

# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR

## CHARACTERISTICS

The S-GATE knife valve is equipped with a pneumatic actuator and is dedicated to the automatic shut-off of loaded fluids such as slurries and powdery materials. The standard application sectors for this valve are the water treatment, the pulp and paper industry, the cement industry, the powdery material handling and the food and beverage industry. The tightness is unidirectional and different materials are available. The double acting pneumatic actuator permits the valve remote control. The set can be installed indoor or outdoor. The gate movement is protected by lateral gate guards. Many different options are available on the actuator: solenoid valve, limit switches, etc.

## AVAILABLE ITEMS

S-GATE 170: cast iron version, stainless steel gate, NBR seat  
 S-GATE 172: stainless steel version, stainless steel gate, EPDM seat  
 S-GATE 176: cast iron version, stainless steel gate, metal seat (no tightness: 2% kvs loss)  
 S-GATE 178: cast iron version, stainless steel gate, NBR seat, bidirectional  
 DN 50 to 600, flanged connections EN 1092 PN10 (Flanges ANSI150 as an option)  
 Compressed air supply 6 bar



## LIMITS OF USE

|                                     |   |        |
|-------------------------------------|---|--------|
| <b>Max. allowable pressure (PS)</b> | DN 50 to 200                                  | 10 bar |
|                                     | DN 250  | 8 bar  |
|                                     | DN 300  | 6 bar  |
|                                     | DN 350 to 400                                 | 4 bar  |
|                                     | DN 450 to 600                                 | 3 bar  |
| <b>Allowable temperature (TS)</b>   | See below                                     |        |
| <b>Room temperature</b>             | -20 °C / +60 °C                               |        |
| <b>Compressed air supply</b>        | 5 bar min. / 7 bar max.                       |        |
| <b>Fluid</b>                        | Prohibited use on gases of group 1 for DN>100 |        |

| TS / seat                            | NBR   | EPDM   | FKM    | PTFE   | METAL           |
|--------------------------------------|-------|--------|--------|--------|-----------------|
| 170: Cast iron                       | -10°C | +0°C   | -10°C  | +0°C   | -               |
| 172: Stainless steel                 | +80°C | +110°C | +150°C | +180°C | -               |
| 176: Cast iron                       | -     | -      | -      | -      | -10°C<br>+90°C  |
| 176: Cast iron + Graphite gland pack | -     | -      | -      | -      | -10°C<br>+200°C |

## DIRECTIVES AND CONSTRUCTION STANDARDS

|                                       | Standard            |
|---------------------------------------|---------------------|
| 97/23/EC Pressure Equipment Directive | Category I module A |
| Flanges PN10 dimensions               | EN 1092-2           |
| Flanges ANSI150 dimensions            | ANSI B16.5          |
| Valve testing                         | EN 12266-1          |

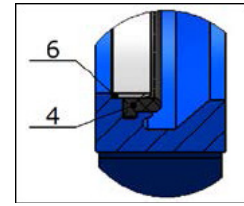
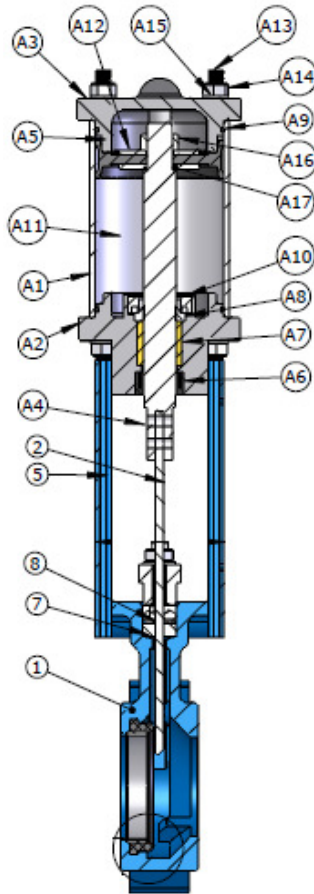


