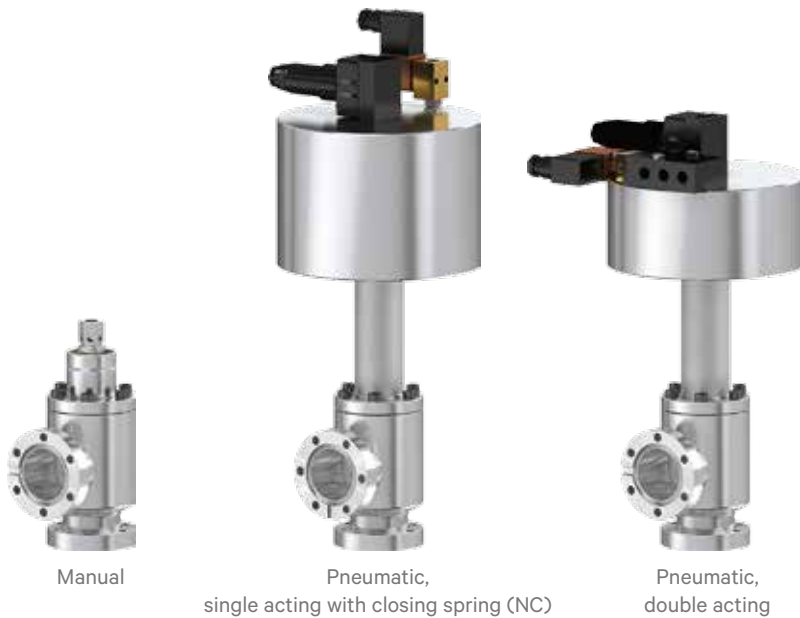


ALL-METAL ANGLE VALVE, SERIES 57.0 / 57.1

For vacuum processes with extreme UHV requirements and/or low/high temperature applications.



Sealing surfaces are only elastically deformed

Largest possible conductance for the nominal diameter

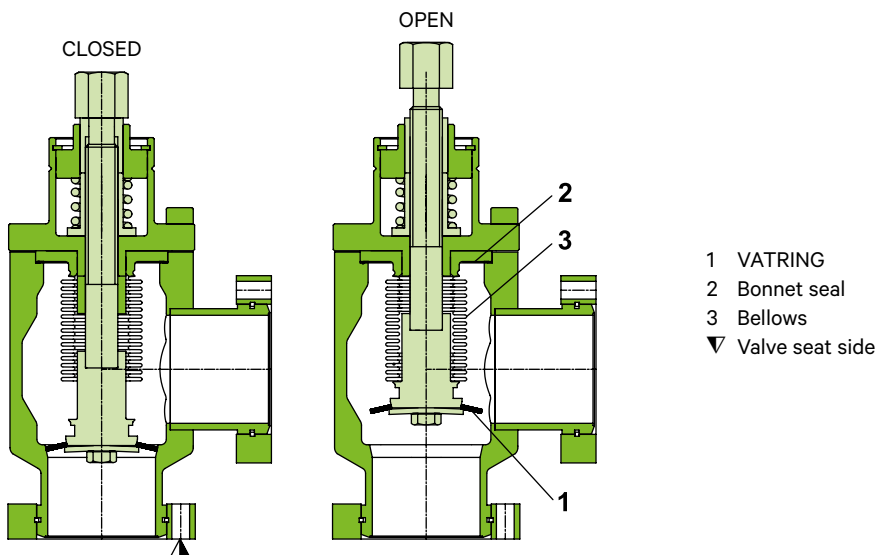
Radiation resistant to 10^8 Gy

DN 16 – 40 closes at a mechanical stop – no torque wrench required

MAIN FEATURES

| | |
|--------------------|--------------------------------------------------------------------------------------------|
| Sizes | DN 10 – 160 mm (3/8" – 6") |
| Actuators | manual: hexagon head pneumatic: single acting with closing spring (NC) or double acting |
| Body material | stainless steel |
| Feedthrough | bellows |
| Standard flanges | CF-R |
| Sealing technology | VATRING (see glossary) |

