# Datasheet
# Butterfly valve for Fire safe
# FSV/VSS

**Si-202 EN**

Edition: 2024-05

- Advanced triple eccentric design
- Designed for manual and remote operated applications
- Tightness class in accordance with EN 60534-4 Class V as standard FSV/VSS
- PTFE seat with a backup seat in nickel alloy for FSV
- FSV Fire safe approved according to EN ISO 10497, API 607
- Solid seat made of stainless steel for VSS
- VSS Fire safe approved according to BS 6755-2

| | |
|---|---|
| **Type FSVW/VSS** | **Wafer design** |
| **Type FSVF** | **Flanged design** |
| **Type FSVL/VSSL** | **Lugged design** |
| **Type FSVG** | **Wafer design with guiding lugs** |
| **Nominal pressure** | **PN 10-25 Class 150, PN 10-40 Class 300 (VSS)** |
| **Nominal size** | **DN 80-500 NPS 4 - 20 FSVW/FSVF/FSVL/FSVG**<br>**DN 80-500 NPS 3 - 20 VSS/VSSL** |
| **Material** | **CF8M (316) FSV/VSS**<br>**6Mo FSV/VSS**<br>**22 Cr Duplex FSV**<br>**25 Cr Duplex FSV**<br>**Titanium FSV** |

# Copyright



# Sales and distribution

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# Product information

## FSV Fire safe

Somas butterfly valve, type FSV Fire safe is used as a control and on/off valve. The valve is designed to handle a wide range of liquids and gases.

The FSV valve can be supplied in wafer design (FSVW), in lugged design (FSVL), with 4 guiding lugs (FSVG) and in double flanged design (FSVF).

The valve has an advanced triple eccentric design including a unique shape of the disc which enables the use of a PTFE seat with a backup seat in nickel alloy. The Somas valves are ready units for installation and operation. The manual valves are delivered with gear units and the remote operated valves can be supplied with hydraulic or pneumatic actuators on request.

The valves comply with EN ISO 10497 and API 607 standards.

Typical applications for these valves are found within the oil and gas industry.

## VSS Fire safe

Somas butterfly valve, type VSS Fire safe is used as a control and on/off valve. The VSS valve is designed to handle a wide range of liquids, gases and steam within a broad temperature range.

The valve have an advanced triple eccentric design including a unique shape of the disc which allows the use of a solid stainless steel seat. The solid seat remains unaffected by high flow velocities and temperatures. A good valve function is achieved even on difficult applications.

The VSS valve is available in wafer or lugged design.

The Somas valves are ready for installation and operation.

The valve assemblies are delivered factory tested as complete units with actuators, positioners and accessories.

The valves comply with the fire testing standard BS 6755: Part 2.

## Tightness class FSV

| Standard leakage class | Optional leakage class |
|---|---|
| **EN 60534-4** | **EN 60534-4** |
| PTFE - Class V | PTFE - Class VI (≤DN400) |
| | **EN 12266-1** |
| | PTFE - Rate C |
| | PTFE - Rate B |

## Tightness class VSS

| Standard leakage class | Optional leakage class |
|---|---|
| **EN 60534-4** | **EN 12266-1** |
| Metal - Class V | Metal - Rate D |

## Pressure and temperature rating

**Pressure temperature relations from EN1092-1:2018. Max working pressure in bar (g) for Stainless Steel 1.4408/CF8M**

| | | Working temperature | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **0 °C** | **100 °C** | **150 °C** | **200 °C** | **250 °C** | **300 °C** | **350 °C** | **400 °C** | **450 °C** | **500 °C** | **550 °C** |
| **Pressure class** | PN10 | 10 | 10 | 9 | 8,4 | 7,9 | 7,4 | 7,1 | 6,8 | 6,7 | 6,6 | 6,5 |
| | PN16 | 16 | 16 | 14,5 | 13,4 | 12,7 | 11,8 | 11,4 | 10,9 | 10,7 | 10,5 | 10,4 |
| | PN25 | 25 | 25 | 22,7 | 21 | 19,8 | 18,5 | 17,8 | 17,1 | 16,8 | 16,5 | 16,3 |
| | PN40 | 40 | 40 | 36,3 | 33,7 | 31,8 | 29,7 | 28,5 | 27,1 | 26,9 | 26,4 | 26 |

Minimum working temperature -60° C**.** If lower temperatures are needed contact Somas.

**Note!** FSV only applies up to 150° C.

VSS PN6 on request.

PN40 only applies to VSS.

**Pressure temperature relations from ASME 16.5 - 2003. Max working pressure in bar (g) for Stainless Steel 1.4408/CF8M**

| | Working temperature | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **-29° C to 38°C** | **100 °C** | **150 °C** | **200 °C** | **250 °C** | **300 °C** | **350 °C** | **400 °C** | **450 °C** | **500 °C** |
| **Class 150** | 19 | 16,2 | 14,8 | 13,7 | 12,1 | 10,2 | 8,4 | 6,5 | 4,6 | 2,8 |
| **Class 300** | 50 | 42 | 40 | 36 | 35 | 33 | 32 | 31 | 31 | 30 |

**NOTE!** FSV only applies up to 150°C. FSV only applies to Class 150.

## Max. allowable pressure drops/torque figures for FSV/VSS

Maximum allowable pressure drops are valid at 20° C (see below).

| Valve DN | PN | Max. pressure drop. bar at opening angle 0° | 60° | 80° | Torque min. at ΔP bar | Nm | Torque min. at ΔP bar | Nm | Torque max. shaft Nm |
|---|---|---|---|---|---|---|---|---|---|
| **80** | 25 | 25 | 13 | 4,4 | ≤ 10 | 100 | > 10 | 120 | 150 |
| **100** | 25 | 25 | 13 | 4,4 | ≤ 10 | 120 | > 10 | 165 | 220 |
| **125** | 25 | 25 | 15 | 5,8 | ≤ 10 | 165 | > 10 | 180 | 220 |
| **150** | 25 | 25 | 9 | 2,7 | ≤ 10 | 200 | > 10 | 250 | 300 |
| **200** | 25 | 25 | 4,3 | 1,1 | ≤ 10 | 250 | > 10 | 290 | 350 |
| **250** | 25 | 25 | 3,6 | 1,05 | ≤ 10 | 400 | > 10 | 500 | 600 |
| **300** | 25 | 20 | 3,6 | 0,93 | ≤ 10 | 500 | > 10 | 620 | 750 |
| **350** | 25 | 20 | 3,6 | 1,09 | ≤ 8 | 800 | > 8 | 1000 | 1200 |
| **400** | 25 | 20 | 4,7 | 1,43 | ≤ 8 | 1000 | > 8 | 1350 | 1600 |
| **500** | 25 | 15 | 4,4 | 1,19 | ≤ 6 | 1900 | > 6 | 2700 | 3250 |

