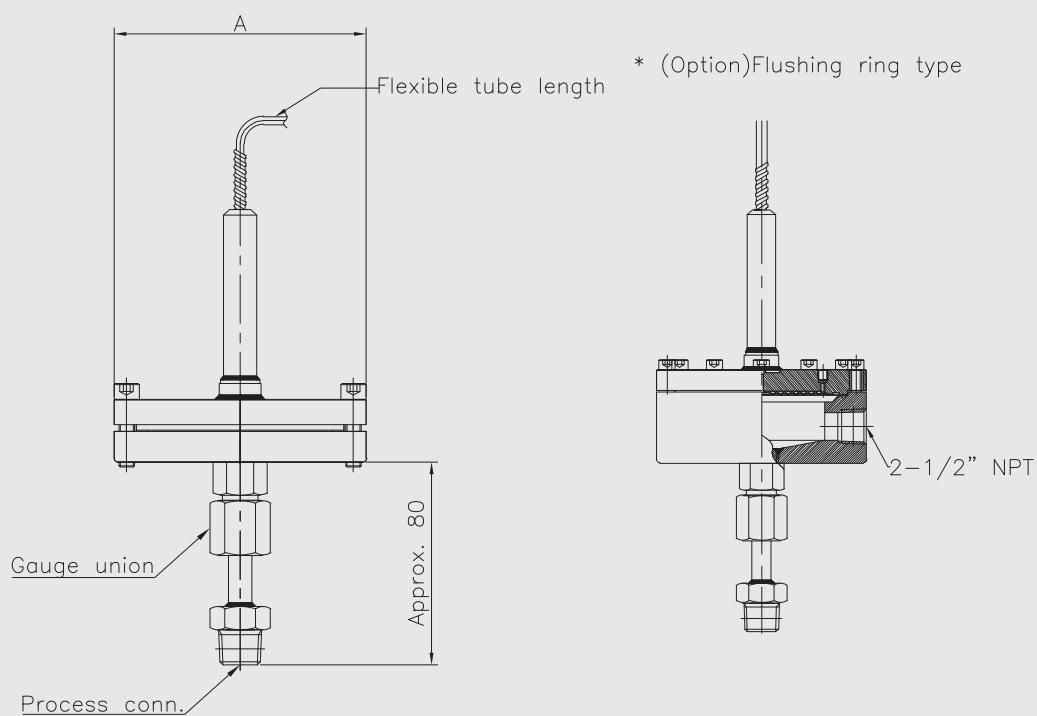
|      |   |   |     |    |   |   |   |   |    |    |
|------|---|---|-----|----|---|---|---|---|----|----|
| 1    | 2 | 3 | 4   | 5  | 6 | 7 | 8 | 9 | 10 | 11 |
| P792 | 2 | E | XXX | EX | 1 | Q | X | A | 2  | 5  |

|    |     |    |    |    |    |
|----|-----|----|----|----|----|
| 12 | 13  | 14 | 15 | 16 | 17 |
| E  | XXX | XX | 1  | A  | A  |

**Sample ordering code**

Figure "A"

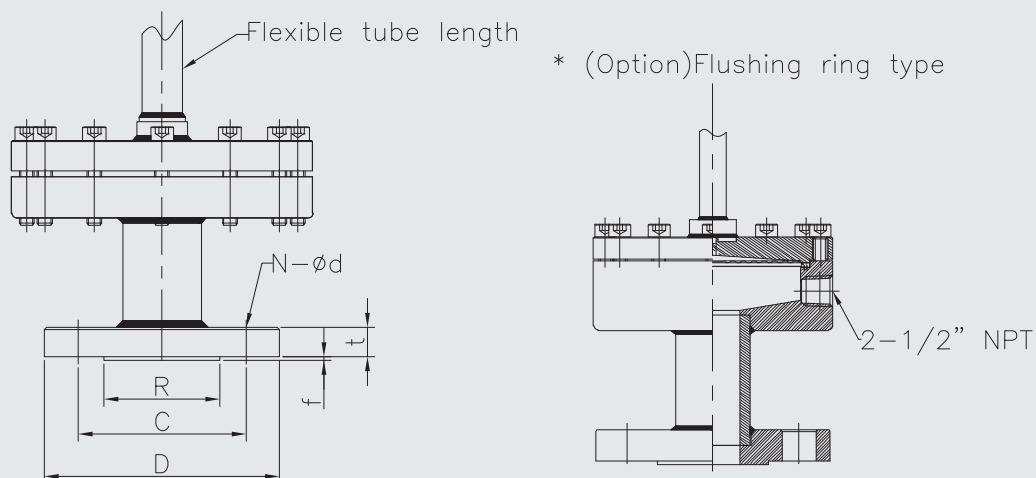


Dimensions (mm)

| Pressure rating | Diaphragm | A*  | Remark |
|-----------------|-----------|-----|--------|
| Over 10 MPa     | Ø59       | 100 |        |
| Over 10 kPa     | Ø70       | 110 |        |
| Over 5 kPa      | Ø89       | 130 |        |

\* "A" may be change depending on pressure rating.

Figure "B"



