

Diaphragm Pressure Gauges

Bezel Ring Case Black

Accuracy Class 1.6
 NCS 100 (4")
 160 (6")
 250 (10")

Model
PÜ

Applications

Pressure gauges with horizontal diaphragm allow to find suitable versions for even difficult kinds of media, such as aggressive, contaminated or viscid media.

Nominal Case Sizes (NCS)

100 mm (4"), 160 mm (6") or 250 mm (10")

Accuracy Class (EN 837-3)

1.6 resp. 2.5 when the diaphragm is supplied with protection foil

Pressure Ranges (EN 837-3)

0-10 mbar resp. 0-4" WC up to 0-40 bar resp. 0-600 psi, with PTFE foil 0-40 mbar resp. 0-16" WC and up also the corresponding vacuum and compound ranges

Pressure Limitations (EN 837-3)

Steady pressure: full scale value
 Cyclic pressure: 90% of full scale value
 Overpressure: up to 5 times f.s., max. 40 bar (600 psi), resp. measuring flange Ø160 mm max. 2.5 bar (40 psi)

Protection Type (EN 60 529 / IEC 529)

IP 43

Further information about advantages, applications, specifications, temperature limitations and pressure ranges of diaphragm pressure gauges can be found in our model overview 3000.

Standard Configuration

Connection

Bottom connection G ½ B (½" BSP, standard), ½" NPT or M 20x1.5, if with PTFE lining: inlet orifice Ø 7 mm (.28"); flange connections: see page 2 ff

Movement

Brass/German silver

Dial

Aluminum alloy, black figures, white background

Pointer

Aluminum alloy, black

Case and Ring

NCS 100, 160 (4", 6"): glass fiber reinforced polyamide 6B black, NCS 250 (10"): aluminum alloy, polyester lacquer grey, bezel ring carbon steel black

Window

Single strength glass

Measuring Flange Ø

Pressure ranges ≤ 250 mbar (< 100" WC) = Ø 160 mm (6.3"), pressure ranges ≥ 400 mbar (> 160" WC) = Ø 100 mm (3.94")

Upper Flange

Carbon steel, zinc plated

Wetted Parts

| | | |
|-----|---------------|--|
| - 2 | Lower flange: | carbon steel, zinc plated |
| | Gasket: | NBR |
| | Diaphragm: | 10 to 250 mbar: 316 Ti (1.4571) 0.4 to 1.6 bar: Duratherm (=NiCrCo alloy) 2.5 to 40 bar: carbon steel, zinc plated |
| - 3 | Lower flange: | 316 Ti (1.4571) |
| | Gasket: | FPM |
| | Diaphragm: | 10 to 250 mbar: 316 Ti (1.4571) 0.4 to 40 bar: Duratherm |
| - 4 | Lower flange: | carbon steel, zinc plated, PTFE-lined |
| | Gasket: | PTFE |
| | Diaphragm: | 40 to 250 mbar: 316 Ti (1.4571), PTFE-foil 0.4 to 40 bar: Duratherm, PTFE-foil |
| - 5 | Lower flange: | 316 Ti (1.4571), PTFE-lined |
| | Gasket: | PTFE |
| | Diaphragm: | 40 to 250 mbar: 316 Ti (1.4571), PTFE-foil 0.4 to 40 bar: Duratherm, PTFE-foil |



