

# Diaval®



Diaphragm Valves  
[www.diaval.com](http://www.diaval.com)

## Straight Through Type Diaphragm Valves

### Codification

S D 0 0 D I 1 0 D 1 0 0 5 0

#### BODY DESIGN

|   |                  |
|---|------------------|
| W | Weir             |
| S | Straight Through |
| F | Full Flow        |

#### BODY/BONNET MATERIAL

|   |                      |
|---|----------------------|
| C | Cast iron            |
| D | Ductile iron         |
| A | Carbon steel         |
| S | St. steel 316        |
| I | Chr. iron 24%        |
| J | Chr. iron 30%        |
| B | Bronze               |
| K | St. steel 316L       |
| E | St. steel 304        |
| M | Monel                |
| H | Hastelloy            |
| X | St. steel 1.4435     |
| Y | St. steel 1.4435 BN2 |

#### BODY BASE MATERIAL

|    |                 |
|----|-----------------|
| 00 | Unlined         |
| HR | Hard rubber     |
| SR | Soft rubber     |
| BR | Butyl rubber    |
| ER | EPDM rubber     |
| NL | Neoprene rubber |
| HY | Hypalon® rubber |
| PF | PFA             |
| FE | FEP             |
| ET | ETFE            |
| HL | Halar®          |
| LN | Linatex         |

#### FACE TO FACE/DRILLING

|      |                    |
|------|--------------------|
| DI10 | DIN3202F1 PN10     |
| AS15 | BS5156 ASA 150     |
| BS10 | BS5156 PN10        |
| 0B   | SP00 Threaded BSPP |
| 0B   | ST00 Threaded BSPT |
| 0N   | PT00 Threaded NPT  |

#### DIAPHRAGM/SEALING

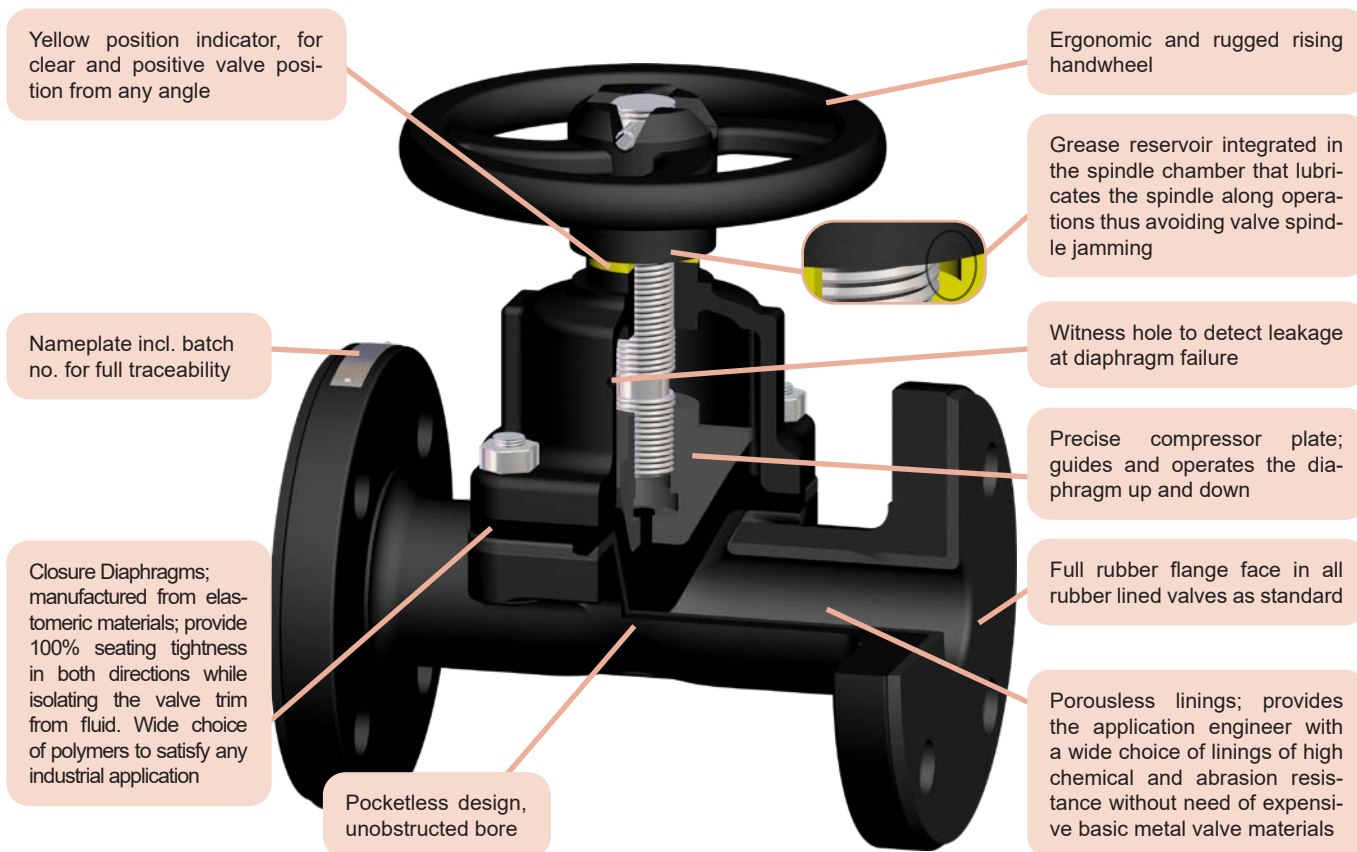
|     |                               |
|-----|-------------------------------|
| D10 | Natural rubber                |
| D15 | White natural rubber          |
| D20 | EPDM                          |
| D2V | EPDM vacuum service           |
| D30 | Butyl                         |
| D40 | NBR                           |
| D4V | NBR vacuum service            |
| D50 | Neoprene                      |
| D60 | Hypalon                       |
| D70 | Viton                         |
| D92 | PTFE/EPDM                     |
| D93 | PTFE/Butyl                    |
| D97 | PTFE/Viton                    |
| DLN | Linatex                       |
| D9E | Laminated PTFE with EPDM back |

#### SIZE

|     |       |
|-----|-------|
| 015 | DN15  |
| 050 | DN50  |
| 100 | DN100 |

## Design Attributes

Straight Through Type Diaphragm Valves are linear motion valves, bidirectional, for stopping the flow of the service fluid when necessary, not being suitable for regulation purposes. Valves close by turning the handwheel clockwise. Valves are bolted bonnet, seatless design, with a diaphragm as closure element, with rising handwheel. Valves are offered with a broad range of diaphragms and linings materials to resist to abrasion and corrosion duties. Their straight passage makes them more suitable for on/off applications in comparison to Weir Type, when low pressure drop is required or in case of abrasive media. The valves are inexpensive and easy to maintain, being the optimal solution for a large number of applications.



## Main Features

Valve design: EN 13397, EN 12516

Face to face length: EN 558 Series 1 (DIN 3202F1) or EN 558 Series 7 (BS 5156)

Valve end connections: Flanged to EN 1092-2 type 21/B, PN10/16 (DN15-150); PN10 (DN200-300)

(valves DN65 with 4 holes as accepted variant in standard)

option drilling to ASA150#

- Female threaded ends to ISO 228-1 (DIN 259-BSPP) / ISO 7-1 (DIN 2999-BSPT) / ASME B1.20.1 (NPT)

Marking: EN 19

Pressure Tests: EN 12266-1

Seat leakage rate: Rate A (full seat tightness in both directions)

Inside and outside primer paint layer black color for protection during storage and transport.

Epoxy coating for Fluoropolymer lined. Min. average thickness 60µm

Product compliant with Directive 2014/68/EU on Pressure Equipment (PED) and Machinery Directive 2006/42/EC

## Options

Other materials, other ratings and connections, pneumatic or electric actuator, limit switches, sealed bonnet, interlocking arrangement, padlocking or handwheel hood to avoid non-authorized operation. Please consult us

## Main Duties / Limits of use

Liquids compatible with materials of construction, acc. to Directive 2014/68/EU, Annex II tables 8 (group 1\*) & 9 (group 2\*) up to category I

PS 10 bar DN15-100 (Art.4-Parr.3)

PS 6 bar DN125-150 (Art.4-Parr.3)

PS 3,5 bar DN200-300 (Art.4-Parr.3)

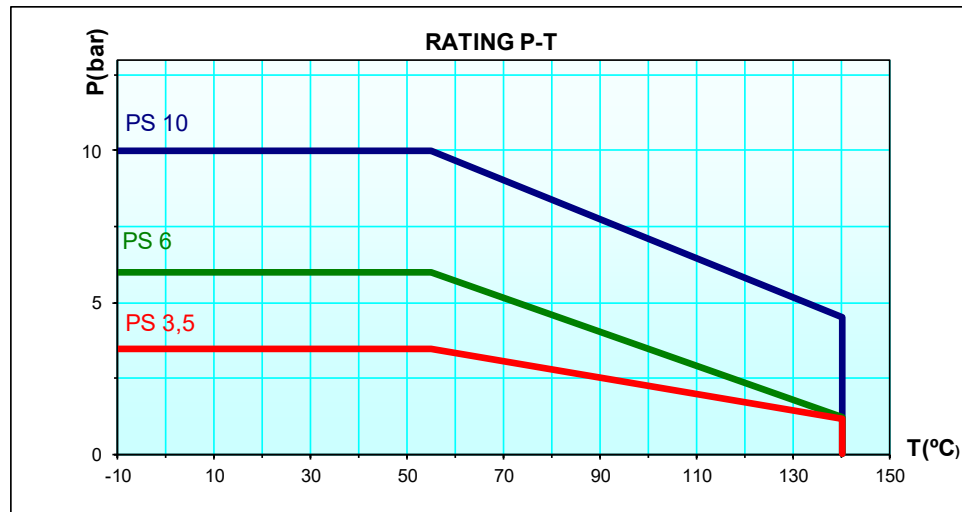
Combination of Body + Lining + Diaphragm determines the P-T limit of use of the valve

Questions referring to chemical resistance, please consult us

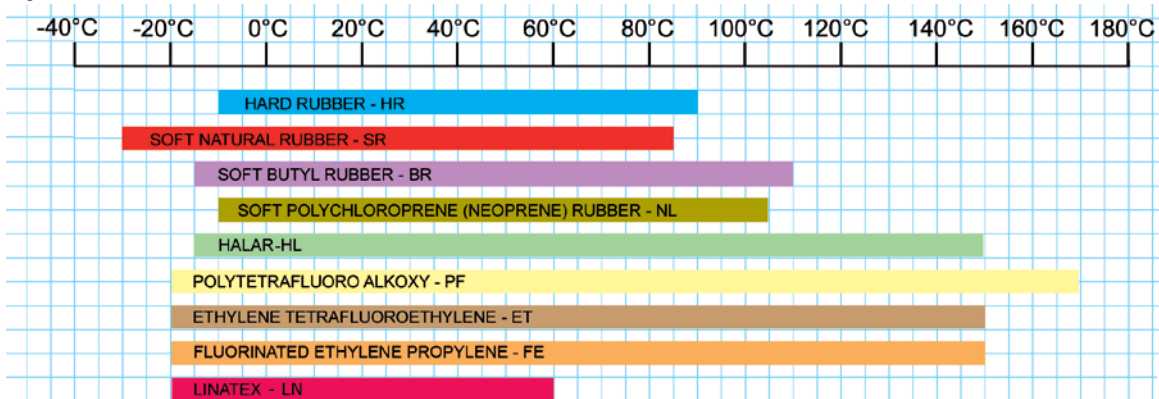
Observe also pressure/temperature limits on diagrams under

\*Classification of fluids (group 1 or 2) acc. to Directive 2014/68/EU, Article 13

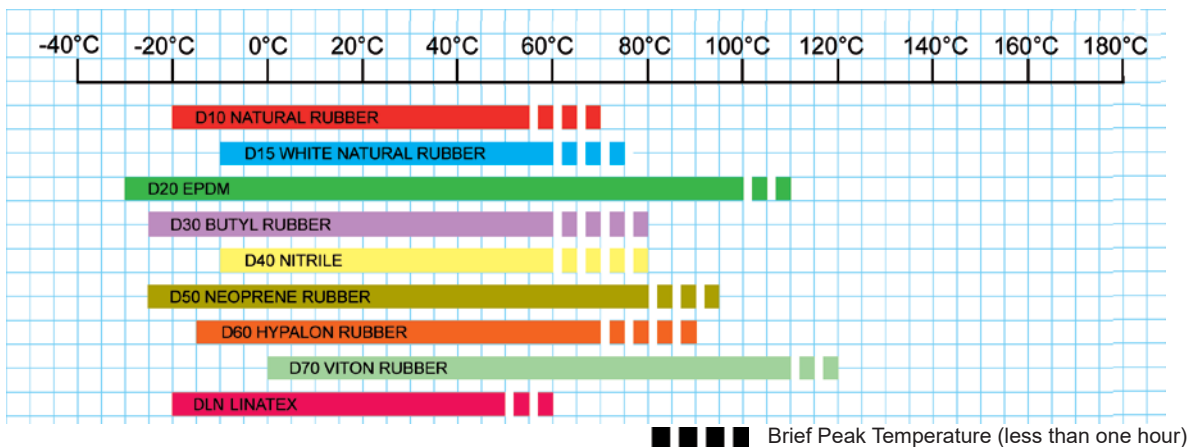
Bodies (Ductile iron)



Linings



Diaphragms



Temperature values are for neutral fluids and not plotted against any pressure parameter, the application engineer should consider that working limits are affected by the actual pressure / temperature relationship. Temperature values also depends on medium through the valve.

