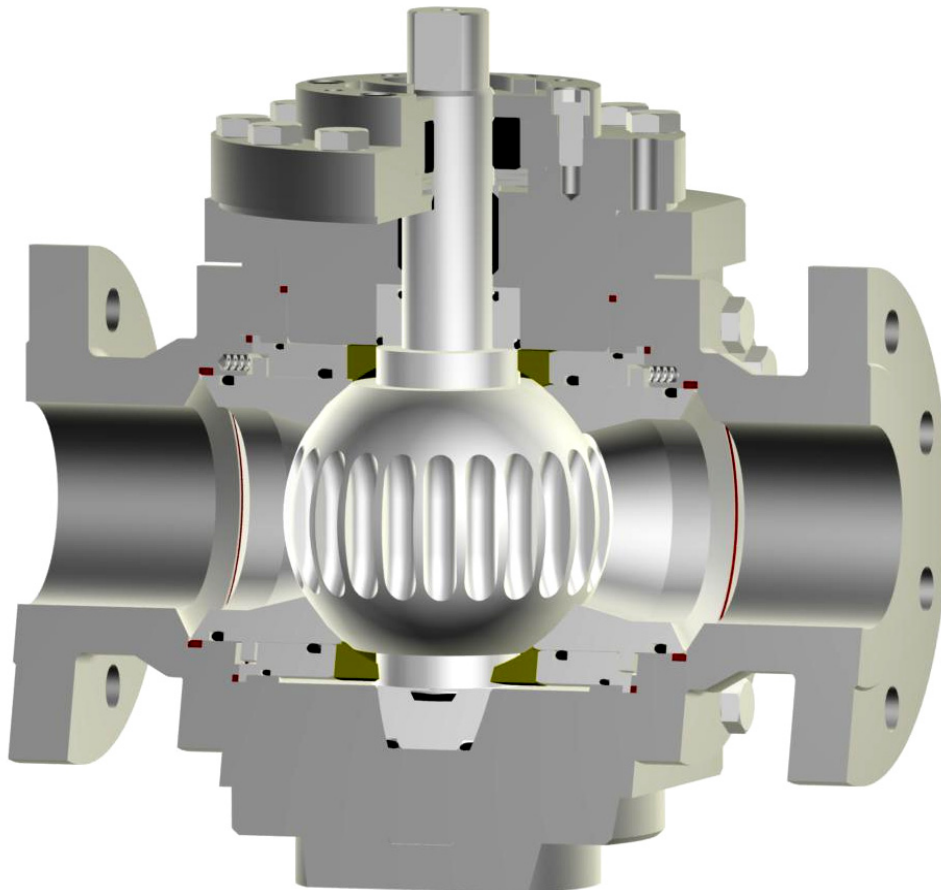




# Two-Way Metal Seated Ball Valve Type 16-R



## Design Characteristics

- ✓ Split body
- ✓ Trunnion mounted ball with integral stem
- ✓ Live loaded stem packing
- ✓ Spring loaded seat system
- ✓ Fire Safe design optional

## Design Standards

- ✓ EN 12516, EN 1983, ISO 5211, AD-2000
- ✓ ASME B 16.34, API 608

## Range of Application

- ✓ Diameter 1/2" to 12" / DN 15 to 300
- ✓ Class 150 to 1500 / PN 10 to 250
- ✓ -20°F to +1000°F / -60°C to +550°C

## Approvals

- ✓ "TA-Luft" certified for low fugitive emissions

## Testing Standards

- ✓ EN 12266-1/2
- ✓ API 598



## Main Parts

- 1 Body
- 2 Body End Connection
- 4 Retainer Ring
- 5 Ball with Stem
- 8 Gland Washer
- 10 Bearing Cover
- 12 Cover
- 13 Bearing Ring
- 16 Plate Spring
- 17 Coil Spring
- 20 Sealing Ring
- 21 Seat Ring
- 23 Body Gasket
- 24 Stem Packing
- 25 Bearing Ring
- 26 Bearing Ring
- 27 Body Gasket
- 28 Hexagonal Screw
- 29 Socket Screw
- 30 Socket Screw
- 35-39 Round Rings
- 44 Cover
- 46 Cavity Leaf

