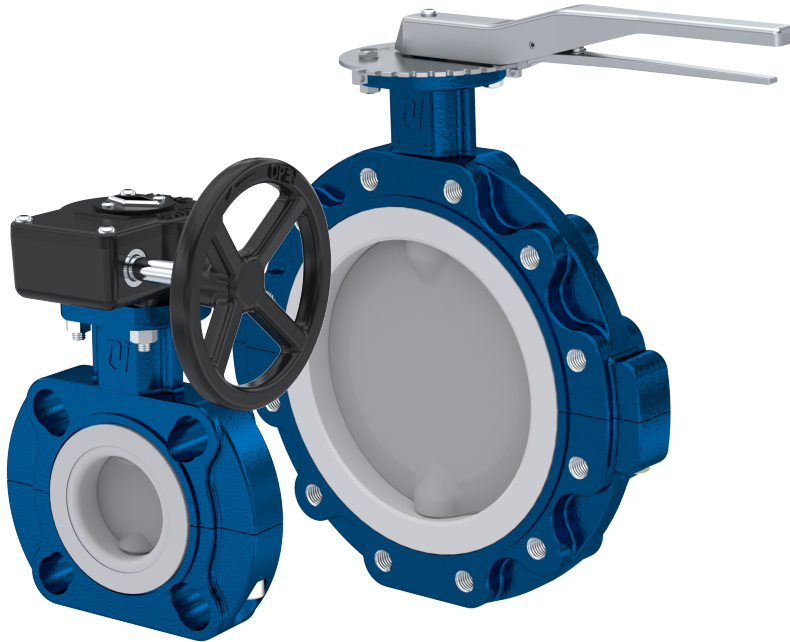


## Butterfly Valve Type AK09 / AK10



**description:**

Butterfly valve to control a liquid or gaseous media in a pipeline system.

**features:**

- suitable for aggressive media such as chlorine gas, hydrofluoric acid and sulfuric acid
- Disc made of stainless steel or with PFA coating
- long neck for isolation
- Mounting flange according to ISO 5211 for actuator.
- Certified CE PED 2014/68/EU
- Shaft preferably in horizontal position

**connection:**

DN25 – DN600  
Larger nominal sizes on request

**temperature:**

-20°C up to 200°C – depending on design

**pressure:**

Up to 10,0 bar – depending on design

**design:**

Two-piece butterfly valve

**body:**

Ductile iron 5.3103 with epoxy housing coating 120µm  
Body colour blue (RAL 5005)

**disc:**

PFA coated / Stainless steel  
up to DN200 stainless steel 1.4469  
from DN250 stainless steel 1.4404

**stem:**

up to DN200 1.4469  
from DN250 1.4462

**actuation element:**

up to DN300 Lever made of stainless steel  
from DN350 worm gear

**sleeve**

PTFE sleeve

**flange AK09:**

EN 1092-1 PN10/16 (up to DN300); EN 1092-1 PN10 (from DN350);  
ASME B16.5, Class 150 (all sizes)

**flange AK10:**

EN 1092-1 PN10/16 (up to DN150); EN 1092-1 PN10 (from DN200);  
ASME B16.5, Class 150 (all sizes)

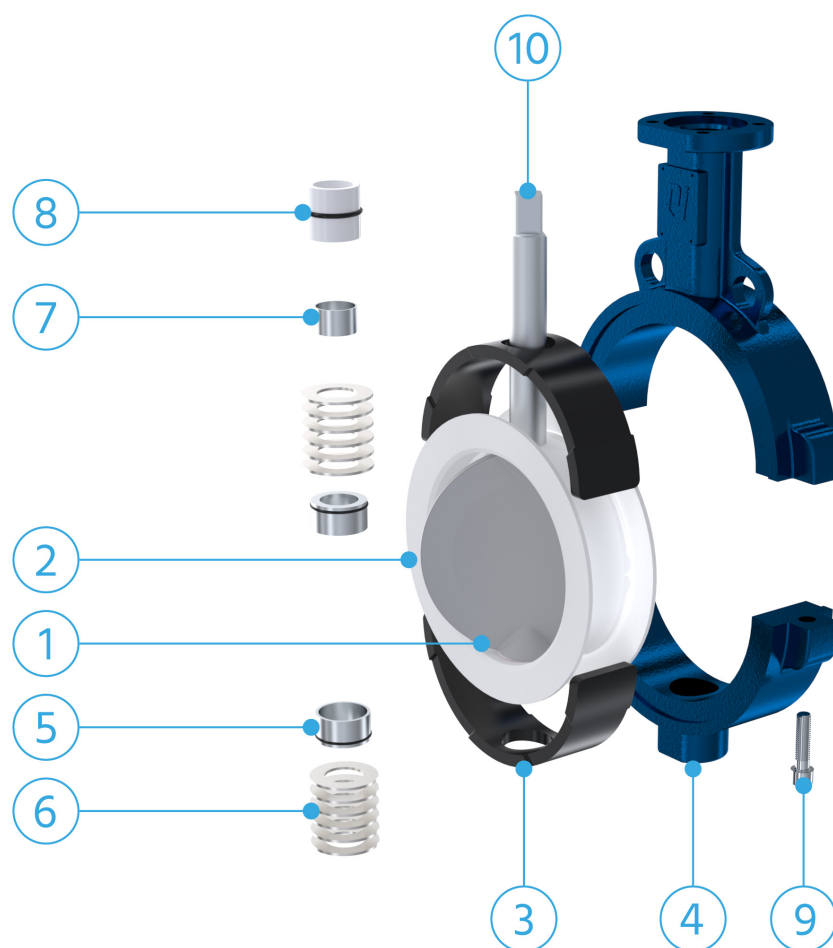
**max. differential pressure:**

up to DN450 10 bar, from DN500 6 bar

**Standards:**

- Top flange according to ISO 5211
- PED 2014/68/EU: CE Category III Module H
- Pressure test according to EN 12266-1
- Face-to-Face length according to EN 558, Series 20
- ATEX 2014/34/EU
- TA-Luft, ISO 15848-1

