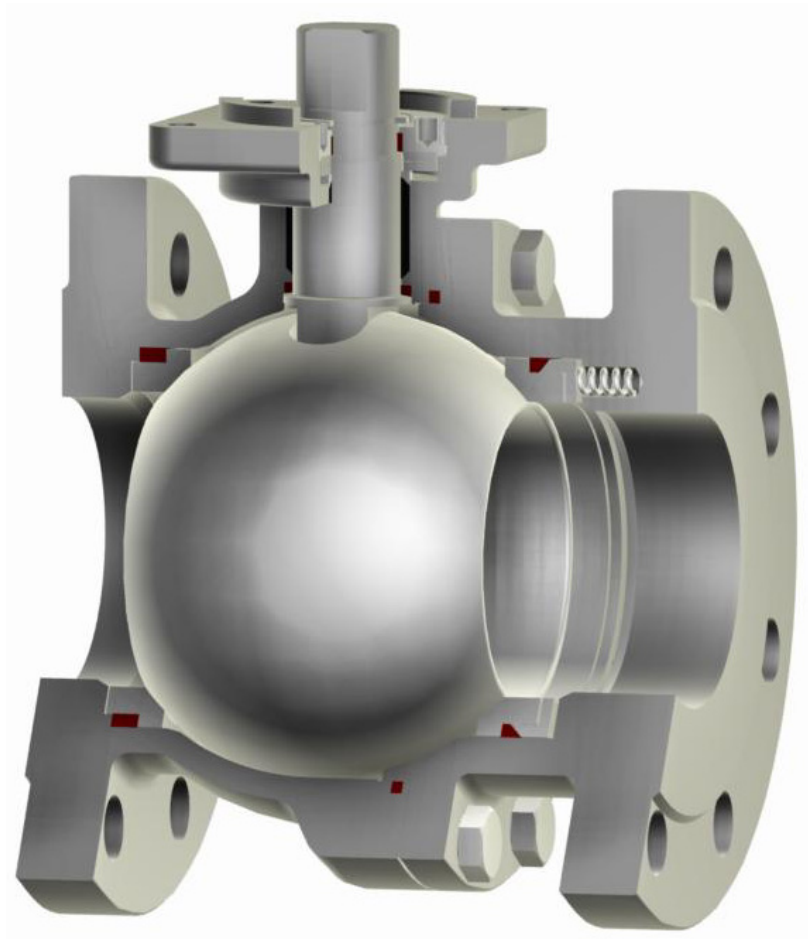




Two-Way Metal Seated Ball Valve Type 85-M



Design Characteristics

- ✓ Two piece body
- ✓ Floating ball
- ✓ Blow out proof stem
- ✓ Live loaded stem packing
- ✓ Spring loaded seat system
- ✓ Fire Safe design optional

Design Standards

- ✓ EN 12516, EN 1983, ISO 5211, AD-2000
- ✓ ASME B16.34, API 608

Range of Application

- ✓ Diameter ½" to 6" / DN 15 to 150
- ✓ Class 150 to 300 / PN 10 to 40
- ✓ -20°F to +850°F / -60°C to +450°C