## Max. allowable pressure drops/torque figures PN 40/Class300 (VSS only)

Maximum allowable pressure drops are valid at 20° C (see below).

| Valve DN | PN/Class | Max. pressure drop. bar at opening angle 0° | 60° | 80° | Torque min. at ΔP bar | Nm | Torque min. at ΔP bar | Nm | Torque max. shaft Nm |
|---|---|---|---|---|---|---|---|---|---|
| **80** | 40/300 | 50 | 16 | 6 | ≤ 20 | 120 | > 20 | 180 | 220 |
| **100** | 40/300 | 50 | 15 | 5 | ≤ 20 | 165 | > 20 | 250 | 300 |
| **150** | 40/300 | 50 | 10 | 3 | ≤ 20 | 250 | > 20 | 350 | 420 |
| **200** | 40/300 | 50 | 7,5 | 2 | ≤ 20 | 290 | > 20 | 460 | 550 |
| **250** | 40/300 | 50 | 5 | 1,5 | ≤ 20 | 480 | > 20 | 680 | 820 |
| **300** | 40/300 | 50 | 5 | 1,5 | ≤ 20 | 600 | > 20 | 900 | 1080 |
| **350** | 40/300 | 50 | 5 | 1,5 | ≤ 20 | 950 | > 20 | 1350 | 1620 |
| **400** | 40/300 | 50 | 5 | 1,5 | ≤ 20 | 1300 | > 20 | 1750 | 2100 |
| **500** | 40/300 | 50 | 4 | 1,2 | ≤ 20 | 2600 | > 20 | 3000 | 3600 |

## Temperature range FSV

| Seat | Max. temp. |
|---|---|
| F = PTFE (10 % carbon) | 150° C |

## Temperature range VSS

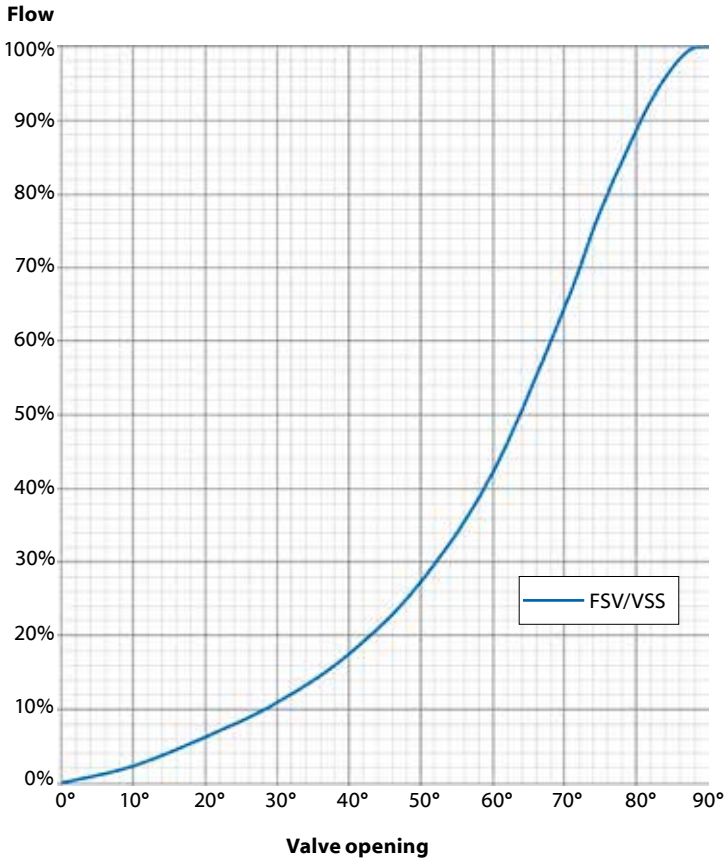
| Seat | Max. temp |
|---|---|
| C = 1.4462 alt. 1.4470, (metal seat, 3 pcs.) | 350° C[1] |

| Shaft | Max. temp. |
|---|---|
| A = 1.4460 alt. SS 2324-12 | 150° C |
| B = 1.4460 alt. SS 2324-12, hard chromed | 350° C[1] |
| C = 1.4460 alt. SS 2324-12, HiCo Gr 6 coated | 350° C[1] |

| Valve body | Max. temp. |
|---|---|
| A = 1.4408/CF8M | 550° C |
| E = CK-3MCuN | 400° C |
| F = 1.4458 | 400° C |