| Dimensions    |        |                 | (mm)      |     |       |       |   |      |   |    |
|---------------|--------|-----------------|-----------|-----|-------|-------|---|------|---|----|
| Flange rating |        |                 | Diaphragm | D   | C     | R     | f | t    | N | d  |
| ASME          | 1"     | CLASS 150       | Ø70, Ø89  | 110 | 79.4  | 50.8  | 2 | 12.7 | 4 | 16 |
|               | 1 1/2" |                 |           | 125 | 98.4  | 73.0  | 2 | 15.9 | 4 | 16 |
|               | 2"     |                 |           | 150 | 120.7 | 92.1  | 2 | 17.5 | 4 | 19 |
|               | 3"     |                 |           | 190 | 152.4 | 127.0 | 2 | 22.3 | 4 | 19 |
|               | 4"     |                 |           | 230 | 190.5 | 157.2 | 2 | 22.3 | 8 | 19 |
|               | 1"     | CLASS 300       |           | 125 | 88.9  | 50.8  | 2 | 15.9 | 4 | 19 |
|               | 1 1/2" |                 |           | 155 | 114.3 | 73.0  | 2 | 19.1 | 4 | 22 |
|               | 2"     |                 |           | 160 | 127   | 92.1  | 2 | 20.7 | 8 | 19 |
|               | 3"     |                 |           | 210 | 168.3 | 127.0 | 2 | 27   | 8 | 22 |
|               | 4"     |                 |           | 255 | 200   | 157.2 | 2 | 30.2 | 8 | 22 |
|               | 1"     | CLASS 400(600)  |           | 125 | 88.9  | 50.8  | 7 | 17.5 | 4 | 19 |
|               | 1 1/2" |                 |           | 155 | 114.3 | 73.0  | 7 | 22.3 | 4 | 22 |
|               | 2"     |                 |           | 165 | 127   | 92.1  | 7 | 25.4 | 8 | 19 |
|               | 3"     |                 |           | 210 | 168.3 | 127.0 | 7 | 35   | 8 | 22 |
|               | 4"     |                 |           | 255 | 200   | 157.2 | 7 | 35   | 8 | 25 |
|               | 4"     | CLASS 400       |           | 275 | 215.9 | 157.2 | 7 | 38.1 | 8 | 25 |
|               | 4"     | CLASS 600       |           | 150 | 101.6 | 50.8  | 7 | 28.6 | 4 | 25 |
|               | 1"     | CLASS 900(1500) |           | 180 | 123.8 | 73.0  | 7 | 31.8 | 4 | 29 |
|               | 1 1/2" |                 |           | 215 | 165.1 | 92.1  | 7 | 38.1 | 8 | 25 |
|               | 2"     |                 |           | 240 | 190.5 | 127.0 | 7 | 38.1 | 8 | 25 |
|               | 3"     | CLASS 900       |           | 290 | 235   | 157.2 | 7 | 44.5 | 8 | 32 |
|               | 4"     |                 |           | 265 | 203.2 | 127.0 | 7 | 47.7 | 8 | 32 |
|               | 3"     | CLASS 1500      |           | 310 | 241.3 | 157.2 | 7 | 54   | 8 | 35 |
|               | 4"     |                 |           | 160 | 108   | 50.8  | 7 | 35   | 4 | 25 |
|               | 1"     | CLASS 2500      |           | 205 | 146   | 73.0  | 7 | 44.5 | 4 | 32 |
|               | 1 1/2" |                 |           | 235 | 171.4 | 92.1  | 7 | 50.9 | 8 | 29 |
|               | 2"     |                 |           | 305 | 228.6 | 127.0 | 7 | 66.7 | 8 | 35 |
|               | 3"     |                 |           | 355 | 273   | 157.2 | 7 | 76.2 | 8 | 42 |
| 4"            |        |                 |           |     |       |       |   |      |   |    |
|               |        |                 |           |     |       |       |   |      |   |    |
|               |        |                 |           |     |       |       |   |      |   |    |

## P790X : Type of mounting (3/10)

Dimensions

(mm)

| Flange rating |      |     | Diaphragm | D   | C   | R   | f | t  | N | d  |
|---------------|------|-----|-----------|-----|-----|-----|---|----|---|----|
| JIS           | 25A  | 5K  | Ø70, Ø89  | 95  | 75  | 59  | 1 | 9  | 4 | 12 |
|               | 40A  |     |           | 120 | 95  | 75  | 2 | 10 | 4 | 15 |
|               | 50A  |     |           | 130 | 105 | 85  | 2 | 12 | 4 | 15 |
|               | 80A  |     |           | 180 | 145 | 121 | 2 | 12 | 4 | 19 |
|               | 100A |     |           | 200 | 165 | 141 | 2 | 14 | 8 | 19 |
|               | 25A  | 10K |           | 125 | 90  | 67  | 1 | 13 | 4 | 19 |
|               | 40A  |     |           | 140 | 105 | 81  | 2 | 14 | 4 | 19 |
|               | 50A  |     |           | 155 | 120 | 85  | 2 | 14 | 4 | 19 |
|               | 80A  |     |           | 185 | 150 | 126 | 2 | 16 | 8 | 19 |
|               | 100A |     |           | 210 | 175 | 151 | 2 | 16 | 8 | 19 |
|               | 25A  | 16K |           | 125 | 90  | 67  | 1 | 13 | 4 | 19 |
|               | 40A  |     |           | 140 | 105 | 81  | 2 | 14 | 4 | 19 |
|               | 50A  |     |           | 155 | 120 | 96  | 2 | 14 | 8 | 19 |
|               | 80A  |     |           | 200 | 160 | 132 | 2 | 18 | 8 | 23 |
|               | 100A |     |           | 225 | 185 | 160 | 2 | 20 | 8 | 23 |
|               | 25A  | 20K |           | 125 | 90  | 67  | 1 | 15 | 4 | 19 |
|               | 40A  |     |           | 140 | 105 | 81  | 2 | 16 | 4 | 19 |
|               | 50A  |     |           | 155 | 120 | 96  | 2 | 16 | 8 | 19 |
|               | 80A  |     |           | 200 | 160 | 132 | 2 | 20 | 8 | 23 |
|               | 100A |     |           | 225 | 185 | 160 | 2 | 22 | 8 | 23 |
|               | 25A  | 30K |           | 130 | 95  | 70  | 1 | 19 | 4 | 19 |
|               | 40A  |     |           | 160 | 120 | 90  | 2 | 20 | 4 | 23 |
|               | 50A  |     |           | 165 | 130 | 105 | 2 | 20 | 8 | 19 |
|               | 80A  |     |           | 210 | 170 | 140 | 2 | 26 | 8 | 23 |
|               | 100A |     |           | 240 | 195 | 160 | 2 | 30 | 8 | 25 |
|               | 25A  | 40K |           | 130 | 95  | 70  | 1 | 21 | 4 | 19 |
|               | 40A  |     |           | 160 | 120 | 90  | 2 | 22 | 4 | 23 |
|               | 50A  |     |           | 165 | 130 | 105 | 2 | 24 | 8 | 19 |
|               | 80A  |     |           | 210 | 170 | 140 | 2 | 30 | 8 | 23 |
|               | 100A |     |           | 250 | 205 | 165 | 2 | 34 | 8 | 25 |
|               | 25A  | 63K |           | 140 | 100 | 70  | 1 | 26 | 4 | 23 |
|               | 40A  |     |           | 175 | 130 | 90  | 2 | 30 | 4 | 25 |
|               | 50A  |     |           | 185 | 145 | 105 | 2 | 32 | 8 | 23 |
|               | 80A  |     |           | 230 | 185 | 140 | 2 | 38 | 8 | 25 |
|               | 100A |     |           | 270 | 220 | 165 | 2 | 42 | 8 | 27 |