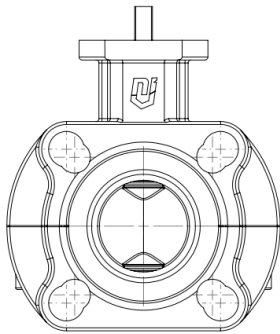
Components:



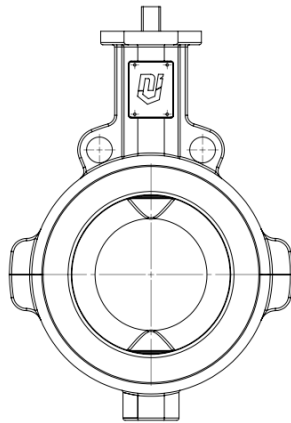
| Pos. | description        | materials                     | temperature*       |
|------|--------------------|-------------------------------|--------------------|
| 1    | Disc               | PFA up to DN200 (core 1.4469) |                    |
|      |                    | PFA from DN250 (core S355J2)  |                    |
|      |                    | stainless steel 1.4469/1.4404 |                    |
| 2    | seat ring          | PTFE                          |                    |
| 3    | insert             | silicone                      | -20°C up to +200°C |
|      |                    | EPDM                          | -20°C up to +120°C |
|      |                    | FKM                           | -10°C up to +200°C |
| 4    | body               | ductile iron 5.3103           |                    |
| 5    | pressure piece     | 1.4301 with FKM O-Ring        |                    |
| 6    | belleville washers | carbon steel                  |                    |
| 7    | shaft bushing      | PTFE, stainless steel         |                    |
| 8    | top bushing        | POM with FKM O-Ring           |                    |
| 9    | body bolts         | 12.9; A4                      |                    |
| 10   | stem               | up to DN200 1.4469            |                    |
|      |                    | from DN250 1.4462             |                    |

\*Lower temperatures up to -60°C on request

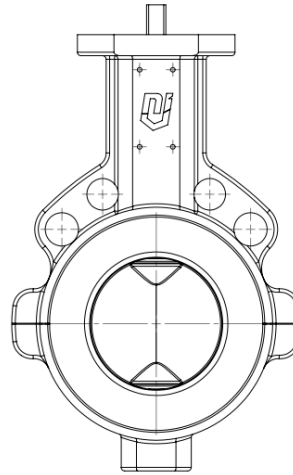
**type AK09 butterfly valve wafer type:**



