

# DOUBLE FLANGED BUTTERFLY VALVE F012-A



Soft seated double flanged butterfly valve designed for high pressure applications. The combination of vulcanized liner and thrugoing shaft allows pressure loads up to 25 bar.

## TECHNICAL DATA

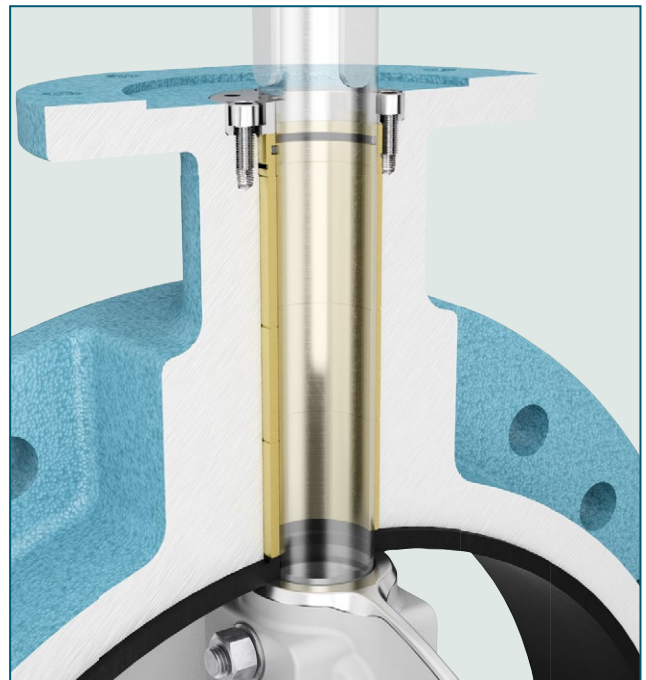
|                        |                                                                                                                                                                                                                                                                      |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal diameter:      | DN 50 - DN 1400                                                                                                                                                                                                                                                      |
| Face-to-face:          | EN 558 Series 13<br>ISO 5752 Series 13                                                                                                                                                                                                                               |
| Flange accommodation:  | EN 1092 PN 6/10/16/25<br>ASME B16.5 / B16.47<br>ASME Class 150 (PS max=19 bar)<br>ASME Class 300 (PS max=25 bar)<br>AS/NZS 4087 PN 16 / PN21 / PN35<br>AS 2129 Tab.E / Tab.F<br>JIS B 2220 10K<br>Flange accommodation not in all Sizes available. Others on request |
| Flange Surface Design: | EN 1092 Form A / B<br>ASME RF, FF                                                                                                                                                                                                                                    |
| Top flange:            | EN ISO 5211                                                                                                                                                                                                                                                          |
| Marking:               | EN 19                                                                                                                                                                                                                                                                |
| Tightness check:       | EN 12266 (Leakage rate A)<br>ISO 5208, Kategorie 3                                                                                                                                                                                                                   |
| Temperature range:     | -40°C to +200°C (depending on pressure, medium and material)                                                                                                                                                                                                         |
| Operating pressure:    | max. 25 bar                                                                                                                                                                                                                                                          |
| Differential pressure: | max. $\Delta p$ 25 bar                                                                                                                                                                                                                                               |
| Vakuum:                | up to 1 mbar absolute                                                                                                                                                                                                                                                |

## FEATURES

- Butterfly valve in double flanged design
- Can be installed in any desired position
- Triple shaft bearings
- Single flange mounting possible
- Maintenance-free
- Vulcanized liner and thrugoing shaft for high pressure applications
- Adjustable bearings up to DN600  $\geq$  16 bar