## Valves Flow Data

A valve flow coefficient represents the standard flow rate which flows through the valve at a given opening, referred to pre-established conditions:

\* Kv value is the volume of water at 20°C, in cubic meters per hour (m<sup>3</sup>/h), that will flow through the valve at a static pressure drop of 1 bar across the valve

\* Cv value is the volume of water at 60°F, in gallons per minute (gpm), that will flow through the valve at a static pressure drop of 1 psi across the valve

Conversion from Kv to Cv can be roughly calculated by means of the following expression:

$$Cv = Kv \times 1,17$$

Flow rate through the valve with other liquids can be calculated with the following expressions

$$Kv = q (SG / dp)^{1/2}$$

where

q = water flow (cubic meter per hour)

SG = specific gravity (1 for water)

dp = pressure drop (bar)

$$Cv = q (SG / dp)^{1/2}$$

where

q = water flow (US gallons per minute)

SG = specific gravity (1 for water)

dp = pressure drop (psi)

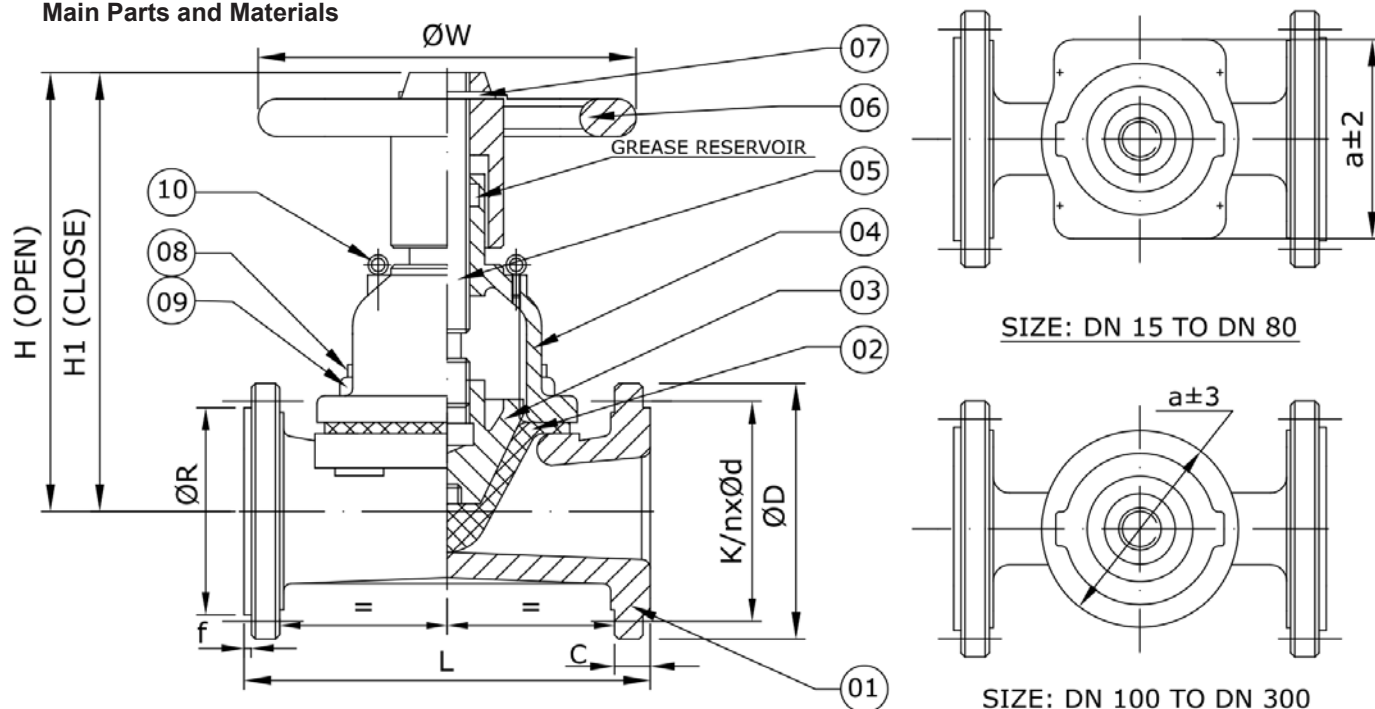
## Straight Through Kv (m<sup>3</sup>/h) values with valve fully open \*

| DN mm | Ductile iron | Rubber Lined | Halar® Lined |
|-------|--------------|--------------|--------------|
| 15    | 7,5          | 5,5          | 7,6          |
| 20    | 18           | 13,5         | 18,5         |
| 25    | 32           | 26           | 33           |
| 32    | 47           | 39           | 48           |
| 40    | 64           | 56           | 67           |
| 50    | 110          | 90           | 116          |
| 65    | 204          | 165          | 214          |
| 80    | 293          | 222          | 302          |
| 100   | 504          | 406          | 524          |
| 125   | 792          | 618          | 813          |
| 150   | 1440         | 1105         | 1510         |
| 200   | 2211         | 1895         | 2290         |
| 250   | 3446         | 2960         | 3596         |
| 300   | 5168         | 4250         | 5314         |

\*Since Straight Through Diaphragm Valves are only suitable for on/off service we only provide Kv values for valves fully open.

## Unlined valves with flanged ends

## Main Parts and Materials



| NO. | PART       | MATERIAL                                                                                                       |
|-----|------------|----------------------------------------------------------------------------------------------------------------|
| 1   | BODY       | SC_ Cast iron EN-JL1040 (GG25)                                                                                 |
|     |            | SD_ Ductile iron EN-JS1030 (GGG40)                                                                             |
| 2   | DIAPHRAGM  | Rubber Natural (D10) / EPDM (D20) / Butyl (D30) / Nitrile (D40) / Neoprene (D50) / Hypalon (D60) / Viton (D70) |
| 3   | COMPRESSOR | Cast iron EN-JL1040 (GG25)                                                                                     |
| 4   | BONNET     | SC_ Cast iron EN-JL1040 (GG25)                                                                                 |
|     |            | SD_ Ductile iron EN-JS1030 (GGG40)                                                                             |

| NO. | PART          | MATERIAL                   |
|-----|---------------|----------------------------|
| 5   | SPINDLE       | St. steel 410              |
| 6   | HANDWHEEL     | Cast iron EN-JL1040 (GG25) |
| 7   | H/W DOWEL PIN | Steel (EN42)               |
| 8   | BODY STUDS    | Steel 4.6                  |
| 9   | BODY NUTS     | Steel 4.6                  |
| 10  | EYE BOLT*     | Steel                      |

\* Only for some sizes

## Main Valve Parameters

| DN                          |                         | 15   | 20   | 25    | 32    | 40    | 50    | 65   |
|-----------------------------|-------------------------|------|------|-------|-------|-------|-------|------|
| L                           | EN 558 S7 (BS 5156)     | 108  | 114  | 127   | 146   | 159   | 190   | 216  |
|                             | EN 558 S1 (DIN 3202 F1) | 130  | 150  | 160   | 180   | 200   | 230   | 290  |
| H (open)                    |                         | 110  | 108  | 132,5 | 130,5 | 131,5 | 194,5 | 220  |
| H1 (close)                  |                         | 102  | 100  | 120   | 118   | 119   | 177   | 196  |
| a                           |                         | 71   | 71   | 85    | 85    | 85    | 115   | 142  |
| ØW                          |                         | 100  | 100  | 120   | 120   | 120   | 164   | 220  |
| FLANGED ENDS<br>TO EN PN10  | ØD                      | 95   | 105  | 115   | 140   | 150   | 165   | 185  |
|                             | C                       | 14   | 16   | 16    | 18    | 18    | 20    | 20   |
|                             | ØR                      | 45   | 58   | 68    | 78    | 88    | 102   | 122  |
|                             | f                       | 2    | 2    | 2     | 2     | 3     | 3     | 3    |
|                             | nxØd                    | 4x14 | 4x14 | 4x14  | 4x18  | 4x18  | 4x18  | 4x18 |
| FLANGED ENDS<br>TO ASA150#* | ØK                      | 65   | 75   | 85    | 100   | 110   | 125   | 145  |
|                             | ØD                      | 89   | 98   | 108   | 117   | 127   | 152   | 178  |
|                             | C                       | 11,5 | 11,5 | 11,5  | 13    | 14,5  | 16    | 20   |
|                             | ØR                      | 35   | 43   | 51    | 64    | 73    | 92    | 105  |
|                             | f                       | 1,6  | 1,6  | 1,6   | 1,6   | 1,6   | 1,6   | 1,6  |
| Approx. Weight              | EN 558 S7 (BS 5156)     | 3,3  | 3,6  | 4,3   | 6,5   | 7     | 10,5  | 15,5 |
|                             | EN 558 S1 (DIN 3202 F1) | 3,8  | 4    | 4,8   | 7,5   | 8     | 11,5  | 16,5 |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

Information / restriction of technical rules need to be observed!  
Installation, Operating and Maintenance Manual can be downloaded at [www.comeval.es](http://www.comeval.es)

The engineer, designing a system or a plant, is responsible for the selection of the correct valve  
Product suitability must be verified, contact manufacturer for information

## Unlined valves with flanged ends

## Main Valve Parameters

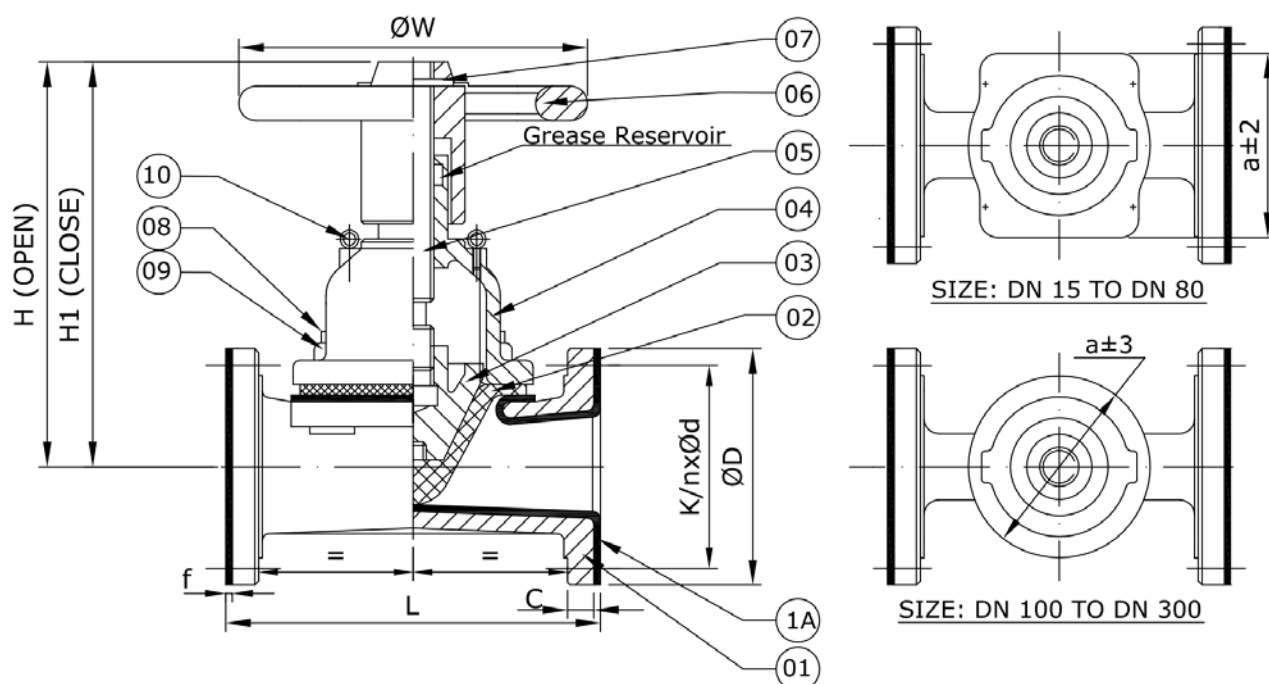
| DN                         |                         | 80    | 100   | 125   | 150   | 200   | 250   | 300   |
|----------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| L                          | EN 558 S7 (BS 5156)     | 254   | 305   | 356   | 406   | 521   | 635   | 749   |
|                            | EN 558 S1 (DIN 3202 F1) | 310   | 350   | 400   | 480   | 600   | 730   | 850   |
| H (open)                   |                         | 245   | 265   | 342   | 452   | 475,5 | 595,5 | 748   |
| H1 (close)                 |                         | 228   | 245   | 305   | 404   | 413   | 523   | 653   |
| a                          |                         | 171   | Ø200  | Ø234  | Ø290  | Ø350  | Ø430  | Ø512  |
| ØW                         |                         | 240   | 270   | 318   | 360   | 460   | 525   | 600   |
| FLANGED ENDS<br>TO EN PN10 | ØD                      | 200   | 220   | 250   | 285   | 340   | 395   | 445   |
|                            | C                       | 22    | 24    | 26    | 26    | 26    | 28    | 28    |
|                            | ØR                      | 138   | 158   | 188   | 212   | 268   | 320   | 370   |
|                            | f                       | 3     | 3     | 3     | 3     | 3     | 3     | 4     |
|                            | nxØd                    | 8x18  | 8x18  | 8x18  | 8x22  | 8x22  | 12x22 | 12x22 |
| FLANGED ENDS<br>TO ASA150# | ØK                      | 160   | 180   | 210   | 240   | 295   | 350   | 400   |
|                            | ØD                      | 191   | 229   | 254   | 279   | 343   | 406   | 483   |
|                            | C                       | 19,5  | 24    | 24    | 25,5  | 29    | 30,5  | 32    |
|                            | ØR                      | 127   | 157   | 186   | 216   | 270   | 324   | 381   |
|                            | f                       | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   |
| Approx.<br>Weight          | nxØd                    | 4x19  | 8x19  | 8x22  | 8x22  | 8x22  | 12x26 | 12x26 |
|                            | ØK                      | 152,4 | 190,5 | 215,9 | 241,3 | 298,4 | 361,9 | 431,8 |
| Approx.<br>Weight          | EN 558 S7 (BS 5156)     | 22,5  | 30    | 44    | 63    | 112   | 170   | 258   |
|                            | EN 558 S1 (DIN 3202 F1) | 25,5  | 32    | 46    | 69    | 126   | 185   | 273   |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