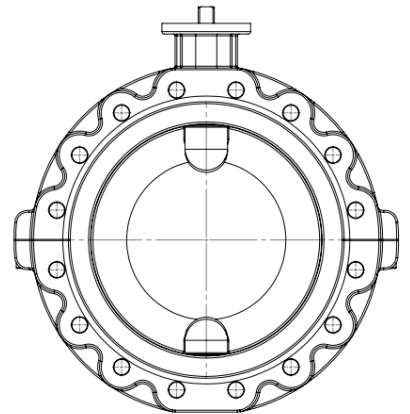
DN25 up to DN40



DN50 up to DN100

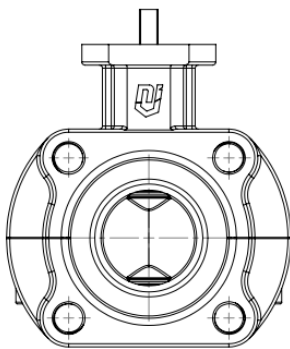


DN125 up to DN300

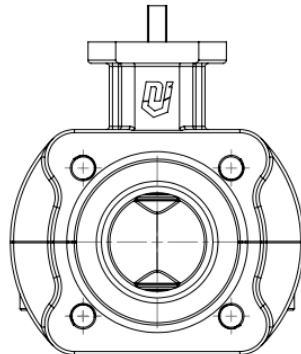


DN350 up to DN600

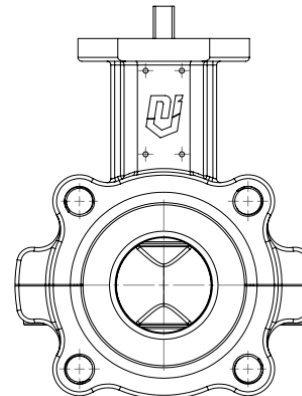
**type AK02 butterfly valve lug type:**



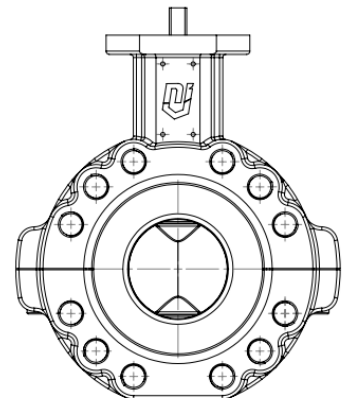
DN25 up to DN40  
PN10-16



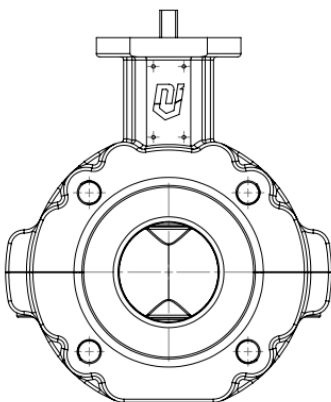
DN25 up to DN40  
ANSI 150



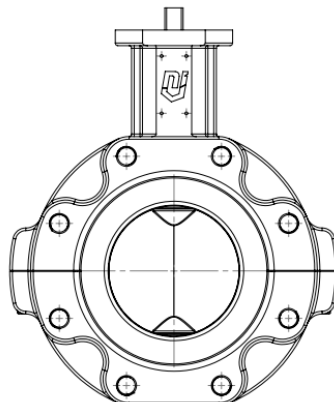
DN50  
PN10-16 and ANSI 150



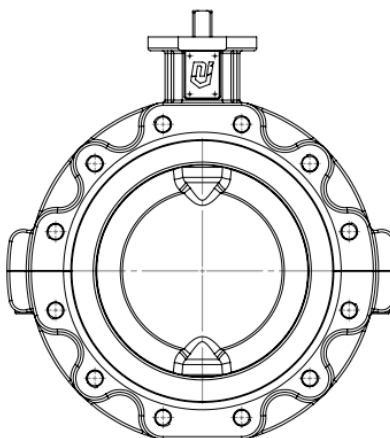
DN65  
PN10-16



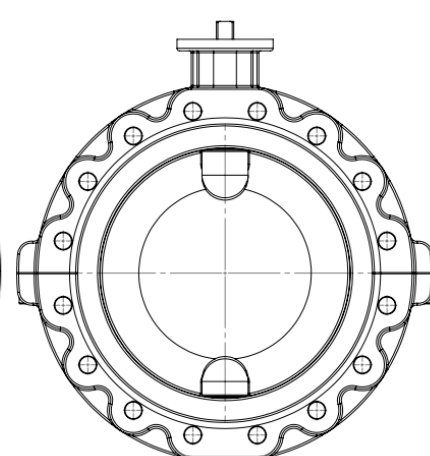
DN65 up to DN80  
ANSI 150



DN100 up to DN200 – ANSI 150  
DN80 up to DN150 – PN10-16



DN250 up to DN300 – ANSI 150  
DN200 up to DN300 – PN10

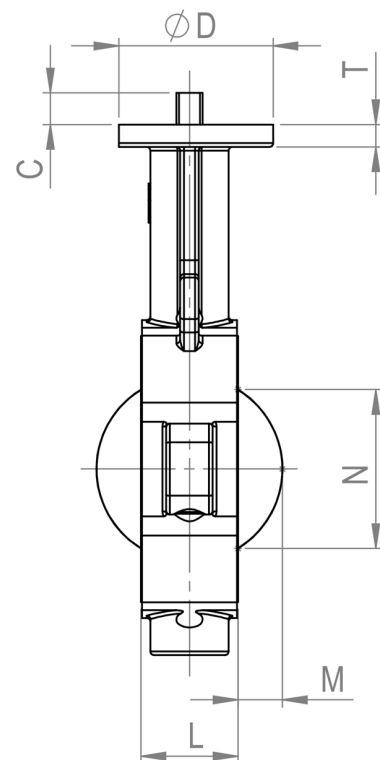
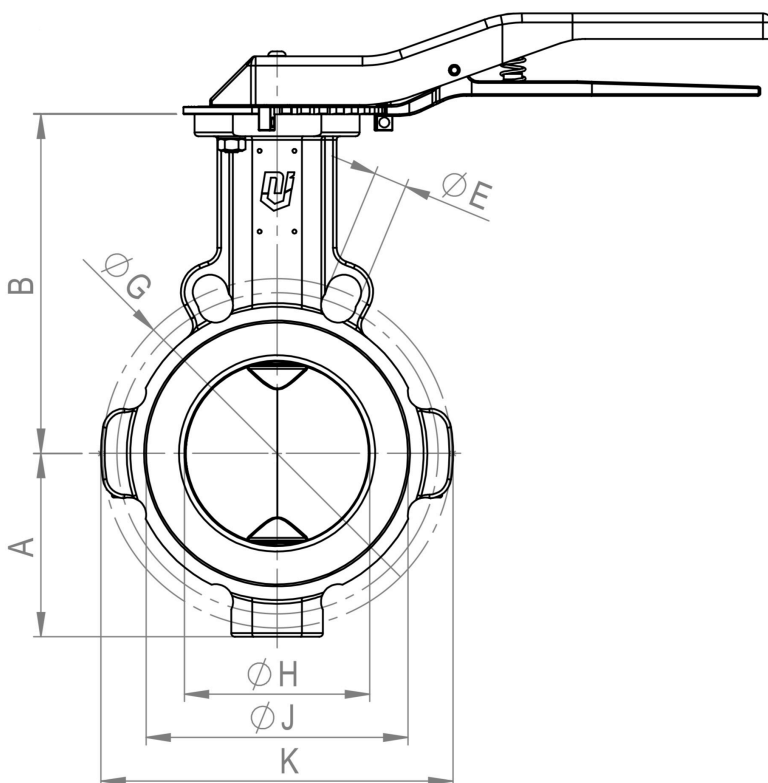