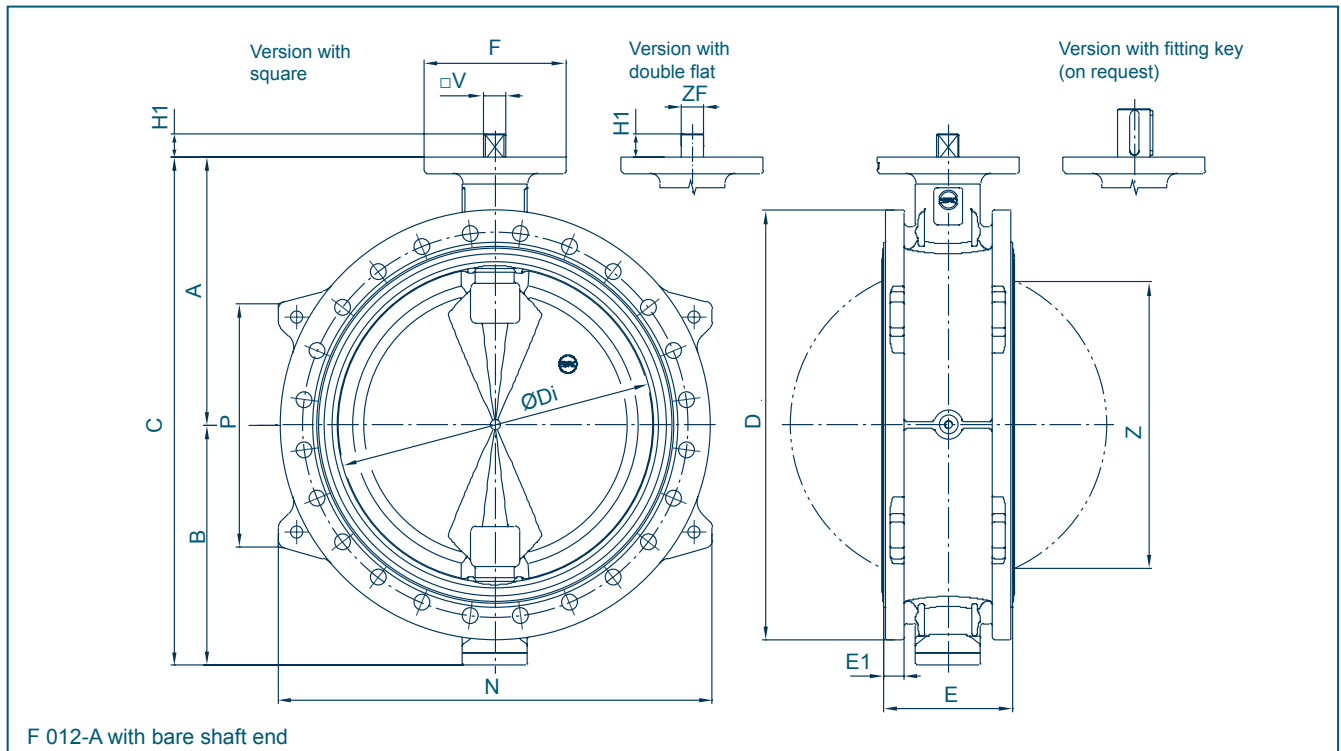
## GENERAL APPLICATIONS

- Offshore
- Water and waste water technology
- Power plants
- Desalination technology
- Trunk mains
- Pipeline applications
- Pumping stations



Adjustable bearings ensure tightness even with max. pressure loads. This feature allows refixing during operation.