## Rubber lined valves with flanged ends

### Main Parts and Materials



| NO. | PART      | MATERIAL                                                     |
|-----|-----------|--------------------------------------------------------------|
| 1   | BODY      | SC_ Cast iron EN-JL 1040 (GG25)                              |
|     |           | SD_ Ductile iron EN-JS1030 (GGG40)                           |
|     |           | _HR_ Hard rubber                                             |
|     |           | _SR_ Soft rubber                                             |
|     |           | _BR_ Butyl rubber                                            |
| 1A  | LINING    | _ER_ EPDM rubber                                             |
|     |           | _NL_ Neoprene rubber                                         |
|     |           | Natural (D10) / EPDM (D20) / Butyl (D30) /                   |
|     |           | Nitrile (D40) / Neoprene (D50) / Hypalon (D60) / Viton (D70) |
| 2   | DIAPHRAGM | Rubber                                                       |

| NO. | PART          | MATERIAL                           |
|-----|---------------|------------------------------------|
| 3   | COMPRESSOR    | Cast iron EN-JL 1040 (GG25)        |
| 4   | BONNET        | SC_ Cast iron EN-JL 1040 (GG25)    |
|     |               | SD_ Ductile iron EN-JS1030 (GGG40) |
| 5   | SPINDLE       | St. steel 410                      |
| 6   | HANDWHEEL     | Cast iron EN-JL 1040 (GG25)        |
| 7   | H/W DOWEL PIN | Steel (EN42)                       |
| 8   | BODY STUDS    | Steel 4.6                          |
| 9   | BODY NUTS     | Steel 4.6                          |
| 10  | EYE BOLT*     | Steel                              |

\* Only for some sizes

### Main Valve Parameters

| DN                      |                         | 15   | 20   | 25    | 32    | 40    | 50    | 65    |
|-------------------------|-------------------------|------|------|-------|-------|-------|-------|-------|
| L                       | EN 558 S7 (BS 5156)     | 114  | 123  | 133   | 152   | 165   | 196   | 222   |
|                         | EN 558 S1 (DIN 3202 F1) | 130  | 150  | 160   | 180   | 200   | 230   | 290   |
| H (open)                |                         | 113  | 111  | 135,5 | 133,5 | 134,5 | 197,5 | 223   |
| H1 (close)              |                         | 105  | 103  | 123   | 121   | 122   | 180   | 199   |
| f                       |                         | 3    | 3    | 3     | 3     | 3     | 3     | 3     |
| a                       |                         | 71   | 71   | 85    | 85    | 85    | 115   | 142   |
| FLANGED ENDS TO EN PN10 | ØW                      | 100  | 100  | 120   | 120   | 120   | 164   | 220   |
|                         | ØD                      | 95   | 105  | 115   | 140   | 150   | 165   | 185   |
|                         | C                       | 14   | 16   | 16    | 18    | 18    | 20    | 20    |
|                         | nxØd                    | 4x14 | 4x14 | 4x14  | 4x18  | 4x18  | 4x18  | 4x18  |
|                         | ØK                      | 65   | 75   | 85    | 100   | 110   | 125   | 145   |
| FLANGED ENDS TO ASA150# | ØD                      | 89   | 98   | 108   | 117   | 127   | 152   | 178   |
|                         | C                       | 11,5 | 11,5 | 11,5  | 13,0  | 14,5  | 16,0  | 17,5  |
|                         | nxØd                    | 4x16 | 4x16 | 4x16  | 4x16  | 4x16  | 4x19  | 4x19  |
|                         | ØK                      | 60,3 | 69,8 | 79,4  | 88,9  | 98,4  | 120,6 | 139,7 |
| Approx. Weight          | EN 558 S7 (BS 5156)     | 3,6  | 4    | 4,5   | 7     | 8     | 12    | 17    |
|                         | EN 558 S1 (DIN 3202 F1) | 4,1  | 4,5  | 5,0   | 8     | 9     | 13,5  | 18    |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

Information / restriction of technical rules need to be observed!  
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The engineer, designing a system or a plant, is responsible for the selection of the correct valve  
Product suitability must be verified, contact manufacturer for information

## Rubber lined valves with flanged ends

### Main Valve Parameters

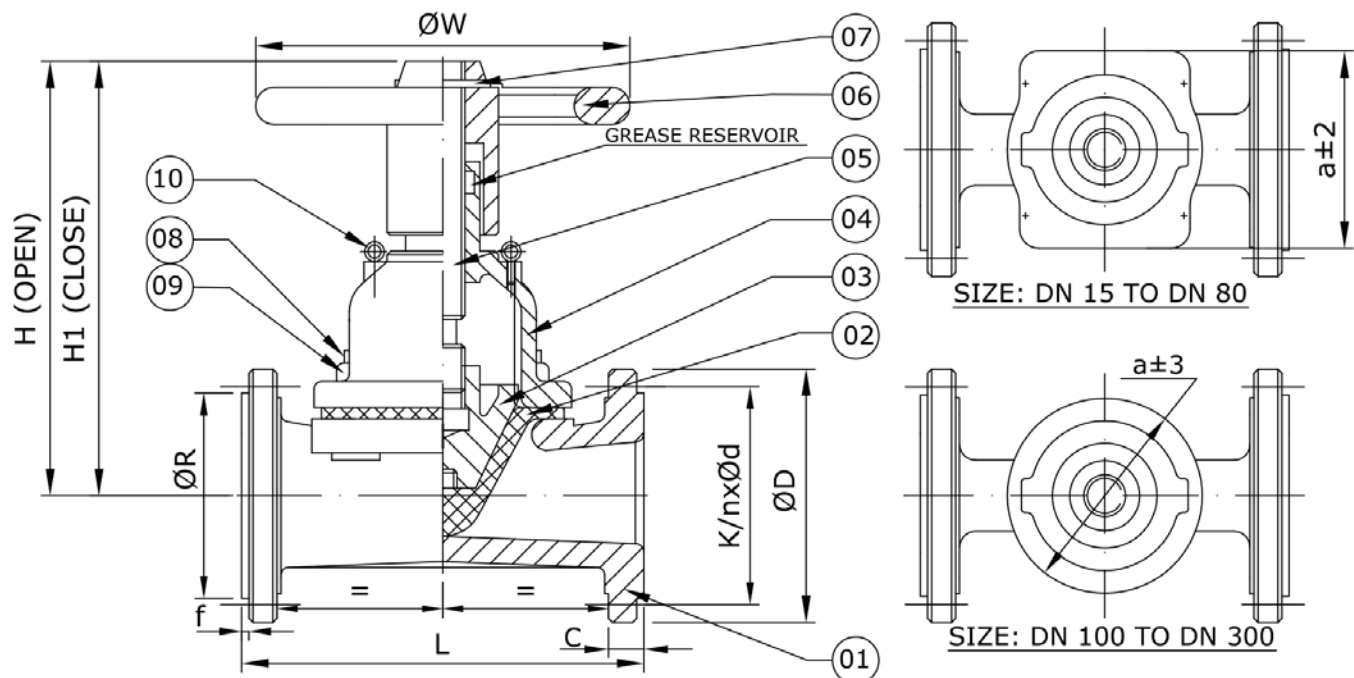
| DN                             |                         | 80    | 100   | 125   | 150   | 200   | 250   | 300   |
|--------------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| L                              | EN 558 S7 (BS 5156)     | 260   | 313   | 364   | 414   | 529   | 643   | 757   |
|                                | EN 558 S1 (DIN 3202 F1) | 310   | 350   | 400   | 480   | 600   | 730   | 850   |
|                                | H (open)                | 251   | 271   | 346   | 456   | 479,5 | 598,5 | 752   |
|                                | H1 (close)              | 233   | 250   | 309   | 408   | 417   | 527   | 657   |
| f                              |                         | 3     | 4     | 4     | 4     | 4     | 4     | 4     |
| a                              |                         | 171   | Ø200  | Ø234  | Ø290  | Ø350  | Ø430  | Ø512  |
| FLANGED<br>ENDS TO<br>EN PN10  | ØW                      | 240   | 270   | 318   | 360   | 460   | 525   | 600   |
|                                | ØD                      | 200   | 220   | 250   | 285   | 340   | 395   | 445   |
|                                | C                       | 22    | 24    | 26    | 26    | 26    | 28    | 28    |
|                                | nxØd                    | 8x18  | 8x18  | 8x18  | 8x22  | 8x22  | 12x22 | 12x22 |
| FLANGED<br>ENDS TO<br>ASA150#* | ØK                      | 160   | 180   | 210   | 240   | 295   | 350   | 400   |
|                                | ØD                      | 191   | 229   | 254   | 279   | 343   | 406   | 483   |
|                                | C                       | 19,5  | 24,0  | 24,0  | 25,5  | 29,0  | 30,5  | 32,0  |
|                                | nxØd                    | 4x19  | 8x19  | 8x22  | 8x22  | 8x22  | 12x26 | 12x26 |
| Approx.<br>Weight              | ØK                      | 152,4 | 190,5 | 215,9 | 241,3 | 298,4 | 361,9 | 431,8 |
|                                | EN 558 S7 (BS 5156)     | 24    | 32    | 46    | 65    | 115   | 175   | 263   |
|                                | EN 558 S1 (DIN 3202 F1) | 27    | 34    | 48    | 71    | 121   | 190   | 278   |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

## Halar® coated valves with flanged ends

## Main Parts and Materials



| NO. | PART       | MATERIAL                                                                                                       |
|-----|------------|----------------------------------------------------------------------------------------------------------------|
| 1   | BODY       | SCHL_ Cast iron EN-JL1040 (GG25)                                                                               |
|     |            | SDHL_ Ductile iron EN-JS1030 (GGG40)                                                                           |
| 2   | DIAPHRAGM  | Rubber Natural (D10) / EPDM (D20) / Butyl (D30) / Nitrile (D40) / Neoprene (D50) / Hypalon (D60) / Viton (D70) |
| 3   | COMPRESSOR | Cast iron EN-JL1040 (GG25)                                                                                     |
| 4   | BONNET     | SCHL_ Cast iron EN-JL1040 (GG25)                                                                               |
|     |            | SDHL_ Ductile iron EN-JS1030 (GGG40)                                                                           |

| NO. | PART          | MATERIAL                   |
|-----|---------------|----------------------------|
| 5   | SPINDLE       | St. steel 410              |
| 6   | HANDWHEEL     | Cast iron EN-JL1040 (GG25) |
| 7   | H/W DOWEL PIN | Steel (EN42)               |
| 8   | BODY STUDS    | St. steel SS304            |
| 9   | BODY NUTS     | St. steel SS304            |
| 10  | EYE BOLT*     | Steel                      |

\* Only for some sizes

## Main Valve Parameters

| DN                         |                         | 15   | 20   | 25    | 32    | 40    | 50    | 65   |
|----------------------------|-------------------------|------|------|-------|-------|-------|-------|------|
| L                          | EN 558 S7 (BS 5156)     | 108  | 114  | 127   | 146   | 159   | 190   | 216  |
|                            | EN 558 S1 (DIN 3202 F1) | 130  | 150  | 160   | 180   | 200   | 230   | 290  |
| H (open)                   |                         | 110  | 108  | 132,5 | 130,5 | 131,5 | 194,5 | 220  |
| H1 (close)                 |                         | 102  | 100  | 120   | 118   | 119   | 177   | 196  |
| a                          |                         | 71   | 71   | 85    | 85    | 85    | 115   | 142  |
| ØW                         |                         | 100  | 100  | 120   | 120   | 120   | 164   | 220  |
| FLANGED ENDS<br>TO EN PN10 | ØD                      | 95   | 105  | 115   | 140   | 150   | 165   | 185  |
|                            | C                       | 14   | 16   | 16    | 18    | 18    | 20    | 20   |
|                            | ØR                      | 45   | 58   | 68    | 78    | 88    | 102   | 122  |
|                            | f                       | 2    | 2    | 2     | 2     | 3     | 3     | 3    |
|                            | nxØd                    | 4x14 | 4x14 | 4x14  | 4x18  | 4x18  | 4x18  | 4x18 |
| FLANGED ENDS<br>TO ASA150# | ØK                      | 65   | 75   | 85    | 100   | 110   | 125   | 145  |
|                            | ØD                      | 89   | 98   | 108   | 117   | 127   | 152   | 178  |
|                            | C                       | 11,5 | 11,5 | 11,5  | 13,0  | 14,5  | 16,0  | 17,5 |
|                            | ØR                      | 35   | 43   | 51    | 64    | 73    | 92    | 105  |
|                            | f                       | 1,6  | 1,6  | 1,6   | 1,6   | 1,6   | 1,6   | 1,6  |
| Approx. Weight             | EN 558 S7 (BS 5156)     | 3,3  | 3,6  | 4,3   | 6,5   | 7     | 10,5  | 15,5 |
|                            | EN 558 S1 (DIN 3202 F1) | 3,8  | 4    | 4,8   | 7,5   | 8     | 11,5  | 16,5 |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

Information / restriction of technical rules need to be observed!  
Installation, Operating and Maintenance Manual can be downloaded at [www.comeval.es](http://www.comeval.es)

The engineer, designing a system or a plant, is responsible for the selection of the correct valve  
Product suitability must be verified, contact manufacturer for information

