

DOUBLE FLANGED BUTTERFLY VALVE F012-K1 / WN



Double flanged butterfly valve with short construction length to be used in heavy duty applications.

TECHNICAL DATA

| | |
|------------------------|--|
| Nominal diameter: | DN 150 - DN 2000 (bigger sizes upon request) |
| Face-to-face: | EN 558 Series 20 ISO 5752 Series 20 API 609 Table 1 Works standard |
| Flange accommodation: | EN 1092 PN 6/10/16 ASME Class 150 AS/NZS 4087 PN 16 Flange accommodation for works standard on request |
| Flange Surface Design: | EN 1092 Form A/B ASME RF, FF |
| Top flange: | EN ISO 5211 |
| Marking: | EN 19 |
| Tightness check: | EN 12266 (Leakage rate A) ISO 5208, Category 3 |
| Temperature range: | -40°C to +200°C (depending on pressure, medium and material) |
| Operating pressure: | 16 bar (others on request) |

FEATURES

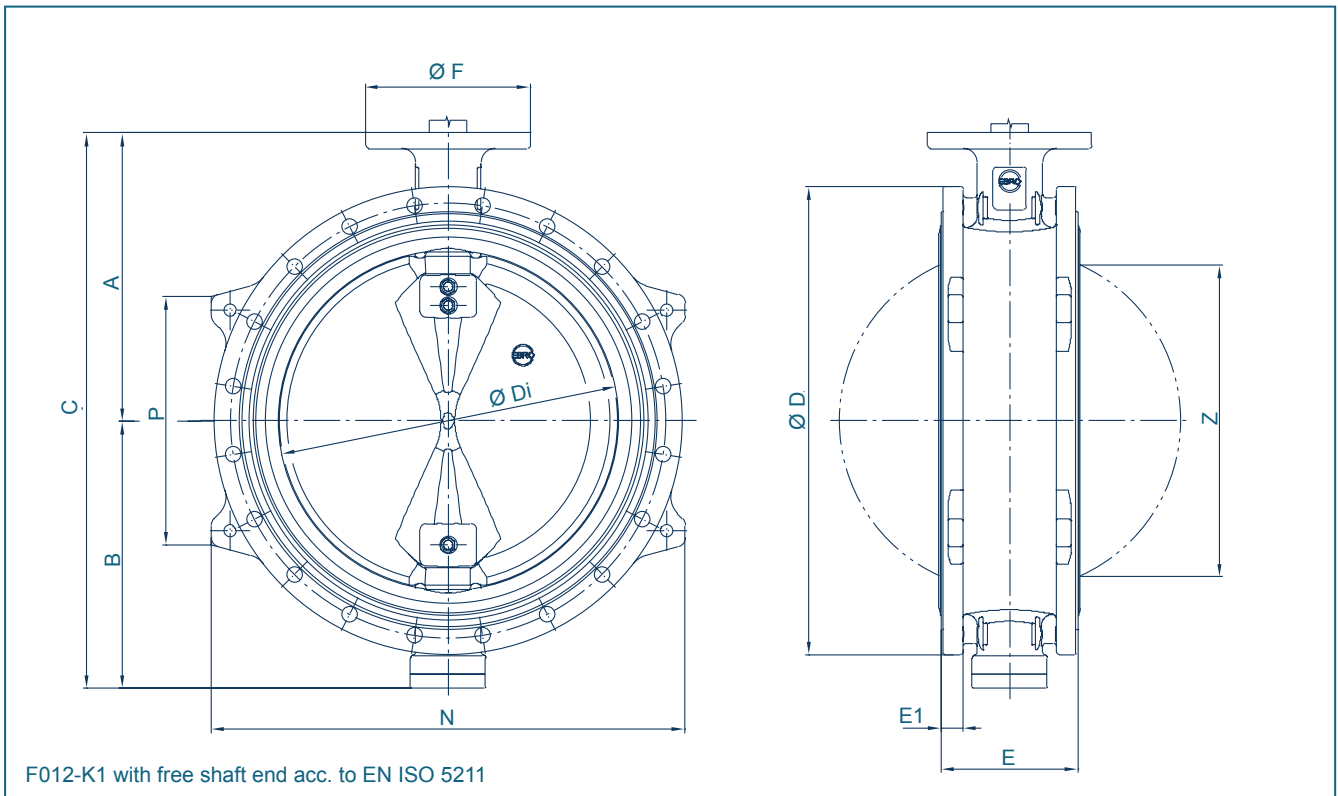
- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability
- Triple shaft bearings prevent shaft deflection and guarantee optimum guidance even after many years of operating service
- Can be disassembled, material-specific recycling possible
- Single flange mounting is possible
- Can be installed in any desired position
- Maintenance-free
- Fully repairable valve

