

# DIAPHRAGM VALVE | PLUG VLAVE

**Diaphragm Valve**

Diaphragm valve get their name from a flexible disc which comes into contact with a seat at the top of the valve body to form a seal. A diaphragm is a flexible, pressure responsive element that transmits force to open, close or control a valve. Diaphragm valve are related to pinch valve, but use an elastomeric diaphragm, instead of an elastomeric liner in the valve body, to separate the flow stream from the closure element.

Diaphragm valve use a flexible diaphragm connected to a compressor by a stud which is molded into the diaphragm. Instead of pinching the liner closed to provide shut-off, the diaphragm is pushed into contact with the bottom of the valve body to provide shut-off. Manual diaphragm valve are ideal for flow control by offering a variable and precise opening for controlling pressure drop through the valve. The handwheel is turned until the desired amount of media is flowing through the system. For start and stop applications, the handwheel is turned until the compressor either pushes the diaphragm against the bottom of the valve body to stop flow or lifts off the bottom until flow is able to pass through.

**Plug Valve**

A plug valve is a quarter-turn rotational motion valve that use a tapered or cylindrical plug to stop or start flow. In the open position, the plug-passage is in one line with the inlet and outlet ports of the valve body. If the plug 90° is rotated from the open position, the solid part of the plug blocks the port and stops flow. Plug valve are similar to ball valve in operation.

# DIAPHRAGM VALVE
## WEIR / STRAIGHT THROUGH TYPE
*CAST IRON / CARBON STEEL / STAINLESS STEEL*

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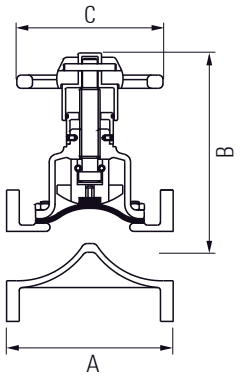
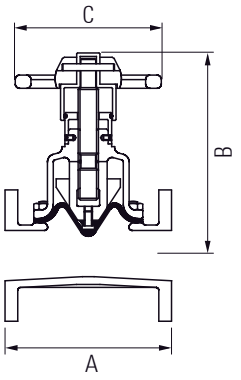
***S2K Type***
(Type A)

***G2K Type***
(Type KB)




'S2K' Type
(Weir Type)




'G2K' Type
(Straight Through Type)

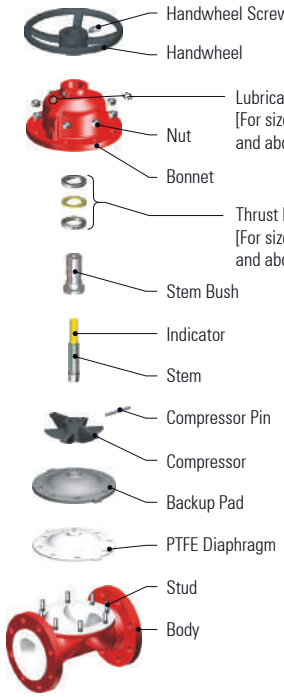
## APPLICATION
Suitable for water, steam, oil, gases, abrasive and non-abrasive media
(Refer to corrosion resistance table for valve materials selection).

