

Butterfly Valves

Type VA5001.S

Simple construction with the variability of different rubber materials and elastomers.



TECHNICAL PARAMETERS

| | | | |
|--------------------|--|----------------------|---|
| Body Design | <ul style="list-style-type: none"> • WAFER - installed between flanges • LUG - installed on a flange | Valve Shaft Material | ductile iron carbon steel stainless steel bronze, aluminum |
| Nominal Dimensions | DN 40 (1 1/2") - DN 1000 (40") | Valve Cuff | Aluminum ring reinforcement |
| Working Pressure | 2,5 bar / 6 bar / 10 bar / 16 bar ANSI150 | Temperature rating | -20°C to +160°C |
| Body Material | ductile iron carbon steel stainless steel bronze aluminum | Valve Cuff Material | EPDM, EPDM HT, NBR, Silicone Q, VITON, Neoprene, PTFE, Hypalon |

USE

Butterfly valves **VA5001.S** are used in automatic systems and remote-control applications for liquid, steam or gas control. Due to its excellent tightness, the valves can be used as stop valves or as control valves with an angle of rotation between 25...75°. The great variety of design and material executions allows using the valves in many technical applications such as chemical industry, petrochemistry, food industry, energy sector, metallurgy, paper industry, etc.

FEATURES

- Tightness of the seal up to 2,0 MPa of a pressure drop
- Valve cuff is reinforced by an metal ring
- Wide variety of material executions of the cuff allows to select the optimal solution for all types of medium
- Wide range of flow coefficients
- Variety of actuators: adjustable hand lever, handwheel with gearbox, pneumatic, electric

TABLE 1

| Symbol | Working temp. [°C] | Recommended medium | Forbidden medium |
|------------------------|--------------------|--|--|
| EFDM | -35 ... +110 | Water, steam, sea water, saline solution, ketones, bases, dilute acids | Hydrocarbons, oils, fats |
| EFDM-HT | -35 ... +150 | | |
| NBR (Buna N) | -18 ... +90 | Sea water, hydrocarbons, natural gas, oils, air | Dilute acids, benzene, solvents |
| NR (natural rubber) | -35 ... +65 | Abrasive, non-aggressive products | Steam, solvents, acids, hydrocarbons |
| VMQ (silicone) | -35 ... +150 | Food products | Acids, steam, hydrocarbons |
| FKM (Viton) | -10 ... +160 | Acids, oils, hydrocarbons, gasoline | Steam, Freon, bases, ketones, solvents |
| CR (Neoprene) | -18 ... +90 | Oils, food products | Solvents, acids, ketones |
| CSN (Hypalon) | 18 ... +100 | Acids, organic acids, oils, fats | Nitric acid, steam, ketones |

TABLE 2 - FLOW COEFFICIENT Kvs

Kvs [M³/H]

| DN | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | |
|----------------|-----|----|-----|-----|-----|-----|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Rotation angle | 25° | 3 | 6 | 10 | 15 | 28 | 60 | 98 | 170 | 260 | 380 | 500 | 650 | 900 | 1125 | 1500 | 2260 | 2940 | 3450 | 3910 |
| | 30° | 5 | 9 | 15 | 22 | 42 | 88 | 145 | 250 | 390 | 550 | 750 | 900 | 1250 | 1600 | 2250 | 3200 | 3850 | 4800 | 5580 |
| | 40° | 11 | 17 | 26 | 38 | 73 | 155 | 250 | 420 | 670 | 1000 | 1300 | 1700 | 2300 | 2800 | 3800 | 4550 | 5350 | 6850 | 9300 |
| | 50° | 18 | 27 | 42 | 63 | 120 | 250 | 410 | 700 | 1150 | 1600 | 2200 | 2650 | 3700 | 4600 | 6100 | 8150 | 9700 | 12300 | 16800 |
| | 60° | 26 | 53 | 83 | 125 | 235 | 490 | 800 | 1300 | 2150 | 3100 | 4100 | 5100 | 7100 | 8700 | 11750 | 13050 | 19300 | 24550 | 33500 |
| | 70° | 45 | 70 | 105 | 160 | 305 | 625 | 1030 | 1750 | 2750 | 4050 | 5100 | 6500 | 9200 | 11500 | 16500 | 26050 | 38500 | 49050 | 66900 |
| | 75° | 55 | 90 | 130 | 205 | 400 | 830 | 1350 | 2200 | 3600 | 5000 | 6700 | 9000 | 12000 | 15000 | 20500 | 29600 | 43700 | 55750 | 76100 |
| | 80° | 70 | 105 | 160 | 240 | 475 | 1000 | 1650 | 2750 | 4300 | 6050 | 8100 | 10800 | 14000 | 17500 | 24000 | 34800 | 51400 | 65600 | 89500 |
| | 90° | 80 | 130 | 200 | 300 | 550 | 1125 | 1950 | 3250 | 5000 | 7500 | 10000 | 12500 | 17500 | 22000 | 28000 | 46400 | 68500 | 87500 | 119000 |