GENERAL APPLICATIONS

- Offshore
- Water and waste water technology
- Shipbuilding
- Power plants



DOUBLE FLANGED BUTTERFLY VALVE F012-K1

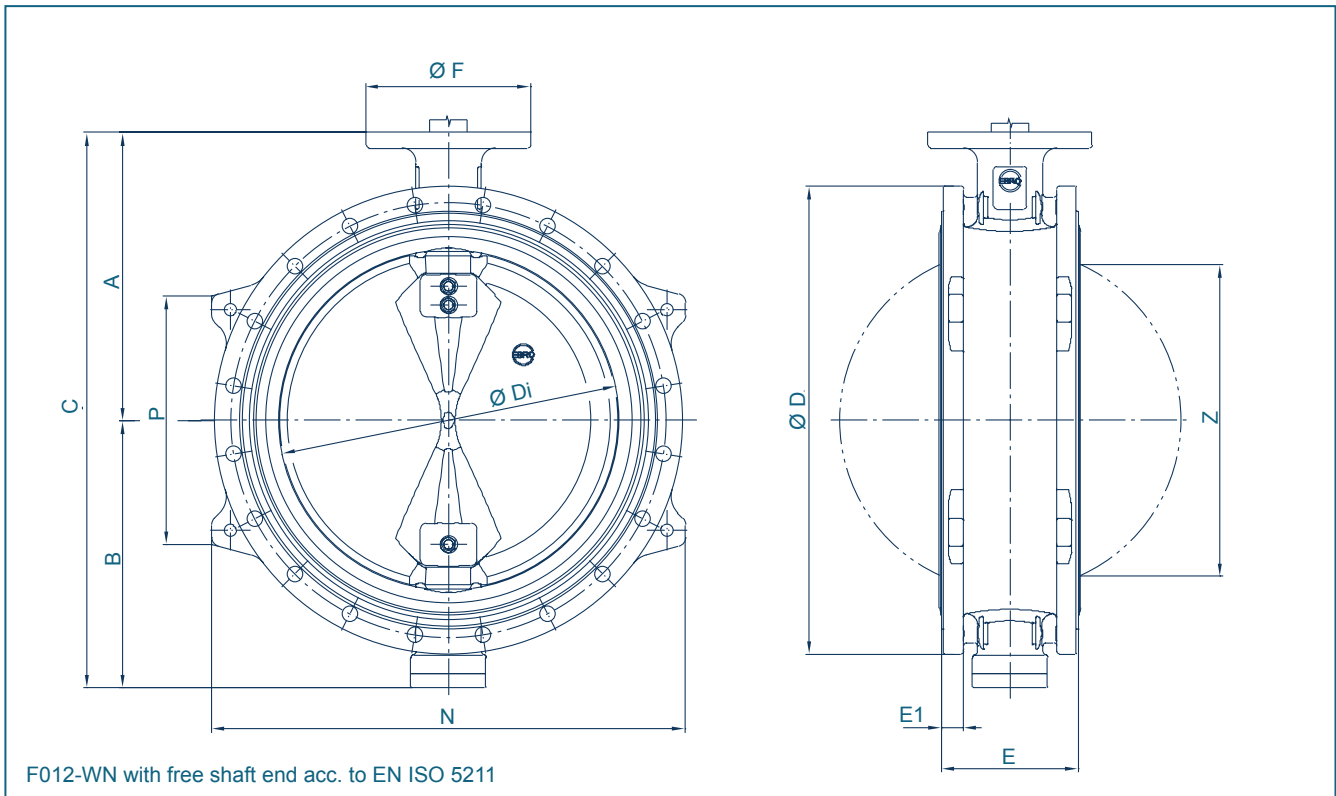


| DN [mm] | Size [inch] | Dimensions [mm] | | | | | | | | | | | Bearings fixed adjustable | Weight [kg] (EN-JS-1030) | | |
|---------|-------------|-----------------|-----|------|------|------|----|-----|-----|-------------|------|-----|---------------------------|--------------------------|---|-----|
| | | A | B | C | Ø Di | Ø D | E1 | E | Ø F | Flange | N | P | | | Z | |
| 150 | 6 | 203 | 150 | 353 | 148 | 305 | 15 | 56 | 90 | F07 | --- | --- | 140 | x | - | 26 |
| 200 | 8 | 228 | 176 | 404 | 198 | 350 | 17 | 60 | 90 | F07 | --- | --- | 192 | x | - | 34 |
| 250 | 10 | 266 | 212 | 478 | 248 | 430 | 19 | 68 | 125 | F10 | --- | --- | 241 | x | - | 50 |
| 300 | 12 | 291 | 237 | 528 | 296 | 480 | 24 | 78 | 125 | F10 | --- | --- | 288 | x | - | 72 |
| 400 | 16 | 363 | 314 | 677 | 390 | 605 | 28 | 102 | 150 | F12 | --- | --- | 379 | x | - | 86 |
| 450 | 18 | 397 | 335 | 732 | 426 | 675 | 30 | 114 | 175 | F14 | --- | --- | 414 | x | - | 128 |
| 450 | 18 | 465 | 385 | 850 | 426 | 770 | 27 | 114 | 210 | F16 | --- | --- | 414 | x | - | 150 |
| 500 | 20 | 437 | 405 | 842 | 489 | 710 | 30 | 127 | 210 | F16 | --- | --- | 475 | x | - | 163 |
| 600 | 24 | 498 | 445 | 943 | 582 | 780 | 33 | 154 | 300 | F25 | --- | --- | 564 | x | - | 170 |
| 600 | 24 | 498 | 445 | 943 | 582 | 830 | 33 | 154 | 300 | F25 | 860 | 400 | 564 | x | - | 260 |
| 700 | 28 | 581 | 507 | 1088 | 674 | 905 | 33 | 165 | 300 | F25 | --- | --- | 658 | x | - | 296 |
