



**Type KVTW / KVXW**  
**Type KVTF / KVXF**

**Wafer type**  
**Flanged**

**Nominal pressure**

– **PN 25/20/16/10**

**Nominal size**

– **DN 80 -500**

**Material**

– **Stainless steel**

- **Control and shut-off valve**
- **High capacity**
- **One-piece shaft gives a torque transmission free of backlash**
- **Excellent tightness irrespective of differential pressure**
- **Easy maintenance**

- **Option:**  
**KVM-ball segment with V-groove for high fibre concentrations**



**LN (Low Noise)**  
**Ball segment with low noise trim for high  $\Delta P$**



The SOMAS ball segment valve type KVTW with a centrally mounted shaft, and KVXW with an eccentrically mounted shaft are of wafer design. Type KVTF is a flanged version with centrally mounted shaft while KVXF is flanged and eccentric design.

The valve body is in one piece. Shaft device is also in one piece for torque transmission free of backlash. The spring-loaded seat is available in three alternative materials (PTFE, PTFE 53 and HiCo).

The valves can be used for control, as well as for shut-off applications on practically every type of media within a wide temperature range. Choose KVT for liquids, media containing impurities etc. For dry and clean media choose KVX. In the KVX-valve the ball segment is eccentrically mounted and rotates out from the seat when the valve is opened. This reduces the wear on seat and segment.

Low noise trim is available as an option. The designation "LN" indicates that the ball segment is equipped with a network of bars that are used to split up the pressure drop across the valve. This results in less pressure recovery, thereby reducing the noise and potential damage due to cavitation.

Note! Capacity factors will be reduced for valves with LN-trim

Ball segment with V-groove is available for use at high fibre concentrations. The V-groove design prevents dewatering at small opening angles.

The SOMAS valves are delivered ready for installation and operation. The valve assemblies are delivered factory tested as complete units with actuators, positioners and accessories.





### Tightness class

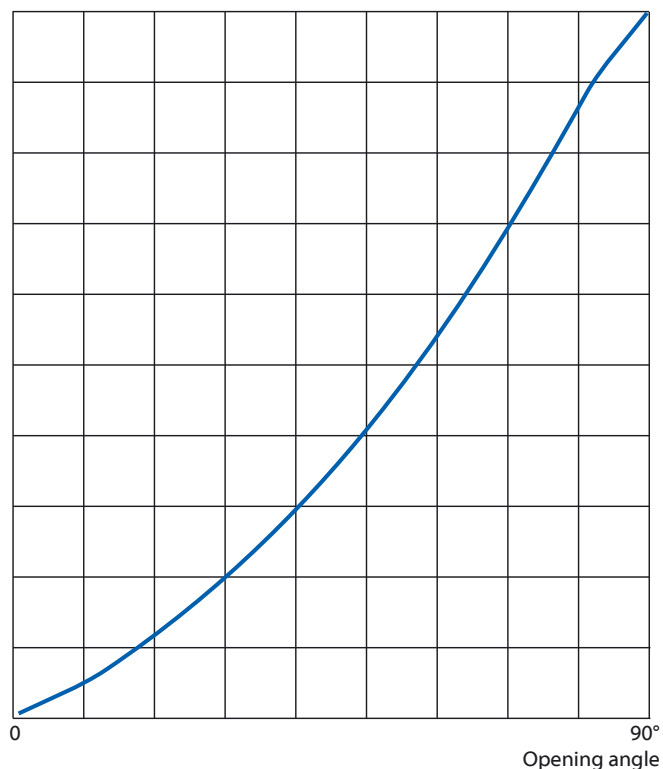
The tightness class is related to the chosen material in the seat ring.

- PTFE-seat (Code A) IEC 534-4 VI (ANSI B16-104 Class VI)
- PTFE 53-seat<sup>1</sup> (Code B) IEC 534-4 VI (ANSI B16-104 Class VI)
- HiCo seat (Code T) IEC 534-4 V (ANSI B16-104 Class V)

<sup>1</sup> 50% PTFE + 50% 1.4435 powder (percentage by weight)

### Flow characteristics

100% Flow



### Factor FLP

|             | Opening angle |      |      |      |      |      |      |      |      |
|-------------|---------------|------|------|------|------|------|------|------|------|
|             | 10°           | 20°  | 30°  | 40°  | 50°  | 60°  | 70°  | 80°  | 90°  |
| <b>FLP1</b> | 0.85          | 0.82 | 0.78 | 0.75 | 0.70 | 0.66 | 0.60 | 0.55 | 0.50 |
| <b>FLP2</b> | 0.85          | 0.82 | 0.78 | 0.73 | 0.68 | 0.62 | 0.56 | 0.50 | 0.45 |
| <b>FLP3</b> | 0.85          | 0.82 | 0.78 | 0.73 | 0.67 | 0.61 | 0.54 | 0.49 | 0.43 |

- FLP1 = One dimension bigger pipe size
- FLP2 = Two dimensions bigger pipe size
- FLP3 = Three dimensions bigger pipe size

### Pressure and temperature rating

(According to the material in the seat)

| Seat ring Code | Max. working pressure* (bar at °C) |     |     |     |        |
|----------------|------------------------------------|-----|-----|-----|--------|
|                | 150                                | 170 | 200 | 350 | >350   |
| <b>A</b>       | 25                                 | 25  | —   | —   | Note 1 |
| <b>B</b>       | 25                                 | 25  | 15  | —   | Note 1 |
| <b>T</b>       | 25                                 | 25  | 25  | 15  | Note 1 |

10 bar = 1 MPa

Note. 1: Check with Somas

**NB! Do not exceed working pressure for the valve.**

### Liquid pressure recovery factor FL

| Factor    | Opening angle |      |      |      |      |      |      |      |      |
|-----------|---------------|------|------|------|------|------|------|------|------|
|           | 10°           | 20°  | 30°  | 40°  | 50°  | 60°  | 70°  | 80°  | 90°  |
| <b>FL</b> | 0.85          | 0.82 | 0.80 | 0.77 | 0.74 | 0.71 | 0.67 | 0.64 | 0.60 |