[1] Check with Somas for temperatures above 350 ° C

## Flow characteristics FSV/VSS



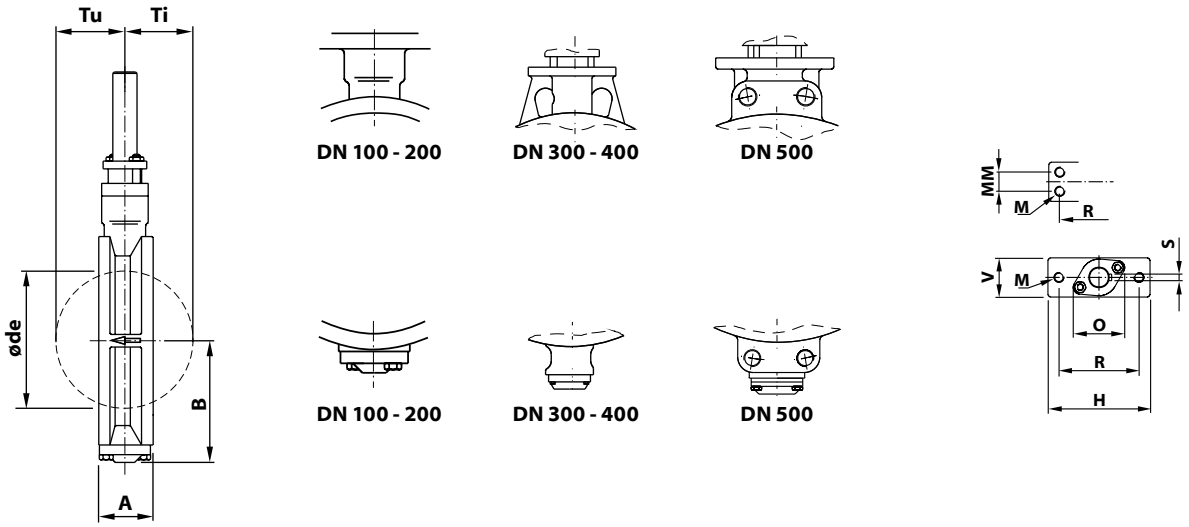

## Capacity factor Kv and Resistance factor ζ FSV/VSS

| | Opening angle | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **DN** | **10°** | **20°** | **30°** | **40°** | **50°** | **60°** | **70°** | **80°** | **90°** | **ζ 90°** |
| **80** | 4 | 11 | 19 | 31 | 48 | 75 | 114 | 157 | 177 | 3,423 |
| **100** | 6 | 17 | 29 | 47 | 73 | 113 | 173 | 237 | 267 | 2,231 |
| **125** | 10 | 27 | 47 | 76 | 118 | 182 | 280 | 384 | 433 | 1,627 |
| **150** | 15 | 41 | 73 | 116 | 181 | 280 | 429 | 589 | 664 | 1,317 |
| **200** | 31 | 84 | 147 | 236 | 368 | 568 | 870 | 1195 | 1347 | 0,996 |
| **250** | 55 | 147 | 258 | 413 | 644 | 994 | 1524 | 2092 | 2358 | 0,830 |
| **300** | 87 | 233 | 408 | 653 | 1019 | 1574 | 2412 | 3311 | 3732 | 0,727 |
| **350** | 128 | 343 | 601 | 962 | 1501 | 2317 | 3551 | 4875 | 5495 | 0,656 |
| **400** | 178 | 478 | 839 | 1342 | 2094 | 3233 | 4954 | 6802 | 7666 | 0,605 |
| **450**[1] | 238 | 640 | 1122 | 1796 | 2802 | 4326 | 6630 | 9103 | 10260 | 0,565 |
| **500** | 309 | 828 | 1453 | 2325 | 3628 | 5600 | 8582 | 11783 | 13281 | 0,534 |

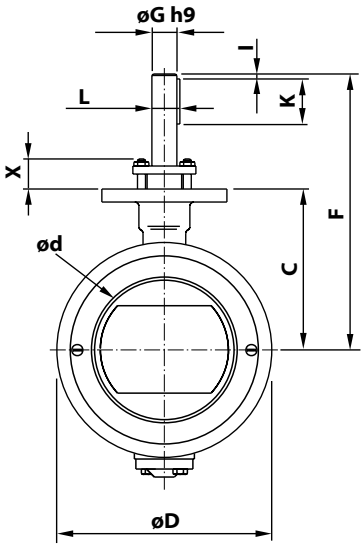
Relation between Kv and Cv: Kv = 0.86 x Cv