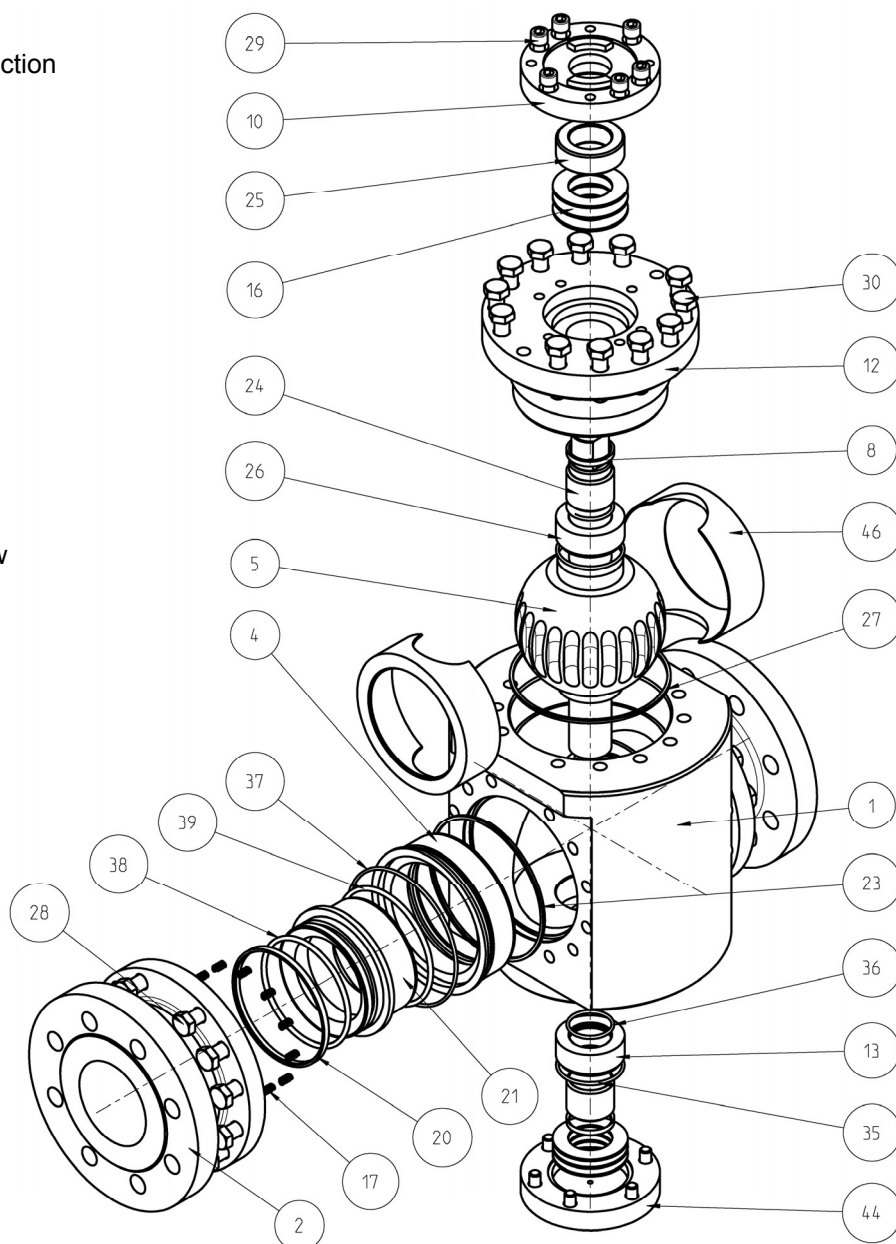


Fig.1

## Description

This PERRIN ball valve is a trunnion mounted ball design with split body housing and integral stem. The spring loaded metallic seat system and live loaded stem packing also provide continuous tightness during rapid temperature changes.

The valve is equipped with an integral actuator mounting flange for actuator connection according to ISO 5211 standard. Stem extensions, locking devices and actuators with accessories, can be attached without operating interruptions.

The ball valve has an antistatic design. The stem packing and sealings are "TA-Luft" certified for low fugitive emissions.