Approvals

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

Testing Standards

- ✓ EN 12266-1/2
- ✓ API 598



Main Parts

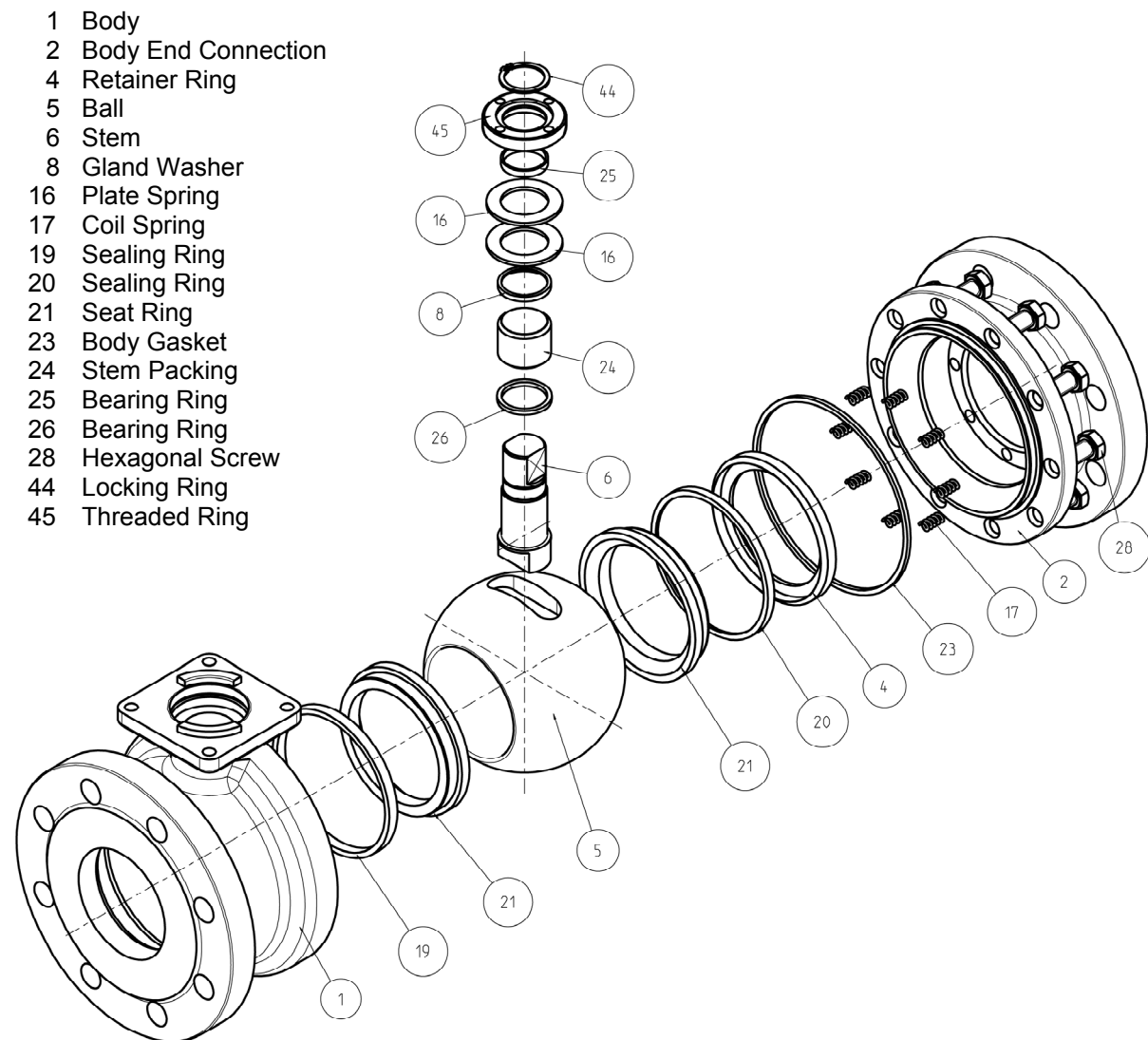


Fig. 1

Description

This PERRIN ball valve is a floating ball design with a two piece split body housing. 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, with blow out proof stem. The stem packing and sealings are "TA-Luft" certified for low fugitive emissions.