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| DN<br>[mm] | Size<br>[inch] | Dimensions [mm] |      |      |      |      |    |     |     |             |      | H1 | N    | P   | Z    | Bearings |            | Weight [kg]<br>(EN-JS1030) |
|------------|----------------|-----------------|------|------|------|------|----|-----|-----|-------------|------|----|------|-----|------|----------|------------|----------------------------|
|            |                | A               | B    | C    | Ø Di | Ø D  | E1 | E   | Ø F | Flange      | ZF/V |    |      |     |      | fixed    | adjustable |                            |
| 50         | 2              | 126             | 84   | 210  | 48   | 165  | 18 | 108 | 54  | F04         | 11   | 12 | -    | -   | -    | x        | -          | 6                          |
| 65         | 2 1/2          | 134,5           | 93,5 | 228  | 63   | 185  | 18 | 112 | 54  | F04         | 11   | 12 | -    | -   | -    | x        | -          | 10                         |
| 80         | 3              | 157             | 104  | 261  | 78   | 200  | 20 | 114 | 65  | F05         | 14   | 16 | -    | -   | -    | x        | -          | 12                         |
| 100*       | 4              | 168             | 127  | 295  | 98   | 254  | 22 | 127 | 65  | F05         | 14   | 16 | -    | -   | -    | x        | -          | 18                         |
| 100        | 4              | 168             | 114  | 282  | 98   | 228  | 20 | 127 | 65  | F05         | 14   | 16 | -    | -   | -    | x        | -          | 18                         |
| 125*       | 5              | 180             | 140  | 320  | 123  | 280  | 26 | 140 | 90  | F05         | 14   | 16 | -    | -   | -    | x        | -          | 24                         |
| 150        | 6              | 203             | 150  | 353  | 148  | 285  | 22 | 140 | 90  | F07         | 17   | 19 | -    | -   | 56   | x        | -          | 26                         |
| 150*       | 6              | 203             | 153  | 356  | 148  | 305  | 29 | 140 | 90  | F07         | 17   | 19 | -    | -   | 56   | x        | -          | 30                         |
| 200        | 8              | 229             | 177  | 406  | 198  | 345  | 24 | 152 | 90  | F07         | 17   | 19 | -    | -   | 131  | x        | -          | 30                         |
| 200*       | 8              | 260             | 215  | 475  | 198  | 381  | 30 | 152 | 125 | F10         | 17   | 20 | -    | -   | 131  | x        | -          | 56                         |
| 250        | 10             | 266             | 213  | 479  | 248  | 406  | 26 | 165 | 125 | F10         | 22   | 24 | -    | -   | 189  | x        | -          | 40                         |
| 250*       | 10             | 305             | 250  | 555  | 248  | 445  | 28 | 165 | 150 | F12         | 22   | 24 | -    | -   | 189  | x        | -          | 79                         |
| 250*       | 10             | 266             | 215  | 481  | 248  | 430  | 27 | 165 | 125 | F10         | 22   | 24 | -    | -   | 189  | x        | -          | 57                         |
| 250*       | 10             | 305             | 250  | 555  | 248  | 430  | 21 | 165 | 150 | F12         | 22   | 24 | -    | -   | 189  | x        | -          | 75                         |
| 300        | 12             | 291             | 237  | 528  | 296  | 483  | 28 | 178 | 125 | F10         | 22   | 24 | -    | -   | 240  | x        | -          | 73                         |
| 300*       | 12             | 350             | 285  | 635  | 296  | 521  | 33 | 178 | 150 | F12         | 22   | 24 | -    | -   | 240  | x        | -          | 110                        |
| 300*       | 12             | 335             | 285  | 620  | 296  | 515  | 36 | 178 | 150 | F12         | 22   | 24 | 520  | 150 | 240  | x        | -          | 108                        |
| 350        | 14             | 332             | 278  | 610  | 337  | 533  | 33 | 190 | 150 | F12         | **   | ** | 540  | 300 | 282  | x        | -          | 103                        |
| 350*       | 14             | 390             | 322  | 712  | 338  | 584  | 32 | 190 | 175 | F14         | 27   | 29 | 590  | 300 | 282  | x        | -          | 150                        |
| 400        | 16             | 363             | 322  | 685  | 390  | 597  | 32 | 216 | 175 | F12/F14     | **   | ** | 610  | 310 | 328  | x        | -          | 150                        |
| 400        | 16             | 363             | 322  | 685  | 390  | 580  | 32 | 216 | 150 | F12         | **   | ** | -    | -   | 328  | x        | -          | 140                        |
| 400*       | 16             | 435             | 360  | 795  | 390  | 660  | 42 | 216 | 210 | F16         | 27   | 29 | 665  | 200 | 328  | x        | -          | 215                        |