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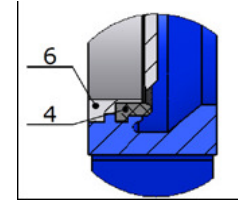
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# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR

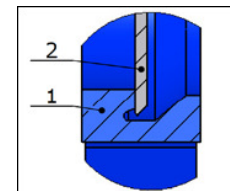
## UNIDIRECTIONAL CONSTRUCTION



STANDARD SEAT




METAL SEAT



REINFORCED SEAT

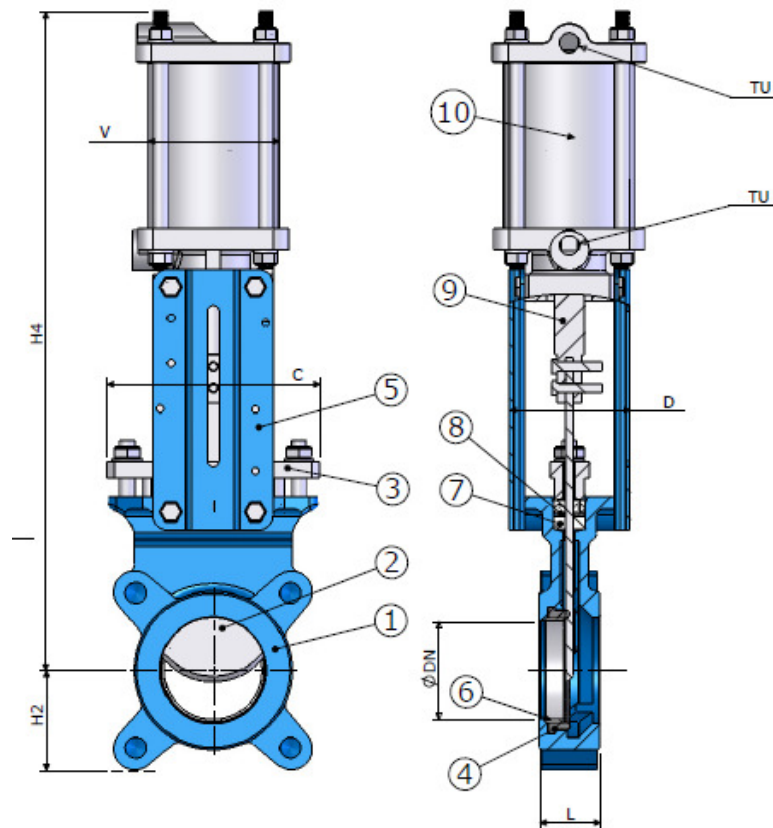
| #   | Item                     | S-170 cast iron version   | S-176 cast iron version | S-172 stainless steel version      |
|-----|--------------------------|---------------------------|-------------------------|------------------------------------|
| 1   | Body                     | EN-GJL 250 Cast iron      |                         | Stainless steel A351 CF8M / 1.4408 |
| 2   | Gate                     | AISI 304 Stainless steel  |                         | AISI 316 Stainless steel           |
| 3   | Gland follower DN50-200  | Aluminium                 |                         | Stainless steel A351 CF8M / 1.4408 |
| 3   | Gland follower DN250-300 | EN-GJL 250 Cast iron      |                         | Stainless steel A351 CF8M / 1.4408 |
| 4   | Seat                     | NBR                       | METAL                   | EPDM                               |
| 5   | Bracket                  | Epoxy-coated Carbon steel |                         | Epoxy-coated Carbon steel          |
| 6   | A-ring                   | AISI 304 Stainless steel  |                         | AISI 316 Stainless steel           |
| 7   | Gland packing            | PTFE                      |                         | PTFE                               |
| 8   | O-ring                   | NBR                       |                         | EPDM                               |
| A1  | Cylinder housing         | ASTM 6063 Aluminium       |                         |                                    |
| A2  | Base end of the cylinder | AS10G Aluminium           |                         |                                    |
| A3  | Actuator top cover       | AS10G Aluminium           |                         |                                    |
| A4  | Stem                     | AISI 410 Stainless steel  |                         |                                    |
| A5  | Piston                   | NBR                       |                         |                                    |
| A6  | Lip seals                | PU                        |                         |                                    |
| A7  | Guide pipe               | Bronze                    |                         |                                    |
| A8  | Gasket                   | PU                        |                         |                                    |
| A9  | O-ring                   | NBR                       |                         |                                    |
| A10 | Locking nut              | AISI 410 Stainless steel  |                         |                                    |
| A11 | Flat washer              | Carbon steel              |                         |                                    |
| A12 | Washer                   | Carbon steel              |                         |                                    |
| A13 | Bolt                     | 8.8 Steel                 |                         |                                    |
| A14 | Nut                      | Zinc-plated steel         |                         |                                    |
| A15 | Washer                   | Steel                     |                         |                                    |
| A16 | Self-locking nut         | Steel                     |                         |                                    |
| A17 | O-ring                   | NBR                       |                         |                                    |

