

## DIN Flanged Ball Valves

## Types AF90D, AF94D



DIN Flanged ball valve, type AF90D/AF94D, PN16/40, 2pc. body design, full port, stainless steel casting 1.4408 or carbon steel casting 1.0619, seals PTFE re-inforced, connection flanges acc. to EN 1092-1 Form B1, face-to-face dimension acc. to EN 558 row 1 (long pattern) or row 27 (short pattern), suitable for direct mounting, anti-static, blow-out proof stem, pressure relieving seats in SRS- system, double seal system - Fire-Safe certified and FDA conformity at the same time, TA-Luft certified, modular construction with interesting options.

| Types | NP    | Materials       |        | Flanges                | Face-to-face   | Sizes        |
|-------|-------|-----------------|--------|------------------------|----------------|--------------|
| AF90D | 16/40 | Carbon steel    | 1.0619 | DIN EN 1092-1, Form B1 | EN 558, row 1  | DN15 - DN100 |
| AF90D | 16/40 | Stainless steel | 1.4408 | DIN EN 1092-1, Form B1 | EN 558, row 1  | DN15 - DN100 |
| AF94D | 16/40 | Carbon steel    | 1.0619 | DIN EN 1092-1, Form B1 | EN 558, row 27 | DN15 - DN150 |
| AF94D | 16/40 | Stainless steel | 1.4408 | DIN EN 1092-1, Form B1 | EN 558, row 27 | DN15 - DN150 |

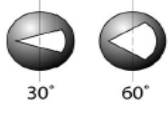


PED / TA-Luft

### Modular construction



### Options

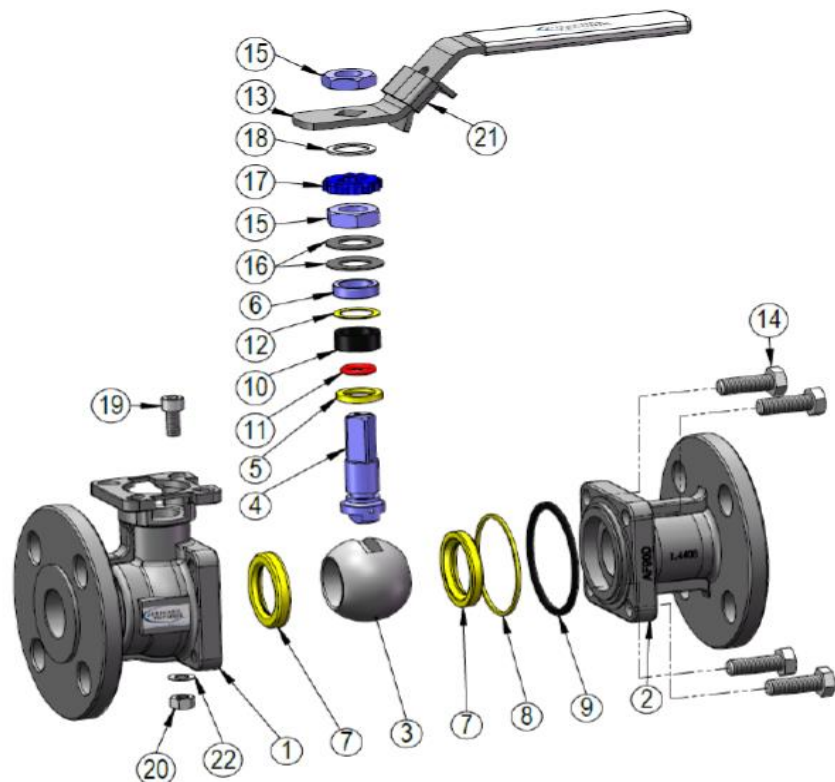
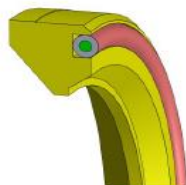
| Cavity fillers                                                                      | Heating jacket                                                                      | V-ports                                                                             | Different seat materials                                                            | Free of oil and grease                                                                | Assembly with gearbox                                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |  |

