



**V17**

GACHOT®  
BALL VALVE



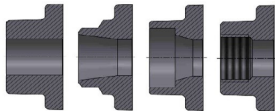
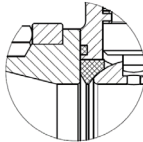
**GACHOT®**

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## V17 BALL VALVE FEATURES

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Performance</b>      | <p>The maximum pressures and temperatures depend on the pressure / temperature ratio and type of fluid.</p> <div> <div>Temperature, °C</div> <div> <div>-196 °C *</div> <div>350 °C</div> <div>700 °C</div> </div> </div> <div> <div>Pressure, bar</div> <div> <div>0</div> <div>220</div> <div>220 bar</div> </div> </div> <div> <div>Diameter, mm</div> <div> <div>DN8</div> <div>DN150</div> <div>DN250</div> </div> </div> <p>* Cryogenic version</p> |                                                                                       |
| <b>Features</b>         | <p>Ball valve (high pressure) 3-Piece.</p> <ul style="list-style-type: none"> <li>• Integrated ISO top flange for easy automation.</li> <li>• Stainless steel or carbon steel.</li> <li>• Full bore or Reduced bore.</li> <li>• Connections screwed in body.</li> </ul>                                                                                                                                                                                   |                                                                                       |
| <b>Technology</b>       | 3-Piece Technology and Floating Sphere                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                       |
| <b>Cable gland</b>      | Anti-ejection and anti-loosening system, with force resumption, guaranteeing a perfect seal with a series of gaskets.                                                                                                                                                                                                                                                                                                                                     |                                                                                       |
| <b>Ends</b>             | Available in weld (BW and SW), threaded gas / conical gas / NPT, with flanges (PN, Class), or other on request.                                                                                                                                                                                                                                                                                                                                           |   |
| <b>Ball</b>             | <ul style="list-style-type: none"> <li>- Standard built-in decompressor.</li> <li>- Designed to reduce pressure loss.</li> <li>- Specific finish upon request.</li> </ul>                                                                                                                                                                                                                                                                                 |  |
| <b>Lockable lever</b>   | Lockable lever with stainless steel trigger as standard for DN15 to 50.                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <b>Tightness</b>        | Two lip seats coupled with two body seals guarantee tightness.                                                                                                                                                                                                                                                                                                                                                                                            |  |
| <b>Face to Face</b>     | EN 12982 / EN 558 Series 1                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                       |
| <b>Design standard</b>  | EN 13445 / EN 12516-2 + EN 1626 (Cryogenic version)                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                       |
| <b>Sealing standard</b> | NF EN 12266 / ISO 5208 Rate A                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                       |
| <b>Flange standard</b>  | EN 1092-1 / EN 1759-1 / ISO 7005                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                       |
| <b>Options</b>          | <p>Cryogenic version with 150 or 300 mm extension.</p> <p>Lockable lever version for DN65 to 150.</p>                                                                                                                                                                                                                                                                                                                                                     |                                                                                       |
| <b>Approvals</b>        |                                                                                                                                                                                                  |                                                                                       |

## V17 BALL VALVE OPERATION

### Ball sealing

The ball is the sealing component that stops flow. It is set between two elastic lip seats that ensure sealing. This floating assembly enables the ball to move in the flow direction when the valve is closed.

**Figure 1 :** Sealing is provided by both seat washers when there is no pressure.

**Figure 2 :** The ball moves slightly towards the downstream seat when upstream pressure increases, thus increasing downstream seat pressure. A seat is designed so that when the ball pressure increases on it, the surface area also increases between both parts, which prevents any leakage. Also, this downstream seat pressure increase reduces upstream seat pressure. Thus, minimising the valve actuating torque gap on the whole pressure range.

### Stem sealing

The GACHOT® V17 Ball Valve stem is mounted inside in order to prevent it from being ejected. A wide shoulder on the lower part of the stem prevents its ejection, even under extreme internal pressure.

Pressure exerted on this shoulder also increases when internal pressure increases. This logically increases pressure exerted on the cable gland seal and thus enhances external tightness.

If no pressure is exerted and a vacuum operation is ongoing, seals are compressed by the support ring, moved by the spring washers, ensuring tightness.

Figure 1

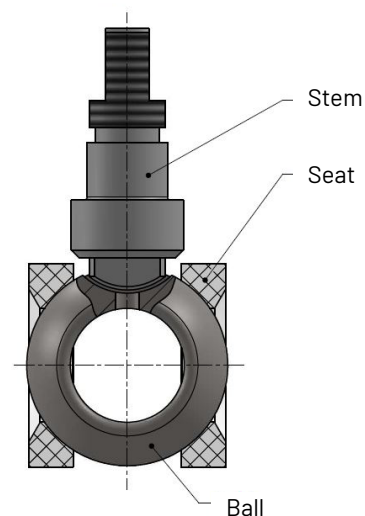
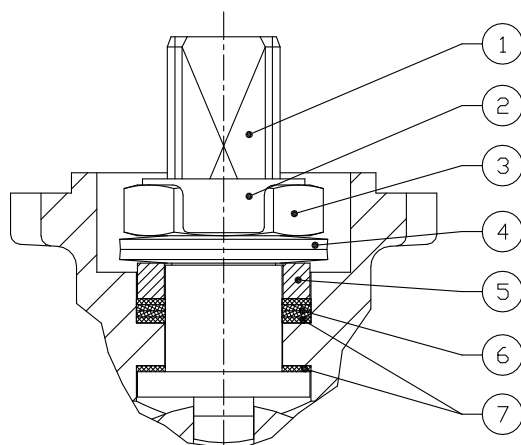
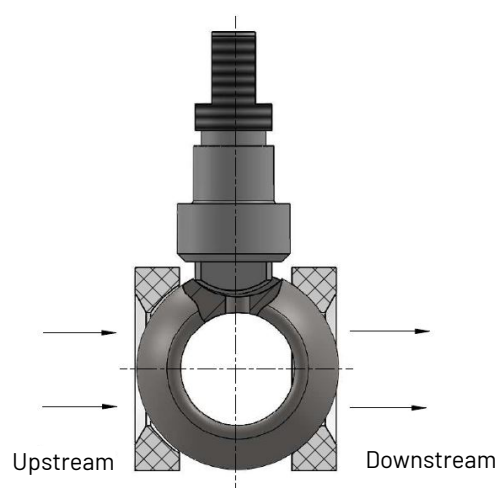
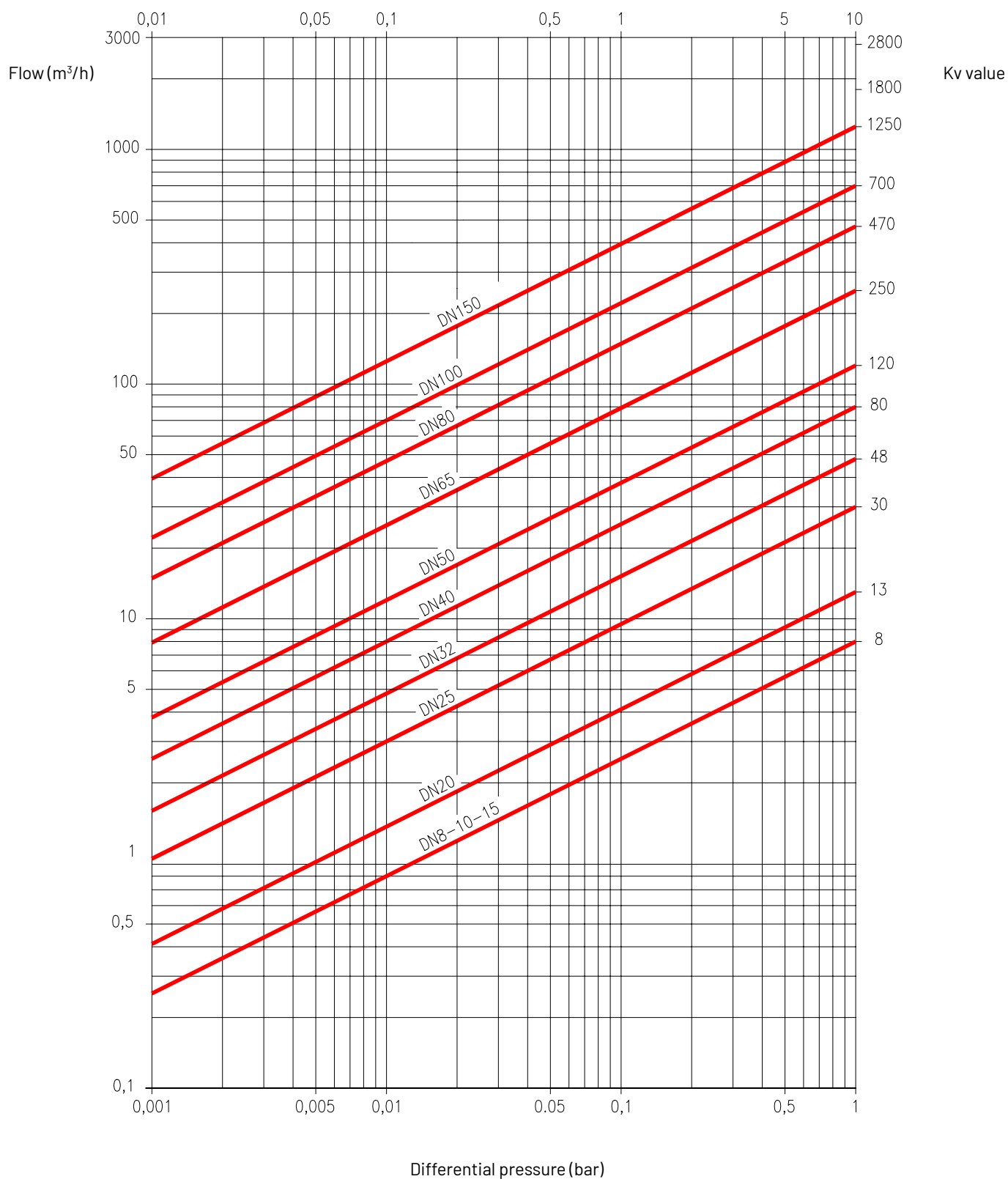


