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

## 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 DN 50) and post guided (from DN 65 to DN 100).
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 stellited valve sealing.
Reduced bore trims.
Silencers.



## USE:

Saturated and superheated steam.
Hot and superheated water.
Air, gases and others.

## AVAILABLE MODELS:

V16/2G – SG iron.
V16/2S – carbon steel.
V16/2i – stainless steel.

## SIZES:

DN 15 to DN 100.

## CONNECTIONS:

V16/2G – Flanged EN 1092-2 PN 16.
V16/2S and V16/2i – Flanged EN 1092-1 PN 16 or PN 40.
Standard PN 16 DN 65 flanges are supplied with 4 holes. 8 holes, according to EN 1092-1/-2, on request.

| CE MARKING – GROUP 2 (PED – European Directive) | | |
|---|---|---|
| **PN 16** | **PN 40** | **Category** |
| DN 15 to 50 | DN 15 to 32 | SEP |
| DN 65 to 100 | DN 40 to 100 | 1 (CE marked) |

**BODY LIMITING CONDITIONS**

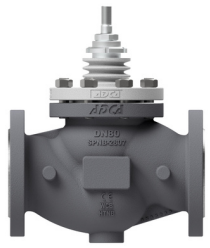
| V16/2G ** | | V16/2S * | | | | V16/2i * | | | |
|---|---|---|---|---|---|---|---|---|---|
| FLANGED PN 16 | | FLANGED PN 16 | | FLANGED PN 40 | | FLANGED PN 16 | | FLANGED PN 40 | |
| ALLOW. PRESSURE | RELATED TEMP. | ALLOW. PRESSURE | RELATED TEMP. | ALLOW. PRESSURE | RELATED TEMP. | ALLOW. PRESSURE | RELATED TEMP. | ALLOW. PRESSURE | RELATED TEMP. |
| 16 bar | -10 ºC / 50 ºC | 16 bar | -10 ºC / 50 ºC | 40 bar | -10 ºC / 50 ºC | 16 bar | -10 ºC / 50 ºC | 40 bar | -10 ºC / 50 ºC |
| 14,7 bar | 200 ºC | 13,3 bar | 200 ºC | 33,3 bar | 200 ºC | 13,4 bar | 200 ºC | 33,7 bar | 200 ºC |
| 13,9 bar | 250 ºC | 12,1 bar | 250 ºC | 27,6 bar | 300 ºC | 12,7 bar | 250 ºC | 29,7 bar | 300 ºC |
| 12,8 bar | 300 ºC | 11 bar | 300 ºC | 25,7 bar | 350 ºC | 11,8 bar | 300 ºC | 28,5 bar | 350 ºC |
| 11,2 bar | 350 ºC | 10,2 bar | 350 ºC | 23,8 bar | 400 ºC | 11,4 bar | 350 ºC | 27,4 bar | 400 ºC |

* Rating according to EN 1092-1:2018; ** Rating according to EN 1092-2:2007.

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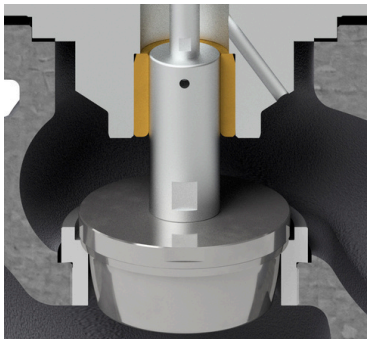
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## BONNET DESIGN

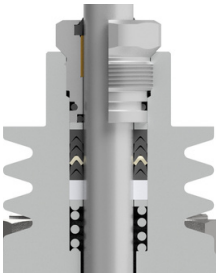
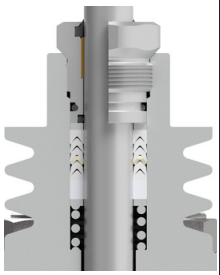
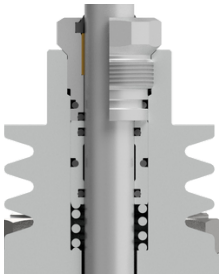
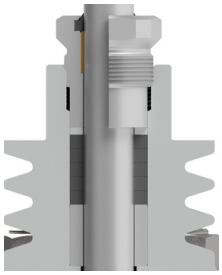
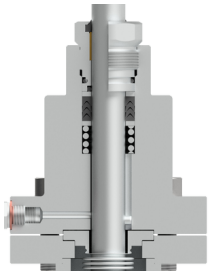
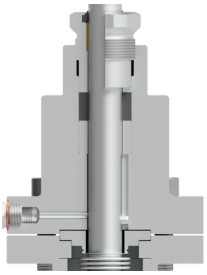
| STANDARD | EXTENDED |
|---|---|
|  |  |
| -10 ºC to 250 ºC | Above 250 ºC |