## Parts List / Materials

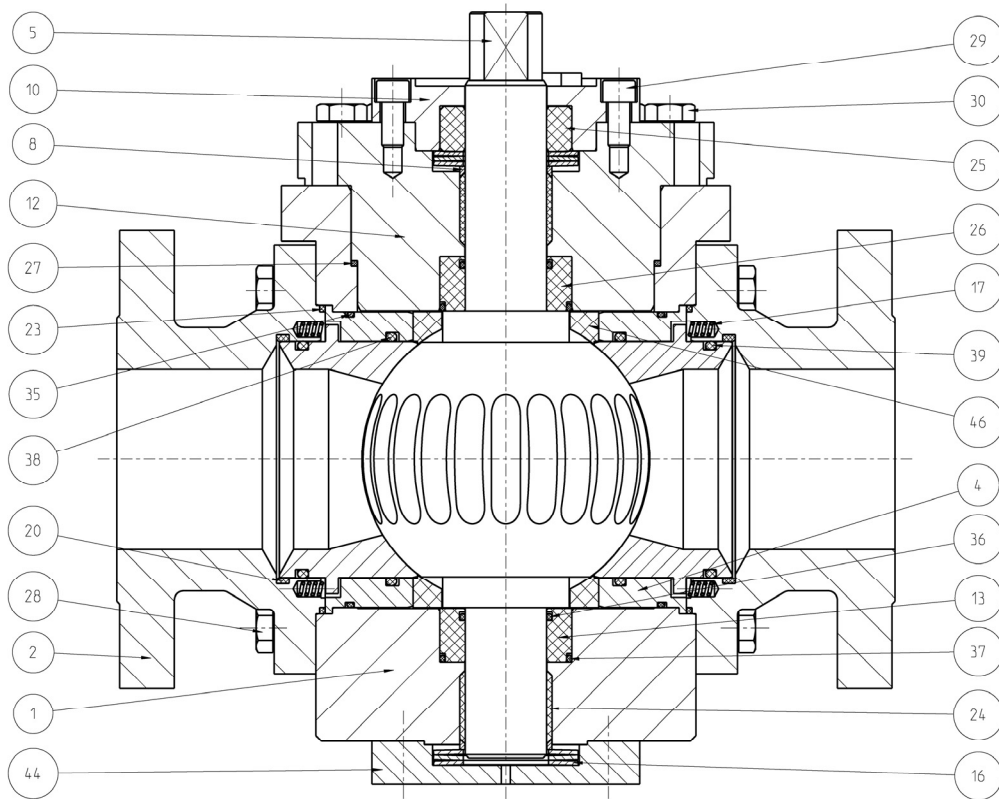


Fig.2

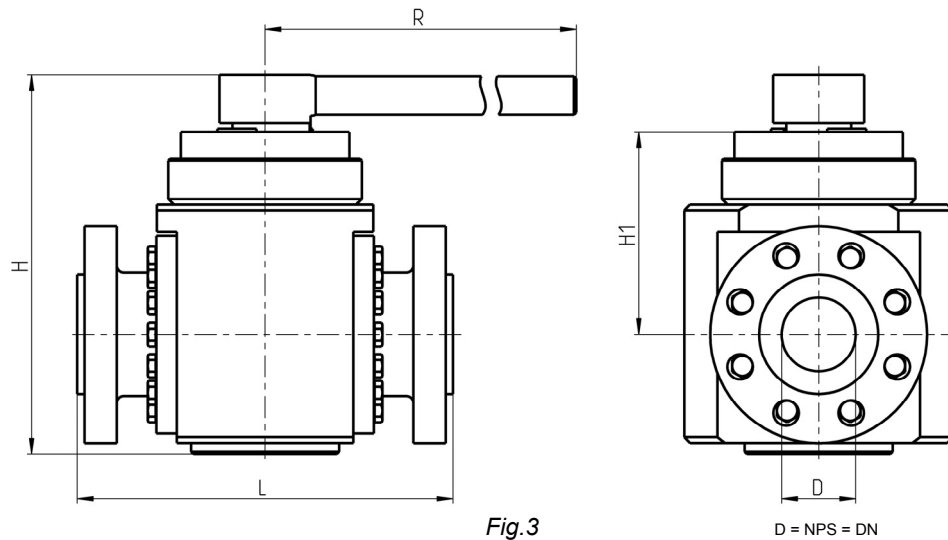
| Item  | Designation                | ASME                                |                                     | DIN EN                                       |                                              |
|-------|----------------------------|-------------------------------------|-------------------------------------|----------------------------------------------|----------------------------------------------|
|       |                            | -20°F up to +1000°F                 | -20°F up to +1000°F                 | -60°C up to +550°C                           | -10°C up to +450°C                           |
| 1     | Body                       | A351 CF8M                           | A216 WCB                            | 1.4408 <sup>1)</sup>                         | 1.0619                                       |
| 2     | Body End Connection        | Type 316 (up to 2")                 | A105 (up to 2")                     | 1.4571 (up to 2")                            | 1.0460 (up to 2")                            |
| 4     | Retainer Ring              | Type 316                            | Type 316                            | 1.4571                                       | 1.4571                                       |
| 5     | Ball with Stem             | Type 316 coated<br>A351 CF8M coated | Type 316 coated<br>A351 CF8M coated | 1.4571 coated<br>1.4408 <sup>1)</sup> coated | 1.4571 coated<br>1.4408 <sup>1)</sup> coated |
| 8     | Gland Washer               | Type 316                            | Type 316                            | 1.4571                                       | 1.4571                                       |
| 10    | Bearing Cover              | Type 316                            | A105                                | 1.4571                                       | 1.0460                                       |
| 12    | Cover                      | Type 316 / A351 CF8M                | A105 / A216 WCB                     | 1.4571 / 1.4408 <sup>1)</sup>                | 1.0460 / 1.0619                              |
| 13    | Bearing Ring               | PEEK                                | PEEK                                | PEEK                                         | PEEK                                         |
| 16    | Plate Spring <sup>3)</sup> | Type 301                            | AISI 6150                           | 1.4310                                       | 1.8159                                       |
| 17    | Coil Spring                | Type 316                            | Type 316                            | 1.4571                                       | 1.4571                                       |
| 20    | Sealing Ring               | Graphite                            | Graphite                            | Graphite                                     | Graphite                                     |
| 21    | Seat Ring                  | Type 316 coated                     | Type 316 coated                     | 1.4571 coated                                | 1.4571 coated                                |
| 23    | Body Gasket                | Graphite                            | Graphite                            | Graphite                                     | Graphite                                     |
| 24    | Stem Packing               |                                     |                                     |                                              |                                              |
| 25    | Bearing Ring               | Carbon                              | Carbon                              | Carbon                                       | Carbon                                       |
| 26    | Bearing Ring               | PEEK                                | PEEK                                | PEEK                                         | PEEK                                         |
| 27    | Body Gasket                | Graphite                            | Graphite                            | Graphite                                     | Graphite                                     |
| 28    | Hexagonal Screw            | SS                                  | SS                                  | SS                                           | SS                                           |
| 29    | Socket Screw               | SS                                  | SS                                  | SS                                           | SS                                           |
| 30    | Socket Screw               | SS                                  | SS                                  | SS                                           | SS                                           |
| 35-39 | Round Rings                | Polymer / Elastomer                 | Polymer / Elastomer                 | Polymer / Elastomer                          | Polymer / Elastomer                          |
| 44    | Cover                      | Type 316                            | A105                                | 1.4571                                       | 1.0460                                       |
| 46    | Cavity Leaf                | Mod. PTFE                           | Mod. PTFE                           | Mod. PTFE                                    | Mod. PTFE                                    |

Tab.1

- 1) Temperature limitation 300°C [576°F] acc. to German technical rule AD-2000 W5 if intercrystalline corrosion resistant is required  
2) Temperature limitation 280°C [536°F]  
3) Material 2.4668 (Inconel 718) is generally required for operating temperature over 200°C [392°F]  
4) Materials for lower / higher temperature on request



## Technical Data



| Nominal Size  |            | Class 150 - Full Bore<br>Dimensions acc. to ASME Standards |           |              |            |             |           | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |     |
|---------------|------------|------------------------------------------------------------|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS<br>[inch] | DN<br>[mm] | H<br>[inch]                                                | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | R<br>[inch] | R<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs |
| ½             | 15         | 6.2                                                        | 158       | 3.5          | 89         | 12          | 300       | 4                           | 108       | 27              | 15      | 33  |
| ¾             | 20         | 6.8                                                        | 173       | 3.7          | 95         | 12          | 300       | 5                           | 117       | 48              | 17      | 37  |
| 1             | 25         | 7                                                          | 188       | 4.1          | 105        | 12          | 300       | 5                           | 127       | 75              | 18      | 40  |
| 1¼            | 32         | 8.3                                                        | 210       | 4.7          | 120        | 12          | 300       | 6                           | 140       | 124             | 23      | 51  |
| 1½            | 40         | 9.4                                                        | 238       | 5.3          | 135        | 12          | 300       | 6                           | 165       | 193             | 38      | 84  |
| 2             | 50         | 10.0                                                       | 255       | 5.8          | 147        | 18          | 450       | 7                           | 178       | 302             | 52      | 114 |
| 2½            | 65         | 12.6                                                       | 320       | 7.0          | 178        | 18          | 450       | 7                           | 190       | 510             | 71      | 156 |
| 3             | 80         | 13.5                                                       | 343       | 8            | 191        | 28          | 700       | 8                           | 203       | 772             | 102     | 224 |
| 4             | 100        | 14                                                         | 363       | 7.9          | 201        | 28          | 700       | 9                           | 229       | 1206            | 154     | 339 |