Dimensions

(mm)

| Flange rating |       |        | Diaphragm | D   | C   | R   | f | t  | N | d    |
|---------------|-------|--------|-----------|-----|-----|-----|---|----|---|------|
| DIN           | DN25  | 6 bar  | Ø70, Ø89  | 100 | 75  | 60  | 2 | 12 | 4 | 11.5 |
|               | DN40  |        |           | 130 | 100 | 80  | 3 | 13 | 4 | 14   |
|               | DN50  |        |           | 140 | 110 | 90  | 3 | 13 | 4 | 14   |
|               | DN80  |        |           | 190 | 150 | 128 | 3 | 13 | 4 | 18   |
|               | DN100 |        |           | 210 | 170 | 148 | 3 | 13 | 4 | 18   |
|               | DN25  | 10 bar |           | 115 | 85  | 68  | 2 | 14 | 4 | 14   |
|               | DN40  |        |           | 150 | 110 | 88  | 3 | 13 | 4 | 18   |
|               | DN50  |        |           | 165 | 125 | 102 | 3 | 15 | 4 | 18   |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 17 | 4 | 18   |
|               | DN100 |        |           | 220 | 180 | 158 | 3 | 17 | 8 | 18   |
|               | DN25  | 16 bar |           | 115 | 85  | 68  | 2 | 14 | 4 | 14   |
|               | DN40  |        |           | 150 | 110 | 88  | 3 | 13 | 4 | 18   |
|               | DN50  |        |           | 165 | 125 | 102 | 3 | 15 | 4 | 18   |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 17 | 8 | 18   |
|               | DN100 |        |           | 220 | 180 | 158 | 3 | 17 | 8 | 18   |
|               | DN25  | 25 bar |           | 115 | 85  | 68  | 2 | 16 | 4 | 14   |
|               | DN40  |        |           | 150 | 110 | 88  | 3 | 15 | 4 | 18   |
|               | DN50  |        |           | 165 | 125 | 102 | 3 | 17 | 4 | 18   |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 21 | 8 | 18   |
|               | DN100 |        |           | 235 | 190 | 162 | 3 | 21 | 8 | 22   |
|               | DN25  | 40 bar |           | 115 | 85  | 68  | 2 | 16 | 4 | 14   |
|               | DN40  |        |           | 150 | 110 | 88  | 3 | 15 | 4 | 18   |
|               | DN50  |        |           | 165 | 125 | 102 | 3 | 17 | 4 | 18   |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 21 | 8 | 18   |
|               | DN100 |        |           | 235 | 190 | 162 | 3 | 21 | 8 | 23   |

Figure "C"

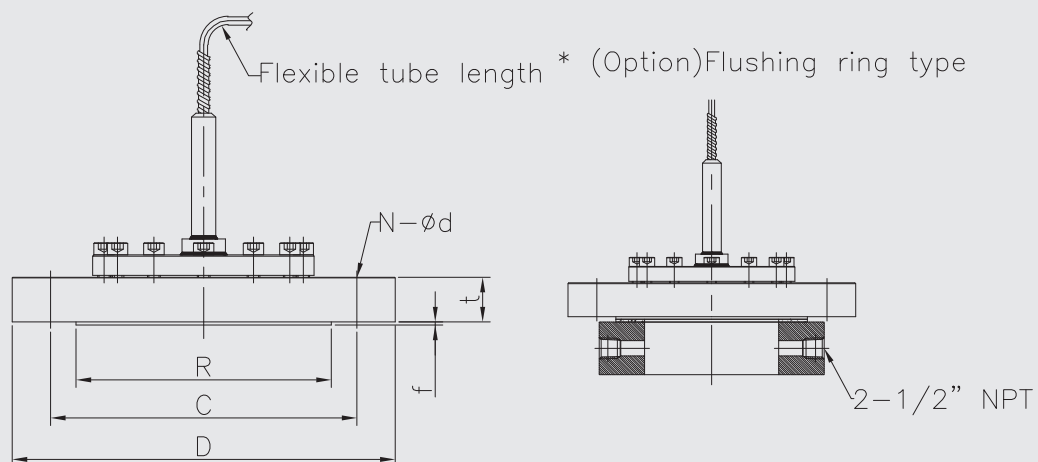
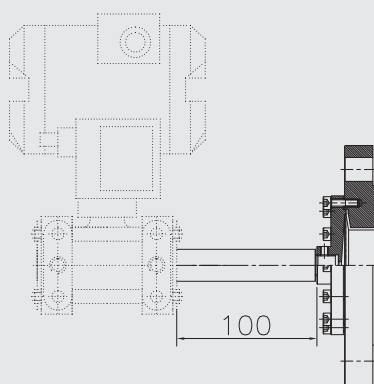


Figure "D"



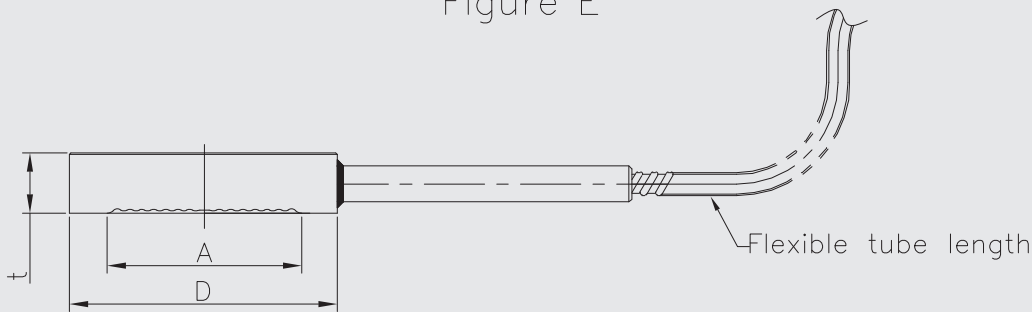
## P790X : Type of mounting (5/10)