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Sizes 1/2" to 2":

to Item Nr. 7 „SRS“:



| Item Nr. | Description                   | Material        | Sealing kit Spare part |
|----------|-------------------------------|-----------------|------------------------|
| 1        | Body part                     | 1.4408 / 1.0619 |                        |
| 2        | Flange part                   | 1.4408 / 1.0619 |                        |
| 3        | Ball                          | 1.4401          |                        |
| 4        | Stem                          | 1.4401          |                        |
| 5        | Stem seal                     | PTFE            | X                      |
| 6        | Pressure ring                 | 1.4401          |                        |
| 7        | Seat ring (1x „SRS“)          | RPTFE (*)       | X                      |
| 8        | Body sealing (wetted part)    | PTFE            | X                      |
| 9        | Body sealing (atmospheric)    | Graphite        | X                      |
| 10       | Stem packing                  | Graphite        | X                      |
| 11       | O-Ring                        | FKM             | X                      |
| *        | acc. to sealing configuration |                 |                        |

| Item Nr. | Description                | Material     | Sealing kit Spare part |
|----------|----------------------------|--------------|------------------------|
| 12       | Slide ring                 | PTFE         | X                      |
| 13       | Lever                      | 1.4301 / PVC |                        |
| 14       | Body screws                | A2-70        |                        |
| 15       | Stem nut                   | 1.4301       |                        |
| 16       | Belville spring washer     | 1.4401       |                        |
| 17       | Safety cap                 | 1.4401       |                        |
| 18       | Distance washer            | 1.4401       |                        |
| 19       | Cylinder head screw (lock) | 1.4401       |                        |
| 20       | Hexagon head screw         | 1.4301       |                        |
| 21       | Locking device             | 1.4401       |                        |
| 22       | Distance washer            | 1.4301       |                        |

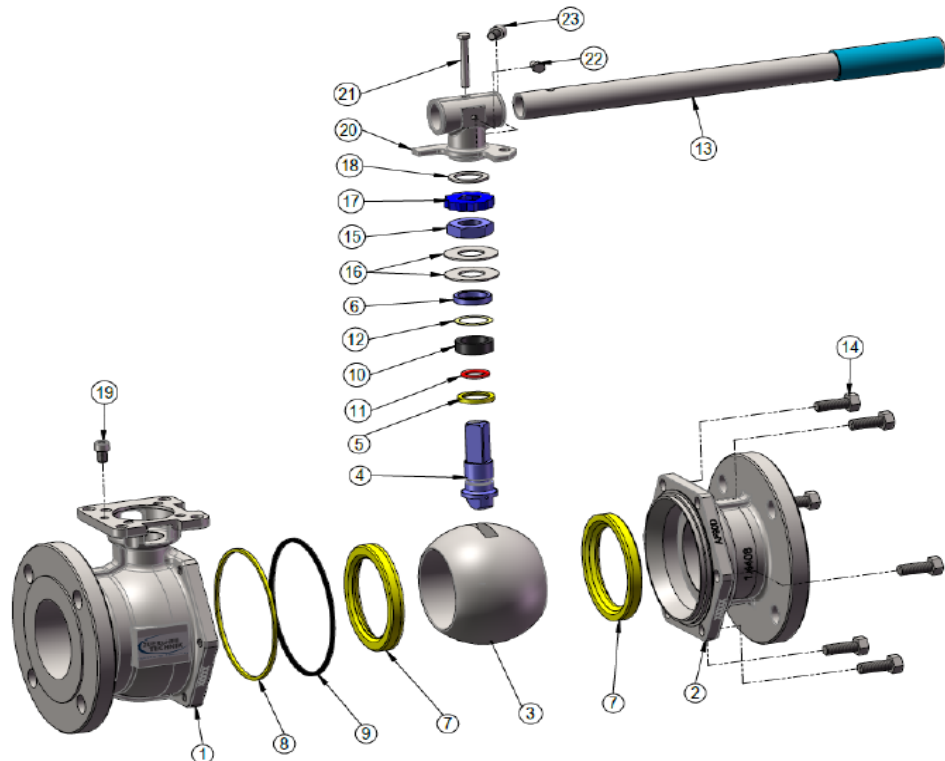
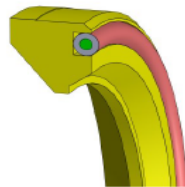
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## DIN Flanged Ball Valves

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Sizes 2 1/2" to 6"

to Item Nr. 7 „SRS“:



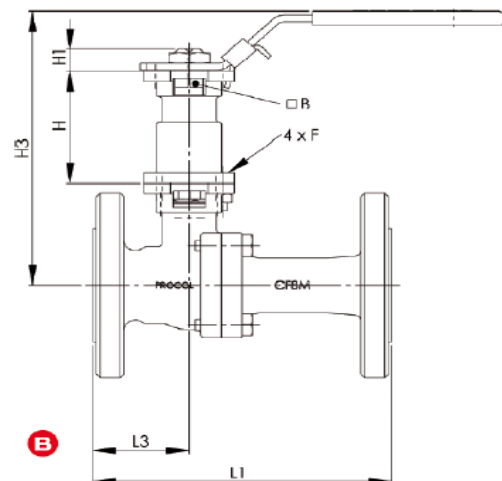
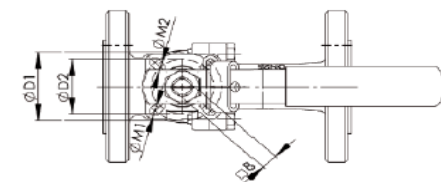
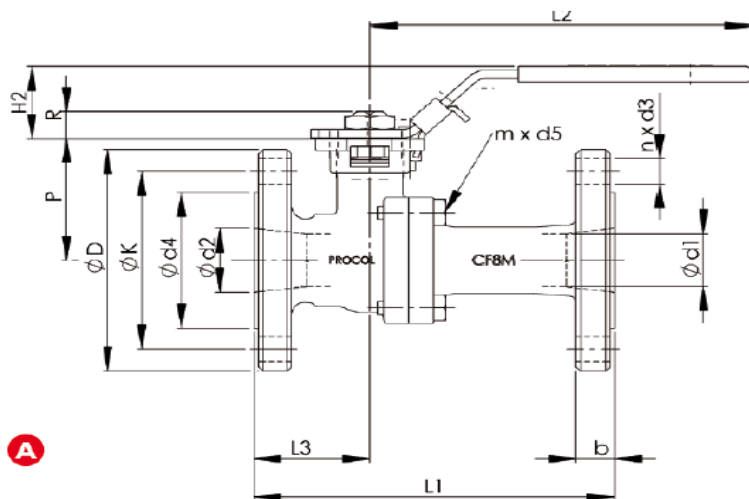
| Item Nr. | Description                   | Material        | Sealing kit Spare part |
|----------|-------------------------------|-----------------|------------------------|
| 1        | Body part                     | 1.4408 / 1.0619 |                        |
| 2        | Flange part                   | 1.4408 / 1.0619 |                        |
| 3        | Ball                          | 1.4401          |                        |
| 4        | Stem                          | 1.4401          |                        |
| 5        | Stem seal                     | PTFE            | X                      |
| 6        | Pressure ring                 | 1.4401          |                        |
| 7        | Seat ring (1x „SRS“)          | RPTFE (*)       | X                      |
| 8        | Body sealing (wetted part)    | PTFE            | X                      |
| 9        | Body sealing (atmospheric)    | Graphite        | X                      |
| 10       | Stem packing                  | Graphite        | X                      |
| 11       | O-Ring                        | FKM             | X                      |
| *        | acc. to sealing configuration |                 |                        |

| Item Nr. | Description                | Material     | Sealing kit Spare part |
|----------|----------------------------|--------------|------------------------|
| 12       | Slide ring                 | PTFE         | X                      |
| 13       | Lever                      | 1.4301 / PVC |                        |
| 14       | Body screws                | A2-70        |                        |
| 15       | Stem nut                   | 1.4301       |                        |
| 16       | Belville spring washer     | 1.4401       |                        |
| 17       | Safety cap                 | 1.4401       |                        |
| 18       | Distance washer            | 1.4401       |                        |
| 19       | Cylinder head screw (lock) | 1.4401       |                        |
| 20       | Adapter                    | 1.4408       |                        |
| 21       | Hexagon head screw         | 1.4301       |                        |
| 22       | Hexagon head screw         | 1.4401       |                        |
| 23       | Hexagon head screw         | 1.4301       |                        |