Optional Special Configurations

- Inlet port orifice up to Ø 10 mm (.39") for versions -2 or -3
- Other connection flanges upon request (e.g. according to former DIN)
- Diaphragm with protection foil:
 - PTFE (≥ 40 mbar, vacuum tight), sealing PTFE;
 - Fine-silver (≥ 160 mbar, vacuum tight), sealing FPM;
 - Tantalum (≥ 160 mbar, vacuum tight upon request), sealing PTFE; others upon request
- Other materials for lower measuring flange with process connection upon request
- Upper measuring flange with body 304 stainless steel (1.4301), or optionally 316 Ti (1.4571)
- Top or side connection, or other than vertical installation position
- Movement stainless steel, wear and corrosion resistant
- Acrylic glass lens or laminated safety glass
- Special scales such as dual ranges, special units, fine-division (with knife-edge pointer)
- Stationary red pointer on the dial or with external adjustment¹⁾
- Maximum indicating pointer, external adjustment¹⁾ (for pressure ranges ≥ 100 mbar resp. ≥ 4" WC)
- Micro-adjustable pointer, mechanism aluminum
- up to 10-times overrange protection, but
 - max. 40 bar (600 psi) for measuring flange Ø 100 mm (3.94"),
 - max. 2.5 bar (40 psi) for measuring flange Ø 160 mm (6.3")
- Accuracy class 1.0 or .6 (EN 837-3) upon request
- 1" blow-out relief on the back of the case
- Bezel ring chrome plated brass
- Rubber gasket between window and bezel for splash water protection
- NCS 100 (4"): case carbon steel black, model PI 100
- NCS 160 (6"): case cast iron, model Pn 160
- NCS 100 (4"), 160 (6"): case and upper flange out of one piece cast iron, models Pm 100, Pm 160
- NCS 160 (6"), 250 (10"): bayonet ring case carbon steel black, upper flange carbon steel black painted, models PB 160, PB 250, and PBG 160 (≥ 160 mbar resp. 60" WC)
- NCS 160 (6") case with cover ring grey cast iron, ring screwed to the case front, model PC 160
- Electrical accessories, please see data sheets 3190, 9000 ff

¹⁾ If adjustable from outside: with acrylic glass window

How to Order:

Model code: **PÜ**
 Nom. case size: **100 (4"), 160 (6") or 250 (10")**
 Wetted parts: Ordering code **-2, -3, -4 or -5** (compare left)
 Pressure range: According to EN 837-3 e.g. 0-4 bar or 0-60 psi
 Connection: Thread connection **G ½ B** (½" BSP = standard), ½" **NPT**, **M 20x1.5**, others upon request
 For flange connection please specify flange type and size as on tables page 2-4
 Special options: (see above)

Examples for Ordering Information:

- PÜ 100-3, 0-60 mbar, G ½ B (½" BSP)
- PÜ 100-4, 0-2.5 bar, DIN flange DN 25



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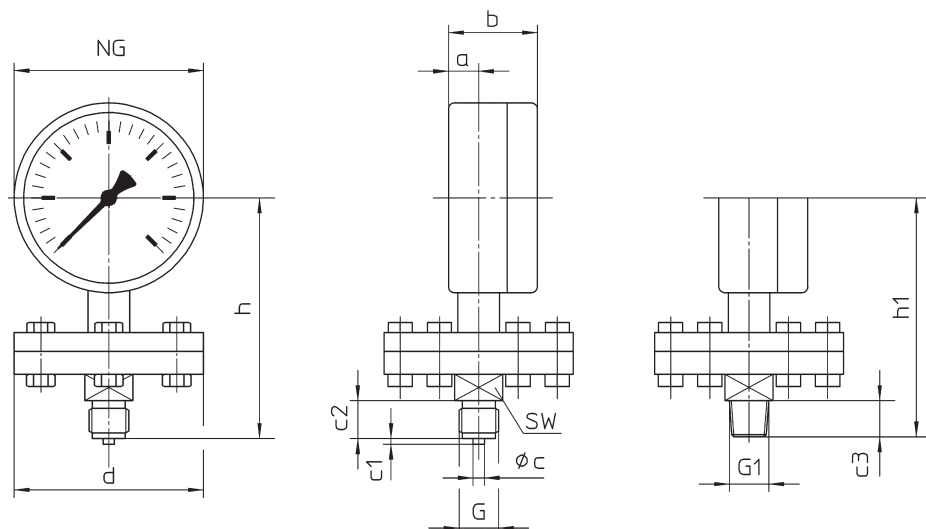
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3100
 1/06

Case Configuration, Flange Connections, Dimensional Data and Weight

Bottom connection



Dimensional Data (mm / inches) and Weight (kg / lb)

| NCS Case | Measuring flange Ø d ¹⁾ | a | b | c | c1 | c2 | c3 | G | G1 | h ^{±2} | h1 ^{±2} | SW | Weight (approx.) ²⁾ | | | | |
|------------|---------------------------------------|-----|------|---|----|----|----|-----------------|--------|-----------------|------------------|----|-----------------------------------|-----|------|------|------|
| 100 4" | 100 3.94 | 17 | 47 | 6 | 3 | 20 | 19 | G ½ B ½" BSP | ½" NPT | 127 | 126 | 22 | 1.90 | | | | |
| | 160 6.3 | .67 | 1.85 | | | | | | | 5 | 4.96 | | 3.50 | | | | |
| 160 6" | 100 3.94 | 19 | 48 | | | | | | | .24 | .12 | | .79 | .75 | 157 | 156 | 3.20 |
| | 160 6.3 | .75 | 1.89 | | | | | | | 6.18 | 6.14 | | 3.50 | | | | |
| 250 10" | 100 3.94 | 17 | 53 | | | | | | | .24 | .12 | | .79 | .75 | 202 | 201 | 3.75 |
| | 160 6.3 | .67 | 2.09 | | | | | | | | | | | | 7.95 | 7.91 | 4.80 |
| | | | | | | | | | | | | | 10.58 | | | | |