## Halar® coated valves with flanged ends

## Main Valve Parameters

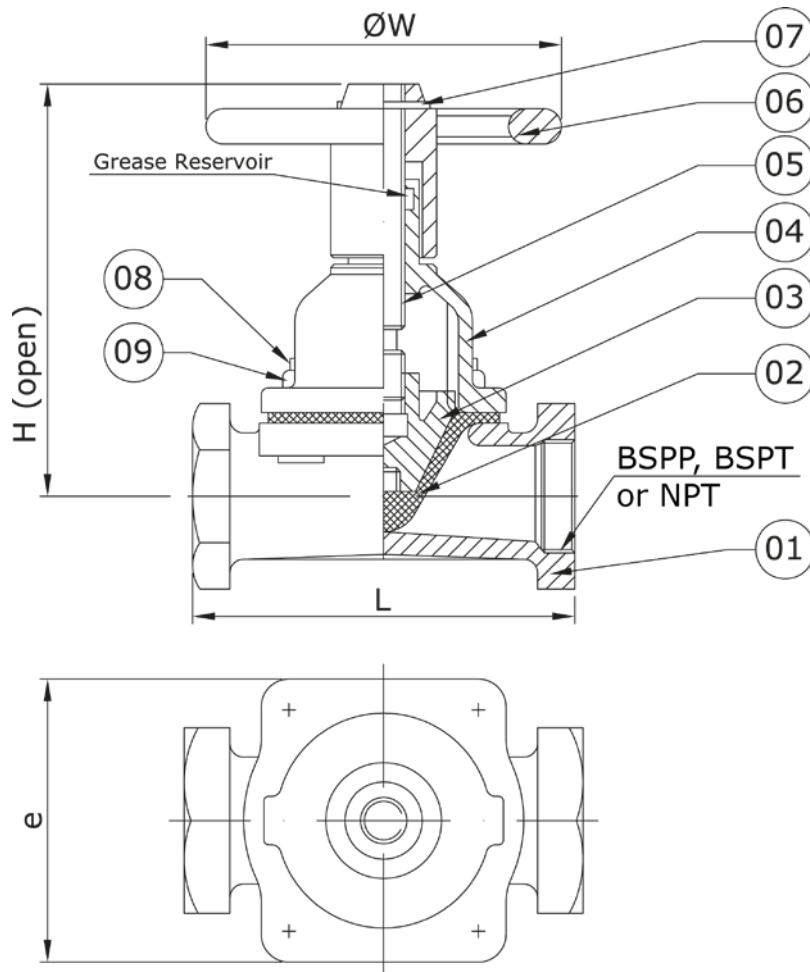
| DN                         |                         | 80    | 100   | 125   | 150   | 200   | 250   | 300   |
|----------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|
| L                          | EN 558 S7 (BS 5156)     | 254   | 305   | 356   | 406   | 521   | 635   | 749   |
|                            | EN 558 S1 (DIN 3202 F1) | 310   | 350   | 400   | 480   | 600   | 730   | 850   |
|                            | H (open)                | 251   | 271   | 342   | 452   | 475,5 | 595,5 | 748   |
|                            | H1 (close)              | 233   | 250   | 305   | 404   | 413   | 523   | 653   |
| a                          |                         | 171   | Ø200  | Ø234  | Ø290  | Ø350  | Ø430  | Ø512  |
| ØW                         |                         | 240   | 270   | 318   | 360   | 460   | 525   | 600   |
| FLANGED ENDS<br>TO EN PN10 | ØD                      | 200   | 220   | 250   | 285   | 340   | 395   | 445   |
|                            | C                       | 22    | 24    | 26    | 26    | 26    | 28    | 28    |
|                            | ØR                      | 138   | 158   | 188   | 212   | 268   | 320   | 370   |
|                            | f                       | 3     | 3     | 3     | 3     | 3     | 3     | 4     |
|                            | nxØd                    | 8x18  | 8x18  | 8x18  | 8x22  | 8x22  | 12x22 | 12x22 |
| FLANGED ENDS<br>TO ASA150# | ØK                      | 160   | 180   | 210   | 240   | 295   | 350   | 400   |
|                            | ØD                      | 191   | 229   | 254   | 279   | 343   | 406   | 483   |
|                            | C                       | 19,5  | 24,0  | 24,0  | 25,5  | 29,0  | 30,5  | 32,0  |
|                            | ØR                      | 127   | 157   | 186   | 216   | 270   | 324   | 381   |
|                            | f                       | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   | 1,6   |
|                            | nxØd                    | 4x19  | 8x19  | 8x22  | 8x22  | 8x22  | 12x26 | 12x26 |
|                            | ØK                      | 152,4 | 190,5 | 215,9 | 241,3 | 298,4 | 361,9 | 431,8 |
| Approx.<br>Weight          | EN 558 S7 (BS 5156)     | 22,5  | 30    | 44    | 63    | 112   | 170   | 258   |
|                            | EN 558 S1 (DIN 3202 F1) | 25,5  | 32    | 46    | 69    | 126   | 185   | 273   |

\*Unless specific agreement with COMEVAL, valves with flanges 150# will be usually supplied as EN/DIN flanges with 150# drilling, since pressure is limited to EN/DIN

Dimensions in mm subject to manufacturing tolerance / Weights in kg

## Unlined threaded valves

### Main Parts and Materials



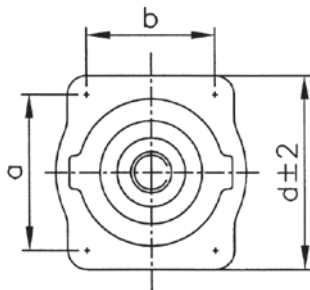
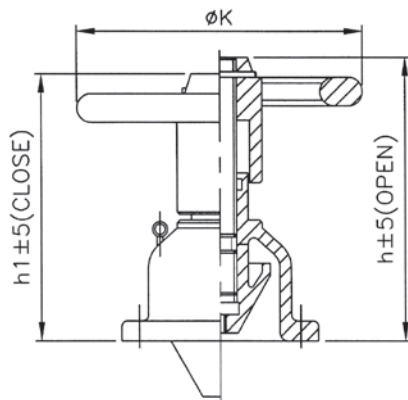
| NO. | PART          | MATERIAL                                                                                                       |
|-----|---------------|----------------------------------------------------------------------------------------------------------------|
| 1   | BODY          | SC_ Cast iron EN-JL1040 (GG25)                                                                                 |
|     |               | SD_ Ductile iron EN-JS1030 (GGG40)                                                                             |
| 2   | DIAPHRAGM     | Rubber Natural (D10) / EPDM (D20) / Butyl (D30) / Nitrile (D40) / Neoprene (D50) / Hypalon (D60) / Viton (D70) |
| 3   | COMPRESSOR    | Cast iron EN-JL1040 (GG25)                                                                                     |
| 4   | BONNET        | SC_ Cast iron EN-JL1040 (GG25)                                                                                 |
|     |               | SD_ Ductile iron EN-JS1030 (GGG40)                                                                             |
| 5   | SPINDLE       | St. steel 410                                                                                                  |
| 6   | HANDWHEEL     | Cast iron EN-JL1040 (GG25)                                                                                     |
| 7   | H/W DOWEL PIN | Steel (EN42)                                                                                                   |
| 8   | BODY STUDS    | Steel 4.6                                                                                                      |
| 9   | BODY NUTS     | Steel 4.6                                                                                                      |

### Main Valve Parameters

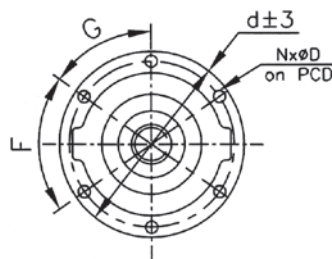
| DN             | 15  | 20  | 25  | 32  | 40  | 50   | 65   | 80   |
|----------------|-----|-----|-----|-----|-----|------|------|------|
| L              | 64  | 83  | 108 | 121 | 140 | 165  | 203  | 254  |
| H (open)       | 112 | 117 | 142 | 142 | 140 | 206  | 236  | 284  |
| ØW             | 100 | 100 | 120 | 120 | 120 | 164  | 220  | 240  |
| e              | 71  | 71  | 85  | 85  | 85  | 115  | 130  | 171  |
| Approx. Weight | 1,8 | 2,2 | 3   | 4   | 4   | 7,25 | 12,5 | 19,5 |

Dimensions in mm subject to manufacturing tolerance / Weights in kg

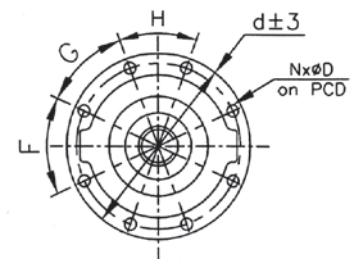
## Main Bonnet Dimensions



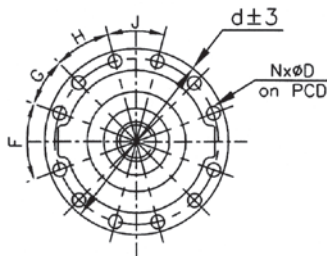
SIZE: DN 15 TO DN 80



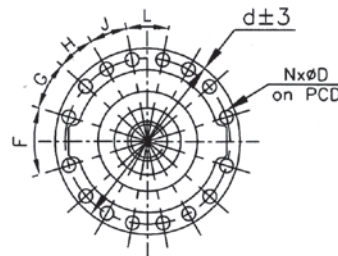
SIZE: DN 100



SIZE: DN 125 TO DN 200



SIZE: DN 250

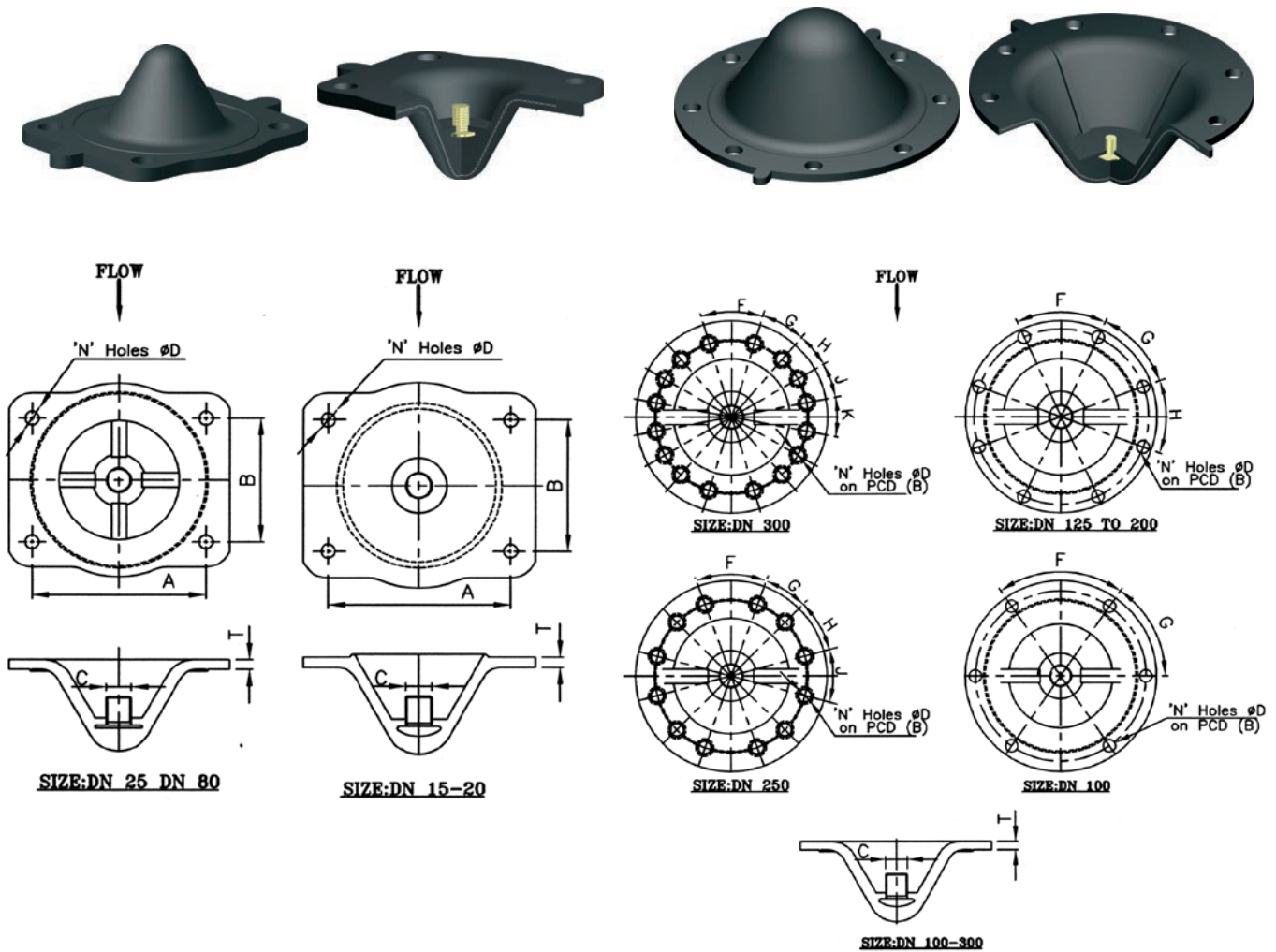


SIZE: DN 300

| DN  |     |           |      |       |       |     |       | Weight | ANGLES BETWEEN THE HOLES |        |     |     |        |
|-----|-----|-----------|------|-------|-------|-----|-------|--------|--------------------------|--------|-----|-----|--------|
|     | a   | b<br>ØPCD | d    | h     | h1    | ØK  | NxØD  |        | F                        | G      | H   | J   | L      |
| 15  | 54  | 30        | 71   | 93,5  | 86,0  | 100 | 4x7   | 1,2    | ---                      | ---    | --- | --- | ---    |
| 20  | 54  | 30        | 71   | 93,5  | 86,0  | 100 | 4x7   | 1,2    | ---                      | ---    | --- | --- | ---    |
| 25  | 64  | 51        | 85   | 105,0 | 93,0  | 120 | 4x9   | 2,0    | ---                      | ---    | --- | --- | ---    |
| 32  | 64  | 51        | 85   | 105,0 | 93,0  | 120 | 4x9   | 2,0    | ---                      | ---    | --- | --- | ---    |
| 40  | 64  | 51        | 85   | 105,0 | 93,0  | 120 | 4x9   | 2,0    | ---                      | ---    | --- | --- | ---    |
| 50  | 89  | 64        | 115  | 165,0 | 147,5 | 164 | 4x11  | 4,5    | ---                      | ---    | --- | --- | ---    |
| 65  | 102 | 83        | 130  | 185,0 | 161,0 | 220 | 4x13  | 7,0    | ---                      | ---    | --- | --- | ---    |
| 80  | 137 | 102       | 171  | 231,0 | 201,0 | 240 | 4x17  | 11,0   | ---                      | ---    | --- | --- | ---    |
| 100 | --- | Ø171      | Ø200 | 243,0 | 210,5 | 270 | 6x13  | 14,5   | 70°                      | 55°    | --- | --- | ---    |
| 125 | --- | Ø205      | Ø234 | 264,0 | 226,5 | 270 | 8x13  | 18,0   | 50°                      | 45°    | 40° | --- | ---    |
| 150 | --- | Ø254      | Ø290 | 346,0 | 295,0 | 360 | 8x13  | 31,0   | 60°                      | 40°    | 40° | --- | ---    |
| 200 | --- | Ø305      | Ø350 | 395,0 | 333,0 | 460 | 8x17  | 50,0   | 60°                      | 40°    | 40° | --- | ---    |
| 250 | --- | Ø381      | Ø430 | 507,0 | 434,5 | 525 | 12x21 | 79,0   | 40°                      | 25°    | 30° | 30° | ---    |
| 300 | --- | Ø451      | Ø512 | 641,0 | 546,0 | 600 | 16x21 | 115,0  | 34°                      | 24°20' | 19° | 19° | 21°20' |

