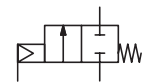




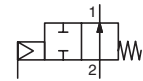
# VALVES

pressure operated  
bronze or stainless steel body  
threaded ports, 3/8 to 2 1/2

NC



NO



2/2  
Series  
E290

## FEATURES

- High flow due to angled seat design
- Anti-waterhammer design (fluid entry under the disc)
- Vacuum operation up to 10<sup>2</sup> mbar
- Wide range of piston-type operators (32 - 50- 63 - 90 - 125 mm dia.) rotatable through 360°, for maximum performance at different minimum pilot pressures
- High performance, maintenance-free stuffing box
- The valves satisfy Pressure Equipment Directive 2014/68/EU, category 1 (DN > 25) or article 4.3 (DN ≤ 25)
- The valves in conformity with IEC 61508 Standard (2010 route 2<sub>H</sub> version) certified with integrity levels: SIL 2 for HFT = 0

## GENERAL

|                            |   |
|----------------------------|---|
| Differential pressure      | See «SPECIFICATIONS» [1 bar =100 kPa]                         |
| Maximum allowable pressure | 16 bar  |
| Ambient temperature range  | -10°C to +60°C  |
| Maximum viscosity          | 600 cSt (mm <sup>2</sup> /s)                                  |
| Pilot fluid                | Filtered air or water <sup>(1)</sup>                          |
| Max. pilot pressure        | 10 bar  |
| Min. pilot pressure        | See below and following page                                  |
| Pilot fluid temperature    | -10°C to +60°C  |
| Response time              | See page 7 ( <a href="http://www.asco.com">www.asco.com</a> ) |



| fluids (*)  | temperature range | disc seal (*) |
|---|-------------------|---------------|
| DN ≤ 50: air and gas groups 1 & 2<br>DN 65: air and gas group 2<br>all DN: water, oil, liquids groups 1 & 2 and steam | - 10°C to + 184°C | PTFE          |

## MATERIALS IN CONTACT WITH FLUID

(\*) Ensure that the compatibility of the fluids in contact with the materials is verified

|                      | Bronze body     | Stainless steel body |
|----------------------|-----------------|----------------------|
| Valve body           | Bronze          | AISI 316L            |
| Stuffing box housing | Brass           | AISI 316L            |
| Stem                 | Stainless steel | Stainless steel      |
| Disc                 | Brass           | Stainless steel      |
| Stuffing box packing | PTFE chevrons   | PTFE chevrons        |
| Wiper seal           | FPM             | FPM                  |
| Disc seal            | PTFE            | PTFE                 |
| Valve body seal      | PTFE            | PTFE                 |

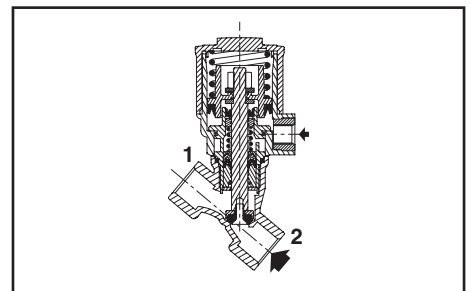
## OTHER MATERIALS

|                            |   |
|----------------------------|---|
| Operator                   | Glass fibre filled PA   |
| Optical position indicator | PA 12, supplied standard on valves with 63, 90 and 125 mm operators |

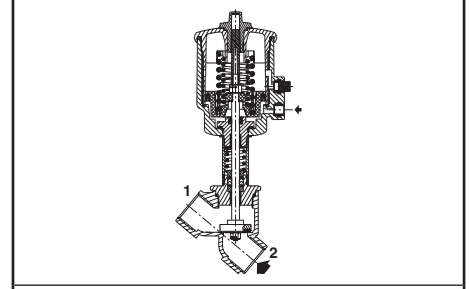
<sup>(1)</sup> For dia. 32, 50, 63, 90 and 125 mm operators: At service fluid temperatures inside the valve body above 100°C, it is prohibited to pilot the valve with water.