| Dimensions (mm) |        |                 |           |     |       |       |   |      |   |    |
|-----------------|--------|-----------------|-----------|-----|-------|-------|---|------|---|----|
| Flange rating   |        |                 | Diaphragm | D   | C     | R     | f | t    | N | d  |
| ASME            | 1 1/2" | CLASS 150       | Ø70       | 125 | 98.4  | 73.0  | 2 | 15.9 | 4 | 16 |
|                 | 2"     |                 |           | 150 | 120.7 | 92.1  | 2 | 17.5 | 4 | 19 |
|                 | 3"     |                 | Ø89       | 190 | 152.4 | 127.0 | 2 | 22.3 | 4 | 19 |
|                 | 4"     |                 |           | 230 | 190.5 | 157.2 | 2 | 22.3 | 8 | 19 |
|                 | 1 1/2" | CLASS 300       | Ø70       | 155 | 114.3 | 73.0  | 2 | 19.1 | 4 | 22 |
|                 | 2"     |                 |           | 160 | 127   | 92.1  | 2 | 20.7 | 8 | 19 |
|                 | 3"     |                 | Ø89       | 210 | 168.3 | 127.0 | 2 | 27   | 8 | 22 |
|                 | 4"     |                 |           | 255 | 200   | 157.2 | 2 | 30.2 | 8 | 22 |
|                 | 1 1/2" | CLASS 400(600)  | Ø70       | 155 | 114.3 | 73.0  | 7 | 22.3 | 4 | 22 |
|                 | 2"     |                 |           | 165 | 127   | 92.1  | 7 | 25.4 | 8 | 19 |
|                 | 3"     |                 | Ø89       | 210 | 168.3 | 127.0 | 7 | 35   | 8 | 22 |
|                 | 4"     | CLASS 400       |           | 255 | 200   | 157.2 | 7 | 35   | 8 | 25 |
|                 | 4"     | CLASS 600       |           | 275 | 215.9 | 157.2 | 7 | 38.1 | 8 | 25 |
|                 | 1 1/2" | CLASS 900(1500) | Ø70       | 180 | 123.8 | 73.0  | 7 | 31.8 | 4 | 29 |
|                 | 2"     |                 |           | 215 | 165.1 | 92.1  | 7 | 38.1 | 8 | 25 |
|                 | 3"     | CLASS 900       | Ø89       | 240 | 190.5 | 127.0 | 7 | 38.1 | 8 | 25 |
|                 | 4"     |                 |           | 290 | 235   | 157.2 | 7 | 44.5 | 8 | 32 |
|                 | 3"     | CLASS 1500      |           | 265 | 203.2 | 127.0 | 7 | 47.7 | 8 | 32 |
|                 | 4"     |                 |           | 310 | 241.3 | 157.2 | 7 | 54   | 8 | 35 |
|                 | 1 1/2" | CLASS 2500      | Ø70       | 205 | 146   | 73.0  | 7 | 44.5 | 4 | 32 |
|                 | 2"     |                 |           | 235 | 171.4 | 92.1  | 7 | 50.9 | 8 | 29 |
|                 | 3"     |                 | Ø89       | 305 | 228.6 | 127.0 | 7 | 66.7 | 8 | 35 |
|                 | 4"     |                 |           | 355 | 273   | 157.2 | 7 | 76.2 | 8 | 42 |

| Flange rating |      |     | Diaphragm | D   | C   | R   | f | t  | N | d  |
|---------------|------|-----|-----------|-----|-----|-----|---|----|---|----|
| JIS           | 50A  | 5K  | Ø70       | 130 | 105 | 85  | 2 | 12 | 4 | 15 |
|               | 80A  |     |           | 180 | 145 | 121 | 2 | 12 | 4 | 19 |
|               | 100A |     | Ø89       | 200 | 165 | 141 | 2 | 14 | 8 | 19 |
|               | 50A  | 10K | Ø70       | 155 | 120 | 85  | 2 | 14 | 4 | 19 |
|               | 80A  |     |           | 185 | 150 | 126 | 2 | 16 | 8 | 19 |
|               | 100A |     | Ø89       | 210 | 175 | 151 | 2 | 16 | 8 | 19 |
|               | 50A  | 16K | Ø70       | 155 | 120 | 96  | 2 | 14 | 8 | 19 |
|               | 80A  |     |           | 200 | 160 | 132 | 2 | 18 | 8 | 23 |
|               | 100A |     | Ø89       | 225 | 185 | 160 | 2 | 20 | 8 | 23 |
|               | 50A  | 20K | Ø70       | 155 | 120 | 96  | 2 | 16 | 8 | 19 |
|               | 80A  |     |           | 200 | 160 | 132 | 2 | 20 | 8 | 23 |
|               | 100A |     | Ø89       | 225 | 185 | 160 | 2 | 22 | 8 | 23 |
|               | 50A  | 30K | Ø70       | 165 | 130 | 105 | 2 | 20 | 8 | 19 |
|               | 80A  |     |           | 210 | 170 | 140 | 2 | 26 | 8 | 23 |
|               | 100A |     | Ø89       | 240 | 195 | 160 | 2 | 30 | 8 | 25 |
|               | 50A  | 40K | Ø70       | 165 | 130 | 105 | 2 | 24 | 8 | 19 |
|               | 80A  |     |           | 210 | 170 | 140 | 2 | 30 | 8 | 23 |
|               | 100A |     | Ø89       | 250 | 205 | 165 | 2 | 34 | 8 | 25 |
|               | 50A  | 63K | Ø70       | 185 | 145 | 105 | 2 | 32 | 8 | 23 |
|               | 80A  |     |           | 230 | 185 | 140 | 2 | 38 | 8 | 25 |
|               | 100A |     | Ø89       | 270 | 220 | 165 | 2 | 42 | 8 | 27 |

| Flange rating |       |        | Diaphragm | D   | C   | R   | f | t  | N | d  |
|---------------|-------|--------|-----------|-----|-----|-----|---|----|---|----|
| DIN           | DN50  | 6 bar  | Ø70       | 140 | 110 | 90  | 3 | 13 | 4 | 14 |
|               | DN80  |        |           | 190 | 150 | 128 | 3 | 13 | 4 | 18 |
|               | DN100 |        | Ø89       | 210 | 170 | 148 | 3 | 13 | 4 | 18 |
|               | DN50  | 10 bar | Ø70       | 165 | 125 | 102 | 3 | 15 | 4 | 18 |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 17 | 4 | 18 |
|               | DN100 |        | Ø89       | 220 | 180 | 158 | 3 | 17 | 8 | 18 |
|               | DN50  | 16 bar | Ø70       | 165 | 125 | 102 | 3 | 15 | 4 | 18 |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 17 | 8 | 18 |
|               | DN100 |        | Ø89       | 220 | 180 | 158 | 3 | 17 | 8 | 18 |
|               | DN50  | 25 bar | Ø70       | 165 | 125 | 102 | 3 | 17 | 4 | 18 |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 21 | 8 | 18 |
|               | DN100 |        | Ø89       | 235 | 190 | 162 | 3 | 21 | 8 | 22 |
|               | DN50  | 40 bar | Ø70       | 165 | 125 | 102 | 3 | 17 | 4 | 18 |
|               | DN80  |        |           | 200 | 160 | 138 | 3 | 21 | 8 | 18 |
|               | DN100 |        | Ø89       | 235 | 190 | 162 | 3 | 21 | 8 | 23 |