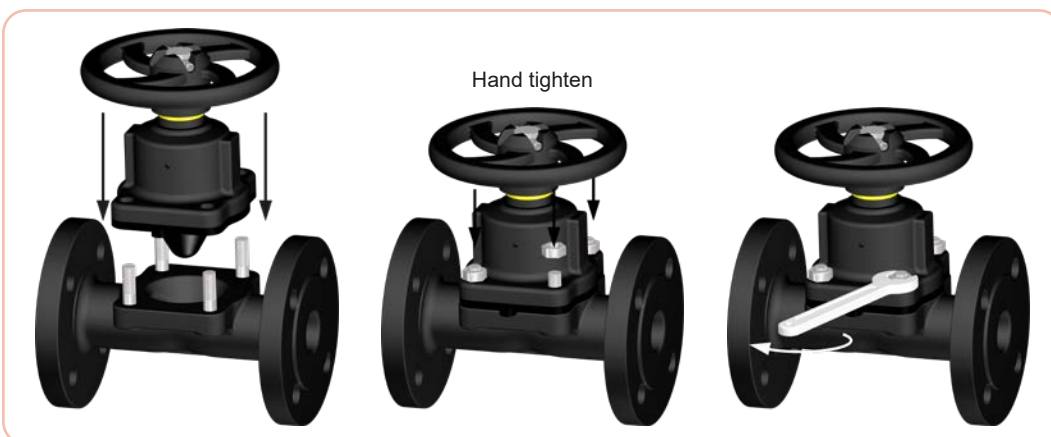
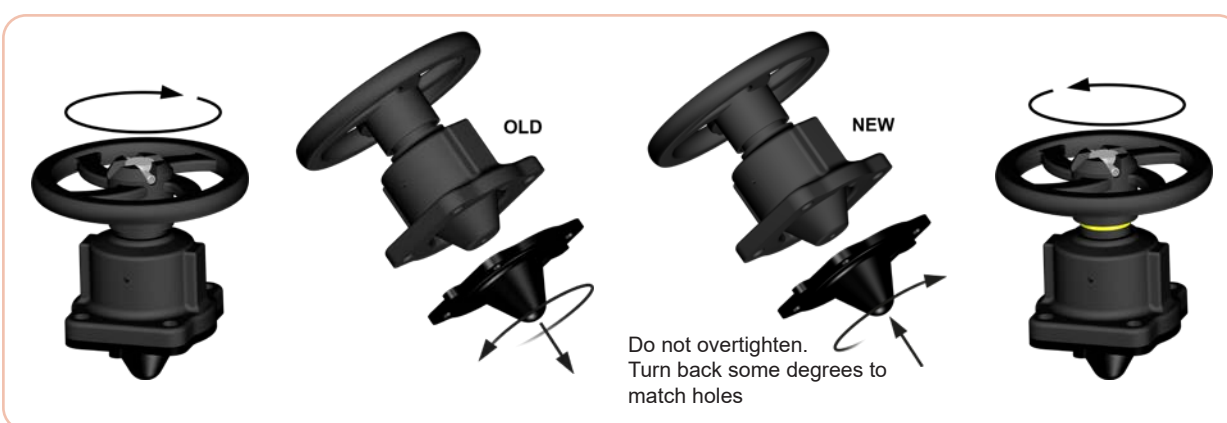
Dimensions in mm subject to manufacturing tolerance / Weights in kg

## Main Spare Diaphragms Dimensions



| DIMENSIONS OF DIAPHRAGM |     |      |           |      |          | ANGLES BETWEEN THE HOLES |     |        |     |     |        |
|-------------------------|-----|------|-----------|------|----------|--------------------------|-----|--------|-----|-----|--------|
| DN                      | A   | B    | C         | ØD   | N° HOLES | T                        | F   | G      | H   | J   | K      |
| 15                      | 54  | 30   | 3/16" BSW | 7.0  | 4        | 2.5                      | --- | ---    | --- | --- | ---    |
| 20                      | 54  | 30   | 3/16" BSW | 7.0  | 4        | 2.5                      | --- | ---    | --- | --- | ---    |
| 25                      | 64  | 51   | 1/4" BSW  | 9.5  | 4        | 6.0                      | --- | ---    | --- | --- | ---    |
| 32                      | 64  | 51   | 1/4" BSW  | 9.5  | 4        | 6.0                      | --- | ---    | --- | --- | ---    |
| 40                      | 64  | 51   | 1/4" BSW  | 9.5  | 4        | 6.0                      | --- | ---    | --- | --- | ---    |
| 50                      | 89  | 64   | 1/4" BSW  | 12.0 | 4        | 5.0                      | --- | ---    | --- | --- | ---    |
| 65                      | 102 | 83   | 5/16" BSW | 14.0 | 4        | 5.5                      | --- | ---    | --- | --- | ---    |
| 80                      | 137 | 102  | 3/8" BSW  | 18.0 | 4        | 5.5                      | --- | ---    | --- | --- | ---    |
| 100                     | --- | Ø171 | 3/8" BSW  | 13.0 | 6        | 7.0                      | 70° | 55°    | --- | --- | ---    |
| 125                     | --- | Ø205 | 3/8" BSW  | 14.0 | 8        | 7.5                      | 50° | 45°    | 40° | --- | ---    |
| 150                     | --- | Ø254 | 5/8" BSW  | 14.0 | 8        | 8.0                      | 60° | 40°    | 40° | --- | ---    |
| 200                     | --- | Ø305 | 5/8" BSW  | 20.0 | 8        | 8.5                      | 60° | 40°    | 40° | --- | ---    |
| 250                     | --- | Ø381 | 5/8" BSW  | 20.0 | 12       | 10.0                     | 40° | 25°    | 30° | 30° | ---    |
| 300                     | --- | Ø451 | 1" BSW    | 20.0 | 16       | 10.0                     | 34° | 24°20' | 19° | 19° | 21°20' |

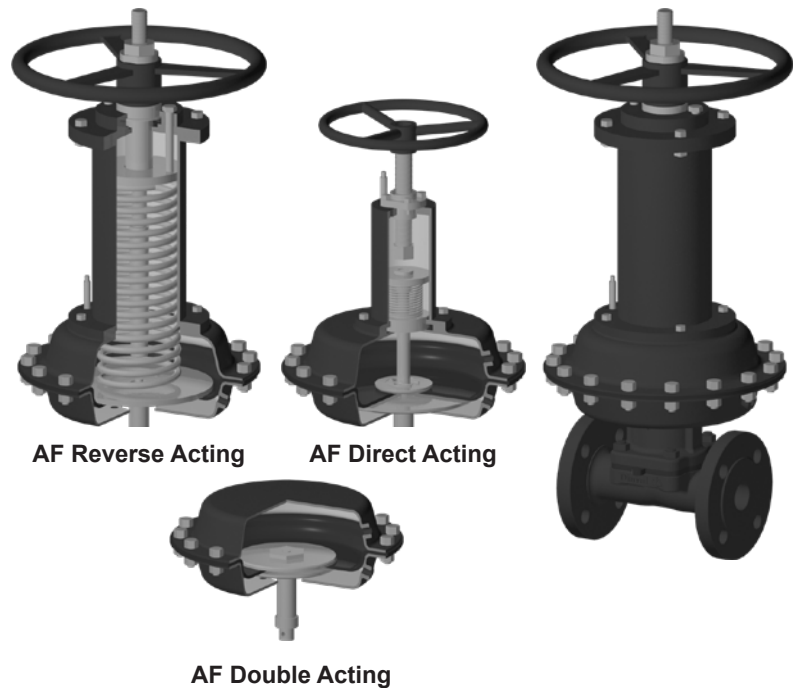
Dimensions in mm subject to manufacturing tolerance / Weights in kg

**Brief Guide of Instructions: Replacing an old diaphragm**

## Pneumatic Actuator Series AF for Straight through Type Diaphragm Valves

### Main Features

- For DIAVAL manufactured valves in weir and straight through type, with rubber diaphragms and PTFE / rubber backed diaphragms.
- Rugged columnness design.
- Single acting (Direct and reverse actions) or Double Acting.
- Visual position indicator for open / close.
- Possibility of assembly of additional devices / accessories.
- Operating ambient temperatures -20°C to +70°C.
- Fully traceable at the manufacture facility, identified by aluminum riveted plates.
- Top mounted emergency hand wheels for manual operation on Single Acting. Optional for Double Acting



### Working Principle

- Direct Acting actuator is designed to operate from a normally open position. Air pressure on the top side of actuator diaphragm closes the valve and the spring opens the valve when the air is released from the actuator.
- Reverse Acting actuator is designed to operate from a normally closed position. Air pressure on the bottom side of the actuator diaphragm opens the valve. When air is released spring closes the valve.
- Double Acting actuator is designed to open or close through the air supply remaining on the last position if no further air supply /exhaust.

### Control Accesories

There is a number of control accessories available to be assembled on to the DIAVAL® actuators. These accessories are comprehensive of limit switches (mechanical or inductive type), proximity sensors, solenoid valves, air speed regulators, positioners, air gauge sets... and many other customized solutions.

Control accessories may be specified and provided by the customer or by DIAVAL, however, only those accessories installed and tested at any DIAVAL facilities are covered by a performance guarantee.

### Tests - After Market

All actuators are tested after assembly and before dispatch. Tests are comprehensive of visual and functional tests.

Actuators can be serviced at DIAVAL facilities where a stock of common spares is permanently available. Off site service engineers are available on demand and against usual service rates.

### Operating and Maintenance Instructions

Please ensure that the DIAVAL Operating and Maintenance Instructions are provided by your supplier along with the valves. Do not try to start maintenance without having read and understood the Essential Safety Guidelines. Please consult us for further information.



## Main dimensions

| SA/NO PNEUMATIC ACTUATOR SERIES AF ON STRAIGHT THROUGH TYPE DIAPHRAGM VALVE |    |     |     |     |     |     |     |      |      |      |
|-----------------------------------------------------------------------------|----|-----|-----|-----|-----|-----|-----|------|------|------|
| DN                                                                          |    | 25  | 40  | 50  | 65  | 80  | 100 | 125  | 150  | 200  |
| P210                                                                        | H  | 375 | 375 | -   | -   | -   | -   | -    | -    | -    |
|                                                                             | ØC | 170 |     | -   | -   | -   | -   | -    | -    | -    |
| Q220                                                                        | H  | 465 | 465 | 495 | 530 | -   | -   | -    | -    | -    |
|                                                                             | ØC | 255 |     |     |     | -   | -   | -    | -    | -    |
| R220                                                                        | H  | -   | -   | 560 | 595 | 605 | 640 | 810  | -    | -    |
|                                                                             | ØC | -   | -   | 338 |     |     |     | -    | -    | -    |
| S230                                                                        | H  | -   | -   | -   | 715 | 725 | 760 | 930  | 940  | -    |
|                                                                             | ØC | -   | -   | -   | 415 |     |     |      |      | -    |
| T230                                                                        | H  | -   | -   | -   | -   | -   |     |      |      | -    |
|                                                                             | ØC | -   | -   | -   | -   | -   |     |      |      | -    |
| W240                                                                        | H  | -   | -   | -   | -   | -   | 825 | 1075 | 1085 | 1155 |
|                                                                             | ØC | -   | -   | -   | -   | -   | 570 |      |      |      |

Dimensions in mm subject to manufacturing tolerance

| SA/NC PNEUMATIC ACTUATOR SERIES AF ON STRAIGHT THROUGH TYPE DIAPHRAGM VALVE |    |     |     |     |     |     |     |     |      |      |
|-----------------------------------------------------------------------------|----|-----|-----|-----|-----|-----|-----|-----|------|------|
| DN                                                                          |    | 25  | 40  | 50  | 65  | 80  | 100 | 125 | 150  | 200  |
| P116                                                                        | H  | 410 | 410 | -   | -   | -   | -   | -   | -    | -    |
|                                                                             | ØC | 170 |     | -   | -   | -   | -   | -   | -    | -    |
| Q132                                                                        | H  | 495 | 500 | 545 | 560 | 585 | -   | -   | -    | -    |
|                                                                             | ØC | 255 |     |     |     | -   | -   | -   | -    | -    |
| R108 / R158                                                                 | H  | -   | -   | 700 | 715 | 740 | 775 | 900 | -    | -    |
|                                                                             | ØC | -   | -   | 338 |     |     |     | -   | -    | -    |
| S18F / S1EF                                                                 | H  | -   | -   | -   | -   | 810 | 840 | 965 | 975  | 1070 |
|                                                                             | ØC | -   | -   | -   | -   | 415 |     |     |      |      |
| T1EF                                                                        | H  | -   | -   | -   | -   | -   | -   | -   | 1020 | 1115 |
|                                                                             | ØC | -   | -   | -   | -   | -   | -   | -   | 462  |      |
| W1GH                                                                        | H  | -   | -   | -   | -   | -   | -   | -   | 1245 | 1340 |
|                                                                             | ØC | -   | -   | -   | -   | -   | -   | -   | 570  |      |

Dimensions in mm subject to manufacturing tolerance

| DA PNEUMATIC ACTUATOR SERIES AF ON STRAIGHT THROUGH TYPE DIAPHRAGM VALVE |    |     |     |     |     |     |     |     |     |     |
|--------------------------------------------------------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| DN                                                                       |    | 25  | 40  | 50  | 65  | 80  | 100 | 125 | 150 | 200 |
| P3                                                                       | H  | 155 | 155 | -   | -   | -   | -   | -   | -   | -   |
|                                                                          | ØB | 170 |     | -   | -   | -   | -   | -   | -   | -   |
| Q3                                                                       | H  | 190 | 190 | 215 | 250 | 260 | -   | -   | -   | -   |
|                                                                          | ØB | 255 |     |     |     | -   | -   | -   | -   | -   |
| R3                                                                       | H  | -   | -   | 240 | 275 | 285 | 320 | -   | -   | -   |
|                                                                          | ØB | -   | -   | 338 |     |     |     | -   | -   | -   |
| S3                                                                       | H  | -   | -   | 265 | 300 | 310 | 345 | 415 | 425 | -   |
|                                                                          | ØB | -   | -   | 415 |     |     |     |     | -   | -   |
| W3                                                                       | H  | -   | -   | -   | -   | -   | 415 | 485 | 495 | 675 |
|                                                                          | ØB | -   | -   | -   | -   | -   | 570 |     |     |     |

