# B10

**Double Eccentric Butterfly Valve**
Series 14

## Product Description

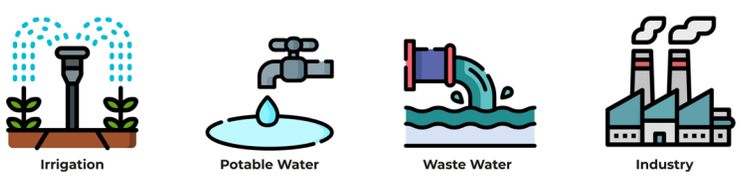
DENZ B10 Double Eccentric Butterfly Valves Series 14 are most often used in water supply applications below ground as an alternative to gate valves. In comparison to gate valves, Double Eccentric butterfly valves require a lower bury depth and, in general, they are more cost-effective, especially for larger diameters.
The construction in double eccentric allows its operation with very low operating torques and at the same time shutoff element wear is minimal, and the useful life of the valve is thus prolonged. They are designed to provide high tightness and are the ideal solution for processes where there is little space.
DENZ B10 is a basic component in any hydraulic installation where the highest reliability, control and performance of the system are required.

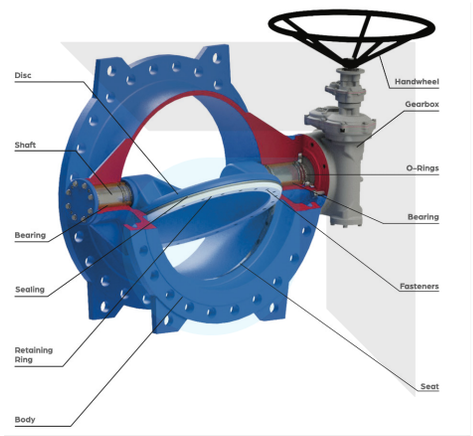
## Application Areas

- Water treatment plants
- Desalination plants
- Distribution systems
- Potable water networks
- Petrochemical plants
- Pumping stations
- HVAC systems
- Irrigation networks

Digitally signed by Vrabii Vasile
Date: 2023.04.28 17:33:47 EEST
Reason: MoldSign Signature
Location: Moldova

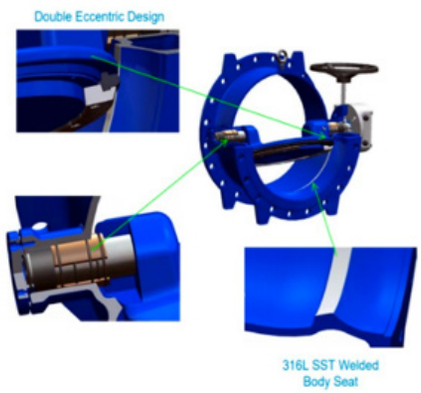
| Production References | |
|---|---|
| Size Range | DN100-2400 |
| Pressure Range | PN10-16-25-40 |
| Temperature | EPDM: +80°C NBR: 60°C VITON: 120°C |
| Design | EN 593 (Double Eccentric) |
| Face to Face | EN 558 Series 14 |
| Connection | EN 1092-2 Flanged |
| Coating | Electrostatic Powder Epoxy |
| Testing | EN12266-1 |
| Marking | EN 19 |





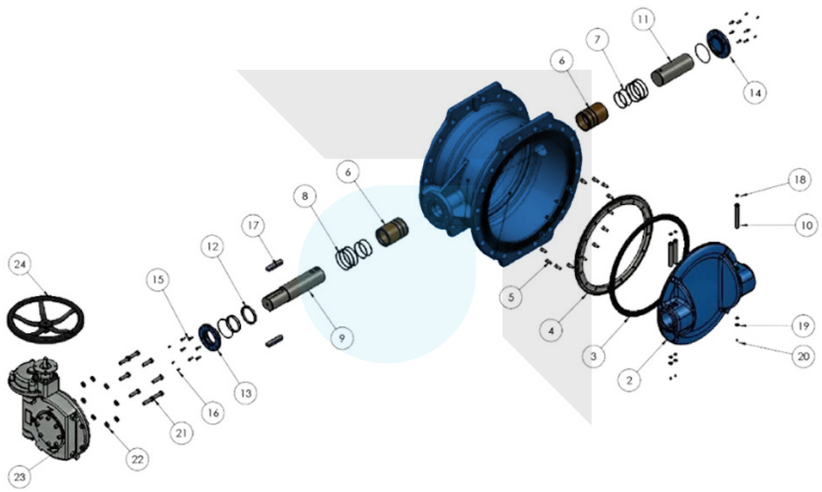

| Operation | |
|---|---|
| Manual | Bareshaft |
| | Gearbox with ISO top flange |
| | Manual Gearbox |
| Electrical actuator | Multiturn electrical actuator on/off |
| | Multiturn electrical actuator regulating |
| | Quarter turn electrical actuator on/off |
| Pneumatic actuator | Pneumatic actuator on/off |
| | Pneumatic actuator & positioner |
| Hydraulic actuator (DENZ-B13) | Hydraulic actuator |
| | Hydraulic actuator with counterweight |
| Extension spindle | Telescopic extension spindle |
| | Rigid extension spindle |
| Gearbox accessories | Position indicator |
| | Limit switch |