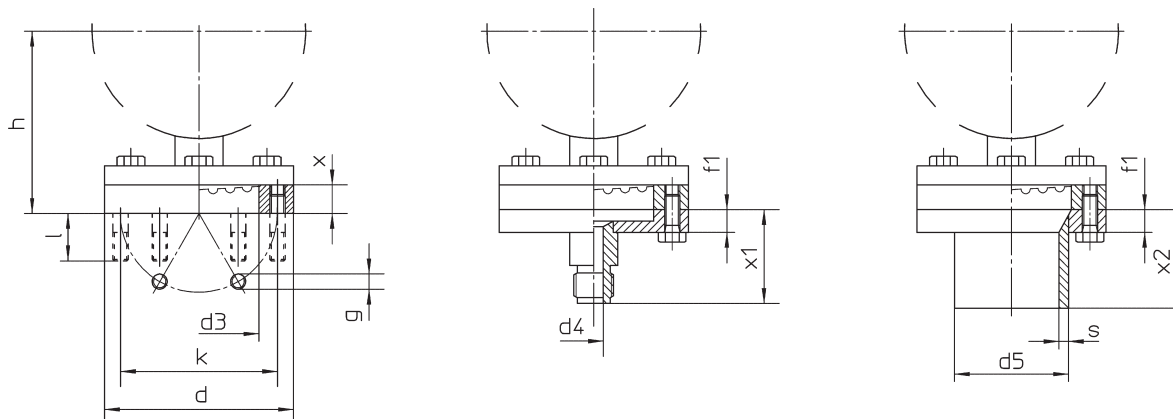
Flange 2707 a

(with double-end studs if requested)

Optionally available for flange 2707a:

Connection flange with thread connection G ½ B (½" BSP) or ½" NPT, with enlarged inlet orifice

Connection flange with welding connection, for measuring flange Ø 100 mm (3.94")



Dimensional Data (mm / inches) and Weight (kg / lb)

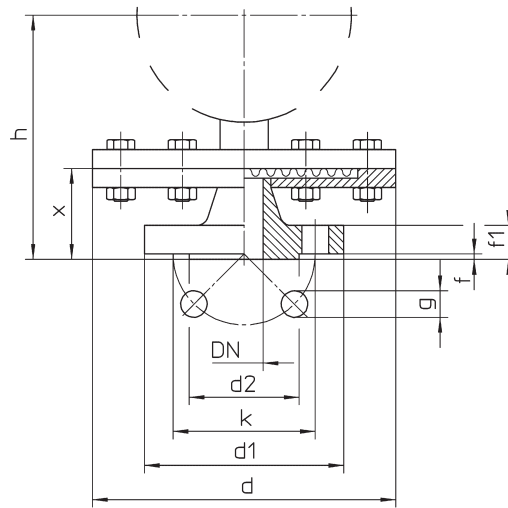
| Measuring Flange-Ø d ¹⁾ | d3 | d4 | d5 ³⁾ | f1 | g | h ^{±2} | | | k | l | x | x1 | x2 | s | Weight (approx.) ²⁾ | | |
|------------------------------------|--------------|-----|------------------|-----|---------|-----------------|-------|-------|-------------|-----|-----|------|------------|----------|--------------------------------|--------|--------|
| | | | | | | PÜ100 | PÜ160 | PÜ250 | | | | | | | PÜ 100 | PÜ 160 | PÜ 250 |
| 100 3.94 | 63.5 2.50 | 10 | 60.3 2.37 | .47 | 6 x M 8 | 96 | 126 | 171 | 83 3.27 | 25 | 15 | 46 | 50 1.97 | 5 .20 | 1.65 | 1.90 | 2.95 |
| 160 6.3 | 123 4.84 | .39 | — | — | 8 x M 8 | 3.78 | 4.96 | 6.73 | 140 5.51 | .98 | .59 | 1.81 | — | — | 2.95 | 3.20 | 4.25 |
| | | | | | | | | | | | | | | | 6.50 | 7.05 | 9.37 |