Figure 2



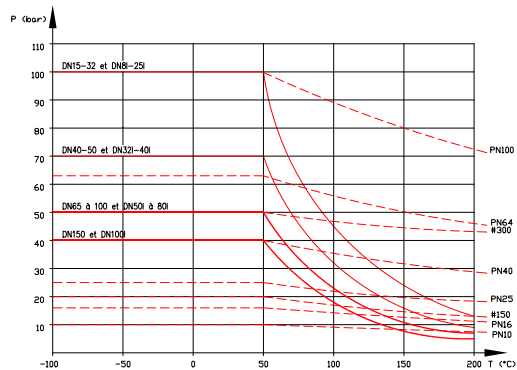
| Name |               |
|------|---------------|
| ①    | Stem          |
| ②    | Brake nut     |
| ③    | Nut           |
| ④    | Spring washer |
| ⑤    | Support rings |
| ⑥    | Gasket        |
| ⑦    | Seal          |

## Kv VALUES AND PRESSURE LOSS FOR V17 BALL VALVE WITH REDUCED PORT (WATER AT 20 °C)

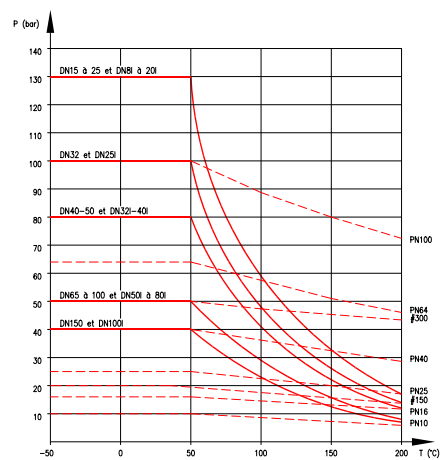


# PRESSURE / TEMPERATURE CHARACTERISTICS: SEAT FEATURES

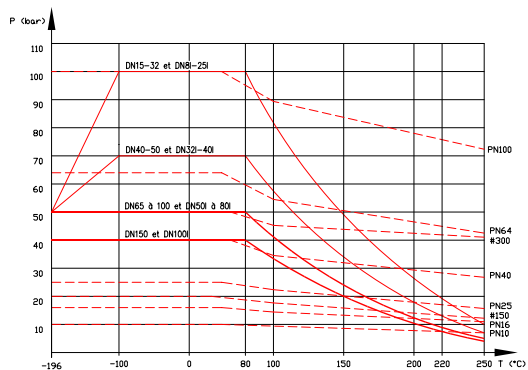
## PTFE



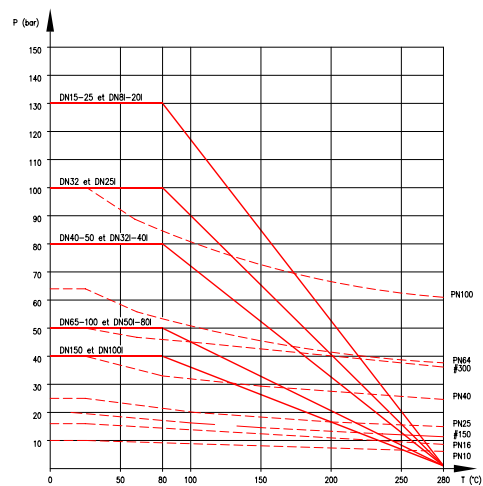
## 50% Stainless steel reinforced PTFE



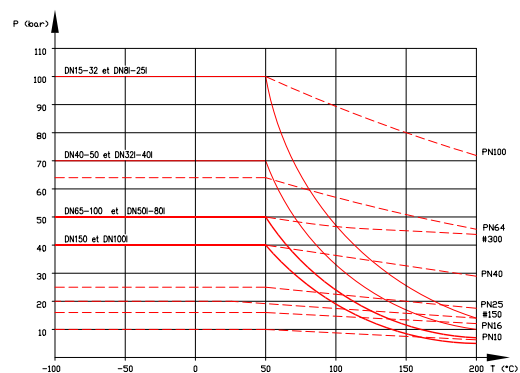
## 25% Carbon steel reinforced PTFE (TF4215) ®



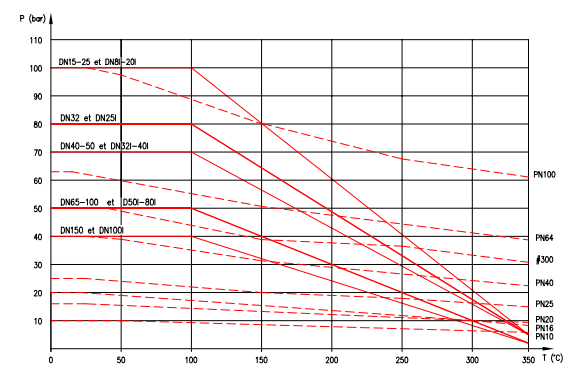
## PEEK



## 15% Glass reinforced PTFE



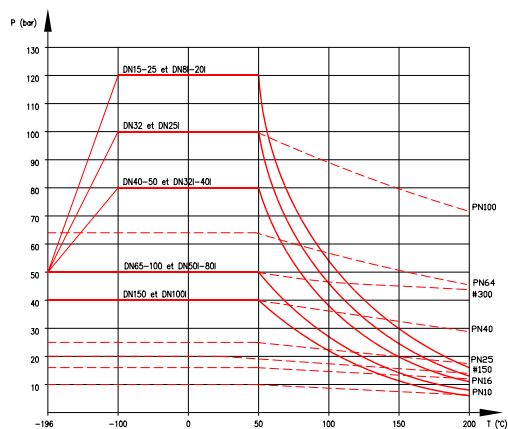
## Vespel seat



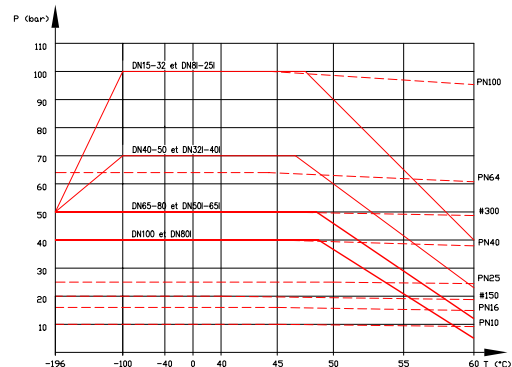
Please contact your SAPAG VALVES sales representative for other materials