FIG. 1 - DEPENDENCE OF THE FLOW COEFFICIENT $k_v=K_v/K_{vs}$ ON THE ANGLE OF ROTATION OF THE BUTTERFLY VALVE

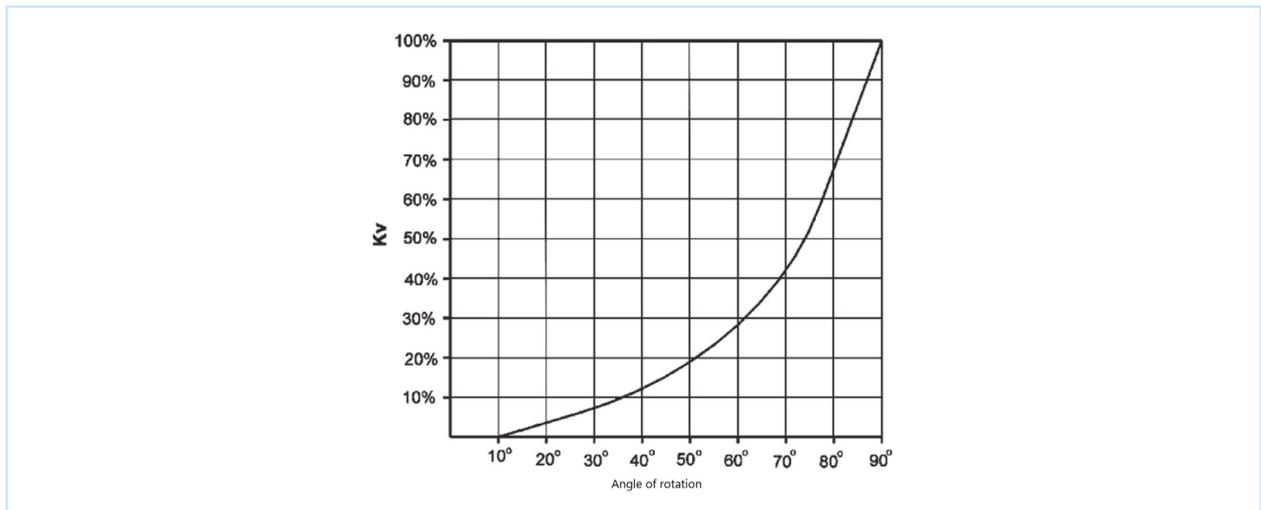


FIG. 2 - EXECUTION OF THE BUTTERFLY VALVE AND ITS CONNECTION TO A PIPELINE

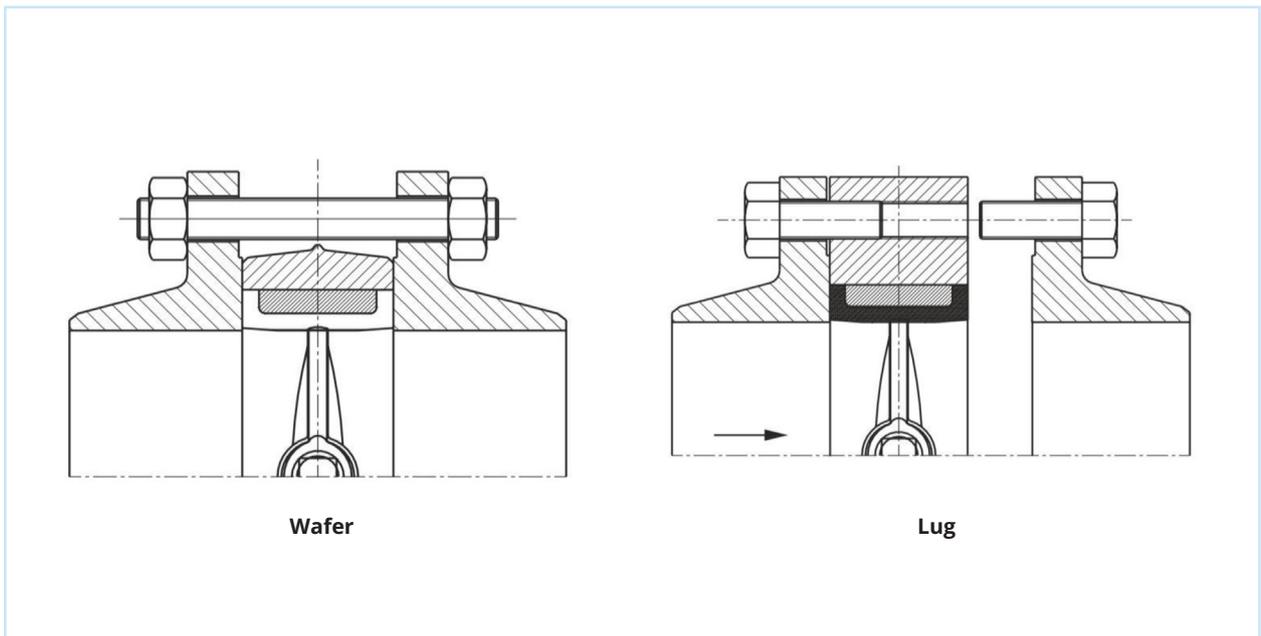


TABLE 3 - THE LIST OF COMPONENTS WITH MATERIALS DN 40-600

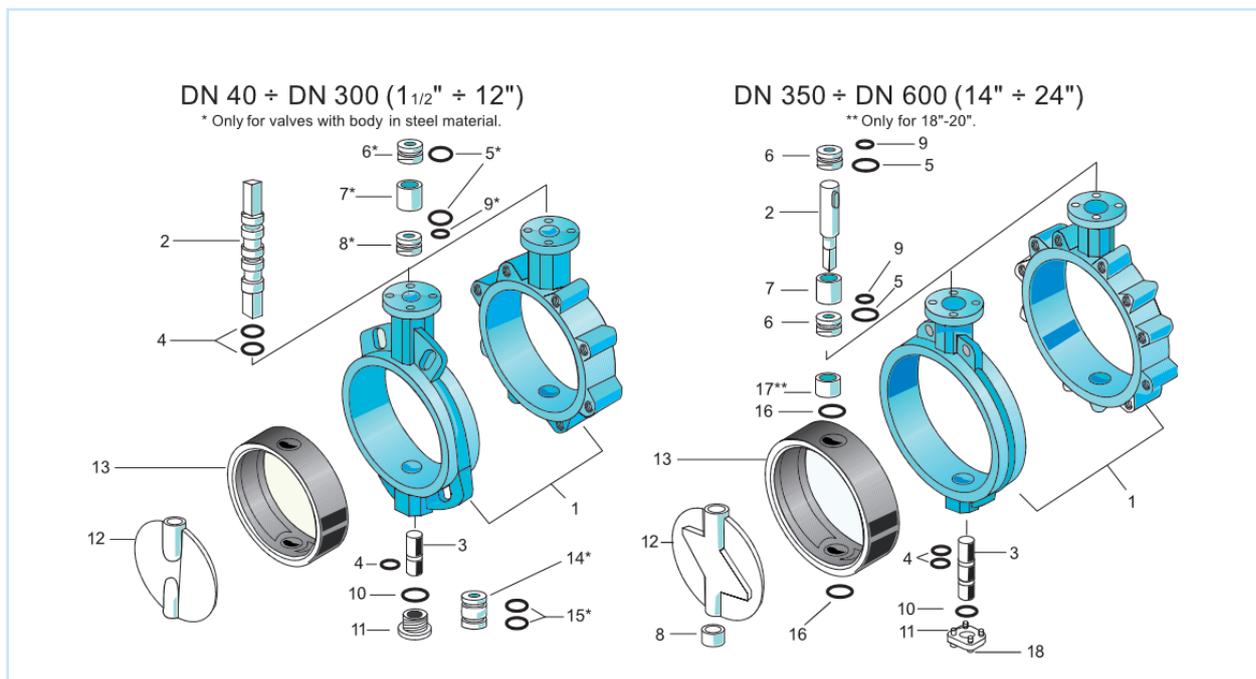
| Item | Description | Materials | Ref. Norm. |
|-------|-------------------------|---|---|
| 1 | Body | Ductile Iron Al/BR. G-CU Al 11 Fe4 Ni4 Cut-off Carb. Steel P355NH Carbon Steel Stainless Steel | EN GJS 400/15 o GGG40 ASTM B 148-GR.955 EN 10028-3 ASTM 216 WCB ASTM 351-CF8M / CF3M |
| 2+3 | Upper and lower stem | Al/BR CU Al 10 Ni5 Fe4 416 S.S. 316 S.S. / 316 L.S.S. 630 S.S. Duplex F51 Hastelloy C 276 Monel K 500 | DIN 1756 ASTM A 582 Type 416 ASTM A 479 Type 316 / 316L ASTM A 5642 Type 630 UNS S 31803 ASTM B 574-94 BS 3076 NA 18(1989) |
