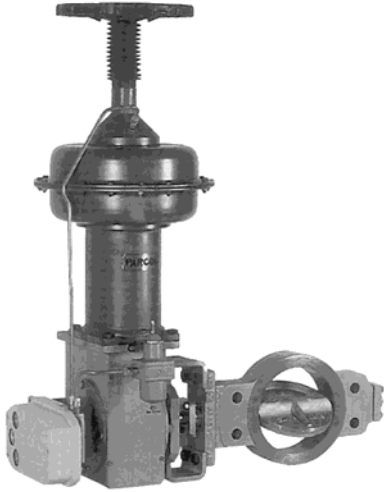


**1-2512 SERIES
BUTTERFLY
CONTROL VALVES**

1-2512 SERIES BUTTERFLY VALVES



1-2512 series control valves feature a "swing through" type disc plug suitably profiled to reduce the dynamic torque transmitted by the fluid and reduce the cavitation risk on liquids, yet allowing to operate even with high pressure drops.

Body sizes from DN 80 through DN 600 compatible with UNI and ANSI flanges are available.

Special sizes up to DN 1600 are available on request.

MAIN FEATURES

BODY

- type: flangeless.
- sizes: 3" through 24" compatible with UNI, DIN, ANSI flanges.
- face-to-face dimensions: according to ISO 5752, medium series.
- rating: UNI PN 10, 16, 25, 40, 64, 100; ANSI 150, 300, 600
See table on fig. 1 for the complete availability. Take into account that the max pressure and/or temperature can be affected by bearings and seal ring materials.
- construction materials: see relevant tables - Steel bodies can be cast, wrought or forged. Other special materials are available on request (Hastelloy, AISI 316L, Monel, Alloy 20).

PLUG

- type: profiled disc.
- construction materials: same as the body, cast construction.
- rangeability: depending on DN (in any case over 100) see Cv coefficients table.
- rotation: standard 90°
- flow direction: from either sides, for disc rotation see fig. 3.
- action: air-to-open and air-to-close with simple-acting or piston actuators. To change action only assembling operations are required.

- shutoff classification: according to Class II IEC 60534-4 (ANSI B16.104)

SHAFT

- construction: made in one piece and pinned to the disc.
- materials: 17-4-PH, A479 XM 19, AISI 316, AISI 316L.

BEARINGS

- construction: PTFE-lined or all-metal bushing for high temperature service.
- temperature capabilities: PTFE-lined bearings may be used up to 250 °C;
All-metal bearings may be used up to 375 °C.

PACKING

- seal materials: reinforced PTFE split rings and pure graphite rings.
- design: adjustable by follower and two screws.
- temperature capabilities: graphited PTFE rings: 200 °C;
pure graphite: no practical limits.

ACTUATORS

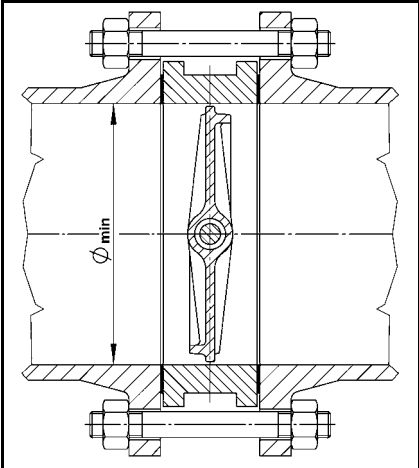
The valve is normally supplied with 1-X-271 series PARCOL pneumatic actuator.
For control service positioner is recommended.

Fig.1: RATING AVAILABILITY

| DN in. | ANSI | | | PN UNI DIN | | | | | |
|-----------|------|------|-----|------------|-----|------|------|----|------|
| | 150 | 300 | 600 | 10 | 16 | 25 | 40 | 64 | 100 |
| 3 | X | X | X | X | X | X | X | X | X |
| 4 | X | X | X | X | X | X | X | X | X |
| 6 | X | X | X | X | X | X | X | X | spec |
| 8 | X | X | X | X | X | X | X | X | X |
| 10 | X | (*) | | X | X | X | X | | |
| 12 | X | spec | | X | X | spec | spec | | |
| 14 | X | (*) | | X | X | spec | spec | | |
| 16 | X | (*) | | X | X | X | spec | | |
| 18 | X | | | (*) | (*) | | | | |
| 20 | (*) | | | (*) | (*) | | | | |
| 24 | (*) | | | (*) | (*) | | | | |

Fig.2: MINIMUM INSIDE DIAMETER OF PIPING FLANGES

| DN in. | Ø min. mm |
|-----------|--------------|
| 3 | 67 |
| 4 | 89 |
| 6 | 139 |
| 8 | 200 |
| 10 | 251 |
| 12 | 301 |
| 14 | 339 |
| 16 | 389 |
| 18 | 437 |
| 20 | 486 |
| 24 | 590 |