## PRESSURE / TEMPERATURE CHARACTERISTICS: SEAT FEATURES

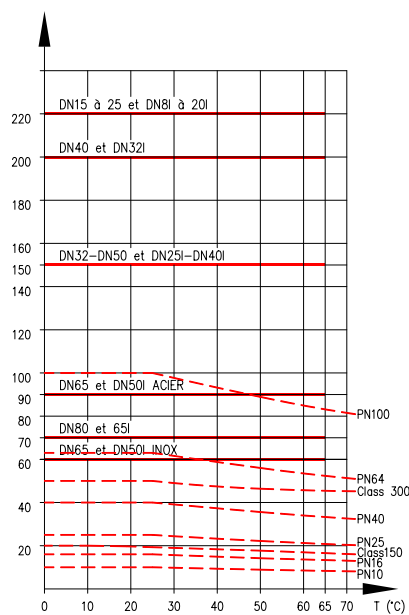
### 15% Glass reinforced PTFE



### Polyethylene seat



### DELTRIN®



Please contact your SAPAG VALVES sales representative for other materials

## PRESSURE / TEMPERATURE CHARACTERISTICS: BODY FEATURES

### Body features (bar)

| Flange connection           | F to F <sup>(1)</sup> | DN8I | DN15<br>DN10I | DN20<br>DN15I | DN25<br>DN20I | DN32<br>DN25I | DN40<br>DN32I | DN50<br>DN40I | DN65<br>DN50I     | DN80<br>DN65I | DN100<br>DN80I | DN150<br>DN100I |
|-----------------------------|-----------------------|------|---------------|---------------|---------------|---------------|---------------|---------------|-------------------|---------------|----------------|-----------------|
| Butt Weld                   | -                     | -    | 100           | 100           | 100           | 80            | 70            | 70            | 50                | 50            | 50             | 40              |
| SW, Threaded                | -                     | 100  | 100           | 100           | 100           | 80            | 70            | 70            | 50                | 50            | 50             | -               |
| Flanged PN10 to PN100       | Series 1              | -    | 100           | 100           | 100           | 63            | 63            | 63            | 40                | 40            | 40             | 40              |
| Flanged Class 150 (PN20)    | Series 1              | -    | 20            | 20            | 20            | 20            | 20            | 20            | 20                | 20            | 20             | 20              |
| Flanged Class 300 (PN50)    | Series 1              | -    | 50            | 50            | 50            | 50            | 50            | 50            | 50                | 50            | 50             | -               |
| Flanged Class 300 (PN50)    | Series 4              | -    | 50            | 50            | 50            | 50            | 50            | 50            | 50                | 50            | 50             | -               |
| Butt Weld <sup>(2)</sup>    | -                     | 220  | 220           | 220           | 220           | 150           | 200           | 150           | 90 <sup>(3)</sup> | 70            | -              | -               |
| SW, Threaded <sup>(2)</sup> | -                     | 220  | 220           | 220           | 220           | 150           | 200           | 150           | 90 <sup>(3)</sup> | 70            | -              | -               |

(1) F to F according to EN 558 / EN 12982.

(2) High pressure version with seats Delrin®.

(3) For the carbon steel bodies, 60 bars for the Stainless steel bodies.

### Maximum actuating torques (N.m)

| DN           |           | ΔP (bar) PTFE seats |     |     |     |     |     |     |     |  |  |  |
|--------------|-----------|---------------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Reduced port | Full port | 0                   | 6   | 10  | 16  | 25  | 40  | 64  | 100 |  |  |  |
| 15           | 8/10      | 5                   | 5   | 5   | 5   | 5   | 9   | 16  | 26  |  |  |  |
| 20           | 15        | 6                   | 6   | 6   | 6   | 6   | 10  | 17  | 27  |  |  |  |
| 25           | 20        | 11                  | 11  | 11  | 11  | 11  | 13  | 19  | 30  |  |  |  |
| 32           | 25        | 18                  | 18  | 18  | 18  | 18  | 22  | 27  | 36  |  |  |  |
| 40           | 32        | 24                  | 24  | 24  | 24  | 24  | 30  | 40  | 55  |  |  |  |
| 50           | 40        | 30                  | 30  | 30  | 30  | 30  | 35  | 45  | 60  |  |  |  |
| 65           | 50        | 60                  | 60  | 60  | 65  | 78  | 102 | 140 | -   |  |  |  |
| 80           | 65        | 95                  | 95  | 95  | 105 | 120 | 155 | 215 | -   |  |  |  |
| 100          | 80        | 155                 | 155 | 155 | 165 | 180 | 215 | 275 | -   |  |  |  |
| 150          | 100       | 215                 | 215 | 215 | 230 | 250 | 300 | -   | -   |  |  |  |

| DN           |           | ΔP (bar) reinforced glass, TF4215®, reinforced stainless steel, PEEK seats |     |     |     |     |     |     |     |  |  |  |
|--------------|-----------|----------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Reduced port | Full port | 0                                                                          | 6   | 10  | 16  | 25  | 40  | 64  | 100 |  |  |  |
| 15           | 8/10      | 6                                                                          | 6   | 6   | 6   | 6   | 11  | 19  | 31  |  |  |  |
| 20           | 15        | 7                                                                          | 7   | 7   | 7   | 7   | 13  | 20  | 32  |  |  |  |
| 25           | 20        | 13                                                                         | 13  | 13  | 13  | 13  | 17  | 24  | 36  |  |  |  |
| 32           | 25        | 22                                                                         | 22  | 22  | 22  | 22  | 26  | 34  | 43  |  |  |  |
| 40           | 32        | 29                                                                         | 29  | 29  | 29  | 29  | 36  | 48  | 65  |  |  |  |
| 50           | 40        | 36                                                                         | 36  | 36  | 36  | 36  | 43  | 55  | 72  |  |  |  |
| 65           | 50        | 72                                                                         | 72  | 72  | 81  | 94  | 122 | 170 | -   |  |  |  |
| 80           | 65        | 115                                                                        | 115 | 115 | 125 | 145 | 190 | 260 | -   |  |  |  |
| 100          | 80        | 180                                                                        | 180 | 180 | 190 | 210 | 250 | 315 | -   |  |  |  |
| 150          | 100       | 250                                                                        | 250 | 250 | 265 | 290 | 350 | -   | -   |  |  |  |

| DN           |           | ΔP (bar) cryogenic seats |     |     |     |     |     |     |     |  |  |  |
|--------------|-----------|--------------------------|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| Reduced port | Full port | 0                        | 6   | 10  | 16  | 25  | 40  | 64  | 100 |  |  |  |
| 15           | 8/10      | 7                        | 7   | 7   | 7   | 7   | 14  | 24  | 40  |  |  |  |
| 20           | 15        | 10                       | 10  | 10  | 10  | 10  | 16  | 26  | 41  |  |  |  |
| 25           | 20        | 17                       | 17  | 17  | 17  | 17  | 20  | 29  | 46  |  |  |  |
| 32           | 25        | 28                       | 28  | 28  | 28  | 28  | 32  | 42  | 54  |  |  |  |
| 40           | 32        | 36                       | 36  | 36  | 36  | 36  | 46  | 60  | 82  |  |  |  |
| 50           | 40        | 46                       | 46  | 46  | 46  | 46  | 54  | 68  | 88  |  |  |  |
| 65           | 50        | 90                       | 90  | 90  | 100 | 118 | 154 | 210 | -   |  |  |  |
| 80           | 65        | 144                      | 144 | 144 | 155 | 180 | 235 | 320 | -   |  |  |  |
| 100          | 80        | 235                      | 235 | 235 | 250 | 270 | 325 | 410 | -   |  |  |  |
| 150          | 100       | 325                      | 325 | 325 | 345 | 380 | 450 | -   | -   |  |  |  |

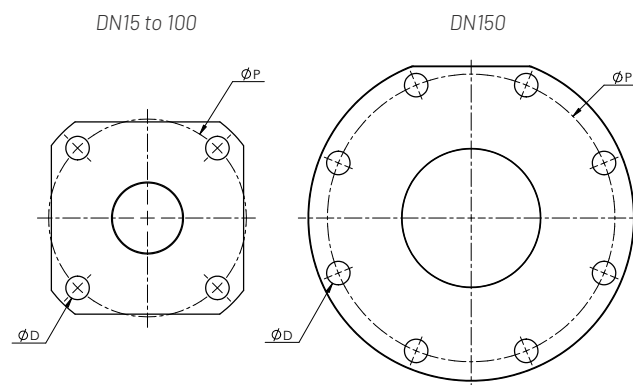
Operating torque in N.m, in clean water at 20°C.

Multiply values shown by 1.5 for actuator torque. Add 20% to given torques for any kind of non-lubricant fluid.