## SPECIFICATION

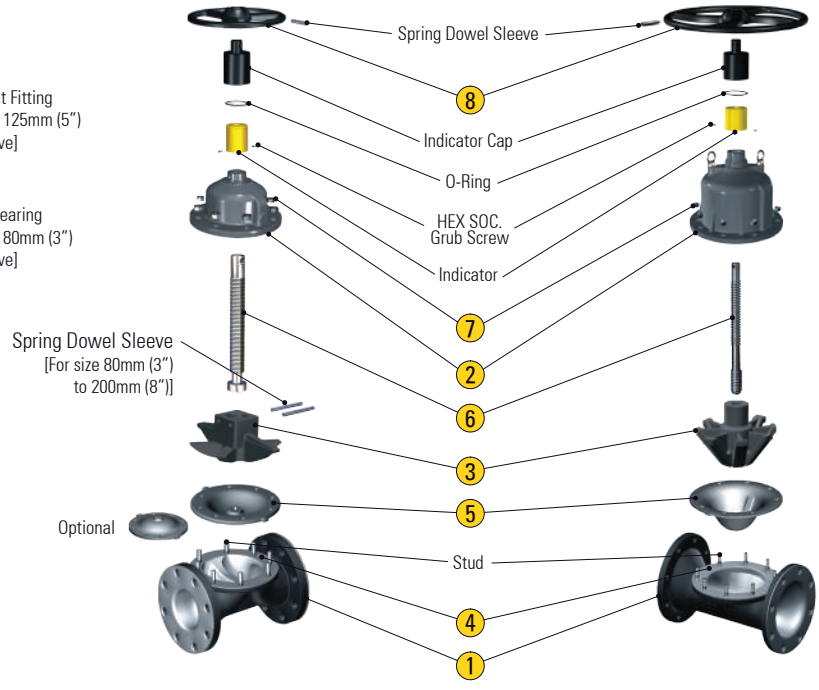
| | |
|---|---|
| Face to Face Dimension | Series 1 according to EN 558-1 |
| End Connection | Flange end to ANSI 150, ANSI 300, DIN PN16, PN40, JIS 10K, JIS 20K |
| Pressure Rating | DIN PN16, DIN PN40, Class 150 and 300 |
| Perforated Screen Diameter | 1mm for DN15 to DN350<br>1.25mm for DN100 to DN300<br>1.6mm for DN100 to DN300 |
| Mesh Size | 20 / 40 / 60 / 80 / 100 |

## VALVE PARTS - Rising Handwheel

### Series 'S2K' (PFA Lined)




### Series 'S2K'




### Series 'G2K'



## Diaphragms - Series 'S2K' & 'G2K'

Series 'S2K' Close Type

Series 'S2K' Open Type

Series 'S2K' PTFE with Elastomer Pad

Series 'G2K' Close Type

*Specification given are subject to changed without further notice.

## MATERIAL

| | Parts | Material |
|---|---|---|
| 1<br>2<br>3 | Body<br>Bonnet<br>Compressor | Cast Iron ASTM A216 Class B / EN-1561 No.EN-JL 1040 / S G Iron EN-1563 No.EN-JS 1024 / ASTM A395 Gr. 60-40-18 / 30% Cr. Cast Steel ASTM A743 Gr. CC50 / ASTM A216 Gr. WCB / Stainless Steel ASTM A351 Gr. CF8 / CF8M |
| 4 | Body Lining | Ebonite / Natural / Butyl / Neoprene / EPDM / Nitrile, other Elastomer & even PFA, PTFE, PP etc. |
| 5 | Diaphragm | Natural / Butyl / Neoprene / EPDM / Nitrile / Hypalon / Viton / Silicon / PTFE ect. |
| 6 | Stem | Steel ASTM A276 Type 410 |
| 7 | Connecting Studs / Nuts | Steel Gr. 4.6 / 4 |
| 8 | Handwheel | Cast Iron ASTM A126 Class B / EN-1561 No.EN-JL 1040 |
| Surface Protection for Cast Iron and Cast Carbon Steel Valves | | Prime Coat : Chlorine free with modified alkyd resin unobjectionable in physiological and toxicological respects. Additional external coating : Black stoving enamel |

## DIMENSIONS

Unit : mm (inch)

