

## TWO-WAY GLOBE CONTROL VALVES V16/2 (ASME)

### DESCRIPTION

The ADCATrol V16/2 is a series of single seated, two-way globe control valves designed for simple process engineering and industrial applications with non-critical operating conditions. These valves can be assembled with pneumatic, hydraulic or electric actuators, for modulating and shut-off control tasks.

### MAIN FEATURES

Compact and cost-effective.  
Modular design to meet process requirements.  
Stem guided (up to 2") and post guided (from 2 1/2" to 4").  
Parabolic plug design.  
Stainless steel trim.

### OPTIONS AND

**ACCESSORIES:** Bonnet extension for high and low temperatures.  
Various stem sealing options including bellows sealing.  
Soft or stellite valve sealing.  
Reduced bore trims.  
Silencers.

**USE:** Saturated and superheated steam.  
Hot and superheated water.  
Air, gases and others.

**AVAILABLE MODELS:** V16/2S – carbon steel.

**SIZES:** 1/2" to 4".

**CONNECTIONS:** Flanged ASME B16.5 Class 150 or 300.



### CE MARKING – GROUP 2 (PED – European Directive)

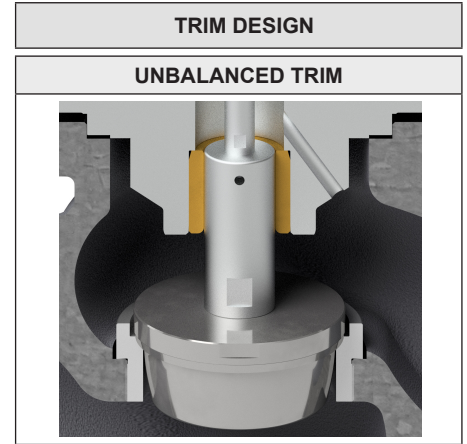
| Class 150    | Class 300    | Category      |
|--------------|--------------|---------------|
| 1/2" to 2"   | 1/2" to 1"   | SEP           |
| 2 1/2" to 4" | 1 1/2" to 4" | 1 (CE marked) |

### BODY LIMITING CONDITIONS \*

| CLASS 150          |                     | CLASS 300          |                     |
|--------------------|---------------------|--------------------|---------------------|
| ALLOWABLE PRESSURE | RELATED TEMPERATURE | ALLOWABLE PRESSURE | RELATED TEMPERATURE |
| 19,3 bar           | -10 °C / 50 °C      | 50 bar             | -10 °C / 50 °C      |
| 15,8 bar           | 150 °C              | 43,9 bar           | 200 °C              |
| 12,1 bar           | 250 °C              | 36,9 bar           | 350 °C              |
| 8,4 bar            | 350 °C              | 34,6 bar           | 400 °C              |

\* Rating according to EN 1759-1:2004.

| BONNET DESIGN    |              |
|------------------|--------------|
| STANDARD         | EXTENDED     |
|                  |              |
| -10 °C to 250 °C | Above 250 °C |



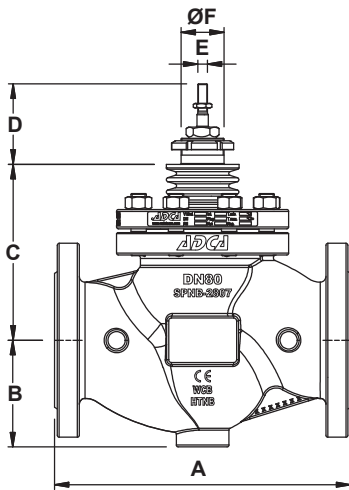
| STEM SEALING           |                     |                    |                  |                     |                     |
|------------------------|---------------------|--------------------|------------------|---------------------|---------------------|
| PTFE/GR V-RINGS (V1.2) | PTFE V-RINGS (V2.2) | EPDM (EP1)         | GRAPHITE (G1)    | BELLOWS             |                     |
|                        |                     |                    |                  | (BV1)               | (BG1)               |
|                        |                     |                    |                  |                     |                     |
| -10 °C to 220 °C       | -10 °C to 180 °C    | -10 °C to 150 °C * | -10 °C to 400 °C | -60 °C to 220 °C ** | -60 °C to 400 °C ** |

\* Up to 180 °C in steam and hot water applications. \*\* Maximum operating pressure: 25 bar.