## FLANGE DRILLING AND TIGHTENING TORQUE DIAGRAM

### Connecting flange dimensions

| DN<br>Reduced<br>port | DN<br>Full port | ØD   | ØP   | Screw   |
|-----------------------|-----------------|------|------|---------|
| 15                    | 8/10            | 6,5  | 45   | 4 x M6  |
| 20                    | 15              | 8,5  | 53,1 | 4 x M8  |
| 25                    | 20              | 8,5  | 63   | 4 x M8  |
| 32                    | 25              | 8,5  | 71,5 | 4 x M8  |
| 40                    | 32              | 10,5 | 81   | 4 x M10 |
| 50                    | 40              | 10,5 | 94,5 | 4 x M10 |
| 65                    | 50              | 13   | 118  | 4 x M12 |
| 80                    | 65              | 17   | 140  | 4 x M16 |
| 100                   | 80              | 21   | 180  | 4 x M20 |
| 150                   | 100             | 17   | 208  | 8 x M16 |

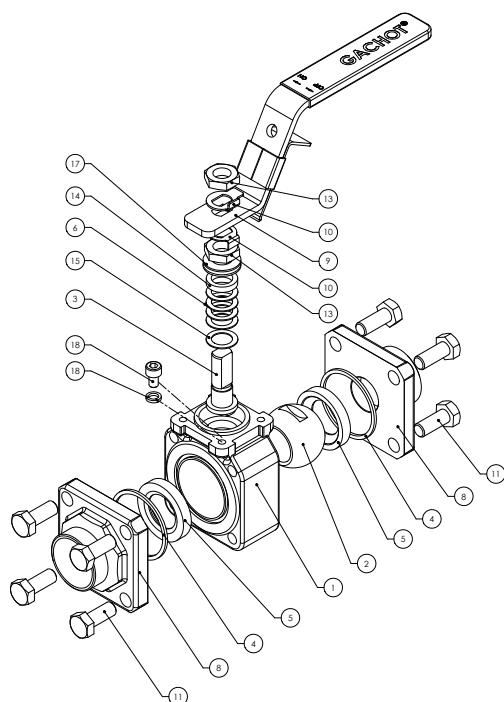


### Body screw tightening torques

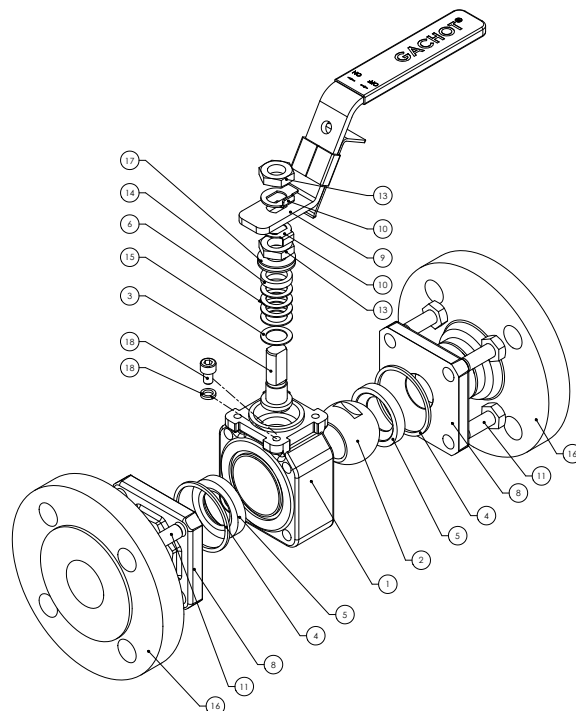
| DN<br>Reduced port | DN<br>Full port | Tapping | Torque (N.m) |
|--------------------|-----------------|---------|--------------|
| 15                 | 8/10            | M6      | 11-13        |
| 20                 | 15              | M8      | 14-18        |
| 25                 | 20              | M8      | 14-18        |
| 32                 | 25              | M8      | 14-18        |
| 40                 | 32              | M10     | 27-33        |
| 50                 | 40              | M10     | 27-33        |
| 65                 | 50              | M12     | 72-88        |
| 80                 | 65              | M16     | 108-132      |
| 100                | 80              | M20     | 180-220      |
| 150                | 100             | M16     | 180-220      |

## V17 BALL VALVE: EXPLODED VIEW

**Ball valve DN15 to DN150 with end piece  
(Butt-weld - Socket-weld - Threaded)**



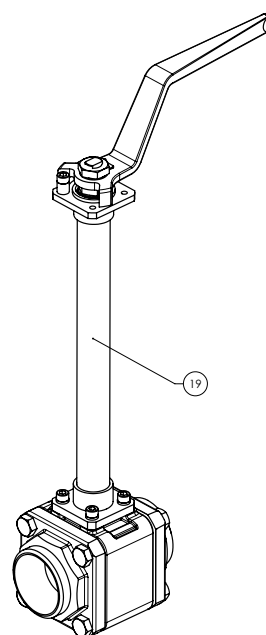
**Ball valve DN15 to DN150  
with flanges**



### Name

|    |                     |
|----|---------------------|
| 1  | Body                |
| 2  | Ball                |
| 3  | Stem                |
| 4  | Body seal           |
| 5  | Seat                |
| 6  | Gasket              |
| 8  | Connecting piece    |
| 9  | Lever               |
| 10 | Brake nut           |
| 11 | Screw               |
| 13 | Stem nut            |
| 14 | Support rings       |
| 15 | Stem seal           |
| 16 | Flange              |
| 17 | Spring washer       |
| 18 | Stop                |
| 19 | Cryogenic extension |