## SPECIFICATIONS

| piping (ISO 6708)  |    | flow coefficient Kv |         | pilot pressure (bar) |      | operating pressure differential (bar) |                                       |   |                    | operator diameter (mm) | catalogue number |                 |          |          |
|--|----|---------------------|---------|----------------------|------|---------------------------------------|---------------------------------------|---|--------------------|------------------------|------------------|-----------------|----------|----------|
| pipe size (G*)   | DN | (m <sup>3</sup> /h) | (l/min) | min.                 | max. | min.                                  | max.                                  |   |                    |                        | bronze           | stainless steel |          |          |
|  |    |                     |         |                      |      |                                       | air, inert gas, aggressive fluids (*) | water, oil, liquids, aggressive liquids (*) | steam (*) (≤184°C) |                        |                  |                 |          |          |
| <b>NC - Normally closed, entry under the disc <sup>(1)</sup></b> |    |                     |         |                      |      |                                       |                                       |   |                    |                        |                  |                 |          |          |
| 3/8  | 10 | 2,8                 | 47      | 4                    | 10   | 0                                     | 16                                    | 16  | 10                 | 32                     | -                | E290A791        |          |          |
|  |    | 4,1                 | 68      | 4                    | 10   | 0                                     | 12                                    | 12  | 10                 | 32                     | -                | E290A792        |          |          |
| 1/2  | 15 | 4,9                 | 82      | 4                    | 10   | 0                                     | 16                                    | 16  | 10                 | 50                     | E290A384         | E290A393        |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 16                                    | 16  | 10                 | 63                     | E290B002         | E290B045        |          |          |
| 3/4  | 20 | 6,5                 | 108     | 4                    | 10   | 0                                     | 6                                     | 6   | 6                  | 32                     | -                | E290A793        |          |          |
|  |    |                     |         | 10                   | 10   | 0                                     | 10                                    | 10  | 10                 | 50                     | E290A385         | E290A394        |          |          |
|  |    |                     |         | 16                   | 16   | 0                                     | 16                                    | 16  | 10                 | 63                     | E290B005         | E290B048        |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 12                                    | 12  | 10                 | 63                     | E290B004         | E290B047        |          |          |
| 1  | 25 | 12,8                | 213     | 4                    | 10   | 0                                     | 6                                     | 6   | 6                  | 50                     | E290A386         | E290A395        |          |          |
|  |    |                     |         | 10                   | 10   | 0                                     | 10                                    | 10  | 10                 | 63                     | E290B010         | E290B053        |          |          |
|  |    |                     |         | 16,5                 | 275  | 4                                     | 10                                    | 0   | 16                 | 16                     | 10               | 90              | E290B011 | E290B054 |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 6                                     | 6   | 6                  | 63                     | E290B008         | E290B051        |          |          |
| 1 1/4  | 32 | 27                  | 450     | 4                    | 10   | 0                                     | 12                                    | 12  | 10                 | 90                     | E290B009         | E290B052        |          |          |
|  |    |                     |         | 6                    | 6    | 6                                     | 6                                     | 6   | 63                 | E290A016               | E290A059         |                 |          |          |
|  |    |                     |         | 12                   | 12   | 10                                    | 90                                    | E290A017                                    | E290A060           |                        |                  |                 |          |          |
|  |    |                     |         | 3                    | 3    | 3                                     | 63                                    | E290A014                                    | E290A057           |                        |                  |                 |          |          |
|  |    |                     |         | 7                    | 7    | 7                                     | 90                                    | E290A015                                    | E290A058           |                        |                  |                 |          |          |
|  |    |                     |         | 4                    | 10   | 0                                     | 16                                    | 16  | 10                 | 125                    | E290A642         | E290A646        |          |          |
| 2,5  | 10 | 0                   | 16      | 16                   | 10   | 125                                   | E290A641                              | E290A645                                    |                    |                        |                  |                 |          |          |