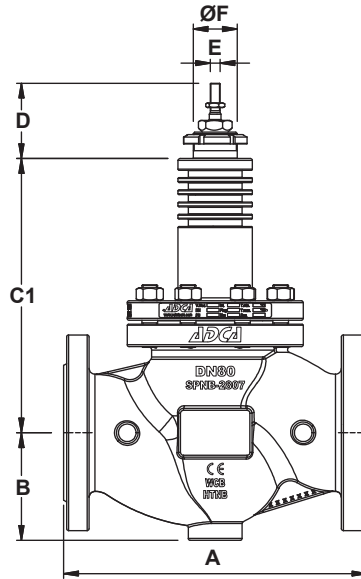
| PLUG DESIGN  |  |
|--|--|
| PARABOLIC  | PARABOLIC (SOFT SEALING)   |
|  |  |
| <b>Sealing:</b> Metal to metal<br><b>Characteristic:</b> Equal percentage (EQP) or linear (PL)<br><b>Flow direction:</b> From below<br><b>Rangeability:</b> 50:1 (EQP) or 30:1 (PL)<br><b>Leakage:</b> Class IV, acc. to IEC 60534-4 | <b>Sealing:</b> PTFE/GR<br><b>Characteristic:</b> Equal percentage (EQP) or linear (PL)<br><b>Flow direction:</b> From below<br><b>Rangeability:</b> 50:1 (EQP) or 30:1 (PL)<br><b>Leakage:</b> Class VI, acc. to IEC 60534-4<br><b>Max. temp.:</b> 200 °C |

| FLOW RATE COEFFICIENTS – PARABOLIC PL AND EQP PLUGS |            |     |    |      |    |    |    |    |    |     |     |
|---|------------|-----|----|------|----|----|----|----|----|-----|-----|
| SIZE  | Kvs (m³/h) |     |    |      |    |    |    |    |    |     |     |
|   | 2,1        | 2,7 | 4  | 6,3  | 10 | 16 | 25 | 40 | 63 | 100 | 160 |
| 1/2"  | •          | •   | •  |      |    |    |    |    |    |     |     |
| 3/4"  | •          | •   | •  | •    |    |    |    |    |    |     |     |
| 1"  | •          | •   | •  | •    | •  |    |    |    |    |     |     |
| 1 1/2"  |            |     |    | •    | •  | •  | •  |    |    |     |     |
| 2"  |            |     |    |      | •  | •  | •  | •  |    |     |     |
| 2 1/2"  |            |     |    |      |    | •  | •  | •  | •  |     |     |
| 3"  |            |     |    |      |    |    | •  | •  | •  | •   |     |
| 4"  |            |     |    |      |    |    |    | •  | •  | •   | •   |
| SEAT Ø (mm)   | 12         |     | 15 | 19,2 | 25 | 32 | 38 | 48 | 65 | 76  | 96  |
| STROKE (mm)   | 20         |     |    |      |    |    |    |    |    | 30  |     |

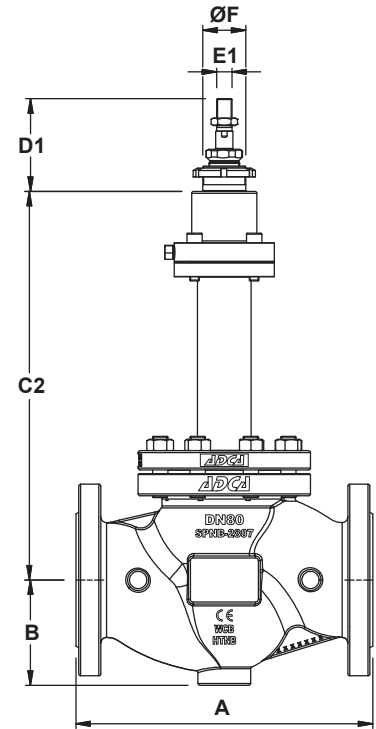
For conversion  $Kvs = Cv (US) \times 0,865$ .