Tab.2

| Nominal Size  |                | Class 150 - *Single Reduced Bore<br>Dimensions acc. to ASME Standards |           |              |            |             |           | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |     |
|---------------|----------------|-----------------------------------------------------------------------|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS<br>[inch] | *SRB<br>[inch] | H<br>[inch]                                                           | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | R<br>[inch] | R<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs |
| ½             | -              | -                                                                     | -         | -            | -          | -           | -         | -                           | -         | -               | -       | -   |
| ¾             | ½              | 6.2                                                                   | 158       | 3.5          | 89         | 12          | 300       | 5                           | 117       | 27              | 16      | 35  |
| 1             | ¾              | 6.8                                                                   | 173       | 3.7          | 95         | 12          | 300       | 5                           | 127       | 48              | 18      | 40  |
| 1¼            | 1              | 7                                                                     | 188       | 4.1          | 105        | 12          | 300       | 6                           | 140       | 75              | 20      | 44  |
| 1½            | 1¼             | 8.3                                                                   | 210       | 4.7          | 120        | 12          | 300       | 6                           | 165       | 124             | 27      | 59  |
| 2             | 1½             | 9.4                                                                   | 238       | 5.3          | 135        | 12          | 300       | 7                           | 178       | 193             | 44      | 97  |
| 2½            | 2              | 10.0                                                                  | 255       | 5.8          | 147        | 18          | 450       | 7                           | 190       | 302             | 65      | 143 |
| 3             | 2½             | 12.6                                                                  | 320       | 7.0          | 178        | 18          | 450       | 8                           | 203       | 510             | 82      | 180 |
| 4             | 3              | 13.5                                                                  | 343       | 8            | 191        | 28          | 700       | 9                           | 229       | 772             | 117     | 257 |

Tab.3



| Nominal Size  |            | Class 300 - Full Bore<br>Dimensions acc. to ASME Standards |           |              |            |             |           | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |     |
|---------------|------------|------------------------------------------------------------|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS<br>[inch] | DN<br>[mm] | H<br>[inch]                                                | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | R<br>[inch] | R<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs |
| ½             | 15         | 6.2                                                        | 158       | 3.5          | 89         | 12          | 300       | 6                           | 140       | 27              | 16      | 35  |
| ¾             | 20         | 6.8                                                        | 173       | 3.7          | 95         | 12          | 300       | 6                           | 152       | 48              | 18      | 40  |
| 1             | 25         | 7                                                          | 188       | 4.1          | 105        | 12          | 300       | 6                           | 165       | 75              | 19      | 42  |
| 1¼            | 32         | 8.3                                                        | 210       | 4.7          | 120        | 18          | 450       | 7                           | 178       | 124             | 25      | 55  |
| 1½            | 40         | 9.4                                                        | 238       | 5.3          | 135        | 18          | 450       | 7                           | 190       | 193             | 41      | 90  |
| 2             | 50         | 10.0                                                       | 255       | 5.8          | 147        | 18          | 450       | 9                           | 216       | 302             | 54      | 119 |
| 2½            | 65         | 12.6                                                       | 320       | 7.0          | 178        | 18          | 450       | 9                           | 241       | 510             | 73      | 161 |
| 3             | 80         | 13.5                                                       | 343       | 8            | 191        | 28          | 700       | 11                          | 282       | 772             | 106     | 233 |
| 4             | 100        | 14                                                         | 363       | 7.9          | 201        | 28          | 700       | 12                          | 305       | 1206            | 163     | 359 |