Figure "E"



| Dimensions    |    | (mm)            |     |     |    |
|---------------|----|-----------------|-----|-----|----|
| Flange rating |    | A               | D   | t   |    |
| ASME          | 2" | CLASS 150       | Ø59 | 104 | 20 |
|               | 3" |                 | Ø70 | 136 | 20 |
|               | 4" |                 | Ø89 | 174 | 20 |
|               | 2" | CLASS 300       | Ø59 | 111 | 20 |
|               | 3" |                 | Ø70 | 149 | 20 |
|               | 4" |                 | Ø89 | 181 | 20 |
|               | 2" | CLASS 400(600)  | Ø59 | 111 | 20 |
|               | 3" |                 | Ø70 | 149 | 20 |
|               | 4" | CLASS 400       | Ø89 | 177 | 20 |
|               | 4" | CLASS 600       | Ø89 | 193 | 20 |
|               | 2" | CLASS 900(1500) | Ø59 | 143 | 20 |
|               | 3" | CLASS 900       | Ø70 | 168 | 20 |
|               | 4" |                 | Ø89 | 206 | 20 |
|               | 3" |                 | Ø70 | 174 | 20 |
|               | 4" | CLASS 1500      | Ø89 | 209 | 20 |
|               | 2" | CLASS 2500      | Ø59 | 146 | 20 |
|               | 3" |                 | Ø70 | 196 | 20 |
|               | 4" |                 | Ø89 | 235 | 20 |

| Dimensions    |      | (mm) |     |     |    |
|---------------|------|------|-----|-----|----|
| Flange rating |      | A    | D   | t   |    |
| JIS           | 50A  | 5K   | Ø59 | 92  | 20 |
|               | 80A  |      | Ø70 | 128 | 20 |
|               | 100A |      | Ø89 | 148 | 20 |
|               | 50A  | 10K  | Ø59 | 103 | 20 |
|               | 80A  |      | Ø70 | 133 | 20 |
|               | 100A |      | Ø89 | 158 | 20 |
|               | 50A  | 16K  | Ø59 | 103 | 20 |
|               | 80A  |      | Ø70 | 139 | 20 |
|               | 100A |      | Ø89 | 164 | 20 |
|               | 50A  | 20K  | Ø59 | 103 | 20 |
|               | 80A  |      | Ø70 | 139 | 20 |
|               | 100A |      | Ø89 | 164 | 20 |
|               | 50A  | 30K  | Ø59 | 113 | 20 |
|               | 80A  |      | Ø70 | 149 | 20 |
|               | 100A |      | Ø89 | 172 | 20 |
|               | 50A  | 40K  | Ø59 | 113 | 20 |
|               | 80A  |      | Ø70 | 149 | 20 |
|               | 100A |      | Ø89 | 182 | 20 |
|               | 50A  | 63K  | Ø59 | 124 | 20 |
|               | 80A  |      | Ø70 | 162 | 20 |
|               | 100A |      | Ø89 | 195 | 20 |

| Dimensions    |       | (mm)   |     |     |    |
|---------------|-------|--------|-----|-----|----|
| Flange rating |       | A      | D   | t   |    |
| DIN           | DN50  | 6 bar  | Ø59 | 98  | 20 |
|               | DN80  |        | Ø70 | 134 | 20 |
|               | DN100 |        | Ø89 | 154 | 20 |
|               | DN50  | 10 bar | Ø59 | 109 | 20 |
|               | DN80  |        | Ø70 | 144 | 20 |
|               | DN100 |        | Ø89 | 164 | 20 |
|               | DN50  | 16 bar | Ø59 | 109 | 20 |
|               | DN80  |        | Ø70 | 144 | 20 |
|               | DN100 |        | Ø89 | 164 | 20 |
|               | DN50  | 25 bar | Ø59 | 109 | 20 |
|               | DN80  |        | Ø70 | 144 | 20 |
|               | DN100 |        | Ø89 | 170 | 20 |
|               | DN50  | 40 bar | Ø59 | 109 | 20 |
|               | DN80  |        | Ø70 | 144 | 20 |
|               | DN100 |        | Ø89 | 169 | 20 |



Figure "F"

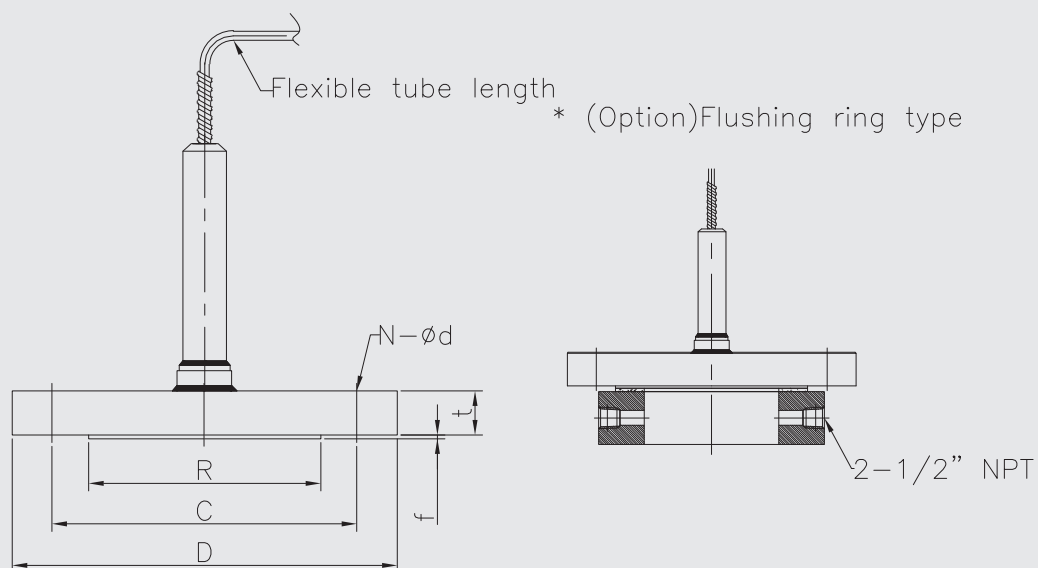
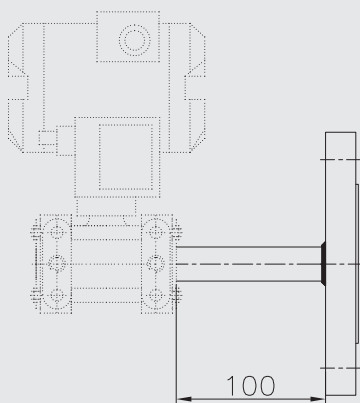


Figure "G"