NC function, entry under the disc, 32 and 50 mm operators



NC function, entry under the disc, 63, 90 and 125 mm operators

## SPECIFICATIONS

| piping (ISO 6708)  |    | flow coefficient Kv |         | pilot pressure (bar) |      | operating pressure differential (bar) |   |                    | operator diameter (mm) | catalogue number |                 |          |          |          |
|--|----|---------------------|---------|----------------------|------|---------------------------------------|---|--------------------|------------------------|------------------|-----------------|----------|----------|----------|
| pipe size (G*)   | DN | (m³/h)              | (l/min) | min.                 |      | max.                                  |   |                    |                        | bronze           | stainless steel |          |          |          |
|  |    |                     |         | min.                 | max. | air, inert gas, aggressive fluids (*) | water, oil, liquids, aggressive liquids (*) | steam (*) (≤184°C) |                        |                  |                 |          |          |          |
| <b>NC - Normally closed, entry under the disc <sup>(1)</sup></b>   |    |                     |         |                      |      |                                       |   |                    |                        |                  |                 |          |          |          |
| 1 1/2  | 40 | 45                  | 750     | 4                    | 10   | 0                                     | 4   | 4                  | 4                      | 63               | E290A020        | E290A063 |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 8   | 8                  | 8                      | 90               | E290A021        | E290A064 |          |          |
|  |    | 48                  | 800     | 4                    | 10   | 0                                     | 4   | 4                  | 4                      | 90               | E290A019        | E290A062 |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 16  | 16                 | 10                     | 125              | E290A482        | E290A495 |          |          |
| 2  | 50 | 59                  | 983     | 4                    | 10   | 0                                     | 2,5   | 2,5                | 2,5                    | 63               | E290A024        | E290A067 |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 6   | 6                  | 6                      | 90               | E290A025        | E290A068 |          |          |
|  |    | 66                  | 1100    | 4                    | 10   | 0                                     | 2,5   | 2,5                | 2,5                    | 90               | E290A023        | E290A066 |          |          |
|  |    |                     |         | 2,5                  | 10   | 0                                     | 10  | 10                 | 10                     | 125              | E290A485        | E290A498 |          |          |
|  |    | 2 1/2               | 65      | 94                   | 1567 | 4                                     | 10  | 0                  | 5                      | 5                | 5               | 125      | E290A484 | -        |
|  |    |                     |         | 111                  | 1850 | 4                                     | 10  | 0                  | 2                      | 2                | 2               | 90       | E290A487 | E290A500 |
|  |    |                     |         | 4                    | 10   | 0                                     | 6   | 6                  | 6                      | 125              | E290A488        | E290A501 |          |          |
| <b>NO - Normally open, entry under the disc</b>  |    |                     |         |                      |      |                                       |   |                    |                        |                  |                 |          |          |          |
| 3/8  | 10 | 2,8                 | 47      | IX (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 32               | -               | E290A794 |          |          |
| 1/2  | 15 | 4,1                 | 68      | IX (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 32               | -               | E290A795 |          |          |
|  |    | 4,9                 | 82      | I (*)                | 10   | 0                                     | 16  | 16                 | 10                     | 50               | E290A387        | E290A396 |          |          |
| II (*)   | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 63                 | E290B026               | E290B069         |                 |          |          |          |
| 3/4  | 20 | 6,5                 | 108     | IX (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 32               | -               | E290A796 |          |          |
|  |    | 9,4                 | 157     | I (*)                | 10   | 0                                     | 16  | 16                 | 10                     | 50               | E290A388        | E290A397 |          |          |
| II (*)   | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 63                 | E290B027               | E290B070         |                 |          |          |          |
| 1  | 25 | 12,8                | 213     | I (*)                | 10   | 0                                     | 16  | 16                 | 10                     | 50               | E290A389        | -        |          |          |
|  |    | 16,5                | 275     | II (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 63               | E290B028        | E290B071 |          |          |
| III (*)  | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 90                 | E290B029               | E290B072         |                 |          |          |          |
| 1 1/4  | 32 | 27                  | 450     | II (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 63               | E290A030        | E290A073 |          |          |
|  |    | 29                  | 483     | III (*)              | 10   | 0                                     | 16  | 16                 | 10                     | 90               | E290A031        | E290A074 |          |          |