Tab.4

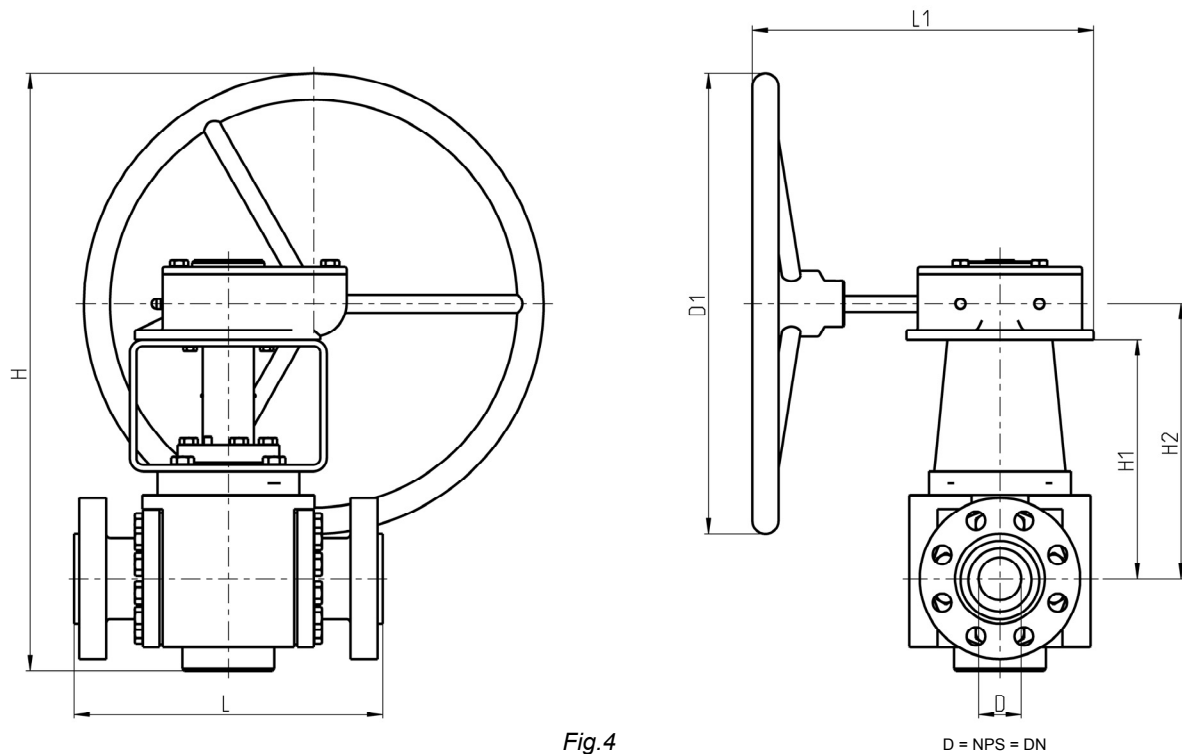
| Nominal Size  |                | Class 300 - *Single Reduced Bore<br>Dimensions acc. to ASME Standards |           |              |            |             |           | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |     |
|---------------|----------------|-----------------------------------------------------------------------|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS<br>[inch] | *SRB<br>[inch] | H<br>[inch]                                                           | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | R<br>[inch] | R<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs |
| ½             | -              | -                                                                     | -         | -            | -          | -           | -         | -                           | -         | -               | -       | -   |
| ¾             | ½              | 6.2                                                                   | 158       | 3.5          | 89         | 12          | 300       | 6                           | 152       | 27              | 18      | 39  |
| 1             | ¾              | 6.8                                                                   | 173       | 3.7          | 95         | 12          | 300       | 6                           | 165       | 48              | 20      | 44  |
| 1¼            | 1              | 7                                                                     | 188       | 4.1          | 105        | 12          | 300       | 7                           | 178       | 75              | 21      | 47  |
| 1½            | 1¼             | 8.3                                                                   | 210       | 4.7          | 120        | 18          | 450       | 7                           | 190       | 124             | 28      | 62  |
| 2             | 1½             | 9.4                                                                   | 238       | 5.3          | 135        | 18          | 450       | 9                           | 216       | 193             | 46      | 102 |
| 2½            | 2              | 10.0                                                                  | 255       | 5.8          | 147        | 18          | 450       | 9                           | 241       | 302             | 62      | 136 |
| 3             | 2½             | 12.6                                                                  | 320       | 7.0          | 178        | 18          | 450       | 11                          | 282       | 510             | 84      | 185 |
| 4             | 3              | 13.5                                                                  | 343       | 8            | 191        | 28          | 700       | 12                          | 305       | 772             | 122     | 268 |

Tab.5

| Nominal Size |  | PN 16 - PN 40<br>Dimensions [mm]<br>acc. to DIN EN Standards |     |     | Face to Face<br>DIN EN 558 |           | Kv<br>[m³/h] | Weights [kg] |      |
|--------------|--|--------------------------------------------------------------|-----|-----|----------------------------|-----------|--------------|--------------|------|
| DN           |  | H                                                            | H1  | R   | GR1<br>L                   | GR27<br>L |              | GR1          | GR27 |
| 15           |  | 158                                                          | 89  | 300 | 130                        | 115       | 23           | 16           | 14   |
| 20           |  | 173                                                          | 95  | 300 | 150                        | 120       | 41           | 17           | 15   |
| 25           |  | 188                                                          | 105 | 300 | 160                        | 125       | 64           | 18           | 16   |
| 32           |  | 210                                                          | 120 | 300 | 180                        | 130       | 106          | 25           | 23   |
| 40           |  | 238                                                          | 135 | 450 | 200                        | 140       | 165          | 41           | 37   |
| 50           |  | 255                                                          | 147 | 450 | 230                        | 150       | 258          | 59           | 54   |
| 65           |  | 320                                                          | 178 | 450 | 290                        | 170       | 436          | 76           | 66   |
| 80           |  | 343                                                          | 191 | 700 | 310                        | 180       | 660          | 107          | 93   |
| 100          |  | 363                                                          | 201 | 700 | 350                        | 190       | 1031         | 161          | 140  |

Tab.6

Other dimensions and pressure classes on request.



| Nominal Size  |            | Class 150 - Full Bore<br>Dimensions acc. to ASME Standards |           |              |            |              |            |              |            |              |            | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |      |
|---------------|------------|------------------------------------------------------------|-----------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|-----------------------------|-----------|-----------------|---------|------|
| NPS<br>[inch] | DN<br>[mm] | H<br>[inch]                                                | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | H2<br>[inch] | H2<br>[mm] | L1<br>[inch] | L1<br>[mm] | D1<br>[inch] | D1<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs  |
| 6             | 150        | 32.3                                                       | 821       | 7.9          | 201        | 13           | 331        | 20.3         | 515        | 28           | 700        | 22                          | 550       | 2448            | 160     | 352  |
| 8             | 200        | 34.5                                                       | 877       | 10.5         | 266        | 18           | 456        | 23           | 588        | 20           | 500        | 26                          | 650       | 4351            | 382     | 840  |
| 10            | 250        | 42                                                         | 1057      | 11.2         | 284        | 19.8         | 504        | 29           | 725        | 28           | 700        | 31                          | 775       | 7070            | 516     | 1135 |
| 12            | 300        | 41                                                         | 1053      | 12           | 312        | 20.2         | 512        | 30           | 770        | 24           | 600        | 35                          | 900       | 9789            | 941     | 2070 |