DN350 up to DN600  
PN10-16 and ANSI 150

**Dimensions:**

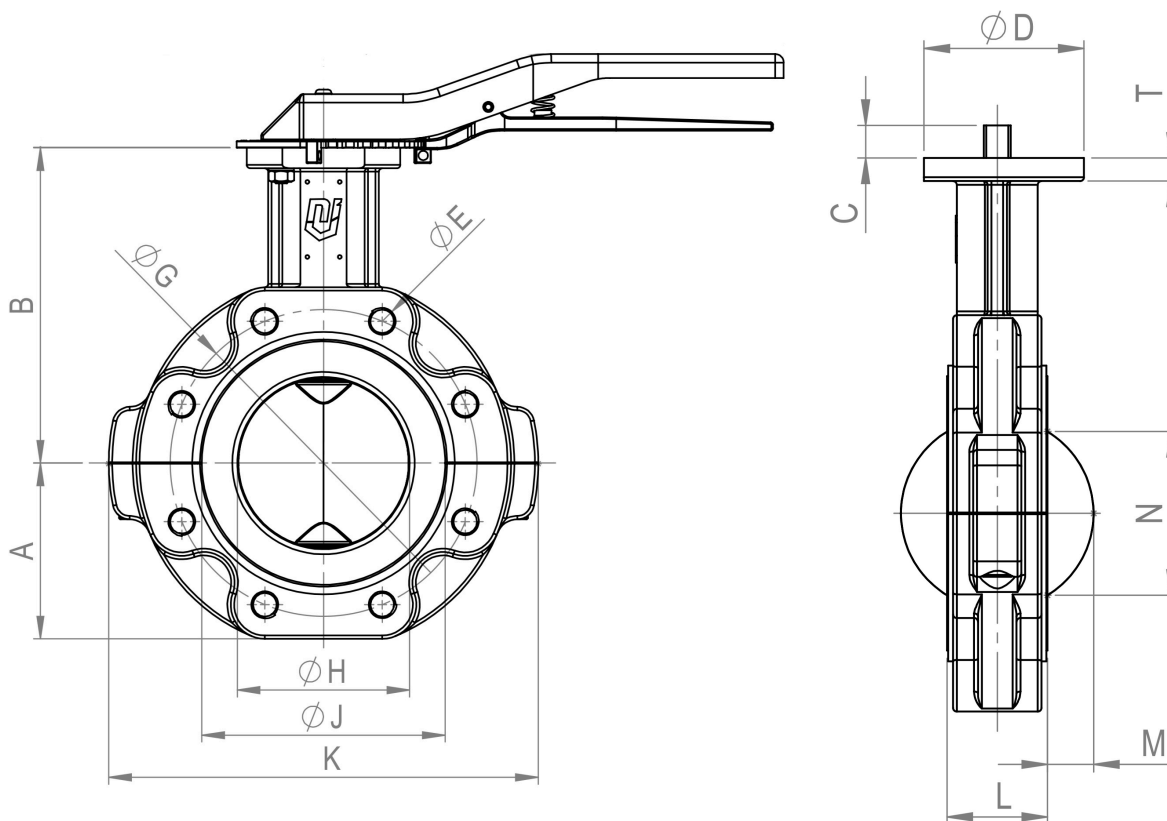
**Wafer type:**

| DN  | DN  | A   | B   | C  | ØD  | T  | ØE <sub>DIN</sub> | ØE <sub>ANSI</sub> | ØG <sub>DIN</sub> | ØG <sub>ANSI</sub> | ØH    | ØJ  | K   | L   | M   | N   | kg    |
|-----|-----|-----|-----|----|-----|----|-------------------|--------------------|-------------------|--------------------|-------|-----|-----|-----|-----|-----|-------|
| 25  | 1"  | 53  | 94  | 17 | 65  | 10 | 4x14              | 4x16               | 85                | 79,4               | 37    | 60  | 138 | 41  | 3   | 22  | 2,6   |
| 40  | 1½" | 53  | 94  | 17 | 65  | 10 | 4x18              | 4x16               | 110               | 98,4               | 46,4  | 76  | 138 | 33  | 7   | 34  | 2,4   |
| 50  | 2"  | 60  | 130 | 17 | 90  | 12 | 4x18              | 4x19               | 125               | 120,7              | 50    | 85  | 124 | 43  | 6   | 31  | 3,0   |
| 65  | 2½" | 70  | 146 | 17 | 90  | 12 | 4x18<br>8x18      | 4x19               | 145               | 139,7              | 62    | 106 | 148 | 46  | 11  | 47  | 3,9   |
| 80  | 3"  | 84  | 165 | 17 | 90  | 12 | 8x18              | 4x19               | 160               | 152,4              | 75    | 122 | 165 | 46  | 17  | 63  | 4,6   |
| 100 | 4"  | 100 | 185 | 17 | 90  | 12 | 8x18              | 8x19               | 180               | 190,5              | 100   | 143 | 192 | 52  | 27  | 90  | 6,4   |
| 125 | 5"  | 110 | 202 | 17 | 90  | 12 | 8x18              | 8x22               | 210               | 215,9              | 125   | 166 | 223 | 56  | 38  | 118 | 8,3   |
| 150 | 6"  | 130 | 217 | 22 | 90  | 12 | 8x22              | 8x22               | 240               | 241,3              | 141   | 193 | 253 | 56  | 47  | 137 | 10,5  |
| 200 | 8"  | 158 | 245 | 26 | 125 | 16 | 8x22              | 8x22               | 295               | 298,4              | 195   | 251 | 312 | 60  | 71  | 190 | 17,0  |
| 250 | 10" | 194 | 270 | 30 | 125 | 16 | 12x22             | 12x26              | 350               | 362                | 244   | 301 | 374 | 68  | 92  | 240 | 27,0  |
| 300 | 12" | 225 | 308 | 30 | 125 | 16 | 12x22             | 12x26              | 400               | 431,8              | 295   | 349 | 424 | 78  | 112 | 290 | 42,0  |
| 350 | 14" | 255 | 330 | 28 | 150 | 16 | 16x22             | 12x29              | 460               | 476,3              | 335,6 | 414 | 586 | 92  | 125 | 328 | 89,0  |
| 400 | 16" | 290 | 365 | 28 | 150 | 18 | 16x26             | 16x29              | 515               | 539,8              | 389,9 | 460 | 650 | 102 | 146 | 378 | 115,0 |
| 450 | 18" | 314 | 400 | 37 | 175 | 20 | 20x26             | 16x32              | 565               | 577,9              | 437,9 | 515 | 700 | 114 | 164 | 424 | 152,0 |
| 500 | 20" | 342 | 435 | 37 | 175 | 20 | 20x26             | 20x32              | 620               | 635                | 491,4 | 570 | 745 | 127 | 184 | 477 | 177,0 |
| 600 | 24" | 401 | 510 | 47 | 210 | 20 | 20x30             | 20x35              | 725               | 749,3              | 579,9 | 672 | 870 | 154 | 215 | 561 | 284,0 |