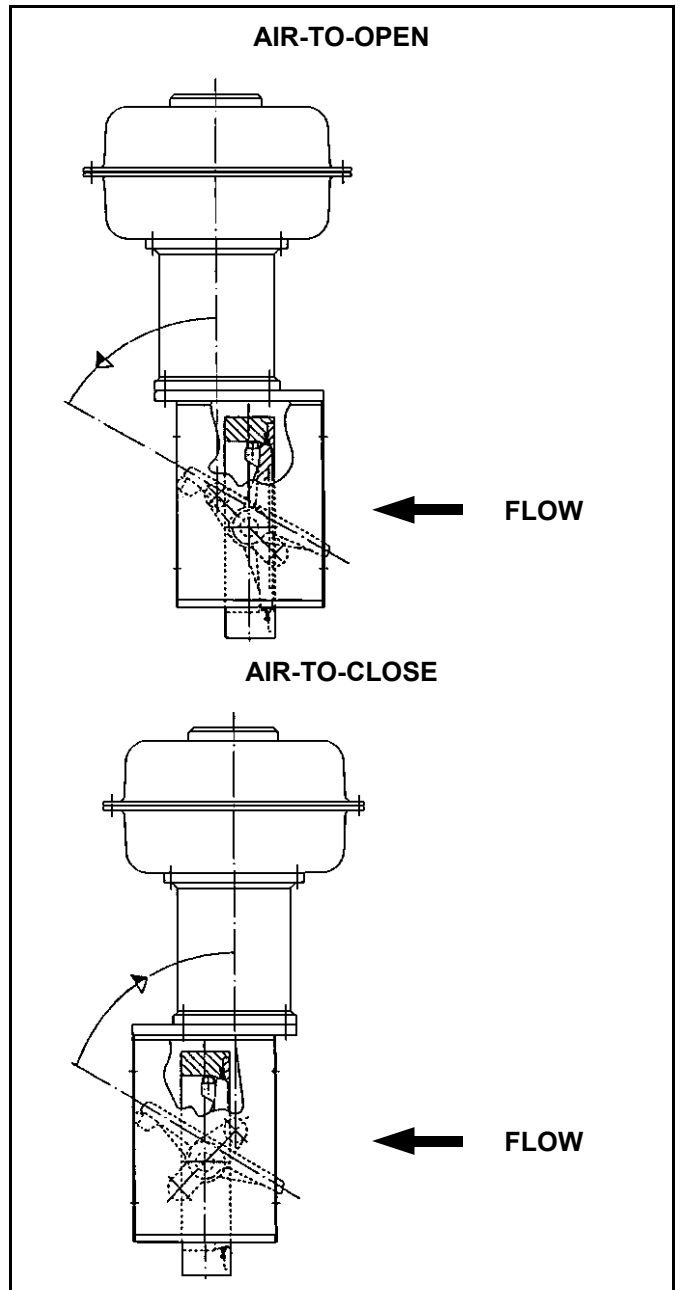


COMPATIBILITY WITH PIPING FLANGES

- The four holes around the shaft normally pass through the body
- Where (*) is indicated the holes are ISO coarse threaded with the following correspondance:
1" 8UN = M27, 1.1/8" 8UN = M30, 1.1/4" 8UN = M33
- On request, ANSI B1.1 threads are available
- The UNI, DIN raised faces are available only on forged bodies
- Cast UNI, DIN bodies are faced in according to the ANSI standard.

To prevent interference with disc rotation the connected piping shall have an inside diameter greater than the one shown on fig. 2

Fig.3: DISC ROTATION



FLOW COEFFICIENT $C_v^{(1)}$

| DN in. | DN mm | Cv max 90° | Valve opening ⁽²⁾⁽³⁾ | | | | | | | | | |
|--------|-------|------------|---------------------------------|-----|-----|------|------|------|------|------|-------|--|
| | | | 5° | 10° | 20° | 30° | 40° | 50° | 60° | 70° | 80° | |
| 3 | 80 | 275 | 2.0 | 4 | 13 | 25 | 42 | 69 | 108 | 169 | 241 | |
| 4 | 100 | 460 | 3.3 | 6 | 22 | 41 | 71 | 115 | 181 | 282 | 404 | |
| 5 | 125 | 700 | 5.0 | 10 | 33 | 63 | 108 | 176 | 276 | 429 | 615 | |
| 6 | 150 | 1120 | 8.0 | 15 | 53 | 101 | 172 | 281 | 441 | 687 | 983 | |
| 7 | 175 | 1460 | 10.4 | 20 | 69 | 131 | 225 | 366 | 575 | 895 | 1282 | |
| 8 | 200 | 2120 | 15 | 29 | 88 | 168 | 271 | 421 | 663 | 1022 | 1565 | |
| 10 | 250 | 3570 | 26 | 49 | 148 | 283 | 456 | 709 | 116 | 1721 | 2635 | |
| 12 | 300 | 5110 | 37 | 70 | 211 | 405 | 652 | 1015 | 1597 | 2464 | 3771 | |
| 14 | 350 | 6490 | 46 | 89 | 268 | 514 | 829 | 1289 | 2029 | 3129 | 4790 | |
| 16 | 400 | 8990 | 64 | 124 | 372 | 712 | 1148 | 1786 | 2810 | 4334 | 6635 | |
| 18 | 450 | 11120 | 80 | 153 | 460 | 880 | 1420 | 2209 | 3476 | 5361 | 8207 | |
| 20 | 500 | 13500 | 97 | 186 | 558 | 1069 | 1724 | 2682 | 4220 | 6509 | 9963 | |
| 24 | 600 | 20300 | 145 | 280 | 840 | 1607 | 2592 | 4033 | 6345 | 9787 | 14981 | |

RECOVERY FACTOR F_L

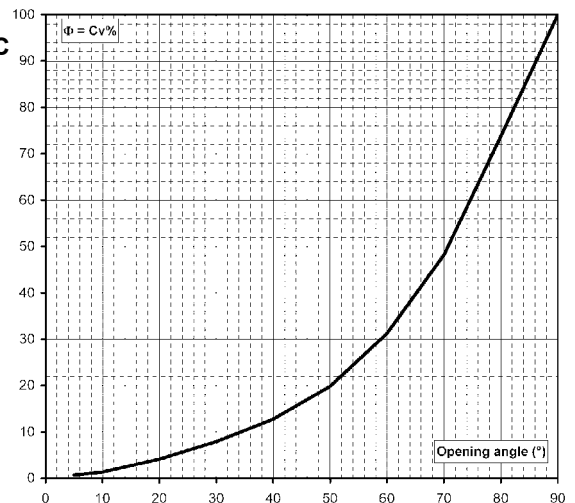
| DN in. | DN mm | F _L 90° | Valve opening | | | | | | | | | |
|--------|-------|--------------------|---------------|------|------|------|------|------|------|------|------|--|
| | | | 5° | 10° | 20° | 30° | 40° | 50° | 60° | 70° | 80° | |
| 3 | 80 | 0.61 | 0.95 | 0.95 | 0.93 | 0.90 | 0.87 | 0.82 | 0.76 | 0.70 | 0.63 | |
| 4 | 100 | 0.61 | 0.95 | 0.95 | 0.93 | 0.90 | 0.86 | 0.82 | 0.76 | 0.69 | 0.63 | |
| 5 | 125 | 0.61 | 0.95 | 0.95 | 0.93 | 0.90 | 0.87 | 0.82 | 0.76 | 0.70 | 0.63 | |
| 6 | 150 | 0.59 | 0.95 | 0.95 | 0.92 | 0.90 | 0.86 | 0.81 | 0.75 | 0.68 | 0.61 | |
| 7 | 175 | 0.60 | 0.95 | 0.95 | 0.93 | 0.90 | 0.86 | 0.81 | 0.75 | 0.68 | 0.62 | |
| 8 | 200 | 0.58 | 0.95 | 0.95 | 0.93 | 0.90 | 0.87 | 0.83 | 0.77 | 0.71 | 0.64 | |
| 10 | 250 | 0.57 | 0.95 | 0.95 | 0.92 | 0.90 | 0.86 | 0.82 | 0.76 | 0.70 | 0.62 | |
| 12 | 300 | 0.57 | 0.95 | 0.95 | 0.92 | 0.90 | 0.86 | 0.82 | 0.76 | 0.70 | 0.62 | |
| 14 | 350 | 0.57 | 0.95 | 0.95 | 0.92 | 0.90 | 0.86 | 0.82 | 0.76 | 0.70 | 0.62 | |
| 16 | 400 | 0.56 | 0.95 | 0.95 | 0.92 | 0.89 | 0.86 | 0.81 | 0.76 | 0.69 | 0.61 | |
| 18 | 450 | 0.56 | 0.95 | 0.95 | 0.92 | 0.89 | 0.86 | 0.82 | 0.76 | 0.69 | 0.62 | |
| 20 | 500 | 0.57 | 0.95 | 0.95 | 0.92 | 0.90 | 0.86 | 0.82 | 0.76 | 0.70 | 0.62 | |
| 24 | 600 | 0.56 | 0.95 | 0.95 | 0.92 | 0.89 | 0.86 | 0.82 | 0.76 | 0.69 | 0.62 | |