| IV (*)   | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 125                | E290A643               | E290A647         |                 |          |          |          |
| 1 1/2  | 40 | 45                  | 750     | II (*)               | 10   | 0                                     | 11  | 11                 | 10                     | 63               | E290A032        | E290A075 |          |          |
|  |    | 48                  | 800     | III (*)              | 10   | 0                                     | 16  | 16                 | 10                     | 90               | E290A033        | E290A076 |          |          |
| IV (*)   | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 125                | E290A489               | E290A502         |                 |          |          |          |
| 2  | 50 | 59                  | 983     | II (*)               | 10   | 0                                     | 7   | 7                  | 7                      | 63               | E290A034        | E290A077 |          |          |
|  |    | 66                  | 1100    | III (*)              | 10   | 0                                     | 13  | 13                 | 10                     | 90               | E290A035        | E290A078 |          |          |
| IV (*)   | 10 |                     |         | 0                    | 16   | 16                                    | 10  | 125                | E290A490               | E290A503         |                 |          |          |          |
| 2 1/2  | 65 | 94                  | 1567    | III (*)              | 10   | 0                                     | 7   | 7                  | 7                      | 90               | E290A491        | E290A504 |          |          |
|  |    | 111                 | 1850    | IV (*)               | 10   | 0                                     | 16  | 16                 | 10                     | 125              | E290A492        | E290A505 |          |          |
| <b>NC - Normally closed, entry above the disc (version recommended for rapid-cycling steam applications)</b> |    |                     |         |                      |      |                                       |   |                    |                        |                  |                 |          |          |          |
| 3/8  | 10 | 2,8                 | 47      | X (*)                | 10   | 0                                     | 10  | -                  | 10                     | 32               | -               | E290A797 |          |          |
| 1/2  | 15 | 4,1                 | 68      | X (*)                | 10   | 0                                     | 10  | -                  | 10                     | 32               | -               | E290A798 |          |          |
|  |    | 4,9                 | 82      | V (*)                | 10   | 0                                     | 10  | -                  | 10                     | 50               | E290A390        | E290A399 |          |          |
| VI (*)   | 10 |                     |         | 0                    | 10   | -                                     | 10  | 63                 | E290B036               | E290B079         |                 |          |          |          |
| 3/4  | 20 | 6,5                 | 108     | X (*)                | 10   | 0                                     | 10  | -                  | 10                     | 32               | -               | E290A799 |          |          |
|  |    | 9,4                 | 157     | V (*)                | 10   | 0                                     | 10  | -                  | 10                     | 50               | E290A391        | E290A400 |          |          |
| VI (*)   | 10 |                     |         | 0                    | 10   | -                                     | 10  | 63                 | E290B037               | E290B080         |                 |          |          |          |
| 1  | 25 | 12,8                | 213     | V (*)                | 10   | 0                                     | 10  | -                  | 10                     | 50               | E290A392        | E290A401 |          |          |
|  |    | 16,5                | 275     | VI (*)               | 10   | 0                                     | 10  | -                  | 10                     | 63               | E290B038        | E290B081 |          |          |
| VI (*)   | 10 |                     |         | 0                    | 10   | -                                     | 10  | 63                 | E290A039               | E290A082         |                 |          |          |          |
| 1 1/4  | 32 | 27                  | 450     | VII (*)              | 10   | 0                                     | 10  | -                  | 10                     | 90               | E290A136        | E290A137 |          |          |
| 1 1/2  | 40 | 45                  | 750     | VI (*)               | 10   | 0                                     | 10  | -                  | 10                     | 63               | E290A040        | E290A083 |          |          |
|  |    |                     |         | VII (*)              | 10   | 0                                     | 10  | -                  | 10                     | 90               | E290A041        | E290A084 |          |          |
| 2  | 50 | 59                  | 983     | VI (*)               | 10   | 0                                     | 9   | -                  | 9                      | 63               | E290A042        | E290A085 |          |          |
|  |    |                     |         | VII (*)              | 10   | 0                                     | 10  | -                  | 10                     | 90               | E290A043        | E290A086 |          |          |
| 2 1/2  | 65 | 94                  | 1567    | VII (*)              | 10   | 0                                     | 10  | -                  | 10                     | 90               | E290A623        | E290A625 |          |          |
|  |    | 111                 | 1850    | VIII (*)             | 10   | 0                                     | 10  | -                  | 10                     | 125              | E290A624        | -        |          |          |