Parts List / Materials

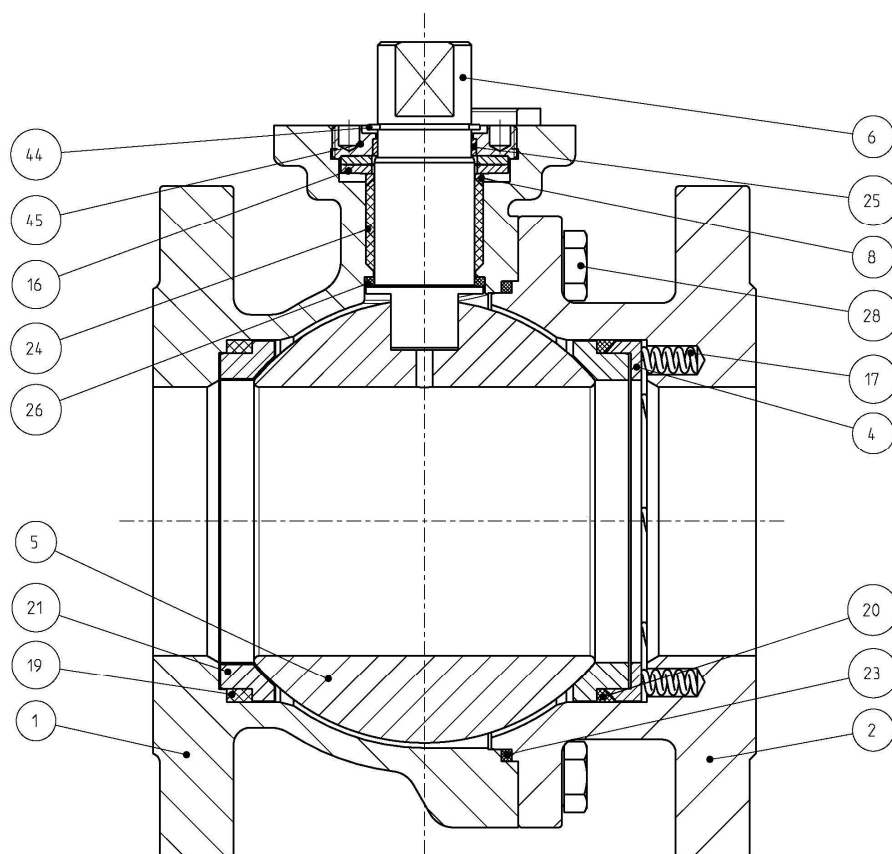


Fig. 2

| Item | Designation | ASME | | DIN EN | |
|------|----------------------------|-------------------------------------|-------------------------------------|--|--|
| | | -20°F up to +850°F | -20°F up to +850°F | -60°C up to +450°C | -10°C up to +450°C |
| 1 | Body | A351 CF8M | A216 WCB | 1.4408 ¹⁾ | 1.0619 |
| 2 | Body End Connection | | | | |
| 4 | Retainer Ring | Type 316 | Type 316 | 1.4571 | 1.4571 |
| 5 | Ball | Type 316 coated A351 CF8M coated | Type 316 coated A351 CF8M coated | 1.4571 coated 1.4408 ¹⁾ coated | 1.4571 coated 1.4408 ¹⁾ coated |
| 6 | Stem | Type 51 ²⁾ Type 316 | Type 51 ²⁾ Type 316 | 1.4462 ²⁾ 1.4571 | 1.4462 ²⁾ 1.4571 |
| 8 | Gland Washer | Type 316 | Type 316 | 1.4571 | 1.4571 |
| 16 | Plate Spring ³⁾ | Type 301 | AISI 6150 | 1.4310 | 1.8159 |
| 17 | Coil Spring | Type 316 | Type 316 | 1.4571 | 1.4571 |
| 19 | Sealing Ring | Graphite | Graphite | Graphite | Graphite |
| 20 | Sealing Ring | | | | |
| 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 | Graphite with SS | Graphite with SS | Graphite with SS | Graphite with SS |
| 26 | Bearing Ring | | | | |
| 28 | Hexagonal Screw | SS | SS | SS | SS |
| 44 | Locking Ring | SS | SS | SS | SS |
| 45 | Threaded Ring | Type 316 | Type 316 | 1.4571 | 1.4571 |