### Pipe geometry factor FP (KVTW/KVXW)

| Valve DN   | Pipe DN | Opening angle |      |      |      |      |      |      |      |      |
|------------|---------|---------------|------|------|------|------|------|------|------|------|
|            |         | 10°           | 20°  | 30°  | 40°  | 50°  | 60°  | 70°  | 80°  | 90°  |
| <b>80</b>  | 100     |               |      |      | 0.98 | 0.97 | 0.95 | 0.93 | 0.80 | 0.76 |
|            | 150     | 1.0           | 0.99 | 0.98 | 0.94 | 0.90 | 0.85 | 0.78 | 0.70 | 0.65 |
|            | 200     |               |      |      | 0.93 | 0.87 | 0.80 | 0.73 | 0.64 | 0.59 |
| <b>100</b> | 150     |               |      |      | 0.97 | 0.94 | 0.90 | 0.86 | 0.80 | 0.76 |
|            | 200     | 1.0           | 0.99 | 0.97 | 0.94 | 0.90 | 0.84 | 0.78 | 0.70 | 0.65 |
|            | 250     |               |      |      | 0.93 | 0.88 | 0.82 | 0.75 | 0.66 | 0.61 |
| <b>150</b> | 200     |               |      |      | 0.99 | 0.97 | 0.96 | 0.93 | 0.90 | 0.87 |
|            | 250     | 1.0           | 0.99 | 0.99 | 0.97 | 0.95 | 0.91 | 0.87 | 0.81 | 0.77 |
|            | 300     |               |      |      | 0.96 | 0.93 | 0.88 | 0.83 | 0.76 | 0.72 |
| <b>200</b> | 250     |               |      |      | 0.99 | 0.98 | 0.97 | 0.96 | 0.93 | 0.91 |
|            | 300     | 1.0           | 1.0  | 0.99 | 0.98 | 0.96 | 0.94 | 0.91 | 0.86 | 0.82 |
|            | 350     |               |      |      | 0.97 | 0.95 | 0.91 | 0.87 | 0.81 | 0.77 |
| <b>250</b> | 300     |               |      |      | 0.99 | 0.99 | 0.98 | 0.97 | 0.95 | 0.94 |
|            | 350     | 1.0           | 1.0  | 0.99 | 0.99 | 0.97 | 0.95 | 0.93 | 0.89 | 0.87 |
|            | 400     |               |      |      | 0.98 | 0.96 | 0.93 | 0.90 | 0.85 | 0.81 |

### Pipe geometry factor (KVTF/KVXF)

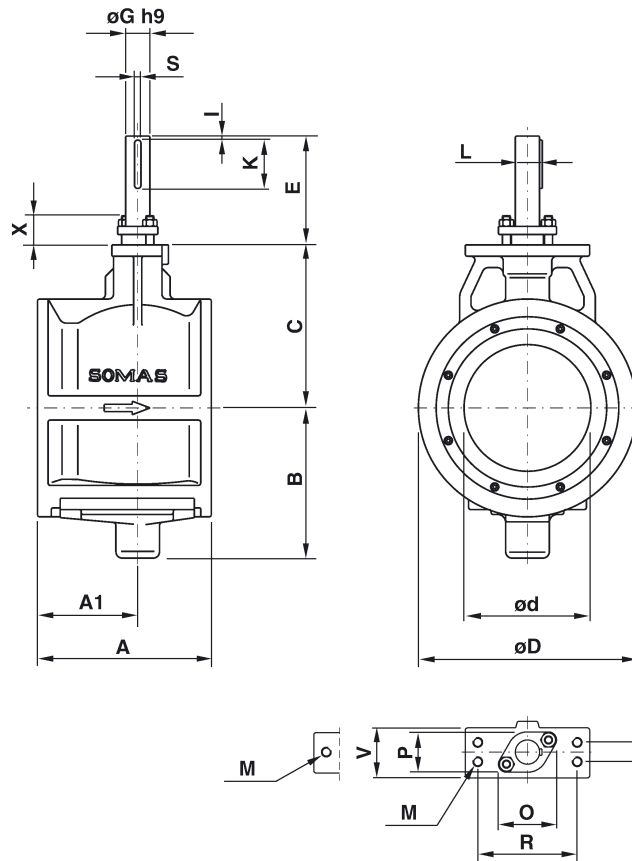
| Valve DN   | Pipe DN | Opening angle |      |      |      |      |      |      |      |      |
|------------|---------|---------------|------|------|------|------|------|------|------|------|
|            |         | 10°           | 20°  | 30°  | 40°  | 50°  | 60°  | 70°  | 80°  | 90°  |
| <b>80</b>  | 100     |               |      |      | 0.98 | 0.97 | 0.95 | 0.93 | 0.80 | 0.76 |
|            | 150     | 1.0           | 0.99 | 0.98 | 0.94 | 0.90 | 0.85 | 0.78 | 0.70 | 0.65 |
|            | 200     |               |      |      | 0.93 | 0.87 | 0.80 | 0.73 | 0.64 | 0.59 |
| <b>100</b> | 150     |               |      |      | 0.97 | 0.94 | 0.90 | 0.86 | 0.80 | 0.76 |
|            | 200     | 1.0           | 0.99 | 0.97 | 0.94 | 0.90 | 0.84 | 0.78 | 0.70 | 0.65 |
|            | 250     |               |      |      | 0.93 | 0.88 | 0.82 | 0.75 | 0.66 | 0.61 |
| <b>125</b> | 150     |               |      |      | 0.98 | 0.96 | 0.92 | 0.89 | 0.84 | 0.81 |
|            | 200     | 1.0           | 0.99 | 0.99 | 0.97 | 0.94 | 0.90 | 0.86 | 0.80 | 0.76 |
|            | 250     |               |      |      | 0.93 | 0.86 | 0.78 | 0.76 | 0.74 | 0.72 |
| <b>150</b> | 200     |               |      |      | 0.99 | 0.97 | 0.96 | 0.93 | 0.90 | 0.87 |
|            | 250     | 1.0           | 0.99 | 0.99 | 0.97 | 0.95 | 0.91 | 0.87 | 0.81 | 0.77 |
|            | 300     |               |      |      | 0.93 | 0.86 | 0.78 | 0.76 | 0.74 | 0.72 |
| <b>200</b> | 250     |               |      |      | 0.99 | 0.98 | 0.96 | 0.93 | 0.90 | 0.87 |
|            | 300     | 1.0           | 1.0  | 0.99 | 0.98 | 0.96 | 0.93 | 0.88 | 0.85 | 0.78 |
|            | 350     |               |      |      | 0.97 | 0.95 | 0.90 | 0.84 | 0.78 | 0.73 |
| <b>250</b> | 300     |               |      |      | 0.99 | 0.98 | 0.96 | 0.95 | 0.92 | 0.90 |
|            | 350     | 1.0           | 1.0  | 0.99 | 0.98 | 0.97 | 0.94 | 0.92 | 0.86 | 0.83 |
|            | 400     |               |      |      | 0.98 | 0.96 | 0.92 | 0.89 | 0.88 | 0.77 |
| <b>300</b> | 350     |               |      |      | 0.99 | 0.98 | 0.96 | 0.95 | 0.92 | 0.90 |
|            | 400     | 1.0           | 1.0  | 0.99 | 0.98 | 0.97 | 0.94 | 0.92 | 0.86 | 0.83 |
|            | 450     |               |      |      | 0.98 | 0.96 | 0.92 | 0.89 | 0.82 | 0.77 |
| <b>350</b> | 400     |               |      |      | 0.99 | 0.99 | 0.97 | 0.95 | 0.92 | 0.91 |
|            | 450     | 1.0           | 1.0  | 0.99 | 0.99 | 0.98 | 0.94 | 0.91 | 0.88 | 0.85 |
|            | 500     |               |      |      | 0.98 | 0.96 | 0.92 | 0.87 | 0.83 | 0.79 |
| <b>400</b> | 450     |               |      |      | 0.99 | 0.99 | 0.97 | 0.96 | 0.95 | 0.94 |
|            | 500     | 1.0           | 1.0  | 0.99 | 0.99 | 0.98 | 0.94 | 0.92 | 0.89 | 0.87 |
|            | 600     |               |      |      | 0.97 | 0.95 | 0.90 | 0.86 | 0.81 | 0.77 |