## Product Features



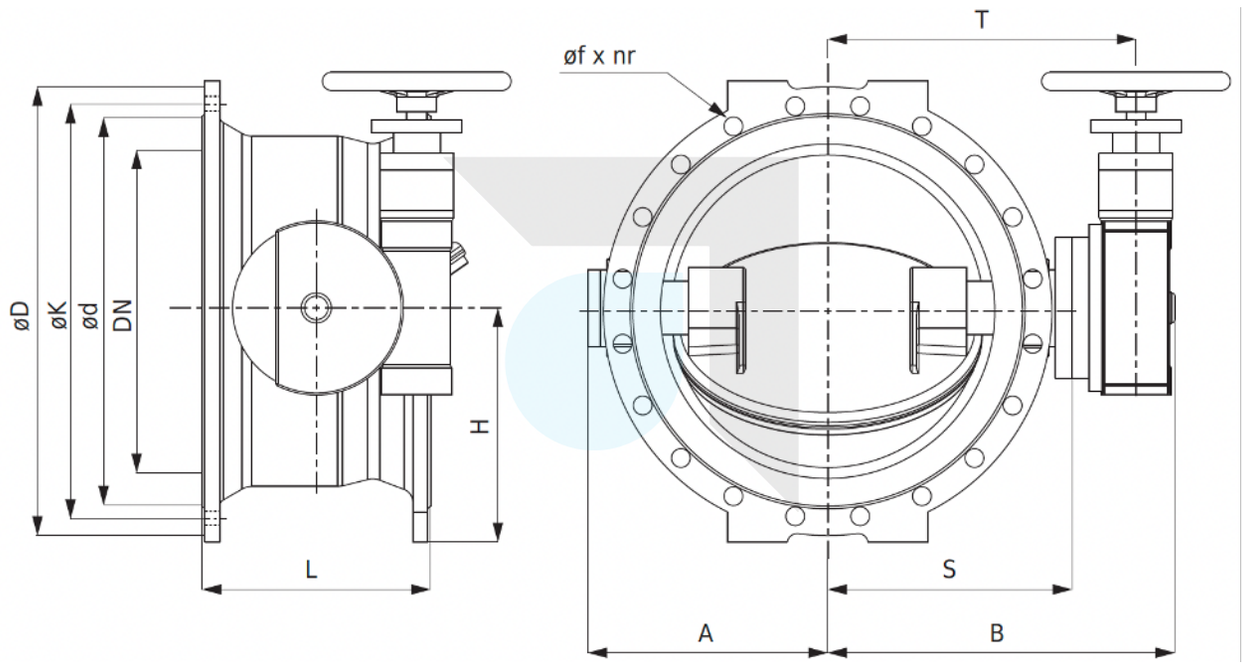

- ENGJS500-7 Ductile iron body and bonnet for high strength and impact resistance.
- This valve is designed as a resilient seated type. There is an option to order the metal seated type for specific orders.
- As a default, the sealing ring on the disc is EPDM. Various options are available, including NBR and VITON.
- Double eccentric / double offset disc design prolongs the life cycle of the sealing and the valve.
- A welding seat made of SS308 LSI grade stainless steel is manufactured on the body using automatic welding machines and microfinished precision milling. The disc sealing ring applies equal pressure to all points of the welding seat once the disc is fully closed.
- Coatings that meet WRAS hygienic standards are available upon request.
- Due to the double shaft design, pressure loss is minimized and energy efficiency is increased.
- During the installation process, it is important to consider the direction arrow on the body.
- Disc sealing ring can easily be replaced by removing the retaining ring through its bolts without dismantling the valve from the pipeline. Replacing the disc sealing ring doesn't require any additional tools.
- The disc sealing ring applies equal pressure to all points on the welding seat when the disc is fully closed. Drop-tight closure.
- Double O-ring feature on both shafts ensures high sealing.
- The shafts are equipped with corrosion-resistant bronze bushings.
- DENZ B10 Double Eccentric Butterfly Valve has been designed to operate bi-directionally in accordance with EN1074-2. A direction arrow on the body should be considered for proper installation.
- A balanced position of lifting holes on the body makes transportation and installation easier.
- During the installation process, it is important to consider the direction arrow on the body.
- AISI420 stainless steel spindle for high strength and corrosion resistance
- 100% of the valves are subjected to Hydrostatic tests according to EN 12266-1. Pressure for seat: PN x 1.1 , for shell: PN x 1.5
-

## Material List



| # | Part | Material |
|---|---|---|
| 1 | Body | Ductile Iron EN-GJS-400/500 (GGG40/50) |
| 2 | Disc | Ductile Iron EN-GJS-400/500 (GGG40/50) |
| 3 | Disc Sealing | EPDM / NBR / VITON |
| 4 | Retaining Ring | ST37 Steel / Stainless Steel SS304 / SS316 |
| 5 | Bolt | Stainless Steel A2 / A4 |
| 6 | Front-Back Bushing | Bronze / Brass MS58 |
| 7 | O-Ring | EPDM / NBR / VITON |
| 8 | O-Ring | EPDM / NBR / VITON |
| 9 | Front Shaft | AISI 420 / 304 / 316 Stainless Steel |
| 10 | Pin | AISI 420 / 304 / 316 Stainless Steel |
| 11 | Back Shaft | AISI 420 / 304 / 316 Stainless Steel |
| 12 | Front Bushing | Bronze / Brass MS58 |
| 13 | Front Cover | Ductile Iron EN-GJS-400/500 (GGG40/50) |
| 14 | Back Cover | Ductile Iron EN-GJS-400/500 (GGG40/50) |
| 15 | Bolt | Galvanized Steel 8.8 / A2 / A4 |
| 16 | Setscrew | Galvanized Steel 8.8 / A2 / A4 |
| 17 | Key | ST37 Steel |
| 18 | O-Ring | EPDM / NBR / VITON |
| 19 | Washer | Galvanized Steel 8.8 / A2 / A4 |
| 20 | Bolt | Galvanized Steel 8.8 / A2 / A4 |
| 21 | Bolt | Galvanized Steel 8.8 / A2 / A4 |
| 22 | Washer | Galvanized Steel 8.8 / A2 / A4 |
| 23 | Gearbox | Ductile Iron EN-GJS-400/500 (GGG40/50) |
| 24 | Handwheel | ST37 Steel / Ductile Iron |