FUNCTIONAL PRINCIPLE



TECHNICAL DATA

| | | |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Leak rate | Valve body, valve seat | <1·10 ⁻¹⁰ mbar ls ⁻¹ |
| Pressure range | | XHV to 5 bar (abs) |
| Differential pressure on the gate | | ≤ 5 bar |
| Differential pressure at opening | | ≤ 1 bar ¹⁾ |
| Cycles until first service | | 10 000 |
| Bake-out temperature ²⁾ | Valve body Manual actuator ³⁾ Pneumatic actuator ³⁾ Solenoid valve ³⁾ Position indicator ³⁾ | DN 16 – 40 DN 63 – 160 ≤ 450 °C open / ≤ 350 °C closed ≤ 450 °C open / ≤ 350 °C closed ≤ 300 °C open and closed ≤ 150 °C (single acting with closing spring) ≤ 200 °C (double acting) ≤ 80 °C ≤ 80 °C (Option: 200 °C) |
| Heating and cooling rate | | ≤ 60 °C h ⁻¹ |
| Material | Valve body, mechanism Bellows | AISI 316L (1.4404, 1.4435) AISI 316L (1.4435) |
| Seal | Bonnet, gate | metal |
| Feedthrough | | bellows |
| Mounting position | | any |
| Solenoid valve | | 24 V DC, 2.5 W (others on request) |
| Position indicator: contact rating | Voltage Current | ≤ 50 V AC/DC 80 °C: ≤ 1.2 A / 200 °C: ≤ 1.0 A |
| Valve position indication | | visual (mechanical) |

| DN (nominal I.D.) | | Conductance (molecular flow) | | Valve with manual actuator | | | | | Valve with pneumatic actuator | | | | | | | | | | | | | |
|----------------------|------|---------------------------------|-----|----------------------------|-----|------------------|--------|-----|----------------------------------------|------|-------|-----------------|------|------|---------------|-------|------|-------|-----------------|------|------|-----|
| | | | | Torque | | Turns per stroke | Weight | | single acting with closing spring (NC) | | | | | | double acting | | | | | | | |
| mm | inch | ls ⁻¹ | Nm | ftlb | n | | kg | lbs | bar | psi | l | ft ³ | s | kg | lbs | bar | psi | l | ft ³ | s | kg | lbs |
| 10 | ¾ | 2 | - | - | - | - | - | 6-9 | 87-131 | 0.07 | 0.002 | 0.5 | 1.75 | 3.9 | - | - | - | - | - | - | - | - |
| 16 | 5/8 | 5 | 4 | 3 | 6 | 0.8 | 1.8 | 6-9 | 87-131 | 0.12 | 0.004 | 1 | 4.60 | 10.1 | 4-5 | 58-73 | 0.08 | 0.003 | 1 | 2.9 | 6.4 | |
| 40 | 1½ | 50 | 10 | 7.5 | 8 | 2.3 | 5 | 6-9 | 87-131 | 0.35 | 0.010 | 2 | 9 | 19.8 | 4-5 | 58-73 | 0.32 | 0.011 | 2 | 6 | 13 | |
| 63 | 2½ | 125 | 45 | 33 | 4.5 | 8 | 17.8 | 6-9 | 87-131 | 0.80 | 0.028 | 4 | 26 | | 4-5 | 58-73 | 0.55 | 0.02 | 2 | 17.2 | 37.3 | |
| 100 | 4 | 380 | 90 | 66 | 6.4 | 16 | 35.2 | 6-9 | 87-131 | 2.40 | 0.085 | 4 | 35 | 77.2 | 4-5 | 58-73 | 1.5 | 0.053 | 4 | 26 | 57.3 | |
| 160 | 6 | 940 | 125 | 92 | 8 | 36 | 79.2 | 6-9 | 87-131 | 4.80 | 0.170 | 7 | 136 | 299 | 4-5 | 58-73 | 3.3 | 0.116 | 7 | 65 | 143 | |

¹⁾ >1 bar with reduced number of cycles.

²⁾ Maximum values: depending on operating conditions and sealing materials.