| 400*       | 16             | 430             | 360  | 790  | 390  | 648  | 37 | 216 | 175 | F14         | 27   | 29 | -    | -   | 328  | x        | -          | 210                        |
| 450*       | 18             | 397             | 368  | 765  | 426  | 640  | 33 | 222 | 175 | F14         | 36   | 38 | 680  | 310 | 367  | x        | -          | 179                        |
| 450*       | 18             | 465             | 385  | 850  | 426  | 711  | 37 | 222 | 210 | F16         | 36   | 38 | 720  | 300 | 367  | x        | -          | 250                        |
| 500        | 20             | 437             | 404  | 841  | 489  | 715  | 38 | 229 | 210 | F14/F16     | **   | ** | 740  | 350 | 436  | x        | -          | 204                        |
| 500*       | 20             | 500             | 415  | 915  | 489  | 775  | 44 | 229 | 300 | F25         | **   | ** | 790  | 370 | 436  | x        | -          | 310                        |
| 600        | 24             | 498             | 469  | 967  | 581  | 840  | 42 | 267 | 300 | F16/F25     | **   | ** | 870  | 420 | 521  | -        | x          | 330                        |
| 600        | 24             | 498             | 469  | 967  | 581  | 790  | 45 | 267 | 300 | F14/F16/F25 | **   | ** | -    | -   | 521  | x        | -          | 467                        |
| 600*       | 24             | 580             | 500  | 1080 | 581  | 914  | 44 | 267 | 300 | F25         | **   | ** | 930  | 440 | 521  | -        | x          | 457                        |
| 700        | 28             | 581             | 526  | 1107 | 674  | 935  | 46 | 292 | 350 | F25/F30     | **   | ** | 940  | 510 | 612  | -        | x          | 480                        |
| 700*       | 28             | 635             | 560  | 1195 | 674  | 995  | 50 | 292 | 350 | F30         | **   | ** | 1010 | 350 | 612  | -        | x          | 600                        |
| 800        | 32             | 630             | 591  | 1221 | 781  | 1060 | 52 | 318 | 350 | F25/F30     | **   | ** | 1080 | 450 | 717  | -        | x          | 598                        |
| 800        | 32             | 660             | 590  | 1250 | 781  | 1060 | 50 | 318 | 350 | F25/F30     | **   | ** | 1070 | 600 | 717  | -        | x          | 666                        |
| 800*       | 32             | 660             | 595  | 1255 | 781  | 1085 | 55 | 318 | 415 | F35         | **   | ** | 1100 | 450 | 717  | -        | x          | 760                        |
| 900*       | 36             | 800             | 685  | 1485 | 881  | 1185 | 61 | 330 | 415 | F30/F35     | **   | ** | 1210 | 600 | 821  | -        | x          | 941                        |
| 900        | 36             | 800             | 685  | 1485 | 881  | 1185 | 52 | 330 | 350 | F25/F30     | **   | ** | 1190 | 620 | 821  | x        | -          | 932                        |
| 900        | 36             | 696             | 645  | 1341 | 881  | 1122 | 52 | 330 | 300 | F25         | **   | ** | -    | -   | 821  | x        | -          | 650                        |
| 1000*      | 40             | 771             | 680  | 1451 | 980  | 1290 | 51 | 410 | 475 | F30/F35/F40 | **   | ** | 1300 | 680 | 895  | -        | x          | 1100                       |
| 1000       | 40             | 771             | 675  | 1446 | 980  | 1255 | 56 | 410 | 415 | F25/F30/F35 | **   | ** | 1270 | 680 | 895  | -        | x          | 1092                       |
| 1000       | 40             | 850             | 725  | 1575 | 980  | 1275 | 59 | 410 | 475 | F35/F40     | **   | ** | 1310 | 600 | 895  | x        | -          | 1245                       |
| 1000*      | 40             | 850             | 725  | 1575 | 980  | 1275 | 62 | 410 | 475 | F35/F40     | **   | ** | 1310 | 600 | 895  | -        | x          | 1239                       |
| 1000*      | 40             | 850             | 725  | 1575 | 980  | 1360 | 67 | 410 | 475 | F35/F40     | **   | ** | 1370 | 600 | 895  | -        | x          | 1426                       |
| 1200       | 48             | 935             | 810  | 1745 | 1176 | 1511 | 54 | 470 | 475 | F35/F40     | **   | ** | 1520 | 800 | 1083 | -        | x          | 1722                       |
| 1200*      | 48             | 1004            | 862  | 1866 | 1176 | 1575 | 63 | 470 | 560 | F40/F48     | **   | ** | 1590 | 800 | 1085 | -        | x          | 1785                       |
| 1200       | 48             | 905             | 810  | 1715 | 1176 | 1455 | 60 | 470 | 350 | F25/F30     | **   | ** | 1475 | 600 | 1083 | x        | -          | 1440                       |
| 1400*      | 56             | 1120            | 958  | 2078 | 1372 | 1795 | 86 | 530 | 560 | F48         | **   | ** | 1830 | 800 | 1271 | -        | x          | 3060                       |