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## Types AF90D, AF94D



Dimensions in mm

| DN  | PN    | Ø d1 | Ø d2 | Ø d4 | n x d3     | Ø K | Ø D | P   | b  | R  | Row 1 |           | Row 27 |           |
|-----|-------|------|------|------|------------|-----|-----|-----|----|----|-------|-----------|--------|-----------|
|     |       |      |      |      |            |     |     |     |    |    | L1    | Weight Kg | L1     | Weight Kg |
| 15  | 16/40 | 15   | 18   | 45   | 4 x 14     | 65  | 95  | 47  | 14 | 11 | 130   | 2,4       | 115    | 2,3       |
| 20  | 16/40 | 20   | 23   | 58   | 4 x 14     | 75  | 105 | 53  | 16 | 9  | 150   | 3,0       | 120    | 2,6       |
| 25  | 16/40 | 25   | 29   | 68   | 4 x 14     | 85  | 115 | 61  | 16 | 12 | 160   | 3,9       | 125    | 3,8       |
| 32  | 16/40 | 32   | 38   | 78   | 4 x 18     | 100 | 140 | 70  | 16 | 13 | 180   | 5,4       | 130    | 4,9       |
| 40  | 16/40 | 38   | 44   | 88   | 4 x 18     | 110 | 150 | 79  | 16 | 16 | 200   | 7,3       | 140    | 6,6       |
| 50  | 16/40 | 50   | 56   | 102  | 4 x 18     | 125 | 165 | 88  | 18 | 16 | 230   | 10,9      | 150    | 9,6       |
| 65  | 16    | 65   | 71   | 122  | 4 (8) x 18 | 145 | 185 | 110 | 18 | 25 | 290   | 15,6      | 170    | 13,2      |
| 65  | 40    | 65   |      |      |            |     |     |     |    |    |       | 17,1      | a.A.   | a.A.      |
| 80  | 16    | 80   | 84   | 138  | 8 x 18     | 160 | 200 | 118 | 20 | 25 | 310   | 18,8      | 180    | 16,2      |
| 80  | 40    | 80   |      |      |            |     |     |     |    |    |       | 21,7      | a.A.   | a.A.      |
| 100 | 16    | 100  | 109  | 158  | 8 x 18     | 180 | 220 | 134 | 20 | 22 | 350   | 27,8      | 190    | 23,3      |
| 100 | 40    | 100  |      |      |            |     |     |     |    |    |       | 30,0      | a.A.   | a.A.      |
| 125 | 16    | 125  |      |      |            |     |     |     |    |    | a.A.  | a.A.      |        |           |
| 150 | 16    | 150  |      |      |            |     |     |     |    |    | a.A.  | a.A.      |        |           |

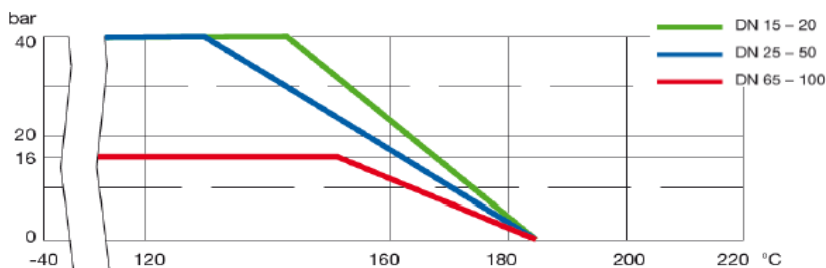
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## DIN Flanged Ball Valves

## Types AF90D, AF94D

### Pressure / Temperature charts

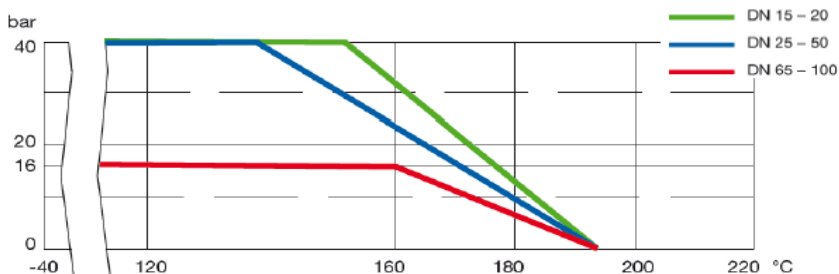
#### PTFE



#### PTFE virgin

PTFE (Teflon®) is the most used sealing material for ball valves with excellent resistance against almost all medias.  
 Color: pale white  
 Tests: FDA approved, USP cl. VI