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

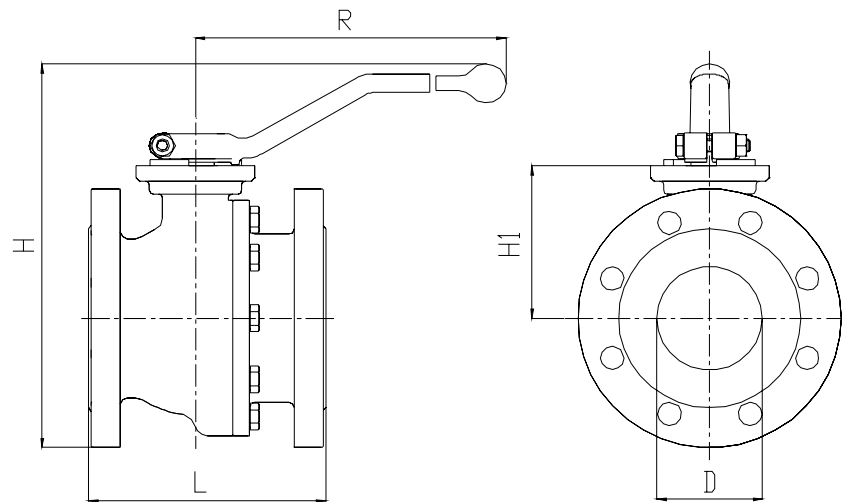


Fig.3

D = NPS = DN

| Nominal Size | | Class 150 - Full Bore Dimensions acc. to ASME Standards | | | | | | Face to Face ASME B16.10 | | Cv [gal/min] | Weights | |
|---------------|------------|--|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS [inch] | DN [mm] | H [inch] | H [mm] | H1 [inch] | H1 [mm] | R [inch] | R [mm] | L [inch] | L [mm] | | kg | lbs |
| ½ | 15 | 5.8 | 147 | 1.9 | 48 | 7 | 180 | 4.25 | 108 | 27 | 3 | 7 |
| ¾ | 20 | 5.8 | 147 | 1.9 | 48 | 7 | 180 | 4.62 | 117 | 48 | 4 | 9 |
| 1 | 25 | 6.3 | 160 | 2 | 50 | 7 | 180 | 5 | 127 | 75 | 5 | 11 |
| 1¼ | 32 | 7 | 178 | 2.2 | 56 | 7 | 180 | 5.5 | 140 | 124 | 7 | 15 |
| 1½ | 40 | 7.9 | 201 | 3 | 76 | 12 | 300 | 6.5 | 165 | 193 | 10 | 22 |
| 2 | 50 | 8.7 | 221 | 3.3 | 84 | 12 | 300 | 7 | 178 | 302 | 13 | 29 |
| 2½ | 65 | 9.5 | 242 | 3.7 | 94 | 12 | 300 | 7.5 | 190 | 510 | 19 | 42 |
| 3 | 80 | 11.7 | 297 | 4 | 113 | 18 | 450 | 8 | 203 | 772 | 22 | 48 |
| 4 | 100 | 13 | 329 | 5 | 127 | 18 | 450 | 9 | 229 | 1206 | 31 | 68 |
| 6 | 150 | 14.8 | 377 | 7.1 | 180 | 28 | 700 | 15.5 | 394 | 2714 | 80 | 176 |