[1]DN450 only for VSS

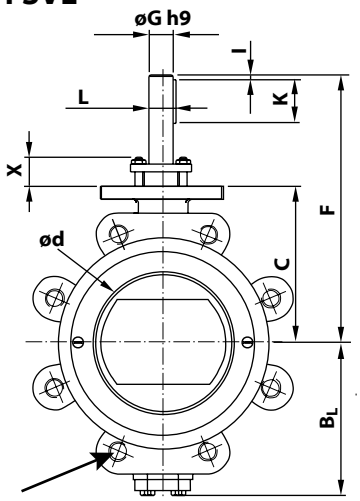
## FSVW/FSVL/FSVG




### FSVW

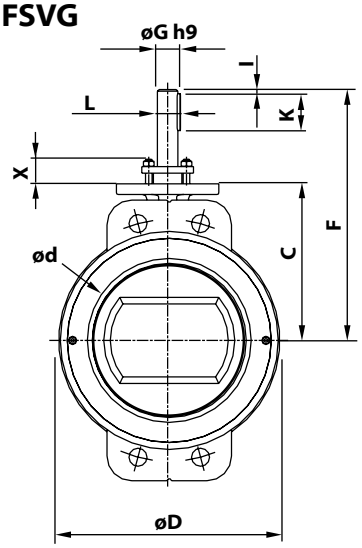



### FSVL




Drilled and threaded according to the ordered flange standard

### FSVG

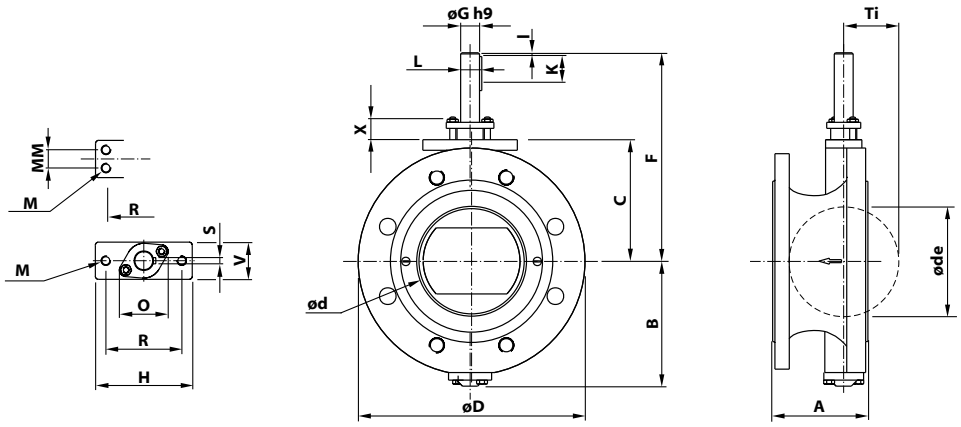



**Butterfly valve type FSVW/FSVL/FSVG**

| DN | NPS | A | B | $B_L$ | C | ød | øde | øD | F | øG | H | I | K | L | M | MM | O | R | S | V | X | Tu | Ti | Weight FSVW/FSVG | Weight FSVL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | **3** | 46 | 86 | 86 | 111 | 70 | 60 | 133 | 226 | 20 | 125 | 5 | 45 | 22.5 | M12 | - | 61 | 98 | 6 | 40 | 30 | 41 | 38 | 5 | 10**/14 |
| **100** | **4** | 52 | 99 | 129 | 128 | 90 | 86 | 160 | 243 | 20 | 125 | 5 | 45 | 22.5 | M12 | – | 61 | 98 | 6 | 44 | 30 | 52 | 48 | 6 | 11.5 |
| **125** | **5** | 56 | 113 | 137 | 146 | 116 | 110 | 188 | 261 | 20 | 125 | 5 | 45 | 22.5 | M12 | – | 61 | 98 | 6 | 48 | 30 | 64 | 60 | 9 | 15.5 |
| **150** | **6** | 56 | 127 | 158 | 161 | 140 | 138 | 215 | 276 | 25 | 125 | 5 | 45 | 28 | M12 | – | 66 | 98 | 8 | 48 | 30 | 77 | 73 | 11 | 18.5 |
| **200** | **8** | 60 | 153 | 191[1] | 191 | 187 | 186 | 270 | 306 | 25 | 125 | 5 | 45 | 28 | M12 | – | 66 | 98 | 8 | 48 | 30 | 100 | 96 | 17 | 31 |
| **250** | **10** | 68 | 188 | 226 | 225 | 236 | 235 | 324 | 360 | 30 | 150 | 5 | 60 | 33 | M12 | 24 | 72 | 123 | 8 | 50 | 40 | 124 | 120 | 26 | 45 |
| **300** | **12** | 78 | 261 | 261 | 265 | 285 | 285 | 374 | 400 | 35 | 150 | 3 | 50 | 38 | M12 | 24 | 75 | 123 | 10 | 60 | 40 | 149 | 145 | 39 | 70 |
| **350** | **14** | 78 | 287 | 287 | 294 | 331 | 330 | 432 | 449 | 40 | 150 | 3 | 70 | 43 | M12 | 40 | 95 | 123 | 12 | 70 | 50 | 172 | 167 | 53 | 100 |
| **400** | **16** | 102 | 339 | – | 330 | 382 | 380 | 485 | 530 | 50 | 170 | 3 | 80 | 53.5 | M16 | 55 | 105 | 136 | 14 | 87 | 50 | 199 | 194 | 82 | – |
| **500** | **20** | 127 | 396 | – | 395 | 479 | 475 | 590 | 605 | 60 | 210 | 3 | 90 | 64 | M20 | 70 | 116 | 150 | 18 | 120 | 60 | 249 | 242 | 143 | – |

** PN 10/16/25=14 kg,
PN 20/Class 150=10 kg

# FSVF

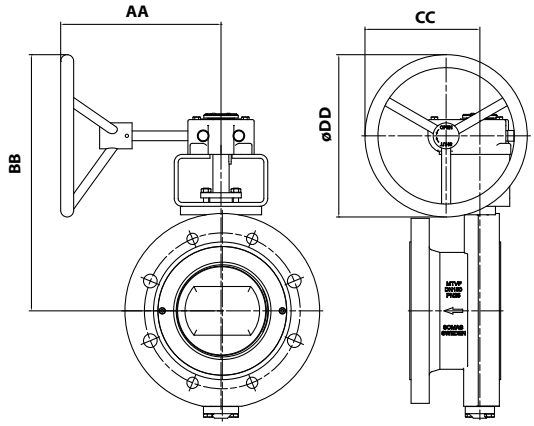



**Butterfly valve type FSVF**

| DN | A | B | C | ød | øde | øD | F | øG | øH | I | K | L | M | MM | O | R | S | V | X | Ti | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | 114 | 113 | 111 | 70 | 60 | According to the flange standard | 226 | 20 | 125 | 5 | 45 | 22.5 | M12 | - | 61 | 98 | 6 | 40 | 30 | 38 | 14 |
| **100** | 127 | 130 | 128 | 90 | 86 | | 243 | 20 | 125 | 5 | 45 | 22.5 | M12 | – | 61 | 98 | 6 | 44 | 30 | 48 | 17.5 |
| **125** | 140 | 150 | 146 | 116 | 110 | | 261 | 20 | 125 | 5 | 45 | 22.5 | M12 | – | 61 | 98 | 6 | 48 | 30 | 60 | 24 |
| **150** | 140 | 165 | 161 | 140 | 138 | | 276 | 25 | 125 | 5 | 45 | 28 | M12 | – | 66 | 98 | 8 | 48 | 30 | 73 | 34 |
| **200** | 152 | 195 | 191 | 187 | 186 | | 306 | 25 | 125 | 5 | 45 | 28 | M12 | – | 66 | 98 | 8 | 48 | 30 | 96 | 42 |
| **250** | 165 | 224 | 225 | 236 | 235 | | 360 | 30 | 150 | 5 | 60 | 33 | M12 | 24 | 72 | 123 | 8 | 50 | 40 | 120 | 64 |
| **300** | 178 | 261 | 265 | 285 | 285 | | 400 | 35 | 150 | 3 | 50 | 38 | M12 | 24 | 75 | 123 | 10 | 60 | 40 | 145 | 100 |
| **350** | 190 | 297 | 294 | 331 | 330 | | 449 | 40 | 150 | 3 | 70 | 43 | M12 | 40 | 95 | 123 | 12 | 70 | 50 | 167 | 157 |
| **400** | 216 | 320 | 330 | 382 | 380 | | 530 | 50 | 170 | 3 | 80 | 53.5 | M16 | 55 | 105 | 136 | 14 | 87 | 50 | 194 | 171 |
| **500** | 229 | 375 | 395 | 479 | 475 | | 605 | 60 | 210 | 3 | 90 | 64 | M20 | 70 | 116 | 150 | 18 | 120 | 60 | 242 | 315 |

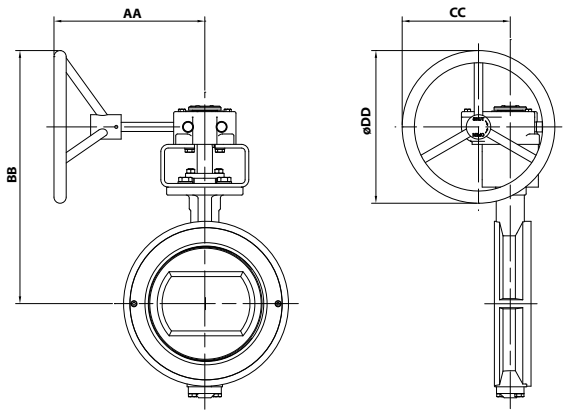
A = Face to face dimension according to EN 558 series 13
øde = Necessary free diameter for the disc under movement

## FSV




**Butterfly valve type FSVF with gear unit**

| DN | Type | AA | BB | CC | øDD | Weight |
|---|---|---|---|---|---|---|
| **80** | **AB215FS** | 247 | 342 | 177 | 200 | 22 |
| **100** | **AB215FS** | 247 | 357 | 177 | 200 | 25 |
| **125** | **AB215FS** | 247 | 375 | 177 | 200 | 30 |
| **150** | **AB215FS** | 247 | 386 | 177 | 200 | 41 |
| **200** | **AB215FS** | 247 | 415 | 177 | 200 | 53 |
| **250** | **AB550FS** | 284 | 487 | 221 | 300 | 90 |
| **300** | **AB550FS** | 284 | 526 | 221 | 300 | 120 |
| **350** | **AB550FS** | 284 | 589 | 221 | 300 | 172 |
| **400** | **AB880FS** | 277 | 670 | 261 | 350 | 195 |
| **500** | **AB2000FS** | 320 | 866 | 320 | 500 | 348 |