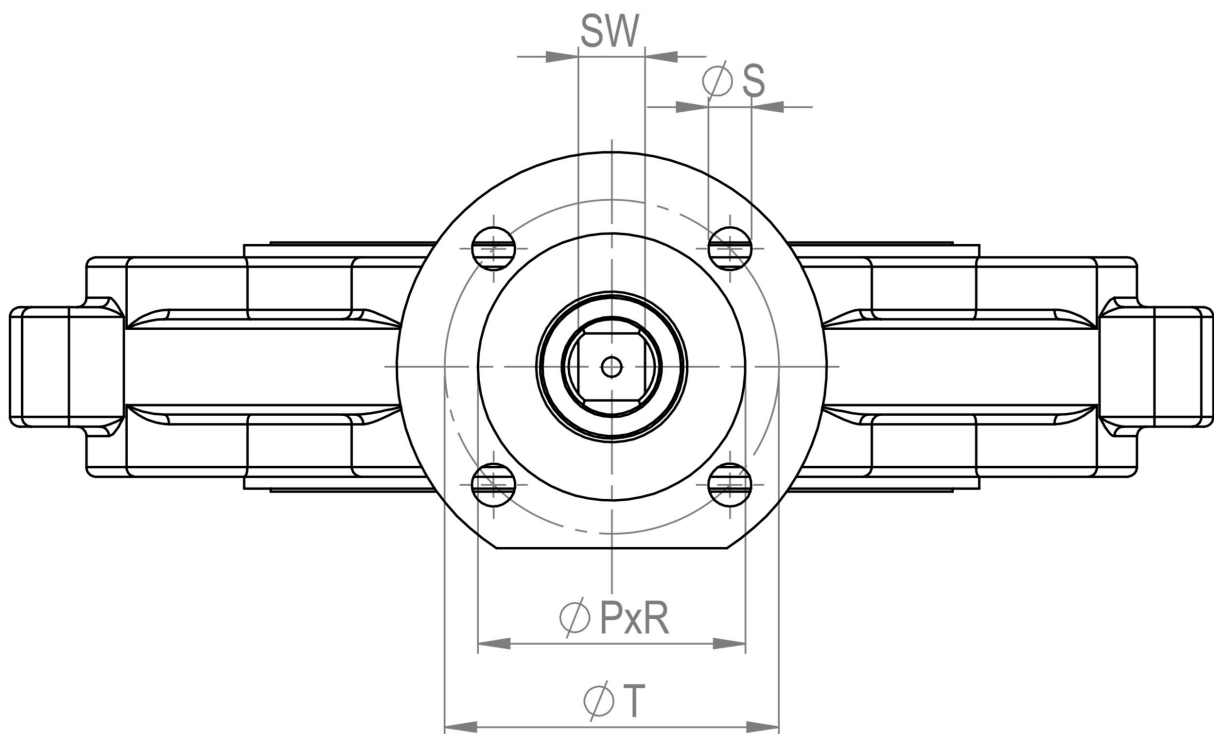
Lug type:

| DN  | DN  | A <sub>L</sub> | B   | C  | ØD  | T  | ØE <sub>DIN</sub> | ØE <sub>ANSI</sub> | ØG <sub>DIN</sub> | ØG <sub>ANSI</sub> | ØH    | ØJ  | K <sub>L</sub> | L   | M   | N   | kg    |
|-----|-----|----------------|-----|----|-----|----|-------------------|--------------------|-------------------|--------------------|-------|-----|----------------|-----|-----|-----|-------|
| 25  | 1"  | 53             | 94  | 17 | 65  | 10 | 4xM12             | 4x1/2"             | 85                | 79,4               | 37    | 60  | 138            | 41  | 3   | 22  | 2,6   |
| 40  | 1½" | 53             | 94  | 17 | 65  | 10 | 4xM16             | 4x1/2"             | 110               | 98,4               | 46,4  | 76  | 138            | 33  | 7   | 34  | 2,5   |
| 50  | 2"  | 60             | 130 | 17 | 90  | 12 | 4xM16             | 4x5/8"             | 125               | 120,7              | 50    | 85  | 156            | 43  | 6   | 31  | 4,0   |
| 65  | 2½" | 81             | 146 | 17 | 90  | 12 | 4xM16<br>8xM16    | 4x5/8"             | 145               | 139,7              | 62    | 106 | 203            | 46  | 11  | 47  | 6,6   |
| 80  | 3"  | 88             | 165 | 17 | 90  | 12 | 8xM16             | 4x5/8"             | 160               | 152,4              | 75    | 122 | 218            | 46  | 17  | 63  | 7,5   |
| 100 | 4"  | 103            | 185 | 17 | 90  | 12 | 8xM16             | 4x5/8"             | 180               | 190,5              | 100,1 | 143 | 252            | 52  | 27  | 90  | 10,2  |
| 125 | 5"  | 117            | 202 | 17 | 90  | 12 | 8xM16             | 8x3/4"             | 210               | 215,9              | 124,8 | 166 | 286            | 56  | 38  | 118 | 13,6  |
| 150 | 6"  | 128            | 217 | 22 | 90  | 12 | 8xM20             | 8x3/4"             | 240               | 241,3              | 141,5 | 193 | 310            | 56  | 47  | 137 | 15,6  |
| 200 | 8"  | 160            | 245 | 26 | 125 | 16 | 8xM20             | 8x3/4"             | 295               | 298,4              | 195,2 | 251 | 376            | 60  | 71  | 190 | 25,4  |
| 250 | 10" | 194            | 270 | 30 | 125 | 16 | 12xM20            | 12x7/8"            | 350               | 362                | 244,3 | 301 | 450            | 68  | 92  | 240 | 39,0  |
| 300 | 12" | 228            | 308 | 30 | 125 | 16 | 12xM20            | 12x7/8"            | 400               | 431,8              | 295,3 | 349 | 520            | 78  | 112 | 290 | 62,0  |
| 350 | 14" | 255            | 330 | 28 | 150 | 16 | 16xM20            | 12x1"              | 460               | 476,3              | 335,6 | 414 | 586            | 92  | 125 | 328 | 90,0  |
| 400 | 16" | 290            | 365 | 28 | 150 | 18 | 16xM24            | 16x1"              | 515               | 539,8              | 389,9 | 460 | 650            | 102 | 146 | 378 | 118,0 |
| 450 | 18" | 314            | 400 | 37 | 175 | 20 | 20xM24            | 16x1 1/8"          | 165               | 577,9              | 437,9 | 515 | 700            | 114 | 164 | 424 | 157,0 |
| 500 | 20" | 342            | 435 | 37 | 175 | 20 | 20xM24            | 20x1 1/8"          | 620               | 635                | 491,4 | 570 | 745            | 127 | 184 | 477 | 182,0 |
| 600 | 24" | 401            | 510 | 47 | 210 | 20 | 20xM27            | 20x1 1/4"          | 725               | 749,3              | 579,9 | 672 | 870            | 154 | 215 | 561 | 290,0 |