Tab. 7

| Nominal Size  |                | Class 150 - *Single Reduced Bore<br>Dimensions acc. to ASME Standards |           |              |            |              |            |              |            |              |            | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |      |
|---------------|----------------|-----------------------------------------------------------------------|-----------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|-----------------------------|-----------|-----------------|---------|------|
| NPS<br>[inch] | *SRB<br>[inch] | H<br>[inch]                                                           | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | H2<br>[inch] | H2<br>[mm] | L1<br>[inch] | L1<br>[mm] | D1<br>[inch] | D1<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs  |
| 6             | 4              | 27                                                                    | 687       | 6.6          | 167        | 12           | 297        | 19.4         | 492        | 20           | 500        | 22                          | 550       | 1699            | 150     | 329  |
| 8             | 6              | 33.6                                                                  | 852       | 7.9          | 201        | 13           | 331        | 20.3         | 515        | 28           | 700        | 26                          | 650       | 2448            | 184     | 405  |
| 10            | 8              | 35.8                                                                  | 909       | 10.5         | 266        | 18           | 456        | 23           | 588        | 20           | 500        | 31                          | 775       | 4351            | 439     | 966  |
| 12            | 10             | 43                                                                    | 1095      | 11.2         | 284        | 19.8         | 504        | 29           | 725        | 28           | 700        | 35                          | 900       | 7070            | 593     | 1305 |

Tab. 8



| Nominal Size  |            | Class 300 - Full Bore<br>Dimensions acc. to ASME Standards |           |              |            |              |            |              |            |              |            | Face to Face<br>ASME 16.10 |           | Cv<br>[gal/min] | Weights |      |
|---------------|------------|------------------------------------------------------------|-----------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------------------|-----------|-----------------|---------|------|
| NPS<br>[inch] | DN<br>[mm] | H<br>[inch]                                                | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | H2<br>[inch] | H2<br>[mm] | L1<br>[inch] | L1<br>[mm] | D1<br>[inch] | D1<br>[mm] | L<br>[inch]                | L<br>[mm] |                 | kg      | lbs  |
| 6             | 150        | 37                                                         | 940       | 12.1         | 307        | 17           | 431        | 24           | 610        | 28           | 700        | 22                         | 550       | 2448            | 330     | 726  |
| 8             | 200        | 43.2                                                       | 1098      | 14.4         | 366        | 20           | 507        | 31           | 790        | 31           | 800        | 31                         | 800       | 4351            | 635     | 1397 |
| 10            | 250        | 45                                                         | 1155      | 17.8         | 452        | 24.9         | 633        | 28           | 718        | 24           | 600        | 37                         | 940       | 7070            | 898     | 1976 |
| 12            | 300        | 53                                                         | 1338      | 24           | 610        | 32.6         | 828        | 31           | 792        | 20           | 500        | 41                         | 1050      | 9789            | 1174    | 2583 |

Tab.9

| Nominal Size  |                | Class 300 - *Single Reduced Bore<br>Dimensions acc. to ASME Standards |           |              |            |              |            |              |            |              |            | Face to Face<br>ASME B16.10 |           | Cv<br>[gal/min] | Weights |      |
|---------------|----------------|-----------------------------------------------------------------------|-----------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|-----------------------------|-----------|-----------------|---------|------|
| NPS<br>[inch] | *SRB<br>[inch] | H<br>[inch]                                                           | H<br>[mm] | H1<br>[inch] | H1<br>[mm] | H2<br>[inch] | H2<br>[mm] | L1<br>[inch] | L1<br>[mm] | D1<br>[inch] | D1<br>[mm] | L<br>[inch]                 | L<br>[mm] |                 | kg      | lbs  |
| 6             | 4              | 31                                                                    | 796       | 6.6          | 167        | 13           | 337        | 22           | 560        | 24           | 600        | 22                          | 550       | 1699            | 308     | 678  |
| 8             | 6              | 34                                                                    | 872       | 12.1         | 307        | 17           | 431        | 24           | 610        | 20           | 500        | 31                          | 800       | 2448            | 421     | 926  |
| 10            | 8              | 40.5                                                                  | 1029      | 14.4         | 366        | 20           | 507        | 31           | 790        | 24           | 600        | 37                          | 940       | 4351            | 730     | 1607 |
| 12            | 10             | 51                                                                    | 1293      | 17.8         | 452        | 24.9         | 633        | 28           | 718        | 31           | 800        | 41                          | 1050      | 7070            | 1033    | 2272 |

Tab.10

| Nominal Size | PN 16<br>Dimensions [mm]<br>acc. to DIN EN Standards |     |     |     |     | Face to Face<br>DIN EN 558 |     | Kv<br>[m³/h] | Weights [kg] |     |      |
|--------------|------------------------------------------------------|-----|-----|-----|-----|----------------------------|-----|--------------|--------------|-----|------|
|              | DN                                                   | H   | H1  | H2  | L1  | D1                         | GR1 |              | GR27         | GR1 | GR27 |
|              |                                                      |     |     |     |     |                            | L   |              | L            |     |      |
| 150          | 703                                                  | 265 | 389 | 435 | 450 | 480                        | 350 | 2320         | 204          | 177 |      |
| 200          | 940                                                  | 303 | 444 | 526 | 700 | 600                        | 400 | 4124         | 336          | 292 |      |
| 250          | 1125                                                 | 360 | 541 | 600 | 700 | 730                        | 450 | 6701         | 538          | 468 |      |
| 300          | 1200                                                 | 421 | 639 | 687 | 450 | 850                        | 500 | 9279         | 772          | 671 |      |

Tab.11

| Nominal Size | PN 40<br>Dimensions [mm]<br>acc. to DIN EN Standards |     |     |     |     | Face to Face<br>DIN EN 558 |     | Kv<br>[m³/h] | Weights [kg] |     |      |
|--------------|------------------------------------------------------|-----|-----|-----|-----|----------------------------|-----|--------------|--------------|-----|------|
|              | DN                                                   | H   | H1  | H2  | L1  | D1                         | GR1 |              | GR27         | GR1 | GR27 |
|              |                                                      |     |     |     |     |                            | L   |              | L            |     |      |
| 150          | 889                                                  | 265 | 389 | 506 | 700 | 480                        | 350 | 2320         | 271          | 236 |      |
| 200          | 1032                                                 | 303 | 444 | 585 | 800 | 600                        | 400 | 4124         | 430          | 374 |      |
| 250          | 1066                                                 | 360 | 541 | 682 | 600 | 730                        | 450 | 6701         | 684          | 595 |      |
| 300          | 1147                                                 | 421 | 639 | 768 | 500 | 850                        | 500 | 9279         | 1039         | 903 |      |

Tab.12

Other dimensions and pressure classes on request.