| 4+5 | O-Ring | Buna / Viton | - |
| 6 | Short bushing with 1 OR | Bronze | - |
| 7 | Spacer | Carbon Steel | - |
| 8 | Short bushing with 2 OR | Bronze | - |
| 9+10 | O-Ring | Buna / Viton | - |
| 11 | Plug | Carbon Steel / 304 S.S | - |
| 12 | Disc | Ductile Iron EN GJS 400/15 o GGG40 Al/BR. G-CU Al 11 Fe4 Ni4 Cut-off Carbon Steel Stainless Steel EPDM-BUNA N-Viton coated RILSAN-HALAR coated | ASTM A 536 GR.64-45-15 ASTM B 148-GR.955 ASTM A 216 WCB ASTM A 351-CF8M / CF3M ASTM A 351 GR. CK 3 M CUN ASTM A 351 GR. CD 4 M CU ASTM A 494 CW 2 M ASTM A 494 GR. CK M 35-1 |
| 13 | Seat | Buna N* - EPDM - EPDM H.T. Natural rubber - Neoprene Viton - Hypalon - Silicone PTFE | - ASTM D 2000 - ASTM D 1437-73 |
| 14 | Long bushing | Bronze | - |
| 15+16 | O-Ring | Buna / Viton | - |
| 17** | Bushing | Bronze | - |
| 18 | Screw | Carbon Steel 8.8 / S.S. A2 | - |