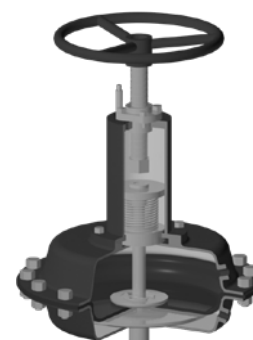
Dimensions in mm subject to manufacturing tolerance

## Actuation Selection Chart

Following values represent air pressure required to close the valve at 100%  $\Delta P$  & 0%  $\Delta P$

| P210 100% $\Delta P$ |            |     | 0% $\Delta P$ |            |     |
|----------------------|------------|-----|---------------|------------|-----|
| Line                 | VALVE SIZE |     | Line          | VALVE SIZE |     |
| Pr.                  | 25         | 40  | Pr.           | 25         | 40  |
| 1                    |            |     | 1             |            |     |
| 2                    | 3          | 3   | 2             | 3,5        | 3,5 |
| 3                    |            |     | 3             |            |     |
| 4                    |            |     | 4             |            |     |
| 5                    |            |     | 5             | 4          | 4   |
| 6                    | 3,5        | 3,5 | 6             |            |     |
| 7                    |            |     | 7             |            |     |
| 8                    |            |     | 8             | 5          | 5   |
| 9                    | 4          | 4   | 9             |            |     |
| 10                   |            |     | 10            |            |     |

| Q220 100% $\Delta P$ |            |     |     |     | 0% $\Delta P$ |            |     |     |     |
|----------------------|------------|-----|-----|-----|---------------|------------|-----|-----|-----|
| Line                 | VALVE SIZE |     |     |     | Line          | VALVE SIZE |     |     |     |
| Pr.                  | 25         | 40  | 50  | 65  | Pr.           | 25         | 40  | 50  | 65  |
| 1                    |            |     |     |     | 1             |            |     |     |     |
| 2                    |            |     | 2   | 2,4 | 2             | 2          | 2   | 2,4 | 3   |
| 3                    | 2          | 2   |     | 2,4 | 3             |            |     | 3   | 3,4 |
| 4                    |            |     |     | 2,8 | 4             |            |     |     |     |
| 5                    |            |     |     | 2,8 | 5             | 2,5        | 2,5 |     | 4   |
| 6                    | 2,5        | 2,5 |     | 3,2 | 6             |            |     | 3,5 |     |
| 7                    |            |     |     | 3,2 | 7             | 3          | 3   |     | -   |
| 8                    |            |     |     |     | 8             |            |     |     | 4   |
| 9                    | 2,8        | 2,8 | 3,5 | 4   | 9             | 3,5        | 3,5 |     | -   |
| 10                   |            |     |     |     | 10            |            |     | 4,5 | -   |



AF Direct Acting

| R220 100% $\Delta P$ |            |     |     |     |
|----------------------|------------|-----|-----|-----|
| Line                 | VALVE SIZE |     |     |     |
| Pr.                  | 50         | 65  | 80  | 100 |
| 1                    |            |     |     |     |
| 2                    |            | 2   | 2,2 | 2,4 |
| 3                    |            |     |     |     |
| 4                    | 2          | 2,2 | 2,5 | 2,8 |
| 5                    |            |     |     | 3   |
| 6                    |            | 2,5 | 2,8 |     |
| 7                    |            |     |     |     |
| 8                    | 2,2        |     |     | 3,5 |
| 9                    | 2,5        | 3   | 3,2 |     |
| 10                   | 2,8        |     |     | 4   |

| 0% $\Delta P$ |            |     |     |     |
|---------------|------------|-----|-----|-----|
| Line          | VALVE SIZE |     |     |     |
| Pr.           | 50         | 65  | 80  | 100 |
| 1             |            |     |     | 2,4 |
| 2             | 2          | 2,2 | 2,2 | 3   |
| 3             |            |     |     | 3,5 |
| 4             |            | 2,4 | 2,8 | 4   |
| 5             |            |     |     |     |
| 6             | 2,5        | 3   | 3,2 | 4,5 |
| 7             |            |     | 3,5 | -   |
| 8             | 2,8        |     |     | -   |
| 9             | 3          | 3,5 | 4   | -   |
| 10            |            |     | 4,3 | -   |

| S230 100% $\Delta P$ |            |     |     |     |     |
|----------------------|------------|-----|-----|-----|-----|
| Line                 | VALVE SIZE |     |     |     |     |
| Pr.                  | 65         | 80  | 100 | 125 | 150 |
| 1                    | -          |     |     |     |     |
| 2                    | -          |     | 2   | 2,2 | 3   |
| 3                    | -          |     |     |     |     |
| 4                    | -          | 2   | 2,2 | 2,6 | 3,5 |
| 5                    | -          |     |     | 2,8 | 4   |
| 6                    | -          |     | 2,4 | 3,2 | -   |
| 7                    |            |     |     |     |     |
| 8                    | 2          |     | 2,7 | -   | -   |
| 9                    |            |     |     | -   | -   |
| 10                   | 2,5        | 2,5 | 3,2 | -   | -   |
|                      |            |     | 3,4 | -   | -   |

| 0% $\Delta P$ |            |     |     |     |     |
|---------------|------------|-----|-----|-----|-----|
| Line          | VALVE SIZE |     |     |     |     |
| Pr.           | 65         | 80  | 100 | 125 | 150 |
| 1             | -          |     |     |     | 3   |
| 2             | -          |     | 2   | 2,6 |     |
| 3             | -          | 2   | 2,4 | 2,8 | 3,5 |
| 4             | -          |     | 2,8 | 3   | 4   |
| 5             |            |     |     |     | 4,2 |
| 6             | 2          | 2,5 | 3   | 3,5 | -   |
| 7             |            | 2,7 | 3,5 | -   | -   |
| 8             | 2,5        |     |     | -   | -   |
| 9             |            | 3   | 3,7 | -   | -   |
| 10            | 2,8        |     | 4   | -   | -   |

| T230 100% $\Delta P$ |            |     |     |     |
|----------------------|------------|-----|-----|-----|
| Line                 | VALVE SIZE |     |     |     |
| Pr.                  | 80         | 100 | 125 | 150 |
| 1                    | -          | -   |     |     |
| 2                    | -          | -   | 2   | 2,2 |
| 3                    | -          | -   |     | 2,3 |
| 4                    | -          | 2   | 2,2 | 2,6 |
| 5                    | -          |     | 2,5 | 3   |
| 6                    | -          | 2,2 | 3   | 3,5 |
| 7                    | -          |     | -   | -   |
| 8                    | -          | 2,6 | -   | -   |
| 9                    | -          |     | -   | -   |
| 10                   | -          | 2,8 | -   | -   |

| 0% $\Delta P$ |            |     |     |     |
|---------------|------------|-----|-----|-----|
| Line          | VALVE SIZE |     |     |     |
| Pr.           | 80         | 100 | 125 | 150 |
| 1             |            |     |     |     |
| 2             |            | 2   | 2,2 | 2,5 |
| 3             | 2          |     |     | 3   |
| 4             |            | 2,2 | 2,4 | 4   |
| 5             |            |     | 2,8 | 3   |
| 6             |            | 2,4 | 3,5 | 3,5 |
| 7             | 2,3        | 2,9 | -   | -   |
| 8             |            |     | -   | -   |
| 9             | 2,6        | 3,2 | -   | -   |
| 10            |            | 3,4 | -   | -   |

| W240 100% $\Delta P$ |            |     |     |     |
|----------------------|------------|-----|-----|-----|
| Line                 | VALVE SIZE |     |     |     |
| Pr.                  | 100        | 125 | 150 | 200 |
| 1                    | -          | -   |     |     |
| 2                    | -          | -   | 2   | 2   |
| 3                    | -          | -   |     | 2,2 |
| 4                    | -          | 2   |     | 2,4 |
| 5                    | -          |     | 2,4 | 2,7 |
| 6                    | -          | 2,4 | 3   | -   |
| 7                    |            |     |     | -   |
| 8                    | 2          |     |     | -   |
| 9                    | 2,2        |     |     | -   |
| 10                   | 2,4        |     |     | -   |

| 0% $\Delta P$ |            |     |     |     |
|---------------|------------|-----|-----|-----|
| Line          | VALVE SIZE |     |     |     |
| Pr.           | 100        | 125 | 150 | 200 |
| 1             | -          |     | 2   | 2   |
| 2             | -          | 2   | 2,2 | 2,4 |
| 3             | -          |     |     | 2,8 |
| 4             |            | 2,4 | 2,4 | 3,2 |
| 5             | 2          |     | 2,8 | -   |
| 6             |            | 3   | -   | -   |
| 7             |            |     | -   | -   |
| 8             | 2,4        |     | -   | -   |
| 9             | 2,6        |     | -   | -   |
| 10            | 2,8        |     | -   | -   |

## Actuation Selection Chart

Following values represent air pressure required to open the valve at 100% $\Delta P$  & 0% $\Delta P$

P116

| $\Delta P$ | VALVE SIZE            |     |
|------------|-----------------------|-----|
|            | 25                    | 40  |
|            | Maximum line pressure |     |
| 100%       | 10                    | 10  |
| 0%         | 7,5                   | 7,5 |
|            | Air pressure to open  |     |
|            | 3,2                   | 3,2 |

Q132

| $\Delta P$ | VALVE SIZE            |    |    |     |     |
|------------|-----------------------|----|----|-----|-----|
|            | 25                    | 40 | 50 | 65  | 80  |
|            | Maximum line pressure |    |    |     |     |
| 100%       | 10                    | 10 | 10 | 7,5 | 3   |
| 0%         | 10                    | 10 | 6  | 5   | 1,5 |
|            | Air pressure to open  |    |    |     |     |
|            | 3                     | 3  | 4  | 4,3 | 4,3 |

R108

| $\Delta P$ | VALVE SIZE            |     |     |     |
|------------|-----------------------|-----|-----|-----|
|            | 50                    | 65  | 80  | 100 |
|            | Maximum line pressure |     |     |     |
| 100%       | 10                    | 10  | 6   | 4   |
| 0%         | 10                    | 8   | 4   | 2,5 |
|            | Air pressure to open  |     |     |     |
|            | 2,2                   | 2,4 | 2,4 | 3   |

R158

| $\Delta P$ | VALVE SIZE            |     |     |     |
|------------|-----------------------|-----|-----|-----|
|            | 65                    | 80  | 100 | 125 |
|            | Maximum line pressure |     |     |     |
| 100%       | -                     | 8,5 | 6,5 | 3   |
| 0%         | 10                    | 6   | 4   | 1   |
|            | Air pressure to open  |     |     |     |
|            | 2,8                   | 2,8 | 3,5 | -   |



AF Reverse Acting

S18F

| $\Delta P$ | VALVE SIZE            |     |     |     |     |
|------------|-----------------------|-----|-----|-----|-----|
|            | 80                    | 100 | 125 | 150 | 200 |
|            | Maximum line pressure |     |     |     |     |
| 100%       | 10                    | 8,5 | 6   | 3   | 1,5 |
| 0%         | 8                     | 6   | 4   | 1,5 | -   |
|            | Air pressure to open  |     |     |     |     |
|            | 3,8                   | 3,8 | 4   | 4,5 | 4,5 |

S1EF

| $\Delta P$ | VALVE SIZE            |     |     |     |     |
|------------|-----------------------|-----|-----|-----|-----|
|            | 80                    | 100 | 125 | 150 | 200 |
|            | Maximum line pressure |     |     |     |     |
| 100%       | -                     | 10  | -   | 4,5 | 2,5 |
| 0%         | 10                    | 10  | 6   | 2,8 | 1   |
|            | Air pressure to open  |     |     |     |     |
|            | 4                     | 4,2 | 4,2 | 4,5 | -   |

T1EF

| $\Delta P$ | VALVE SIZE            |     |
|------------|-----------------------|-----|
|            | 150                   | 200 |
|            | Maximum line pressure |     |
| 100%       | 6                     | 3,5 |
| 0%         | 4,2                   | 2   |
|            | Air pressure to open  |     |
|            | 4                     | 4,4 |

W1GH

| $\Delta P$ | VALVE SIZE            |     |
|------------|-----------------------|-----|
|            | 150                   | 200 |
|            | Maximum line pressure |     |
| 100%       | 6                     | 4   |
| 0%         | 6                     | 3,5 |
|            | Air pressure to open  |     |
|            | 4                     | 4   |

Following values represent air pressure required to open/close the valve at 100% $\Delta P$  & 0% $\Delta P$

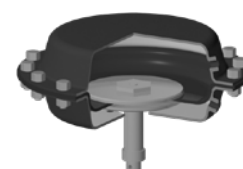
P3

100%  $\Delta P$ 

| Line Pr. | VALVE SIZE |     |
|----------|------------|-----|
|          | 25         | 40  |
| 1        | 3,5        | 3,5 |
| 2        |            |     |
| 3        |            |     |
| 4        |            |     |
| 5        |            |     |
| 6        | 4          | 4   |
| 7        |            |     |
| 8        |            |     |
| 9        |            |     |
| 10       |            |     |

0%  $\Delta P$ 

| Line Pr. | VALVE SIZE |     |
|----------|------------|-----|
|          | 25         | 40  |
| 1        | 3,5        | 3,5 |
| 2        |            |     |
| 3        |            |     |
| 4        |            |     |
| 5        |            |     |
| 6        | 4          | 4   |
| 7        |            |     |
| 8        |            |     |
| 9        |            |     |
| 10       |            |     |