 (\*) Minimum pilot pressure varies with differential pressure, see page: 7 ([www.asco.com](http://www.asco.com))

(1) Calculation of the minimum pilot pressure at a ΔP of max. 10 bar with allowable backpressure (backpressure not recommended with liquids as waterhammer may occur).

 - 32 and 50 mm operators, 4 bar minimum pilot pressure version: add 2 bar to the minimum pilot pressure of chart V or X [see page: 7 ([www.asco.com](http://www.asco.com))]

 - 63, 90 and 125 mm operators, 4 bar minimum pilot pressure version: add 1,5 bar to the minimum pilot pressure of chart VI, VII or VIII [see page: 7 ([www.asco.com](http://www.asco.com))]

### OPTIONS AND ACCESSORIES [see pages: 37 ([www.asco.com](http://www.asco.com)) / 43 ([www.asco.com](http://www.asco.com))]

- Signaling box or compact signaling unit
- Stroke limiter for opening
- Manual safety device
- Optical position indicator on 32-50 mm operators, NC function
- Adapter plate for NAMUR pad mounting pilot (63-90-125 mm operators only)
- Oxygen service (except DN 65), pressure limited to 15 bar, temperature limited to + 60°C
- Vacuum applications up to  $1,33 \cdot 10^{-3}$  mbar
- NET-INOX passivation treatment on stainless steel body valve
- ATEX 2014/34/EU versions for potentially explosive atmospheres ([www.asco.com](http://www.asco.com))
- Other pipe connections are available on request

### INSTALLATION

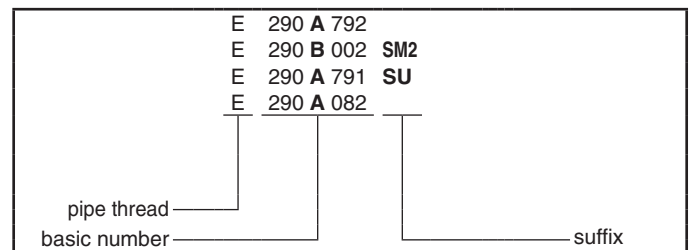
- The valves can be mounted in any position without affecting operation
- Compatible with ASTM 1, 2 and 3 oils
- Check temperature range of valve body and solenoid pilot valves for suitability. For probability of failure, contact us
- Pipe connections (G\*) have standard combination thread according to ISO 228/1 and ISO 7/1
- Installation/maintenance instructions are included with each valve