## TRIM DESIGN

**UNBALANCED TRIM**



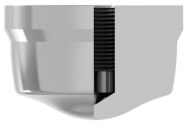
## STEM SEALING

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

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

## PLUG DESIGN

### PARABOLIC



**Sealing:** Metal to metal
**Characteristic:** Equal percentage (EQP) or linear (PL)
**Flow direction:** From below
**Rangeability:** 50:1 (EQP) or 30:1 (PL)
**Leakage:** Class IV, acc. to IEC 60534-4

### PARABOLIC (SOFT SEALING)

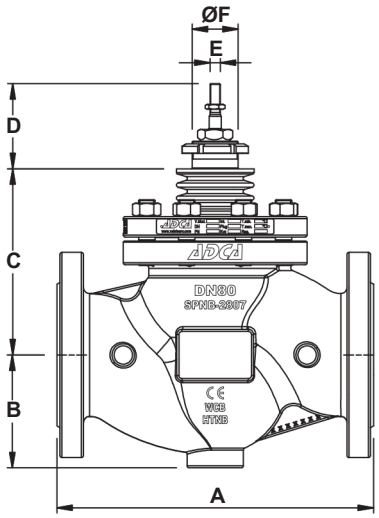


**Sealing:** PTFE/GR
**Characteristic:** Equal percentage (EQP) or linear (PL)
**Flow direction:** From below
**Rangeability:** 50:1 (EQP) or 30:1 (PL)
**Leakage:** Class VI, acc. to IEC 60534-4
**Max. temp.:** 200 ºC

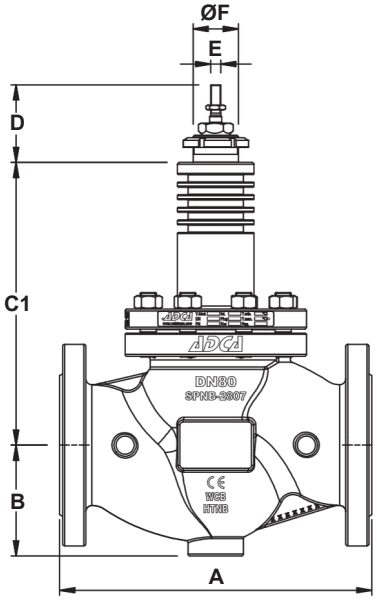
## FLOW RATE COEFFICIENTS – PARABOLIC PL AND EQP PLUGS

| SIZE | Kvs (m³/h) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2,1 | 2,7 | 4 | 6,3 | 10 | 16 | 25 | 40 | 63 | 100 | 160 |
| DN 15 | • | • | • | | | | | | | | |
| DN 20 | • | • | • | • | | | | | | | |
| DN 25 | • | • | • | • | • | | | | | | |
| DN 32 | | | • | • | • | • | | | | | |
| DN 40 | | | | • | • | • | • | | | | |
| DN 50 | | | | | • | • | • | • | | | |
| DN 65 | | | | | | • | • | • | • | | |
| DN 80 | | | | | | | • | • | • | • | |
| DN 100 | | | | | | | | • | • | • | • |
| SEAT ø (mm) | 12 | | 15 | 19,2 | 25 | 32 | 38 | 48 | 65 | 76 | 96 |
| STROKE (mm) | 20 | | | | | | | | 30 | | |

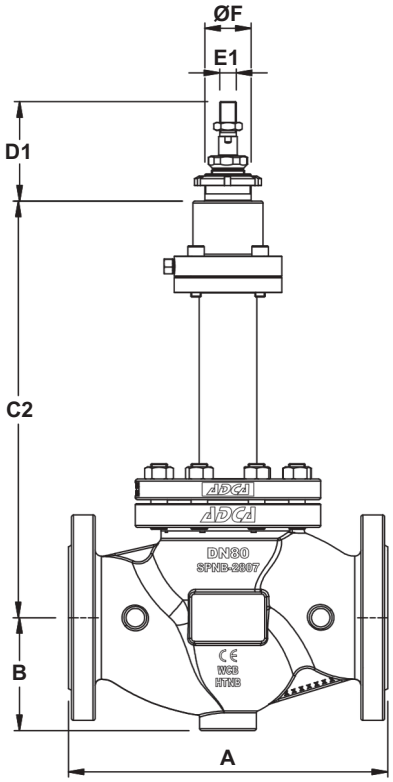
For conversion Kvs = Cv (US) x 0,865.