AF Double Acting

Q3

100%  $\Delta P$ 

| Line | VALVE SIZE |     |     |     |     |
|------|------------|-----|-----|-----|-----|
| Pr.  | 25         | 40  | 50  | 65  | 80  |
| 1    | -          | -   | 2   | 2   | 2   |
| 2    | -          | -   |     | 2,4 | 2,4 |
| 3    | -          | -   |     |     |     |
| 4    | -          | -   | 2,4 | 2,8 | 2,8 |
| 5    | 2          | 2   | 2,8 |     |     |
| 6    |            |     |     |     |     |
| 7    |            |     |     |     |     |
| 8    |            |     | 3,2 | 3   | 4   |
| 9    |            |     | 3,5 |     |     |
| 10   | 2,4        | 2,4 | 3,5 | 3,5 | 4,3 |

0%  $\Delta P$ 

| Line<br>Pr. | VALVE SIZE |    |     |     |     |   |
|-------------|------------|----|-----|-----|-----|---|
|             | 25         | 40 | 50  | 65  | 80  |   |
| 1           | -          | -  | 2   | 2   | -   |   |
| 2           | -          | -  |     | 2,2 | 2,4 | - |
| 3           | -          | -  |     |     | 2,4 | 3 |
| 4           | 2          | 2  | 2,8 | 3,2 |     | - |
| 5           |            |    |     | -   |     | - |
| 6           |            |    | 2,4 |     | 2,4 | - |
| 7           |            |    | 2,8 |     | 2,8 | - |
| 8           |            |    | 3   | 3   | 3,2 | - |

## Actuation Selection Chart

Following values represent air pressure required to open/close the valve at 100%ΔP & 0%ΔP

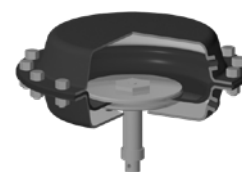
R3

100% ΔP

| Line | VALVE SIZE |     |     |     |
|------|------------|-----|-----|-----|
| Pr.  | 50         | 65  | 80  | 100 |
| 1    | -          | -   | -   | -   |
| 2    | -          | -   | 2   | 2,2 |
| 3    | -          | -   | -   | -   |
| 4    | -          | 2   | 2,2 | -   |
| 5    | -          | -   | -   | 2,8 |
| 6    | -          | 2,2 | 2,5 | -   |
| 7    | -          | -   | -   | -   |
| 8    | 2          | -   | -   | 3   |
| 9    | 2,4        | 2,6 | 3   | -   |
| 10   | -          | -   | -   | 3,5 |

0% ΔP

| Line | VALVE SIZE |     |     |     |
|------|------------|-----|-----|-----|
| Pr.  | 50         | 65  | 80  | 100 |
| 1    | -          | -   | -   | 2,2 |
| 2    | -          | -   | 2   | 2,6 |
| 3    | -          | 2   | 2,2 | 3   |
| 4    | -          | -   | -   | 3,5 |
| 5    | -          | -   | 2,6 | 4   |
| 6    | 2          | 2,5 | 3   | -   |
| 7    | -          | -   | 3,5 | -   |
| 8    | 2,8        | -   | -   | -   |
| 9    | -          | 3   | 4   | -   |
| 10   | 3          | -   | -   | -   |



AF Double Acting

S3

100% ΔP

| Line | VALVE SIZE |     |     |     |     |
|------|------------|-----|-----|-----|-----|
| Pr.  | 65         | 80  | 100 | 125 | 150 |
| 1    | -          | -   | -   | -   | -   |
| 2    | -          | -   | -   | 2,2 | 2,8 |
| 3    | -          | -   | -   | -   | 3   |
| 4    | -          | -   | 2,2 | 2,6 | 3,5 |
| 5    | -          | -   | -   | 2,8 | -   |
| 6    | -          | -   | -   | 3,2 | -   |
| 7    | -          | 2,2 | 2,4 | -   | -   |
| 8    | -          | -   | -   | -   | -   |
| 9    | 2,2        | 2,5 | 3   | -   | -   |
| 10   | -          | -   | -   | -   | -   |

0% ΔP

| Line | VALVE SIZE |     |     |     |     |
|------|------------|-----|-----|-----|-----|
| Pr.  | 65         | 80  | 100 | 125 | 150 |
| 1    | -          | -   | -   | -   | 3   |
| 2    | -          | -   | -   | 2,6 | -   |
| 3    | -          | -   | 2   | 2,8 | 3,5 |
| 4    | -          | -   | -   | 3   | 4   |
| 5    | -          | 2   | 2,4 | 3,5 | 4,2 |
| 6    | 2,2        | 2,2 | -   | -   | -   |
| 7    | -          | 2,4 | 3   | -   | -   |
| 8    | -          | -   | -   | -   | -   |
| 9    | 2,5        | 2,8 | 3,5 | -   | -   |
| 10   | -          | -   | 4   | -   | -   |

W3

100% ΔP

| Line | VALVE SIZE |     |     |     |
|------|------------|-----|-----|-----|
| Pr.  | 100        | 125 | 150 | 200 |
| 1    | -          | -   | -   | -   |
| 2    | -          | -   | 2   | 2   |
| 3    | -          | -   | -   | 2,2 |
| 4    | -          | 2   | 2,2 | 2,4 |
| 5    | -          | -   | -   | 2,7 |
| 6    | -          | 2,2 | 2,8 | -   |
| 7    | -          | -   | -   | -   |
| 8    | 2          | -   | -   | -   |
| 9    | -          | -   | -   | -   |
| 10   | 2,2        | -   | -   | -   |

0% ΔP

| Line | VALVE SIZE |     |     |     |
|------|------------|-----|-----|-----|
| Pr.  | 100        | 125 | 150 | 200 |
| 1    | -          | -   | 2   | 2   |
| 2    | -          | 2   | 2,2 | 2,4 |
| 3    | -          | -   | 2,4 | 2,8 |
| 4    | -          | 2,4 | 2,8 | 3,2 |
| 5    | 2          | -   | -   | -   |
| 6    | -          | 3   | -   | -   |
| 7    | -          | -   | -   | -   |
| 8    | 2,4        | -   | -   | -   |
| 9    | 2,6        | -   | -   | -   |
| 10   | 2,8        | -   | -   | -   |

## Pneumatic Actuator Series DP for Straight through Type Diaphragm Valves

### Main Features

- For DIAVAL manufactured valves in weir and straight through type, with rubber diaphragms and PTFE / rubber backed diaphragms.
- Rugged & compact design, long life span at the plant. Favourable size / performance ratio.
- Rolling diaphragm design, allowing long cycle operations.
- Single acting (Direct and reverse actions).
- High quality spring, large thrust.
- Visual position indicator for open / close.
- Burnished stem protected by bellow.
- Maintenance-free O-ring sealing with flexible guiding.
- Possibility of assembly of additional devices / accessories.
- Operating ambient temperatures -40°C to +100°C.
- Fully traceable at the manufacture facility, identified by aluminum riveted plates.
- Optional top mounted emergency hand wheels for manual operation.
- Compliant with Machinery Directive 2006/42/EC



DP Direct Acting

DP Reverse Acting

### Working Principle

Direct Acting actuator is designed to operate from a normally open position. Air pressure on the top side of actuator diaphragm closes the valve and the spring opens the valve when the air is released from the actuator.

Reverse Acting actuator is designed to operate from a normally closed position. Air pressure on the bottom side of the actuator diaphragm opens the valve. When air is released spring closes the valve.

### Control Accesories

There is a number of control accessories available to be assembled on to the ARI actuators. These accessories are comprehensive of limit switches (mechanical or inductive type), proximity sensors, solenoid valves, air speed regulators, positioners, air gauge sets... and many other customized solutions.

Control accessories may be specified and provided by the customer or by DIAVAL, however, only those accessories installed and tested at any DIAVAL facilities are covered by a performance guarantee.

### Tests - After Market

All actuators are tested after assembly and before dispatch. Tests are comprehensive of visual and functional tests as per EN-12266-1/DIN 3230 P.3 - EN.10.204/2.2

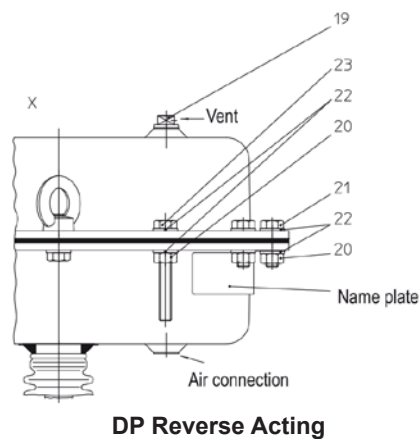
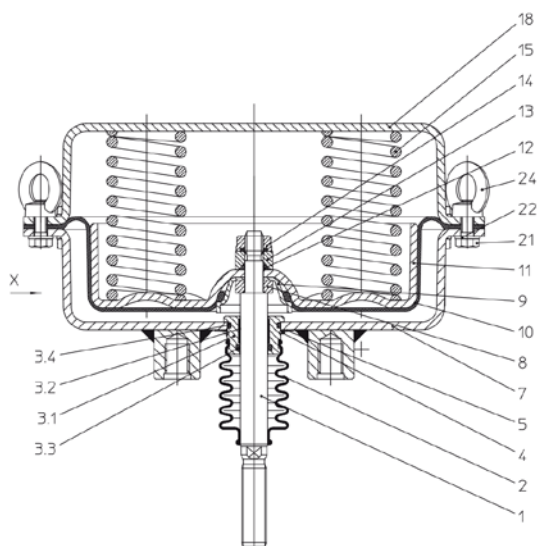
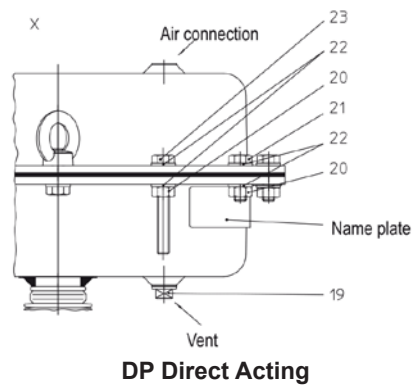
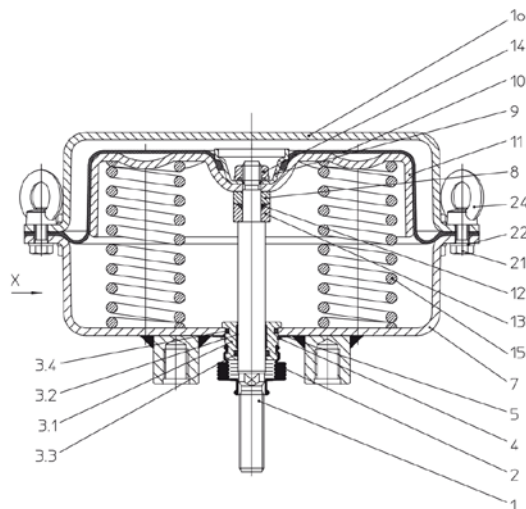
Actuators can be serviced at DIAVAL facilities where a stock of common spares is permanently available. Off site service engineers are available on demand and against usual service rates.

### Operating and Maintenance Instructions

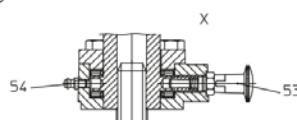
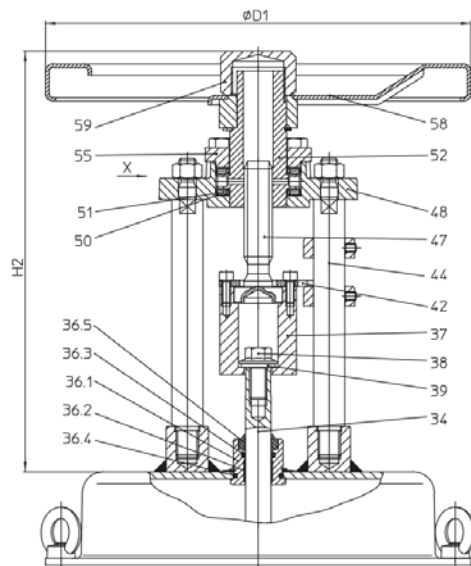
Please ensure that the DIAVAL Operating and Maintenance Instructions are provided by your supplier along with the valves. Do not try to start maintenance without having read and understood the Essential Safety Guidelines. Please consult us for further information.