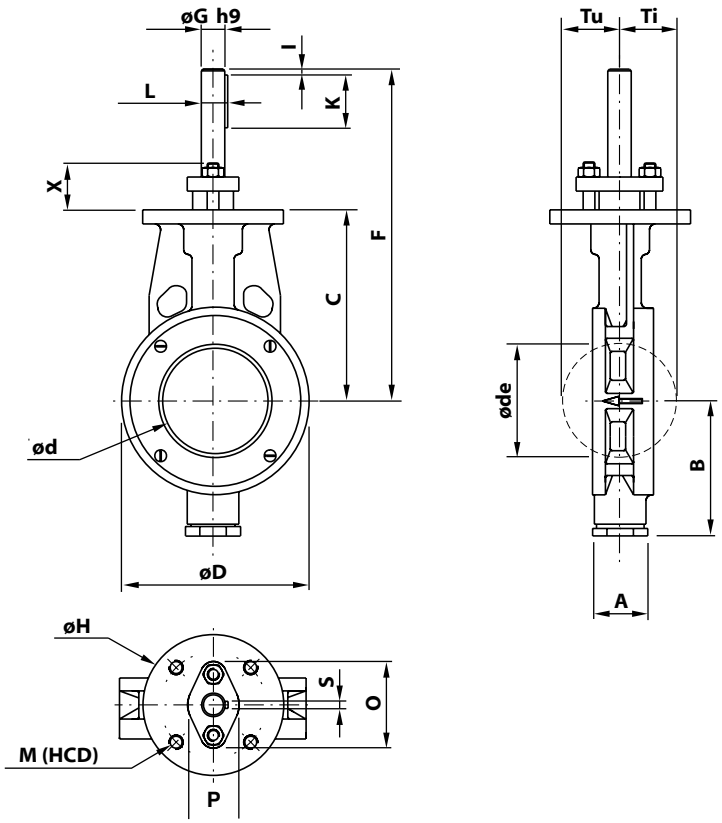



**Butterfly valve type FSVW/FSVG/FSVL with gear unit**

| | | | | | | Weight | |
|---|---|---|---|---|---|---|---|
| DN | Type | AA | BB | CC | øDD | FSVW/FSVG | FSVL |
| **80** | **AB215FS** | 247 | 342 | 177 | 200 | 13 | 18**/22 |
| **100** | **AB215FS** | 247 | 357 | 177 | 200 | 14 | 20 |
| **125** | **AB215FS** | 247 | 372 | 177 | 200 | 17 | 24 |
| **150** | **AB215FS** | 247 | 386 | 177 | 200 | 19 | 26 |
| **200** | **AB215FS** | 247 | 414 | 177 | 200 | 25 | 39 |
| **250** | **AB550FS** | 284 | 487 | 221 | 300 | 39 | 58 |
| **300** | **AB550FS** | 284 | 526 | 221 | 300 | 52 | 83 |
| **350** | **AB550FS** | 284 | 589 | 221 | 300 | 65 | 110 |
| **400** | **AB880FS** | 277 | 667 | 261 | 350 | 102 | - |
| **500** | **AB2000FS** | 320 | 866 | 320 | 500 | 184 | - |

** PN 10/16/25=22 kg,
PN 20/Class 150=18 kg

# VSS




**Butterfly valve type VSS**

| DN | A | B | C | ød | øde | øD | F | øG | øH | I | K | L | M | (HCD) | O | P | S | X | Tu | Ti | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | 50 | 120 | 150 | 70 | 60 | 133 | 270 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 69 | 40 | 6 | 40 | 41 | 37 | 7 |
| **100** | 52 | 120 | 163 | 90 | 86 | 160 | 283 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 69 | 40 | 6 | 40 | 52 | 48 | 9 |
| **125** | 56 | 135 | 175 | 116 | 110 | 190 | 295 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 69 | 40 | 6 | 40 | 64 | 60 | 11 |
| **150** | 56 | 155 | 195 | 140 | 138 | 215 | 315 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 69 | 45 | 8 | 40 | 77 | 73 | 14 |
| **200** | 60 | 180 | 235 | 187 | 186 | 270 | 355 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 69 | 45 | 8 | 40 | 100 | 96 | 19 |
| **250** | 68 | 205 | 275 | 236 | 235 | 324 | 410 | 30 | 150 | 5 | 60 | 33 | M12 | 120 | 80 | 50 | 8 | 50 | 124 | 120 | 30 |
| **300** | 78 | 240 | 290 | 285 | 285 | 375 | 425 | 35 | 150 | 5 | 50 | 38 | M12 | 120 | 85 | 55 | 10 | 50 | 149 | 145 | 43 |
| **350** | 78 | 320 | 315 | 331 | 330 | 435 | 450 | 40 | 150 | 5 | 50 | 43 | M12 | 120 | 108 | 70 | 12 | 50 | 172 | 167 | 56 |
| **400** | 102 | 360 | 340 | 382 | 380 | 490 | 540 | 50 | 150 | 10 | 80 | 53,5 | M12 | 120 | 124 | 82 | 14 | 50 | 199 | 194 | 85 |
| **450** | 114 | 385 | 370 | 429 | 425 | 535 | 570 | 50 | 150 | 10 | 80 | 53,5 | M12 | 120 | 124 | 82 | 14 | 50 | 223 | 217 | 109 |
| **500** | 127 | 415 | 400 | 479 | 475 | 590 | 610 | 60 | 200 | 10 | 90 | 64 | M16 | 160 | 147 | 96 | 18 | 60 | 249 | 242 | 150 |