Top flange:

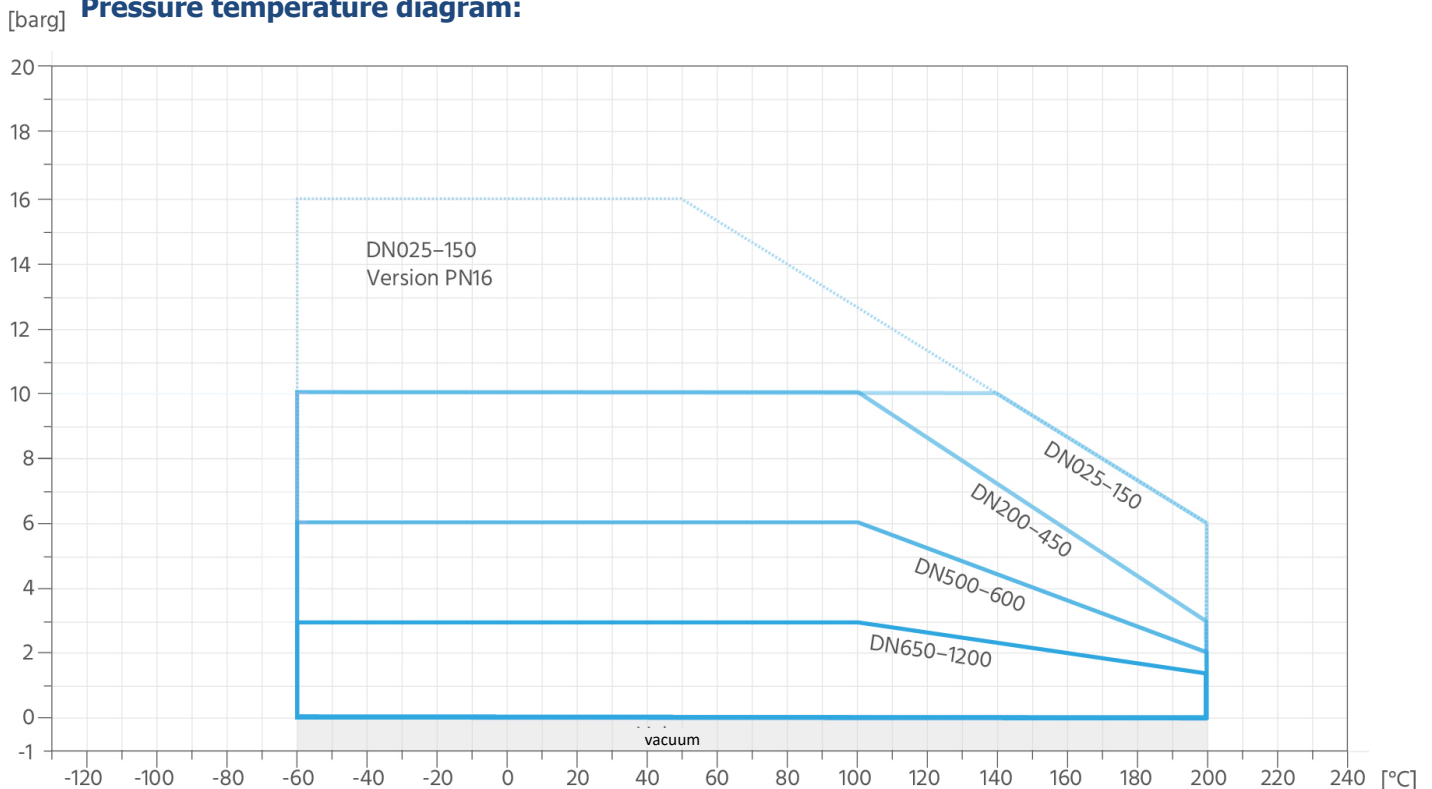
| DN (mm) | DN (inch) | SW | ISO | ØT  | ØS   | ØPxR    |
|---------|-----------|----|-----|-----|------|---------|
| 25      | 1"        | 9  | F05 | 50  | 4x7  | 36x3,5  |
| 40      | 1½"       | 9  | F05 | 50  | 4x7  | 36x3,5  |
| 50      | 2"        | 11 | F07 | 70  | 4x9  | 56x3,5  |
| 65      | 2½"       | 11 | F07 | 70  | 4x9  | 56x3,5  |
| 80      | 3"        | 11 | F07 | 70  | 4x9  | 56x3,5  |
| 100     | 4"        | 14 | F07 | 70  | 4x9  | 56x3,5  |
| 125     | 5"        | 14 | F07 | 70  | 4x9  | 56x3,5  |
| 150     | 6"        | 17 | F07 | 70  | 4x9  | 56x3,5  |
| 200     | 8"        | 19 | F10 | 102 | 4x11 | 71x3,5  |
| 250     | 10"       | 22 | F10 | 102 | 4x11 | 71x3,5  |
| 300     | 12"       | 22 | F10 | 102 | 4x11 | 71x3,5  |
| 350     | 14"       | 27 | F12 | 125 | 4x13 | 87x3,5  |
| 400     | 16"       | 27 | F12 | 125 | 4x13 | 87x3,5  |
| 450     | 18"       | 36 | F14 | 140 | 4x17 | 102x4,5 |
| 500     | 20"       | 36 | F14 | 140 | 4x17 | 102x4,5 |
| 600     | 24"       | 46 | F16 | 165 | 4x21 | 132x5,5 |