### 500

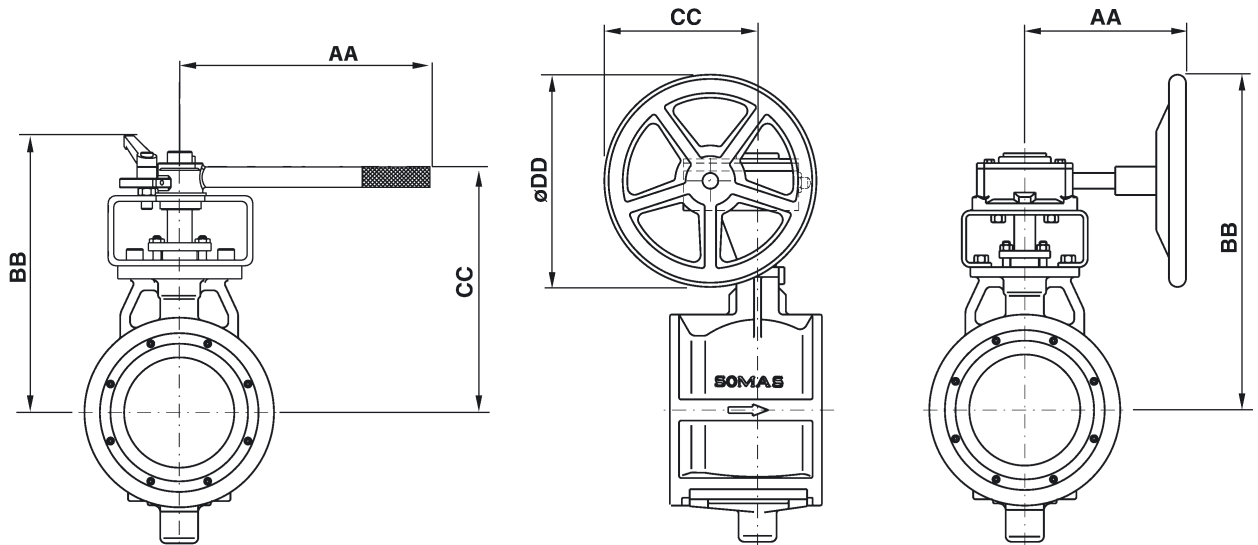
Relation between Kv and Cv: Kv = 0.86 Cv