³⁾ Further details and options: see next page.

OPTIONS, CUSTOMIZED SOLUTIONS

ACTUATOR

- Compact pneumatic actuator
- Solenoid valve for impulse actuation:
last valve position is maintained at power failure
- Other solenoid valve voltage (standard 24VDC)
- Bakeable position indicator:
manual and pneumatic actuator bakeable to max. 200 °C¹⁾ (standard: 80 °C)
- Double position indicator (2 switches each for the positions «open» and «closed»)
- Pneumatic actuator radiation resistant to 10⁶ Gy, bakeable to 140 °C¹⁾
- Manual actuator with cylindrical head

VALVE

- Customer specified flanges
- Antimagnetic version with defined permeability: see glossary
- CF-F flanges (fixed flanges), ISO-KF flanges, weld necks
- Valve with different flanges (e.g. CF / KF, CF / Cajon VCR)
- Valve without bonnet flange, welded (for tritium systems)
- Inline valve
- T valve

¹⁾ Maximum values: depending on operating conditions and sealing materials.

SPARE PARTS

We can offer a wide variety of spare parts. Please contact us for details and an offer.

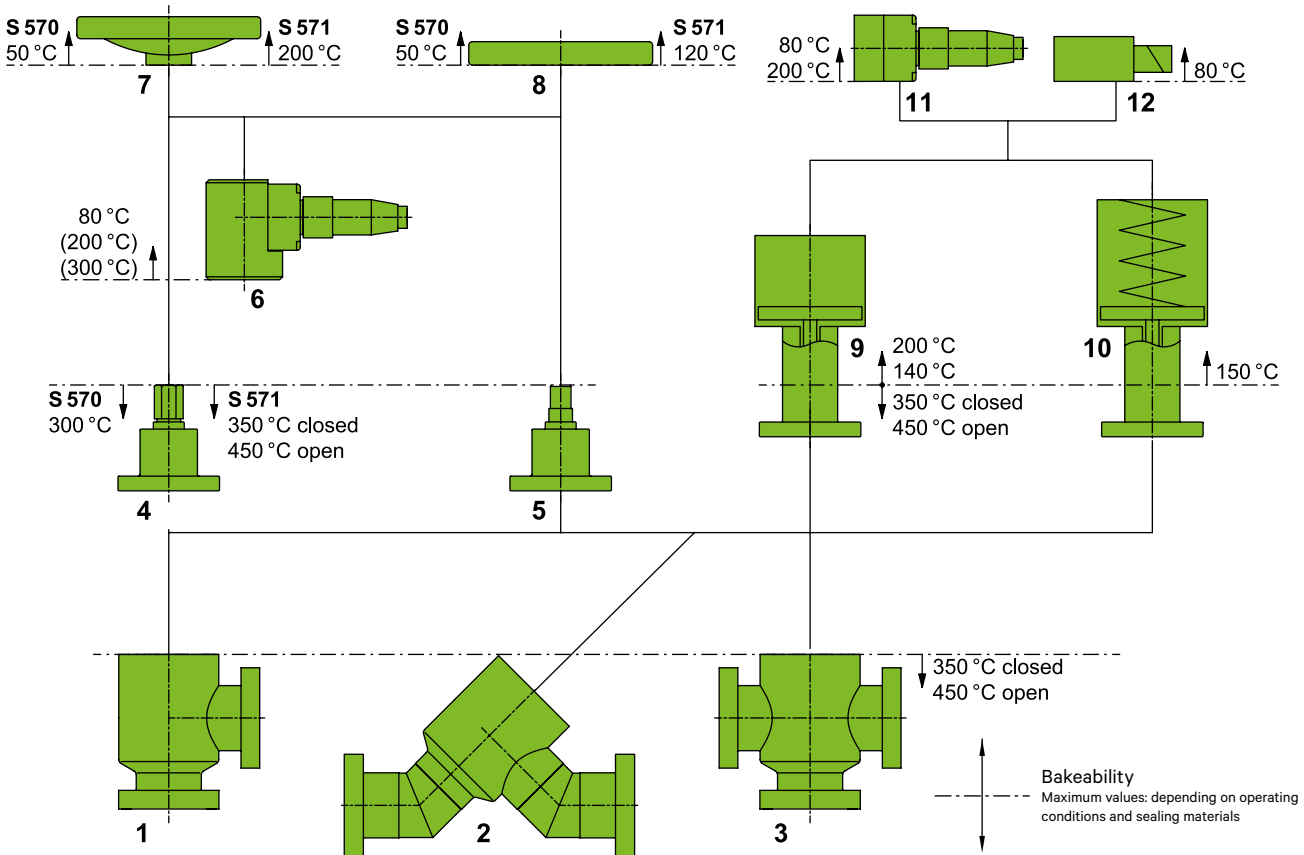
Thank you for specifying the fabrication number of the valve indicated on the identification tag when asking for spare parts.