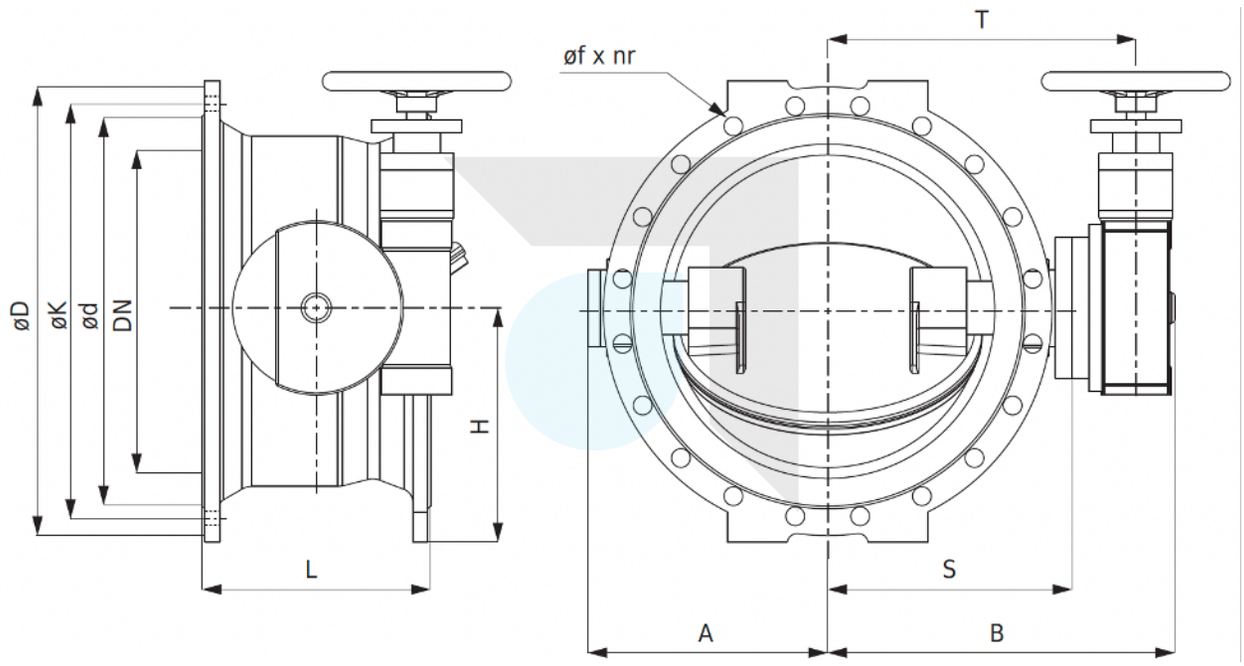
## Dimensions




| PN10 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Body Top Flange | Gear-box Top Flange | Auma Actuator Selection |
| 100 | 190 | 3 | 220 | 180 | 156 | 19 | 19x8 | 185 | 125 | 110 | 250 | 140 | F10 | F10 | SA07.6 - 60Nm |
| 125 | 200 | 3 | 250 | 210 | 184 | 19 | 19x8 | 230 | 130 | 130 | 250 | 140 | F10 | F10 | SA07.6 - 60Nm |
| 150 | 210 | 3 | 285 | 240 | 211 | 19 | 23x8 | 275 | 135 | 150 | 250 | 150 | F10 | F10 | SA07.6 - 60Nm |
| 200 | 230 | 3 | 340 | 295 | 266 | 20 | 23x8 | 320 | 170 | 175 | 250 | 198 | F10 | F10 | SA07.6 - 60Nm |
| 250 | 250 | 3 | 400 | 350 | 319 | 22 | 23x12 | 350 | 200 | 210 | 250 | 228 | F16 | F10 | SA07.6 - 60Nm |
| 300 | 270 | 4 | 455 | 400 | 370 | 24-5 | 23x12 | 400 | 235 | 235 | 250 | 275 | F16 | F10 | SA07.6 - 60Nm |
| 350 | 290 | 4 | 505 | 460 | 429 | 24-5 | 23x16 | 430 | 265 | 265 | 250 | 290 | F16 | F10 | SA07.6 - 60Nm |
| 400 | 310 | 4 | 565 | 515 | 480 | 24-5 | 28x16 | 465 | 295 | 295 | 250 | 325 | F16 | F10 | SA07.6 - 60Nm |
| 450 | 330 | 4 | 615 | 565 | 530 | 26-5 | 28x20 | 515 | 340 | 325 | 250 | 360 | F16 | F10 | SA07.6 - 60Nm |
| 500 | 350 | 4 | 670 | 620 | 582 | 26-5 | 28x20 | 550 | 360 | 365 | 250 | 395 | F16 | F10 | SA07.6 - 60Nm |
| 600 | 390 | 5 | 780 | 725 | 682 | 30 | 31x20 | 610 | 430 | 425 | 250 | 460 | F25 | F10 | SA07.6 - 60Nm |
| 700 | 430 | 5 | 895 | 840 | 794 | 32.5 | 31x24 | 640 | 475 | 455 | 250 | 490 | F25 | F10 | SA07.6 - 60Nm |
| 800 | 470 | 5 | 1015 | 950 | 901 | 35 | 34x24 | 865 | 550 | 515 | 250 | 585 | F25 | F10 | SA07.6 - 60Nm |
| 900 | 510 | 5 | 1115 | 1050 | 1001 | 37.5 | 34x28 | 910 | 615 | 565 | 250 | 830 | F25 | F10 | SA10.2 - 120Nm |
| 1000 | 550 | 5 | 1230 | 1160 | 1112 | 40 | 37x28 | 970 | 675 | 620 | 250 | 690 | F25 | F10 | SA10.2 - 120Nm |

Units: mm / indicative dimensions & weights

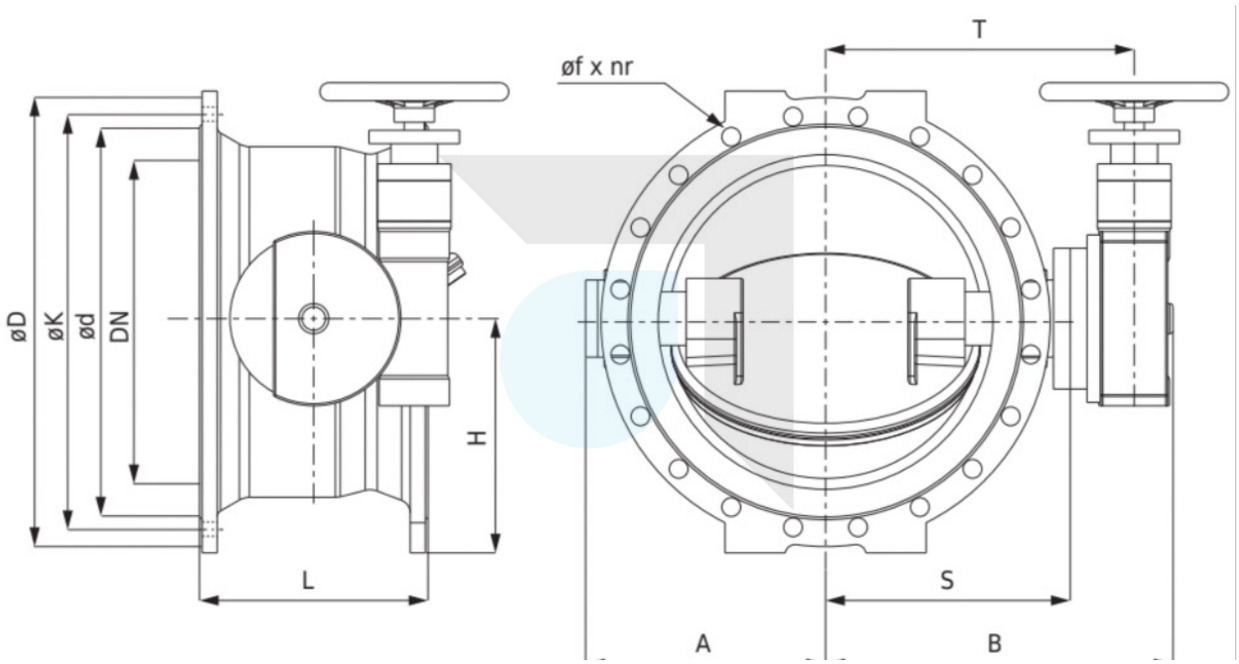
## Dimensions




| PN10 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Body Top Flange | Gear-box Top Flange | Auma Actuator Selection |
| 1100 | 590 | 5 | 1340 | 1270 | 1218 | 43 | 37x32 | 1049 | 760 | 720 | 250 | 770 | F25 | F10 | SA10.2 - 120Nm |
| 1200 | 630 | 5 | 1455 | 1380 | 1328 | 45 | 41x32 | 1170 | 805 | 735 | 250 | 815 | F30 | F10 | SA10.2 - 120Nm |
| 1300 | 670 | 5 | 1585 | 1490 | 1432 | 45 | 42x32 | 1235 | 850 | 800 | 250 | 880 | F30 | F14 | SA14.2 - 250Nm |
| 1400 | 710 | 5 | 1675 | 1590 | 1530 | 46 | 44x36 | 1235 | 920 | 845 | 250 | 915 | F30 | F14 | SA14.2 - 250Nm |
| 1500 | 750 | 5 | 1785 | 1700 | 1640 | 49 | 44x36 | 1307 | 975 | 915 | 320 | 995 | F30 | F14 | SA14.2 - 250Nm |
| 1600 | 790 | 5 | 1915 | 1820 | 1750 | 49 | 50x40 | 1420 | 1075 | 975 | 320 | 1055 | F40 | F14 | SA14.2 - 250Nm |
| 1800 | 870 | 5 | 2115 | 2020 | 1950 | 52 | 50x44 | 1535 | 1195 | 1065 | 320 | 1170 | F40 | F14 | SA16.2 - 500Nm |
| 2000 | 950 | 5 | 2325 | 2230 | 2150 | 55 | 50x48 | 1725 | 1290 | 1170 | 340 | 1270 | F40 | F14 | SA16.2 - 500Nm |
| 2200 | 1030 | 6 | 2555 | 2440 | 2370 | 58 | 56x52 | 1920 | 1560 | 1310 | 340 | 1425 | F40 | F14 | SA16.2 - 500Nm |
| 2400 | 1110 | 6 | 2760 | 2650 | 2555 | 65 | 56x52 | 1920 | 1481 | 1379 | 340 | 1600 | F40 | F14 | SA16.2 - 500Nm |