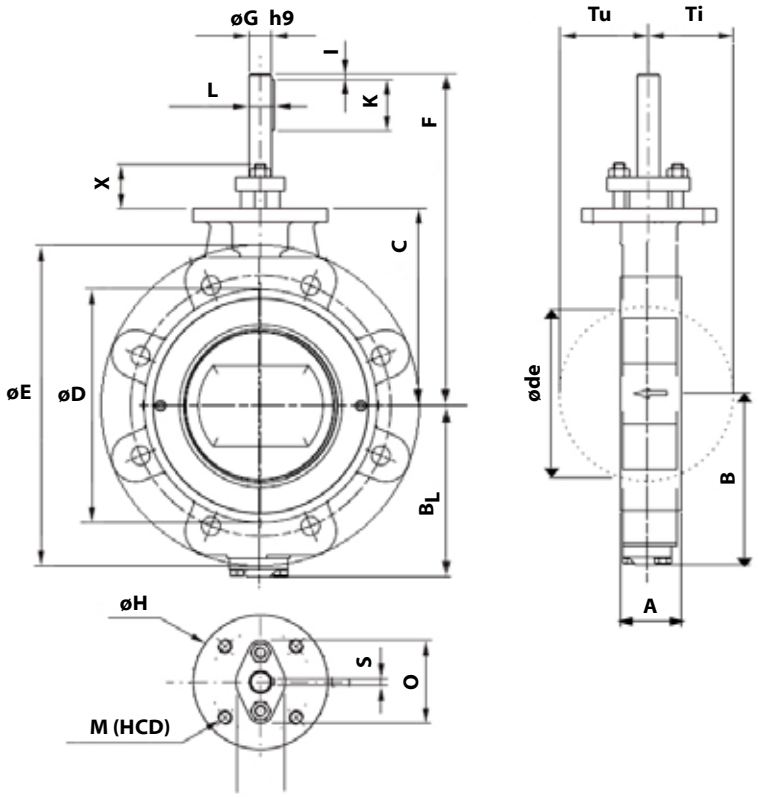
A = Face to face dimension according to EN 558 series 20 (valid for DN 100 - 500), series 49 (valid for DN80).
øde = Necessary free diameter for the disc under movement.

**Butterfly valve type VSS PN 40 /Class 300**

| DN | A | B | C | ød | øde | øD | F | øG | øH | I | K | L | M | (HCD) | O | P | S | X | Tu | Ti | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | 50 | 113 | 150 | 70 | 60 | 133 | 270 | 20 | 120 | 5 | 45 | 22.5 | M12 | 90 | 74 | 44 | 6 | 40 | 18 | 6 | 8 |
| **100** | 64 | 148 | 165 | 90 | 86 | 162 | 285 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 78 | 50 | 8 | 40 | 21 | 11 | 11 |
| **150** | 76 | 186 | 195 | 140 | 138 | 218 | 330 | 30 | 150 | 5 | 60 | 33 | M12 | 120 | 92 | 58 | 8 | 44 | 38 | 31 | 20 |
| **200** | 89 | 220 | 225 | 187 | 186 | 280 | 360 | 35 | 150 | 5 | 50 | 38 | M12 | 120 | 100 | 64 | 10 | 44 | 56 | 47 | 34 |
| **250** | 114 | 265 | 265 | 236 | 235 | 335 | 400 | 40 | 150 | 5 | 50 | 43 | M12 | 120 | 108 | 70 | 12 | 48 | 64 | 62 | 55 |
| **300** | 114 | 295 | 295 | 285 | 285 | 395 | 505 | 50 | 150 | 10 | 80 | 53.5 | M12 | 120 | 124 | 82 | 14 | 52 | 89 | 87 | 75 |
| **350** | 127 | 330 | 330 | 331 | 330 | 450 | 540 | 60 | 200 | 10 | 90 | 64 | M16 | 160 | 147 | 96 | 18 | 68 | 105 | 103 | 108 |
| **400** | 140 | 375 | 370 | 382 | 380 | 512 | 595 | 70 | 200 | 10 | 110 | 74.5 | M16 | 160 | 162 | 112 | 20 | 68 | 128 | 118 | 158 |
| **500** | 152 | 442 | 440 | 479 | 475 | 605 | 685 | 80 | 200 | 10 | 120 | 85 | M16 | 160 | 183 | 120 | 22 | 78 | 167 | 164 | 250 |

A = Face to face dimension according to EN 558 series 16 (valid for DN 100 - 500)
øde = Necessary free diameter for the disc under movement

# VSSL




**Butterfly valve type VSSL**

| DN | A | B | C | ød | øde | øD | øE | F | øG | øH | I | K | L | M | (HCD) | O | P | S | X | Tu | Ti | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | 48 | 148 | 150 | 70 | 60 | 133 | 204 | 270 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 64 | 40 | 6 | 40 | 41 | 37 | 10,5 |
| **100** | 52 | 144 | 163 | 90 | 86 | 160 | 226 | 283 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 64 | 40 | 6 | 40 | 52 | 48 | 12,5 |
| **125** | 56 | 163 | 175 | 116 | 110 | 190 | 260 | 295 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 64 | 40 | 6 | 40 | 64 | 60 | 16,0 |
| **150** | 56 | 182 | 195 | 140 | 138 | 215 | 294 | 315 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 69 | 45 | 8 | 40 | 77 | 73 | 19,0 |
| **200** | 60 | 217 | 235 | 187 | 186 | 270 | 337 | 355 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 69 | 45 | 8 | 40 | 100 | 96 | 25,0 |
| **250** | 68 | 262 | 275 | 236 | 235 | 324 | 422 | 410 | 30 | 150 | 5 | 60 | 33 | M12 | 120 | 80 | 50 | 8 | 50 | 124 | 120 | 46,0 |
| **300** | 78 | 280 | 290 | 285 | 285 | 375 | 485 | 425 | 35 | 150 | 5 | 50 | 38 | M12 | 120 | 85 | 55 | 10 | 50 | 149 | 145 | 56,0 |
| **350 *)** | 78 | 320 | 315 | 331 | 330 | 432 | 524 | 450 | 40 | 150 | 5 | 70 | 43 | M12 | 120 | 108 | 70 | 12 | 50 | 172 | 167 | 68,0 |
| **400** | 102 | 360 | 340 | 382 | 380 | 485 | 608 | 550 | 50 | 150 | 10 | 80 | 53,5 | M12 | 120 | 124 | 82 | 14 | 50 | 199 | 194 | 129 |
| **450** | 114 | 385 | 370 | 429 | 425 | 535 | 670 | 580 | 50 | 150 | 10 | 80 | 53,5 | M12 | 120 | 124 | 92 | 14 | 60 | 223 | 217 | 207 |
| **500** | 127 | 415 | 400 | 479 | 475 | 590 | 718 | 610 | 60 | 200 | 10 | 90 | 64 | M16 | 160 | 147 | 96 | 18 | 60 | 249 | 242 | 198 |

*) Only Class 150
øde = Necessary free diameter for the disc under movement.