COEFFICIENT OF INCIPIENT CAVITATION $X_{FZ}^{(4)}$

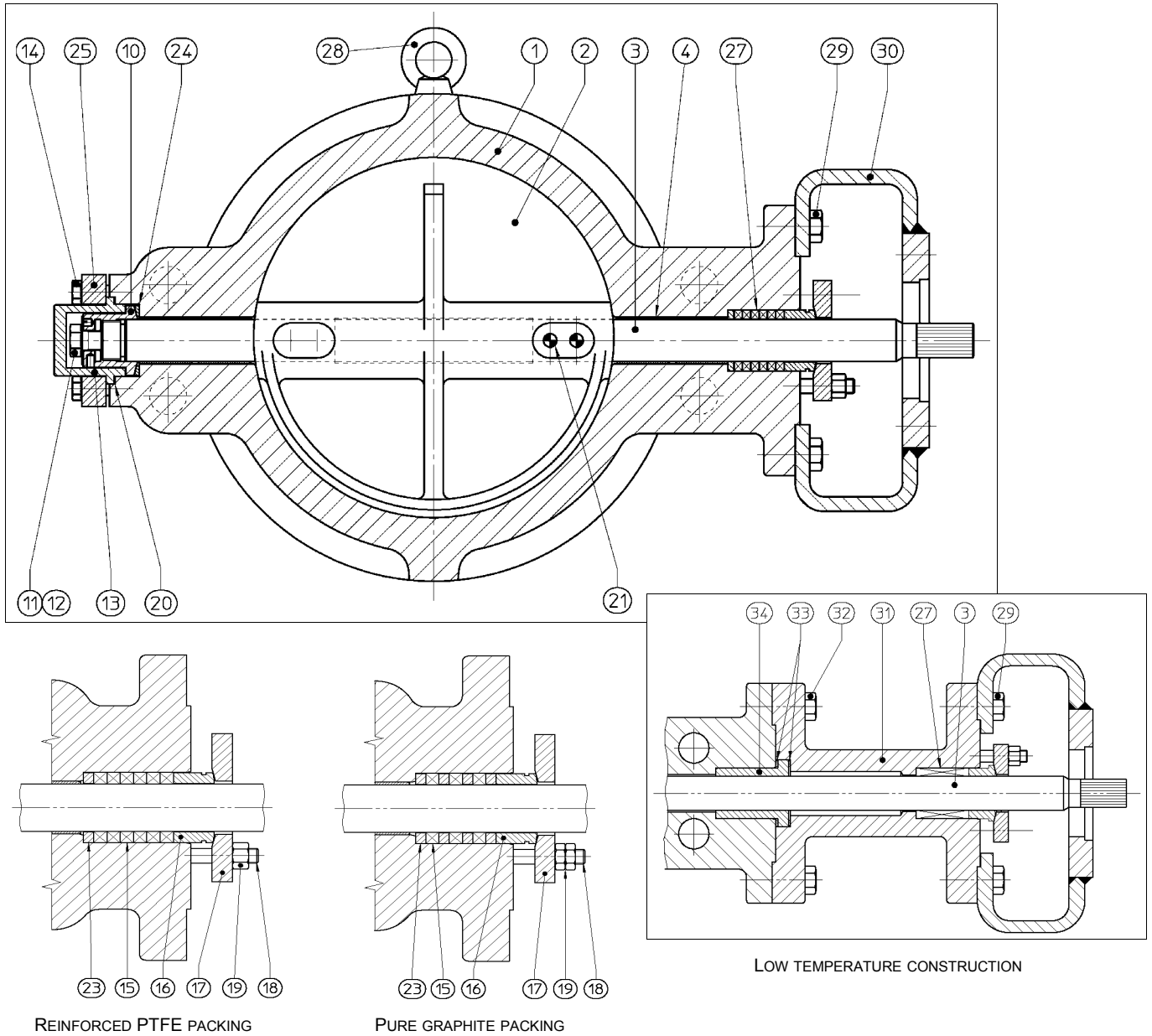
| DN in. | DN mm | X _{FZ} 90° | Valve opening | | | | | | | | | |
|--------|-------|---------------------|---------------|------|------|------|------|------|------|------|------|--|
| | | | 5° | 10° | 20° | 30° | 40° | 50° | 60° | 70° | 80° | |
| 3 | 80 | 0.22 | 0.86 | 0.84 | 0.79 | 0.72 | 0.64 | 0.54 | 0.44 | 0.33 | 0.25 | |
| 4 | 100 | 0.22 | 0.85 | 0.84 | 0.78 | 0.71 | 0.63 | 0.53 | 0.43 | 0.32 | 0.24 | |
| 5 | 125 | 0.22 | 0.85 | 0.84 | 0.78 | 0.72 | 0.64 | 0.54 | 0.44 | 0.33 | 0.25 | |
| 6 | 150 | 0.20 | 0.84 | 0.83 | 0.77 | 0.70 | 0.61 | 0.51 | 0.41 | 0.30 | 0.23 | |
| 7 | 175 | 0.21 | 0.84 | 0.83 | 0.77 | 0.70 | 0.62 | 0.52 | 0.41 | 0.31 | 0.23 | |
| 8 | 200 | 0.19 | 0.84 | 0.83 | 0.77 | 0.71 | 0.64 | 0.55 | 0.45 | 0.35 | 0.25 | |
| 10 | 250 | 0.18 | 0.84 | 0.82 | 0.76 | 0.69 | 0.62 | 0.53 | 0.43 | 0.33 | 0.23 | |
| 12 | 300 | 0.17 | 0.83 | 0.82 | 0.76 | 0.69 | 0.62 | 0.53 | 0.43 | 0.32 | 0.23 | |
| 14 | 350 | 0.17 | 0.83 | 0.82 | 0.76 | 0.69 | 0.62 | 0.53 | 0.43 | 0.32 | 0.23 | |
| 16 | 400 | 0.17 | 0.83 | 0.81 | 0.75 | 0.68 | 0.61 | 0.52 | 0.41 | 0.31 | 0.22 | |
| 18 | 450 | 0.17 | 0.83 | 0.81 | 0.75 | 0.68 | 0.61 | 0.52 | 0.42 | 0.32 | 0.23 | |
| 20 | 500 | 0.17 | 0.83 | 0.81 | 0.75 | 0.69 | 0.61 | 0.52 | 0.42 | 0.32 | 0.23 | |
| 24 | 600 | 0.17 | 0.82 | 0.81 | 0.75 | 0.68 | 0.60 | 0.52 | 0.41 | 0.31 | 0.22 | |

| DN in. | DN mm | X _T 90° | X _T 10° |
|--------|-------|--------------------|--------------------|
| 3 | 80 | 0.26 | 0.84 |
| 4 | 100 | 0.26 | 0.84 |
| 5 | 125 | 0.26 | 0.84 |
| 6 | 150 | 0.24 | 0.84 |
| 7 | 175 | 0.25 | 0.84 |
| 8 | 200 | 0.24 | 0.84 |
| 10 | 250 | 0.22 | 0.84 |
| 12 | 300 | 0.22 | 0.84 |
| 14 | 350 | 0.22 | 0.84 |
| 16 | 400 | 0.22 | 0.84 |
| 18 | 450 | 0.22 | 0.84 |
| 20 | 500 | 0.22 | 0.84 |
| 24 | 600 | 0.22 | 0.84 |