## Top Works

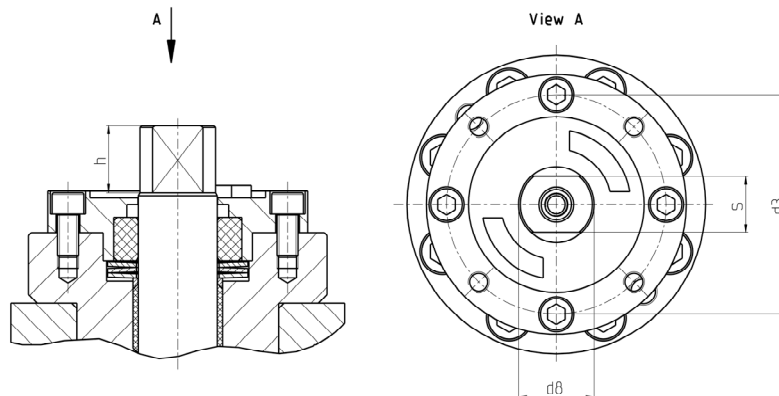


Fig.5

| Dimensions |    |      |    |      |     |      |    |      |
|------------|----|------|----|------|-----|------|----|------|
| F          | h  |      | s  |      | d3  |      | d8 |      |
|            | mm | inch | mm | inch | mm  | inch | mm | inch |
| F07        | 22 | 0.9  | 12 | 0.5  | 70  | 2.8  | 17 | 0.7  |
| F10        | 27 | 1.1  | 18 | 0.7  | 102 | 4    | 27 | 1.1  |
| F12        | 38 | 1.5  | 32 | 1.3  | 125 | 4.9  | 40 | 1.6  |
| F14        | 38 | 1.5  | 38 | 1.5  | 140 | 5.5  | 57 | 2    |
| F16        | 48 | 1.9  | 44 | 1.7  | 165 | 6.5  | 68 | 2.7  |
| F25        | 48 | 1.9  | 55 | 2.2  | 254 | 10   | 82 | 3.2  |

Tab.13

| Nominal Size  |            | Actuator-Connection<br>ISO 5211<br>Full Bore |           | Nominal Size  |                | Actuator-Connection<br>ISO 5211<br>*Single Reduced Bore |           |
|---------------|------------|----------------------------------------------|-----------|---------------|----------------|---------------------------------------------------------|-----------|
| NPS<br>[inch] | DN<br>[mm] | Class 150                                    | Class 300 | NPS<br>[inch] | *SRB<br>[inch] | Class 150                                               | Class 300 |
| ½             | 15         | F07                                          | F07       | ½             | -              | -                                                       | -         |
| ¾             | 20         | F07                                          | F07       | ¾             | ½              | F07                                                     | F07       |
| 1             | 25         | F07                                          | F07       | 1             | ¾              | F07                                                     | F07       |
| 1¼            | 32         | F07                                          | F10       | 1¼            | 1              | F07                                                     | F07       |
| 1½            | 40         | F07                                          | F10       | 1½            | 1¼             | F07                                                     | F10       |
| 2             | 50         | F10                                          | F10       | 2             | 1½             | F07                                                     | F10       |
| 2½            | 65         | F10                                          | F10       | 2½            | 2              | F10                                                     | F10       |
| 3             | 80         | F12                                          | F12       | 3             | 2½             | F10                                                     | F12       |
| 4             | 100        | F12                                          | F12       | 4             | 3              | F12                                                     | F12       |
| 6             | 150        | F12                                          | F14       | 6             | 4              | F12                                                     | F14       |
| 8             | 200        | F14                                          | F16       | 8             | 6              | F12                                                     | F14       |
| 10            | 250        | F16                                          | F25       | 10            | 8              | F14                                                     | F16       |
| 12            | 300        | F16                                          | F25       | 12            | 10             | F16                                                     | F25       |