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# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR

## DIMENSIONS (mm)



| DN  | H2  | H4   | C   | D   | L   | PN 10 Flanges |    |     | Weight (Kg) |
|-----|-----|------|-----|-----|-----|---------------|----|-----|-------------|
|     |     |      |     |     |     | Ø K           | n  | M   |             |
| 50  | 63  | 400  | 125 | 92  | 40  | 125           | 4  | M16 | 9           |
| 65  | 70  | 442  | 140 | 92  | 40  | 145           | 4  | M16 | 11          |
| 80  | 92  | 483  | 155 | 92  | 50  | 160           | 4  | M16 | 12          |
| 100 | 105 | 546  | 175 | 92  | 50  | 180           | 4  | M16 | 13          |
| 125 | 120 | 630  | 190 | 102 | 50  | 210           | 4  | M16 | 18          |
| 150 | 130 | 692  | 220 | 102 | 60  | 240           | 4  | M20 | 22          |
| 200 | 160 | 869  | 275 | 120 | 60  | 295           | 4  | M20 | 40          |
| 250 | 198 | 1032 | 325 | 120 | 70  | 350           | 6  | M20 | 50          |
| 300 | 234 | 1182 | 380 | 120 | 70  | 400           | 6  | M20 | 65          |
| 350 | 256 | 1379 | 440 | 290 | 96  | 460           | 10 | M20 | 120         |
| 400 | 292 | 1535 | 495 | 290 | 100 | 515           | 10 | M24 | 150         |
| 450 | 308 | 1677 | 550 | 290 | 106 | 565           | 14 | M24 | 188         |
| 500 | 340 | 1839 | 615 | 290 | 110 | 620           | 14 | M24 | 220         |
| 600 | 400 | 2145 | 715 | 290 | 110 | 725           | 14 | M27 | 268         |

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# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR

## PNEUMATIC ACTUATION

Suggested standard actuation under the following conditions:

- Double-acting linear actuator with aluminium enclosure
- Lubricated compressed air supply from 5 to 7 bar

Operators are protected from the gate movements by lateral gate guards

| DN  | V - cylinder int. Ø (mm) | Cylinder volume (l) | TU - port connections |
|-----|--------------------------|---------------------|-----------------------|
| 50  | 96                       | 0.4                 | BSP ¼"                |
| 65  | 96                       | 0.5                 | BSP ¼"                |
| 80  | 96                       | 0.6                 | BSP ¼"                |
| 100 | 115                      | 1                   | BSP ¼"                |
| 125 | 138                      | 1.9                 | BSP ¼"                |
| 150 | 138                      | 2.3                 | BSP ¼"                |
| 200 | 175                      | 4.8                 | BSP ¼"                |
| 250 | 218                      | 9.4                 | BSP ¼"                |
| 300 | 218                      | 11.2                | BSP ¼"                |
| 350 | 270                      | 20                  | BSP 3/8"              |
| 400 | 270                      | 23                  | BSP 3/8"              |
| 450 | 382                      | 51                  | BSP ½"                |
| 500 | 382                      | 57                  | BSP ½"                |
| 600 | 382                      | 70                  | BSP ½"                |

\*Unloaded operating time given for information purpose only. May vary depending on the medium  
For any other working conditions, please contact us.