ACCESSORIES

- Flange connections for installation of the valve: see series 33
- Bake-out jackets
To control the heating process, we recommend using commercial controllers with settable heating rate and temperature limiting device. Our bake-out jackets are supplied without thermocouples and thermostats. Technical details and ordering information on request.
- Handwheel for hexagon head (DN 16 – 40)
with free wheel for cylindrical head (DN 16 – 40)
with sliding clutch for hexagon head (DN 63 – 100)
with sliding clutch and free wheel for cylindrical head (DN 63 – 100)

BODY AND ACTUATORS

MODULAR SELECTION



| | | | |
|-----|-------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------|
| 1-3 | Valve body (angle, inline, T valve), plate, bellows | | 10^8 Gy, bakeable to 450 °C open / 350 °C closed |
| 4 | Manual actuator with hexagon head | DN 16-40 DN 63-160 | 10^8 Gy, bakeable to 450 °C open / 350 °C closed 10^7 Gy, bakeable to 300 °C open and closed |
| 5 | Manual actuator with cylindrical head | DN 16-40 DN 63-160 | 10^8 Gy, bakeable to 450 °C open / 350 °C closed 10^7 Gy, bakeable to 300 °C open and closed |
| 6 | Position indicator for manual actuator | | 10^5 Gy, bakeable to 80 °C (options: 10^6 Gy / 200 °C, 10^8 Gy / 300 °C) |
| 7 | Handwheel for hexagon head | DN 16-40 DN 63-100 | 10^8 Gy, bakeable to 200 °C 10^4 Gy, bakeable to 50 °C |
| 8 | Handwheel with free wheel for cylindrical head | DN 16-40 DN 63-100 | 10^5 Gy, bakeable to 120 °C 10^4 Gy, bakeable to 50 °C |
| 9 | Pneumatic actuator: double acting | | 10^5 Gy, bakeable to 200 °C (option: 10^6 Gy / 140 °C) |
| 10 | Pneumatic actuator: single acting with closing spring | | 10^5 Gy, bakeable to 150 °C (option: 10^6 Gy / 140 °C) |
| 11 | Position indicator | | 10^5 Gy, bakeable to 80 °C (option: 10^6 Gy / 200 °C) |
| 12 | Solenoid valve | | 10^4 Gy, bakeable to 80 °C |

ORDERING INFORMATION FOR STANDARD VALVES

Valve with manual actuator hexagon head

| DN | | Ordering numbers | | |
|-----|------|------------------------------------|---------------------------------------|----------------------------------------|
| mm | inch | CF-R without position indicator | CF-R with position indicator 80 °C | CF-R with position indicator 200 °C |
| 16 | ¾ | 57124-GE02 | 57124-GE08 | 57124-GE05 |
| 40 | 1½ | 57132-GE02 | 57132-GE08 | 57132-GE05 |
| 63 | 2½ | 57036-GE02 | 57036-GE08 | 57036-GE05 |
| 100 | 4 | 57040-GE02 | 57040-GE08 | 57040-GE05 |
| 160 | 6 | 57044-GE02 | 57044-GE08 | 57044-GE05 |