| Size | A | | | | | Series 'S2K' Weir Type | | | | | Series 'G2K' Straight Through Type | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BS | | | DIN | MSS* | B | C | Approx.Wt, Kg (LB) | | | B | C | Approx.Wt, Kg (LB) | |
| | Unlined | Rubber Lined | PFA* Lined | Unlined & Lined | SP-88 PFA Lined | | | BS | DIN | MSS | | | BS | DIN |
| 15 (1/2) | 108 (4.3) | 114 (4.5) | 114 (4.5) | 130 (5.1) | 108 (5.1) | 105 (4.1) | 80 (3.1) | 2.5 (5.5) | 2.8 (6.2) | 2.5 (5.5) | 105 (4.1) | 80 (3.1) | 2.4 (3.1) | 2.6 (5.7) |
| 20 (3/4) | 117 (4.6) | 123 (4.8) | 123 (4.8) | 150 (5.9) | 149 (5.9) | 115 (4.5) | 80 (3.1) | 2.6 (5.7) | 3.2 (7.0) | 3.0 (6.6) | 115 (4.5) | 80 (3.1) | 2.8 (6.2) | 3.0 (6.6) |
| 25 (1) | 127 (5.0) | 133 (5.2) | 133 (5.2) | 160 (6.3) | 149 (5.9) | 132 (5.2) | 120 (4.7) | 3.5 (7.7) | 4.2 (9.3) | 4.0 (8.8) | 135 (5.3) | 120 (4.7) | 4.2 (9.3) | 4.6 (10.1) |
| 32 (1-1/4) | 146 (5.7) | 152 (6.0) | 152 (6.0) | 180 (7.1) | 152 (6.0) | 140 (5.5) | 120 (4.7) | 4.5 (9.9) | 5.5 (12.1) | 5.0 (11.0) | 135 (5.3) | 120 (4.7) | 4.5 (9.9) | 5.5 (12.1) |
| 40 (1-1/2) | 159 (6.3) | 165 (6.5) | 165 (6.5) | 200 (7.9) | 176 (6.9) | 180 (7.1) | 150 (5.9) | 7.0 (15.4) | 8.0 (17.6) | 7.5 (16.5) | 135 (5.3) | 150 (5.9) | 5.5(12.1) | 6.0 (13.2) |
| 50 (2) | 190 (7.5) | 196 (7.7) | 196 (7.7) | 230 (9.1) | 202 (7.9) | 210 (8.3) | 150 (5.9) | 10 (22) | 15 (33) | 11 (24) | 175 (6.9) | 150 (5.9) | 10 (22) | 11 (24) |
| 65 (2-1/2) | 216 (8.5) | 222 (8.7) | 222 (8.7) | 290 (11.4) | 222 (8.7) | 235 (9.3) | 180 (7.1) | 15 (33) | 19 (42) | 16 (35) | 200 (7.9) | 180 (7.1) | 16 (35) | 18 (39) |
| 80 (3) | 254 (10.0) | 260 (10.2) | 260 (10.2) | 310 (12.2) | 264 (10.4) | 305 (12.0) | 250 (9.8) | 22 (49) | 26 (57) | 23 (51) | 260 (10.2) | 250 (9.8) | 25 (55) | 28 (62) |
| 100 (4) | 305 (12.0) | 313 (12.3) | 311 (12.2) | 350 (13.8) | 329 (12.9) | 340 (13.4) | 250 (9.8) | 38 (84) | 43 (95) | 38 (84) | 275 (10.8) | 250 (9.8) | 33 (73) | 37 (82) |
| 125 (5) | 356 (14.0) | 364 (14.3) | 362 (14.2) | 400 (15.7) | 416 (16.4) | 420 (16.5) | 315 (12.4) | 63 (139) | 69 (152) | 71 (156) | 340 (13.4) | 315 (12.4) | 57 (126) | 64 (141) |
| 150 (6) | 406 (15.9) | 414 (16.3) | 412 (16.2) | 480 (18.9) | 416 (16.4) | 490 (19.3) | 360 (14.2) | 92 (203) | 107 (236) | 94 (207) | 440 (17.3) | 360 (14.2) | 67 (148) | 82 (181) |
| 200 (8) | 521 (20.5) | 529 (20.8) | 527 (20.8) | 600 (23.6) | 530 (20.9) | 645 (25.4) | 470 (18.5) | 164 (361) | 186 (410) | 167 (368) | 495 (19.5) | 470 (18.5) | 116 (256) | 136 (300) |