**Wafer design**

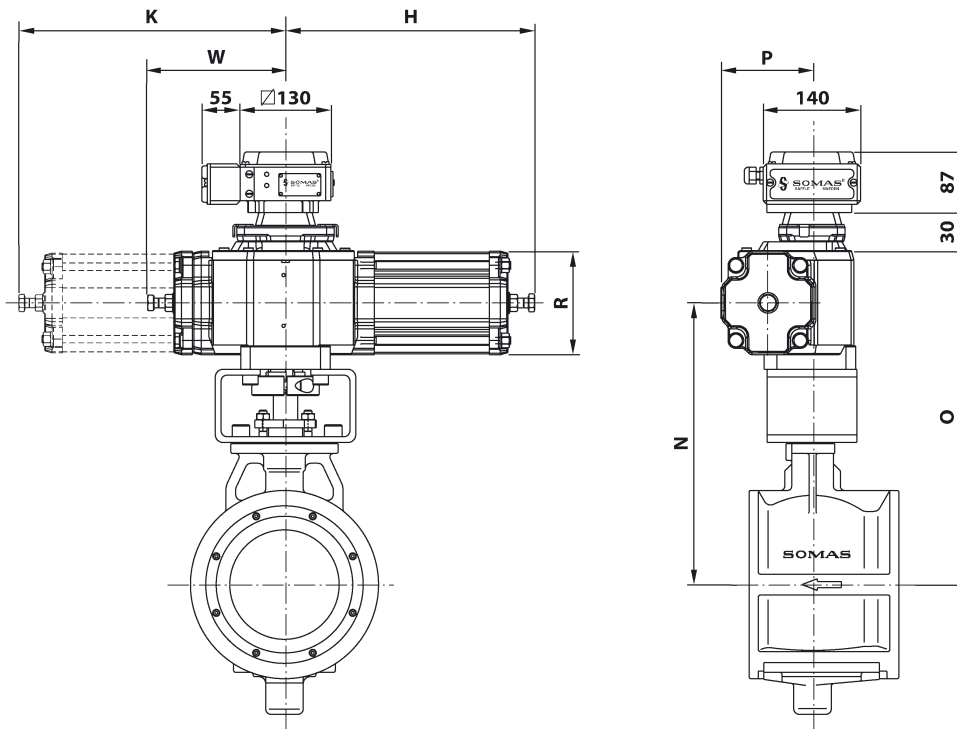


| Ball segment valve type KVTW/KVXW (valve body in one piece) |     |     |     |     |     |     |     |    |     |   |    |      |     |    |    |    |     |    |    |    |        |
|---|-----|-----|-----|-----|-----|-----|-----|----|-----|---|----|------|-----|----|----|----|-----|----|----|----|--------|
| DN  | A   | A1  | B   | C   | ød  | øD  | E   | øG | H   | I | K  | L    | M   | MM | O  | P  | R   | S  | V  | X  | Weight |
| 80  | 111 | 64  | 102 | 115 | 75  | 140 | 115 | 20 | 125 | 5 | 45 | 22.5 | M12 | —  | 61 | 42 | 98  | 6  | 48 | 30 | 8.5    |
| 100   | 125 | 73  | 116 | 140 | 92  | 162 | 115 | 20 | 125 | 5 | 45 | 22.5 | M12 | —  | 61 | 42 | 98  | 6  | 48 | 30 | 11.5   |
| 150   | 170 | 101 | 151 | 176 | 124 | 216 | 115 | 25 | 125 | 5 | 45 | 28   | M12 | —  | 66 | 47 | 98  | 8  | 50 | 30 | 24     |
| 200   | 215 | 124 | 187 | 202 | 156 | 270 | 135 | 30 | 155 | 5 | 60 | 33   | M12 | 24 | 77 | 50 | 123 | 8  | 62 | 35 | 44     |
| 250   | 260 | 150 | 230 | 242 | 189 | 324 | 135 | 35 | 155 | 5 | 50 | 38   | M12 | 24 | 85 | 55 | 123 | 10 | 65 | 50 | 71     |



| Type KVTW/KVXW with hand lever |       |     |     |     |        |
|--------------------------------|-------|-----|-----|-----|--------|
| DN                             | Type  | AA  | BB  | CC  | Weight |
| 80                             | HSR20 | 355 | 240 | 210 | 11.5   |
| 100                            | HSR20 | 355 | 265 | 135 | 14.5   |
| 150                            | HSR25 | 355 | 301 | 271 | 27     |

| Type KVTW/KVXW with gear unit |         |     |     |     |     |        |
|-------------------------------|---------|-----|-----|-----|-----|--------|
| DN                            | Type    | AA  | BB  | CC  | øDD | Weight |
| 80                            | M10/F07 | 190 | 350 | 190 | 255 | 16     |
| 100                           | M10/F07 | 190 | 380 | 190 | 255 | 19     |
| 150                           | M10/F07 | 190 | 410 | 190 | 255 | 32     |
| 200                           | M12/F12 | 228 | 475 | 230 | 305 | 56     |
| 250                           | M12/F12 | 228 | 515 | 230 | 305 | 83     |



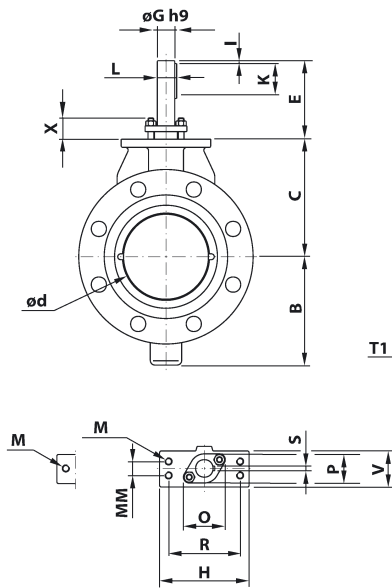
| Ball segment valve KVTW/KVXW with actuator type A-DA |      |     |     |     |     |     |     |     |        | Actuator type A-SC/SO |       |     |     |     |     |     |     |     |        |
|--|------|-----|-----|-----|-----|-----|-----|-----|--------|-----------------------|-------|-----|-----|-----|-----|-----|-----|-----|--------|
| DN   | Type | H   | K   | N   | O   | P   | R   | W   | Weight | DN                    | Type  | H   | K   | N   | O   | P   | R   | W   | Weight |
| 80   | A21  | 255 | --  | 260 | 340 | 94  | 106 | 140 | 18     | 80                    | A23-X | 415 | --  | 260 | 320 | 117 | 152 | 140 | 25     |
| 80   | A22  | 255 | 260 | 260 | 320 | 94  | 106 | --  | 20     | 100                   | A23-X | 415 | --  | 285 | 345 | 117 | 152 | 140 | 28     |
| 100  | A21  | 255 | --  | 285 | 345 | 94  | 106 | 140 | 21     | 150                   | A24-X | 415 | 420 | 320 | 385 | 117 | 152 | --  | 50     |
| 100  | A22  | 255 | 260 | 285 | 345 | 94  | 106 | --  | 23     | 200                   | A33-X | 660 | --  | 400 | 485 | 183 | 228 | 215 | 103    |
| 150  | A22  | 255 | 260 | 320 | 385 | 94  | 106 | --  | 35     | 250                   | A33-X | 660 | --  | 440 | 525 | 183 | 228 | 215 | 130    |
| 150  | A23  | 305 | --  | 320 | 385 | 117 | 152 | 140 | 41     |                       |       |     |     |     |     |     |     |     |        |
| 200  | A24  | 305 | 310 | 345 | 410 | 117 | 152 | --  | 61     |                       |       |     |     |     |     |     |     |     |        |
| 200  | A31  | 380 | --  | 400 | 485 | 144 | 152 | 215 | 69     |                       |       |     |     |     |     |     |     |     |        |
| 250  | A31  | 380 | --  | 440 | 525 | 144 | 152 | 215 | 96     |                       |       |     |     |     |     |     |     |     |        |
| 250  | A32  | 380 | 395 | 440 | 525 | 144 | 152 | --  | 102    |                       |       |     |     |     |     |     |     |     |        |

For units with the positioner type SP405, add 2 kg.  
 For units with the positioner type SPE405, add 3 kg.