Units: mm / indicative dimensions & weights

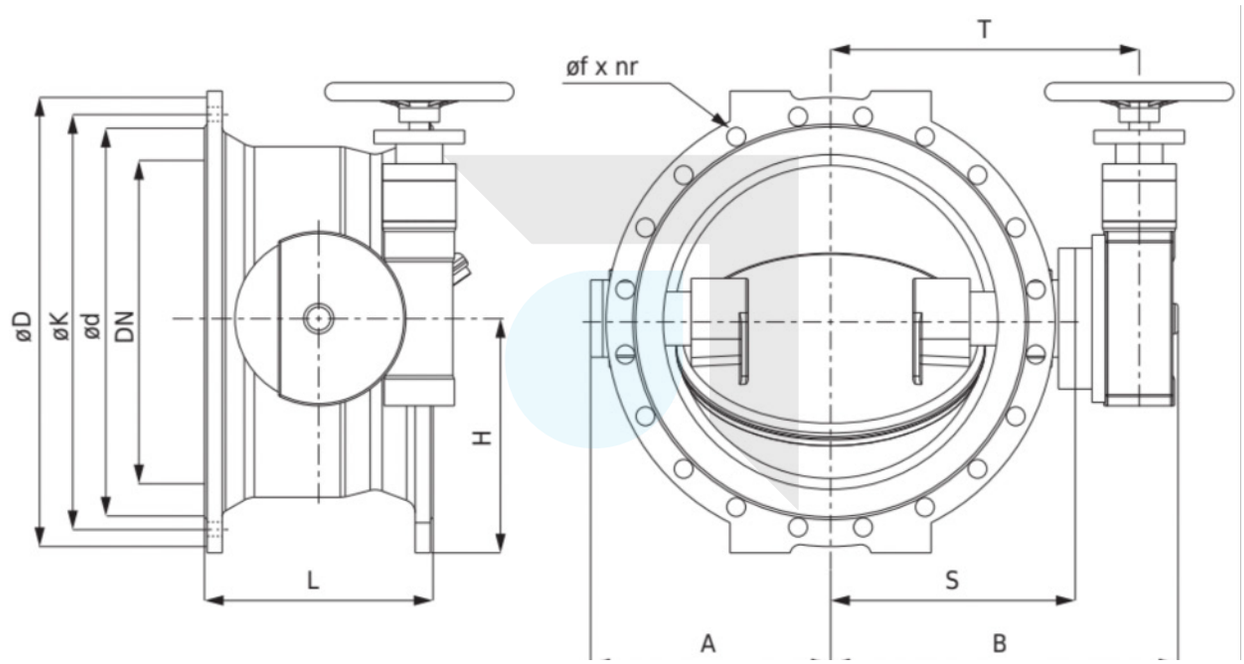
## Dimensions




| PN16 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Body Top Flange | Gear-box Top Flange | Auma Actuator Selection | Weight (kg) |
| 100 | 190 | 3 | 220 | 180 | 156 | 19 | 19x8 | 185 | 125 | 110 | 250 | 140 | F10 | F10 | SA07.6 - 60Nm | 35 |
| 125 | 200 | 3 | 250 | 210 | 184 | 19 | 19x8 | 230 | 130 | 130 | 250 | 140 | F10 | F10 | SA07.6 - 60Nm | 40 |
| 150 | 210 | 3 | 285 | 240 | 211 | 19 | 23x8 | 275 | 135 | 150 | 250 | 150 | F10 | F10 | SA07.6 - 60Nm | 45 |
| 200 | 230 | 3 | 340 | 295 | 266 | 20 | 23x8 | 320 | 170 | 175 | 250 | 198 | F10 | F10 | SA07.6 - 60Nm | 57 |
| 250 | 250 | 3 | 400 | 350 | 319 | 22 | 23x12 | 350 | 200 | 210 | 250 | 228 | F16 | F10 | SA07.6 - 60Nm | 70 |
| 300 | 270 | 4 | 455 | 400 | 370 | 24-5 | 23x12 | 400 | 235 | 235 | 250 | 275 | F16 | F10 | SA07.6 - 60Nm | 130 |
| 350 | 290 | 4 | 505 | 460 | 429 | 24-5 | 23x16 | 430 | 265 | 265 | 250 | 290 | F16 | F10 | SA07.6 - 60Nm | 165 |
| 400 | 310 | 4 | 565 | 515 | 480 | 24-5 | 28x16 | 465 | 295 | 295 | 250 | 325 | F16 | F10 | SA07.6 - 60Nm | 200 |
| 450 | 330 | 4 | 615 | 565 | 530 | 26-5 | 28x20 | 515 | 340 | 325 | 250 | 360 | F16 | F10 | SA07.6 - 60Nm | 225 |
| 500 | 350 | 4 | 670 | 620 | 582 | 26-5 | 28x20 | 550 | 360 | 365 | 250 | 395 | F16 | F10 | SA07.6 - 60Nm | 270 |
| 600 | 390 | 5 | 780 | 725 | 682 | 30 | 31x20 | 610 | 430 | 425 | 250 | 460 | F25 | F10 | SA10.2 - 120Nm | 430 |
| 700 | 430 | 5 | 895 | 840 | 794 | 32.5 | 31x24 | 640 | 475 | 455 | 250 | 490 | F25 | F10 | SA10.2 - 120Nm | 490 |
| 800 | 470 | 5 | 1015 | 950 | 901 | 35 | 34x24 | 865 | 550 | 515 | 250 | 585 | F25 | F10 | SA10.2 - 120Nm | 705 |
| 900 | 510 | 5 | 1115 | 1050 | 1001 | 37.5 | 34x28 | 910 | 615 | 565 | 250 | 830 | F25 | F10 | SA10.2 - 120Nm | 957 |
| 1000 | 550 | 5 | 1230 | 1160 | 1112 | 40 | 37x28 | 970 | 675 | 620 | 250 | 690 | F25 | F10 | SA10.2 - 120Nm | 1200 |