**Ball valve DN15 to DN150  
Cryogenic Version**



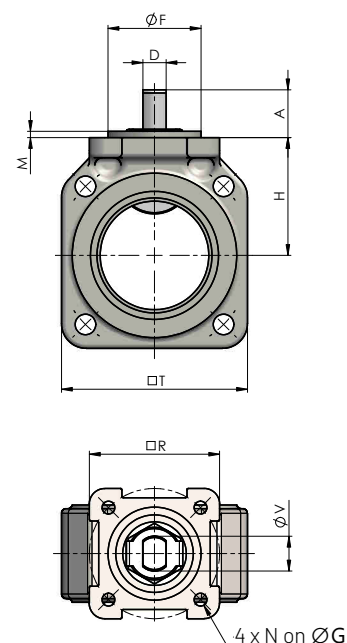
## MATERIAL SPECIFICATIONS

| Name                  | Carbon steel valves                                                                                                                                |                                                                                                                                                   | Stainless steel valves                                                                                                                            |                                                                                                                                                   |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | EN / DIN                                                                                                                                           | AISI / ASTM                                                                                                                                       | EN / DIN                                                                                                                                          | AISI / ASTM                                                                                                                                       |
| ① Body                | GP240GH<br>1.0619                                                                                                                                  | A216-WCB<br>A105                                                                                                                                  | GX2CrNiMo19-11-2<br>1.4409                                                                                                                        | A351-CF3M<br>316L                                                                                                                                 |
| ② Ball                | GX5CrNiMo 19-11-2<br>1.4408                                                                                                                        | A351-CF8M<br>316                                                                                                                                  | GX2CrNiMo19-11-2<br>1.4409                                                                                                                        | A351-CF3M<br>316L                                                                                                                                 |
|                       | GX2CrNiMo 19-11-2<br>1.4409                                                                                                                        | A351-CF3M<br>316L                                                                                                                                 | GX5CrNiMo19-11-2<br>1.4408                                                                                                                        | A351-CF8M<br>316                                                                                                                                  |
| ③ Stem                | X2CrNiMo 17-12-2<br>1.4404                                                                                                                         | A276 (DN 15-50)<br>316L                                                                                                                           | X2CrNiMo 17-12-2<br>1.4404                                                                                                                        | A276 (DN 15-50)<br>316L                                                                                                                           |
|                       | X2CrNiMo N22-5-3 (DN 65-150)<br>1.4462                                                                                                             |                                                                                                                                                   | X2CrNiMo N22-5-3 (DN 65-150)<br>1.4462                                                                                                            |                                                                                                                                                   |
| ④ Body seal           | PTFE/Stain. steel PTFE /<br>Carbon PTFE (TF4215®)/<br>graphite/Vespel/PEEK/<br>Polyethylene/PCTFE/<br>Viton®/TFM1600                               | PTFE/Stain. steel PTFE /<br>Carbon PTFE (TF4215®)/<br>graphite/Vespel/PEEK/<br>Polyethylene/PCTFE/<br>Viton®/TFM1600                              | PTFE/Stain. steel PTFE /<br>Carbon PTFE (TF4215®)/<br>graphite/Vespel/PEEK/<br>Polyethylene/PCTFE/<br>Viton®/TFM1600                              | PTFE/Stain. steel PTFE /<br>Carbon PTFE (TF4215®)/<br>graphite/Vespel/PEEK/<br>Polyethylene/PCTFE/<br>Viton®/TFM1600                              |
| ⑤ Seat                | PTFE/ Carbon PTFE<br>(TF4215®)/ Glass reinf. PTFE/<br>Stain. steel reinf. PTFE/<br>PEEK/ Vespel/ Polyethylene/<br>TFM1600                          | PTFE/ Carbon PTFE<br>(TF4215®)/ Glass reinf. PTFE/<br>Stain. steel reinf. PTFE/<br>PEEK/ Vespel/ Polyethylene/<br>TFM1600                         | PTFE/ Carbon PTFE<br>(TF4215®)/ Glass reinf. PTFE/<br>Stain. steel reinf. PTFE/<br>PEEK/ Vespel/ Polyethylene/<br>TFM1600                         | PTFE/ Carbon PTFE<br>(TF4215®)/ Glass reinf. PTFE/<br>Stain. steel reinf. PTFE/<br>PEEK/ Vespel/ Polyethylene/<br>TFM1600                         |
| ⑥ Gasket              | Antistatic carbon PTFE /<br>Carbon PTFE/ PTFE FPM®/<br>TFM1600/Polyethylene/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE | Antistatic carbon PTFE/<br>Carbon PTFE/ PTFE FPM®/<br>TFM1600/Polyethylene/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE | Antistatic carbon PTFE/<br>Carbon PTFE/ PTFE FPM®/<br>TFM1600/Polyethylene/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE | Antistatic carbon PTFE/<br>Carbon PTFE/ PTFE FPM®/<br>TFM1600/Polyethylene/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE |
| ⑧ Connecting piece    | PG250GH<br>1.0460                                                                                                                                  | A105                                                                                                                                              | X2CrNiMo 17-12-2<br>1.4404                                                                                                                        | A276<br>316L                                                                                                                                      |
| ⑨ Lever               | 1.4301                                                                                                                                             | 304                                                                                                                                               | 1.4301                                                                                                                                            | 304                                                                                                                                               |
| ⑩ Brake nut           | 1.4306                                                                                                                                             | 302                                                                                                                                               | 1.4306                                                                                                                                            | 302                                                                                                                                               |
| ⑪ Screw               | A4-80                                                                                                                                              | A4-80                                                                                                                                             | A4-80                                                                                                                                             | A4-80                                                                                                                                             |
| ⑬ Stem nut            | 1.4301                                                                                                                                             | 304                                                                                                                                               | 1.4301                                                                                                                                            | 304                                                                                                                                               |
| ⑭ Support ring        | 1.4301                                                                                                                                             | 304                                                                                                                                               | 1.4301                                                                                                                                            | 304                                                                                                                                               |
| ⑮ Stem seal           | Glass reinf. PTFE<br>Carbon PTFE/Polyethylene/<br>Nitalon® (HP)/TFM1600/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE     | Glass reinf. PTFE<br>Carbon PTFE/Polyethylene/<br>Nitalon® (HP)/TFM1600/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE    | Glass reinf. PTFE<br>Carbon PTFE/Polyethylene/<br>Nitalon® (HP)/TFM1600/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE    | Glass reinf. PTFE<br>Carbon PTFE/Polyethylene/<br>Nitalon® (HP)/TFM1600/<br>Stain. steel reinf. PTFE/<br>Graphite/Vespel/PEEK/<br>Viton®/PCTFE    |
| ⑮ Flange              | GP240GH<br>1.0619                                                                                                                                  | A216-WCB<br>A105                                                                                                                                  | X2CrNiMo 17-12-2<br>1.4404                                                                                                                        | A276<br>316L                                                                                                                                      |
| ⑰ Spring washer       | 1.431                                                                                                                                              | 301                                                                                                                                               | 1.431                                                                                                                                             | 301                                                                                                                                               |
| ⑱ Stop                | A2-70                                                                                                                                              | A193 B8                                                                                                                                           | A2-70                                                                                                                                             | A193 B8                                                                                                                                           |
| ⑲ Cryogenic extension |                                                                                                                                                    |                                                                                                                                                   | X2CrNiMo 17-12-2<br>1.4404                                                                                                                        | A276<br>316L                                                                                                                                      |
|                       |                                                                                                                                                    |                                                                                                                                                   | GX2CrNiMo19-11-2<br>1.4409                                                                                                                        | A51-CF3M<br>316L                                                                                                                                  |

## SIZES

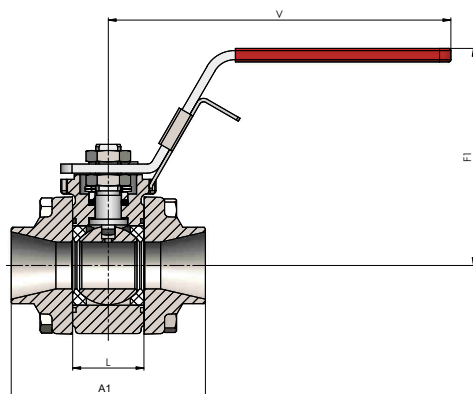
**Top flange** (DN with « I » for full bore)

| DN   | ISO | A  | D   | ØF | ØG  | H    | M | N   | R    | T    | ØV   |
|------|-----|----|-----|----|-----|------|---|-----|------|------|------|
| 8I   |     |    |     |    |     |      |   |     |      |      |      |
| 10I  | F03 | 10 | 5.4 | 25 | 36  | 30   | 2 | M5  | 36   | 34.5 | 9.5  |
| 15I  |     |    |     |    |     |      |   |     |      |      |      |
| 15I  | F03 | 10 | 5.4 | 25 | 36  | 32   | 2 | M5  | 36   | 41   | 9.5  |
| 20I  |     |    |     |    |     |      |   |     |      |      |      |
| 20I  | F04 | 15 | 7.5 | 30 | 42  | 38   | 2 | M5  | 42   | 50   | 11.1 |
| 25I  |     |    |     |    |     |      |   |     |      |      |      |
| 25I  | F04 | 22 | 7.5 | 30 | 42  | 36   | 2 | M5  | 38.5 | 59   | 11.1 |
| 32I  |     |    |     |    |     |      |   |     |      |      |      |
| 32I  | F05 | 29 | 8.9 | 35 | 50  | 42   | 3 | M6  | 47   | 66   | 14.3 |
| 40I  |     |    |     |    |     |      |   |     |      |      |      |
| 40I  | F05 | 30 | 8.9 | 35 | 50  | 46.5 | 3 | M6  | 50   | 79   | 14.3 |
| 50I  |     |    |     |    |     |      |   |     |      |      |      |
| 50I  | F07 | 16 | 8.9 | 55 | 70  | 70   | 3 | M8  | 70   | 107  | 14.3 |
| 65I  |     |    |     |    |     |      |   |     |      |      |      |
| 65I  | F07 | 54 | 19  | 55 | 70  | 99   | 3 | M8  | 70   | 128  | 22.5 |
| 80I  |     |    |     |    |     |      |   |     |      |      |      |
| 80I  | F10 | 54 | 19  | 70 | 102 | 114  | 3 | M10 | 95   | 168  | 22.5 |
| 100I |     |    |     |    |     |      |   |     |      |      |      |
| 100I | F10 | 54 | 19  | 70 | 102 | 128  | 3 | M10 | 95   | Ø234 | 22.5 |
| 150I |     |    |     |    |     |      |   |     |      |      |      |