*Valve with standard bonnet*




*Valve with extended bonnet*




*Bellows sealed valve*

**DIMENSIONS (mm)**

| DIMENSION | SIZE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 | DN 65 | DN 80 | DN 100 |
| A | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 |
| B | 52 | 53 | 58 | 70 | 75 | 85 | 100 | 110 | 130 |
| C | 104 | 104 | 109 | 109 | 113 | 125 | 176 | 182 | 194 |
| C1 | 169 | 169 | 189 | 189 | 193 | 204 | 276 | 282 | 314 |
| C2 | 295 | 295 | 298 | 298 | 303 | 303 | 415 | 421 | 424 |
| 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 | | |

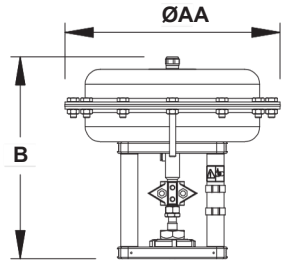
Remarks: Standard PN 16 DN 65 flanges are supplied with 4 holes. 8 holes, according to EN 1092-1/-2, on request.

**WEIGHTS (kg)**

| | SIZE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 | DN 65 | DN 80 | DN 100 |
| STANDARD | 5,1 | 6 | 6,9 | 10 | 12,6 | 16,4 | 31,8 | 38,2 | 50,6 |
| EXTENDED | 5,8 | 6,7 | 7,6 | 10,9 | 13,9 | 17,6 | 32,5 | 38,9 | 51,1 |
| BELLOWS | 9,3 | 10,2 | 10,9 | 14,1 | 16,6 | 20,2 | 35,6 | 41,9 | 53,5 |

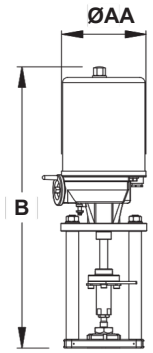
**MAX. PERMISSIBLE ACTUATING THRUSTS (kN)**

| | SIZE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 | DN 65 | DN 80 | DN 100 |
| MAX. THRUST | 12 | | | | | | | | |



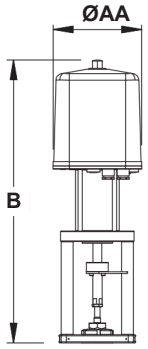

| DIMENSIONS – PA SERIES PNEUMATIC ACTUATORS (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DIMENSION | PA10 | PA206 | PA25 | PA281 | PA40 | PA341 | PA436 | PA80 |
| ØA | 170 | 209 | 250 | 275 | 300 | 336 | 430 | 405 |
| B | 251 | 236 | 260 | 243 | 325 | 288 | 316 / 336 * | 505 |
| WEIGHT (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.



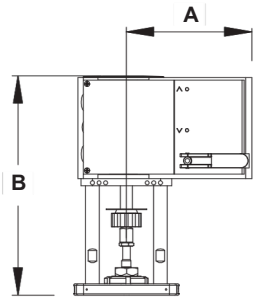

| DIMENSIONS – EL SERIES ELECTRIC ACTUATORS (mm) | | | | | |
|---|---|---|---|---|---|
| DIMENSION | EL12 | EL20 | EL45 | EL80 | EL120 |
| ØA | 129 | 148 | 148 | 188 | 188 |
| B | 333 | 485 | 485 | 587 | 587 |
| WEIGHT (kg) | 2,1 | 8 | 8 | 13 | 13 |

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



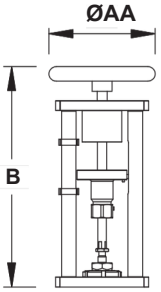

| DIMENSIONS – ELR SERIES ELECTRIC ACTUATORS (mm) | | | |
|---|---|---|---|
| DIMENSION | ELR2.1 | ELR2.2 | ELR2.3 |
| ØA | 162 | 162 | 162 |
| B | 518 / 555 * | 536 / 573 * | 557 / 593 * |
| WEIGHT (kg) | 8,7 | 9,3 | 10 |