Units: mm / indicative dimensions & weights

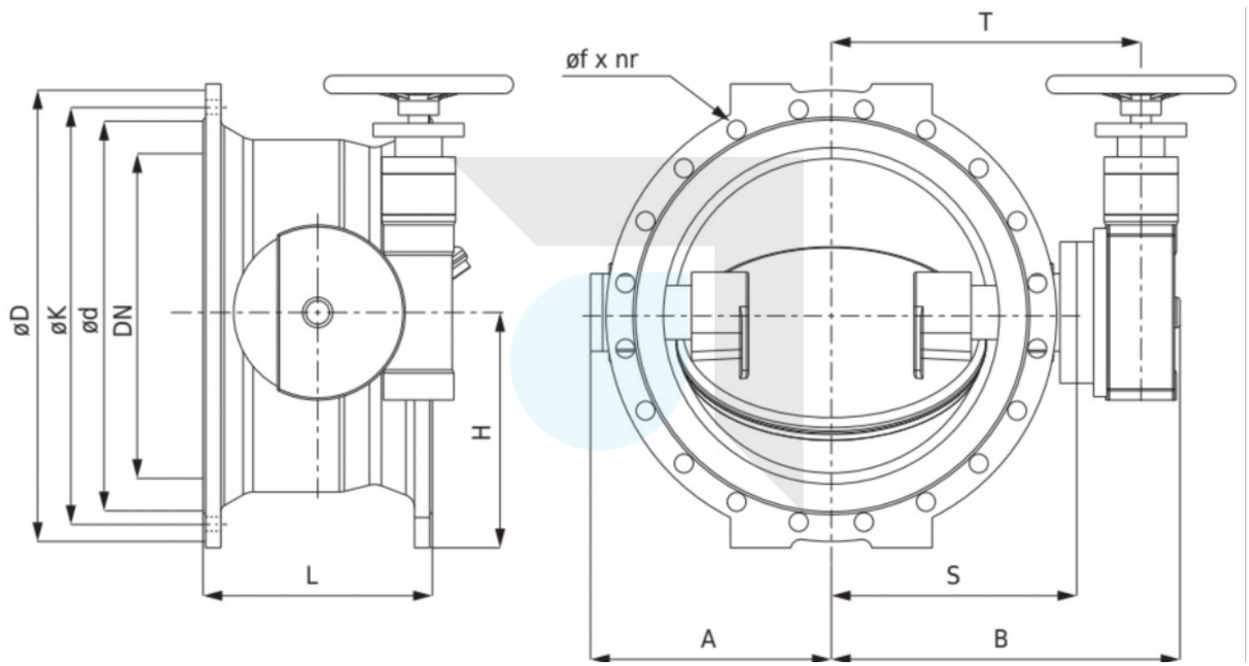
## Dimensions




| PN16 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Body Top Flange | Gear-box Top Flange | Auma Actuator Selection | Weight (kg) |
| 1100 | 590 | 5 | 1340 | 1270 | 1218 | 43 | 37x32 | 1049 | 760 | 720 | 250 | 770 | F25 | F10 | SA10.2 - 120Nm | 1410 |
| 1200 | 630 | 5 | 1455 | 1380 | 1328 | 45 | 41x32 | 1170 | 805 | 735 | 250 | 815 | F30 | F10 | SA10.2 - 120Nm | 1725 |
| 1300 | 670 | 5 | 1585 | 1490 | 1432 | 45 | 42x32 | 1235 | 850 | 800 | 250 | 880 | F30 | F14 | SA14.2 - 250Nm | 2200 |
| 1400 | 710 | 5 | 1675 | 1590 | 1530 | 46 | 44x36 | 1235 | 920 | 845 | 250 | 915 | F30 | F14 | SA14.2 - 250Nm | 2600 |
| 1500 | 750 | 5 | 1785 | 1700 | 1640 | 49 | 44x36 | 1307 | 975 | 915 | 320 | 995 | F30 | F14 | SA14.2 - 250Nm | 3813 |
| 1600 | 790 | 5 | 1915 | 1820 | 1750 | 49 | 50x40 | 1420 | 1075 | 975 | 320 | 1055 | F40 | F14 | SA14.2 - 250Nm | 4750 |
| 1800 | 870 | 5 | 2115 | 2020 | 1950 | 52 | 50x44 | 1535 | 1195 | 1065 | 320 | 1170 | F40 | F14 | SA16.2 - 500Nm | 6100 |
| 2000 | 950 | 5 | 2325 | 2230 | 2150 | 55 | 50x48 | 1725 | 1290 | 1170 | 340 | 1270 | F40 | F14 | SA16.2 - 500Nm | 7300 |
| 2200 | 1030 | 6 | 2555 | 2440 | 2370 | 58 | 56x52 | 1920 | 1560 | 1310 | 340 | 1425 | F40 | F14 | SA16.2 - 500Nm | 8200 |
| 2400 | 1110 | 6 | 2760 | 2650 | 2555 | 65 | 56x52 | 1920 | 1481 | 1379 | 340 | 1600 | F40 | F14 | SA16.2 - 500Nm | 9200 |

Units: mm / indicative dimensions & weights

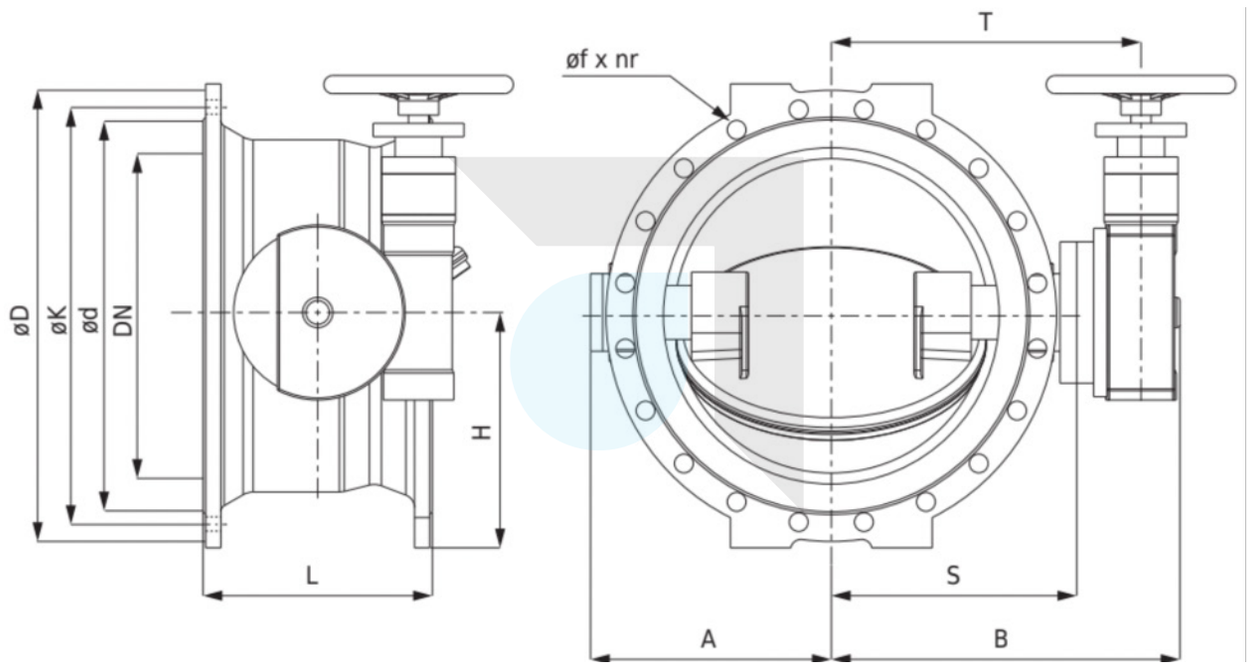
## Dimensions




| PN25 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Weight (kg) |
| 100 | 190 | 3 | 235 | 190 | 156 | 19 | 23x8 | 185 | 125 | 110 | 250 | 140 | 39 |
| 125 | 200 | 3 | 270 | 220 | 184 | 19 | 28x8 | 230 | 130 | 130 | 250 | 140 | 44 |
| 150 | 210 | 3 | 300 | 250 | 211 | 20 | 28x8 | 275 | 135 | 150 | 250 | 150 | 50 |
| 200 | 230 | 3 | 380 | 310 | 274 | 22 | 28x12 | 320 | 170 | 175 | 250 | 198 | 63 |
| 250 | 250 | 3 | 425 | 370 | 330 | 24.5 | 28x16 | 350 | 200 | 210 | 250 | 228 | 77 |
| 300 | 270 | 4 | 485 | 430 | 389 | 27.5 | 31x16 | 430 | 240 | 235 | 250 | 275 | 144 |
| 350 | 290 | 4 | 555 | 490 | 448 | 30 | 34x16 | 440 | 275 | 265 | 250 | 290 | 183 |
| 400 | 310 | 4 | 620 | 550 | 503 | 32 | 37x16 | 410 | 320 | 295 | 250 | 325 | 222 |
| 450 | 330 | 4 | 670 | 600 | 548 | 34.5 | 37x20 | 420 | 355 | 325 | 250 | 360 | 249 |
| 500 | 350 | 4 | 730 | 660 | 609 | 36.5 | 37x20 | 700 | 380 | 365 | 250 | 395 | 300 |
| 600 | 390 | 5 | 845 | 770 | 720 | 42 | 41x20 | 763 | 453 | 425 | 250 | 460 | 477 |
| 700 | 430 | 5 | 960 | 875 | 820 | 46.5 | 44x24 | 825 | 530 | 455 | 250 | 490 | 543 |
| 800 | 470 | 5 | 1085 | 990 | 928 | 51 | 50x24 | 895 | 583 | 515 | 250 | 585 | 782 |
| 900 | 510 | 5 | 1165 | 1090 | 1028 | 55.5 | 50x28 | 1022 | 660 | 565 | 250 | 830 | 1062 |
| 1000 | 550 | 5 | 1320 | 1210 | 1140 | 60 | 57x28 | 1097 | 715 | 620 | 250 | 690 | 1332 |