## ACTUATION OPTIONS

| #  |  |
|----|--|
| 1  | Compressed air supply filter-regulator   |
| 2  | Compressed air supply filter-regulator-lubricator                                  |
| 3  | 5/2 monostable electrovalve 230 V AC, 110 V AC, 48 V AC, 24 V AC, 24 V DC, 12 V DC |
| 4  | Exhaust brake  |
| 5  | Exhaust silencer   |
| 6  | Quick exhaust valve  |
| 7  | Télémechanique XCKM 115 mechanical limit switches                                  |
| 8  | IFM IFS 2012 position sensors, connection M12                                      |
| 9  | P+F position sensors NBB4, NCB2  |
| 10 | Single effect set with air tank  |
| 11 | Spring return actuator   |
| 12 | Hand-operated actuator   |
| 13 | Stainless steel bracket  |
| 14 | Stainless steel side covers  |
| 15 | Connection protection cover  |
| 16 | 3 positions control (open, close, intermediary)                                    |

## VALVE OPTIONS

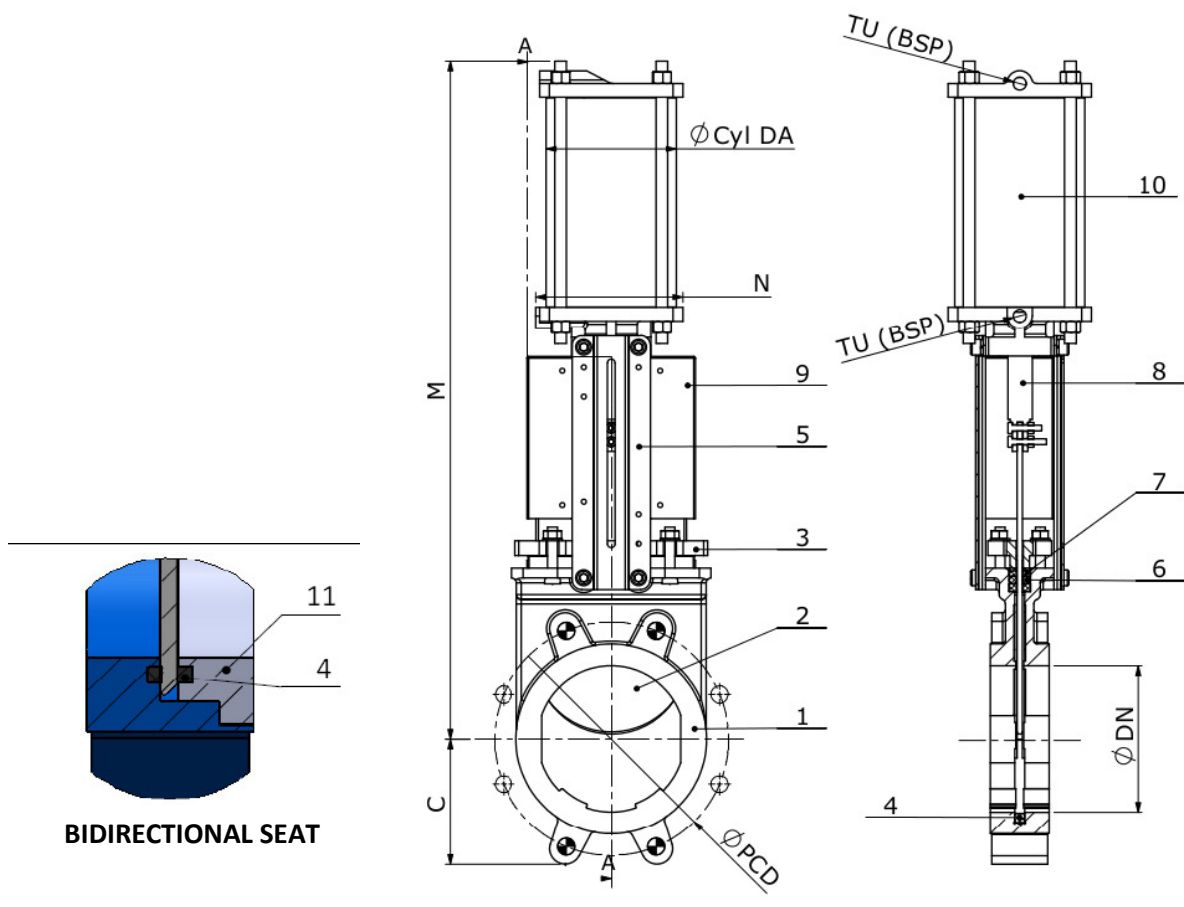
| # |   |
|---|---|
| 1 | NBR, EPDM, PTFE, FKM, metal-metal seats     |
| 2 | High temperature graphite filled gland pack |
| 3 | Deflector                                   |
| 4 | Bi-directional tightness (see next page)    |
| 5 | Through conduit gate                        |
| 6 | Flanges ANSI150                             |
| 7 | PN25 body                                   |
| 8 | Flushing holes                              |