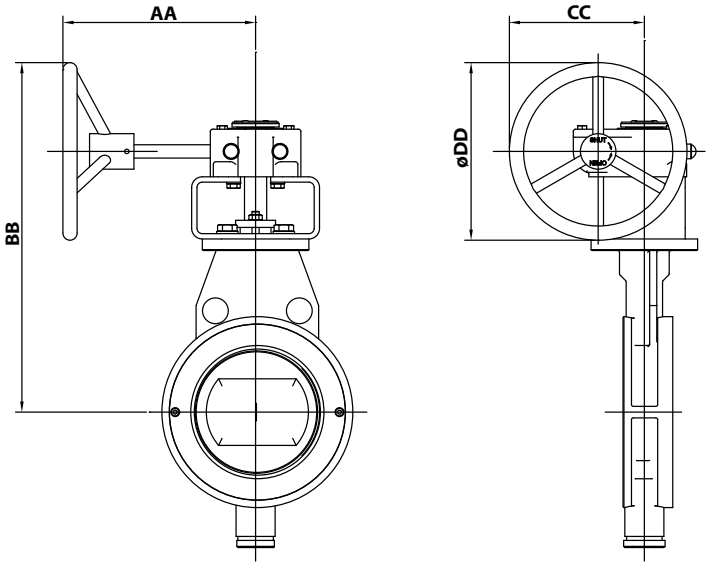
**Butterfly valve type VSSL PN 40 /Class 300**

| DN | A | B | C | ød | øde | øD | øE | F | øG | øH | I | K | L | M | (HCD) | O | P | S | X | Tu | Ti | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80** | 50 | 145 | 150 | 70 | 60 | 133 | 204 | 270 | 20 | 120 | 5 | 45 | 22,5 | M12 | 90 | 74 | 44 | 6 | 40 | 18 | 6 | 11 |
| **100** | 64 | 150 | 165 | 90 | 86 | 162 | 238 | 285 | 25 | 120 | 5 | 45 | 28 | M12 | 90 | 78 | 50 | 8 | 40 | 21 | 11 | 15 |
| **150** | 76 | 191 | 195 | 140 | 138 | 218 | 310 | 330 | 30 | 150 | 5 | 60 | 33 | M12 | 120 | 92 | 58 | 8 | 44 | 38 | 31 | 29 |
| **200** | 89 | 225 | 225 | 187 | 186 | 280 | 373 | 361 | 35 | 150 | 5 | 50 | 38 | M12 | 120 | 100 | 64 | 10 | 44 | 56 | 47 | 46 |
| **250** | 114 | 270 | 265 | 236 | 235 | 335 | 434 | 401 | 40 | 150 | 5 | 50 | 43 | M12 | 120 | 108 | 70 | 12 | 48 | 64 | 62 | 74*/146** |
| **300** | 114 | 300 | 295 | 285 | 285 | 395 | 504 | 496 | 50 | 150 | 10 | 80 | 53,5 | M12 | 120 | 124 | 82 | 14 | 52 | 89 | 87 | 101 |
| **350** | 127 | 335 | 330 | 331 | 330 | 465 | 586 | 540 | 70 | 200 | 10 | 90 | 64 | M16 | 160 | 147 | 96 | 18 | 68 | 105 | 103 | 146 |
| **400** | 140 | 378 | 370 | 382 | 380 | 512 | 626 | 610 | 70 | 200 | 10 | 110 | 74,5 | M16 | 160 | 162 | 112 | 20 | 68 | 128 | 118 | 203 |

A = Face to face dimension according to EN 558 series 16 (valid for DN 100 - 400)
øde = Necessary free diameter for the disc under movement

* Class 300 Lugged DN 250
** PN 40 Ring body DN 250

# VSS




**Butterfly valve type VSS with gear unit**

| DN | Type | AA | BB | CC | øDD | Weight VSS | Weight VSSL |
|---|---|---|---|---|---|---|---|
| **80** | **AB215FS** | 247 | 374 | 247 | 200 | 15 | 18,5 |
| **100** | **AB215FS** | 247 | 387 | 247 | 200 | 17 | 20,5 |
| **125** | **AB215FS** | 247 | 400 | 247 | 200 | 19 | 24 |
| **150** | **AB215FS** | 247 | 420 | 247 | 200 | 22 | 27 |
| **200** | **AB215FS** | 247 | 460 | 247 | 200 | 27 | 33 |
| **250** | **AB550FS** | 282 | 506 | 221 | 300 | 43 | 59 |
| **300** | **AB550FS** | 282 | 546 | 221 | 300 | 56 | 69 |
| **350** | **AB550FS** | 282 | 586 | 221 | 300 | 69 | 81 |
| **400** | **AB880FS** | 275 | 677 | 261 | 350 | 106 | 150 |
| **450** | **AB880FS** | 275 | 707 | 261 | 350 | 130 | 228 |
| **500** | **AB2000FS** | 318 | 810 | 303 | 500 | 184 | 232 |

**Butterfly valve type VSS PN 40/ Class 300 with gear unit**

| DN | Type | AA | BB | CC | øDD | Weight VSS | Weight VSSL |
|---|---|---|---|---|---|---|---|
| **80** | **AB215N** | 217 | 349 | 152 | 200 | 17 | 18 |
| **100** | **AB215N** | 217 | 364 | 152 | 200 | 20 | 22 |
| **150** | **AB215N** | 217 | 404 | 152 | 200 | 29 | 36 |
| **200** | **AB550N** | 282 | 496 | 221 | 300 | 45 | 60 |
| **250** | **AB550N** | 282 | 536 | 221 | 300 | 70 | 88*/160** |
| **300** | **AB880N** | 275 | 612 | 261 | 350 | 88 | 120 |
| **350** | **AB880N** | 275 | 667 | 261 | 350 | 121 | 165 |
| **400** | **AB2000N** | 318 | 806 | 303 | 500 | 181 | 238 |
| **500** | **AB2000N** | 318 | 876 | 303 | 500 | 291 | - |

* Class 300 Lugged DN 250
** PN 40 Luggsring DN 250

## Flange standard

Somas butterfly valves in this data sheet are fitted to be mounted between pipe flanges EN 1092-1 PN10-25 (PN10-40 for VSS) and ASME B16.5 Class 150 (Class 300 för VSS).

NOTE! Max. allowable pressure drop must not be exceeded. When ordering, please state the pressurerating of the counter flanges. See the valve specification system.

## Seat design

VSS valves for Fire safe have 3 pcs metal seat according to code C. The FSV valves have PTFE seat (10% Carbon) and a backup seat in a nickel alloy code F.

## Actuators, gears and accessories

The valves can be fitted with gear units, on/off or control actuators in accordance with the selection table in this data sheet. The valves will then be delivered as tested units ready for installation.

