

Technical information of flanges

PN 16

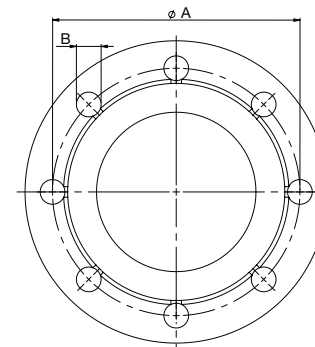
| DN | Bolt circle Ø (A) | Bolt hole Ø (B) | Bolt qty | Bolt size |
|------|----------------------|--------------------|----------|-----------|
| 10 | 60 | 14 | 4 | M12 |
| 15 | 65 | 14 | 4 | M12 |
| 20 | 75 | 14 | 4 | M12 |
| 25 | 85 | 14 | 4 | M12 |
| 32 | 100 | 18 | 4 | M16 |
| 40 | 110 | 18 | 4 | M16 |
| 50 | 125 | 18 | 4 | M16 |
| 65 | 145 | 18 | 8 | M16 |
| 80 | 160 | 18 | 8 | M16 |
| 100 | 180 | 18 | 8 | M16 |
| 125 | 210 | 18 | 8 | M16 |
| 150 | 240 | 22 | 8 | M20 |
| 200 | 295 | 22 | 12 | M20 |
| 250 | 355 | 26 | 12 | M24 |
| 300 | 410 | 26 | 12 | M24 |
| 350 | 470 | 26 | 16 | M24 |
| 400 | 525 | 30 | 16 | M27 |
| 450 | 585 | 30 | 20 | M27 |
| 500 | 650 | 33 | 20 | M30 |
| 600 | 770 | 36 | 20 | M33 |
| 700 | 840 | 36 | 24 | M33 |
| 800 | 950 | 39 | 24 | M36 |
| 900 | 1050 | 39 | 28 | M36 |
| 1000 | 1170 | 42 | 28 | M39 |
| 1200 | 1390 | 48 | 32 | M45 |

Same values also apply to PN 25 and PN 40 flanges

Same values also apply to PN 25 flanges

PN 25

| DN | Bolt circle Ø (A) | Bolt hole Ø (B) | Bolt qty | Bolt size |
|------|----------------------|--------------------|----------|-----------|
| 100 | 190 | 22 | 8 | M20 |
| 125 | 220 | 26 | 8 | M24 |
| 150 | 250 | 26 | 8 | M24 |
| 200 | 310 | 26 | 12 | M24 |
| 250 | 370 | 30 | 12 | M27 |
| 300 | 430 | 30 | 16 | M27 |
| 350 | 490 | 33 | 16 | M30 |
| 400 | 550 | 36 | 16 | M33 |
| 450 | 600 | 36 | 20 | M33 |
| 500 | 660 | 36 | 20 | M33 |
| 600 | 770 | 39 | 20 | M36 |
| 700 | 875 | 42 | 24 | M39 |
| 800 | 990 | 48 | 24 | M45 |
| 900 | 1090 | 48 | 28 | M45 |
| 1000 | 1210 | 56 | 28 | M52 |



Flange standard:
EN1092-1

Vexve and Naval ball valves, maximum allowed operating torques

| DN-size ¹⁾ | | Torque ²⁾ | | | | | Max. pressure class ³⁾ |
|-----------------------------------|-----------|----------------------|-------|-------|-------|-------|-----------------------------------|
| Reduced Bore | Full Bore | [Nm] | | | | | |
| DN 10/15 | DN 10 | 9 | 10 | 12 | 13 | 15 | PN 40 |
| DN 20 | DN 15 | 10 | 12 | 15 | 16 | 18 | |
| DN 25 | DN 20 | 15 | 17 | 19 | 21 | 24 | |
| DN 32 | DN 25 | 21 | 23 | 25 | 27 | 30 | |
| DN 40 | DN 32 | 34 | 36 | 39 | 43 | 43 | |
| DN 50 | DN 40 | 42 | 45 | 50 | 55 | 60 | |
| DN 65 | DN 50 | 60 | 63 | 68 | 75 | | PN 25 |
| DN 80 | DN 65 | 80 | 85 | 98 | 110 | | |
| DN 100 | DN 80 | 110 | 125 | 150 | 250 | | |
| DN 125 | DN 100 | 150 | 200 | 270 | 390 | | |
| DN 150 | DN 125 | 280 | 350 | 520 | 750 | | |
| DN 200 | DN 150 | 300 | 600 | 900 | 1200 | | |
| DN 250 | DN 200 | 800 | 1300 | 1900 | 2500 | | |
| DN 300 | DN 250 | 2000 | 2500 | 3000 | 4000 | | |
| DN 350 | DN 300 | 1000 | 2200 | 2800 | 4000 | | |
| DN 400 | DN 350 | 1500 | 3000 | 4500 | 6500 | | |
| DN 500 | DN 400 | 2000 | 6000 | 9000 | 12000 | | |
| DN 600 | DN 500 | 2000 | 6000 | 9000 | 12000 | | |
| DN700 | DN600 | 2500 | 7500 | 11250 | 15000 | 18000 | PN 40 |
| DN800 | DN700 | 3900 | 11650 | 17500 | 23350 | 28000 | |
| | DN800 | 5200 | 15650 | 23400 | 31250 | 37500 | |
| | | 0 | 10 | 16 | 25 | 40 | |
| Pressure difference ⁴⁾ | | | | | | | |
| [bar] | | | | | | | |