FIG.4 FLOW CHARACTERISTIC FOR DN > 6"



- (1) C_v are expressed in U.S. gallons/min. of water with Δp=1 psi
- (2) Rangeability can be calculated as C_v max/C_v 5°
- (3) Tolerance according to IEC 60534-2-4
- (4) IEC 60534-8 -4



| ITEM | PART NAME |
|------|------------------|
| 1 | BODY |
| 2 | DISC |
| 3 | SHAFT |
| 4 | BEARING |
| 10 | ADJUSTING RING |
| 11 | SCREW |
| 12 | LOCK WASHER |
| 13 | COVER |
| 14 | SCREW |
| 15 | PACKING RING |
| 16 | PACKING FOLLOWER |
| 17 | PACKING FLANGE |
| 18 | STUD |
| 19 | NUT |

| ITEM | PART NAME |
|------|-------------------|
| 20 | GASKET |
| 21 | PIN |
| 23 | BUSHING |
| 24 | ANTIFRICTION RING |
| 25 | FLANGE |
| 27 | PACKING |
| 28 | EYE BOLT |
| 29 | SCREW |
| 30 | SUPPORT |
| 31 | EXTENSION |
| 32 | SCREW |
| 33 | GASKET |
| 34 | BUSHING |

MATERIALS OF CONSTRUCTION

| ITEM | PART NAME | BASIC CLASS | | | | | NACE (MR0175 - MR0103) | |
|------|-------------------|--|----------|-----------|---------------|--------------------|--------------------------------|--------------------|
| | | A | B | G | H | K | (A) | (G) |
| 1 | BODY | A 216 WCB / A 105 | | AISI 316 | AISI 316L | ASTM A890/A890M 4A | A 216 WCB / A 105 22HRC max | AISI 316 22HRC max |
| 2 | DISC | A 216 WCB / A 105 | | AISI 316 | AISI 316L | ASTM A890/A890M 4A | A 216 WCB / A 105 22HRC max | AISI 316 22HRC max |
| 3 | SHAFT | SEE SUB-CLASS TABLE | | | | | | |
| 4 | BEARING | SEE SUB-CLASS TABLE | | | | | | |
| 10 | ADJUSTING RING | S 21800 | | | | | | |
| 11 | SCREW | AISI 304 | | AISI 316 | MONEL 400 | | AISI 304 | |
| 12 | LOCK WASHER | AISI 304 | | | AISI 316L | | AISI 304 | |
| 13 | COVER | A 105 | AISI 316 | AISI 316L | | A 105 22HRC max | AISI 316 22HRC max | |
| 14 | SCREW | AISI 304 | | | AISI 316L | | AISI 304 | |
| 20 | GASKET | INORGANIC COMPOUND T ≤ 300 °C - ARMoured GRAPHITE T > 300 °C | | | | | | |
| 21 | PIN | MONEL K500 | | | | | | |
| 24 | ANTIFRICTION RING | AISI 316 | | AISI 316L | BSZN 5-BRONZE | | AISI 316 22HRC max | |
| 25 | FLANGE | A 105 | | | AISI 316 | | A 105 | |
| 27 | PACKING | SEE PACKING TABLE | | | | | | |
| 28 | EYEBOLT | CARBON STEEL | | | | | | |
| 29 | SCREW | 8.8 UNI 3740 | | AISI 304 | | 8.8 UNI 3740 | | AISI 304 |
| 30 | SUPPORT | CARBON STEEL | | | | | | |

| ITEM | PART NAME | SUB-CLASS | | | | | | | |
|------|-----------|---|-----------------------------|--|--|-------------------------------------|---|---|--|
| | | 01 | 02 | 04 | 06 | 07 | 08 | 09 | |
| 3 | SHAFT | ASTM A 564-630 H900 (ASTM A 564-630 H1150M) ⁽²⁾ | | | AISI 316 (22HRC max) ⁽²⁾ | XM 19 (35HRC max) ⁽²⁾ | AISI 316L (22HRC max) ⁽²⁾ | UNS S31803 (SAF 2205) (25HRC max) ⁽²⁾ | |
| 4 | BEARING | CARBON STEEL + BRONZE + PTFE | ASTM B 148-955 (grade D) | AISI 316L + PTFE FIBRES ⁽¹⁾ | | | INCONEL 625 + PTFE FIBRES ⁽¹⁾ | | |

| ITEM | PART NAME | PACKING TYPE | SUB-CLASS | | |
|------|------------------|--------------|-----------------------|----------|-----------|
| | | | A-B | G | H-K |
| 15 | PACKING RING | TFK | Reinforced PTFE | | |
| | | GRF | GRAPHITE | | |
| 16 | PACKING FOLLOWER | TFK - GRF | AISI 316 | | AISI 316L |
| 17 | PACKING FLANGE | | CARBON STEEL | AISI 316 | |
| 18 | STUD | | AISI 304 | | |
| 19 | NUT | | AISI 304 | | |
| 23 | SPACER RING | TFK | 25% Glass loaded PTFE | | |
| | | GRF | AISI 316 | | AISI 316L |

| SELECTION GUIDE | | | | |
|-----------------|-----------|--------------------------------|------------------------------|--------------------------------------|
| BASIC CLASS | SUB-CLASS | TEMPERATURE | SERVICE | |
| A | 01 | -29 °C ÷ 200 °C | NOT CORROSIVE | |
| | 02 | -29 °C ÷ 375 °C | NOT CORROSIVE T > 200 °C | |
| B | 01 | -29 °C ÷ 200 °C | NOT CORROSIVE | |
| | 02 | -29 °C ÷ 250 °C | NOT CORROSIVE T > 200 °C | |
| G | 02 | -29 °C ÷ 375 °C | CORROSIVE T > 200 °C | |
| | 04 | -29 °C ÷ 200 °C | CORROSIVE | |
| | 06 | -50 °C ⁽³⁾ ÷ 200 °C | CORROSIVE (NACE) | |
| | 07 | -50 °C ⁽³⁾ ÷ 200 °C | CORROSIVE FOR HIGH Δp (NACE) | |
| H | 08 | -29 °C ÷ 200 °C | CORROSIVE (NACE) | |
| K | 09 | -29 °C ÷ 200 °C | SEAWATER (BRINE) | NOT SUITABLE FOR COPPER FREE SERVICE |

(1) Not suitable for hydrochloric acid. For strong solvents the compatibility must be checked with bushing manufacturer