In the documents library on www.somas.se there is also information about positioners, limit switches and solenoid valves.

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

## Additional information

Technical data for the materials used in the Somas valves, flange standard, steam data, etc. can be found in documents library on www.somas.se.

See also our datasheets Si-203 type VSS and Si-205 type MTV, for other butterfly valves.

## Flange gaskets

Flat gaskets shall be used. Spiralwounded gaskets shall not be used. **Note:** Use gaskets with the correct inside diameter to ensure that pressure is applied on the cover plate.

For mounting between flanges PN10-25 according to the standard EN 1514-1 type IBC.

**Gaskets according to EN 1514-1**

| Valve | Max. Inside dia. | Outside dia. (dy) (mm) | | |
|---|---|---|---|---|
| DN | di (mm) | PN10 | PN16 | PN25 |
| **80** | 89 | 142 | 142 | 142 |
| **100** | 115 | 162 | 162 | 168 |
| **125** | 141 | 192 | 192 | 194 |
| **150** | 169 | 218 | 218 | 224 |
| **200** | 220 | 273 | 273 | 284 |
| **250** | 273 | 328 | 329 | 340 |
| **300** | 324 | 378 | 384 | 400 |
| **350** | 356 | 438 | 444 | 457 |
| **400** | 407 | 489 | 495 | 514 |
| **500** | 508 | 594 | 617 | 624 |

For mounting between flanges according to Class 150 dimensions according to the standard ASME B 16.21.

**Gaskets according to ASME B 16.21**

| Valve | Max. Inside dia. | Outside dia. (dy) (mm) |
|---|---|---|
| DN | di (mm) | Class 150 |
| **80** | 89 | 136 |
| **100** | 114 | 174 |
| **125** | 141 | 196 |
| **150** | 168 | 222 |
| **200** | 219 | 279 |
| **250** | 273 | 340 |
| **300** | 324 | 410 |
| **350** | 356 | 451 |
| **400** | 406 | 515 |
| **500** | 508 | 606 |

For mounting between flanges according to PN 40, the inside gasket diameter should not exceed the dimensions specified in the standard EN 1514-1.

**Gaskets according to EN 1514-1 PN 40**

| Valve | Max. Inside dia. | Outside dia. (dy) (mm) |
|---|---|---|
| DN | di (mm) | |
| **80** | 89 | 142 |
| **100** | 115 | 168 |
| **150** | 169 | 224 |
| **200** | 220 | 290 |
| **250** | 273 | 352 |
| **300** | 324 | 417 |
| **350** | 356 | 474 |
| **400** | 407 | 546 |
| **500** | 508 | 628 |

For mounting between flanges according to Class 300 dimensions according to the standard ASME B 16.21 RF are valid where the following dimensions refer to the gasket.

**Gaskets according to ASME B 16.21 RF Class 300**

| Valve | Max. Inside dia. | Outside dia. (dy) (mm) |
|---|---|---|
| DN | di (mm) | |
| **80** | 89 | 149 |
| **100** | 114 | 181 |
| **150** | 168 | 250 |
| **200** | 219 | 308 |
| **250** | 273 | 362 |
| **300** | 324 | 422 |
| **350** | 356 | 486 |
| **400** | 406 | 540 |
| **500** | 508 | 654 |

## Valve specification system

**FSVW - A 4 - E S F - J 1 1 - DN... - D... - B... - PN...**
1 2 3 4 5 6 7 8 9 10 11 12 13

**1 Type of valve**
FSVW
*Wafer design*
FSVG
*Wafer design with guiding lugs*
FSVL
*Lugged design*
FSVF
*Double flanged design*

**2 Valve body design**
A = Wafer design
F = Lugged design
L = Double flanged design

**3 Nominal pressure**
2 = PN10
3 = PN16
4 = Class 150
5 = PN25

**4 Material – valve body**
A = CF8M/1.4408
E = CK-3MCuN
F = 1.4458
H = 1.4470
S = Titan Gr C-2 / Gr 2
Z = 1.4469

**5 Material – disc**
A = CF8M/1.4408 alt. 1.4401
H = 1.4462 alt. 1.4470
N = 1.4469 alt. 1.4410
S = CK-3MCuN
U = Titan Gr C-2 / Gr 2

**6 Material – seat**
F = PTFE (10% Carbon) + NO6625 (High Nickel Alloy)

**7 Material – shaft**
A = 1.4460 alt. SS 2324-12
F = 1.4404
J = CK3MCuN / 1.4547
S = 1.4469 alt. 1.4410
T = Titan Gr 5

**8 Bearings – valve body/shaft**
1 = Without bearing
7 = Stainless steel

**9 Stuffing box**
1 = Graphite

**10 Valve size, DN/NPS**

**11 Shaft diameter**

**12 Actuator mounting flange drilling**

**13 Drilling, counter flanges PN/Class**

Note: For valves according to NORSOK or equivalent, other materials may be present, see datasheet Si-208.

*Other materials are available on request. Contact Somas for further information.*

## Valve specification system

**VSS - A 5 - A A C - A 1 1 - DN... - D... - B... - PN...**
1 2 3 4 5 6 7 8 9 10 11 12 13

**1 Type of valve**
VSS
*Wafer design*
VSSL
*Lugged design*

**2 Valve body design**
A =Wafer design
F =Lugged design

**3 Nominal pressure**
2 = PN10
4 = Class 150
5 = PN 25
6 = PN40/Class 300

**4 Material – valve body**
A = 1.4408/CF8M
E = CK-3MCuN
F = 1.4458

**5 Material – disc**
A = CF8M/1.4408 alt. 1.4401
B = CF8M/1.4408 alt. 1.4401, hard chromed
C = 1.4408/CF8M, alt. HiCo Gr 21 coated
F =1.4307 alt. 1.4309
M = 1.4458
S = CK-3MCuN alt. 1.4547

**6 Material – seat**
C = 1.4470/1.4462 (metal seat, 3 pcs)

**7 Material – shaft**
A = 1.4460 alt. SS 2324-12
B = 1.4460, alt. SS 2324-12 hard chromed
C = 1.4460 alt. SS 2324-12, HiCo Gr 6 coated

**8 Bearing – valve body/shaft**
1 = Without bearing
3 = HiCo Gr 6
6 = N06625 (High Nickel Alloy)
7 = 1.4462

**9 Stuffing box**
1 = Graphite

**10 Valve size, DN**
**11 Shaft diameter**
**12 Actuator mounting flange drilling**
**13 Drilling, counter flanges, PN/Class**

*Other materials are available on request.*
*Contact Somas for further information.*

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