1) DN-size of the valve

2) Max. torque needed to open/close the valve

3) Max. pressure class of the valve available

4) Pressure difference across the valve Δp :

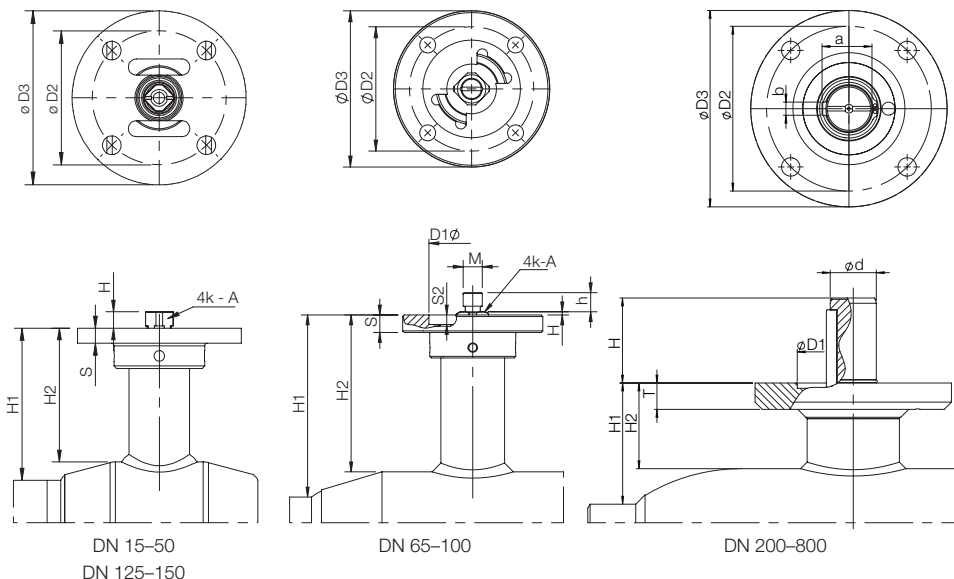
where

$$\Delta p = p_1 - p_2,$$

p_1 = pressure before the valve

p_2 = pressure after the valve

Coupling dimensions, reduced bore ball valves DN 15–800 with actuators

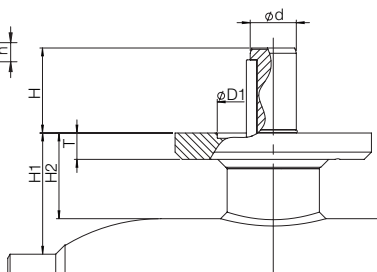
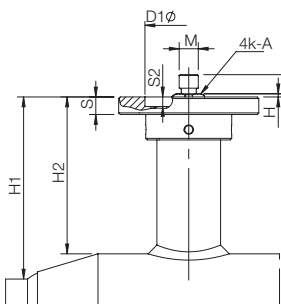
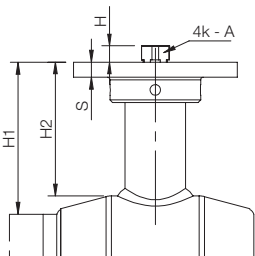
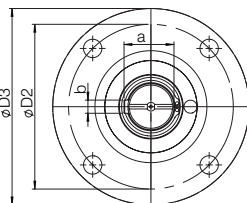
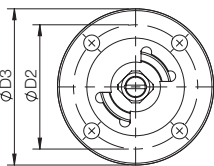
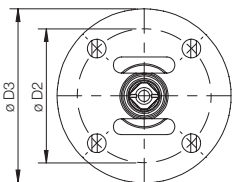