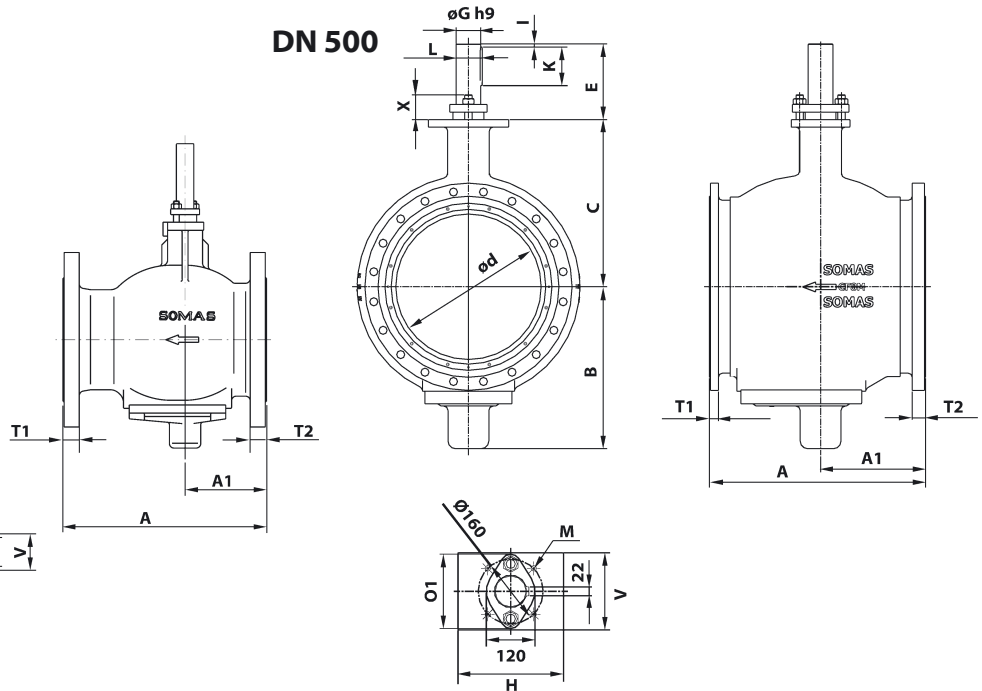
X = SC – Spring closes  
 X = SO – Spring opens



**Flanged design  
DN 80-400**

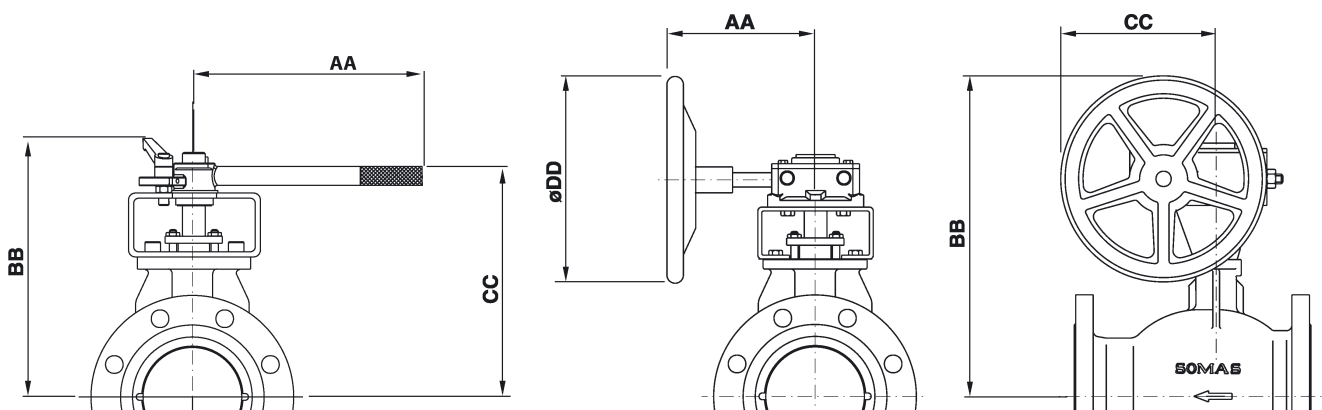


**DN 500**



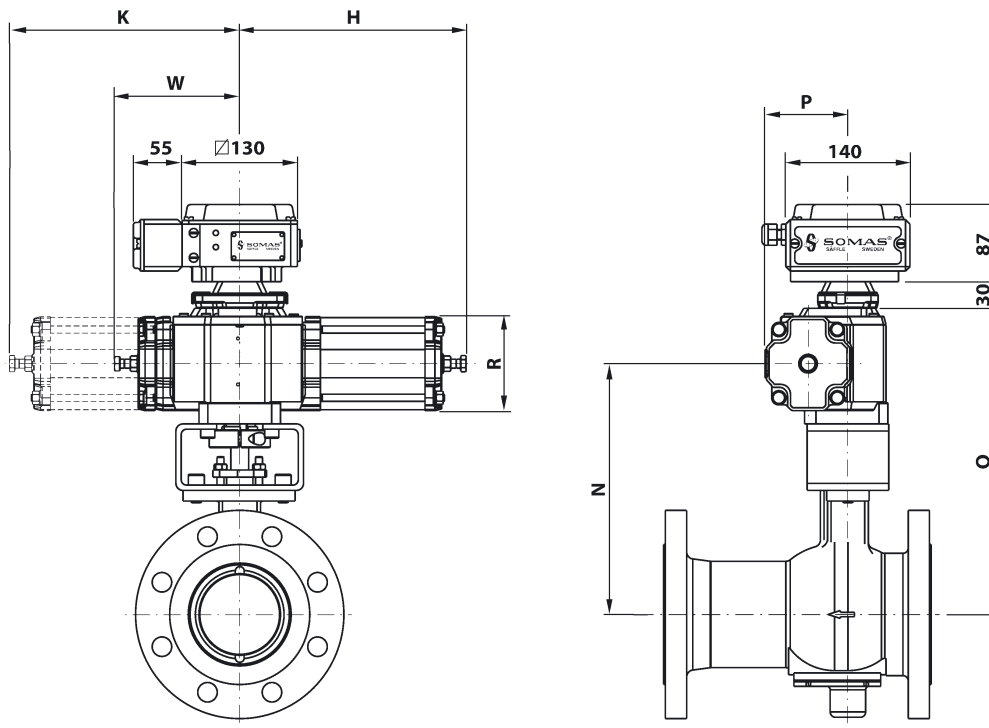
**Ball segment valve type KVTF/KVXF (valve body in one piece)**