¹⁾ nominal flange size ²⁾ For different pressure ranges and materials the weights differ considerably. ³⁾ other pipe diameters upon request

DIN EN 1092-1 Flange Connections DN 15, 20, 25 and 50, PN 10 to PN 40

Suitable for flanges in accordance with DIN EN 1092-1 type 11 (corresponding to former DIN 2633, 2635)

Measuring Flange-Ø d = 160 mm (6.3")

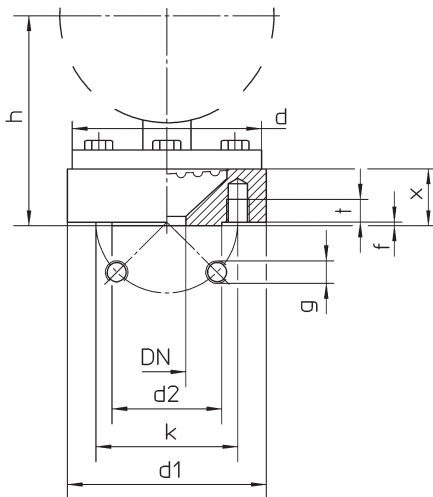


Dimensional Data (mm / inches) and Weight (kg / lb)

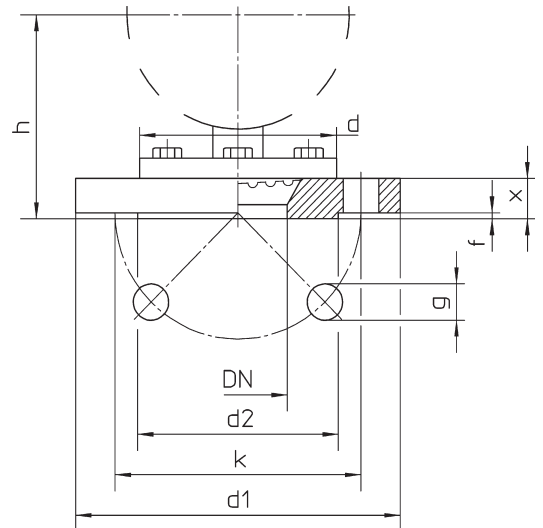
| Measuring flange Ø d ¹⁾ | DN | d1 | d2 | f | f1 | g | h ^{±2} | | | k | x | Weight (approx.) ²⁾ | | |
|---------------------------------------|---------------|-----|-----|----------|-----------|-------------------|-----------------|-------|-------|------|------|--------------------------------|-------|-------|
| | | | | | | | PÜ100 | PÜ160 | PÜ250 | | | PÜ100 | PÜ160 | PÜ250 |
| 160 6.3 | 15 (.59") | 95 | 45 | 2 .08 | 16 .63 | 4 x 14 4 x .55 | 127 | 157 | 202 | 65 | 46 | 4.15 | 4.40 | 5.45 |
| | 20 (.79") | 105 | 58 | | 5.00 | | 6.18 | 7.95 | 2.56 | 1.81 | 9.15 | 9.70 | 12.01 | |
| | 25 (.98") | 115 | 68 | | 129 | 159 | 204 | 75 | 48 | 4.45 | 4.70 | 5.75 | | |
| | 50 (1.97") | 165 | 102 | | 5.08 | 6.26 | 8.03 | 85 | 1.89 | 4.70 | 4.95 | 6.00 | | |
| | | | | | 20 .79 | 4 x 18 4 x .71 | 137 | 167 | 212 | 125 | 56 | 6.15 | 6.40 | 7.45 |
| | | | | | | | 5.39 | 6.57 | 8.35 | 4.92 | 2.20 | 13.56 | 14.11 | 16.42 |

Measuring Flange-Ø d = 100 mm (3.94")