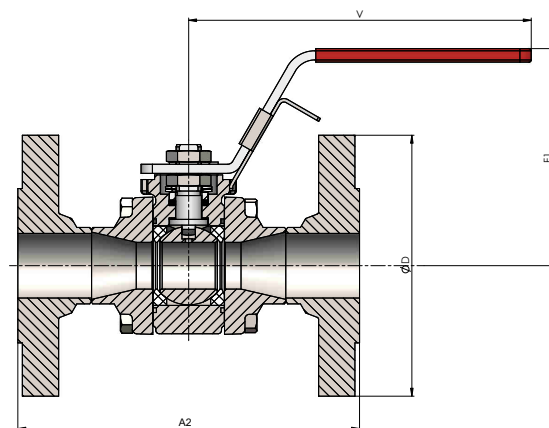


**Dimensions** (DN with « I » for full bore)

**BW – SW – Threaded version**

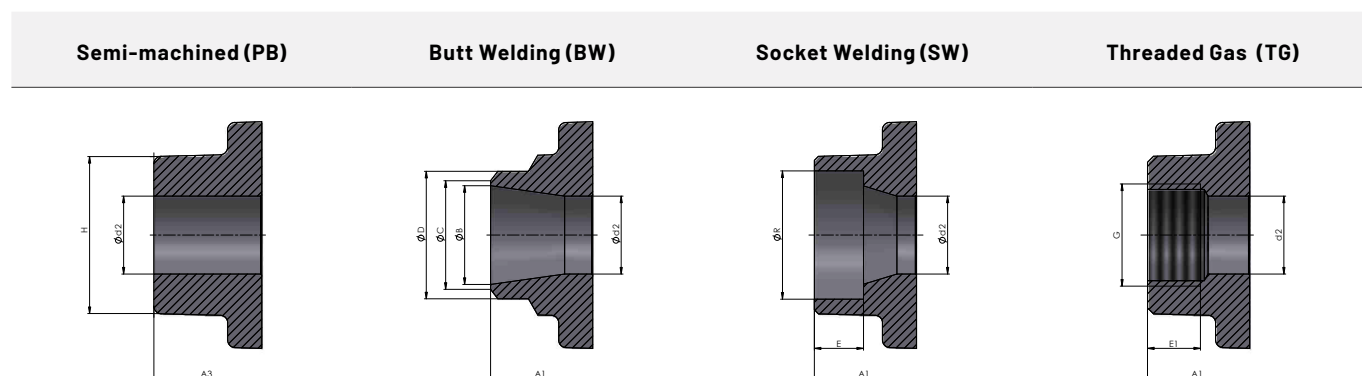


**Flange version**



| DN       | A1  | A2  | ØD (PN16) | F1  | L     | V   | Ball bore |
|----------|-----|-----|-----------|-----|-------|-----|-----------|
| 8I / 10I | 65  | 130 | 90        | 85  | 20.4  | 150 | 11.1      |
| 15       | 65  | 130 | 95        | 85  | 20.4  | 150 | 11.1      |
| 15I      | 70  | 130 | 95        | 88  | 24.5  | 150 | 14.2      |
| 20       | 70  | 150 | 105       | 88  | 24.5  | 150 | 14.2      |
| 20I      | 85  | 150 | 105       | 95  | 31.4  | 150 | 20.6      |
| 25       | 85  | 160 | 115       | 95  | 31.4  | 150 | 20.6      |
| 25I      | 100 | 160 | 115       | 100 | 41.3  | 150 | 25.4      |
| 32       | 100 | 180 | 140       | 100 | 41.3  | 150 | 25.4      |
| 32I      | 110 | 180 | 140       | 125 | 48.4  | 200 | 31.7      |
| 40       | 110 | 200 | 150       | 125 | 48.4  | 200 | 31.7      |
| 40I      | 125 | 200 | 150       | 130 | 56.3  | 200 | 38        |
| 50       | 125 | 230 | 165       | 130 | 56.3  | 200 | 38        |
| 50I      | 143 | 230 | 165       | 158 | 71.4  | 250 | 50        |
| 65       | 143 | 290 | 185       | 158 | 71.4  | 250 | 50        |
| 65I      | 170 | 290 | 185       | 158 | 88.9  | 480 | 62        |
| 80       | 170 | 310 | 200       | 158 | 88.9  | 480 | 62        |
| 80I      | 214 | 310 | 200       | 173 | 108.5 | 480 | 82.4      |
| 100      | 214 | 350 | 220       | 173 | 108.5 | 480 | 82.4      |
| 100I     | 307 | 350 | 220       | 190 | 134.6 | 480 | 100       |
| 150      | 307 | 480 | 285       | 190 | 134.6 | 480 | 100       |

## CONNECTION SIZES

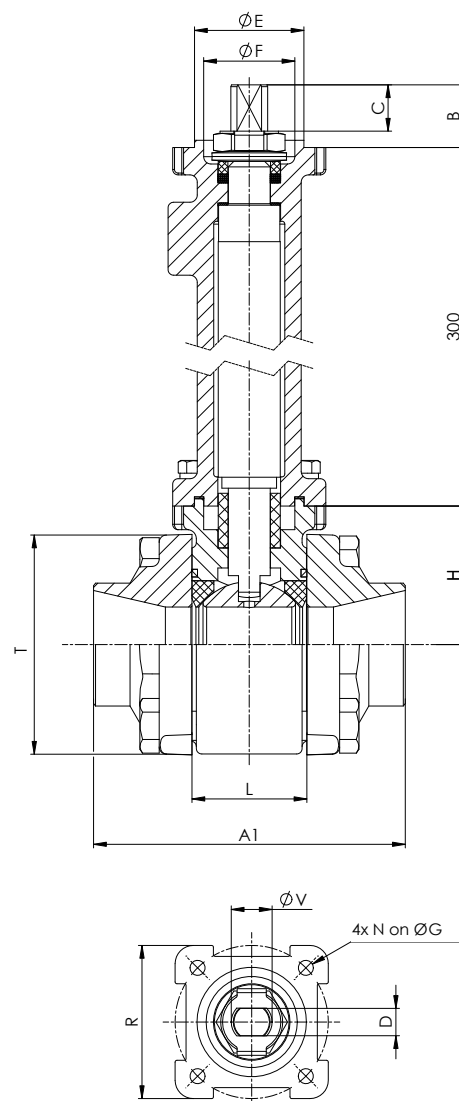


| DN          | Semi-machined |       |       | Butt Welding          |                               |                       |                               | Socket Welding |       |      | Threaded Gas |      |       |
|-------------|---------------|-------|-------|-----------------------|-------------------------------|-----------------------|-------------------------------|----------------|-------|------|--------------|------|-------|
|             | Ød2           | H     | A3    | ØB<br>Carbon<br>steel | ØB<br>Stain-<br>less<br>steel | ØC<br>Carbon<br>steel | ØC<br>Stain-<br>less<br>steel | ØD             | ØR    | E    | G            | E1   | A1    |
| <b>8I</b>   | 11,1          | 27,5  | 70,4  | 9,5                   | 9,5                           | 12,1                  | 12,1                          | 13,5           | 14,2  | 10   | 1/4"         | 13,5 | 65    |
| <b>10I</b>  | 11,1          | 27,5  | 70,4  | 13,2                  | 13,2                          | 14,8                  | 14,8                          | 17,2           | 17,7  | 10   | 3/8"         | 13,5 | 65    |
| <b>15</b>   | 11,1          | 27,5  | 70,4  | 17,3                  | 17,3                          | 18,9                  | 18,9                          | 21,3           | 21,8  | 10   | 1/2"         | 15   | 65    |
| <b>15I</b>  | 14,2          | 32,5  | 70,4  | 17,3                  | 17,3                          | 19,9                  | 19,9                          | 21,3           | 21,8  | 10   | 1/2"         | 16,5 | 72,5  |
| <b>20</b>   | 14,2          | 32,5  | 77,7  | 22,3                  | 22,9                          | 24,9                  | 25,5                          | 26,9           | 27,2  | 13   | 3/4"         | 17,5 | 72,5  |
| <b>20I</b>  | 20,6          | 41,5  | 77,7  | 22,3                  | 22,9                          | 24,9                  | 25,5                          | 26,9           | 27,2  | 13   | 3/4"         | 17,5 | 85,4  |
| <b>25</b>   | 20,6          | 41,5  | 90    | 28,5                  | 29,7                          | 31,1                  | 32,7                          | 33,7           | 34,2  | 13   | 1"           | 20,5 | 85,4  |
| <b>25I</b>  | 25,4          | 51,5  | 90    | 28,5                  | 29,7                          | 30,5                  | 31,3                          | 33,7           | 34,2  | 13   | 1"           | 20,5 | 99,3  |
| <b>32</b>   | 25,4          | 51,5  | 106,7 | 37,2                  | 38,4                          | 39,8                  | 40                            | 42,4           | 42,7  | 13   | 1 1/4"       | 20,5 | 99,3  |
| <b>32I</b>  | 31,7          | 56    | 106,7 | 37,2                  | 38,4                          | 39,8                  | 41                            | 42,4           | 42,7  | 13   | 1 1/4"       | 20,5 | 110,4 |
| <b>40</b>   | 31,7          | 56    | 96,8  | 43,1                  | 44,3                          | 45,1                  | 45,9                          | 48,3           | 48,8  | 13   | 1 1/2"       | 24,5 | 110,4 |
| <b>40I</b>  | 38            | 69    | 96,8  | 43,1                  | 44,3                          | 45,1                  | 45,9                          | 48,3           | 48,8  | 13   | 1 1/2"       | 24,5 | 126,3 |
| <b>50</b>   | 38            | 69    | 131,9 | 54,5                  | 56,3                          | 56,5                  | 57,9                          | 60,3           | 61,1  | 17,5 | 2"           | 25,5 | 126,3 |
| <b>50I</b>  | 50,8          | 86    | 131,9 | 54,5                  | 56,3                          | 57,1                  | 58,9                          | 60,3           | 61,1  | 17,5 | 2"           | 25,7 | 142,6 |
| <b>65</b>   | 50,8          | 86    | 157,4 | 70,3                  | 71,5                          | 72,9                  | 74,1                          | 76,1           | 77    | 19   | 2 1/2"       | 30,2 | 142,6 |
| <b>65I</b>  | 57,15         | 103   | 157,4 | 70,3                  | 71,5                          | 72,9                  | 74,1                          | 76,1           | 77    | 19   | 2 1/2"       | 30,2 | 169,5 |
| <b>80</b>   | 57,15         | 103   | 197,9 | 82,5                  | 84,3                          | 85,1                  | 86,9                          | 88,9           | 90    | 21   | 3"           | 33   | 169,5 |
| <b>80I</b>  | 76,2          | 129   | 197,9 | 82,5                  | 84,3                          | 85,1                  | 86,9                          | 88,9           | 90    | 21   | 3"           | 33,3 | 214   |
| <b>100</b>  | 76,2          | 129   | 223,5 | 107,1                 | 109,1                         | 109,7                 | 111,7                         | 114,3          | 115,5 | 24   | 4"           | 39,3 | 214   |
| <b>100I</b> | 100           | 169,5 | 223,5 | 107,1                 | 109,1                         | 109,7                 | 111,7                         | 114,3          | 115,5 | 24   | -            | -    | 307   |
| <b>150</b>  | 100           | 169,5 | 318,6 | 159,3                 | 163,1                         | 161,9                 | 165,1                         | 168,3          | -     | -    | -            | -    | 307   |