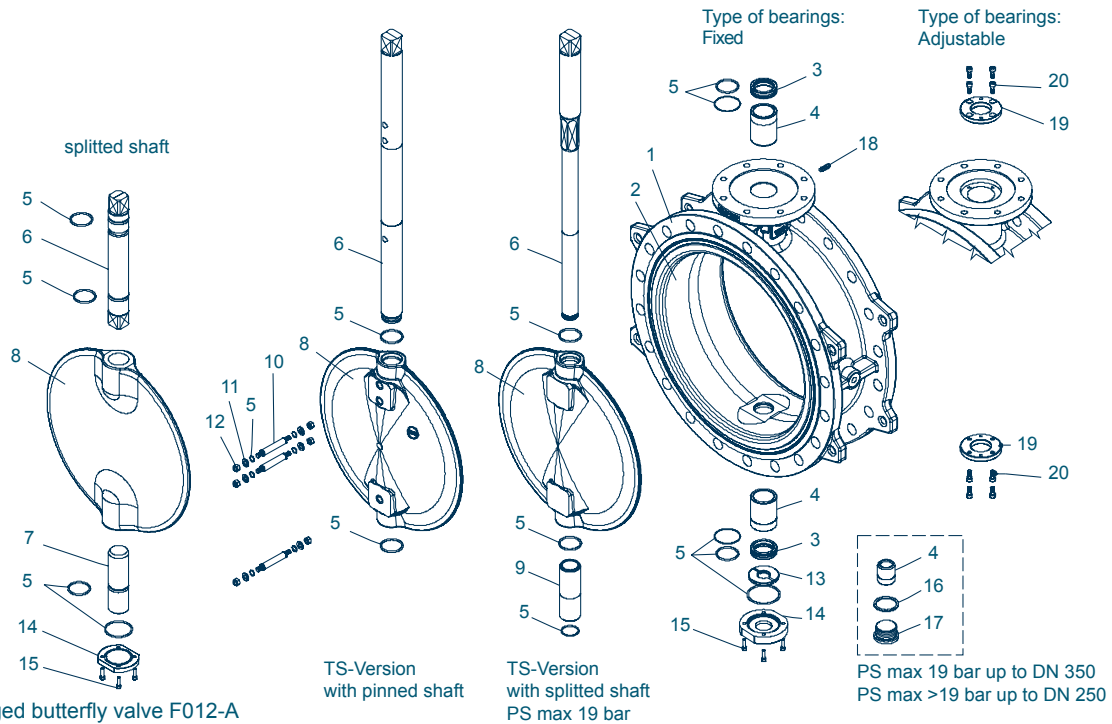
\*Operating pressure ≥19 bar

\*\*In accordance to the actuator

Subject to change without notice

# DOUBLE FLANGED BUTTERFLY VALVE F012-A

## MATERIAL SPECIFICATION AND PARTS LIST



| Pos. | Description               | Material                                | Material-No.  | Pos. | Description                 | Material          | Material-No.         |
|------|---------------------------|-----------------------------------------|---------------|------|-----------------------------|-------------------|----------------------|
| 1    | <b>Body</b>               |                                         |               | 11   | <b>Washer</b>               |                   |                      |
|      | Nodular Cast Iron         | EN-GJS-400-15                           | EN-JS1030     |      | Stainless Steel             | A4                |                      |
|      | Carbon Steel              | GP240GH                                 | 1.0619        | 12   | <b>Hex nut</b>              |                   |                      |
| 2    | <b>Seat/vulcanization</b> |                                         |               |      | Stainless Steel             | A4                |                      |
|      | NBR                       | Nitrile butadiene rubber                |               | 13   | <b>Shaft retention</b>      |                   |                      |
|      | EPDM                      | Ethylene propylene diene monomer rubber |               |      | Brass                       | CuZn39Pb3         | CW614N               |
| 3/4  | <b>Bearing bush</b>       |                                         |               |      | Stainless Steel             | 16MnCr5*          | 1.7131*              |
|      | Brass                     | CuZn39Pb3                               | CW614N        | 14   | <b>Cover plate</b>          |                   |                      |
| 5    | <b>O-Ring</b>             |                                         |               |      | Sectional steel             | S235JR            |                      |
|      | NBR                       | Nitrile butadiene rubber                |               |      | Nodular Cast Iron           | EN-GJS-400-15     | EN-JS1030            |
|      | EPDM                      | Ethylene propylene diene monomer rubber |               | 15   | <b>Screw</b>                |                   |                      |
| 6/7  | <b>Shaft</b>              |                                         |               |      | Steel                       | 45 H galvanized   |                      |
|      | X14CrMoS17                |                                         | 1.4104        |      | Stainless Steel             | A4-70             |                      |
|      | X39CrMo17-1               |                                         | 1.4122        | 16   | <b>Seal DIN 915</b>         |                   |                      |
|      | X5/(X2)CrNiMo17-12-2      |                                         | 1.4401/1.4404 |      | Cooper                      | Cu                |                      |
|      | X2CrNiMoN22-5-3           |                                         | 1.4462        | 17   | <b>Plug screw DIN 908</b>   |                   |                      |
|      | CC333G                    |                                         | 1.4469        |      | Machining steel             | 11SMnPb30         | 1.0718 nickel-plated |
|      | X5CrNiCuNb 16-4*          |                                         | 1.4452*       |      | Stainless Steel             | G-X5CrNiMo19-11-2 | 1.4408               |
| 8    | <b>Disc</b>               |                                         |               | 18   | <b>Threaded pin DIN 915</b> |                   |                      |
|      | Nodular Cast Iron         | EN-GJS-400-15                           | EN-JS1030     |      | Steel                       | 45 H galvanized   |                      |
|      | Stainless Steel           | G-X5CrNiMo19-11-2                       | 1.4408        |      | Stainless Steel             | X5CrNiMo17-12-2   | 1.4401               |
|      |                           | G-X2CrNiMoN26-7-4*                      | 1.4469*       | 19   | <b>Clamping ring</b>        |                   |                      |
|      | Aluminium Bronze          | CuAl10Fe5Ni5-C                          | CC333G        |      | Sectional steel             | S235JR            |                      |
|      | Coating                   | Halar, Rilsan, Nonstick                 |               | 20   | <b>Cylinder screw</b>       |                   |                      |