Tab.2

| Nominal Size | | Class 150 - *Single Reduced Bore Dimensions acc. to ASME Standards | | | | | | Face to Face ASME B16.10 | | Cv [gal/min] | Weights | |
|---------------|----------------|---|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS [inch] | *SRB [inch] | H [inch] | H [mm] | H1 [inch] | H1 [mm] | R [inch] | R [mm] | L [inch] | L [mm] | | kg | lbs |
| ½ | - | - | - | - | - | - | - | - | - | - | - | - |
| ¾ | ½ | 5.8 | 147 | 1.9 | 48 | 7 | 180 | 4.62 | 117 | 27 | 3 | 7 |
| 1 | ¾ | 5.8 | 147 | 1.9 | 48 | 7 | 180 | 5 | 127 | 48 | 4 | 9 |
| 1¼ | 1 | 6.3 | 160 | 2 | 50 | 7 | 180 | 5.5 | 140 | 75 | 5 | 11 |
| 1½ | 1¼ | 7 | 178 | 2.2 | 56 | 7 | 180 | 6.5 | 165 | 124 | 7 | 15 |
| 2 | 1½ | 7.9 | 201 | 3 | 76 | 12 | 300 | 7 | 178 | 193 | 10 | 22 |
| 2½ | 2 | 8.7 | 221 | 3.3 | 84 | 12 | 300 | 7.5 | 190 | 302 | 15 | 33 |
| 3 | 2½ | 9.5 | 242 | 3.7 | 94 | 12 | 300 | 8 | 203 | 510 | 18 | 40 |
| 4 | 3 | 11.7 | 297 | 4.4 | 113 | 18 | 450 | 9 | 229 | 772 | 25 | 55 |
| 6 | 4 | 13 | 329 | 5 | 127 | 18 | 450 | 15.5 | 394 | 1206 | 51 | 112 |

Tab.3



| Nominal Size | | Class 300 - Full Bore Dimensions acc. to ASME Standards | | | | | | Face to Face ASME B16.10 | | Cv [gal/min] | Weights | |
|---------------|------------|--|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS [inch] | DN [mm] | H [inch] | H [mm] | H1 [inch] | H1 [mm] | R [inch] | R [mm] | L [inch] | L [mm] | | kg | lbs |
| ½ | 15 | 5.9 | 151 | 1.9 | 48 | 7 | 180 | 5.5 | 140 | 27 | 4 | 9 |
| ¾ | 20 | 6.2 | 157 | 1.9 | 48 | 7 | 180 | 6 | 152 | 48 | 5 | 11 |
| 1 | 25 | 6.6 | 168 | 2 | 50 | 7 | 180 | 6.5 | 165 | 75 | 6 | 13 |
| 1¼ | 32 | 7.3 | 186 | 2.2 | 56 | 7 | 180 | 7 | 178 | 124 | 9 | 20 |
| 1½ | 40 | 8.5 | 217 | 3 | 76 | 12 | 300 | 7.5 | 190 | 193 | 13 | 29 |
| 2 | 50 | 9 | 228 | 3.3 | 84 | 12 | 300 | 8.5 | 216 | 302 | 15 | 33 |
| 2½ | 65 | 9.7 | 247 | 3.7 | 94 | 12 | 300 | 9.5 | 241 | 510 | 21 | 46 |
| 3 | 80 | 12 | 305 | 4.4 | 113 | 18 | 450 | 11.12 | 282 | 772 | 33 | 73 |
| 4 | 100 | 13.5 | 343 | 5 | 127 | 18 | 450 | 12 | 305 | 1206 | 44 | 97 |
| 6 | 150 | 15.6 | 395 | 7.1 | 180 | 28 | 700 | 15.88 | 403 | 2714 | 88 | 194 |