| DN | H | h | S | S2 | A | M | ϕd | T | H1 | H2 | a | b | D1 | D2 | D3 | Bolts | Key | Flange ISO5211 |
|--------|-----|---|---|----|------|---|----------|---|----|----|---|---|----|----|-----|-------|-----|----------------|
| 10 | 4,5 | | 6 | | 7 | | | | 29 | 21 | | | | 50 | 64 | 4xM6 | | F05 |
| 15 | 4,5 | | 6 | | 7 | | | | 27 | 21 | | | | 50 | 64 | 4xM6 | | F05 |
| 20 | 4,5 | | 6 | | 7 | | | | 27 | 21 | | | | 50 | 64 | 4xM6 | | F05 |
| 25 | 4,5 | | 6 | | 9 | | | | 39 | 32 | | | | 50 | 65 | 4xM6 | | F05 |
| 32 | 4,5 | | 6 | | 9 | | | | 38 | 29 | | | | 50 | 65 | 4xM6 | | F05 |
| 40 | 5 | | 8 | | 11 | | | | 49 | 38 | | | | 70 | 100 | 4xM8 | | F07 |
| 50 | 5 | | 8 | | 11 | | | | 50 | 36 | | | | 70 | 100 | 4xM8 | | F07 |
| Toler. | | | | | -0.1 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|--------|-----|----|----|---|------|-----|--|--|-----|----|--|--|--|----|-----|-----|-------|--|-----|
| 65 | 5,5 | 13 | 11 | 2 | 14 | M12 | | | 69 | 56 | | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 80 | 5,5 | 13 | 11 | 2 | 14 | M12 | | | 75 | 59 | | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 100 | 2 | 12 | 11 | 6 | 16 | M12 | | | 114 | 99 | | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 125 | 19 | | 11 | 4 | 20 | | | | 112 | 93 | | | | 70 | 102 | 125 | 4xM10 | | F10 |
| 150 | 19 | | 11 | 4 | 20 | | | | 118 | 93 | | | | 70 | 102 | 125 | 4xM10 | | F10 |
| Toler. | | | | | -0.1 | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|--------|-----|--|--|--|------|--|-----|----|-----|-----|------|----|-----|-----|-----|-------|---------------|-----|--|
| 200 | 65 | | | | | | 35 | 20 | 92 | 65 | 38 | 10 | 85 | 125 | 149 | 4xM12 | A-10x8 - 63 | F12 | |
| 250 | 79 | | | | | | 40 | 20 | 108 | 67 | 43 | 12 | 100 | 140 | 179 | 4xM16 | A-12x8 - 80 | F14 | |
| 300 | 88 | | | | | | 50 | 20 | 133 | 67 | 53.5 | 14 | 130 | 165 | 209 | 4xM20 | A-14x9 - 90 | F16 | |
| 350 | 80 | | | | | | 50 | 20 | 192 | 116 | 53.5 | 14 | 130 | 165 | 209 | 4xM20 | A-14x9 - 80 | F16 | |
| 400 | 110 | | | | | | 70 | 25 | 242 | 141 | 74.5 | 20 | 200 | 254 | 300 | 8xM16 | A-20x12 - 100 | F25 | |
| 500 | 115 | | | | | | 90 | 40 | 259 | 183 | 95 | 25 | 230 | 298 | 350 | 8xM20 | A-25x14 - 100 | F30 | |
| 600 | 115 | | | | | | 90 | 40 | 274 | 173 | 95 | 25 | 230 | 298 | 350 | 8xM20 | A-25x14 - 100 | F30 | |
| 700 | 167 | | | | | | 100 | 40 | 336 | 210 | 105 | 28 | 260 | 356 | 415 | 8xM30 | A-28x16 - 160 | F35 | |
| 800 | 167 | | | | | | 120 | 40 | 365 | 210 | 127 | 32 | 260 | 356 | 415 | 8xM30 | A-32x18 - 160 | F35 | |
| Toler. | | | | | -0.1 | | | | | | | | | | | | | | |