NOTE: Special materials, are available on request.

* Du Pont trademark

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|----------------------|
| Spare part suggested |
|----------------------|

OBR. 3 - ROZLOŽENÝ POHLED DN 40-600

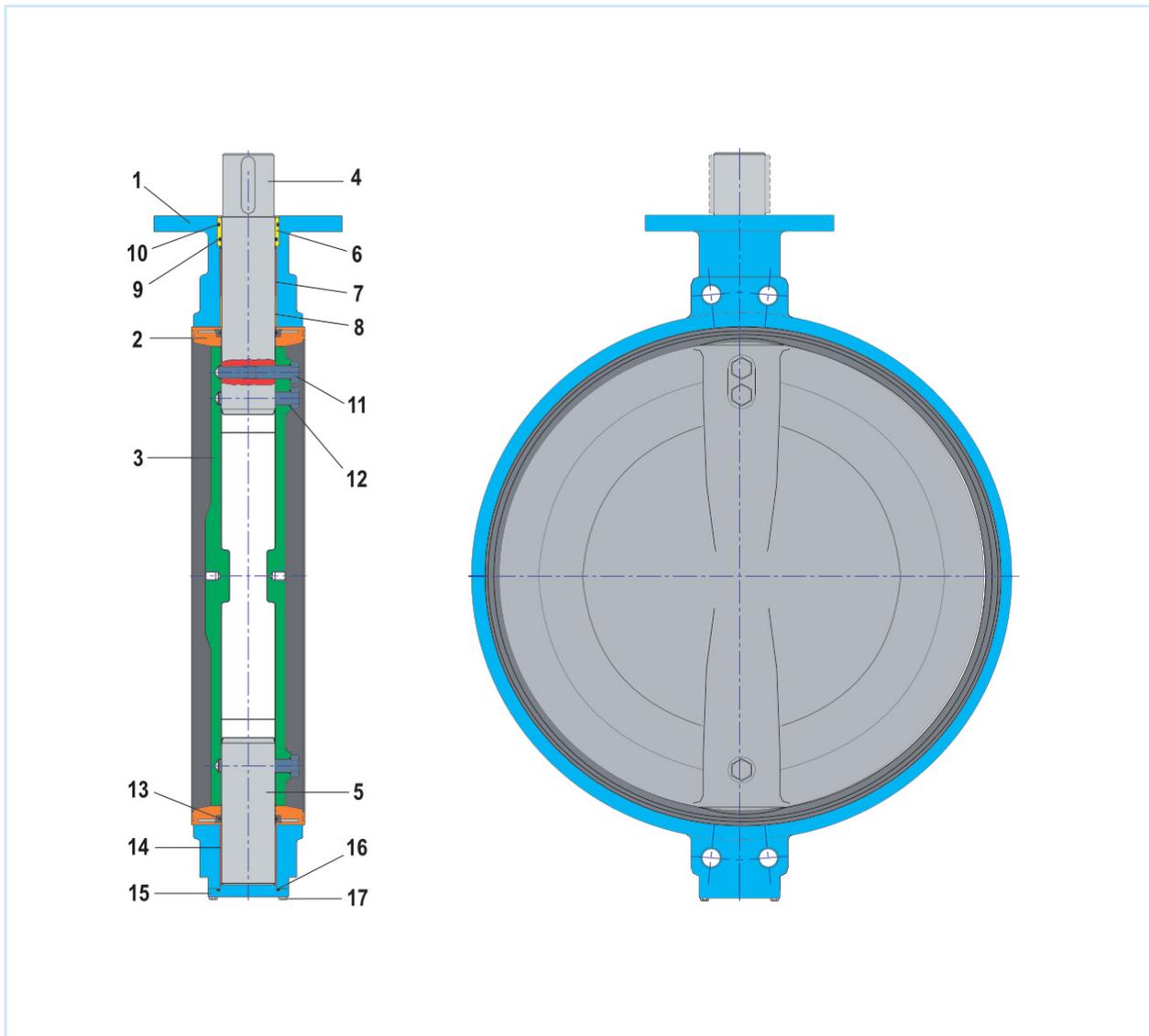


TABULKA 4 - SEZNAM SOUČÁSTÍ S UVEDENÍM MATERIÁLU DN 700-1000

| Item | Description | Standard materials | Quantity |
|------|---------------|---|----------|
| 1 | Body | Carbon Steel A216 WCB - Stainless Steel ASTM A351-CF8M - Ductile Iron ENGJS400-15 | 1 |
| 2* | Gasket | BUNA / VITON / EPDM | 1 |
| 3 | Disk | Carbon steel A216 WCB - Stainless Steel ASTM A351-CF8M - Ductile Iron ENGJS400-15 | 1 |
| 4 | Upper stem | S.S. AISI 416 - S.S. AISI 420 - S.S. AISI 316 | 1 |
| 5 | Lower stem | S.S. AISI 416 - S.S. AISI 420 - S.S. AISI 316 | 1 |
| 6 | Upper bushing | Bronze | 1 |
| 7 | Metal bushing | Carbon Steel | 1 |
| 8 | Metal bushing | Carbon Steel | 1 |
| 9* | O-Ring | BUNA / VITON | 1 |
| 10* | O-Ring | BUNA / VITON | 1 |
| 11* | Hexagon screw | Steel type class 8.8 or A2 S.S. | 3 |
| 12* | O-Ring | BUNA / VITON | 3 |
| 13* | O-Ring | BUNA / VITON | 3 |
| 14 | Metal bushing | Carbon Steel | 1 |
| 15 | Plug | Carbon Steel - 316 S.S. | 1 |
| 16* | O-Ring | BUNA / VITON | 1 |
| 17 | Hexagon screw | Steel type class 8.8 or A2 S.S | 4 |

Spare part suggested

FIG. 4 - CONSTRUCTIVE FEATURES DN 700-1000



TORQUE VALUES

TABLE 5 - OPERATING TORQUES (Nm) VS WORKING PRESSURE [bar]