| 700 | 28 | 581 | 507 | 1088 | 674 | 927 | 48 | 165 | 300 | F25 | --- | --- | 658 | x | - | 345 |
| 700 | 28 | 581 | 507 | 1088 | 674 | 910 | 38 | 165 | 350 | F25/F30 | 920 | 510 | 658 | x | x | 374 |
| 800 | 32 | 630 | 556 | 1186 | 780 | 1020 | 35 | 190 | 300 | F25 | --- | --- | 761 | - | x | 345 |
| 800 | 32 | 630 | 556 | 1186 | 780 | 1025 | 42 | 190 | 350 | F25/F30 | 1060 | 500 | 761 | x | - | 442 |
| 800 | 32 | 660 | 595 | 1255 | 780 | 1085 | 54 | 190 | 415 | F25/F30/F35 | --- | --- | 761 | - | x | 735 |
| 800 | 32 | 630 | 556 | 1186 | 780 | 1060 | 52 | 190 | 300 | F25 | --- | --- | 761 | - | x | 537 |
| 900 | 36 | 696 | 617 | 1313 | 880 | 1120 | 37 | 203 | 300 | F25 | --- | --- | 861 | x | - | 573 |
| 900 | 36 | 696 | 617 | 1313 | 880 | 1168 | 52 | 203 | 350 | F25/F30 | --- | --- | 861 | x | - | 428 |
| 900 | 36 | 740 | 635 | 1375 | 880 | 1175 | 52 | 203 | 350 | F25/F30 | 1190 | 600 | 861 | - | x | 454 |
| 1000 | 40 | 771 | 675 | 1446 | 980 | 1230 | 37 | 216 | 350 | F35/F30 | --- | --- | 960 | - | x | 573 |
| 1000 | 40 | 771 | 675 | 1446 | 980 | 1250 | 37 | 216 | 350 | F25/F30 | --- | --- | 960 | x | - | 492 |
| 1000 | 40 | 771 | 675 | 1446 | 980 | 1255 | 41 | 216 | 416 | F30/F35 | 1280 | 500 | 960 | x | - | 610 |
| 1000 | 40 | 771 | 675 | 1446 | 980 | 1288 | 52 | 216 | 350 | F25/F30 | --- | --- | 960 | x | x | 621 |
| 1200 | 48 | 905 | 810 | 1715 | 1176 | 1480 | 41 | 254 | 350 | F30 | --- | --- | 1152 | x | x | 672 |
| 1200 | 48 | 935 | 810 | 1745 | 1176 | 1511 | 60 | 254 | 475 | F30/F35/F40 | 1560 | 760 | 1152 | x | - | 651 |