### SPARE PARTS KITS

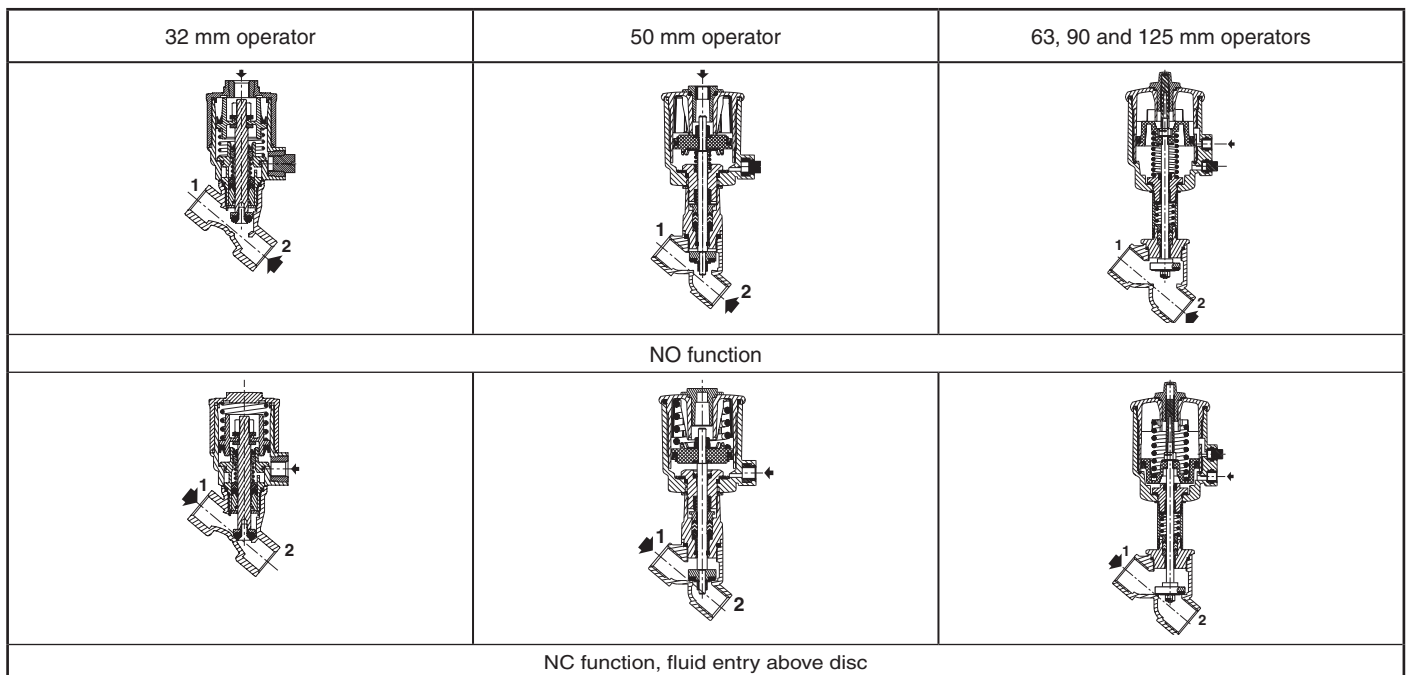
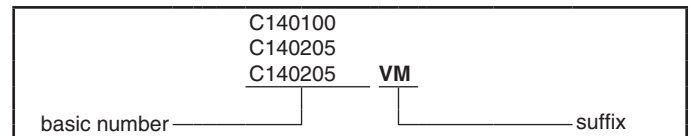
| DN | spare parts kit no. |                               |
|----|---------------------|-------------------------------|
|    | Ø 32 mm             | Ø 50-63-90-125 mm             |
| 10 | <b>C140100</b>      | -                             |
| 15 | <b>C140101</b>      | <b>C131204</b> <sup>(1)</sup> |
| 20 | <b>C140102</b>      | <b>C131205</b> <sup>(1)</sup> |
| 25 | -                   | <b>C131206</b> <sup>(1)</sup> |
| 32 | -                   | <b>C131207</b> <sup>(1)</sup> |
| 40 | -                   | <b>C131208</b> <sup>(1)</sup> |
| 50 | -                   | <b>C131209</b> <sup>(1)</sup> |
| 65 | -                   | <b>C131622</b> <sup>(1)</sup> |

<sup>(1)</sup> Standard suffix VM also applies to kits. [see page: 37 ([www.asco.com](http://www.asco.com))].  
 - Not available

### ORDERING EXAMPLES:



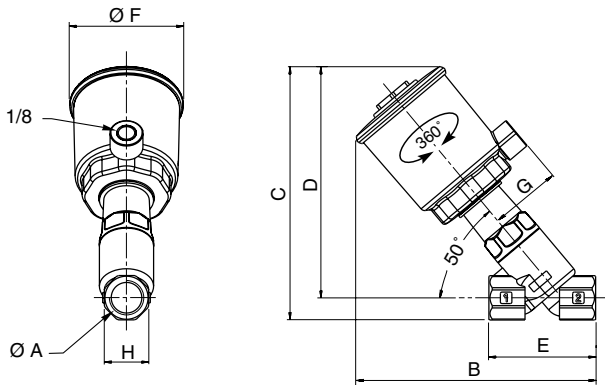
### ORDERING EXAMPLES KITS:



### DIMENSIONS (mm), WEIGHT (kg)

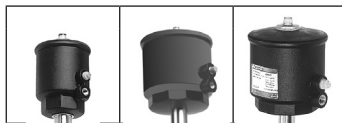


**TYPE 01-02**  
 32 and 50 mm operators  
 Fluid entry:  
 under the disc at 2  
 above the disc at 1

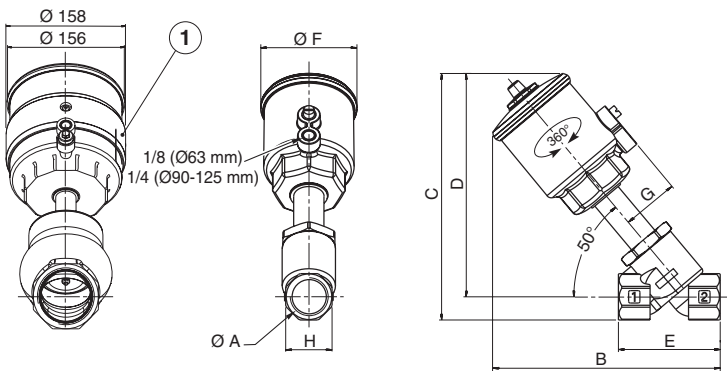


| type | operator diameter | ØA  | B     | C     | D    | E  | ØF   | G  | ØH   | weight <sup>(1)</sup> |
|------|-------------------|-----|-------|-------|------|----|------|----|------|-----------------------|
| 01   | 32 mm             | 3/8 | 92    | 93    | 81,5 | 55 | 43,5 | 27 | 23,5 | 0,35                  |
|      |                   | 1/2 | 99    | 97    | 83,5 | 65 | 43,5 | 27 | 28   | 0,4                   |
|      |                   | 3/4 | 107   | 104,5 | 88   | 75 | 43,5 | 27 | 30   | 0,45                  |
| 02   | 50 mm             | 1/2 | 142   | 154,5 | 141  | 65 | 69   | 43 | 27   | 0,9                   |
|      |                   | 3/4 | 150,5 | 159   | 143  | 75 | 69   | 43 | 32   | 1                     |
|      |                   | 1   | 155   | 165   | 145  | 90 | 69   | 43 | 41   | 1,4                   |

<sup>(1)</sup> Weight of valve without pilot.  
 Solenoid pilot valves, see page: [49 \(www.asco.com\)](http://www.asco.com) [32 and 50 mm operators].



**TYPE 03-04-05**  
 63, 90 and 125 mm operators  
 Fluid entry:  
 under the disc at 2  
 above the disc at 1



① Operator dia. 125 mm, NO function

| type | operator diameter | ØA    | B   | C     | D     | E   | ØF  | G    | ØH | weight <sup>(1)</sup> |
|------|-------------------|-------|-----|-------|-------|-----|-----|------|----|-----------------------|
| 03   | 63 mm             | 1/2   | 170 | 182   | 169   | 65  | 85  | 50,5 | 27 | 1,2                   |
|      |                   | 3/4   | 175 | 185   | 170   | 75  | 85  | 50,5 | 32 | 1,3                   |
|      |                   | 1     | 179 | 192   | 172   | 90  | 85  | 50,5 | 41 | 1,7                   |
|      |                   | 1 1/4 | 217 | 229   | 204   | 110 | 85  | 50,5 | 50 | 2,1                   |
|      |                   | 1 1/2 | 224 | 245   | 215   | 120 | 85  | 50,5 | 60 | 2,9                   |
|      |                   | 2     | 249 | 259   | 224   | 150 | 85  | 50,5 | 70 | 3,7                   |
| 04   | 90 mm             | 1     | 197 | 209   | 189   | 90  | 118 | 67   | 41 | 2,3                   |
|      |                   | 1 1/4 | 236 | 246   | 221   | 110 | 118 | 67   | 50 | 2,7                   |
|      |                   | 1 1/2 | 243 | 262   | 232   | 120 | 118 | 67   | 60 | 3,5                   |
|      |                   | 2     | 267 | 276   | 241   | 150 | 118 | 67   | 70 | 4,3                   |
| 05   | 125 mm            | 2 1/2 | 299 | 300   | 257   | 190 | 118 | 67   | 86 | 6,3                   |
|      |                   | 1 1/4 | 284 | 298   | 273   | 110 | 156 | 86   | 50 | 5,2                   |
|      |                   | 1 1/2 | 291 | 313,5 | 283,5 | 120 | 156 | 86   | 60 | 6                     |
|      |                   | 2     | 315 | 328   | 293   | 150 | 156 | 86   | 70 | 6,8                   |
|      |                   | 2 1/2 | 347 | 352   | 308   | 190 | 156 | 86   | 86 | 8,9                   |

<sup>(1)</sup> Weight of valve without pilot. Add 0,2 for dia. 125 mm operator NO.  
 Solenoid pilot valves, see pages: [49 \(www.asco.com\)](http://www.asco.com) [63 mm operator] / [51 \(www.asco.com\)](http://www.asco.com) [90 and 125 mm operators]

All leaflets are available on: [www.asco.com](http://www.asco.com)