(2) For NACE

(3) With packing chamber extension: -100 °C

MAX DIFFERENTIAL PRESSURE ACROSS THE VALVE Δp - bar

| DN in. | 60° OPEN VALVE CLASS | | | | | | | | | |
|-----------|-------------------------|------|------|------|------|------|------|------|------|------|
| | A01 | A02 | B01 | B02 | G02 | G04 | G06 | G07 | H08 | K09 |
| 3 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 13.4 | 33.8 | 10.8 | 10.8 |
| 4 | 26.5 | 31.3 | 26.5 | 31.3 | 31.3 | 26.5 | 14.6 | 26.5 | 11.8 | 11.8 |
| 6 | 14.9 | 14.9 | 14.9 | 14.9 | 14.9 | 14.9 | 4.3 | 14.9 | 3.5 | 3.5 |
| 8 | 18.3 | 21.5 | 18.3 | 21.5 | 21.5 | 18.3 | 9.0 | 18.3 | 7.3 | 7.3 |
| 10 | 11.8 | 12.4 | 11.8 | 12.4 | 12.4 | 11.8 | 3.6 | 11.8 | 2.9 | 2.9 |
| 12 | 10.0 | 10.7 | 10.0 | 10.7 | 10.7 | 10 | 3.1 | 10.0 | 2.5 | 2.5 |
| 14 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 2.2 | 7.5 | 1.7 | 1.7 |
| 16 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 | 1.4 | 4.9 | 1.1 | 1.1 |
| 18 | 8.7 | 10.2 | 8.7 | 10.2 | 10.2 | 8.7 | 3.1 | 8.7 | 2.5 | 2.5 |
| 20 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 2.2 | 7.6 | 1.8 | 1.8 |
| 24 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 1.3 | 4.3 | 1.0 | 1.0 |

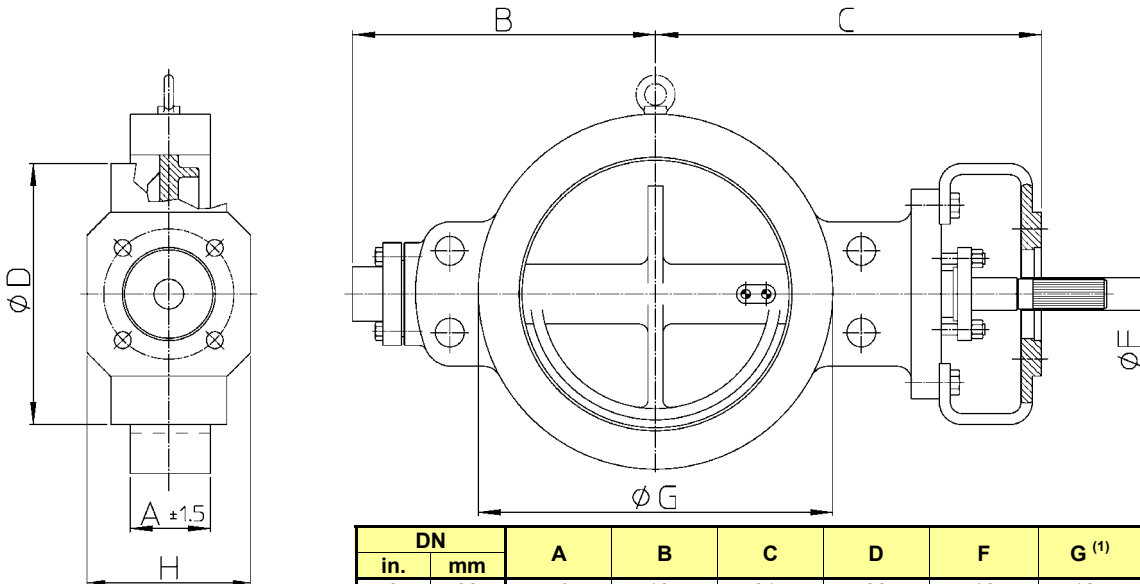
| DN in. / ACTUATOR | 60° OPEN VALVE - with actuator CLASS | | | | | | | | | |
|----------------------|---|------|------|------|------|------|------|------|------|------|
| | A01 | A02 | B01 | B02 | G02 | G04 | G06 | G07 | H08 | K09 |
| 3 / D25 | 28.7 | 28.7 | 28.7 | 28.7 | 28.7 | 28.7 | 13.4 | 28.7 | 10.8 | 10.8 |
| 4 / D33 | 26.5 | 31.3 | 26.5 | 31.3 | 31.3 | 26.5 | 14.6 | 26.5 | 11.8 | 11.8 |
| 6 / D33 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 9.8 | 4.3 | 9.8 | 3.5 | 3.5 |
| 8 / D39 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 |
| 10 / D39 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 12 / D46 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.5 | 2.5 |
| 14 / D46 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.7 | 1.7 |
| 16 / D46 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.1 | 1.1 |
| 18 / D63 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 20 / D63 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 24 / D63 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |

| DN in. | CLOSED VALVE CLASS | | | | | | | | | |
|-----------|-----------------------|------|------|------|------|------|------|------|------|------|
| | A01 | A02 | B01 | B02 | G02 | G04 | G06 | G07 | H08 | K09 |
| 3 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 |
| 4 | 26.5 | 31.3 | 26.5 | 31.3 | 31.3 | 26.5 | 26.5 | 26.5 | 31.3 | 31.3 |
| 6 | 26.2 | 30.9 | 26.2 | 30.9 | 30.9 | 26.2 | 22.0 | 26.2 | 17.7 | 17.7 |
| 8 | 18.3 | 21.5 | 18.3 | 21.5 | 21.5 | 18.3 | 18.3 | 18.3 | 21.5 | 21.5 |
| 10 | 11.8 | 13.9 | 11.8 | 13.9 | 13.9 | 11.8 | 11.8 | 11.8 | 13.9 | 13.9 |
| 12 | 10.0 | 11.8 | 10.0 | 11.8 | 11.8 | 10.0 | 10.0 | 10.0 | 11.8 | 11.8 |
| 14 | 10.1 | 11.9 | 10.1 | 11.9 | 11.9 | 10.1 | 10.1 | 10.1 | 11.9 | 11.9 |
| 16 | 7.6 | 9.0 | 7.6 | 9.0 | 9.0 | 7.6 | 7.6 | 7.6 | 9.0 | 9.0 |
| 18 | 8.7 | 10.2 | 8.7 | 10.2 | 10.2 | 8.7 | 8.7 | 8.7 | 10.2 | 10.2 |
| 20 | 9.3 | 10.9 | 9.3 | 10.9 | 10.9 | 9.3 | 9.3 | 9.3 | 10.9 | 10.9 |
| 24 | 8.9 | 10.5 | 8.9 | 10.5 | 10.5 | 8.9 | 8.9 | 8.9 | 9.5 | 9.5 |