Units: mm / indicative dimensions & weights

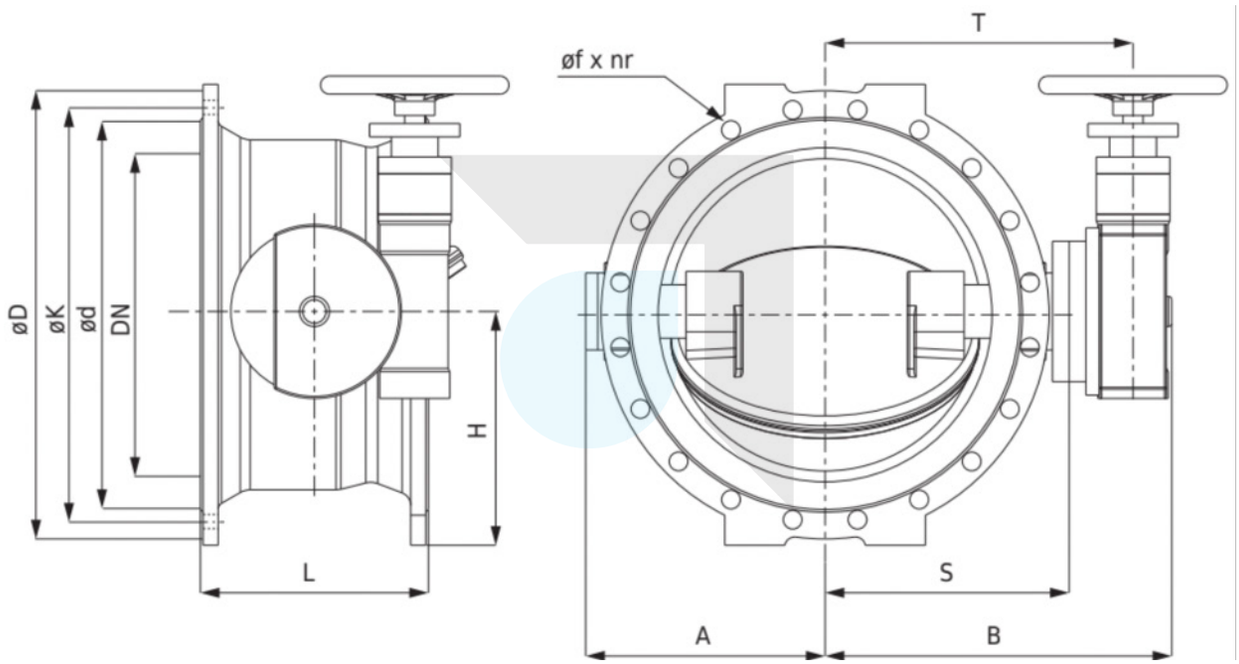
## Dimensions




| PN25 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Weight (kg) |
| 1100 | 590 | 5 | 1420 | 1310 | 1240 | 64.5 | 57x32 | 1175 | 770 | 720 | 250 | 770 | 1565 |
| 1200 | 630 | 5 | 1530 | 1420 | 1350 | 69 | 57x32 | 1225 | 880 | 735 | 250 | 815 | 1914 |
| 1300 | 670 | 5 | 1640 | 1530 | 1455 | 72 | 60x32 | 1268 | 935 | 800 | 250 | 880 | 2442 |
| 1400 | 710 | 5 | 1755 | 1640 | 1560 | 74 | 62x36 | 1485 | 1050 | 845 | 250 | 915 | 2886 |
| 1500 | 750 | 5 | 1865 | 1750 | 1678 | 77.5 | 62x36 | 1555 | 1100 | 915 | 320 | 995 | 4232 |
| 1600 | 790 | 5 | 1975 | 1860 | 1780 | 81 | 622x40 | 1617 | 1190 | 975 | 320 | 1055 | 5272 |
| 1800 | 870 | 5 | 2195 | 2070 | 1985 | 88 | 70x44 | 1713 | 1285 | 1065 | 320 | 1170 | 6771 |
| 2000 | 950 | 5 | 2425 | 2300 | 2210 | 95 | 70x48 | 2100 | 1400 | 1170 | 340 | 1270 | 8103 |

Units: mm / indicative dimensions & weights

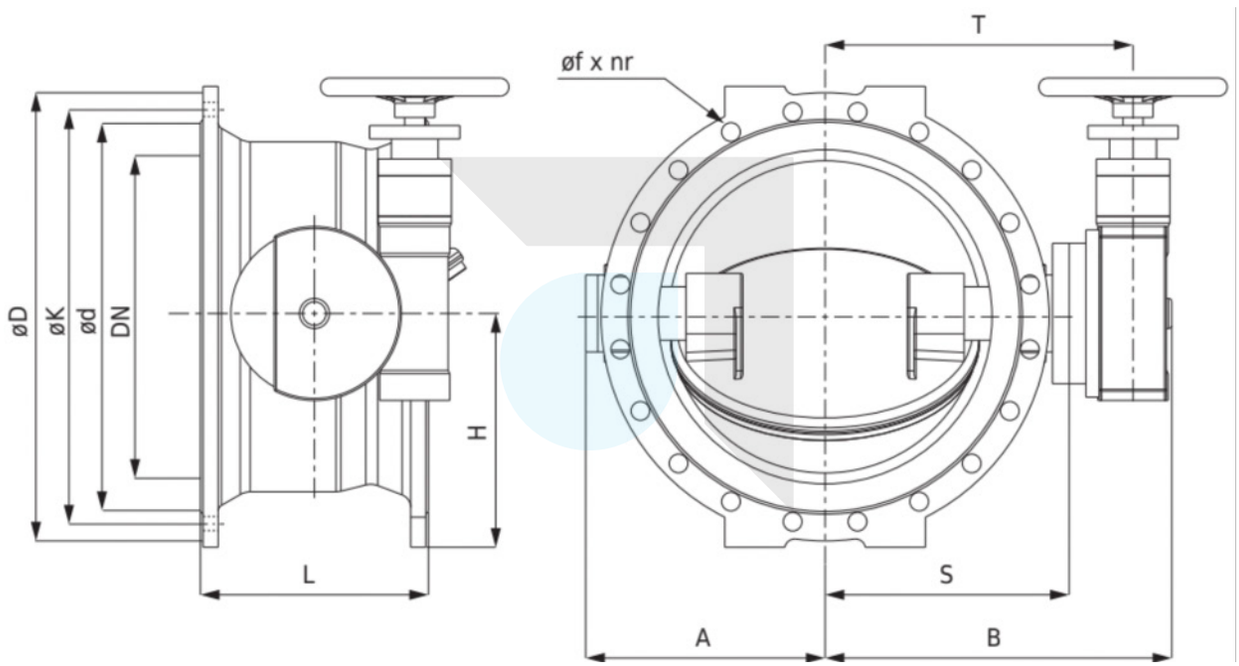
## Dimensions




| PN40 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S | Weight (kg) |
| 100 | 190 | 3 | 235 | 190 | 156 | 19 | 23x8 | 185 | 125 | 110 | 250 | 140 | 43 |
| 125 | 200 | 3 | 270 | 220 | 184 | 23.5 | 28x8 | 230 | 130 | 130 | 250 | 140 | 49 |
| 150 | 210 | 3 | 300 | 250 | 211 | 26 | 28x8 | 275 | 135 | 150 | 250 | 150 | 56 |
| 200 | 230 | 3 | 375 | 320 | 284 | 30 | 31x12 | 320 | 170 | 175 | 250 | 198 | 70 |
| 250 | 250 | 3 | 450 | 385 | 345 | 34.5 | 34x12 | 350 | 200 | 210 | 250 | 228 | 85 |
| 300 | 270 | 4 | 515 | 450 | 409 | 39.5 | 34x16 | 430 | 240 | 235 | 250 | 275 | 160 |
| 350 | 290 | 4 | 580 | 510 | 465 | 44 | 37x16 | 440 | 275 | 265 | 250 | 290 | 203 |
| 400 | 310 | 4 | 660 | 585 | 535 | 48 | 41x16 | 410 | 320 | 295 | 250 | 325 | 246 |
| 450 | 330 | 4 | 685 | 610 | 560 | 49 | 41x20 | 420 | 355 | 325 | 250 | 360 | 276 |
| 500 | 350 | 4 | 755 | 670 | 615 | 52 | 44x20 | 700 | 380 | 365 | 250 | 395 | 333 |
| 600 | 390 | 5 | 890 | 795 | 735 | 58 | 50x20 | 763 | 453 | 425 | 250 | 460 | 529 |
| 700 | 430 | 5 | 995 | 900 | 840 | 64 | 50x24 | 825 | 530 | 455 | 250 | 490 | 603 |
| 800 | 470 | 5 | 1140 | 1030 | 960 | 72 | 57x24 | 895 | 583 | 515 | 250 | 585 | 868 |
| 900 | 510 | 5 | 1250 | 1140 | 1070 | 80 | 57x28 | 1022 | 660 | 565 | 250 | 830 | 1179 |
| 1000 | 550 | 5 | 1360 | 1250 | 1180 | 95 | 57x28 | 1097 | 715 | 620 | 250 | 690 | 1478 |