| DN | mm | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 750 | 800 | 900 | 1000 |
|---------------------|-----|------|----|------|----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-------|--------|-------|------|
| | inc | 11/2 | 2 | 21/2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 | 28 | 30 | 32 | 36 | 40 |
| Δp 0 bar | 11 | 12 | 28 | 35 | 38 | 64 | 70 | 85 | 180 | 325 | 400 | 515 | 840 | 1150 | 2130 | / | / | / | / | / | / |
| Δp 3 bar | 12 | 13 | 29 | 42 | 45 | 78 | 80 | 110 | 190 | 400 | 460 | 680 | 925 | 1355 | 2300 | / | / | / | / | / | / |
| Δp 7,5 bar | 13 | 14 | 30 | 48 | 51 | 82 | 84 | 125 | 260 | 472 | 600 | 775 | 1100 | 1490 | 2685 | 2880 | 3430 | 4100 | 6240 | 8000 | |
| Δp 11,5 bar | 14 | 18 | 34 | 50 | 54 | 94 | 100 | 140 | 300 | 570 | 750 | 920 | 1320 | 1690 | 3200 | 4800 | 5720 | 6940 | 10400 | 14540 | |
| Δp 17,5 bar | 17 | 23 | 38 | 59 | 60 | 108 | 119 | 200 | 370 | 715 | 900 | 1114 | 1545 | 1815 | 5420 | 6300 | 7600 | 9100 | 13600 | 18980 | |
| Δp 21,5 bar | 18 | 25 | 46 | 67 | 69 | 138 | 145 | 275 | 450 | 820 | 1035 | 1340 | 1710 | 2210 | 5790 | 7680 | 9150 | 11110 | 16 000 | 23260 | |

NOTE:

The table above gives the recommended maximum torque values to be applied to the VA5001.S butterfly valves. They represent the sum of the amounts of the mechanical friction caused by opening and closing the valve in relation on the various pressure drops. These torques do not include a safety margin. The safety reserve must be chosen according to the type of flowing medium in the range of 20 - 50%.