| DN in. / ACTUATOR | CLOSED VALVE - with actuator CLASS | | | | | | | | | |
|----------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|
| | A01 | A02 | B01 | B02 | G02 | G04 | G06 | G07 | H08 | K09 |
| 3 / D25 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 | 33.8 |
| 4 / D33 | 26.5 | 31.3 | 26.5 | 31.3 | 31.3 | 26.5 | 26.5 | 26.5 | 31.3 | 31.3 |
| 6 / D33 | 26.2 | 30.9 | 26.2 | 30.9 | 30.9 | 26.2 | 22.0 | 26.2 | 17.7 | 17.7 |
| 8 / D39 | 18.3 | 21.5 | 18.3 | 21.5 | 21.5 | 18.3 | 18.3 | 18.3 | 21.5 | 21.5 |
| 10 / D39 | 11.8 | 13.9 | 11.8 | 13.9 | 13.9 | 11.8 | 11.8 | 11.8 | 13.9 | 13.9 |
| 12 / D46 | 10.0 | 11.8 | 10.0 | 11.8 | 11.8 | 10.0 | 10.0 | 10.0 | 11.8 | 11.8 |
| 14 / D46 | 10.1 | 11.9 | 10.1 | 11.9 | 11.9 | 10.1 | 10.1 | 10.1 | 11.9 | 11.9 |
| 16 / D46 | 7.6 | 9.0 | 7.6 | 9.0 | 9.0 | 7.6 | 7.6 | 7.6 | 9.0 | 9.0 |
| 18 / D63 | 8.7 | 10.2 | 8.7 | 10.2 | 10.2 | 8.7 | 8.7 | 8.7 | 10.2 | 10.2 |
| 20 / D63 | 9.3 | 10.9 | 9.3 | 10.9 | 10.9 | 9.3 | 9.3 | 9.3 | 10.9 | 10.9 |
| 24 / D63 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 |

Listed values are applicable up to 100 °C. Over this temperature limit Δp values must be reduced according to materials of construction limitations.

OVERALL DIMENSIONS (mm) AND MASSES (kg)



| DN | | A | B | C | D | F | G ⁽¹⁾ | H | MASS ⁽²⁾ |
|-----|-----|-----|-----|-----|-----|-------|------------------|-----|---------------------|
| in. | mm | | | | | | | | |
| 3 | 80 | 49 | 137 | 215 | 80 | 16 | 127 | 90 | 26 |
| 4 | 100 | 56 | 152 | 246 | 102 | 19,05 | 126 | 126 | 38 |
| 6 | 150 | 70 | 217 | 300 | 150 | 25,4 | 216 | 126 | 52 |
| 8 | 200 | 70 | 245 | 357 | 206 | 31,75 | 270 | 176 | 63 |
| 10 | 250 | 76 | 270 | 382 | 256 | 31,75 | 324 | 176 | 73 |
| 12 | 300 | 83 | 315 | 415 | 306 | 34,92 | 381 | 176 | 100 |
| 14 | 350 | 92 | 332 | 432 | 345 | 41,27 | 413 | 176 | 124 |
| 16 | 400 | 102 | 357 | 457 | 396 | 41,27 | 470 | 176 | 144 |
| 18 | 450 | 114 | 410 | 539 | 445 | 50,8 | 533 | 212 | 200 |
| 20 | 500 | 127 | 435 | 579 | 496 | 60 | 584 | 212 | 140 |
| 24 | 600 | 154 | 523 | 656 | 599 | 70 | 692 | 212 | 296 |

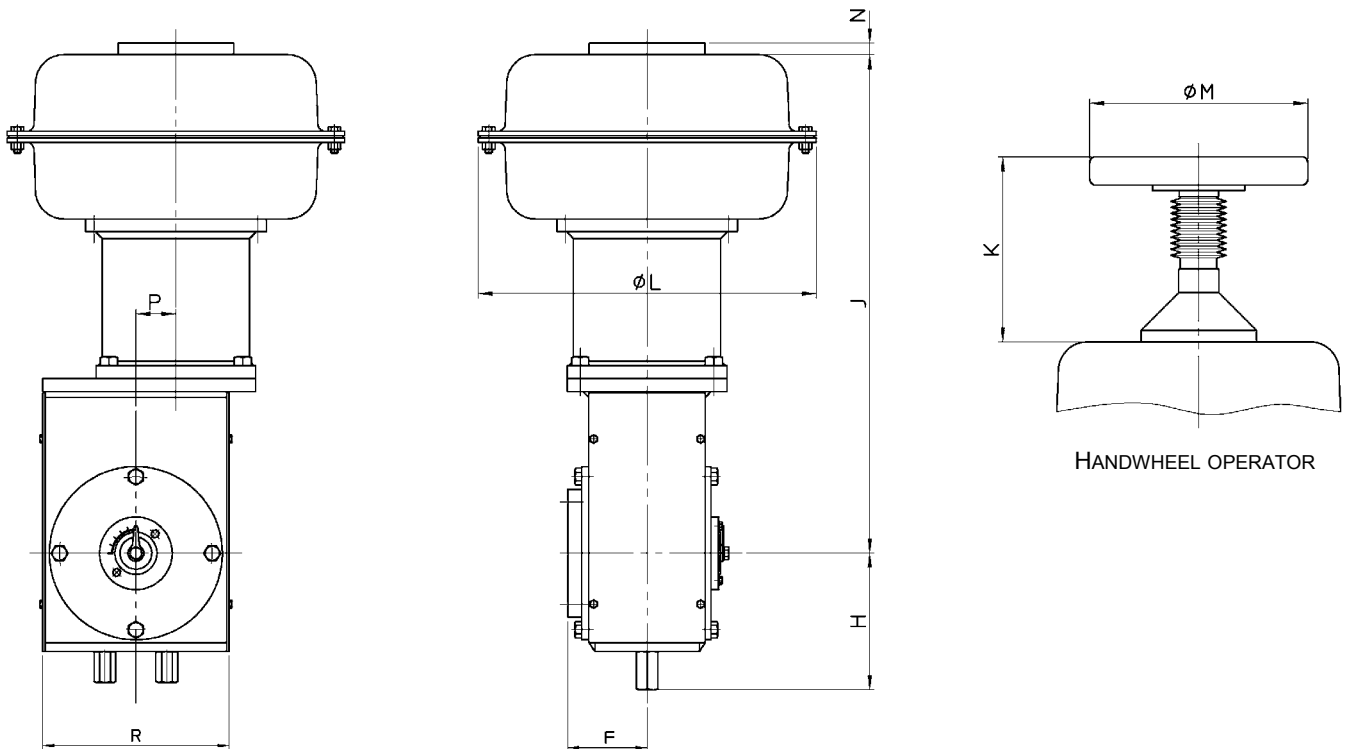
(1) If requested, forged bodies are available with UNI, DIN raised faces
 (2) Without actuator

1-X-271 SERIES PNEUMATIC DIAPHRAGM ACTUATORS

1-X-271 series rotary pneumatic diaphragm actuator is normally installed on PARCOL rotary valves (0° - 90°). D25, D33, D39, D46 and D63 sizes are available. Floating stem construction minimizes frictions and backlash and significantly reduces mass and dimension. The spring is preloaded in a suitable case, to make diaphragm replacement safer and simpler. The design allows to replace the actuator without disassembling the valve or part of it.