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



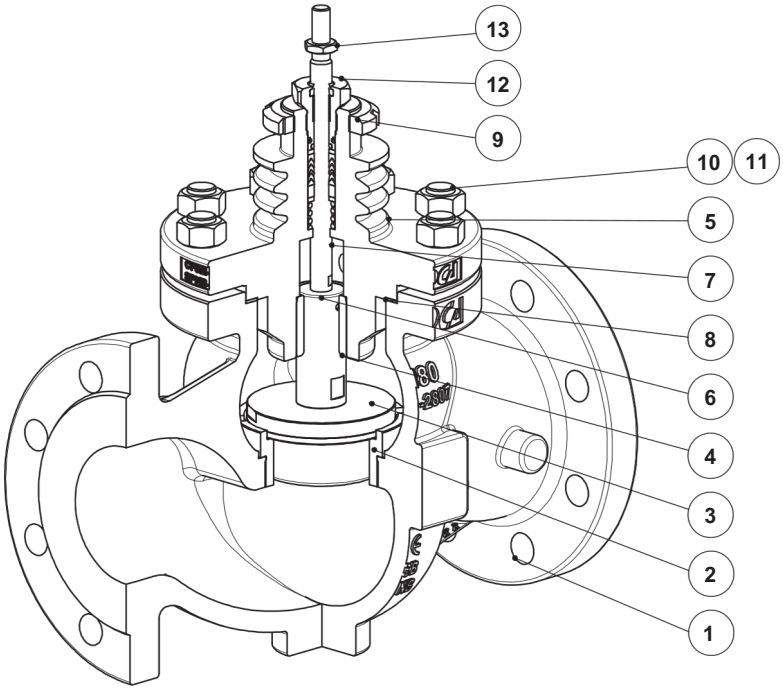

| DIMENSIONS – AV SERIES ELECTRIC ACTUATORS (mm) | | |
|---|---|---|
| DIMENSION | AVM234S | AVF234S |
| A | 166 166 | |
| B | 314 314 | |
| WEIGHT (kg) | 4,1 4,1 | |

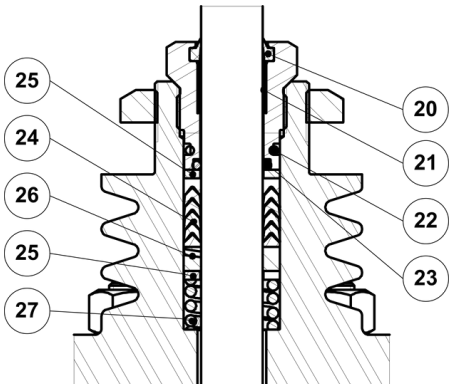
For more information, please consult IS 3.74 – AVM234S-AVF234S Linear electric actuators.



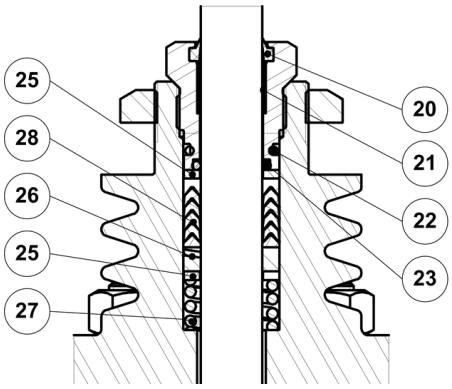

| DIMENSIONS – MANUAL OPERATION HANDWHEEL (mm) | |
|---|---|
| DIMENSION | MAH |
| ØA | 160 |
| B | 331 |
| WEIGHT (kg) | 5,6 |