OVERALL DIMENSIONS

FIG. 5 - DIMENSIONS DN 40-300

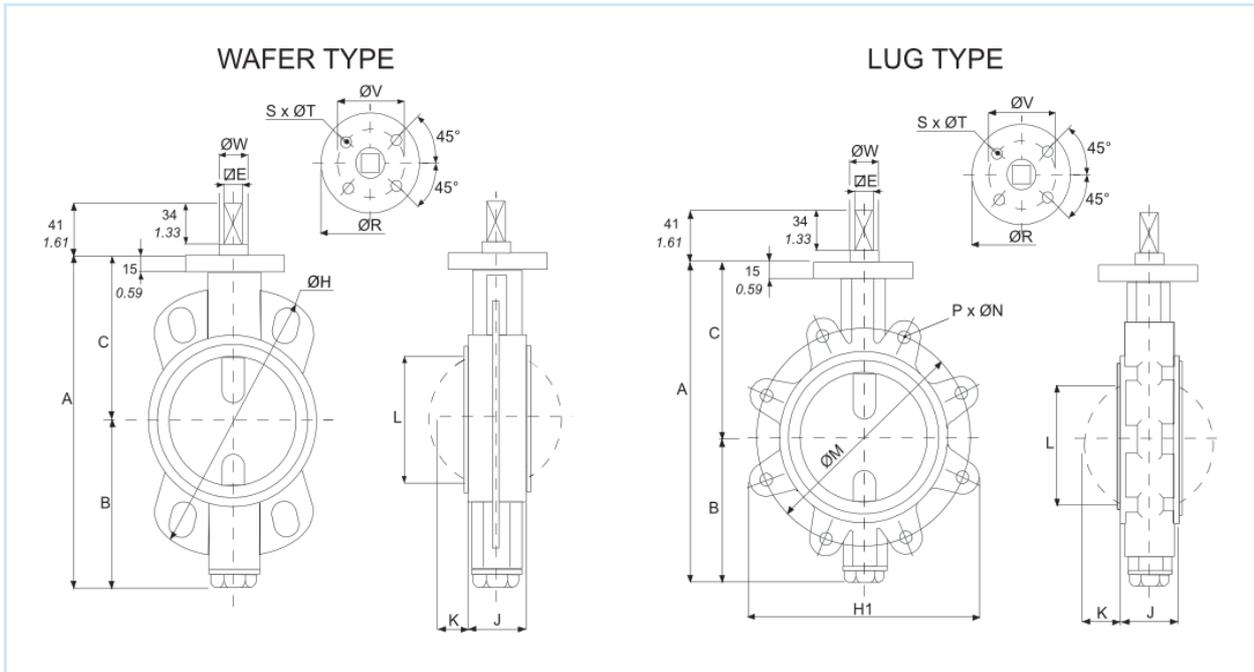


TABLE 6 - OVERVIEW OF DIMENSIONS [mm]

| DN | A | B | C | E | ØH | H1 | J** | K | L | ØM PN6 | ØM PN10 | ØM PN16 | ØM ANSI 150 lbs | ØN PN6 | ØN PN10 | ØN PN16 | ØN ANSI 150 lbs *** | P PN6 | P PN10 | P PN16 | P ANSI 150 lbs | ØR FLANGE | S N° HOLES | T Ø HOLES | ØV HOLES CIRCLE* | ØW |
|-----|-----|-----|-----|----|-----|-----|------|-------|-----|--------|---------|---------|-----------------|--------|---------|---------|---------------------|-------|--------|--------|----------------|-----------|------------|-----------|------------------|------|
| 40 | 188 | 90 | 98 | 12 | 145 | 111 | 34 | 6.6 | 31 | 100 | 110 | 110 | 98.5 | M12 | M16 | M16 | 1/2" | 4 | 4 | 4 | 4 | 90 | 4 | 8.5 | 70 | 16 |
| 50 | 205 | 96 | 109 | 12 | 160 | 120 | 43.5 | 7.2 | 36 | 110 | 125 | 125 | 120.5 | M12 | M16 | M16 | 5/8" | 4 | 4 | 4 | 4 | 90 | 4 | 8.5 | 70 | 16 |
| 65 | 230 | 108 | 122 | 12 | 180 | 138 | 46 | 12.9 | 53 | 130 | 145 | 145 | 139.5 | M12 | M16 | M16 | 5/8" | 4 | 4 | 4 | 4 | 90 | 4 | 8.5 | 70 | 16 |
| 80 | 250 | 118 | 132 | 12 | 198 | 150 | 46 | 19.3 | 69 | 150 | 160 | 160 | 152.5 | M16 | M16 | M16 | 5/8" | 4 | 8 | 8 | 4 | 90 | 4 | 8.5 | 70 | 16 |
| 100 | 285 | 132 | 153 | 12 | 230 | 213 | 52 | 27.15 | 90 | 170 | 180 | 180 | 190.5 | M16 | M16 | M16 | 5/8" | 4 | 8 | 8 | 8 | 90 | 4 | 8.5 | 70 | 16 |
| 125 | 327 | 150 | 177 | 16 | 256 | 243 | 56.5 | 36.4 | 115 | 200 | 210 | 210 | 216 | M16 | M16 | M16 | 3/4" | 8 | 8 | 8 | 8 | 90 | 4 | 8.5 | 70 | 19.5 |
| 150 | 359 | 165 | 194 | 16 | 286 | 267 | 56.5 | 48.6 | 142 | 225 | 240 | 240 | 241.5 | M16 | M20 | M20 | 3/4" | 8 | 8 | 8 | 8 | 90 | 4 | 8.5 | 70 | 19.5 |
| 200 | 419 | 194 | 225 | 16 | 348 | 320 | 60 | 69.8 | 199 | 280 | 295 | 295 | 298.5 | M16 | M20 | M20 | 3/4" | 8 | 8 | 12 | 8 | 90 | 4 | 8.5 | 70 | 19.5 |
| 250 | 495 | 220 | 275 | 18 | 414 | 402 | 68 | 90 | 238 | 335 | 350 | 355 | 362 | M16 | M20 | M24 | 7/8" | 12 | 12 | 12 | 12 | 125 | 4 | 11 | 102 | 24 |
| 300 | 559 | 262 | 297 | 22 | 490 | 473 | 78 | 111.1 | 289 | 395 | 400 | 410 | 432 | M20 | M20 | M24 | 7/8" | 12 | 12 | 12 | 12 | 125 | 4 | 11 | 102 | 29 |