Standard diaphragm settings are 3÷15 psi (0.2÷1 bar), 6÷30 psi (0.4÷2 bar), 20÷44 psi (1.4÷3 bar) with 20÷50 psi (1.4÷3,5 bar) supply in air-to-open and air-to-close flow directions; other spring ranges are available on request.

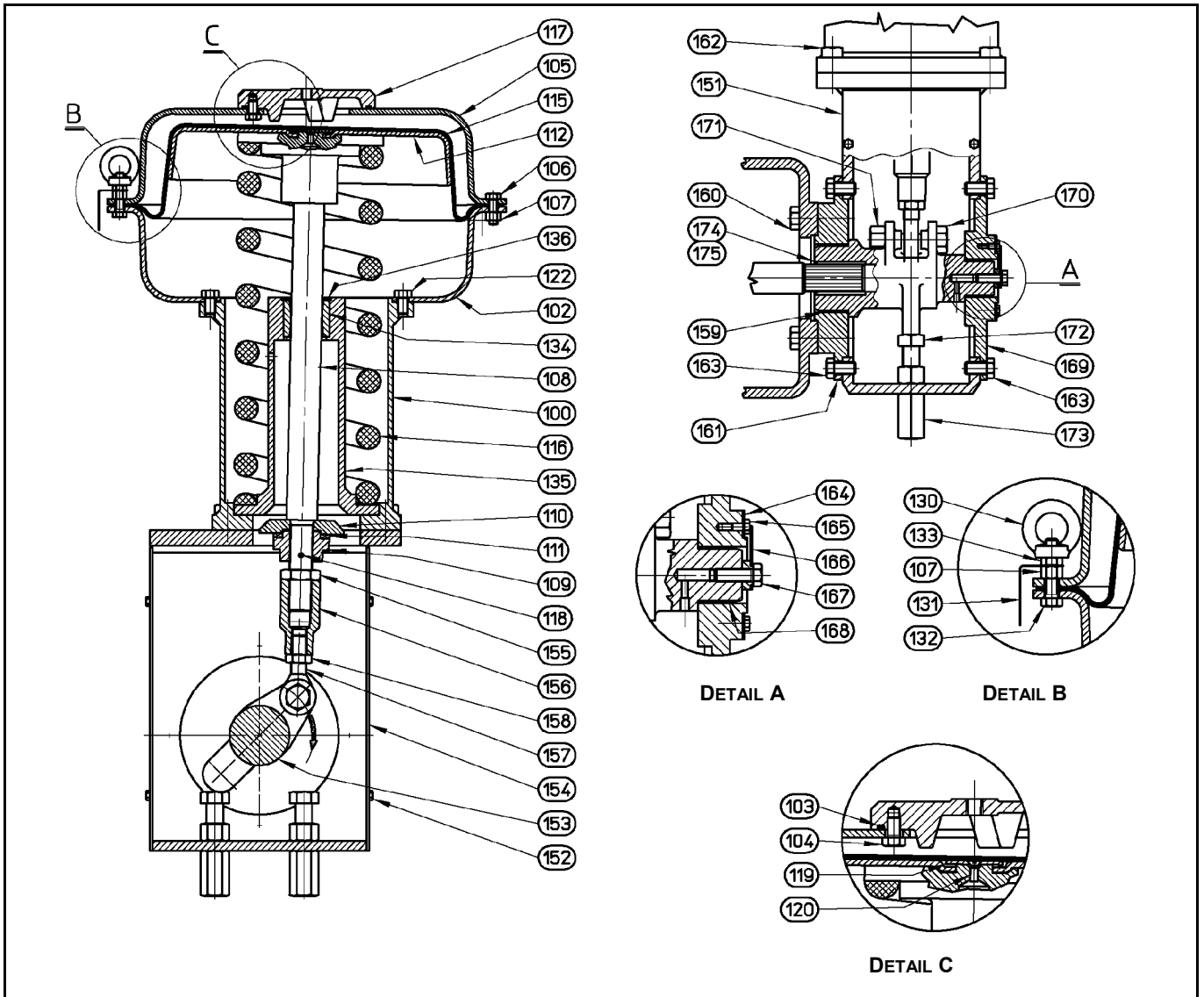
Maximum working pressure is 3.5 bar; the design pressure (maximum allowable pressure to case and flanged connection) is 10 bar.



OVERALL DIMENSIONS (mm) AND MASSES (kg)

| DN | | 1-X-271 ACTUAT. | F | H | J | K | L | M | N | P | R | MASS ⁽¹⁾ |
|-----|-----|--------------------|-----|-----|-----|-----|-----|-----|----|----|-----|---------------------|
| in. | mm | | | | | | | | | | | |
| 3 | 80 | D25 | 65 | 112 | 432 | 220 | 262 | 175 | 21 | 29 | 140 | 28 |
| 4 | 100 | D33 | 78 | 140 | 538 | 255 | 333 | 225 | 21 | 36 | 170 | 50 |
| 6 | 150 | | | | | | | | | | | |
| 8 | 200 | D39 | 96 | 170 | 639 | 343 | 395 | 300 | 24 | 46 | 224 | 85 |
| 10 | 250 | | | | | | | | | | | |
| 12 | 300 | D46 | 109 | 190 | 731 | 397 | 465 | 400 | 24 | 55 | 250 | 140 |
| 14 | 350 | | | | | | | | | | | |
| 16 | 400 | | | | | | | | | | | |
| 18 | 450 | D63 | 155 | 275 | 836 | 520 | 640 | 570 | 21 | 72 | 300 | 180 |
| 20 | 500 | | | | | | | | | | | |
| 24 | 600 | | | | | | | | | | | |