| DN  | A   | A1  | B   | C   | ød  | E   | øG | H   | I  | K   | L    | M   | MM  | O   | O1  | P   | R   | S  | T1 | T2 | V   | X  | Weight |
|-----|-----|-----|-----|-----|-----|-----|----|-----|----|-----|------|-----|-----|-----|-----|-----|-----|----|----|----|-----|----|--------|
| 80  | 280 | 82  | 102 | 115 | 75  | 115 | 20 | 125 | 5  | 45  | 22.5 | M12 | —   | 61  | —   | 42  | 98  | 6  | 24 | 24 | 48  | 30 | 18     |
| 100 | 300 | 94  | 116 | 140 | 92  | 115 | 20 | 125 | 5  | 45  | 22.5 | M12 | —   | 61  | —   | 42  | 98  | 6  | 26 | 26 | 48  | 30 | 26     |
| 125 | 325 | 118 | 151 | 176 | 124 | 115 | 25 | 125 | 5  | 45  | 28   | M12 | —   | 66  | —   | 47  | 98  | 8  | 26 | 26 | 50  | 30 | 38     |
| 150 | 350 | 140 | 187 | 202 | 145 | 135 | 30 | 155 | 5  | 60  | 33   | M12 | 24  | 77  | —   | 50  | 123 | 8  | 28 | 28 | 62  | 35 | 61     |
| 200 | 400 | 159 | 230 | 242 | 189 | 135 | 35 | 155 | 5  | 50  | 38   | M12 | 24  | 85  | —   | 55  | 123 | 10 | 30 | 39 | 62  | 50 | 95     |
| 250 | 450 | 191 | 281 | 297 | 232 | 155 | 40 | 170 | 5  | 50  | 43   | M12 | 40  | 94  | —   | 75  | 123 | 12 | 34 | 45 | 85  | 50 | 154    |
| 300 | 500 | 210 | 340 | 353 | 282 | 200 | 50 | 180 | 5  | 80  | 53.5 | M16 | 55  | 105 | —   | 85  | 136 | 14 | 37 | 46 | 95  | 50 | 214    |
| 350 | 550 | 241 | 385 | 393 | 326 | 210 | 60 | 225 | 5  | 90  | 64   | M20 | 70  | 115 | —   | 105 | 150 | 18 | 41 | 50 | 128 | 60 | 304    |
| 400 | 600 | 269 | 449 | 447 | 370 | 225 | 70 | 220 | 6  | 110 | 75   | M16 | 113 | 162 | —   | 112 | 113 | 20 | 43 | 52 | 154 | 60 | 395    |
| 500 | 700 | 340 | 525 | 540 | 470 | 245 | 80 | 260 | 10 | 120 | 85   | M16 | —   | —   | 183 | —   | —   | 22 | 30 | 44 | 220 | 75 | 520    |



| Type KVTF/KVXF with hand lever |       |     |     |     |        |
|--------------------------------|-------|-----|-----|-----|--------|
| DN                             | Type  | AA  | BB  | CC  | Weight |
| 80                             | HSR20 | 355 | 240 | 210 | 21     |
| 100                            | HSR20 | 355 | 265 | 135 | 29     |
| 125                            | HSR25 | 355 | 301 | 271 | 41     |

| Type KVTF/KVXF with gear unit |         |     |      |     |     |        |
|-------------------------------|---------|-----|------|-----|-----|--------|
| DN                            | Type    | AA  | BB   | CC  | øDD | Weight |
| 80                            | M10/F07 | 190 | 380  | 190 | 255 | 25.5   |
| 100                           | M10/F07 | 190 | 380  | 190 | 255 | 33.5   |
| 125                           | M10/F07 | 190 | 415  | 190 | 255 | 45.5   |
| 150                           | M12/F12 | 228 | 475  | 230 | 305 | 73     |
| 200                           | M12/F12 | 228 | 515  | 230 | 305 | 107    |
| 250                           | M12/F12 | 228 | 555  | 230 | 305 | 166    |
| 300                           | M14/F14 | 250 | 700  | 265 | 350 | 235    |
| 350                           | M15/F16 | 385 | 795  | 353 | 460 | 342    |
| 400                           | M20/F25 | 450 | 942  | 395 | 610 | 440    |
| 500                           | M20/F25 | 450 | 1035 | 395 | 610 | 565    |



| Ball segment valve KVTF/KVXF with actuator type A-DA |      |     |     |     |     |     |     |     |        | Actuator type A-SC/SO |       |     |     |     |     |     |     |     |        |
|--|------|-----|-----|-----|-----|-----|-----|-----|--------|-----------------------|-------|-----|-----|-----|-----|-----|-----|-----|--------|
| DN   | Type | H   | K   | N   | O   | P   | R   | W   | Weight | DN                    | Type  | H   | K   | N   | O   | P   | R   | W   | Weight |
| 80   | A21  | 255 | --- | 260 | 320 | 94  | 106 | 140 | 27     | 80                    | A23-X | 415 | --- | 260 | 320 | 117 | 152 | 140 | 35     |
| 80   | A22  | 255 | 260 | 260 | 320 | 94  | 106 | --- | 29     | 100                   | A23-X | 415 | --- | 285 | 345 | 117 | 152 | 140 | 43     |
| 100  | A21  | 255 | --- | 285 | 345 | 94  | 106 | 140 | 35     | 125                   | A24-X | 415 | 310 | 320 | 380 | 117 | 152 | --- | 64     |
| 100  | A22  | 255 | 260 | 285 | 345 | 94  | 106 | 140 | 37     | 150                   | A33-X | 660 | --- | 350 | 415 | 183 | 228 | 215 | 120    |
| 125  | A22  | 255 | 260 | 320 | 380 | 94  | 106 | --- | 49     | 200                   | A33-X | 660 | --- | 420 | 480 | 183 | 228 | 215 | 155    |
| 125  | A23  | 325 | --- | 320 | 380 | 117 | 152 | 140 | 54     | 250                   | A34-X | 665 | 680 | 455 | 515 | 183 | 228 | --- | 210    |
| 150  | A31  | 380 | --- | 350 | 415 | 144 | 152 | 215 | 87     | 300                   | A43-X | 920 | --- | 595 | 750 | 279 | 354 | 315 | 380    |
| 200  | A31  | 380 | --- | 420 | 480 | 144 | 152 | 215 | 121    | 350                   | A43-X | 920 | --- | 635 | 790 | 279 | 354 | 315 | 470    |
| 200  | A32  | 380 | 395 | 415 | 475 | 144 | 152 | --- | 127    | 400                   | A44-X | 925 | 935 | 690 | 845 | 279 | 354 | --- | 615    |
| 250  | A32  | 380 | 395 | 455 | 520 | 144 | 152 | --- | 185    |                       |       |     |     |     |     |     |     |     |        |
| 300  | A41  | 550 | --- | 595 | 750 | 211 | 228 | 315 | 290    |                       |       |     |     |     |     |     |     |     |        |
| 350  | A41  | 550 | --- | 635 | 790 | 211 | 228 | 315 | 380    |                       |       |     |     |     |     |     |     |     |        |
| 350  | A42  | 545 | 560 | 635 | 790 | 211 | 228 | --- | 395    |                       |       |     |     |     |     |     |     |     |        |
| 400  | A42  | 545 | 560 | 690 | 845 | 211 | 228 | --- | 490    |                       |       |     |     |     |     |     |     |     |        |
| 500  | A43  | 680 | --- | 813 | 939 | 279 | 354 | 315 | 662    |                       |       |     |     |     |     |     |     |     |        |