NOTE:

** Complying with I.S. EN 558-1 Standards

*"L" is the measurement of the disc chord, which determines its full opening.

*** For flanges ANSI 150 lbs thread is according to ANSI B1.1 type UNC / 8-UN .

*** On request, for ANSI 150 lbs metric threading UNI EN 1092-1.

TABLE 7 - WEIGHTS (kg)

| DN | mm | 40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 |
|------------|-----|-------|-----|-------|-----|-----|-----|------|------|------|------|
| | inc | 1 1/2 | 2 | 2 1/2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
| Wafer Type | | 2.2 | 2.9 | 3.9 | 4.2 | 5 | 7.4 | 8.5 | 11.8 | 18.5 | 29.8 |
| Lug Type | | 2.6 | 3.5 | 4.9 | 5.4 | 7 | 10 | 11.1 | 17 | 27.4 | 40.4 |

OFIG. 6 - DIMENSIONS DN 350-1000

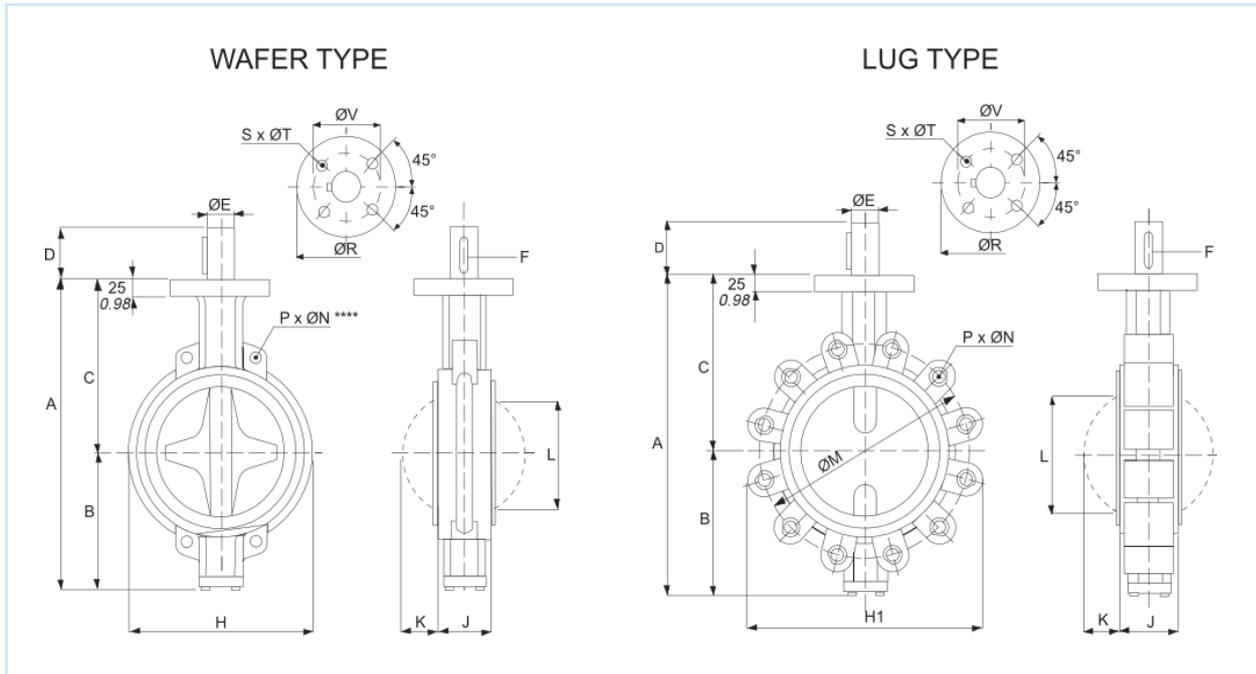


TABLE 8 - OVERVIEW OF DIMENSIONS [mm]