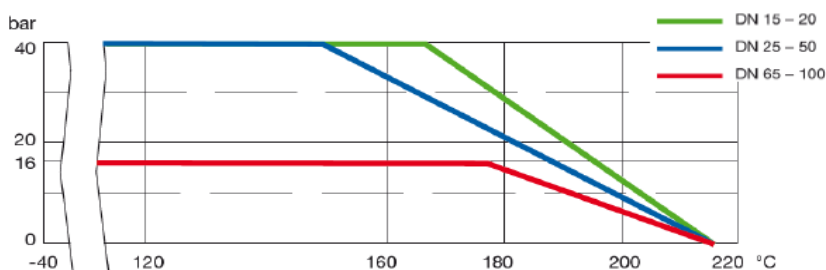
#### RPTFE



#### RPTFE

PTFE virgin, reinforced with a part of glass fibre ca. 15%, same chemical resistance as PTFE virgin, but higher resistance of load changes consistency compared to PTFE and use at higher p/T values.  
 Color: white  
 Tests: FDA approved

#### CPTFE



#### CPTFE

PTFE virgin, reinforced with a higher part of carbon fibre ca. 25%, to use for higher temperature range and higher consistency of load changes compared to RPTFE.  
 Color: black  
 Manufacturer standard: acc. EC 1935/2004



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More Pressure / Temperature charts follow up

PEEK®

PEEK®

TFM®1600

TFM®1600

| Kv-Value (m <sup>3</sup> /h)<br>for | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 |
|-------------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Full port                           | 11   | 28   | 50   | 71   | 102  | 205  | 275  | 500  | 867   |       |       |

The torque is significantly influenced by the on-/off frequency! The values shown are average values at  $\Delta p = \max.$  10 bar. In the case of non-lubricating media, a corresponding increase in the values must be taken into account when dimensioning the actuator!

| Losbrechmoment<br>(Nm) für schmie-<br>rende Medien, | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 |
|-----------------------------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Seats in CPTFE                                      | 20   | 27   | 38   | 55   | 88   | 97   | 109  | 195  | 205   |       |       |
| Seats in TFM®1600                                   |      |      |      |      |      |      |      |      |       |       |       |
| Seats in PEEK®                                      |      |      |      |      |      |      |      |      |       |       |       |
| MAST (Nm)                                           | 39   | 39   | 81   | 81   | 105  | 214  | 214  | 483  | 509   |       |       |

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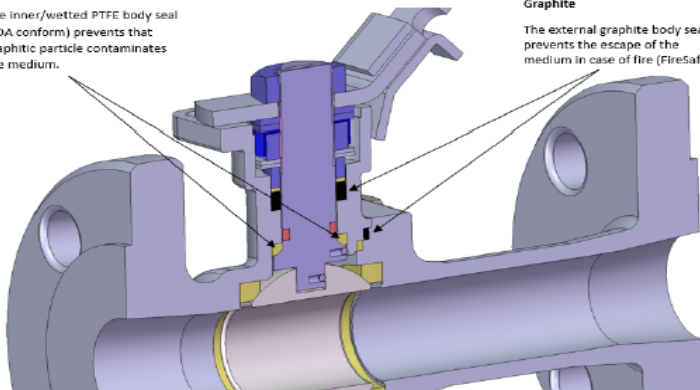
### Our double seal system

#### PTFE

The inner/wetted PTFE body seal (FDA conform) prevents that graphitic particle contaminates the medium.

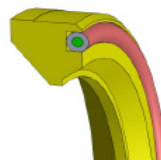
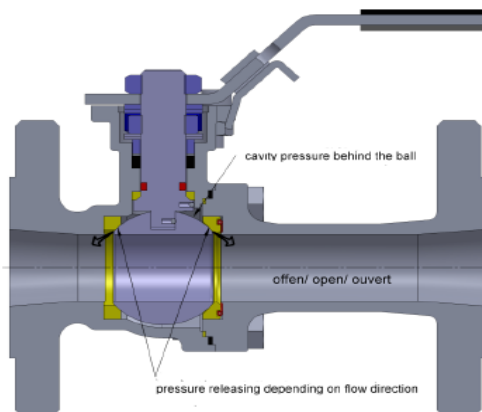
#### Graphite

The external graphite body seal prevents the escape of the medium in case of fire (FireSafe).

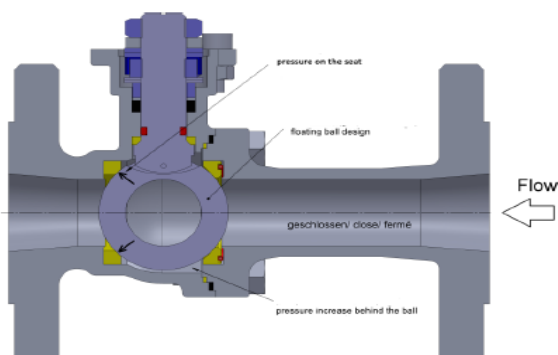


The double seal system enables the valve to comply with Fire-Safe and FDA standards at the same time. A solution particularly for chemistry and pharma which offers increased safety.