Valve with standard bonnet



Valve with extended bonnet



Bellows sealed valve

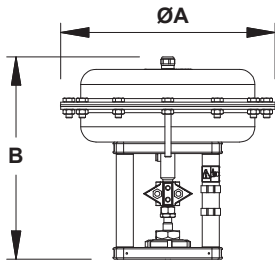
| DIMENSIONS (mm) |           |           |        |     |        |     |           |     |     |  |
|-----------------|-----------|-----------|--------|-----|--------|-----|-----------|-----|-----|--|
| DIMENSION       |           | SIZE      |        |     |        |     |           |     |     |  |
|                 |           | 1/2"      | 3/4"   | 1"  | 1 1/2" | 2"  | 2 1/2"    | 3"  | 4"  |  |
| A               | CLASS 150 | 184 a)    | 184 a) | 184 | 222    | 254 | 276       | 298 | 352 |  |
|                 | CLASS 300 | 190 a)    | 194 a) | 197 | 235    | 267 | 292       | 318 | 368 |  |
| B               | CLASS 150 | 44,5      | 49     | 54  | 65     | 85  | 100       | 110 | 130 |  |
|                 | CLASS 300 | 47,5      | 58,5   | 62  | 78     | 85  | 100       | 110 | 130 |  |
| C               |           | 85        | 85     | 90  | 115    | 125 | 176       | 175 | 190 |  |
| C1              |           | 150       | 150    | 170 | 195    | 204 | 276       | 275 | 310 |  |
| C2              |           | 314       | 314    | 322 | 317    | 317 | 415       | 442 | 451 |  |
| D               |           | 77        |        |     |        |     |           | 82  |     |  |
| D1              |           | 77        |        |     |        |     |           | 92  |     |  |
| E               |           | M10 x 1   |        |     |        |     |           |     |     |  |
| E1              |           | M10 x 1   |        |     |        |     | M16 x 1,5 |     |     |  |
| ØF              |           | M40 x 1,5 |        |     |        |     | M45 x 1,5 |     |     |  |

a) With welded-on flanges.

Remark: In the beginning of year 2022 new face to face dimensions have been defined for some Class 150 valves. Valves may still be supplied with the previous face to face dimensions under request. Consult the manufacturer.

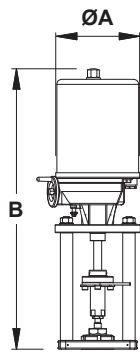
| WEIGHTS (kg) |           |      |      |      |        |      |        |      |      |
|--------------|-----------|------|------|------|--------|------|--------|------|------|
|              |           | SIZE |      |      |        |      |        |      |      |
|              |           | 1/2" | 3/4" | 1"   | 1 1/2" | 2"   | 2 1/2" | 3"   | 4"   |
| STANDARD     | CLASS 150 | 4,5  | 5    | 6,1  | 11,1   | 15,2 | 29,4   | 35   | 50,6 |
|              | CLASS 300 | 4,9  | 6    | 7,5  | 13,9   | 17,5 | 32,5   | 40,3 | 58,5 |
| EXTENDED     | CLASS 150 | 5,2  | 5,7  | 6,8  | 12,4   | 16,4 | 30,1   | 35,7 | 51,1 |
|              | CLASS 300 | 5,6  | 6,7  | 8,2  | 15,2   | 18,7 | 33,2   | 41   | 59   |
| BELLOWS      | CLASS 150 | 8,7  | 9,2  | 10,2 | 15,1   | 19   | 33,2   | 38,7 | 53,5 |
|              | CLASS 300 | 9,1  | 10,2 | 11,6 | 17,9   | 21,3 | 36,3   | 44   | 61,4 |

| MAX. PERMISSIBLE ACTUATING THRUSTS (kN) |      |      |    |        |    |        |    |    |
|---|------|------|----|--------|----|--------|----|----|
| MAX. THRUST                             | SIZE |      |    |        |    |        |    |    |
|   | 1/2" | 3/4" | 1" | 1 1/2" | 2" | 2 1/2" | 3" | 4" |
|   | 12   |      |    |        |    |        |    |    |