* Series 'S2K' only

## DIAPHRAGMS - TYPICAL SELECTION AND APPLICATION

| Grade | Material | Application | Temperature Range °C (°F) | Hardness In Shore - A | UTS Kg/cm² (PSI) | Colour Code |
|---|---|---|---|---|---|---|
| A | Natural Rubber | Mildy Acid Resistant | -30 to 80 (-22 to 176) | 65 - 75 | 170 (2418) | White |
| AA | Natural Rubber | Abrasion Resistant | -30 to 80 (-22 to 176) | 60 - 70 | 150 (2134) | White |
| AS | Natural Rubber | Highly Abrasion Resistant | -30 to 80 (-22 to 176) | 45 - 55 | 150 (2134) | White |
| WA | White Natural Rubber | Food & Pharmaceuticals | -10 to 80 (14 to 176) | 55 - 65 | 100 (1422) | White |
| N | Neoprene Rubber | Diluted Acid Resistant | -25 to 95 (-13 to 203) | 60 - 70 | 120 (1707) | Red |
| NWT | Neoprene Rubber | Water Treatment | -25 to 95 (-13 to 203) | 60 - 70 | 120 (1707) | Red |
| NCMS | Neoprene Rubber | Caustic Soda | -25 to 95 (-13 to 203) | 60 - 70 | 120 (1707) | Red |
| B | Butyl Rubber | Steam Sterilisation | -25 to 120 (-13 to 248) | 60 - 70 | 100 (1422) | Blue |
| WB | White Butyl Rubber | Food & Pharmaceuticals | -25 to 105 (-13 to 221) | 55 - 65 | 80 (1138) | Blue |
| R | Nitrile Rubber | Oil & Fats | -10 to 90 (14 to 194) | 65 - 75 | 120 (1707) | Yellow |
| H | Hypalon Rubber | Acid Resistant | -15 to 100 (5 to 212) | 60 - 70 | 80 (1138) | Green |
| EP | Ethylene Propylene | Radio Active Materials | -30 to 150 (-22 to 302) | 65 - 75 | 80 (1138) | Orange |
| V | Viton Rubber | Aromatics Chlorine | -5 to 150 (23 to 302) | 70 - 80 | 70 (996) | Pink |
| S | Silicon Rubber | High Temperatures | -100 to 250 (-148 to 482) | 55 - 65 | 70 (996) | Black |
| T | PTFE | All Chemicals And Food | -30 to 175 (-22 to 347) | - | - | - |

## TECHNICAL DATA FOR FLUOROPOLYMER RESIN

| Resin | Technical Name | Trade Name | Temperature Range °C (°F) | Melting PT, °C (°F) |
|---|---|---|---|---|
| PTFE | Poly Tetra Fluoro Ethylene | Teflon | -50 to 260 (-58 to 500) | 327 (621) |
| PFA | Per Fluoro Alkoxy | Teflon | -50 to 260 (-58 to 500) | 310 (590) |
| ETFE | Ethylene Tetra Fluoro Ethylene | Tefzel | -50 to 180 (-58 to 356) | 240 (464) |
| FEP | Fluorinated Ethylene Proplyene | Teflon | -50 to 200 (-58 to 392) | 265 (509) |
| ECTFE | Ethylene Chloro Trifluoro Ethylene | Halar | -50 to 170 (-58 to 338) | 240 (464) |
| PVDF | Poly Vinylidene Fluoride | Kynar | -50 to 140 (-58 to 284) | 160 (320) |
| PP | Poly Propylene | - | -50 to 120 (-58 to 248) | 150 (302) |

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# PLUG VALVE GEAR / LEVER TYPE
## CAST IRON / CARBON STEEL / STAINLESS STEEL