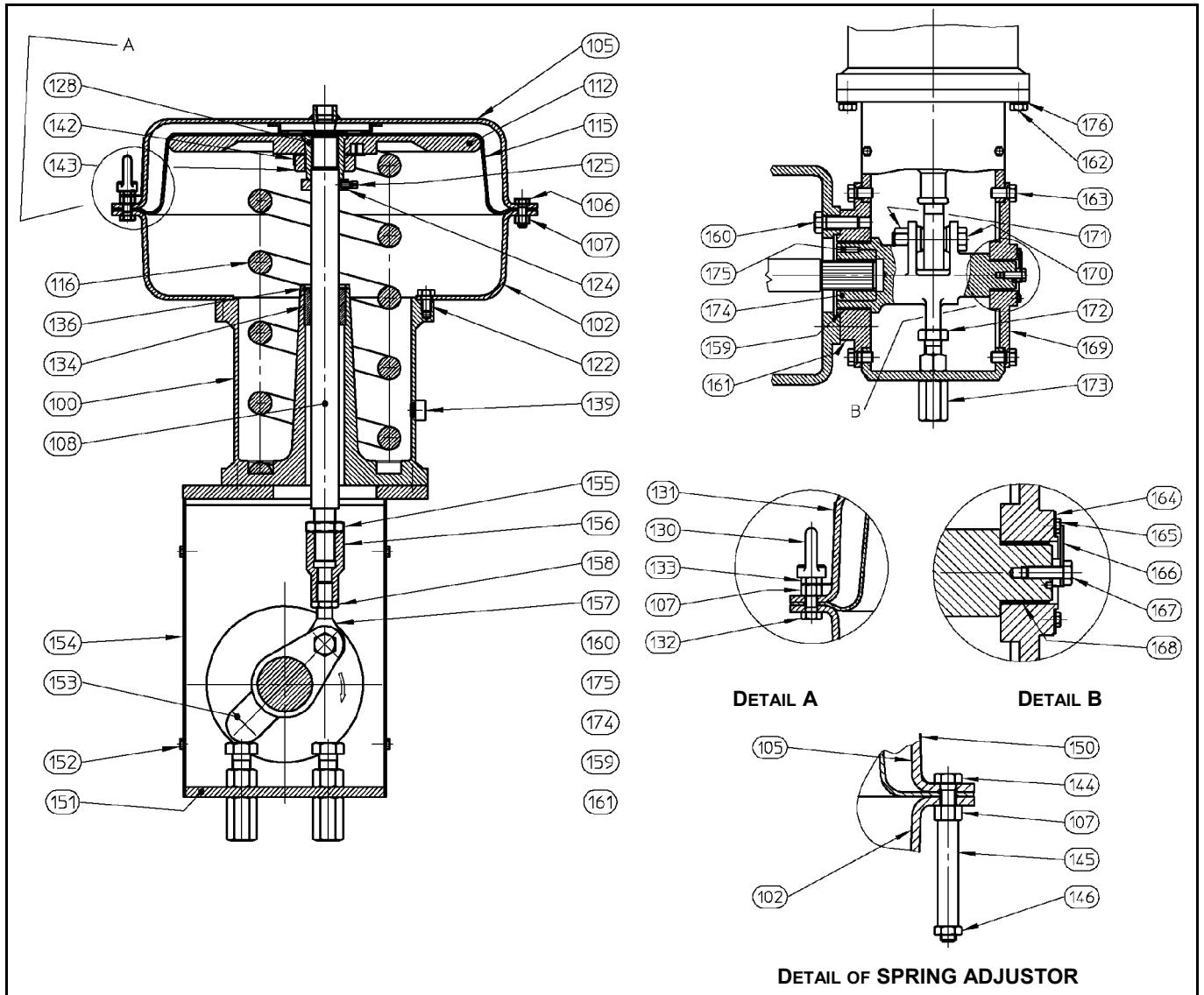
⁽¹⁾ Without handwheel operator



1-X-271 SERIES D25-D46 TYPE DIAPHRAGM ACTUATOR

| ITEM | PART NAME |
|------|-----------------------|
| 100 | SPRING CASE |
| 102 | LOWER DIAPHRAGM CASE |
| 103 | "O" RING |
| 104 | SCREW |
| 105 | TOP DIAPHRAGM CASE |
| 106 | SCREW |
| 107 | NUT |
| 108 | STEM AND SPRING GUIDE |
| 109 | CLAMPING NUT |
| 110 | SPACER |
| 111 | BEARING |
| 112 | DIAPHRAGM PLATE |
| 115 | DIAPHRAGM |
| 116 | SPRING |
| 117 | CAP |
| 118 | SPRING |
| 119 | WASHER |
| 120 | SCREW |
| 121 | SPACER RING |
| 122 | SCREW |
| 130 | EYEBOLT |
| 131 | EYEBOLT PLATE |
| 132 | SCREW |
| 133 | NUT |
| 134 | GUIDE BUSHING |
| 135 | LOWER SPRING SEAT |

| ITEM | PART NAME |
|------|--------------------------|
| 136 | STOP RING |
| 151 | YOKE |
| 152 | SCREW |
| 153 | LEVER |
| 154 | SIDE COVER |
| 155 | NUT |
| 156 | SCREW COUPLING |
| 157 | LEFT THREADED BALL JOINT |
| 158 | NUT |
| 159 | BEARING |
| 160 | SCREW |
| 161 | COVER |
| 162 | SCREW |
| 163 | SCREW |
| 164 | PLATE |
| 165 | SCREW |
| 166 | TRAVEL INDICATOR |
| 167 | SCREW |
| 168 | BEARING |
| 169 | COVER |
| 170 | SCREW |
| 171 | NUT |
| 172 | SCREW |
| 173 | NUT |
| 174 | BUSHING |
| 175 | PIN |



1-X-271 SERIES D63 TYPE DIAPHRAGM ACTUATOR

| ITEM | PART NAME |
|------|----------------------|
| 100 | YOKE |
| 102 | LOWER DIAPHRAGM CASE |
| 105 | UPPER DIAPHRAGM CASE |
| 106 | SCREW |
| 107 | NUT |
| 108 | STEM |
| 112 | DIAPHRAGM PLATE |
| 115 | DIAPHRAGM |
| 116 | SPRING |
| 122 | SCREW |
| 124 | STROKE LIMITER |
| 125 | SCREW |
| 128 | NUT |
| 130 | EYEBOLT |
| 131 | EYEBOLT PLATE |
| 132 | SCREW |
| 133 | NUT |
| 134 | GUIDE BUSHING |
| 136 | STOP RING |
| 139 | VENT PLUG |
| 142 | WASHER |
| 143 | CLAMPING NUT |
| 144 | SPRING ADJUSTOR |
| 145 | THREADING PROTECTION |
| 146 | NUT |
| 150 | PLATE |

| ITEM | PART NAME |
|------|------------------|
| 151 | ACTUATOR SUPPORT |
| 152 | SCREW |
| 153 | LEVER |
| 154 | SIDE COVER |
| 155 | NUT |
| 156 | JOINT |
| 157 | BALL JOINT |
| 158 | NUT |
| 159 | BEARING |
| 160 | SCREW |
| 161 | COVER |
| 162 | SCREW |
| 163 | SCREW |
| 164 | PLATE |
| 165 | SCREW |
| 166 | TRAVEL INDICATOR |
| 167 | SCREW |
| 168 | BEARING |
| 169 | COVER |
| 170 | SCREW |
| 171 | NUT |
| 172 | SCREW |
| 173 | NUT |
| 174 | BUSHING |
| 175 | PIN |
| 176 | WASHER |



LOW-NOISE DESIGN 1-2513 IS ALSO SUITABLE FOR SERVICE ON CAVITATING LIQUIDS



PARCOL S.p.A. Via Isonzo, 2 - 20010 CANEGRATE (MI) - ITALY
Telephone: +39 0331 413.111 - Fax: +39 0331 404.215
E-mail: sales@parcol.com - <http://www.parcol.com>