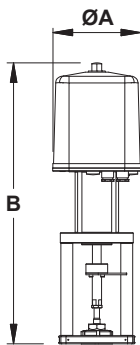
| DIMENSIONS – PA SERIES PNEUMATIC ACTUATORS (mm) |      |       |      |       |      |       |             |      |
|---|------|-------|------|-------|------|-------|-------------|------|
| DIMENSION                                       | PA10 | PA206 | PA25 | PA281 | PA40 | PA341 | PA436       | PA80 |
| ØA  | 170  | 209   | 250  | 275   | 300  | 336   | 430         | 405  |
| B   | 251  | 236   | 260  | 243   | 325  | 288   | 316 / 336 * | 505  |
| WEIGHT (kg)                                     | 6,3  | 6,2   | 10,1 | 9,6   | 18,7 | 14,3  | 24,4 / 28 * | 50,4 |

\* For actuators with spring ranges 1 to 2 bar, 1,5 to 3 bar and 2 to 4 bar.  
For more information, please consult IS 3.70 and IS 3.70A – PA Linear pneumatic actuators.



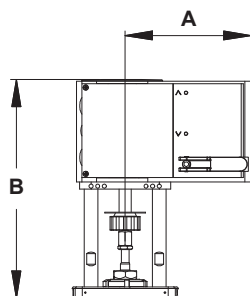
| DIMENSIONS – EL SERIES ELECTRIC ACTUATORS (mm) |      |      |      |      |       |
|--|------|------|------|------|-------|
| DIMENSION                                      | EL12 | EL20 | EL45 | EL80 | EL120 |
| ØA   | 129  | 148  | 148  | 188  | 188   |
| B  | 333  | 485  | 485  | 587  | 587   |
| WEIGHT (kg)                                    | 2,1  | 8    | 8    | 13   | 13    |

For more information, please consult IS 3.72 – EL Linear electric actuators.



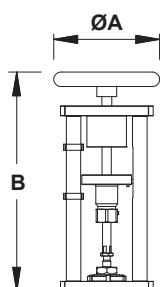
| DIMENSIONS – ELR SERIES ELECTRIC ACTUATORS (mm) |             |             |             |
|---|-------------|-------------|-------------|
| DIMENSION                                       | ELR2.1      | ELR2.2      | ELR2.3      |
| ØA  | 162         | 162         | 162         |
| B   | 518 / 555 * | 536 / 573 * | 557 / 593 * |
| WEIGHT (kg)                                     | 8,7         | 9,3         | 10          |

\* With PEL electronic positioner.  
For more information, please consult IS 3.73 – ELR Linear electric actuators fail safe.



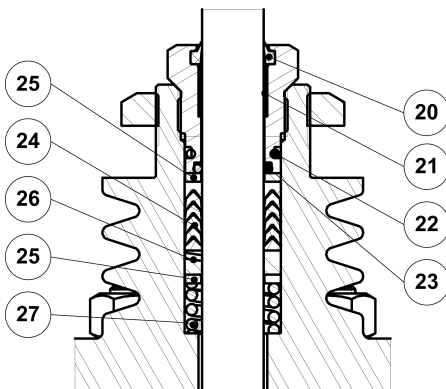
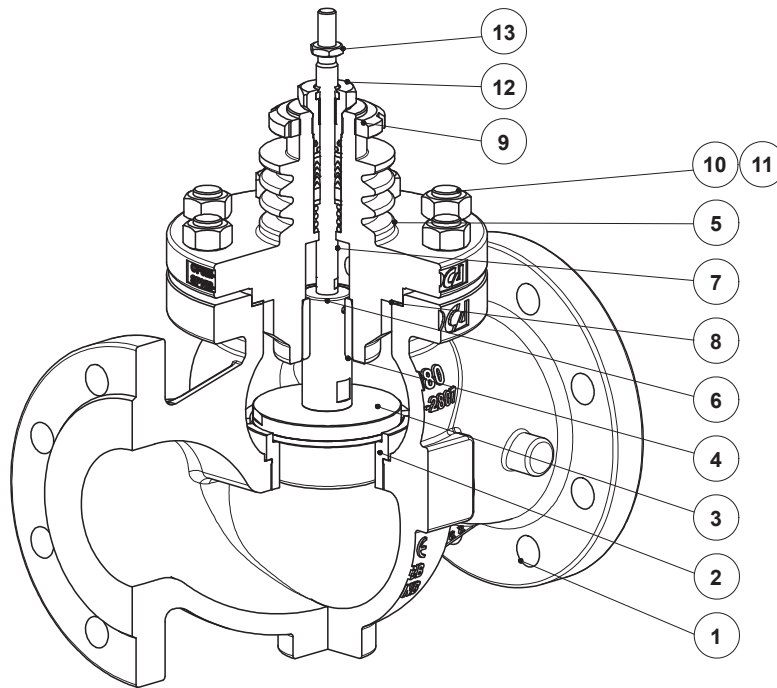
| DIMENSIONS – AV SERIES ELECTRIC ACTUATORS (mm) |         |         |
|--|---------|---------|
| DIMENSION                                      | AVM234S | AVF234S |
| A  | 166     | 166     |
| B  | 314     | 314     |
| WEIGHT (kg)                                    | 4,1     | 4,1     |