## CRYOGENIC VERSION

### Model characteristics:

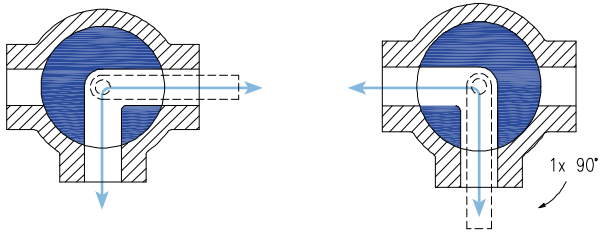
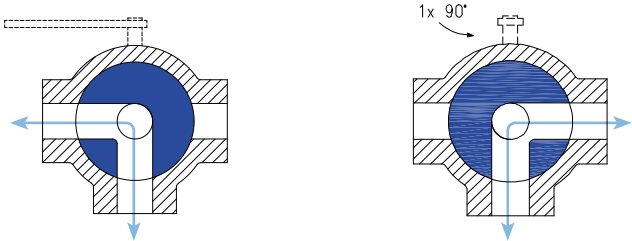
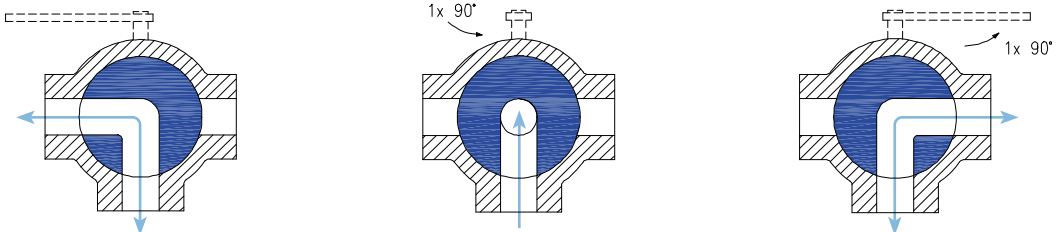
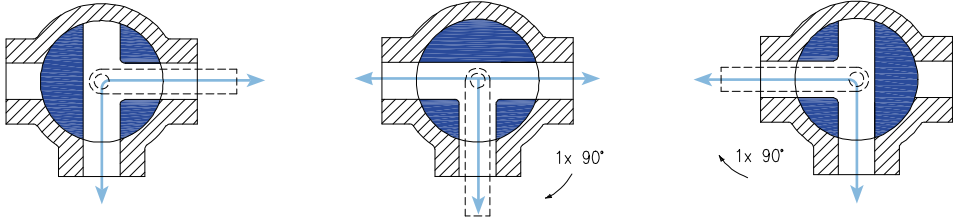
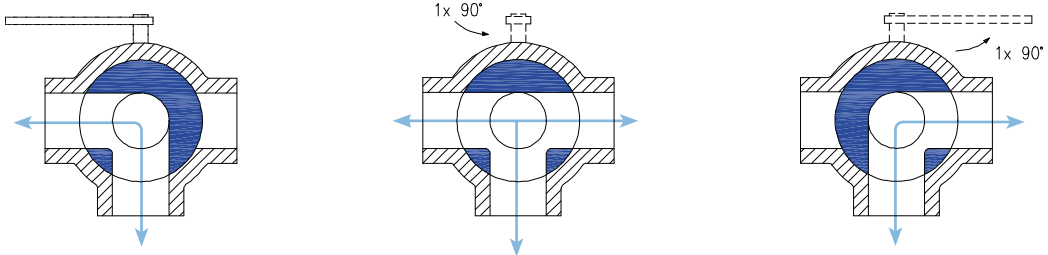
- Full or reduced port
- Stainless steel
- Integrated ISO 511 top flange for easy automation
- Large range of seat materials
- Temperature range: -196 °C to +80 °C
- Pressure vent hole above ball
- Seats specifically machined for cryogenic use
- Shaft extension must be mounted vertically
- Pressure: maximum 100 bar according to valve diameter and seat material
- Valve design compliant with EN 13445 standard
- Valves degreased in compliance with EN 12300 standard
- Valves individually packed in polythene bags



| DN  | ISO 5211 | L     | A1<br>Serie 1 | B    | C    | D   | ØE | ØF | ØG  | N   | H    | T   | R  | ØV   |
|-----|----------|-------|---------------|------|------|-----|----|----|-----|-----|------|-----|----|------|
| 15  | F03      | 20,4  | 65            | 11,1 | 7    | 5,4 | 25 | 22 | 36  | M5  | 29,8 | 43  | 36 | 9,5  |
| 20  | F03      | 24,5  | 72,5          | 11,1 | 7    | 5,4 | 25 | 22 | 36  | M5  | 32,2 | 52  | 36 | 9,5  |
| 25  | F04      | 31,4  | 85,4          | 17   | 12   | 7,5 | 30 | 25 | 42  | M5  | 38   | 60  | 42 | 11,1 |
| 32  | F04      | 41,3  | 99,3          | 17   | 12   | 7,5 | 30 | 25 | 42  | M5  | 36   | 69  | 42 | 11,1 |
| 40  | F05      | 48,4  | 110,4         | 28,8 | 16,5 | 8,9 | 35 | 30 | 50  | M6  | 42   | 79  | 53 | 14,3 |
| 50  | F05      | 56,3  | 126,3         | 28,8 | 16,5 | 8,9 | 35 | 30 | 50  | M6  | 46,5 | 89  | 53 | 14,3 |
| 65  | F07      | 71,4  | 142,6         | 35,4 | 17   | 8,9 | 55 | 45 | 70  | M8  | 70   | 107 | 70 | 14,3 |
| 80  | F07      | 88,9  | 169,5         | 54,5 | 17   | 19  | 55 | 45 | 70  | M8  | 99   | 128 | 70 | 22,5 |
| 100 | F10      | 108,5 | 214           | 54,5 | 17   | 19  | 64 | 70 | 102 | M10 | 114  | 168 | 95 | 22,5 |
| 150 | F10      | 134,6 | 307           | 54,5 | 17   | 19  | 64 | 70 | 102 | M10 | 128  | 109 | 95 | 22,5 |

**Note:** All sizes refer to reduced port valves. See larger diameter for full port valves.

## 3-WAY VERSION

|                                                                                       |                                                                                      |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><b>Ball with L bore</b></p> <p>Central horizontal connection<br/>Rotation 90°</p>  |    |
| <p><b>Ball with L bore</b></p> <p>Central vertical connection<br/>Rotation 90°</p>    |    |
| <p><b>Ball with L bore</b></p> <p>Central vertical connection<br/>Rotation 180°</p>   |   |
| <p><b>Ball with T bore</b></p> <p>Central horizontal connection<br/>Rotation 180°</p> |  |
| <p><b>Ball with T bore</b></p> <p>Central horizontal connection<br/>Rotation 180°</p> |  |

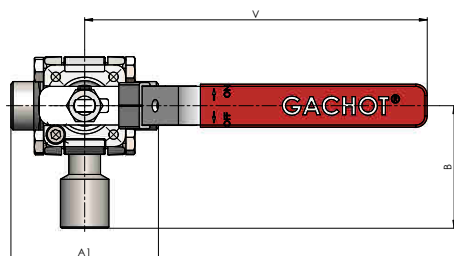
### Model characteristics

- Maximum differential pressure = 6 bar
- Carbon steel or stainless steel
- Ball central connection without seat. The T bore enables fluid to flow around the ball and be discharged via the central connection. The third way is not watertight, so input is here.