Coupling dimensions, full bore ball valves DN 10–800 with actuators



DN 10–40
DN 100–125

DN 50–80

DN 150–800

| DN | H | h | S | S2 | A | M | Ød | T | H1 | H2 | a | b | D1 | D2 | D3 | Bolts | Key | Flange ISO5211 |
|--------|-----|---|---|----|------|---|----|---|----|----|---|---|----|----|-----|-------|-----|----------------|
| 15 | 4,5 | | 6 | | 7 | | | | 31 | 21 | | | | 50 | 64 | 4xM6 | | F05 |
| 20 | 4,5 | | 6 | | 9 | | | | 43 | 32 | | | | 50 | 65 | 4xM6 | | F05 |
| 25 | 4,5 | | 6 | | 9 | | | | 43 | 29 | | | | 50 | 65 | 4xM6 | | F05 |
| 32 | 5 | | 8 | | 11 | | | | 52 | 38 | | | | 70 | 100 | 4xM8 | | F07 |
| 40 | 5 | | 8 | | 11 | | | | 56 | 36 | | | | 70 | 100 | 4xM8 | | F07 |
| Toler. | | | | | -0.1 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|--------|-----|----|----|---|------|-----|--|--|-----|----|--|--|----|-----|-----|-------|--|-----|
| 50 | 5,5 | 13 | 11 | 2 | 14 | M12 | | | 76 | 56 | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 65 | 5,5 | 13 | 11 | 2 | 14 | M12 | | | 81 | 59 | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 80 | 2 | 12 | 11 | 6 | 16 | M12 | | | 127 | 99 | | | 55 | 70 | 88 | 4xM8 | | F07 |
| 100 | 19 | | 11 | 4 | 20 | | | | 125 | 93 | | | 70 | 102 | 125 | 4xM10 | | F10 |
| 125 | 19 | | 11 | 4 | 20 | | | | 132 | 93 | | | 70 | 102 | 125 | 4xM10 | | F10 |
| Toler. | | | | | -0.1 | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | |
|--------|-----|--|--|--|--|--|------|----|-----|-----|------|----|-----|-----|-----|-------|---------------|-----|
| 150 | 65 | | | | | | 35 | 20 | 118 | 65 | 38 | 10 | 85 | 125 | 149 | 4xM12 | A-10x8 - 63 | F12 |
| 200 | 79 | | | | | | 40 | 20 | 135 | 67 | 43 | 12 | 100 | 140 | 179 | 4xM16 | A-12x8 - 80 | F14 |
| 250 | 88 | | | | | | 50 | 20 | 158 | 67 | 53.5 | 14 | 130 | 165 | 209 | 4xM20 | A-14x9 - 90 | F16 |
| 300 | 80 | | | | | | 50 | 20 | 208 | 116 | 53.5 | 14 | 130 | 165 | 209 | 4xM20 | A-14x9 - 80 | F16 |
| 350 | 110 | | | | | | 70 | 25 | 267 | 141 | 74.5 | 20 | 200 | 254 | 300 | 8xM16 | A-20x12 - 100 | F25 |
| 400 | 115 | | | | | | 90 | 40 | 309 | 183 | 95 | 25 | 230 | 298 | 350 | 8xM20 | A-25x14 - 100 | F30 |
| 500 | 115 | | | | | | 90 | 40 | 325 | 173 | 95 | 25 | 230 | 298 | 350 | 8xM20 | A-25x14 - 100 | F30 |
| 600 | 167 | | | | | | 100 | 40 | 387 | 210 | 105 | 28 | 260 | 356 | 415 | 8xM30 | A-28x16 - 160 | F35 |
| 700 | 167 | | | | | | 120 | 40 | 417 | 210 | 127 | 32 | 260 | 356 | 415 | 8xM30 | A-32x18 - 160 | F35 |
| 800 | 220 | | | | | | 140 | 40 | 449 | 210 | 148 | 36 | 325 | 406 | 475 | 8xM36 | A-36x20 - 200 | F40 |
| Toler. | | | | | | | -0.1 | | | | | | | | | | | |