Kv-Values (m<sup>3</sup>/h)

| DN<br>mm | Opening angle |      |      |      |      |       |       |       |
|----------|---------------|------|------|------|------|-------|-------|-------|
|          | 20°           | 30°  | 40°  | 50°  | 60°  | 70°   | 80°   | 90°   |
| 25       | 0.001         | 1.0  | 3.0  | 6.0  | 10   | 16    | 21    | 28    |
| 40       | 1.4           | 5.1  | 11   | 22   | 38   | 56    | 75    | 102   |
| 50       | 2.1           | 6.7  | 14   | 28   | 46   | 69    | 92    | 124   |
| 65       | 4.4           | 14   | 27   | 49   | 80   | 118   | 158   | 211   |
| 80       | 8.1           | 22   | 41   | 75   | 123  | 179   | 240   | 318   |
| 100      | 17            | 48   | 91   | 160  | 259  | 375   | 502   | 660   |
| 125      | 28            | 74   | 145  | 244  | 392  | 563   | 754   | 985   |
| 150      | 39            | 97   | 194  | 316  | 503  | 717   | 958   | 1244  |
| 200      | 85            | 202  | 415  | 658  | 1036 | 1463  | 1956  | 2523  |
| 250      | 119           | 274  | 527  | 949  | 1484 | 2038  | 2727  | 3514  |
| 300      | 181           | 404  | 771  | 1329 | 2179 | 3083  | 4124  | 5315  |
| 350      | 277           | 602  | 1139 | 2034 | 3335 | 4718  | 6312  | 8134  |
| 400      | 393           | 856  | 1650 | 2893 | 4628 | 6711  | 8979  | 11571 |
| 450      | 528           | 1148 | 2173 | 3414 | 5742 | 8535  | 12043 | 15519 |
| 500      | 647           | 1434 | 2418 | 3980 | 6490 | 10268 | 14983 | 19308 |
| 600      | 843           | 1861 | 3473 | 5706 | 9427 | 14140 | 19349 | 24807 |

Pressure temperature diagram:



|           |        |    |    |    |    |    |     |     |     |     |     |     |     |     |     |       |     |
|-----------|--------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|
| DN        | 25     | 32 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500   | 600 |
| pressure: | 10 bar |    |    |    |    |    |     |     |     |     |     |     |     |     |     | 6 bar |     |

**Torques:**

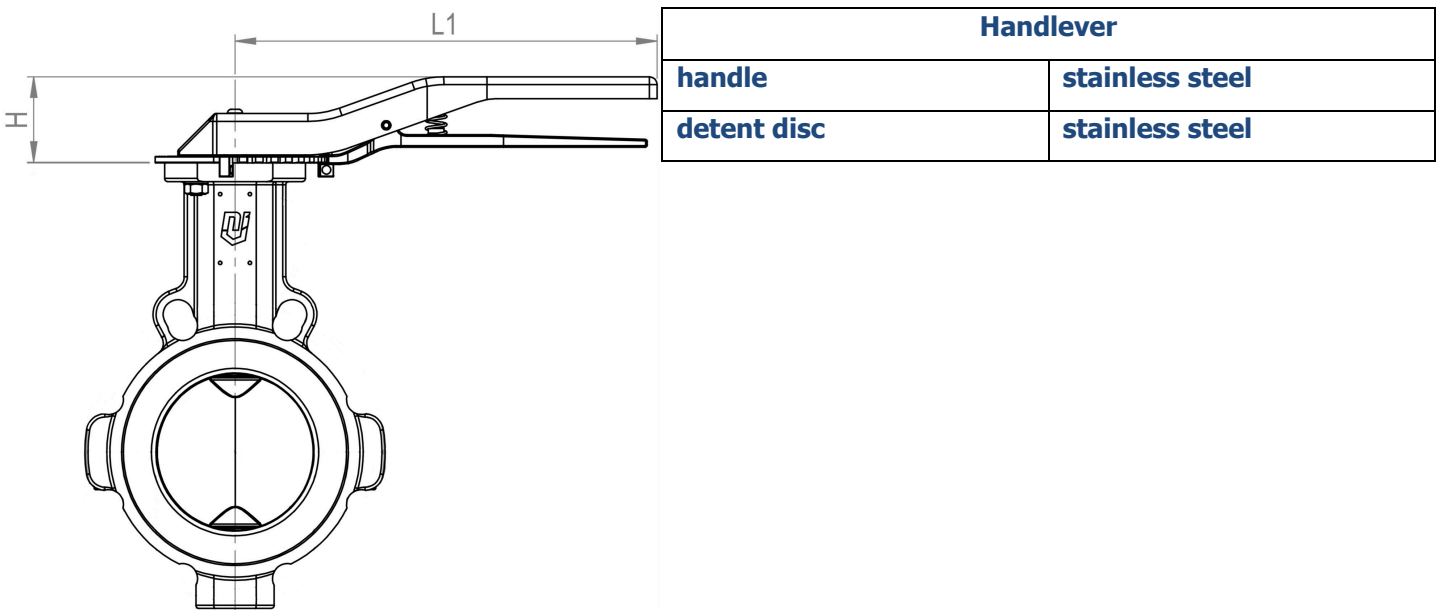
| DN               | 25 | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350  | 400  | 450  | 500  | 600  |
|------------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Nm <sup>1)</sup> | 22 | 22 | 26 | 36 | 46 | 60  | 80  | 110 | 167 | 278 | 333 | 450  | 500  | 600  | 650  | 890  |
| Nm <sup>2)</sup> | 48 | 48 | 89 | 89 | 89 | 183 | 183 | 327 | 456 | 664 | 664 | 1227 | 1227 | 2909 | 2909 | 6069 |