For more information, please consult IS 3.74 – AVM234S-AVF234S Linear electric actuators.

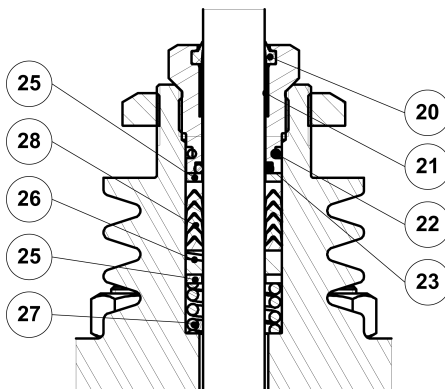


| DIMENSIONS – MANUAL OPERATION HANDWHEEL (mm) |     |
|--|-----|
| DIMENSION                                    | MAH |
| ØA   | 160 |
| B  | 331 |
| WEIGHT (kg)                                  | 5,6 |

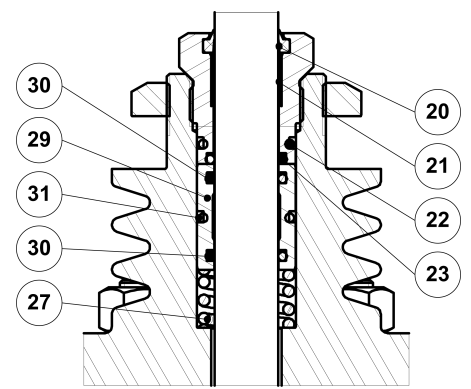
MATERIALS



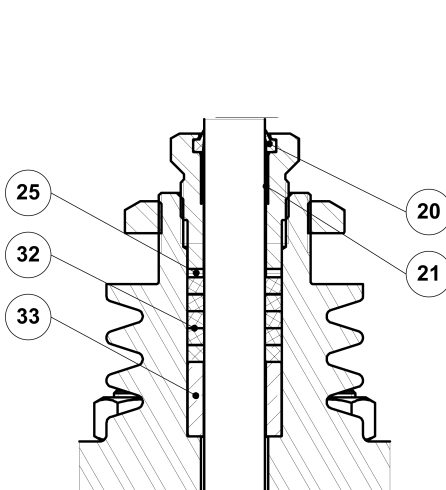
PTFE/GR V-Rings  
(V1.2)



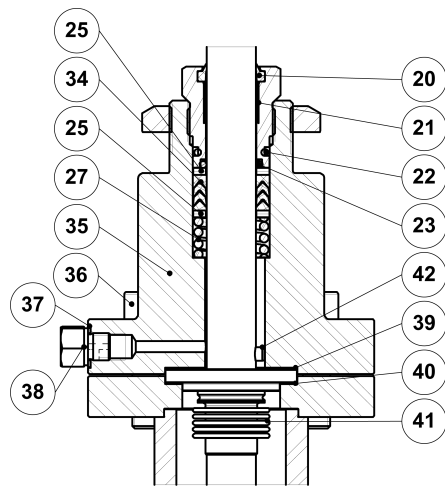
PTFE V-Rings  
(V2.2)