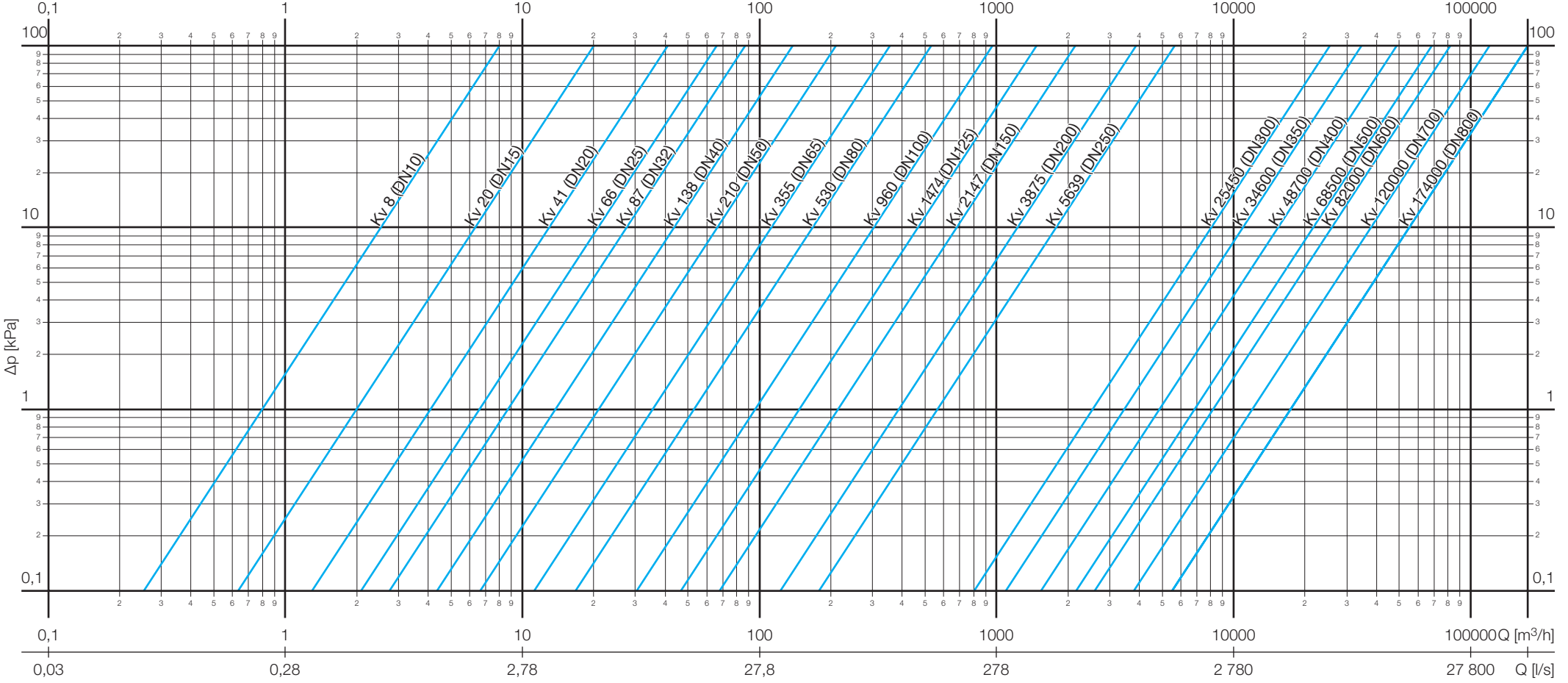
Kv-value chart of Vexve and Naval ball valves

| DN size | KV value | |
|---------|--------------|-----------|
| | Reduced bore | Full bore |
| 10 | | 8 |
| 15 | 8 | 20 |
| 20 | 14 | 41 |
| 25 | 25 | 66 |
| 32 | 41 | 87 |
| 40 | 67 | 138 |
| 50 | 105 | 210 |
| 65 | 182 | 355 |
| 80 | 315 | 530 |
| 100 | 470 | 960 |
| 125 | 830 | 1474 |
| 150 | 1150 | 2147 |
| 200 | 1750 | 3875 |
| 250 | 3200 | 5639 |
| 300 | 4600 | 25450 |
| 350 | 9600 | 34600 |
| 400 | 13300 | 48700 |
| 500 | 18700 | 68500 |
| 600 | 32000 | 82000 |
| 700 | 42000 | 120000 |
| 800 | 55000 | 174000 |



NOTE! Kv values for water

Pressure loss diagram of Vexve and Naval full bore ball valves DN 10–800



Pressure loss diagram of Vexve and Naval reduced bore ball valves DN 15–800