For units with the positioner type SP405, add 2 kg.  
 For units with the positioner type SPE405, add 3 kg.

X = SC - Spring closes  
 X = SO - Spring opens

### Torque/KVTW

| Valve DN | Shaft dia. (mm) | Necessary closing torque |           |
|----------|-----------------|--------------------------|-----------|
|          |                 | Min. (Nm)                | Max. (Nm) |
| 80       | 20              | 120                      | 200       |
| 100      | 20              | 150                      | 200       |
| 150      | 25              | 250                      | 370       |
| 200      | 30              | 400                      | 640       |
| 250      | 35              | 600                      | 1000      |

### Torque/KVTF

| Valve DN | Shaft dia. (mm) | Necessary closing torque |           |
|----------|-----------------|--------------------------|-----------|
|          |                 | Min. (Nm)                | Max. (Nm) |
| 80       | 20              | 120                      | 200       |
| 100      | 20              | 150                      | 200       |
| 125      | 25              | 250                      | 370       |
| 150      | 30              | 400                      | 640       |
| 200      | 35              | 550                      | 1000      |
| 250      | 40              | 800                      | 1500      |
| 300      | 50              | 1400                     | 2800      |
| 350      | 60              | 2000                     | 5000      |
| 400      | 70              | 2800                     | 7500      |
| 500      | 80              |                          |           |



### Capacity factor Kv and Resistance factor $\zeta$ for ball segment valve type KVTW/KVXW

| Valve<br>DN | Opening angle |     |     |     |     |      |      |      |      |             |
|-------------|---------------|-----|-----|-----|-----|------|------|------|------|-------------|
|             | 10°           | 20° | 30° | 40° | 50° | 60°  | 70°  | 80°  | 90°  | $\zeta$ 90° |
| 80          | 15            | 39  | 67  | 102 | 138 | 184  | 231  | 295  | 340  | 0.57        |
| 100         | 23            | 58  | 101 | 154 | 208 | 276  | 348  | 444  | 510  | 0.62        |
| 150         | 43            | 109 | 189 | 288 | 390 | 519  | 652  | 817  | 925  | 0.44        |
| 200         | 66            | 167 | 288 | 439 | 594 | 790  | 994  | 1268 | 1450 | 0.45        |
| 250         | 97            | 245 | 425 | 646 | 875 | 1162 | 1463 | 1866 | 2150 | 0.44        |

### Capacity factor Kv and Resistance factor $\zeta$ for ball segment valve type KVTF/KVXF

| Valve<br>DN | Opening angle |     |      |      |      |      |      |      |      |             |
|-------------|---------------|-----|------|------|------|------|------|------|------|-------------|
|             | 10°           | 20° | 30°  | 40°  | 50°  | 60°  | 70°  | 80°  | 90°  | $\zeta$ 90° |
| 80          | 15            | 39  | 67   | 102  | 138  | 184  | 231  | 295  | 340  | 0.57        |
| 100         | 23            | 58  | 101  | 154  | 208  | 276  | 348  | 444  | 510  | 0.62        |
| 125         | 43            | 109 | 185  | 288  | 390  | 519  | 652  | 817  | 925  | 0.44        |
| 150         | 60            | 153 | 264  | 402  | 544  | 725  | 910  | 1123 | 1295 | 0.42        |
| 200         | 100           | 253 | 437  | 665  | 901  | 1197 | 1507 | 1923 | 2210 | 0.42        |
| 250         | 155           | 390 | 677  | 1030 | 1395 | 1853 | 2333 | 2976 | 3425 | 0.40        |
| 300         | 219           | 552 | 959  | 1459 | 1977 | 2626 | 3303 | 4216 | 4850 | 0.38        |
| 350         | 308           | 780 | 1355 | 2058 | 2793 | 3708 | 4667 | 5952 | 6843 | 0.38        |
| 400         | 385           | 878 | 1698 | 2580 | 3497 | 4645 | 5845 | 7482 | 8570 | 0.38        |
| 500         |               |     |      |      |      |      |      |      |      |             |

Relation between Kv and Cv:  $K_v = 0.86 C_v$

#### Flange standard

SOMAS ball segment valves type KVTW and KVXW are flangeless and should be clamped between flanges. The valves type KVTF and KVXF are flanged and can be drilled according to the table below.

When ordering, please state the pressure rating of the counter flanges. See the valve specification system, code 11.

#### Nominal pressure valve body

| DN      | Wafer design           | Flanged design         |
|---------|------------------------|------------------------|
| 80-100  | PN 10/16/20/25/ANSI150 | PN 10/16/20/25/ANSI150 |
| 125     | ---                    | PN 10/16/20/25/ANSI150 |
| 150-250 | PN 10/16/20/ANSI150    | PN 10/16/20/25/ANSI150 |
| 300-400 | ---                    | PN 10/16/20/25/ANSI150 |
| 500     |                        | PN 10/16/20/25         |

#### Face to face dimension

Flanged type of valves according to EN558-1, Series 15.

For details see the various tables.

#### Further technical information

Technical data for the materials used in the Somas valves, flange standard, steam data, etc. can be found in section 6 of the Somas catalogue.

#### Actuators and accessories

The valves can be fitted with SOMAS manual, on/off or control actuators in accordance with the selection table. The valves will then be delivered as tested shut-off or control units ready for installation.