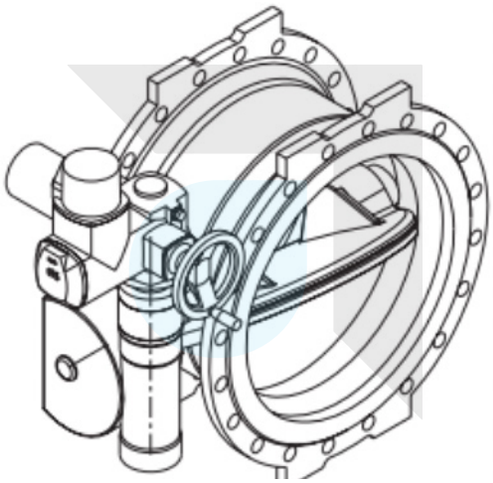
Units: mm / indicative dimensions & weights

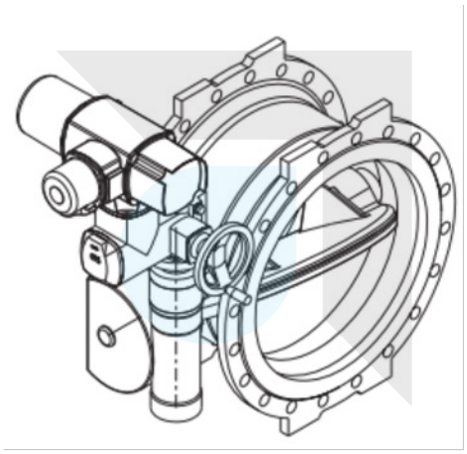
## Dimensions

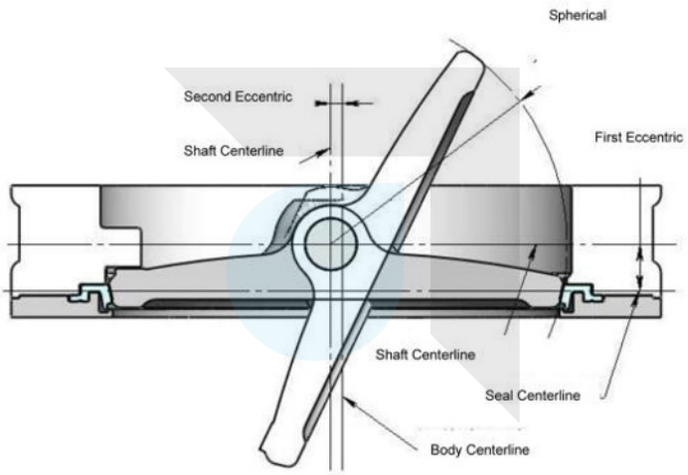



| PN40 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DN | L | f | ØD | ØK | Ød | b | Ølxn | B | A | H | d2 | S1 | Weight (kg) |
| 1100 | 590 | 5 | 1470 | 1180 | 1110 | 95 | 62x32 | 1175 | 770 | 720 | 250 | 770 | 1737 |
| 1200 | 630 | 5 | 1575 | 1460 | 1380 | 95 | 62x32 | 1225 | 880 | 735 | 250 | 815 | 2124 |
| 1300 | 670 | 5 | 1685 | 1570 | 1490 | 100 | 62x36 | 1268 | 935 | 800 | 250 | 880 | 2710 |
| 1400 | 710 | 5 | 1795 | 1680 | 1600 | 105 | 62x36 | 1485 | 1050 | 845 | 250 | 915 | 3200 |
| 1500 | 750 | 5 | 1910 | 1790 | 1711 | 110 | 70x40 | 1555 | 1100 | 915 | 320 | 995 | 4700 |
| 1600 | 790 | 5 | 2025 | 1900 | 1815 | 120 | 70x40 | 1617 | 1190 | 975 | 320 | 1055 | 5850 |
| 1800 | 870 | 5 | 2240 | 2110 | 2010 | 165 | 70x48 | 1713 | 1285 | 1065 | 320 | 1170 | 7515 |

Units: mm / indicative dimensions & weights










## Advantages to use double eccentric butterfly valves:

- The sealing ring is completely unstressed in the open position.
- There is a very low force required to open and close the valves.
- When opening or closing, the sealing ring does not touch the seating area.
- Sealing ring has a long life expectancy
- It is easy to replace the sealing ring at the site without the need for special tools
- As opposed to centric butterfly valves, the seat of the drop-tight valve has a 360° uninterrupted sealing area.

## Classification of Protection IP65/68

Due to the IP65/68 protection class of the butterfly valve and gearbox, the standard butterfly valve can be installed buried or in a chamber.
**Body** There is minimal resistance to flow due to the streamline design and smooth finish of the body.

**Nut** An upper and lower travelling nut is attached to the threaded end of the worm shaft, which is threaded at the bottom. A nut is also moved towards an end stop as the gear (valve) is opened or closed, preventing the disc from overtraveling.

**Disc** Low-profile and streamline disc with closed hubs that ensure higher Kv values. It is designed with a double offset disc to reduce seal wear and torque.

**Sealing system** A resilient sealing ring with an endless T-profile is used to seal the seat face of the disc, which is held in place on its periphery by a retaining ring. Sealing rings are pressed against conically shaped seat faces of the valve is in closed position and provide safe sealing in either direction. As a result of the double eccentric disc design, the sealing ring is completely unstressed when in the open position.

**Body seat** Integral body seats made of stainless steel weld filled and finished are corrosion and erosion resistant. This special seating allows the valve to be manufactured drop-tight.



**Retaining Ring** It is prevented from rolling out by the one-piece retaining ring. It is possible to replace the sealing ring at site without dismantling the valve disc or requiring any special tools.

**Shaft connection** A key is used to ensure a positive connection between the disc and shaft.

**Top flange** In order to allow all types of actuator-operator connections to be made, all butterfly valves are equipped with ISO top flanges.

**Lifting holes and feet** It is easy to install thanks to the integrated lifting holes, and the feet provide strong ground support.

**Worm gear operators** The butterfly valves are designed to be operated by one person easily

**Shafts** Flow is minimized by the design of a stub shaft.

**Unique tracking number** To facilitate easy identification and traceability, every valve is equipped with a cast tracking number.

**Handwheel** A handwheel is provided with every valve in the standard version. The valve is designed to be operated by one person when combined with a gearbox. Other accessories are available upon request, such as electric actuators and extension spindles.

**Shaft sealing** A multi-o-ring shaft sealing system ensures maintenance-free sealing for the entire life of the shaft.

**Bearing system** Plain bearings with self-lubrication reduce shaft friction and operating torque. As a result, these bearings prevent the shaft from moving axially and keep it central.

## Lifecycle of Gearbox

The level of performance and functionality at the time of shipment can be maintained until 2500 cycles of opening/closing. However, this designed lifetime could become shortened depending on temperature conditions and type of fluid (corrosiveness, viscosity, solid matter and deposit).
Inspection interval is one year or 2500 cycles of opening/closing, whichever comes first. Check for external leakage, loose bolts, valve seat leakage and abnormal operation. If any abnormality is found, detach the valve from the piping and check for corrosion of the valve body and wear of the seat ring. If necessary, replace consumables such as seat ring and packing. Retighten gland packing, flange bolts and bottom lid bolts if needed.

# Operating Manual

These instructions are intended to assist users of DENZ Series B-B10 Double Eccentric Butterfly Valves, in fitting, operating and servicing valves.