## Standard Materials

Only the best quality materials are incorporated to the DIAVAL manufacturing process and are subject to a strict quality control by our DIAVAL engineers at the assembly plant.



| DP reverse & direct  | DP30 | DP32 | DP33 | DP34 |
|----------------------|------|------|------|------|
| Actuator weight (kg) | 5    | 9    | 15   | 45   |



| Dimensions and weights | DP30 | DP32 | DP33 | DP34 |
|------------------------|------|------|------|------|
| ØD1                    | 225  | 225  | 300  | 397  |
| H2                     | 284  | 284  | 297  | 458  |
| Weight (with actuator) | 10   | 14   | 20   | 62   |

Dimensions in mm subject to manufacturing tolerance / Weight in kg

## Top Handwheel (Optional)

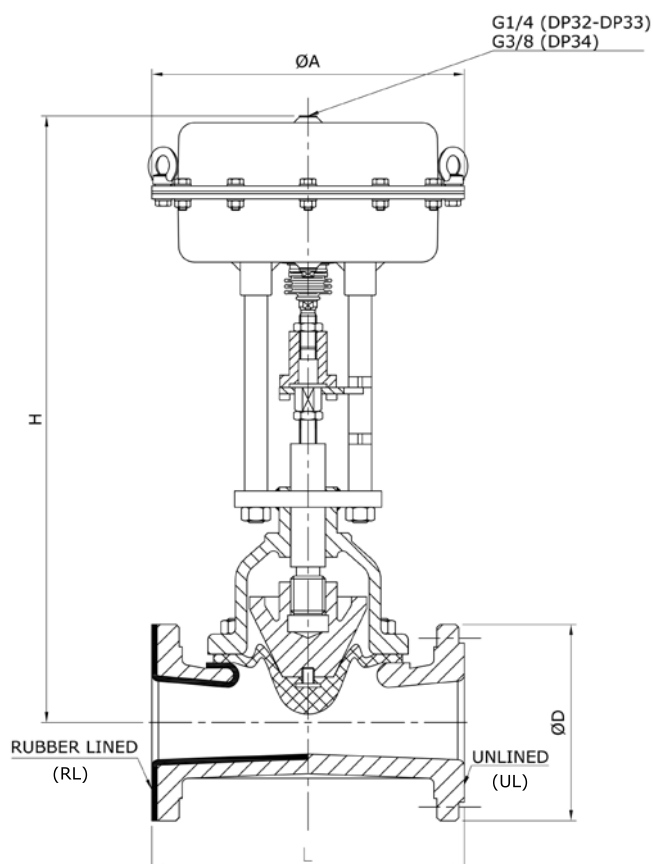
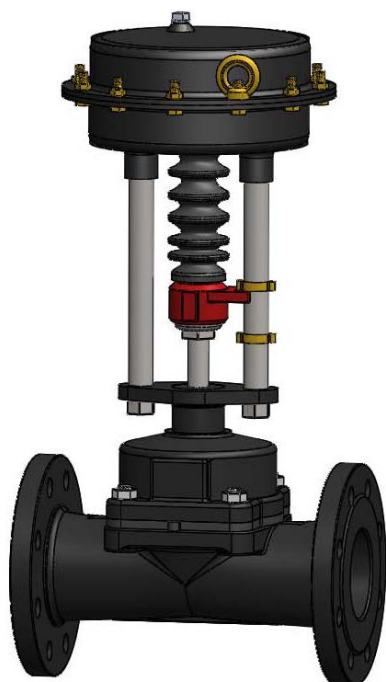
## Standard Materials

| Pos.  | Description                         | Material                                     |
|-------|-------------------------------------|----------------------------------------------|
| 1     | Stem                                | X20Cr13+QT, 1.4021+QT                        |
| 2     | Bellow seal                         | EPDM50 or 42CR                               |
| 3     | Stem guiding *                      | X20Cr13+QT, 1.4021+QT                        |
| 3.1   | Stem guiding *                      | X20Cr13+QT, 1.4021+QT                        |
| 3.2   | Guiding band *                      | PTFE + 25%C                                  |
| 3.3   | O-ring (stem) *                     | NBR                                          |
| 3.4   | O-ring (guiding) *                  | NBR                                          |
| 3.5   | Scraper *                           | NBR                                          |
| 4     | Retaining ring                      | FSt - A3B                                    |
| 5     | Spring plate                        | FSt (Fe/Zn12B)                               |
| 6 / 7 | Lower diaphragm casing (DP32-34Tri) | DD13+QT, 1.0335+QT (powder coated)           |
| 7     | Lower diaphragm casing (DP35)       | P265GH, 1.0425 / S235JR, 1.0037              |
| 8     | Bushing                             | X20Cr13+QT, 1.4021+QT                        |
| 9     | Diaphragm lange                     | DD13+QT, 1.0335+QT (Fe/Zn12B) or X20Cr13+QT, |
| 10    | Rolling diaphragm *                 | NBR + webbing                                |
| 11    | Diaphragm plate (DP32-34Tri)        | 1.4021+QT                                    |
| 11    | Diaphragm plate (DP35) *            | DD13+QT, 1.0335+QT (Fe/Zn12B)                |
| 12    | O-ring                              | St 52-3 G 03 g, 1.0570 G 03 g                |
| 13    | Bushing                             | NBR                                          |
| 14    | Flange nut                          | X20Cr13+QT, 1.4021+QT                        |
| 15    | Compression spring *                | 8 - A4G                                      |
| 16    | Spring centring                     | FDSiCr                                       |
| 17    | Spring centring                     | DC01, 1.0330 (Fe/Zn12B)                      |
| 18    | Upper diaphragm casing (DP32-34Tri) | St 52-3 G 03 g, 1.0570 G 03 g                |
| 18    | Upper diaphragm casing (DP35)       | DD13+QT, 1.0335+QT (powder coated)           |
| 19    | Screw cap                           | P265GH, 1.0425 / S235JR, 1.0037              |
| 20    | Hexagon nut (DP32-34Tri) 1)         | Polyäthylen                                  |
| 20    | Hexagon nut (DP35) 1)               | 8 - A4G                                      |

| Pos. | Description                   | Material                                |
|------|-------------------------------|-----------------------------------------|
| 21   | Hexagon screw (DP32-34Tri) 1) | C35E, 1.1181                            |
| 21   | Hexagon screw (DP35) 1)       | 8.8 - A4G                               |
| 22   | Washer                        | 8.8 - A4G                               |
| 23   | Hexagon screw (DP32-34Tri) 1) | St - A4G                                |
| 23   | Hexagon screw (DP35) 1)       | 8.8 - A4G                               |
| 24   | Eye nut 1)                    | 10.9 - A2G                              |
| 34   | Stem extension                | 8-A4G                                   |
| 36.1 | Bellow seal *                 | X20Cr13+QT, 1.4021+QT                   |
| 36.2 | Guiding band *                | X14CrMoS17+QT, 1.4104+QT                |
| 36.3 | O-ring *                      | PTFE +25%C                              |
| 36.4 | O-ring *                      | NBR                                     |
| 36.5 | Scraper *                     | NBR                                     |
| 37   | Bushing                       | NBR                                     |
| 38   | Hexagon screw                 | X20Cr13+QT, 1.4021+QT                   |
| 39   | Washer                        | 8.8 - A4G                               |
| 42   | Torsion lock                  | X20Cr13+QT, 1.4021+QT                   |
| 44 1 | Distance column               | 8.8 - A4G                               |
| 47   | Stem                          | 1SMn30+C, 1.0715+C (Fe/Zn12B)           |
| 48   | Traverse                      | X20Cr13+QT, 1.4021+QT                   |
| 50   | Axial-washer                  | EN-JS1049, EN-GJS-400-18U-LT (Fe/Zn12B) |
| 51   | Axial-dial ring               | St                                      |
| 52   | Threaded bush                 | St                                      |
| 53   | Catch pin                     | CuZn35Ni3Mn2Al-Pb-R490, CW710RR490      |
| 54   | Lubricating nipple            | St, Cu                                  |
| 55   | Covering for traverse         | 5.8 - A4G                               |
| 58   | Handwheel                     | S235JR, 1.0037 (Fe/Zn12B)               |
| 59   | Safety cap                    | Fe P01, 1.0330 (epoxy coating)          |

## Straight Through Type Diaphragm Valves with Direct Acting Pneumatic Actuator- Rubber Diaphragm

### Main Dimensions



| DN  | L                          |     |                        | H   | ØD  | ØA  |
|-----|----------------------------|-----|------------------------|-----|-----|-----|
|     | EN 558 S1<br>(DIN 3202 F1) |     | EN 558 S7<br>(BS 5156) |     |     |     |
|     | UL/RL                      | UL  | RL                     |     |     |     |
| 15  | 130                        | 108 | 114                    | 420 | 95  | 250 |
| 20  | 150                        | 117 | 123                    | 423 | 105 | 250 |
| 25  | 160                        | 127 | 133                    | 453 | 115 | 250 |
| 32  | 180                        | 146 | 152                    | 455 | 140 | 250 |
| 40  | 200                        | 159 | 165                    | 463 | 150 | 250 |
| 50  | 230                        | 190 | 196                    | 493 | 165 | 250 |
| 65  | 290                        | 216 | 222                    | 685 | 185 | 250 |
| 80  | 310                        | 254 | 260                    | 716 | 200 | 250 |
| 100 | 350                        | 305 | 313                    | 754 | 220 | 405 |
| 125 | 400                        | 356 | 364                    | 780 | 250 | 405 |

Dimensions in mm subject to manufacturing tolerance.

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Please, bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

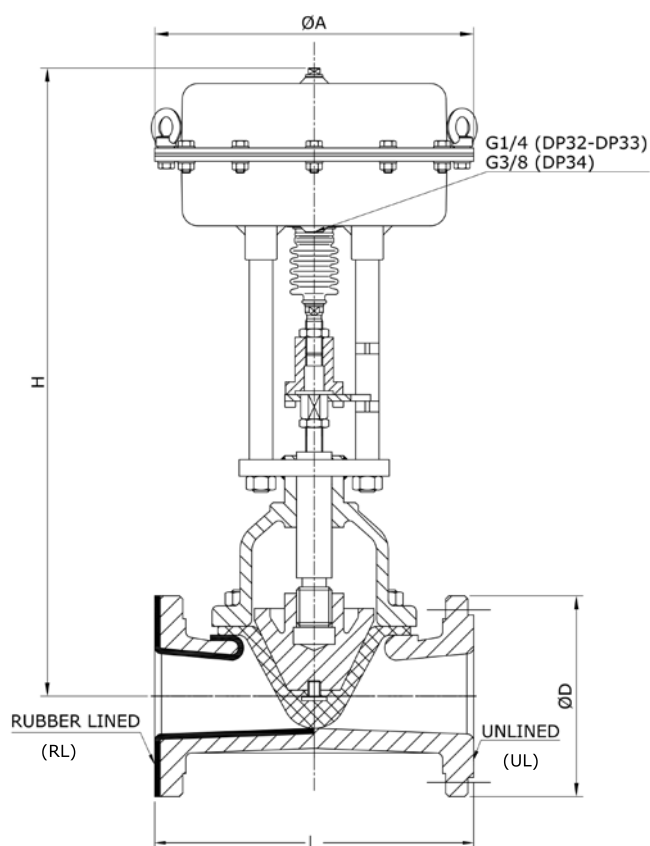
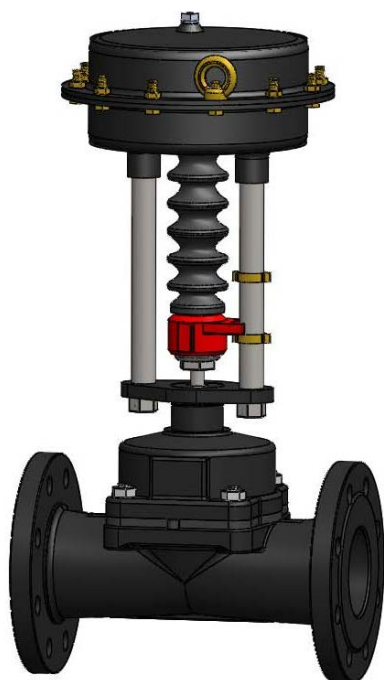
### Actuation Selection Chart

Direct Acting (actuator opens at air failure, springs to open/air to close).

| Valve Size | Actuator Type | Max. Closing Pressure<br>100% ΔP (bar) | Max. Closing Pressure<br>0% ΔP (bar) | Air Supply to Close<br>(bar) |
|------------|---------------|----------------------------------------|--------------------------------------|------------------------------|
| DN15       | DP32041220NA  | 8                                      | 8                                    | 2,0-2,5                      |
| DN20       | DP32041220NA  | 8                                      | 8                                    | 2,5-3,0                      |
| DN25       | DP32041230NA  | 8                                      | 8                                    | 2,5-3,0                      |
| DN32       | DP32041230NA  | 8                                      | 8                                    | 2,5-3,0                      |
| DN40       | DP32041230NA  | 8                                      | 7                                    | 2,5-3,0                      |
| DN50       | DP32041230NA  | 8                                      | 6                                    | 4,0-4,5                      |
| DN65       | DP34021050NA  | 8                                      | 6                                    | 2,5-3,0                      |
| DN80       | DP34021065NA  | 8                                      | 6                                    | 3,0-3,5                      |
| DN100      | DP34021065NA  | 8                                      | 6                                    | 3,5-4,0                      |
| DN125      | DP34021065NA  | 6                                      | 4                                    | 4,0-4,5                      |

## Straight Through Type Diaphragm Valves with Reverse Acting Pneumatic Actuator- Rubber Diaphragm

### Main Dimensions



| DN  | L                          |                        |     | H   | ØD  | ØA  |
|-----|----------------------------|------------------------|-----|-----|-----|-----|
|     | EN 558 S1<br>(DIN 3202 F1) | EN 558 S7<br>(BS 5156) |     |     |     |     |
|     | UL/RL                      | UL                     | RL  |     |     |     |
| 15  | 130                        | 108                    | 114 | 420 | 95  | 250 |
| 20  | 150                        | 117                    | 123 | 423 | 105 | 250 |
| 25  | 160                        | 127                    | 133 | 453 | 115 | 250 |
| 32  | 180                        | 146                    | 152 | 455 | 140 | 250 |
| 40  | 200                        | 159                    | 165 | 463 | 150 | 250 |
| 50  | 230                        | 190                    | 196 | 493 | 165 | 250 |
| 65  | 290                        | 216                    | 222 | 685 | 185 | 250 |
| 80  | 310                        | 254                    | 260 | 716 | 200 | 250 |
| 100 | 350                        | 305                    | 313 | 754 | 220 | 405 |
| 125 | 400                        | 356                    | 364 | 780 | 250 | 405 |

Dimensions in mm subject to manufacturing tolerance.

Dimensions are based on the serialized manufacture and should be taken as preliminary.

Please, bear in mind the service clearance area when planning a skid or when installation happens in a very tight area.

### Actuation Selection Chart

Reverse Acting (actuator closes at air failure, air to open/spring to close).

| Valve Size | Actuator Type | Max. Closing Pressure<br>100% ΔP (bar) | Max. Closing Pressure<br>0% ΔP (bar) | Air Supply to Open<br>(bar) |
|------------|---------------|----------------------------------------|--------------------------------------|-----------------------------|
| DN15       | DP32041220NC  | 8                                      | 8                                    | 2,0-2,5                     |
| DN20       | DP32082420NC  | 8                                      | 8                                    | 3,0-3,5                     |
| DN25       | DP32082430NC  | 8                                      | 8                                    | 3,0-3,5                     |
| DN32       | DP32082430NC  | 8                                      | 7                                    | 3,5-4,0                     |
| DN40       | DP32082430NC  | 8                                      | 6                                    | 3,5-4,0                     |
| DN50       | DP33153030NC  | 8                                      | 6                                    | 4,0-4,5                     |
| DN65       | DP34082450NC  | 8                                      | 6                                    | 3,5-4,0                     |
| DN80       | DP34102065NC  | 8                                      | 6                                    | 3,5-4,0                     |
| DN100      | DP34204065NC  | 8                                      | 6                                    | 4,0-4,5                     |
| DN125      | DP34204065NC  | 6                                      | 4                                    | 5,0-5,5                     |

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