DN 15, 20 and 25



DN 50



Dimensional Data (mm / inches) and Weight (kg / lb)

| Measuring Flange Ø d ¹⁾ | DN | d1 | d2 | f | g | h ^{±2} | | | k | t | x | Weight (approx.) ²⁾ | | |
|---------------------------------------|---------------|-----|-----|----------|------------------------|-----------------|-------|-------|------|-----------|-----|--------------------------------|-------|-------|
| | | | | | | PÜ100 | PÜ160 | PÜ250 | | | | PÜ100 | PÜ160 | PÜ250 |
| 100 3.94 | 15 (.59") | 99 | 45 | 2 .08 | 4 x M 12 ³⁾ | 106 | 136 | 181 | 65 | 12 .47 | 25 | 2.15 | 2.40 | 3.45 |
| | 20 (.79") | 105 | 58 | | | 4.17 | 5.35 | 7.13 | 75 | | .98 | 4.74 | 5.29 | 7.61 |
| | 25 (.98") | 115 | 68 | | | 103 | 133 | 178 | 85 | | 22 | 2.25 | 2.50 | 3.55 |
| | 50 (1.97") | 165 | 102 | | | 4.01 | 5.24 | 7.01 | 3.35 | | .87 | 4.96 | 5.51 | 7.83 |
| | | | | | 4 x Ø 18 4 x Ø .71 | 101 | 131 | 175 | 125 | — | 20 | 3.60 | 3.85 | 4.90 |
| | | | | | | 3.98 | 5.16 | 6.89 | 4.92 | | .79 | 7.94 | 8.49 | 10.80 |

¹⁾ nominal flange size

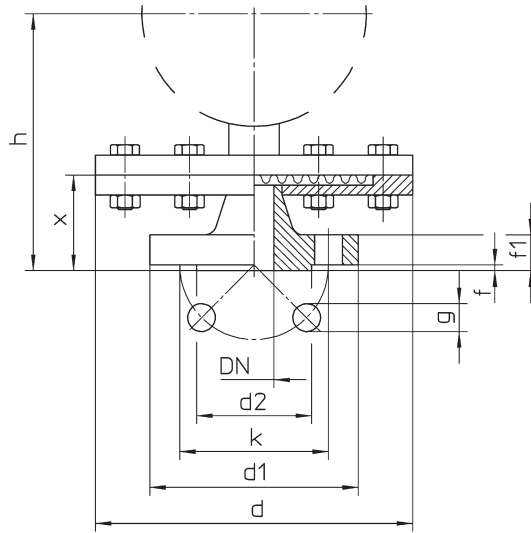
²⁾ For different pressure ranges and materials the weights differ considerably.

³⁾ if requested with double-end studs M 12 x 45

ASME Flange Connections ½", 1" and 2", PN 150, 300, or 600 lb/sq.in.

ASME B 16.5 RF

Measuring Flange-Ø d = 160 mm (6.3")
PN 150 lb/sq.in.

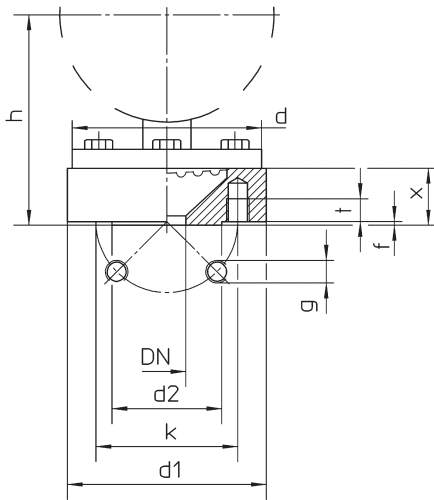


Dimensional Data (mm / inches) and Weight (kg / lb)