Tab.4

| Nominal Size | | Class 300 - *Single Reduced Bore Dimensions acc. to ASME Standards | | | | | | Face to Face ASME B16.10 | | Cv [gal/min] | Weights | |
|---------------|----------------|---|-----------|--------------|------------|-------------|-----------|-----------------------------|-----------|-----------------|---------|-----|
| NPS [inch] | *SRB [inch] | H [inch] | H [mm] | H1 [inch] | H1 [mm] | R [inch] | R [mm] | L [inch] | L [mm] | | kg | lbs |
| ½ | - | - | - | - | - | - | - | - | - | - | - | - |
| ¾ | ½ | 5.9 | 151 | 1.9 | 48 | 7 | 180 | 6 | 152 | 27 | 4 | 9 |
| 1 | ¾ | 6.2 | 157 | 1.9 | 48 | 7 | 180 | 6.5 | 165 | 48 | 5 | 11 |
| 1¼ | 1 | 6.6 | 168 | 2 | 50 | 7 | 180 | 7 | 178 | 75 | 8 | 18 |
| 1½ | 1¼ | 7 | 186 | 2.2 | 56 | 7 | 180 | 7.5 | 190 | 124 | 11 | 24 |
| 2 | 1½ | 8.5 | 217 | 3 | 76 | 12 | 300 | 8.5 | 216 | 193 | 13 | 29 |
| 2½ | 2 | 9.0 | 228 | 3.3 | 84 | 12 | 300 | 9.5 | 241 | 302 | 18 | 40 |
| 3 | 2½ | 9.7 | 247 | 3.7 | 94 | 12 | 300 | 11.12 | 282 | 510 | 26 | 57 |
| 4 | 3 | 12.0 | 305 | 4.4 | 113 | 18 | 450 | 12 | 305 | 772 | 40 | 88 |
| 6 | 4 | 13.5 | 343 | 5.0 | 127 | 18 | 450 | 15.88 | 403 | 1206 | 79 | 174 |

Tab.5

| Nominal Size | PN 16 - PN 40 Dimensions [mm] acc. to DIN EN Standards | | | Face to Face DIN EN 558 | | Kv [m³/h] | Weights [kg] | |
|--------------|--|-----|-----|----------------------------|------|--------------|--------------|------|
| DN | H | H1 | R | GR1 | GR27 | | GR1 | GR27 |
| | | | | L | L | | | |
| 15 | 147 | 48 | 180 | 130 | 115 | 23 | 4 | 3 |
| 20 | 147 | 48 | 180 | 150 | 120 | 41 | 5 | 4 |
| 25 | 160 | 50 | 180 | 160 | 125 | 64 | 6 | 5 |
| 32 | 178 | 56 | 180 | 180 | 130 | 106 | 8 | 7 |
| 40 | 201 | 76 | 300 | 200 | 140 | 165 | 10 | 9 |
| 50 | 221 | 84 | 300 | 230 | 150 | 258 | 12 | 11 |
| 65 | 242 | 94 | 300 | 290 | 170 | 436 | 19 | 17 |
| 80 | 297 | 113 | 450 | 310 | 180 | 660 | 25 | 21 |
| 100 | 337 | 127 | 450 | 350 | 190 | 1031 | 35 | 29 |
| 150 | 385 | 180 | 700 | 480 | 350 | 2320 | 101 | 78 |

Tab.6

Other dimensions and pressure classes on request.