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# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR


## S-178 VERSION: bidirectional tightness



| #  | Item                      | S-178 cast iron version   |
|----|---------------------------|---------------------------|
| 1  | Body                      | EN-GJL 250 Cast iron      |
| 2  | Gate                      | AISI 304 Stainless steel  |
| 3  | Gland follower DN 50-200  | Aluminium                 |
| 3  | Gland follower DN 250-300 | EN-GJL 250 Cast iron      |
| 4  | Seat                      | NBR                       |
| 5  | Bracket                   | Epoxy coated carbon steel |
| 6  | O-ring                    | NBR                       |
| 7  | Gland packing             | PTFE                      |
| 8  | Stem                      | AISI 410 stainless steel  |
| 9  | Side covers               | Epoxy coated carbon steel |
| 10 | Actuator                  | Aluminium                 |
| 11 | Ring nut                  | F304 stainless steel      |

|                                     |                |        |
|-------------------------------------|----------------|--------|
| <b>Max. allowable pressure (PS)</b> | DN 50 to 200   | 10 bar |
|                                     | DN 250         | 8 bar  |
|                                     | DN 300         | 6 bar  |
|                                     | DN 350 and 400 | 4 bar  |
|                                     | DN 450 to 600  | 3 bar  |
|                                     | DN 700 to 1200 | 2 bar  |

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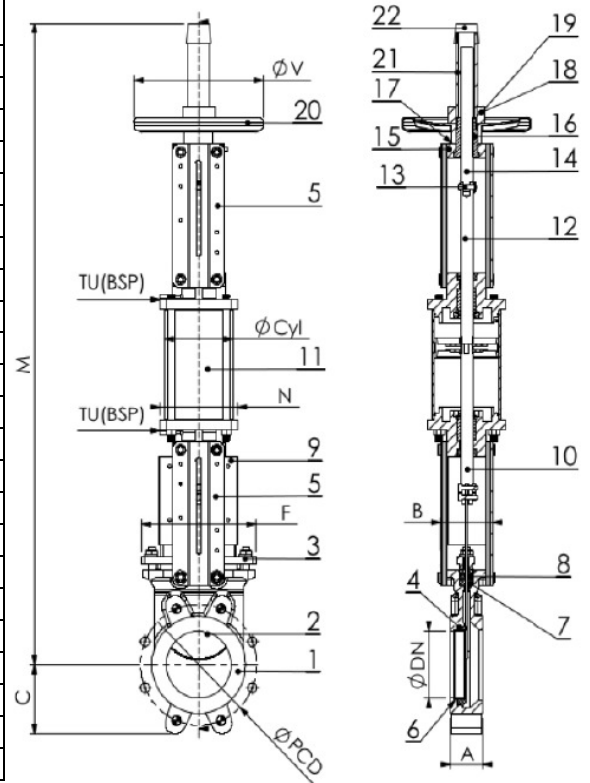
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# S-GATE type KNIFE VALVE with PNEUMATIC ACTUATOR