Check sections 4 and 5 of the SOMAS catalogue, where positioners, limit switches and solenoid valves are also presented.

We can also fit other types of actuators and accessories in accordance with your specification.

#### Option

Within the process industry and the energy sector there are a number of applications where process data in combination with standard control valves will end up with problems such as high noise level and erosion. These problems are mostly related to cavitation and high flow velocities inside the valve.

**Note!** By using a standard ball segment valve and add a noise reduction trim many of the above mentioned problems can be solved.

See data sheet Si-108 for more theoretical information.

For controlling suspensions with high fibre concentrations it can be advantageous to use valves with a V-groove to reduce the risk of dewatering at small opening angles.

Capacity factors and remaining factors for valves with LN-trim and valves with V-groove are available in the valve sizing program SOMSIZE.





## Selection table

| KVTW/KVXW |            | Pneumatic actuators |       |                  |        |                |         | Manual     |           |
|-----------|------------|---------------------|-------|------------------|--------|----------------|---------|------------|-----------|
| Valve DN  | Shaft dia. | Double acting       |       | Spring to return |        |                |         | Hand lever | Gear unit |
|           |            | 5,5 bar             | 4 bar | Spring to close  |        | Spring to open |         |            |           |
|           |            |                     |       | 5,5 bar          | 4 bar  | 5,5 bar        | 4 bar   |            |           |
| 80        | 20         | A21                 | A22   | A23-SC           | A23-SC | A23-SO         | A23-SOL | HSR020     | M10/F07   |
| 100       | 20         | A21                 | A22   | A23-SC           | A23-SC | A23-SO         | A23-SOL | HSR020     | M10/F07   |
| 150       | 25         | A22                 | A23   | A24-SC           | A24-SC | A24-SO         | A24-SOL | ---        | M10/F12   |
| 200       | 30         | A31                 | A24   | A33-SC           | A33-SC | A33-SO         | A33-SOL | ---        | M12/F12   |
| 250       | 35         | A31                 | A32   | A33-SC           | A33-SC | A33-SO         | A33-SOL | ---        | M12/F12   |

| KVTF/KVXF |            | Pneumatic actuators |       |                  |        |                |         | Manual                   |                        |
|-----------|------------|---------------------|-------|------------------|--------|----------------|---------|--------------------------|------------------------|
| Valve DN  | Shaft dia. | Double acting       |       | Spring to return |        |                |         | Hand lever<br>Hand lever | Gear unit<br>Gear unit |
|           |            | 5,5 bar             | 4 bar | Spring to close  |        | Spring to open |         |                          |                        |
|           |            |                     |       | 5,5 bar          | 4 bar  | 5,5 bar        | 4 bar   |                          |                        |
| 80        | 20         | A21                 | A22   | A23-SC           | A23-SC | A23-SO         | A23-SOL | HSR020                   | M10/F07                |
| 100       | 20         | A21                 | A22   | A23-SC           | A23-SC | A23-SO         | A23-SOL | HSR020                   | M10/F07                |
| 125       | 25         | A22                 | A23   | A24-SC           | A24-SC | A24-SO         | A24-SOL | ---                      | M10/F07                |
| 150       | 30         | A31                 | A31   | A33-SC           | A33-SC | A33-SO         | A33-SOL | ---                      | M12/F12                |
| 200       | 35         | A31                 | A32   | A33-SC           | A33-SC | A33-SO         | A33-SOL | ---                      | M12/F12                |
| 250       | 40         | A32                 | A32   | A34-SC           | A34-SC | A34-SO         | A34-SOL | ---                      | M12/F12                |
| 300       | 50         | A41                 | A41   | A43-SC           | A43-SC | A43-SO         | A43-SOL | ---                      | M14/F14                |
| 350       | 60         | A41                 | A42   | A43-SC           | A43-SC | A43-SO         | A43-SOL | ---                      | M15/F16                |
| 400       | 70         | A42                 | A42   | A44-SC           | A44-SC | A44-SO         | A44-SOL | ---                      | M20/F25                |
| 500       | 80         |                     |       |                  |        |                |         |                          | M20/F25                |

## For ordering

See valve specification system and also state type of actuator, positioner and accessories.

## Valve specification system

### KVTW - A 5 - A K A - B 1 1 - DN... - PN...

1 2 3 4 5 6 7 8 9 10 11

- |  |  |   |   |
|--|--|---|---|
| <p>1 Type of valve<br/>Wafer design<br/>KVTW (Centricly mounted segment)<br/>KVXW (Eccentricly mounted segment)<br/>KVTW LN (Cent. mounted segment, LN-design)<br/>KVXW LN (Eccent. mounted segment LN-design)<br/>KVMW (Segment med V-groove)<br/>Flanged design<br/>KVTF (Centricly mounted segment)<br/>KVXF (Eccentricly mounted segment)<br/>KVTF LN (Cent. mounted segment, LN-design)<br/>KVXF LN (Eccent. mounted segment, LN-design)<br/>KVMF (Segment with V-groove)</p> | <p>2 Valve body design<br/>A = Wafer design<br/>B = Flanged design (body in one piece)</p> | <p>3 Nominal pressure<br/>5 = PN 25<br/>4 = PN 20</p> <p>4 Material – valve body<br/>A = CF8M<br/>B = CF8M, hard chromed<br/>C = 1.4409</p> <p>5 Material – ball segment<br/>J = 1.4460*<br/>K = 1.4460*, hard chromed<br/>L = 1.4460*, HiCo coated</p> <p>6 Material – seat<br/>A = PTFE (10% carbon)<br/>B = PTFE 53<sup>1</sup><br/>T = HiCo (High Cobolt Alloy)</p> | <p>7 Material – shaft<br/>A = 1.4460*<br/>B = 1.4460*, hard chromed<br/>G = 1.4435, hard chromed</p> <p>8 Bearings – valve body/shaft<br/>1 = Without bearing<br/>4 = Rulon<br/>7 = 1.4539</p> <p>9 Stuffing box<br/>1 = Graphite<br/>2 = PTFE</p> <p>10 Valve size, DN</p> <p>11 Drilling, counter flanges</p> |
|--|--|---|---|

<sup>1</sup>50% PTFE + 50% 1.4435 powder – percentage by weight

\*2324-12 for DN 200-400

*SOMAS reserves the right to make improvements without prior notice.*



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