Valve with pneumatic actuator single acting with closing spring (NC)

| DN | | Ordering numbers | | |
|-----|------|--------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------|
| mm | inch | CF-R without solenoid valve without position indicator | CF-R without solenoid valve with position indicator 80 °C | CF-R with solenoid valve ¹⁾ with position indicator 80 °C |
| 10 | ¾ | 57120-XE11 ²⁾ | 57120-XE21 ²⁾ | 57120-XE41 ²⁾ |
| 16 | ¾ | 57124-GE11 | 57124-GE21 | 57124-GE41 |
| 40 | 1½ | 57132-GE11 | 57132-GE21 | 57132-GE41 |
| 63 | 2½ | 57036-GE11 | 57036-GE21 | 57036-GE41 |
| 100 | 4 | 57040-GE11 | 57040-GE21 | 57040-GE41 |
| 160 | 6 | 57044-GE11 | 57044-GE21 | 57044-GE41 |

¹⁾ specify control voltage

²⁾ CF-R 16 flanges (others on request)

Valve with pneumatic actuator double acting

| DN | | Ordering numbers | | |
|-----|------|--------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------|
| mm | inch | CF-R without solenoid valve without position indicator | CF-R without solenoid valve with position indicator 80 °C | CF-R with solenoid valve ¹⁾ with position indicator 80 °C |
| 16 | ¾ | 57124-GE14 | 57124-GE24 | 57124-GE44 |
| 40 | 1½ | 57132-GE14 | 57132-GE24 | 57132-GE44 |
| 63 | 2½ | 57036-GE14 | 57036-GE24 | 57036-GE44 |
| 100 | 4 | 57040-GE14 | 57040-GE24 | 57040-GE44 |
| 160 | 6 | 57044-GE14 | 57044-GE24 | 57044-GE44 |