Face-to-face: K1

Subject to change without notice

DOUBLE FLANGED BUTTERFLY VALVE F012-WN



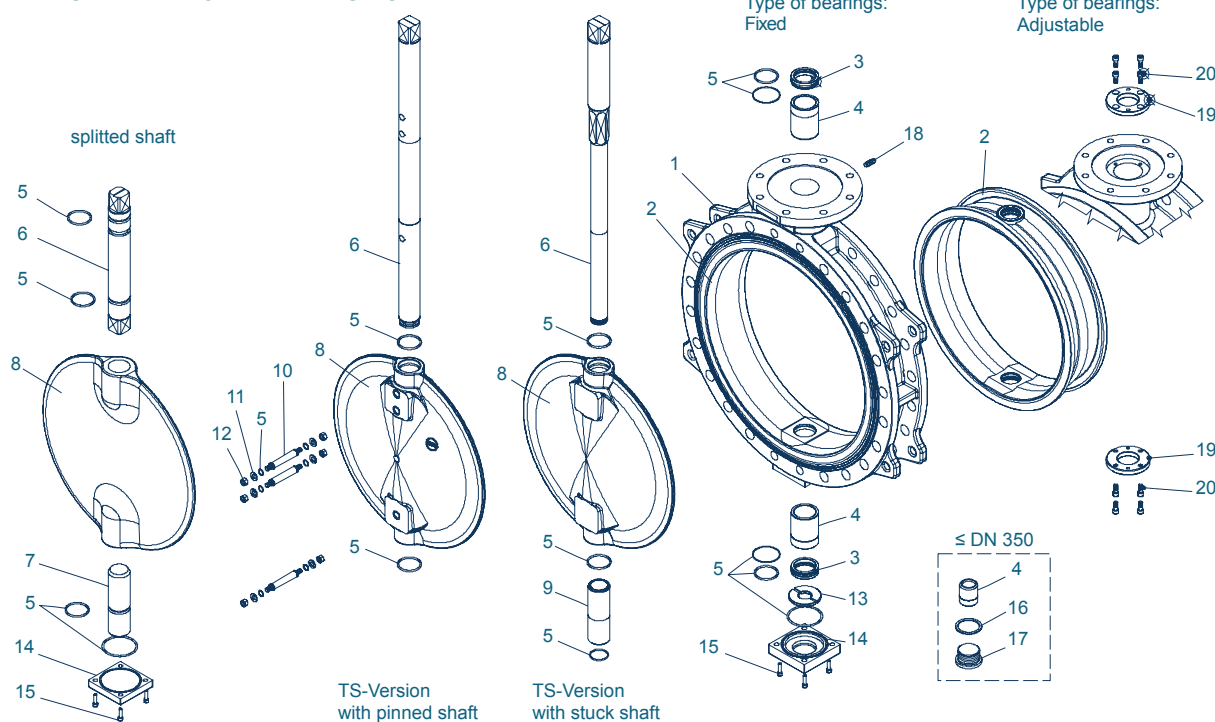
| DN [mm] | Size [inch] | Dimensions [mm] | | | | | | | | | | | Bearings fixed adjustable | Weight [kg] (EN- JS-1030) | | |
|------------|----------------|-----------------|------|------|------|------|----|-----|-----|-------------|------|------|---------------------------------|---------------------------------|---|------|
| | | A | B | C | Ø Di | Ø D | E1 | E | Ø F | Flange | N | P | | | Z | |
| 350 | 14 | 332 | 269 | 601 | 338 | 540 | 26 | 92 | 150 | F12 | - | - | 331 | x | - | 86 |
| 550 | 22 | 456 | 405 | 861 | 525 | 750 | 43 | 229 | 210 | F16 | - | - | 490 | x | - | 256 |
| 550 | 22 | 495 | 405 | 900 | 538 | 760 | 46 | 154 | 300 | F16/F25 | 770 | 400 | 518 | x | - | 244 |
| 650 | 26 | 540 | 460 | 1000 | 628 | 890 | 47 | 165 | 300 | F25 | - | - | 610 | x | - | 360 |
| 750 | 30 | 590 | 550 | 1140 | 725 | 1000 | 50 | 190 | 300 | F25 | - | - | 703 | x | - | 442 |
| 750 | 30 | 670 | 589 | 1259 | 725 | 1092 | 50 | 292 | 350 | F25/F30 | 1120 | 520 | 668 | - | x | 735 |
| 750 | 30 | 590 | 550 | 1140 | 725 | 1015 | 46 | 292 | 350 | F25/F30 | 1037 | 450 | 668 | - | x | 537 |
| 750 | 30 | 615 | 570 | 1185 | 725 | 997 | 47 | 292 | 350 | F25/F30 | 1010 | 530 | 668 | x | - | 573 |
| 850 | 34 | 720 | 605 | 1325 | 831 | 1111 | 53 | 203 | 350 | F25/F30 | - | - | 757 | x | - | 616 |
| 1050 | 42 | 817 | 725 | 1542 | 1030 | 1346 | 60 | 254 | 475 | F30/F35/F40 | 1406 | 660 | 847 | x | - | 1020 |