|      | Surface quality           | electropolished, mirror finished        |               |      | Stainless Steel             | A4                |                      |
| 9    | <b>Sleeve</b>             |                                         |               |      |                             |                   |                      |
|      | Stainless Steel           | X5CrNi18-10                             | 1.4301        |      |                             |                   |                      |
| 10   | <b>Taper pin</b>          |                                         |               |      |                             |                   |                      |
|      | Stainless Steel           | X5CrNi18-10                             | 1.4301        |      |                             |                   |                      |
|      |                           | G-X5CrNiMo19-11-2*                      | 1.4408*       |      |                             |                   |                      |

\*Materials for valves ≥19 bar

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## TORQUE

- The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.

- Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature ... etc.

- Our engineers look forward to help you with exact values for your application.

- Powdery (non-lubricant) media  
Md x 1,3

- Dry gases/high viscous media  
Md x 1,2

| DN<br>[mm] | Size<br>[in] | Operating pressure |               |                |                |                |                |                |
|------------|--------------|--------------------|---------------|----------------|----------------|----------------|----------------|----------------|
|            |              | 3 bar<br>disc      | 6 bar<br>disc | 10 bar<br>disc | 16 bar<br>disc | 19 bar<br>disc | 21 bar<br>disc | 25 bar<br>disc |
| 50         | 2            | 5                  | 7             | 7              | 9              | -              | -              | 30             |
| 65         | 2½           | 7                  | 9             | 13             | 18             | -              | -              | 40             |
| 80         | 3            | 8                  | 10            | 18             | 24             | -              | -              | 58             |
| 100        | 4            | 9                  | 18            | 28             | 37             | 53             | 66             | 90             |
| 125        | 5            | 15                 | 22            | 45             | 59             | -              | -              | 150            |
| 150        | 6            | 36                 | 45            | 78             | 125            | 156            | 182            | 230            |
| 200        | 8            | 59                 | 76            | 140            | 200            | 242            | 278            | 350            |
| 250        | 10           | 150                | 180           | 200            | 240            | 355            | 440            | 600            |
| 300        | 12           | 200                | 240           | 280            | 360            | 570            | 710            | 950            |
| 350        | 14           | 350                | 540           | 610            | 700            | 910            | 1080           | 1400           |
| 400        | 16           | 420                | 620           | 750            | 850            | 1320           | 1610           | 2050           |
| 450        | 18           | 720                | 746           | 860            | 1500           | 2000           | 2410           | 3200           |
| 500        | 20           | 900                | 1100          | 2255           | 3690           | 4170           | 4630           | 5500           |
| 600        | 24           | 1050               | 1800          | 3000           | 5830           | 6550           | 7130           | 8000           |
| 700        | 28           | 1600               | 2240          | 3450           | 8100           | 9860           | 11100          | 13000          |
| 800        | 32           | 2200               | 3900          | 6600           | 11200          | 14250          | 16450          | 20000          |
| 900        | 36           | 2800               | 4900          | 7100           | 14500          | 19150          | 22900          | 30000          |
| 1000       | 40           | 4800               | 6760          | 11500          | 24400          | 30500          | 35300          | 44000          |
| 1200       | 48           | 7800               | 12000         | 21000          | 44000          | 53800          | 62300          | 78000          |
| 1400       | 56           | -                  | -             | -              | -              | 77100          | 90900          | 116000         |