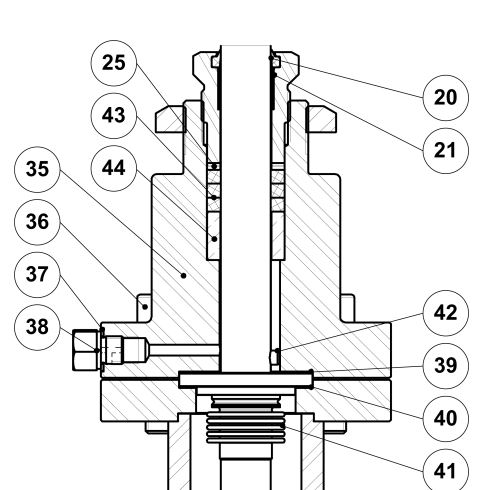
EPDM  
(EP1)



Graphite  
(G1)



Bellows sealing  
(BV1)



Bellows sealing  
(BG1)

**MATERIALS**

| POS. N° | DESIGNATION                | MATERIAL                              |
|---------|----------------------------|---------------------------------------|
| 1       | Valve body                 | A216 WCB / 1.0619                     |
| 2       | * Seat                     | AISI 316L / 1.4404                    |
| 3       | * Valve plug               | AISI 316L / 1.4404                    |
| 4       | Lower stem guide           | Bronze CB1                            |
| 5       | Bonnet                     | A351 CF8M / 1.4408; A216 WCB / 1.0619 |
| 6       | * Post stem (2 1/2" to 4") | AISI 316L / 1.4404                    |
| 7       | * Stem                     | AISI 316L / 1.4404                    |
| 8       | * Gasket                   | Stainless steel / Graphite            |
| 9       | Lock nut                   | A351 CF8 / 1.4308                     |
| 10      | Nuts                       | EN 10269 steel                        |
| 11      | Studs                      | EN 10269 steel                        |
| 12      | * Packing nut              | AISI 303 / 1.4305                     |
| 13      | Lock nut                   | AISI 304 / 4.4301                     |
| 20      | * Scraper ring             | Viton; NBR                            |
| 21      | * Plain bearing            | Bronze / PTFE                         |
| 22      | * O-ring                   | EPDM                                  |
| 23      | * O-ring                   | Viton                                 |
| 24      | * Chevron packing set      | PTFE; Graphite filled PTFE            |
| 25      | Washer                     | AISI 304 / 1.4301                     |
| 26      | * Stem guide               | Stainless steel filled PTFE           |
| 27      | * Spring                   | AISI 302 / 1.4310                     |
| 28      | * Chevron packing set      | PTFE                                  |
| 29      | O-ring guide               | AISI 304 / 1.4301                     |
| 30      | * O-ring                   | EPDM                                  |
| 31      | * O-ring                   | EPDM                                  |
| 32      | * Packing set              | Expanded graphite                     |
| 33      | Packing spacer             | AISI 304 / 1.4301                     |
| 34      | * Safety packing set       | Graphite filled PTFE                  |
| 35      | Bellows bonnet             | A105 / 1.0432; AISI 316 / 1.4401      |
| 36      | Bolts or studs and nuts    | EN 10269 steel                        |
| 37      | Gasket                     | Copper                                |
| 38      | Compression fitting        | AISI 316 / 1.4401                     |
| 39      | * Gasket                   | Stainless steel / Graphite            |
| 40      | * Gasket                   | Stainless steel / Graphite            |
| 41      | * Metal bellows            | AISI 316Ti / 1.4571                   |
| 42      | * Locking pin              | AISI 303 / 1.4305                     |
| 43      | * Safety packing set       | Expanded graphite                     |
| 44      | Packing spacer             | AISI 304 / 1.4301                     |

\* Available spare parts.