## P790X : Type of mounting (8/10)

| Dimensions    |    |                 |           |       |       |       |      |      |    | (mm) |
|---------------|----|-----------------|-----------|-------|-------|-------|------|------|----|------|
| Flange rating |    |                 | Diaphragm | D     | C     | R     | f    | t    | N  | d    |
| ASME          | 2" | CLASS 150       | Ø59       | 150   | 120.7 | 92.1  | 2    | 17.5 | 4  | 19   |
|               | 3" |                 | Ø89       | 190   | 152.4 | 127.0 | 2    | 22.3 | 4  | 19   |
|               | 4" |                 |           | 230   | 190.5 | 157.2 | 2    | 22.3 | 8  | 19   |
|               | 2" | CLASS 300       | Ø59       | 160   | 127   | 92.1  | 2    | 20.7 | 8  | 19   |
|               | 3" |                 | Ø89       | 210   | 168.3 | 127.0 | 2    | 27   | 8  | 22   |
|               | 4" |                 |           | 255   | 200   | 157.2 | 2    | 30.2 | 8  | 22   |
|               | 2" | CLASS 400(600)  | Ø59       | 165   | 127   | 92.1  | 7    | 25.4 | 8  | 19   |
|               | 3" |                 | Ø89       | 210   | 168.3 | 127.0 | 7    | 35   | 8  | 22   |
|               | 4" |                 |           | 255   | 200   | 157.2 | 7    | 35   | 8  | 25   |
|               | 2" | CLASS 600       | 275       | 215.9 | 157.2 | 7     | 38.1 | 8    | 25 |      |
|               | 2" | CLASS 900(1500) | Ø59       | 215   | 165.1 | 92.1  | 7    | 38.1 | 8  | 25   |
|               | 3" | CLASS 900       | Ø89       | 240   | 190.5 | 127.0 | 7    | 38.1 | 8  | 25   |
|               | 4" |                 |           | 290   | 235   | 157.2 | 7    | 44.5 | 8  | 32   |
|               | 3" |                 |           | 265   | 203.2 | 127.0 | 7    | 47.7 | 8  | 32   |
|               | 4" | CLASS 1500      |           | 310   | 241.3 | 157.2 | 7    | 54   | 8  | 35   |
|               | 2" | CLASS 2500      | Ø59       | 235   | 171.4 | 92.1  | 7    | 50.9 | 8  | 29   |
|               | 3" |                 | Ø89       | 305   | 228.6 | 127.0 | 7    | 66.7 | 8  | 35   |
|               | 4" |                 |           | 355   | 273   | 157.2 | 7    | 76.2 | 8  | 42   |

| Dimensions    |      |     |           |     |     |     |   |    |   | (mm) |
|---------------|------|-----|-----------|-----|-----|-----|---|----|---|------|
| Flange rating |      |     | Diaphragm | D   | C   | R   | f | t  | N | d    |
| JIS           | 50A  | 5K  | Ø59       | 130 | 105 | 85  | 2 | 12 | 4 | 15   |
|               | 80A  |     | Ø89       | 180 | 145 | 121 | 2 | 12 | 4 | 19   |
|               | 100A |     |           | 200 | 165 | 141 | 2 | 14 | 8 | 19   |
|               | 50A  | 10K | Ø59       | 155 | 120 | 85  | 2 | 14 | 4 | 19   |
|               | 80A  |     | Ø89       | 185 | 150 | 126 | 2 | 16 | 8 | 19   |
|               | 100A |     |           | 210 | 175 | 151 | 2 | 16 | 8 | 19   |
|               | 50A  | 16K | Ø59       | 155 | 120 | 96  | 2 | 14 | 8 | 19   |
|               | 80A  |     | Ø89       | 200 | 160 | 132 | 2 | 18 | 8 | 23   |
|               | 100A |     |           | 225 | 185 | 160 | 2 | 20 | 8 | 23   |
|               | 50A  | 20K | Ø59       | 155 | 120 | 96  | 2 | 16 | 8 | 19   |
|               | 80A  |     | Ø89       | 200 | 160 | 132 | 2 | 20 | 8 | 23   |
|               | 100A |     |           | 225 | 185 | 160 | 2 | 22 | 8 | 23   |
|               | 50A  | 30K | Ø59       | 165 | 130 | 105 | 2 | 20 | 8 | 19   |
|               | 80A  |     | Ø89       | 210 | 170 | 140 | 2 | 26 | 8 | 23   |
|               | 100A |     |           | 240 | 195 | 160 | 2 | 30 | 8 | 25   |
|               | 50A  | 40K | Ø59       | 165 | 130 | 105 | 2 | 24 | 8 | 19   |
|               | 80A  |     | Ø89       | 210 | 170 | 140 | 2 | 30 | 8 | 23   |
|               | 100A |     |           | 250 | 205 | 165 | 2 | 34 | 8 | 25   |
|               | 50A  | 63K | Ø59       | 185 | 145 | 105 | 2 | 32 | 8 | 23   |
|               | 80A  |     | Ø89       | 230 | 185 | 140 | 2 | 38 | 8 | 25   |
|               | 100A |     |           | 270 | 220 | 165 | 2 | 42 | 8 | 27   |

| Dimensions    |       |        |           |     |     |     |   |    |   | (mm) |
|---------------|-------|--------|-----------|-----|-----|-----|---|----|---|------|
| Flange rating |       |        | Diaphragm | D   | C   | R   | f | t  | N | d    |
| DIN           | DN50  | 6 bar  | Ø59       | 140 | 110 | 90  | 3 | 13 | 4 | 14   |
|               | DN80  |        | Ø89       | 190 | 150 | 128 | 3 | 13 | 4 | 18   |
|               | DN100 |        |           | 210 | 170 | 148 | 3 | 13 | 4 | 18   |
|               | DN50  | 10 bar | Ø59       | 165 | 125 | 102 | 3 | 15 | 4 | 18   |
|               | DN80  |        | Ø89       | 200 | 160 | 138 | 3 | 17 | 4 | 18   |
|               | DN100 |        |           | 220 | 180 | 158 | 3 | 17 | 8 | 18   |
|               | DN50  | 16 bar | Ø59       | 165 | 125 | 102 | 3 | 15 | 4 | 18   |
|               | DN80  |        | Ø89       | 200 | 160 | 138 | 3 | 17 | 8 | 18   |
|               | DN100 |        |           | 220 | 180 | 158 | 3 | 17 | 8 | 18   |
|               | DN50  | 25 bar | Ø59       | 165 | 125 | 102 | 3 | 17 | 4 | 18   |
|               | DN80  |        | Ø89       | 200 | 160 | 138 | 3 | 21 | 8 | 18   |
|               | DN100 |        |           | 235 | 190 | 162 | 3 | 21 | 8 | 22   |
|               | DN50  | 40 bar | Ø59       | 165 | 125 | 102 | 3 | 17 | 4 | 18   |
|               | DN80  |        | Ø89       | 200 | 160 | 138 | 3 | 21 | 8 | 18   |
|               | DN100 |        |           | 235 | 190 | 162 | 3 | 21 | 8 | 23   |

Figure "H"