Tab.14



## Pressure / Temperature Diagram

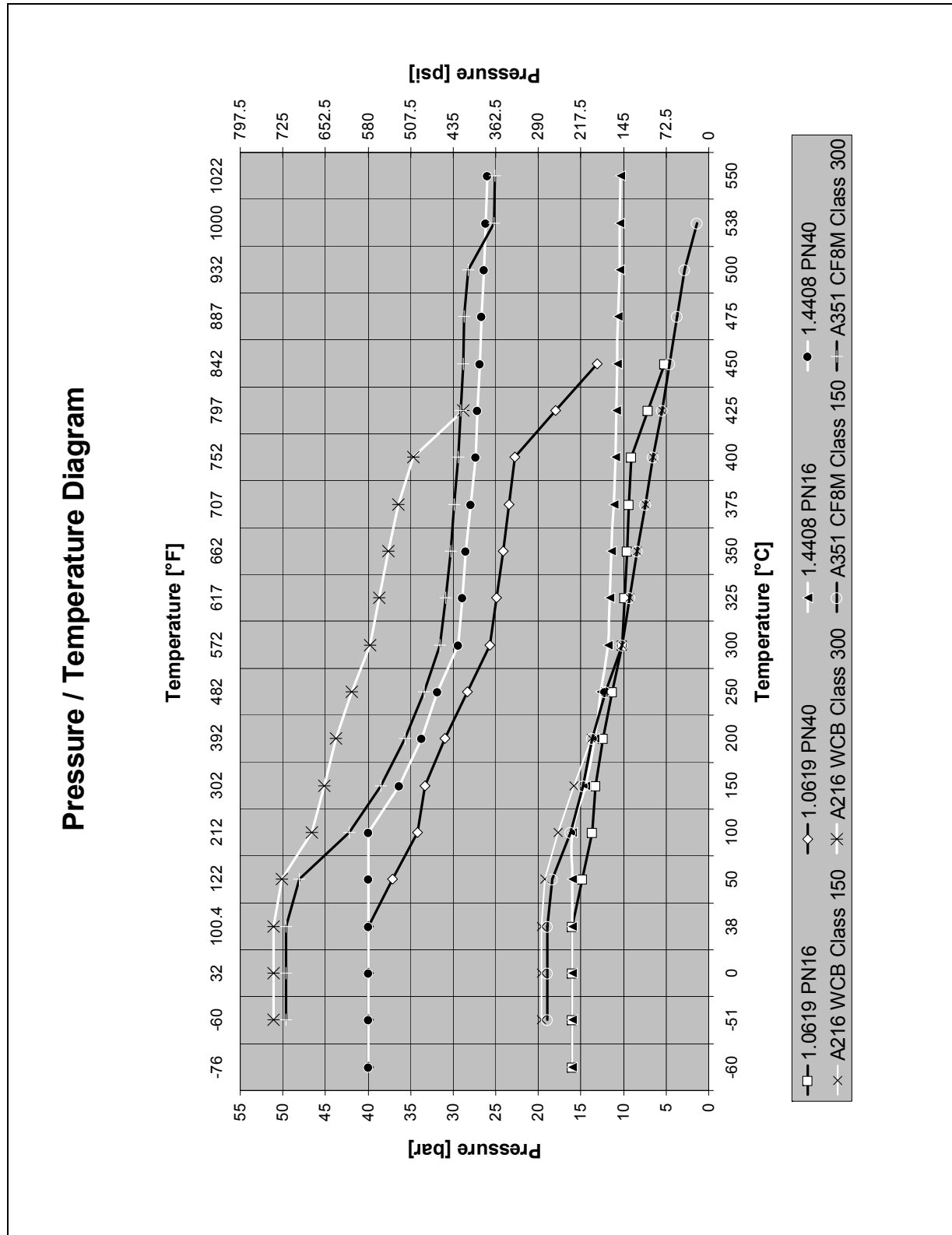


Fig.6



## Options

### 1) Seat system with protected spring area

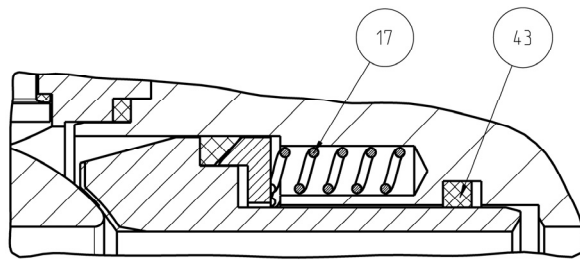


Fig.7

The area where the springs (17) are located is protected by graphite-based seal (43). This seal prevents material from entering the spring area or recess but allow the spring chamber to be energized by line pressure.

### 2) Adjustable stem packing

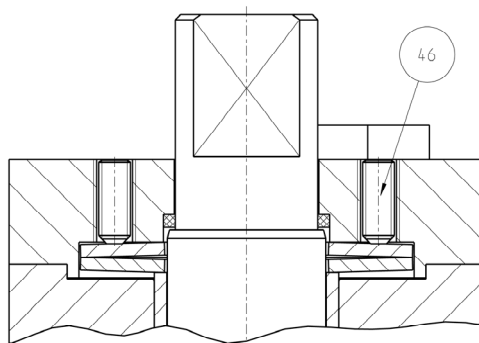


Fig.8

Additionally the live loaded stem packing may be equipped with hexagon socket screws (46). To fasten these screws it is possible to increase the spring force on the packing in the event of leakage.

### 3) With high pressure seat system

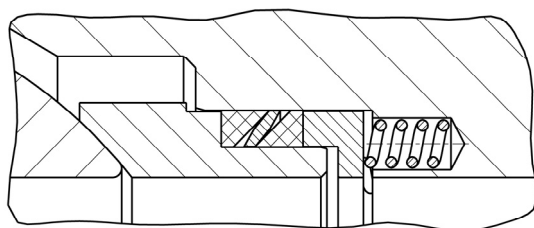


Fig.9

### 4) Double-stage gland packing with purge connection

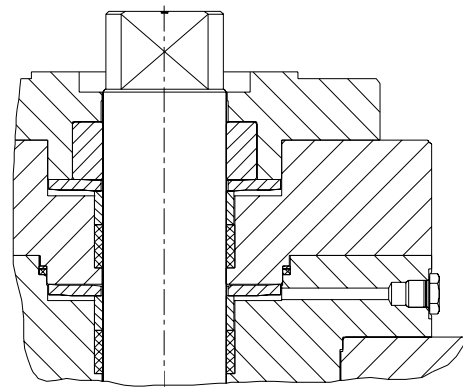
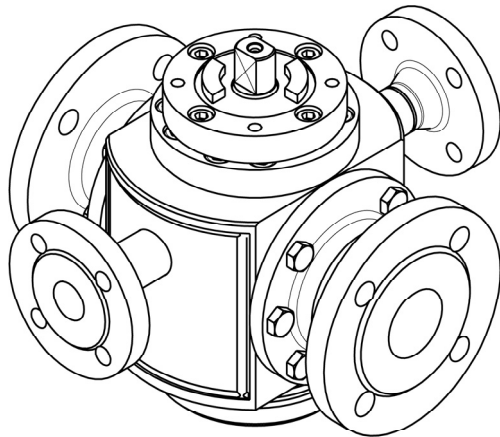


Fig.10



5) Valve with heating jacket



*Fig.11*

**Technical modifications are reserved.**