## OPTION "M": HAND-OPERATED ACTUATOR

### CONSTRUCTION


| N° | Item                     | Cast iron version        |
|----|--------------------------|--------------------------|
| 1  | Body                     | EN-GJL 250 Cast iron     |
| 2  | Gate                     | AISI 304 Stainless steel |
| 3  | Gland follower DN50-200  | Aluminium                |
| 3  | Gland follower DN250-300 | EN-GJL 250 Cast iron     |
| 4  | Seat                     | NBR                      |
| 5  | Bracket                  | Steel                    |
| 6  | Ring nut                 | F304 stainless steel     |
| 7  | Gland packing            | PTFE                     |
| 8  | O ring                   | NBR                      |
| 9  | Bracket protection       | Steel                    |
| 10 | Stem                     | 303 stainless steel      |
| 11 | Actuator                 | Aluminium                |
| 12 | Upper actuator stem      | 303 stainless steel      |
| 13 | Pin                      | Steel                    |
| 14 | Wheel stem               | 303 stainless steel      |
| 15 | Potence                  | ACIER                    |
| 16 | Nut                      | Bronze                   |
| 17 | Washer                   | Brass                    |
| 18 | Screw                    | 304 stainless steel      |
| 19 | Wheel nut                | Steel                    |
| 20 | Wheel                    | Steel                    |
| 21 | Pipe                     | Steel                    |
| 22 | Cap                      | Plastic                  |



### DIMENSIONS (mm)

| DN  | A   | B   | C   | D    | F   | V   | M    | ØPCD |  |  | prof. | Weight (kg) |
|-----|-----|-----|-----|------|-----|-----|------|------|---|---|-------|-------------|
| 50  | 40  | 92  | 63  | 289  | 124 | 200 | 713  | 125  | 4xM16   | 0   | 8     | 9           |
| 65  | 40  | 92  | 70  | 316  | 139 | 200 | 772  | 145  | 4xM16   | 0   | 8     | 10          |
| 80  | 50  | 92  | 92  | 342  | 154 | 200 | 829  | 160  | 4xM16   | 4   | 10    | 11          |
| 100 | 50  | 92  | 105 | 382  | 174 | 200 | 917  | 180  | 4xM16   | 4   | 10    | 14          |
| 125 | 50  | 102 | 120 | 415  | 192 | 250 | 1075 | 210  | 4xM16   | 4   | 10    | 19          |
| 150 | 60  | 102 | 130 | 458  | 217 | 250 | 1163 | 240  | 4xM20   | 4   | 12    | 22          |
| 200 | 60  | 120 | 160 | 575  | 270 | 300 | 1492 | 295  | 4xM20   | 4   | 12    | 38          |
| 250 | 70  | 120 | 198 | 676  | 326 | 300 | 1810 | 350  | 6xM20   | 6   | 15    | 58          |
| 300 | 70  | 120 | 234 | 776  | 380 | 300 | 2010 | 400  | 6xM20   | 6   | 15    | 72          |
| 350 | 96  | 290 | 256 | 906  | 438 | 500 | 2391 | 460  | 10xM20  | 6   | 19    | 140         |
| 400 | 100 | 290 | 292 | 1012 | 493 | 500 | 2597 | 515  | 10xM24  | 6   | 20    | 164         |
| 450 | 106 | 290 | 308 | 1098 | 546 | 500 | 2888 | 565  | 14xM24  | 6   | 24    | 203         |
| 500 | 110 | 290 | 340 | 1210 | 620 | 500 | 3109 | 620  | 14xM24  | 6   | 24    | 285         |
| 600 | 110 | 290 | 400 | 1416 | 714 | 500 | 3615 | 725  | 14xM27  | 6   | 24    | 378         |