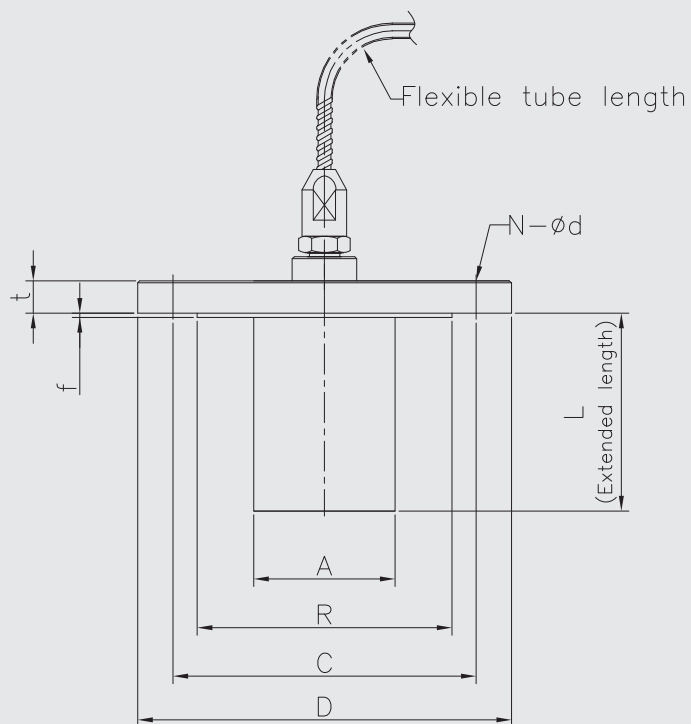
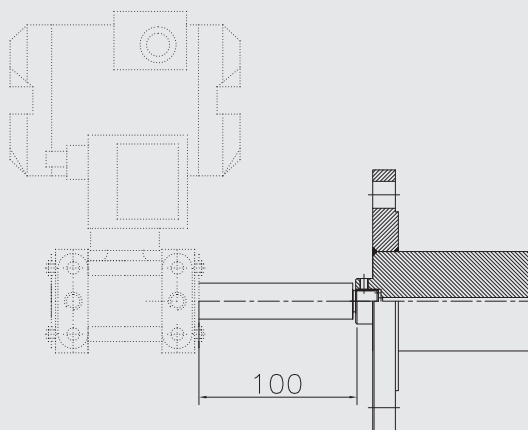


Figure "I"



## P790X : Type of mounting (10/10)

Dimensions (mm)

| Flange rating |    |                 | A   | D   | C     | R     | f | t    | N | d  |
|---------------|----|-----------------|-----|-----|-------|-------|---|------|---|----|
| ASME          | 2" | CLASS 150       | Ø60 | 150 | 120.7 | 92.1  | 2 | 17.5 | 4 | 19 |
|               | 3" |                 | Ø71 | 190 | 152.4 | 127.0 | 2 | 22.3 | 4 | 19 |
|               | 4" |                 | Ø90 | 230 | 190.5 | 157.2 | 2 | 22.3 | 8 | 19 |
|               | 2" | CLASS 300       | Ø60 | 160 | 127   | 92.1  | 2 | 20.7 | 8 | 19 |
|               | 3" |                 | Ø71 | 210 | 168.3 | 127.0 | 2 | 27   | 8 | 22 |
|               | 4" |                 | Ø90 | 255 | 200   | 157.2 | 2 | 30.2 | 8 | 22 |
|               | 2" | CLASS 400(600)  | Ø60 | 165 | 127   | 92.1  | 7 | 25.4 | 8 | 19 |
|               | 3" |                 | Ø71 | 210 | 168.3 | 127.0 | 7 | 35   | 8 | 22 |
|               | 4" | CLASS 400       | Ø90 | 255 | 200   | 157.2 | 7 | 35   | 8 | 25 |
|               | 4" | CLASS 600       | Ø90 | 275 | 215.9 | 157.2 | 7 | 38.1 | 8 | 25 |
|               | 2" | CLASS 900(1500) | Ø60 | 215 | 165.1 | 92.1  | 7 | 38.1 | 8 | 25 |
|               | 3" | CLASS 900       | Ø71 | 240 | 190.5 | 127.0 | 7 | 38.1 | 8 | 25 |
|               | 4" |                 | Ø90 | 290 | 235   | 157.2 | 7 | 44.5 | 8 | 32 |
|               | 3" | CLASS 1500      | Ø71 | 265 | 203.2 | 127.0 | 7 | 47.7 | 8 | 32 |
|               | 4" |                 | Ø90 | 310 | 241.3 | 157.2 | 7 | 54   | 8 | 35 |
|               | 2" | CLASS 2500      | Ø60 | 235 | 171.4 | 92.1  | 7 | 50.9 | 8 | 29 |
|               | 3" |                 | Ø71 | 305 | 228.6 | 127.0 | 7 | 66.7 | 8 | 35 |
|               | 4" |                 | Ø90 | 355 | 273   | 157.2 | 7 | 76.2 | 8 | 42 |

Dimensions (mm)

| Flange rating |      |     | A   | D   | C   | R   | f | t  | N | d  |
|---------------|------|-----|-----|-----|-----|-----|---|----|---|----|
| JIS           | 50A  | 5K  | Ø60 | 130 | 105 | 85  | 2 | 12 | 4 | 15 |
|               | 80A  |     | Ø71 | 180 | 145 | 121 | 2 | 12 | 4 | 19 |
|               | 100A |     | Ø90 | 200 | 165 | 141 | 2 | 14 | 8 | 19 |
|               | 50A  | 10K | Ø60 | 155 | 120 | 85  | 2 | 14 | 4 | 19 |
|               | 80A  |     | Ø71 | 185 | 150 | 126 | 2 | 16 | 8 | 19 |
|               | 100A |     | Ø90 | 210 | 175 | 151 | 2 | 16 | 8 | 19 |
|               | 50A  | 16K | Ø60 | 155 | 120 | 96  | 2 | 14 | 8 | 19 |
|               | 80A  |     | Ø71 | 200 | 160 | 132 | 2 | 18 | 8 | 23 |
|               | 100A |     | Ø90 | 225 | 185 | 160 | 2 | 20 | 8 | 23 |
|               | 50A  | 20K | Ø60 | 155 | 120 | 96  | 2 | 16 | 8 | 19 |
|               | 80A  |     | Ø71 | 200 | 160 | 132 | 2 | 20 | 8 | 23 |
|               | 100A |     | Ø90 | 225 | 185 | 160 | 2 | 22 | 8 | 23 |
|               | 50A  | 30K | Ø60 | 165 | 130 | 105 | 2 | 20 | 8 | 19 |
|               | 80A  |     | Ø71 | 210 | 170 | 140 | 2 | 26 | 8 | 23 |
|               | 100A |     | Ø90 | 240 | 195 | 160 | 2 | 30 | 8 | 25 |
|               | 50A  | 40K | Ø60 | 165 | 130 | 105 | 2 | 24 | 8 | 19 |
|               | 80A  |     | Ø71 | 210 | 170 | 140 | 2 | 30 | 8 | 23 |
|               | 100A |     | Ø90 | 250 | 205 | 165 | 2 | 34 | 8 | 25 |
|               | 50A  | 63K | Ø60 | 185 | 145 | 105 | 2 | 32 | 8 | 23 |
|               | 80A  |     | Ø71 | 230 | 185 | 140 | 2 | 38 | 8 | 25 |
|               | 100A |     | Ø90 | 270 | 220 | 165 | 2 | 42 | 8 | 27 |