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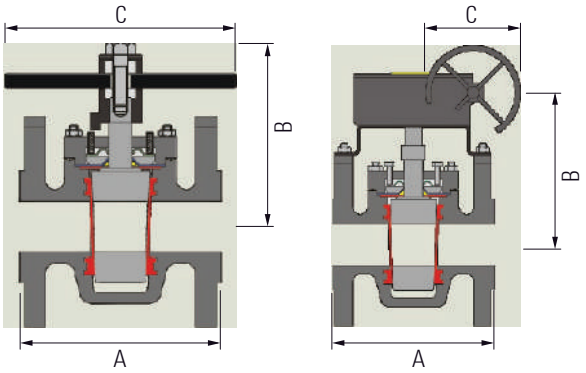
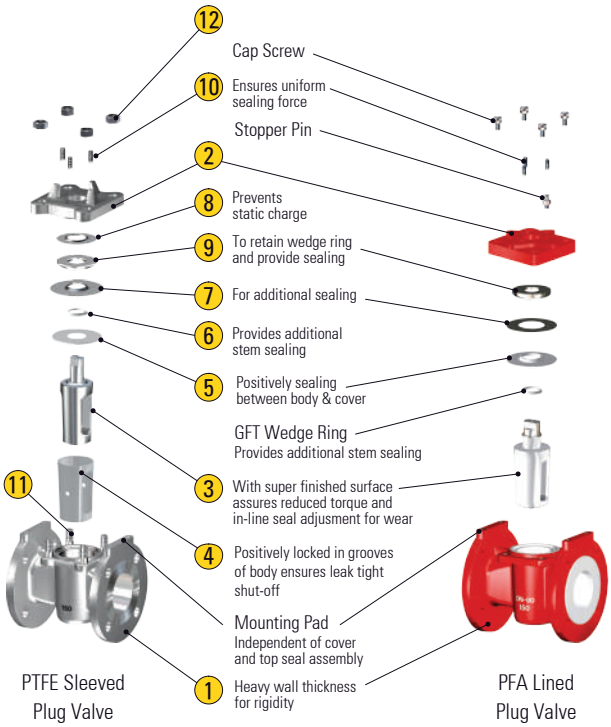


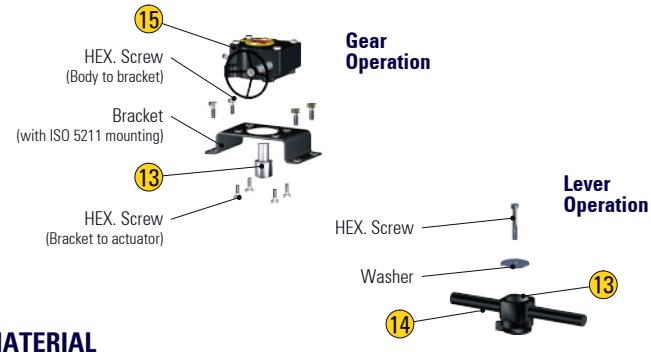

## APPLICATION
Suitable for water, steam, oil, gases, abrasive and non-abrasive media (Refer to corrosion resistance table for valve materials selection).

## SPECIFICATION

| | |
|---|---|
| Face to Face Dimension | ASME B16.10 |
| Pressure Rating | Class 150 and 300 |
| Flanged End Dimension | ASME B16.5 |
| BW End Dimension | ASME B16.25 |
| Test and Inspection | API 598 |
| Pressure-Temperature Rating | ASME 16.34 |

## VALVE PARTS




## MATERIAL

| Parts | | Material |
|---|---|---|
| 1 / 2 | Body & Cover | Ductile Iron ASTM A395 / Steel ASTM A216 Gr. WCB / ASTM A351 Gr. CF8 / CF8M / CN7M |
| 3 | Plug | Steel ASTM A217 Gr. CA15 / ASTM A351 Gr. CF8 / CF8M / CN7M |
| 4 / 5 | Sleeve / Diaphragm | PTFE / CFT |
| 6 | Wedge Ring | PTFE / Grafoil |
| 7 / 8 | Metal Diaphragm / Static Eliminator | ASTM A240 Type 304 |
| 9 | Thrust Collar | ASTM A351 Gr. CF8 |
| 10 | Adjusting Screws | ASTM A276 Type 304 |
| 11 / 12 | Studs / Nuts | ASTM A193 Gr. B8 / ASTM A194 Gr. 8 |
| 13 / 14 | Adapter / Lever | Steel - Powder coated |
| 15 | Gear Unit | Housing in Cast Iron, Gear in S. G. Iron and Worm in ENB |