\*Maximum torques (Nm)

## K<sub>V</sub>-VALUES

- The K<sub>V</sub>-value [m³ per hour] is the flow of water at a temperature of 5°C to 30°C (41°F to 86°F) at a Δp of 1 bar

- Permissible velocity of flow  
- Vmax 4,5 m/s for liquids  
- Vmax 70 m/s for gases

- The throttle function is linear at an angle 30° to 70°

- Avoid cavitation

For further values, please contact our engineers.

| DN<br>[mm] | Size<br>[in] | Opening angle α° |      |       |       |       |       |        |        |
|------------|--------------|------------------|------|-------|-------|-------|-------|--------|--------|
|            |              | 20°              | 30°  | 40°   | 50°   | 60°   | 70°   | 80°    | 90°    |
| 50         | 2            | 3,84             | 10,1 | 20,7  | 34,4  | 49,7  | 65,2  | 79,5   | 91,2   |
| 65         | 2½           | 9,5              | 16,6 | 39,1  | 72,6  | 113   | 157   | 199    | 235    |
| 80         | 3            | 15,6             | 20,6 | 51,4  | 102   | 165   | 234   | 304    | 368    |
| 100        | 4            | 24,9             | 39,8 | 96,5  | 183   | 288   | 398   | 503    | 589    |
| 125        | 5            | 51,8             | 67,2 | 135   | 256   | 428   | 652   | 926    | 1250   |
| 150        | 6            | 76,5             | 97,3 | 197   | 375   | 629   | 957   | 1360   | 1830   |
| 200        | 8            | 137              | 187  | 373   | 697   | 1160  | 1760  | 2510   | 3400   |
| 250        | 10           | 227              | 271  | 563   | 1090  | 1850  | 2830  | 4010   | 5390   |
| 300        | 12           | 287              | 409  | 820   | 1550  | 2610  | 4050  | 5880   | 8120   |
| 350        | 14           | 399              | 488  | 1070  | 2110  | 3590  | 5480  | 7760   | 10400  |
| 400        | 16           | 557              | 703  | 1360  | 2600  | 4470  | 7060  | 10400  | 14600  |
| 450        | 18           | 716              | 907  | 1810  | 3440  | 5830  | 8980  | 13000  | 17800  |
| 500        | 20           | 875              | 1110 | 2250  | 4280  | 7180  | 10900 | 15500  | 20900  |
| 600        | 24           | 1230             | 1550 | 3150  | 6010  | 10090 | 15400 | 21800  | 29400  |
| 700        | 28           | 1100             | 1770 | 3590  | 6610  | 10900 | 16400 | 23200  | 31400  |
| 800        | 32           | 1670             | 2680 | 5450  | 10000 | 16500 | 24900 | 35200  | 47600  |
| 900        | 36           | 1960             | 3150 | 6390  | 11800 | 19300 | 29200 | 41300  | 55900  |
| 1000       | 40           | 2430             | 3890 | 7910  | 14600 | 23900 | 36100 | 51100  | 69100  |
| 1200       | 48           | 3500             | 5620 | 11400 | 21000 | 34500 | 52100 | 73800  | 99800  |
| 1400       | 56           | 5150             | 8260 | 16780 | 30900 | 50700 | 76500 | 108000 | 147000 |

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