## Intended Use



As soon as they are installed on or between the flanges of a piping system, double-eccentric DENZ B10 Butterfly Valves, are intended solely to shut off fluids within the safe pressure and temperature limits, allowing and regulating flow. These butterfly valves are not recommended for fluids with more than a minor concentration of abrasive solids. Valve faces must be sealed and the valves must be installed on or between flanges according to EN 1092-1.

The installation of valves with safe pressure/temperature ranges (ratings) that do not satisfy the operating purpose should be avoided. The datasheet specifies the permissible range. If this directive is ignored, lives may be at risk and the piping system may also be damaged.

# Instructions for Safety

## General Safety Instructions

Valves are subject to the same safety regulations as the piping system in which they are installed and the control system to which they are attached. The following instructions contain only those safety references that should also be noted for valves.
Instructions associated with actuator sub-assemblies contain additional safety instructions.
Safety instructions for the operator.

## General Safety Instructions

It is not the responsibility of the manufacturer and therefore, when using the valve, it is to be ensured that:

- It is only used for the purpose mentioned in the description of the valve
- An actuator unit subsequently installed on the valve is properly adapted to that valve and correctly adjusted in both limit positions of the valve, particularly in the closing position
- The piping system has been correctly assembled and is regularly checked. The wall thickness of the valve body is to be dimensioned to the extent that the usual piping forces and torques in these kinds of professionally assembled pipes are allowed for
- The actuator for the control system has been appropriately designed
- The valve is correctly installed in the piping system
- The actuating time of the valve/pneumatic actuator unit is adapted to the requirements of the piping system
- In this piping system the usual flow rates are not exceeded in continuous operations and that abnormal operating conditions such as oscillations, water shocks, temperature shocks, cavitation, wet steam with large concentrations of water and large concentrations of solids in the fluid -particularly abrasive ones – are clarified with the manufacturer
- valves operating at temperatures of >260°C or <–29°C, together with the piping connections, are protected against contact
- Where piping is subject to pressure, only qualified personnel staff should operate and service the valve.



### Specific Types of Risks

A gland seals off the valve stem. The pressure in the pipe must be completely reduced before the nuts at the packing gland are slackened or unscrewed – this prevents any fluid emerging from the gland.

Before unscrewing the screw plug or the cap at the body or removing the valve from the pipe, the pressure in the pipe on both sides of the valve must be lowered to stop the fluid leaking uncontrollably.

### For Valves to be Used as End Valves:

Under normal operations and particularly for gaseous, hot and/or hazardous fluids, a blank flange must be mounted at the exposed connection end. Otherwise the valve must be securely locked in the “CLOSED” position – in this case, the safe operating pressure (see nameplate) must be reduced to 50% for safety reasons.

A valve acting as an end of line valve and subject to pressure must always be opened with extreme care to prevent the spraying fluid from causing damage. Care is needed when closing an end of line valve: Note that there is a risk of operator injury caused by crushing between the valve disc and body

Removing a valve from a pipe may involve fluid seeping from the pipe or valve. Any pipe transporting hazardous fluids or those injurious to health must be completely drained before the valve is removed. Caution is required in case of any residual line media which continue to flow from pockets.

## Transport and Storage

**Valves Must be Handled, Transported and Stored With All Due Care:**

- The valve must be transported and stored in its protective packing up to fitting. All lifting accessories (ropes, belts) must be slung on the body of the butterfly valve – not on the operator.
- Before fitting, the valve must be stored indoors and protected from damaging effects such
- as dirt or moisture.
- Valve flange faces must be protected at all times to avoid any unnecessary damage. .
- Do not stack the valves!

**Valves Delivered Without Actuators:**
The valve disc is not secured against adjustment. Care must be taken to ensure that, during transportation, outside influences (e.g. jolting) do not cause it to open from the closed position.

**Fitting in the Pipe**
The instructions for connecting pipes and similar pipe elements also apply to fitting valves in a pipe. The following instructions also apply to valves.

**The Actuator is Set for The Operating Data Stated in the Order.**
The position of the “OPEN” and “CLOSED” end stops must not be changed without the manufacturer’s consent.

**Closing/Opening Times for Pneumatic/Hydraulic Piston Actuators:**
The control medium supply is to be adjusted to the valve to the extent that – given that no other specification is to be observed – the t closing time of the butterfly valve does not exceeded the following reference value:
t [sec] = DN [mm] / 50.

**Do Not Pressurise the Line Without an Actuator Being Fitted to The Line.**
Retrofitting an actuator unit calls for torque, rotational direction, actuating angle and the position of the “OPEN” and “CLOSED “ final stops to be adjusted to the valve.
Ignoring this directive could put lives at risk and also cause damage in the piping system.

**Only for Butterfly Valves With Electrical Actuators:**
It must be ensured that the travel-dependent limit switch signal shuts down the actuator in both the Open and Closed positions. Given that the torque switch signal is used for shutdown, then it is to be additionally used for notice of malfunction.

**Preparation for Fitting**
Ensure that only butterfly valves where the pressure class, coupling type and dimensions correspond to operative conditions are fitted.
Check valve for any transportation damage. Any damaged valves must not be fitted.
The mating flange of the pipe must be aligned and co-planar.
Before fitting, both the valve and the attaching pipe must be cleaned of contaminants, particularly solid foreign matter.

## Installation

- The direction of flow is irrelevant when installing DENZ B10 butterfly valves. But to take advantage of the optimum function of the butterfly valve:
- It is recommended that the valve be fitted so that an arrow direction marked on the valve is consistent with the direction which the pressure exerts on a closed disc. There is nothing to stop this direction being counter to the direction of flow in the case of an opened butterfly valve.
- Before installing valves, the pipeline must be cleaned from dirt and welding residues, otherwise seat may be damaged.
- Also the pipeline must be free from tension and electric current.
- When handling valves, be careful to avoid contact with or impact by other equipment, vault walls or trench walls.
- Check carefully to see if valve seat/disc surface as well as flange are all clean.
- Tighten again, if any, all bolts loosened during transport and/or handling.
- Open and close valves to check for proper operation.
- If possible, install valves in the direction of arrow mark on it for easy access and maintenance.
- Do not use valve as a substitute for jack when putting pipes alignment.
- The span of pipeline having connection between valve and pipe should be free from such excessive loading as may cause serious bending.
- Do not weld the piping around the valve area under the condition that the valve is installed.



## Installation on an Existing Pipeline

- On fitting the valve into an already mounted pipe, the distance between the pipe flanges must be sufficient to avoid damage being incurred to any of the flange seal faces. This distance must be not greater than is necessary to avoid any additional stress arising in the pipe when the flange connection is tightened.
- Verify the distance between two flanges to be equal to face-to-face valve dimension.
- In order to facilitate installation of the valve, allow with adequate tools a sufficient room in between flanges.
- Insert at least two flange-bolts through the two bottom pipe flange holes to rest valve on during installation.
- Close valve disc partially so that disc edge is at least 10mm within the body.
- Insert valve in between flanges. Flange gaskets should be positioned and aligned with valve bore.
- Valve will be held by the two flange-bolts previously fitted in the lower part of flanges.
- Insert the flange-bolt through centering lugs/tapped holes of valve.
- Insert the remaining flange-bolts aligning the valve with the flanges and tightening bolts manually.
- Maintain the valve aligned, remove flange spreaders gradually and tighten bolts partially.
- Adjust open and close operation of valve to be easy and smooth.
- Open the valve complete and close tight the bolts to adequate torque.
- On completion of the fitting, a functional test with the control system signals must be carried out: the valve is to close and open in accordance with the control commands. It is imperative that any identifiable malfunction be corrected before commissioning.

## Installation In New Pipeline

- Shut valve disc partially until disc profile is at least 10mm within the body.
- Align the two flanges with the valve body.
- Flange gaskets should be positioned and aligned with valve bore.
- Span the body with some flange-bolts and tighten the bolts partially. Finish tightening by uniform cross bolting.
- Use the flange-valve-flange unit for pipe centering.
- Install the valve following the installation instruction on existing pipeline.