# MATERIALS

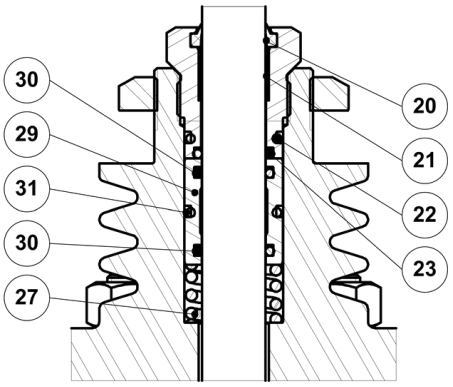


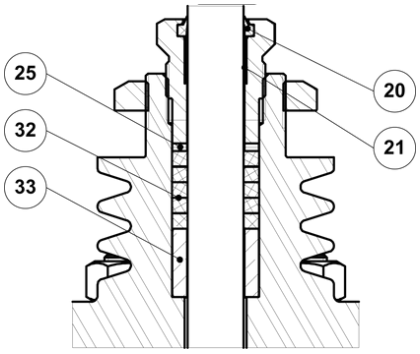

*PTFE/GR V-Rings*
*(V1.2)*



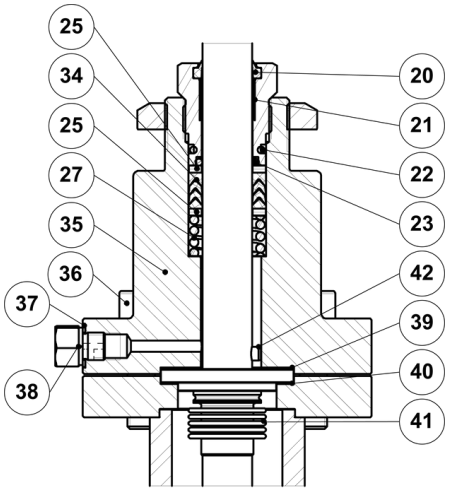

*PTFE V-Rings*
*(V2.2)*



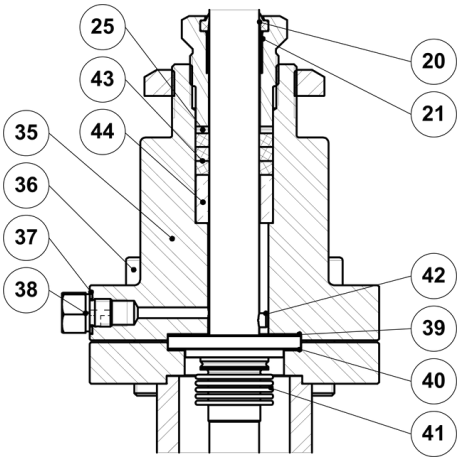

*EPDM*
*(EP1)*




*Graphite*
*(G1)*




*Bellows sealing*
*(BV1)*




*Bellows sealing*
*(BG1)*

| MATERIALS | | |
|---|---|---|
| **POS. Nº** | **DESIGNATION** | **MATERIAL** |
| **1** | Valve body (V16/2G) | GJS-400-15 / 0.7040 |
| | Valve body (V16/2S) | A216 WCB / 1.0619 |
| | Valve body (V16/2i) | A351 CF8M / 1.4408 |
| **2** | * Seat | AISI 316L / 1.4404 |
| **3** | * Valve plug | AISI 316L / 1.4404 |
| **4** | Lower stem guide | Bronze CB1 |
| **5** | Bonnet (V16/2G and V16/2S) | A351 CF8M / 1.4408; A216 WCB / 1.0619 |
| | Bonnet (V16/2i) | A351 CF8M / 1.4408 |
| **6** | * Post stem (DN 65 to DN 100) | AISI 316L / 1.4404 |
| **7** | * Stem | AISI 316L / 1.4404 |
| **8** | * Gasket | Stainless steel / Graphite |
| **9** | Lock nut | A351 CF8 / 1.4308 |
| **10** | Nuts (V16/2G and V16/2S) | EN 10269 steel |
| | Nuts (V16/2i) | Stainless steel A2-70 |
| **11** | Studs (V16/2G and V16/2S) | EN 10269 steel |
| | Studs (V16/2i) | Stainless steel A2-70 |
| **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 (V16/2G and V16/2S) | A105 / 1.0432; AISI 316 / 1.4401 |
| | Bellows bonnet (V16/2i) | AISI 316 / 1.4401 |
| **36** | Bolts or studs and nuts (V16/2G and V16/2S) | EN 10269 steel |
| | Bolts or studs and nuts (V16/2i) | Stainless steel A2-70 |
| **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.

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## ORDERING CODES V16/2 a)

| Valve model | V1 | 2 | G | S | 1 | U | 1 | 1 | 1 | E | FD | L | 015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Globe control valve, two-way, straight body | V1 | | | | | | | | | | | | | |
| **Valve series** | | | | | | | | | | | | | | |
| Series 2 | | 2 | | | | | | | | | | | | |
| **Body material** | | | | | | | | | | | | | | |
| GJS-400-15 / 0.7040 SG iron | | | G | | | | | | | | | | | |
| A216 WCB / 1.0619 carbon steel | | | S | | | | | | | | | | | |
| A351 CF8M / 1.4408 stainless steel | | | I | | | | | | | | | | | |
| **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 EN 1092-1/-2 PN 16 | | | | | | | | | | | | L | | |
| Flanged EN 1092-1 PN 40 | | | | | | | | | | | | N | | |
| **Size** | | | | | | | | | | | | | | |
| DN 15 | | | | | | | | | | | | | 015 | |
| DN 20 | | | | | | | | | | | | | 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 |