| DN | A | B | C | D | ØE | F | ØH | H1 | J** | K | L | ØM PN6 | ØM PN10 | ØM PN16 | ØM ANSI 150 lbs | ØN PN6 | ØN PN10 | ØN PN16 | ØN ANSI 150 lbs *** | P PN6 | P PN10 | P PN16 | P ANSI 150 lbs | ØR FLANGE | S N° HOLES | T Ø HOLES | ØV HOLES CIRCLE |
|------|------|-------|-------|-----|------|----------------------------|------|------|-----|-----|------|-----------|------------|------------|-----------------------|-----------|------------|------------------|------------------------------|----------|-----------|-----------|----------------------|--------------|------------------|-----------------|-----------------------|
| 350 | 632 | 281 | 351 | 60 | 44,5 | "14x 9x 45" | 436 | 516 | 78 | 126 | 324 | 445 | 460 | 470 | 476 | M20 | M20 | M24 | 1" | 12 | 16 | 16 | 12 | 175 | 4 | 17 | 140 |
| 400 | 681 | 305,5 | 375,5 | 60 | 44,5 | | 483 | 590 | 102 | 138 | 367 | 495 | 515 | 525 | 540 | M20 | M24 | M27 | 1" | 16 | 16 | 16 | 16 | 175 | 4 | 17 | 140 |
| 450 | 749 | 349 | 400 | 60 | 44,5 | | 540 | 644 | 114 | 157 | 417 | 550 | 565 | 585 | 578 | M20 | M24 | M27 | "1 1/8" 8-UN" | 16 | 20 | 20 | 16 | 175 | 4 | 17 | 140 |
| 500 | 798 | 373 | 425 | 60 | 44,5 | | 580 | 715 | 127 | 179 | 468 | 600 | 620 | 650 | 635 | M20 | M24 | M30 | "1 1/8" 8-UN" | 20 | 20 | 20 | 20 | 175 | 4 | 17 | 140 |
| 600 | 936 | 445 | 491 | 90 | 63 | "18x 11x 80" | 710 | 830 | 153 | 218 | 572 | 705 | 725 | 770 | 749,3 | M24 | M27 | M33 | "1 1/4" 8-UN" | 20 | 20 | 20 | 20 | 210 | 4 | 22 | 165 |
| 700 | 1120 | 540 | 580 | 90 | 75 | "n°2 22x 14x 80" | 792 | 910 | 165 | 261 | 666 | 810 | 840 | 840 | 863,6 | M24 | M27 | M33 | "1 1/4" 8-UN" | 24 | 24 | 24 | 28 | 300 | 8 | 18 | 254 |
| 750 | 1195 | 585 | 610 | 90 | 75 | | 860 | 970 | 190 | 279 | 719 | - | - | - | 914,4 | - | - | - | "1 1/4" 8-UN" | - | - | - | 28 | 300 | 8 | 17 | 254 |
| 800 | 1242 | 612 | 630 | 90 | 75 | | 925 | 1040 | 190 | 304 | 774 | 920 | 950 | 950 | 977,9 | M27 | M30 | M36 | "1 1/2" 8-UN" | 24 | 24 | 24 | 28 | 360 | 8 | 18 | 254 |
| 900 | 1350 | 660 | 690 | 120 | 95 | "n°2 25x 14x 110" | 1008 | 1150 | 203 | 339 | 858 | 1020 | 1050 | 1050 | 1085,9 | M27 | M30 | M36 | "1 1/2" 8-UN" | 24 | 28 | 28 | 32 | 360 | 8 | 21 | 298 |
| 1000 | 1500 | 740 | 760 | 120 | 95 | 1135 | 1260 | 216 | 383 | 957 | 1120 | 1160 | 1170 | 1200,2 | M27 | M33 | M39 | "1 1/2" 8-UN" | 28 | 28 | 28 | 36 | 415 | 8 | 21 | 298 | |

NOTE:

** Complying with I.S. EN 558-1 Standards.

"L" is the measurement of the disc chord, which determines its full opening.

*** For flanges ANSI 150 lbs thread is according to ANSI B1.1 type UNC / 8-UN.

*** On request, for ANSI 150 lbs metric threading UNI EN 1092-1.

**** For butterfly valves wafer type from DN700 to DN1000, the body has four holes threaded for each side.

TABLE 9 - WEIGHTS (kg)

| DN | mm | 350 | 400 | 450 | 500 | 600 | 700 | 750 | 800 | 900 | 1000 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | inc | 14 | 16 | 18 | 20 | 24 | 30 | 30 | 32 | 36 | 40 |
| Wafer Type | | 50 | 70 | 90 | 10 | 210 | 250 | 315 | 365 | 440 | 575 |
| Lug Type | | 60 | 90 | 110 | 150 | 270 | 350 | 415 | 465 | 530 | 672 |

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