Dimensions (mm)

| Flange rating |       |        | A   | D   | C   | R   | f | t  | N | d  |
|---------------|-------|--------|-----|-----|-----|-----|---|----|---|----|
| DIN           | DN50  | 6 bar  | Ø60 | 140 | 110 | 90  | 3 | 13 | 4 | 14 |
|               | DN80  |        | Ø71 | 190 | 150 | 128 | 3 | 13 | 4 | 18 |
|               | DN100 |        | Ø90 | 210 | 170 | 148 | 3 | 13 | 4 | 18 |
|               | DN50  | 10 bar | Ø60 | 165 | 125 | 102 | 3 | 15 | 4 | 18 |
|               | DN80  |        | Ø71 | 200 | 160 | 138 | 3 | 17 | 4 | 18 |
|               | DN100 |        | Ø90 | 220 | 180 | 158 | 3 | 17 | 8 | 18 |
|               | DN50  | 16 bar | Ø60 | 165 | 125 | 102 | 3 | 15 | 4 | 18 |
|               | DN80  |        | Ø71 | 200 | 160 | 138 | 3 | 17 | 8 | 18 |
|               | DN100 |        | Ø90 | 220 | 180 | 158 | 3 | 17 | 8 | 18 |
|               | DN50  | 25 bar | Ø60 | 165 | 125 | 102 | 3 | 17 | 4 | 18 |
|               | DN80  |        | Ø71 | 200 | 160 | 138 | 3 | 21 | 8 | 18 |
|               | DN100 |        | Ø90 | 235 | 190 | 162 | 3 | 21 | 8 | 22 |
|               | DN50  | 40 bar | Ø60 | 165 | 125 | 102 | 3 | 17 | 4 | 18 |
|               | DN80  |        | Ø71 | 200 | 160 | 138 | 3 | 21 | 8 | 18 |
|               | DN100 |        | Ø90 | 235 | 190 | 162 | 3 | 21 | 8 | 23 |

## Process connection type table - 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> characters

| 7 <sup>th</sup> character |                 | 8 <sup>th</sup> , 9 <sup>th</sup> character |                     |      |                      |
|---------------------------|-----------------|---------------------------------------------|---------------------|------|----------------------|
| Code                      | Connection size | Code                                        | Connection type * * | Code | Flange rating        |
| C *                       | 1/4"            | PF                                          | PF                  | AC   | B16.5 Class 150 RF   |
| D *                       | 3/8"            | AB                                          | PT                  | AE   | B16.5 Class 150 FF   |
| E *                       | 1/2"            | AA                                          | NPT                 | AD   | B16.5 Class 150 RFSF |
| F *                       | 3/4"            | FF                                          | BSPT                | AF   | B16.5 Class 300 RF   |
| G                         | 1" (25A)        | GG                                          | BSPF                | AH   | B16.5 Class 300 FF   |
| J                         | 1 1/2" (40A)    | HH                                          | NPS                 | AG   | B16.5 Class 300 RFSF |
| K                         | 2" (50A)        | JJ                                          | M                   | AJ   | B16.5 Class 600 RF   |
| M                         | 3" (80A)        | ZZ                                          | Other               | AL   | B16.5 Class 600 FF   |
| N                         | 4" (100A)       |                                             |                     | AK   | B16.5 Class 600 RFSF |
| Z                         | Other           |                                             |                     | AS   | B16.5 Class 900 RF   |
|                           |                 |                                             |                     | AM   | B16.5 Class 900 FF   |
|                           |                 |                                             |                     | AT   | B16.5 Class 1500 RF  |
|                           |                 |                                             |                     | AN   | B16.5 Class 1500 FF  |
|                           |                 |                                             |                     | AZ   | B16.5 Class 2500 RF  |
|                           |                 |                                             |                     | A8   | B16.5 Class 150 RTJ  |
|                           |                 |                                             |                     | A9   | B16.5 Class 300 RTJ  |
|                           |                 |                                             |                     | AV   | B16.5 Class 600 RTJ  |
|                           |                 |                                             |                     | AW   | B16.5 Class 900 RTJ  |
|                           |                 |                                             |                     | AX   | B16.5 Class 1500 RTJ |
|                           |                 |                                             |                     | AY   | B16.5 Class 2500 RTJ |
|                           |                 |                                             |                     | 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           |
|                           |                 |                                             |                     | KE   | JIS 63K RF           |
|                           |                 |                                             |                     | KX   | JIS 63K FF           |
|                           |                 |                                             |                     | DA   | DIN 6 bar RF         |
|                           |                 |                                             |                     | DB   | DIN 6 bar FF         |
|                           |                 |                                             |                     | DC   | DIN 10 bar RF        |
|                           |                 |                                             |                     | DD   | DIN 10 bar FF        |
|                           |                 |                                             |                     | DE   | DIN 16 bar RF        |
|                           |                 |                                             |                     | DF   | DIN 16 bar FF        |
|                           |                 |                                             |                     | DG   | DIN 25 bar RF        |
|                           |                 |                                             |                     | DH   | DIN 25 bar FF        |
|                           |                 |                                             |                     | DI   | DIN 40 bar RF        |
|                           |                 |                                             |                     | DJ   | DIN 40 bar FF        |
|                           |                 |                                             |                     | ZZ   | Other                |

\* Only available with thread connector type of P791, P792

\*\* In case of P792, thread connector type shall be use gauge union (A020 series). Refer to figure A.

## Vapor pressure vs Temperature

\* Code "F" - Silicone oil

| Temperature (°C) | Pressure (Pa) |
|------------------|---------------|
| 228              | 11            |
| 244              | 25            |
| 263              | 84            |
| 277              | 155           |
| 380              | 13332         |

## Filling liquid reference table

14<sup>th</sup> character

| Code | Application                         | Filling liquid   | Temperature range (°C) | Remark        |
|------|-------------------------------------|------------------|------------------------|---------------|
| A    | Standard                            | Silicone oil, 10 | -30 ~ 150              |               |
| B    |                                     | Silicone oil, 50 | -30 ~ 250              |               |
| C    | Sanitary and Food Service           | Mineral oil      | -30 ~ 200              | FDA Certified |
| D    | Oxygen and Chlorine Service         | Halocarbon       | -40 ~ 200              |               |
| E    | Low Temperature Service             | ANDEROL® 423     | -50 ~ 150              |               |
| F    | High Temperature and Vacuum Service | Silicone oil     | -30 ~ 315              |               |