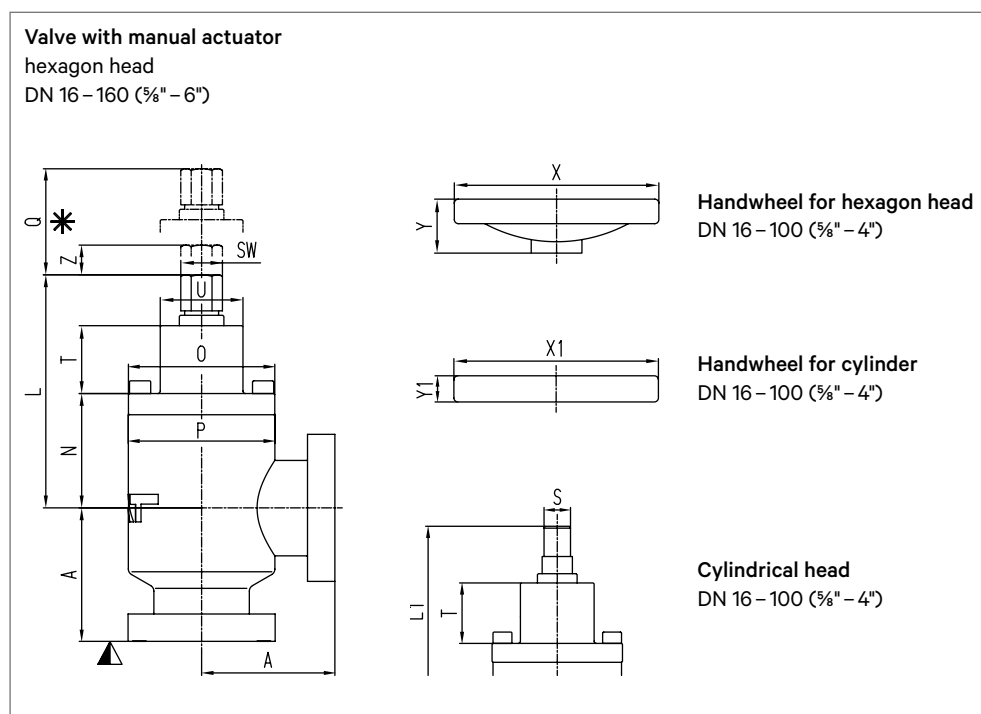
¹⁾ specify control voltage

ORDERING INFORMATION FOR VALVES WITH OPTIONS

Basic ordering number plus «X»: -X to be specified

Example: 57132-GE02-X, X = T valve

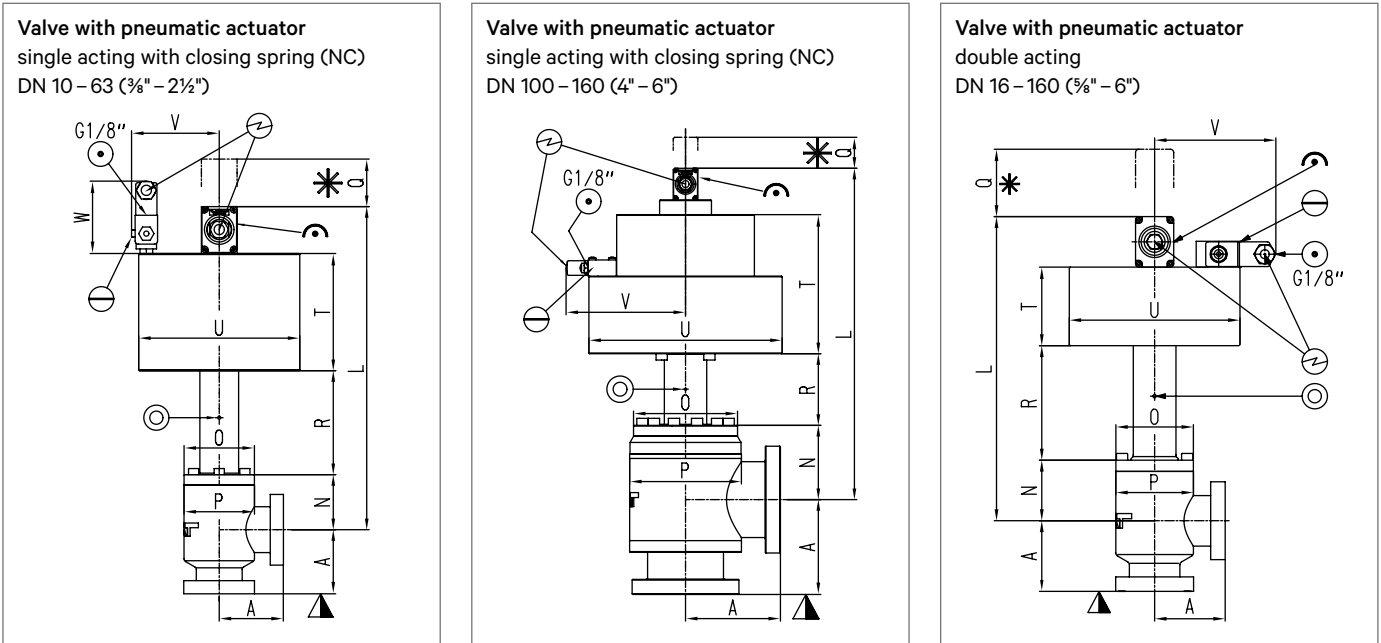
MAIN DIMENSIONS



| DN | mm inch | 16 ½" | 40 1½" | 63 2½" | 100 4" | 160 6" |
|----|------------|----------------|----------------|----------------|-----------------|-----------------|
| A | mm inch | 38 1.50 | 63 2.48 | 105 4.13 | 135 5.31 | 167 6.57 |
| L | mm inch | 100.20 3.94 | 126 4.96 | 185.50 7.30 | 258.50 10.18 | 285.10 11.22 |
| L1 | mm inch | 115.70 4.55 | 133.50 5.26 | 185.50 7.30 | 258.50 10.18 | - |
| N | mm inch | 52.60 2.07 | 54 2.13 | 88 3.46 | 106 4.17 | 134.60 5.30 |
| O | mm inch | 54 2.13 | 69 2.72 | 102 4.02 | 148 5.83 | 202 7.95 |
| P | mm inch | 52 2.05 | 69 2.72 | 102 4.02 | 159 6.26 | 206 8.11 |