| ORDERING CODES V16/2 a)   |    |   |   |   |   |   |   |   |   |   |    |    |     |
|---|----|---|---|---|---|---|---|---|---|---|----|----|-----|
| Valve model   | V1 | 2 | S | S | 1 | U | 1 | 1 | 1 | E | FD | U  | 015 |
| Globe control valve, two-way, straight body   | V1 |   |   |   |   |   |   |   |   |   |    |    |     |
| Valve series  |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Series 2  |    | 2 |   |   |   |   |   |   |   |   |    |    |     |
| Body material   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| A216 WCB / 1.0619 carbon steel  |    |   | S |   |   |   |   |   |   |   |    |    |     |
| Bonnet design   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Standard  |    |   |   | S |   |   |   |   |   |   |    |    |     |
| Extended  |    |   |   | E |   |   |   |   |   |   |    |    |     |
| Trim design   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Unbalanced trim   |    |   |   |   | 1 |   |   |   |   |   |    |    |     |
| Flow direction  |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Flow under the plug   |    |   |   |   |   | U |   |   |   |   |    |    |     |
| Flow over the plug  |    |   |   |   |   | O |   |   |   |   |    |    |     |
| Stem sealing  |    |   |   |   |   |   |   |   |   |   |    |    |     |
| PTFE/GR V-Rings (V1.2)  |    |   |   |   |   |   |   | 1 |   |   |    |    |     |
| Virgin PTFE V-Rings (V2.2)  |    |   |   |   |   |   |   | 2 |   |   |    |    |     |
| Graphite (G1)   |    |   |   |   |   |   |   | 3 |   |   |    |    |     |
| EPDM (EP1)  |    |   |   |   |   |   |   | 4 |   |   |    |    |     |
| Stainless steel bellows with PTFE/GR safety packing (BV1)                                   |    |   |   |   |   |   |   | 8 |   |   |    |    |     |
| Stainless steel bellows with graphite safety packing (BG1)                                  |    |   |   |   |   |   |   | 9 |   |   |    |    |     |
| Plug design   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Parabolic   |    |   |   |   |   |   |   |   | 1 |   |    |    |     |
| Valve sealing   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Metal to metal (class IV)   |    |   |   |   |   |   |   |   |   | 1 |    |    |     |
| Soft sealed with PTFE/GR (class VI)   |    |   |   |   |   |   |   |   |   | 3 |    |    |     |
| Stellited (class IV)  |    |   |   |   |   |   |   |   |   | 4 |    |    |     |
| Characteristic  |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Equal percentage (EQP)  |    |   |   |   |   |   |   |   |   |   | E  |    |     |
| Linear (PL)   |    |   |   |   |   |   |   |   |   |   | L  |    |     |
| Flow rate coefficient   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Kvs 4   |    |   |   |   |   |   |   |   |   |   |    | FD |     |
| See table below for other Kvs value codes   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Pipe connection   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Flanged ASME B16.5 Class 150  |    |   |   |   |   |   |   |   |   |   |    |    | U   |
| Flanged ASME B16.5 Class 300  |    |   |   |   |   |   |   |   |   |   |    |    | V   |
| Size  |    |   |   |   |   |   |   |   |   |   |    |    |     |
| 1/2"  |    |   |   |   |   |   |   |   |   |   |    |    | 015 |
| 3/4"  |    |   |   |   |   |   |   |   |   |   |    |    | 020 |
| ...   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Special valves / Extras   |    |   |   |   |   |   |   |   |   |   |    |    |     |
| Full description or additional codes have to be added in case of a non-standard combination |    |   |   |   |   |   |   |   |   |   |    |    | E   |

a) Codification for valve only. For actuator codes, refer to the appropriate information sheet.

| FLOW RATE COEFFICIENT CODES |     |     |    |     |    |    |    |    |    |     |     |
|-----------------------------|-----|-----|----|-----|----|----|----|----|----|-----|-----|
| Kvs                         | 2,1 | 2,7 | 4  | 6,3 | 10 | 16 | 25 | 40 | 63 | 100 | 160 |
| Code                        | R2  | R1  | FD | FE  | FF | FG | FH | FI | FJ | FL  | FM  |