| 1100 | 44 | 840 | 760 | 1600 | 1077 | 1405 | 43 | 216 | 350 | F30 | 1470 | 660 | 1073 | x | - | 1068 |
| 1100 | 44 | 840 | 760 | 1600 | 1070 | 1404 | 43 | 254 | 415 | F35 | 1470 | 660 | 1064 | x | - | 1087 |
| 1300 | 52 | 970 | 910 | 1880 | 1272 | 1630 | 65 | 280 | 415 | F35 | 1700 | 800 | 1256 | x | - | 1607 |
| 1350 | 54 | 1000 | 905 | 1905 | 1338 | 1685 | 65 | 280 | 475 | F35/F40 | 1760 | 700 | 1327 | x | - | 1809 |
| 1400 | 56 | 1025 | 970 | 1995 | 1372 | 1685 | 65 | 280 | 475 | F35/F40 | 1760 | 700 | 1348 | - | x | 1820 |
| 1400 | 56 | 1025 | 970 | 1995 | 1372 | 1745 | 66 | 280 | 475 | F35/F40 | 1780 | 940 | 1348 | - | x | 1924 |
| 1500 | 60 | 1115 | 1060 | 2175 | 1469 | 1855 | 65 | 280 | 560 | F40/F48 | 1930 | 700 | 1446 | - | x | 2210 |
| 1600 | 64 | 1115 | 1100 | 2215 | 1566 | 1930 | 65 | 280 | 475 | F40 | 2000 | 800 | 1544 | x | - | 2440 |
| 1600 | 64 | 1115 | 1100 | 2215 | 1566 | 1930 | 65 | 440 | 415 | F35 | 2000 | 800 | 1506 | x | - | 2678 |
| 1800 | 72 | 1320 | 1175 | 2495 | 1778 | 2130 | 65 | 280 | 475 | F35/F40 | 2160 | 900 | 1759 | x | - | 3140 |
| 1800 | 72 | 1320 | 1195 | 2515 | 1778 | 2197 | 65 | 280 | 560 | F35/F40/F48 | 2230 | 1000 | 1759 | x | - | 2985 |
| 1950 | 78 | 1400 | 1290 | 2690 | 1958 | 2365 | 75 | 525 | 560 | F48 | 2400 | 1000 | 1890 | x | - | 4275 |
| 2000 | 80 | 1400 | 1280 | 2680 | 1958 | 2265 | 75 | 525 | 560 | F48 | 2350 | 1000 | 1890 | x | - | 4126 |
| 2000 | 80 | 1400 | 1290 | 2690 | 1958 | 2365 | 75 | 525 | 560 | F48 | 2400 | 1000 | 1890 | x | - | 4275 |