Top Works

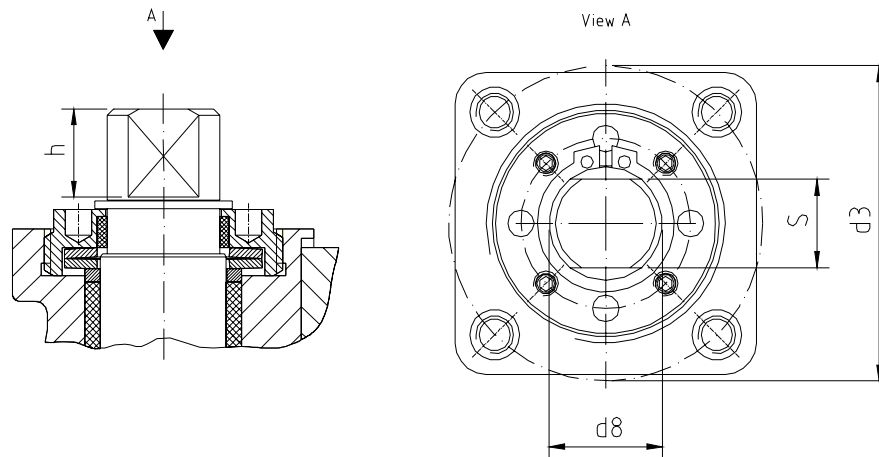


Fig.5

| Dimensions | | | | | | | | |
|------------|----|------|----|------|-----|------|----|------|
| F | h | | s | | d3 | | d8 | |
| | mm | inch | mm | inch | mm | inch | mm | inch |
| F05 | 14 | 0.6 | 14 | 0.6 | 50 | 2 | 18 | 0.7 |
| F07 | 17 | 0.7 | 17 | 0.7 | 70 | 2.8 | 22 | 0.9 |
| F10 | 22 | 0.9 | 22 | 0.9 | 102 | 4 | 28 | 1.1 |
| F14 | 36 | 1.4 | 36 | 1.4 | 140 | 5.5 | 48 | 1.9 |

Tab.7

| Nominal Size | | Actuator-Connection ISO 5211 Full Bore | | | Nominal Size | | Actuator-Connection ISO 5211 *Single Reduced Bore | |
|---------------|------------|--|-----------|--|---------------|----------------|---|-----------|
| NPS [inch] | DN [mm] | Class 150 | Class 300 | | NPS [inch] | *SRB [inch] | Class 150 | Class 300 |
| ½ | 15 | F05 | F05 | | ½ | - | - | - |
| ¾ | 20 | F05 | F05 | | ¾ | ½ | F05 | F05 |
| 1 | 25 | F05 | F05 | | 1 | ¾ | F05 | F05 |
| 1¼ | 32 | F05 | F05 | | 1¼ | 1 | F05 | F05 |
| 1½ | 40 | F07 | F07 | | 1½ | 1¼ | F05 | F05 |
| 2 | 50 | F07 | F07 | | 2 | 1½ | F07 | F07 |
| 2½ | 65 | F07 | F07 | | 2½ | 2 | F07 | F07 |
| 3 | 80 | F10 | F10 | | 3 | 2½ | F07 | F07 |
| 4 | 100 | F10 | F10 | | 4 | 3 | F10 | F10 |
| 6 | 150 | F14 | F14 | | 6 | 4 | F14 | F14 |