| Q | mm inch | 60.80 2.39 | 78 3.07 | 134.50 5.29 | 163.50 6.44 | 264.90 10.43 |
| S | mm inch | 12 0.47 | 14 0.55 | 20 0.79 | 30 1.18 | - |
| SW | mm inch | 13 0.51 | 17 0.67 | 22 0.87 | 27 1.06 | 36 1.42 |
| T | mm inch | 33 1.77 | 34 1.34 | 68.50 2.70 | 87 3.43 | 112 4.41 |
| U | mm inch | 32 1.26 | 39 1.54 | 60 2.36 | 68 2.68 | 78 3.07 |
| X | mm inch | 62 2.44 | 125 4.92 | 250 9.84 | 500 19.69 | - |
| X1 | mm inch | 62 2.44 | 125 4.92 | 250 9.84 | 500 19.69 | - |
| Y | mm inch | 23 0.91 | 33 1.30 | 72 2.83 | 80 3.25 | - |
| Y1 | mm inch | 12 0.47 | 16 0.63 | 75 2.95 | 95 3.74 | - |
| Z | mm inch | 7.50 0.30 | 14 0.55 | 20 0.79 | 32 1.26 | 44 1.73 |

Flange dimensions: see page 307

MAIN DIMENSIONS

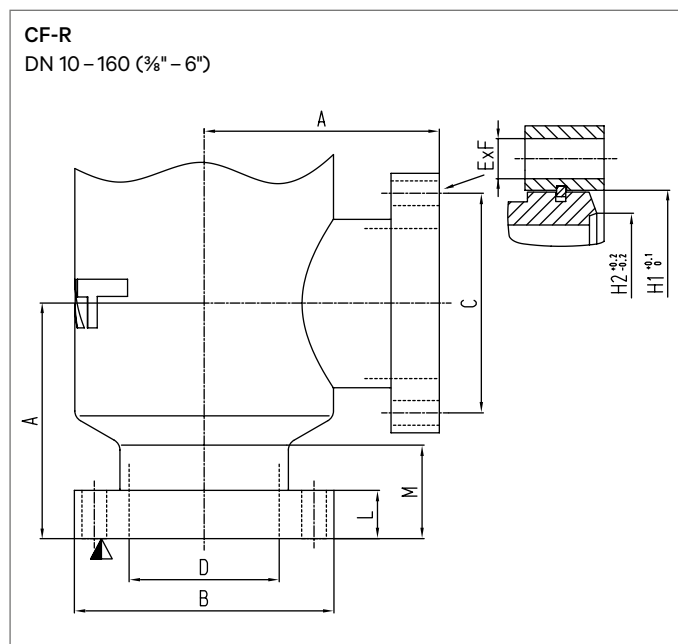


- ▼ Valve seat side
- * Required for dismantling
- ⊕ Compressed air connection
- ⊖ Electrical connection
- ⌒ Mechanical position indication
- ⊖ Emergency operation
- ⊙ Leak detection hole