### Our pressure relieving system SRS



The pressure relieving system safely discharges overpressure behind the ball and prevents damage to the sealing system. One of the two seat rings is equipped with a FEP- coated O-ring which acts as a spring. This spring action gives way at correspondingly high differential pressure and relieves overpressure. Pressure behind the ball is locked in. A pressure ease is also possible in open ball position.

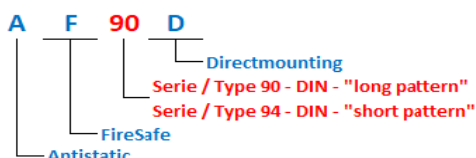


In closed position, the pressure is locked behind the ball. Existing process conditions can increase the pressure behind the ball (hot media, high ambient temperature, etc.). The pressure increase of the locked media will be relieved via the spring acting seat ring.

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### Article codification / Identification :



| Code 1 | Body material, Type           |
|--------|-------------------------------|
| 9      | Stainless steel, Type AF95D   |
| 09     | Carbon steel, WCB, Type AF95D |

|   | Remark                                                      |
|---|-------------------------------------------------------------|
| X | other body materials and/or other pressure rates on request |

| Code 2 | Face to Face dimension            |
|--------|-----------------------------------|
| 0      | acc. to DIN EN558, row 1 (long)   |
| 4      | acc. to DIN EN558, row 27 (short) |

| Code 4  | Design / Nominal Pressure                        |
|---------|--------------------------------------------------|
| 000     | acc. DIN PN16/PN40<br>Same PN for =< DN50        |
| 160/400 | Different acc. DIN PN16 or PN40 for sizes =>DN80 |
| 164/168 | DN65: Flange design for 4-hole/8-hole at PN16    |

| Code 3 | Sizes     |
|--------|-----------|
| DN     | Full bore |
| 15     | 015       |
| 20     | 020       |
| 25     | 025       |
| 32     | 032       |
| 40     | 040       |
| 50     | 050       |
| 65     | 065       |
| 80     | 080       |
| 100    | 100       |
| 125    | 125       |
| 150    | 150       |

| Code 5 | Sealing configuration / Sealing material specification |                 |                                 |                 |               |
|--------|--------------------------------------------------------|-----------------|---------------------------------|-----------------|---------------|
|        | Description                                            | Seat ring       | Body sealing (wetted / outside) | Stem packing    | Stem seal     |
| C3*    | CRCR                                                   | PTFE+25% carbon | PTFE+15% glas / Graphite        | PTFE+25% carbon | PTFE+15% glas |
| P      | PRCR                                                   | PEEK® virgin    | PTFE+15% glas / Graphite        | PTFE+25% carbon | PTFE+15% glas |
| R3*    | RRCR                                                   | PTFE+15% glas   | PTFE+15% glas / Graphite        | PTFE+25% carbon | PTFE+15% glas |
| T4     | TRCR                                                   | PTFE virgin     | PTFE+15% glas / Graphite        | PTFE+25% carbon | PTFE+15% glas |
| X      | Special                                                |                 |                                 |                 |               |
| *      | Standard with pressure relieving seat „SRS“            |                 |                                 |                 |               |

| Code 6 | Options                                     |
|--------|---------------------------------------------|
| DA     | Pressure relief whole between ball and stem |
| FO     | Free of oil and grease                      |
| HM     | Heating jacket                              |
| X      | Special                                     |

### Sample:

Ball valve, type AF90D, DN 50, PN16/40, 1.4408, seat rings in RPTFE

| Code 1                                                                                      | Code 2 | Code 3 | Fix | Code 4 | Code 5 | Code 6 |                                                                                       |
|---------------------------------------------------------------------------------------------|--------|--------|-----|--------|--------|--------|---------------------------------------------------------------------------------------|
| 9                                                                                           | 0      | 050    | D.  | 000    | R3     | -      |  |
| Remark: further adders at Article Nr.(z.B. ...comp.z...) are needed acc. to internal system |        |        |     |        |        |        |                                                                                       |