## 3-WAY VERSION

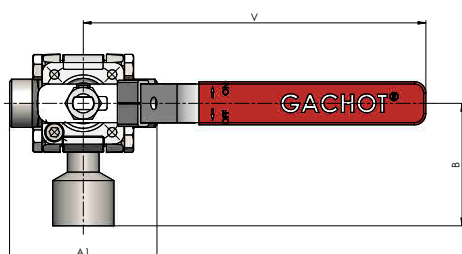
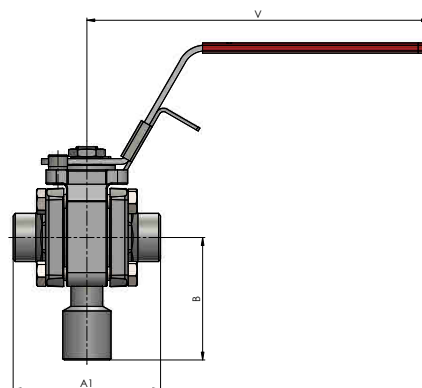
### A few configuration examples

Horizontal connection (view from above)

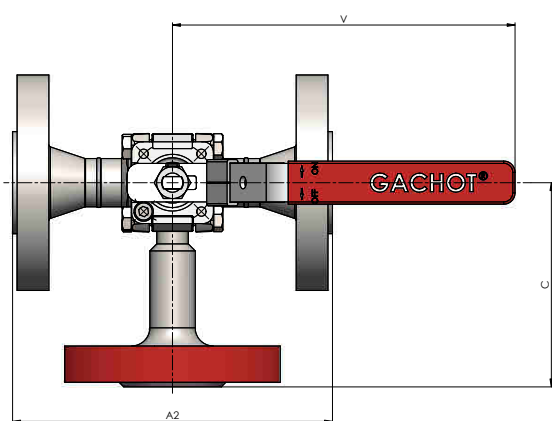
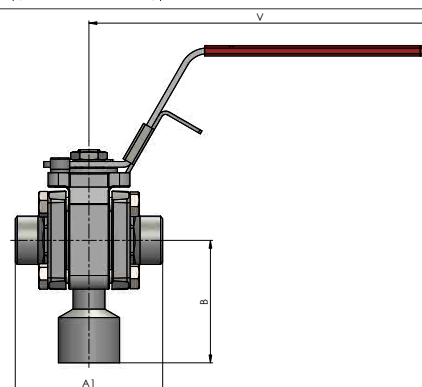


Butt Weld side  
and central  
connection

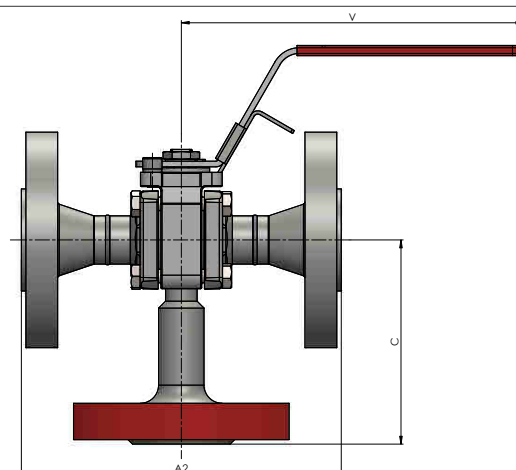
Vertical connection (view from above)



Socket  
Weld side  
and central  
connection



Flanged side  
and central  
connection



| DN  | A1    | A2  | B   | C   | V   |
|-----|-------|-----|-----|-----|-----|
| 15  | 65    | 130 | 54  | 90  | 150 |
| 20  | 72,5  | 150 | 64  | 95  | 150 |
| 25  | 85,4  | 160 | 64  | 100 | 150 |
| 32  | 99,3  | 180 | 75  | 105 | 150 |
| 40  | 110,4 | 200 | 80  | 115 | 200 |
| 50  | 126,3 | 230 | 90  | 125 | 200 |
| 65  | 142,6 | 290 | 115 | 145 | 250 |
| 80  | 169,5 | 310 | 175 | 155 | 480 |
| 100 | 213,9 | 350 | 210 | 175 | 480 |
| 150 | 307   | 480 | -   | 240 | 480 |

### Notes

- All sizes: See reduced port valves. See greater diameter for full port valves.

## VALVE WITH PNEUMATIC ACTUATOR

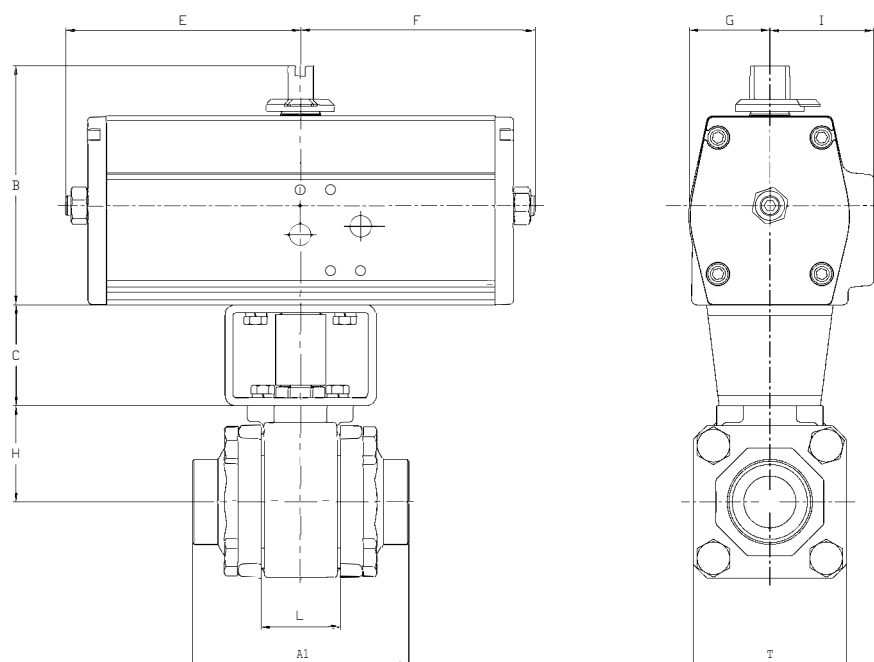
Ball valve 3-Piece with ISO base.  
Butt Weld, Socket Weld, Threaded and  
flanges version.

### Features

- Double acting or single acting,
- Supply pressure of 4 to 6 bar,

### Options

- Manual control,
- Open/close contact,
- ATEX version,
- Other options on request.



| DN  | ISO 5211 | L     | A1    | B   | C  | E   | F   | G  | H    | I  | T   | Actuators |
|-----|----------|-------|-------|-----|----|-----|-----|----|------|----|-----|-----------|
| 15  | F03      | 20,4  | 65    | 95  | 60 | 45  | 98  | 32 | 29,8 | 41 | 43  | DR 10-0   |
| 20  | F03      | 24,5  | 72,5  | 95  | 60 | 45  | 98  | 32 | 32,2 | 41 | 52  | DR 10-0   |
| 25  | F04      | 31,4  | 85,4  | 95  | 60 | 98  | 98  | 32 | 38   | 41 | 60  | DR 20-0   |
| 32  | F04      | 41,3  | 99,3  | 95  | 60 | 98  | 98  | 32 | 36   | 41 | 69  | DR 20-0   |
| 40  | F05      | 48,4  | 110,4 | 130 | 60 | 65  | 135 | 49 | 42   | 55 | 79  | DR 30-0   |
| 50  | F05      | 56,3  | 126,3 | 130 | 60 | 65  | 135 | 49 | 46,5 | 55 | 89  | DR 30-0   |
| 65  | F07      | 71,4  | 142,6 | 175 | 60 | 90  | 190 | 69 | 70   | 75 | 107 | DR 50-0   |
| 80  | F07      | 88,9  | 169,5 | 175 | 60 | 190 | 190 | 69 | 99   | 75 | 128 | DR 60-0   |
| 100 | F10      | 108,5 | 213,9 | 175 | 60 | 190 | 190 | 69 | 114  | 75 | 168 | DR 60-0   |
| 150 | F10      | 134,6 | 307   | 175 | 60 | 190 | 190 | 69 | 128  | 75 | 109 | DR 60-0   |

**Nota :** Other pneumatic actuators have the following designs:  
standard valve with PTFE seat, working pressure of 40 bar,  
double-acting pneumatic air supply of 5 bar.

Other designs on request.

All sizes refer to reduced port valves. See larger diameter for full port valves.

SAPAG VALVES has been developing and manufacturing for more than 90 years, a wide range of high quality and high performance valves dedicated to the industry, including butterfly valves (elastomer, PTFE or metal seat), ball valves (carbon steel, stainless steel, others on request), the MONOVAR®, control valve, the CLASAR®, the ultimate check valve, gate valves, and needle valves.

Our products are used in water, gas and other fluid transport networks in fields as diverse as petrochemicals, shipbuilding and process industries in general.

Today the company has more than 100 employees. In addition to the machining,

assembly and testing unit for industrial valves, the site includes all the administrative, technical and commercial departments. This proximity enables SAPAG VALVES to ensure responsiveness, follow-up and compliance with our clients' requirements.

Our products are present in more than 70 countries around the world and our production is regularly exported to all 6 continents.

Our Quality, Safety and Environmental Management System is certified by the following: ISO 9001:

**ISO** **ISO** **ISO**  
9001:2015 14001:2015 45001:2018



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