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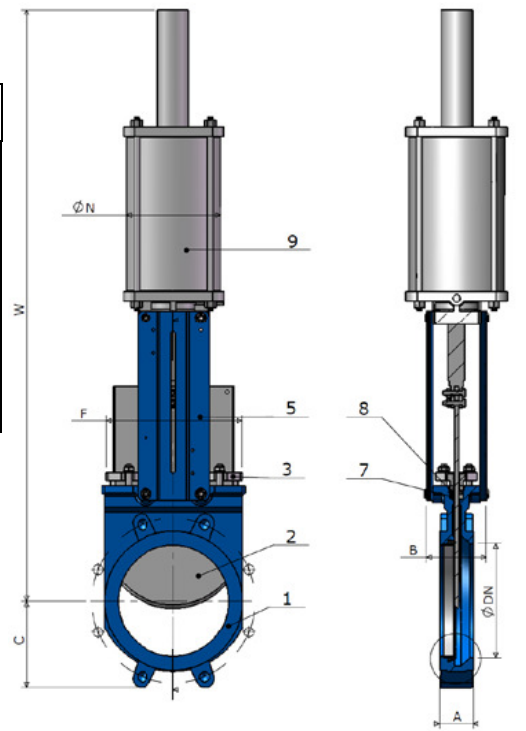
## OPTION " S " : SPRING RETURN ACTUATOR

### CONSTRUCTION

| N° | Item                     | Cast iron version | Stainless steel version |
|----|--------------------------|-------------------|-------------------------|
| 1  | Body                     | EN-GJL 250        | Inox 1.4408             |
| 2  | Gate                     | Inox 304          | Inox 316                |
| 3  | Gland follower DN50-200  | Aluminium         | Inox 1.4408             |
| 3  | Gland follower DN250-300 | Fonte EN-GJL 250  | Inox 1.4408             |
| 4  | Seat                     | NBR               | EPDM                    |
| 5  | Bracket                  | STEEL             | STEEL                   |
| 6  | Ring nut                 | Inox 304          | Inox 316                |
| 7  | Gland packing            | PTFE              | PTFE                    |
| 8  | O-ring                   | NBR               | EPDM                    |
| 9  | Actuator                 | Aluminium         |                         |

### DIMENSION (mm)

| DN  | A  | B   | C   | F   | W    | N   |
|-----|----|-----|-----|-----|------|-----|
| 50  | 40 | 92  | 63  | 125 | 720  | 96  |
| 65  | 40 | 92  | 70  | 140 | 766  | 96  |
| 80  | 50 | 92  | 92  | 155 | 810  | 96  |
| 100 | 50 | 92  | 105 | 175 | 875  | 115 |
| 125 | 50 | 102 | 120 | 190 | 975  | 138 |
| 150 | 60 | 102 | 130 | 220 | 1066 | 138 |
| 200 | 60 | 119 | 160 | 175 | 1380 | 175 |
| 250 | 70 | 119 | 198 | 325 | 1792 | 218 |
| 300 | 70 | 119 | 234 | 380 | 1932 | 218 |




### OPTION "B" FLUSHING HOLES

Allows the clean up of the seat by compressed air blowing. The blowing frequency is controlled by a solenoid valve 2/2 NF.



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