Face-to-face: Works standard

Subject to change without notice

DOUBLE FLANGED BUTTERFLY VALVE F012-K1/ WN

MATERIAL SPECIFICATION AND PARTS LIST



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

Subject to change without notice

DOUBLE FLANGED BUTTERFLY VALVE F012-K1/ WN



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

The shaft sealing of centric soft-seated butterfly valves is primarily effected by the surface pressure between the valve disc and the liner. Especially with large nominal diameters from DN600 and high pressures more than 16 bar, the simple surface pressure may no longer be sufficient.

EBRO has designed an adjustable shaft seal which makes it possible to increase the surface pressure in the shaft passage area so even large valves can operate at pressures of up to 25 bar.

A further advantage of this design is that the shaft seal can be adjusted by tightening the screws and thus readjusted if necessary.

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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.

| DN [mm] | Size [in] | Adapted Disc Size Pressure Rating | | | |
|---------|-----------|-----------------------------------|------------|-------------|-------------|
| | | 3 bar disc | 6 bar disc | 10 bar disc | 16 bar disc |
| 150 | 6 | 36 | 45 | 78 | 125 |
| 200 | 8 | 59 | 76 | 140 | 200 |
| 250 | 10 | 150 | 180 | 200 | 240 |
| 300 | 12 | 200 | 240 | 280 | 360 |
| 350 | 14 | 350 | 540 | 610 | 700 |
| 400 | 16 | 420 | 620 | 750 | 850 |
| 450 | 18 | 720 | 746 | 860 | 1500 |
| 500 | 20 | 900 | 1100 | 2255 | 3690 |
| 600 | 24 | 1050 | 1800 | 3000 | 5830 |
| 700 | 28 | 1600 | 2240 | 3450 | 8100 |
| 800 | 32 | 2200 | 3900 | 6600 | 11200 |
| 900 | 36 | 2800 | 4900 | 7100 | 14500 |
| 1000 | 40 | 4800 | 6760 | 11500 | 24400 |
| 1200 | 48 | 7800 | 12000 | 21000 | 44000 |
| 1400 | 56 | 15000 | 25000 | 40000 | 60000 |
| 1500 | 60 | 20000 | 30000 | 45000 | 75000 |
| 1600 | 64 | 25000 | 35000 | 50000 | 90000 |
| 1650 | 66 | 29140 | 40500 | 57000 | 110000 |
| 1800 | 72 | 33280 | 46000 | 64000 | 130000 |
| 2000 | 80 | 38400 | 50000 | 69000 | 150000 |

Bigger sizes upon request

All values in Nm

K_V-VALUES

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

- The K_V-values specified are based on tests carried out by the Delfter Hydraulics Laboratories, the Netherlands

- Permissible velocity of flow
V_{max} 4,5 m/s for liquids,
V_{max} 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 [mm] | Size [in] | Opening angle α° | | | | | | | |
|---------|-----------|------------------|-------|-------|-------|--------|--------|--------|--------|
| | | 20° | 30° | 40° | 50° | 60° | 70° | 80° | 90° |
| 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 |
| 1500 | 60 | 6070 | 9750 | 19800 | 36400 | 59900 | 90300 | 128000 | 173000 |
| 1600 | 64 | 7000 | 11200 | 22800 | 42000 | 69000 | 104000 | 148000 | 200000 |
| 1650 | 66 | 7500 | 12100 | 24500 | 45200 | 74200 | 112000 | 159000 | 215000 |
| 1800 | 72 | 9430 | 15100 | 30700 | 56600 | 93000 | 140300 | 199000 | 269000 |
| 2000 | 80 | 11100 | 17900 | 36400 | 66900 | 110000 | 166000 | 235000 | 318000 |

Subject to change without notice