| DN | mm inch | single acting with closing spring (NC) | | | | | | double acting | | | | | |
|----|------------|----------------------------------------|----------------|--------------|---------------|-----------------|---------------|----------------|--------------|--------------|-----------------|----------------|--|
| | | 10 3/8 | 16 5/8 | 40 1 1/2 | 63 2 1/2 | 100 4 | 160 6 | 16 5/8 | 40 1 1/2 | 63 2 1/2 | 100 4 | 160 6 | |
| A | mm inch | 38 1.50 | 38 1.50 | 63 2.48 | 105 4.13 | 135 5.31 | 167 6.57 | 38 1.50 | 63 2.48 | 105 4.13 | 135 5.31 | 167 6.57 | |
| L | mm inch | 192.60 7.58 | 250.30 9.85 | 317 12.48 | 375 14.76 | 471.30 18.56 | 592 23.31 | 232.30 9.15 | 272 10.71 | 317 12.48 | 382.70 15.07 | 460 18.11 | |
| N | mm inch | 35.90 1.41 | 52.60 2.07 | 54 2.13 | 88 3.46 | 105.70 4.16 | 135 5.31 | 52.60 2.07 | 54 2.13 | 88 3.46 | 105.70 4.16 | 135 5.31 | |
| O | mm inch | 47 1.85 | 54 2.13 | 69 2.72 | 102 4.02 | 148 5.83 | 202 7.95 | 54 2.13 | 69 2.72 | 102 4.02 | 148 5.83 | 202 7.95 | |
| P | mm inch | 28 1.10 | 36 1.42 | 69 2.72 | 102 4.02 | 159 6.26 | 206 8.11 | 36 1.42 | 69 2.72 | 102 4.02 | 159 6.26 | 220 8.66 | |
| Q | mm inch | 41 1.61 | 83.70 3.30 | 93 3.66 | 115 4.53 | 138.70 5.46 | 183 7.20 | 60.70 2.39 | 68 2.68 | 113 4.45 | 142.30 5.60 | 185 7.28 | |
| R | mm inch | 15.70 0.62 | 79.70 3.14 | 102 4.02 | 93 3.66 | 102 4.02 | 130 5.12 | 79.70 3.14 | 102 4.02 | 93 3.66 | 102 4.02 | 130 5.12 | |
| T | mm inch | 57 2.24 | 72 2.83 | 115 4.53 | 148 5.83 | 198 7.80 | 250 9.84 | 54 2.13 | 70 2.76 | 90 3.54 | 130 5.12 | 150 5.91 | |
| U | mm inch | 98 3.86 | 108 4.25 | 158 6.22 | 198 7.80 | 275 10.83 | 328 12.91 | 98 3.86 | 152 5.98 | 194 7.64 | 238 9.37 | 278 10.94 | |
| V | mm inch | 84 3.31 | 61 2.40 | 86 3.39 | 131.5 5.18 | 170 6.69 | 196.5 7.74 | 94 3.70 | 108 4.25 | 130 5.12 | 151 5.94 | 171.50 6.75 | |
| W | mm inch | - | 71 2.80 | 71 2.80 | 27 1.06 | 27 1.06 | 27 1.06 | - | - | - | - | - | |

Flange dimensions: see page 307

FLANGE DIMENSIONS



▼ Valve seat side

| DN | mm inch | 10 3/8 | 16 5/8 | 40 1 1/2 | 63 2 1/2 | 100 4 | 160 6 |
|-------|------------|----------------------|----------------------|----------------------|----------------------|------------------------|------------------------|
| O.D. | inch | 1 1/8 | 1 3/8 | 2 3/4 | 4 1/2 | 6 | 8 |
| A | mm inch | 38 1.50 | 38 1.50 | 63 2.48 | 105 4.13 | 135 5.31 | 167 6.57 |
| B | mm inch | 34 1.34 | 34 1.34 | 69.50 2.74 | 113.50 4.47 | 152 5.98 | 202.50 7.97 |
| C | mm inch | 27 1.06 | 27 1.06 | 58.70 2.31 | 92.10 3.62 | 130.30 5.13 | 181 7.12 |
| D | mm inch | 16 0.63 | 16 0.63 | 40 1.57 | 64 2.52 | 102 4.01 | 150 5.9 |
| E x F | | 6 x 4.30 6 x 0.17 | 6 x 4.30 6 x 0.17 | 6 x 6.60 6 x 0.26 | 8 x 8.40 8 x 0.33 | 16 x 8.40 16 x 0.33 | 20 x 8.40 20 x 0.33 |
| H1 | mm inch | 21.40 0.84 | 21.40 0.84 | 48.30 1.90 | 82.50 3.25 | 120.65 4.75 | 171.45 6.75 |
| H2 | mm inch | 18.50 0.73 | 18.50 0.73 | 42 1.62 | 77.40 3.05 | 115.50 4.55 | 166 6.53 |
| L | mm inch | 7.40 0.29 | 7.40 0.29 | 12 0.47 | 19 0.75 | 21.50 0.85 | 22 0.87 |
| M | mm inch | 22.60 0.89 | 22.60 0.89 | 25.60 1.01 | 46.60 1.83 | 60 2.36 | 62 2.44 |