## DIMENSIONS

| Size | A | | | B | C | Port Area | % Port | Approx.Wt, Kg (LB) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Class 150 | Class 300 | DIN | | | IN mm² (inch²) | Open | Class 150 | Class 300 | DIN |
| 15 (1/2) | 108 (4.3) | 140 (5.5) | 130 (5.1) | 95 (3.7) | 225 (8.9) | 120 (0.19) | 92 | 2.0 (4.5) | 3.5 (8) | 2.6 (6) |
| 20 (3/4) | 117 (4.6) | 152 (6.0) | 150 (5.9) | 100 (3.9) | 225 (8.9) | 240 (0.37) | 86 | 2.5 (5.5) | 5 (11) | 3.5 (8) |
| 25 (1) | 140 (5.5) | 165 (6.5) | 160 (6.3) | 110 (4.3) | 225 (8.9) | 390 (0.60) | 80 | 4.5 (10) | 6.5 (14) | 5.7 (13) |
| 40 (1-1/2) | 165 (6.5) | 190 (7.5) | 200 (7.9) | 120 (4.7) | 325 (12.8) | 750 (1.16) | 66 | 7.5 (17) | 11 (24) | 9.6 (21) |
| 50 (2) | 178 (7.0) | 216 (8.5) | 230 (9.1) | 141 (5.6) | 450 (17.7) | 1450 (2.25) | 74 | 12 (27) | 16 (35) | 15 (33) |
| 65 (2-1/2) | 190 (7.5) | 241 (9.5) | 290 (11.4) | 145 (5.7) | 450 (17.7) | 2080 (3.22) | 66 | 15 (33) | 19 (42) | 22 (49) |
| 80 (3) | 203 (8.0) | 283 (11.1) | 310 (12.2) | 160 (6.3) | 450 (17.7) | 2540 (3.94) | 53 | 18 (40) | 22 (49) | 24 (53) |
| 100 (4) | 229 (9.0) | 305 (12.0) | 350 (13.8) | 195 (7.7) | 750 (29.5) | 4470 (6.93) | 57 | 30 (66) | 44 (97) | 38 (84) |
| 125 (5) | 254 (10.0) | 381 (15.0) | 400 (15.7) | 215 (8.5) | 750 (29.5) | 7305 (11.32) | 58 | 44 (97) | 78 (172) | 78 (172) |
| 150 (6) | 267 (10.5) | 403 (15.9) | 450 (17.7) | 250 (9.8) | 800 (33.5) | 10010 (15.52) | 55 | 60 (132) | 91 (212) | 90 (198) |
| 200 (8) | 292 (11.5) | 419 (16.5) | 600 (23.6) | 280 (11.0) | 900 (35.4) | 15800 (24.50) | 49 | 96 (212) | 148 (326) | 166 (366) |
| 250 (10) | 330 (13.0) | 457 (18.0) | 730 (28.7) | 340 (13.4) | 900 (35.4) | 23820 (36.92) | 47 | 142 (313) | 210 (463) | 270 (595) |
| 300 (12) | 356 (14.0) | 502 (19.8) | 850 (33.5) | 390 (15.4) | 900 (35.4) | 31220 (48.40) | 43 | 195 (430) | 280 (617) | 395 (870) |
| 350 (14) | 381 (15.0) | - | - | 450 (17.7) | 900 (35.4) | 38180 (59.18) | 43 | 270 (595) | - | - |
| 400 (16) | 762(30.0) | - | - | 595 (23.4) | 900 (35.4) | 74458 (115.41) | 61 | 560 (1235) | - | - |
| 450 (18) | 864 (34.0) | - | - | 650 (25.6) | 900 (35.4) | 97938 (151.80) | 65 | 950 (2094) | - | - |

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