<sup>1)</sup> breakaway torque

<sup>2)</sup> Max. allowable torque for stem connection (Nm)

Breakaway torques calculated with 10% safety factor. These values have to be multiplied by 1,2 ( $\Delta p \leq 0,5 \times PS$ ) or 1,4 ( $\Delta p > 0,5 \times PS$ ) for dry and unlubricated service.

**Actuation:**



| DN | 25    | 40    | 50    | 65    | 80    | 100   | 125   | 150   | 200 | 250 | 300 |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|
| L1 | 232,5 | 232,5 | 272,5 | 272,5 | 272,5 | 272,5 | 272,5 | 272,5 | 350 | 350 | 350 |
| H  | 46    | 46    | 55    | 55    | 55    | 55    | 55    | 55    | 55  | 55  | 55  |
| kg | 1     | 1     | 1,5   | 1,5   | 1,5   | 1,5   | 1,5   | 1,5   | 2,7 | 2,7 | 2,7 |



Article number:

**AK09:**

| type         | pressure                    | disc                             | insert                              | actuation                                    | dimension   |
|--------------|-----------------------------|----------------------------------|-------------------------------------|--|---|
| AK09 – wafer | 0 – PN10-16<br>3 – ANSI 150 | 1 – stainless steel**<br>2 – PFA | 0 – silicone<br>1 – EPDM<br>2 – FKM | 0 – lever<br>1 – worm gear<br>6 – free shaft | 05 – DN25<br>07 – DN40<br>08 – DN50<br>09 – DN65<br>10 – DN80<br>11 – DN100<br>12 – DN125<br>13 – DN150<br>14 – DN200<br>15 – DN250<br>16 – DN300 |

| type         | pressure                              | disc                             | insert                              | actuation                       | dimension  |
|--------------|---------------------------------------|----------------------------------|-------------------------------------|---------------------------------|--|
| AK09 – wafer | 0 – PN10<br>1 – PN16*<br>3 – ANSI 150 | 1 – stainless steel**<br>2 – PFA | 0 – silicone<br>1 – EPDM<br>2 – FKM | 1 – worm gear<br>6 – free shaft | 17 – DN350<br>18 – DN400<br>19 – DN450<br>20 – DN500<br>21 – DN600 |

**AK10:**

| type       | pressure                    | disc                             | insert                              | actuation                                    | dimension   |
|------------|-----------------------------|----------------------------------|-------------------------------------|--|---|
| AK10 – lug | 0 – PN10-16<br>3 – ANSI 150 | 1 – stainless steel**<br>2 – PFA | 0 – silicone<br>1 – EPDM<br>2 – FKM | 0 – lever<br>1 – worm gear<br>6 – free shaft | 05 – DN25<br>07 – DN40<br>08 – DN50<br>09 – DN65<br>10 – DN80<br>11 – DN100<br>12 – DN125<br>13 – DN150 |

| type       | pressure                              | disc                             | insert                              | actuation                                       | dimension  |
|------------|---------------------------------------|----------------------------------|-------------------------------------|---|--|
| AK10 – lug | 0 – PN10<br>1 – PN16*<br>3 – ANSI 150 | 1 – stainless steel**<br>2 – PFA | 0 – silicone<br>1 – EPDM<br>2 – FKM | 0 – lever***<br>1 – worm gear<br>6 – free shaft | 14 – DN200<br>15 – DN250<br>16 – DN300<br>17 – DN350<br>18 – DN400<br>19 – DN450<br>20 – DN500<br>21 – DN600 |

**Beispiel Nr. AK09022016**

|      |   |   |   |   |    |
|------|---|---|---|---|----|
| AK09 | 0 | 2 | 2 | 0 | 16 |
|------|---|---|---|---|----|

Artikel Nr. AK09022016  
 Butterfly valve wafer type  
 Pressure norm: PN10  
 disc: PFA  
 insert: FKM  
 actuation: lever  
 dimension: DN300

\* on request

\*\* up to DN200 stainless steel 1.4469; from DN250 stainless steel 1.4404

\*\*\*up to dimension DN300

Image similar, subject change without notice.