Tab.8

Pressure / Temperature Diagram

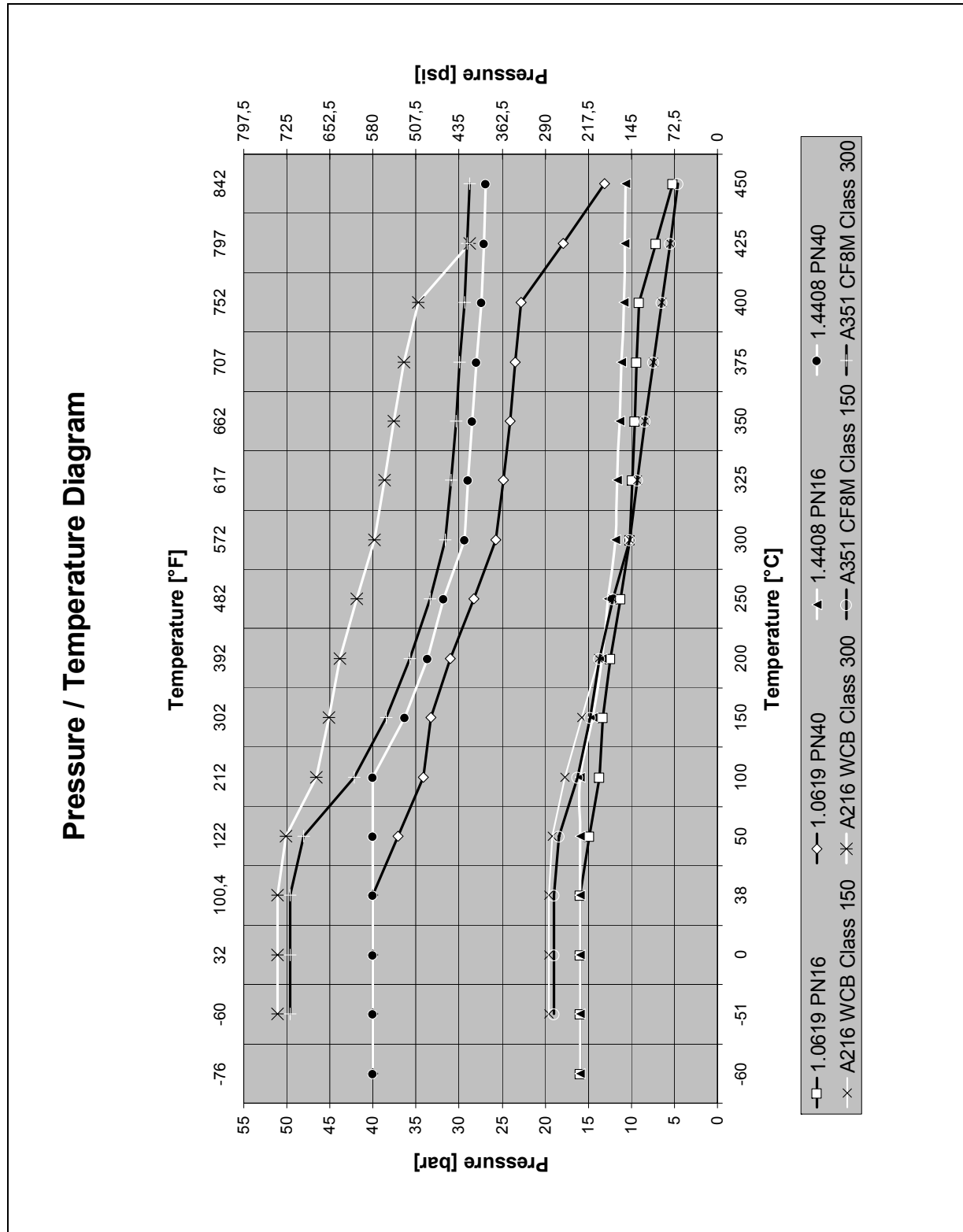


Fig. 5

Options

1) Seat system with protected spring area

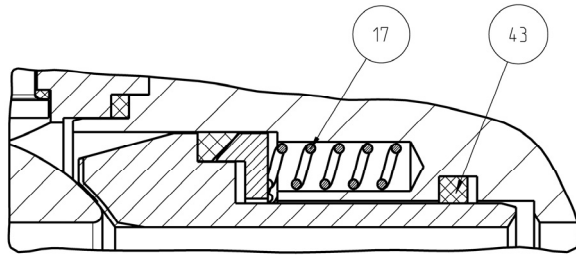


Fig. 6

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

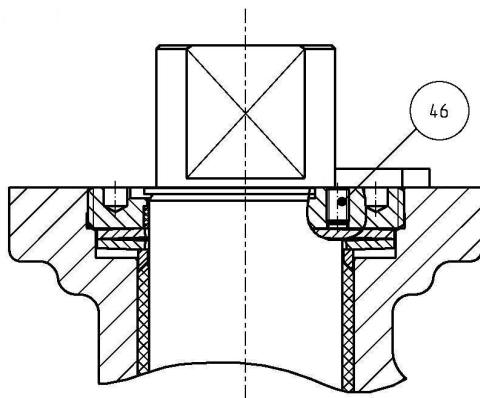


Fig.7

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) Valve with heating jacket

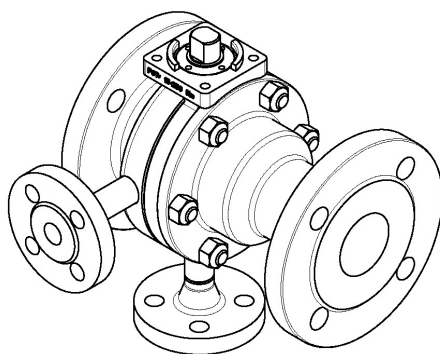


Fig.8

Technical modifications are reserved.