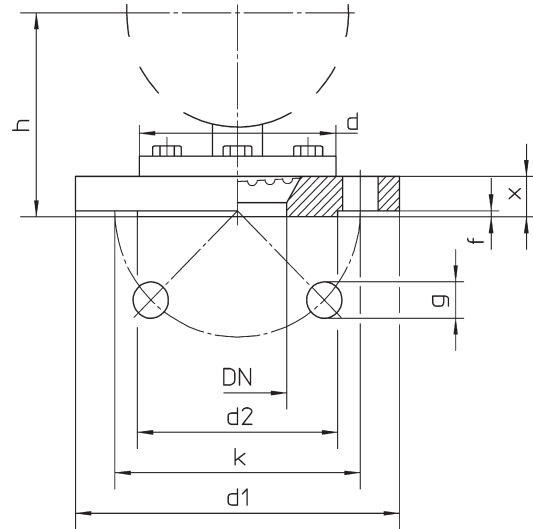
| Measuring Flange Ø d ¹⁾ | DN | d1 | d2 | f | f1 | g | h ^{±2} | | | k | x | Weight (approx.) ²⁾ | | |
|------------------------------------|----|-------------|-------------|------------|------------|-------------|-----------------|-------------|-------------|-------------|--------------|--------------------------------|--------------|--------------|
| | | | | | | | PÜ100 | PÜ160 | PÜ250 | | | PÜ100 | PÜ160 | PÜ250 |
| 160 6.3 | ½" | 88.9 | 34.9 | 1.6 | 11.1 | 16 | 137 | 167 | 212 | 60.3 | 56 | 4.25 | 4.50 | 5.55 |
| | | 3.5 | 1.37 | | .44 | | 5.39 | 6.57 | 8.35 | 2.37 | 2.2 | 9.37 | 9.92 | 12.24 |
| | 1" | 108 | 50.8 | 14.3 | .63 | 145 | 175 | 220 | 79.4 | 64 | 4.75 | 5.00 | 6.05 | |
| | | 4.25 | 2 | .56 | .75 | 5.71 | 6.89 | 8.66 | 3.13 | 2.52 | 10.47 | 11.02 | 13.34 | |
| | 2" | 152 | 92.1 | 19 | .75 | 153 | 183 | 228 | 121 | 72 | 6.10 | 6.35 | 7.40 | |
| | | 5.98 | 3.63 | | | 6.02 | 7.20 | 8.98 | 4.76 | 2.83 | 13.45 | 14.00 | 16.31 | |

Measuring Flange-Ø d = 100 mm (4"), PN 150, 300 or 600 lb/sq.in.

DN ½" and 1"



DN 2"



Dimensional Data (mm / inches) and Weight (kg / lb)

| Measuring Flange Ø d ¹⁾ | DN | d1 | | d2 | f | | g | h ^{±2} | | | k | | t | x | | | Weight (approx.) ²⁾ | | |
|------------------------------------|----|---------------------|-------------|-------------|---------------------|--------------|------------------------|---------------------------------|-------------|-------------|---------------------|----------|-----|-------------------------------|-------------|-------------|--------------------------------|-------------|--------------|
| | | 150 | 300 | | 150 | 600 | | for 300 lb/sq.in. ⁵⁾ | | | 150 | 300 | | 150 | 300 | 600 | PÜ 100 | PÜ 160 | PÜ 250 |
| | | lb/sq.in./lb/sq.in. | | | lb/sq.in./lb/sq.in. | | | | | | lb/sq.in./lb/sq.in. | | | lb/sq.in./lb/sq.in./lb/sq.in. | | | | | |
| 100 3.94 | ½" | 99 | 34.9 | 1.6 | 6.4 | 4 x UNF - 2B | 111 | 141 | 186 | 60.3 | 66.7 | 15 | 30 | 35 | 2.80 | 3.05 | 4.10 | | |
| | | 3.9 | 1.37 | | | | | | | 2.37 | 2.63 | | | | 6.17 | 6.72 | 9.04 | | |
| | 1" | 108 | 124 | 50.8 | .06 | .25 | 5/8 - 18 ³⁾ | 4.37 | 5.55 | 7.32 | 79.4 | 88.9 | .59 | 1.18 | 1.38 | 3.41 | 3.66 | 4.71 | |
| | | 4.25 | 4.88 | 2 | | | | | | 3.13 | 3.5 | | | | 7.52 | 8.07 | 10.38 | | |
| | 2" | 152 | 165 | 92.1 | | | 5/8 - 18 ⁴⁾ | 103 | 133 | 177 | 121 | 127 | — | 19.1 | 22.2 | 32 | 3.45 | 3.70 | 4.75 |
| | | 5.98 | 6.5 | 3.63 | | | | 4.06 | 5.24 | 6.98 | 4.76 | 5 | | .75 | .87 | 1.26 | 7.61 | 8.16 | 10.47 |

¹⁾ nominal flange size

²⁾ For different pressure ranges and materials the weights differ considerably.

³⁾ 150 lb/sq.in: ½ - 20 UNF - 2 B

⁴⁾ 300 and 600 lb/sq.in: 8 x Ø 19 (.75")

⁵⁾ 150 and 600 lb/sq.in: differences as of dimension "x"

Many other process connection types are available upon request, e.g. with female thread 1" BSP or union nut acc. to DIN 11851 et.al.