

# BUTTERFLY VALVE



## VALVE SOLUTIONS for Corrosive Applications



**UNPPolyvalves**

Manufacturer of PFA/FEP/PTFE Lined & Plastic Valves,  
Pipes & Pipe Fittings



# VALVE SOLUTIONS for Corrosive Applications



## About Us

UNPPolyvalves is manufacturing Corrosive application valves since 1988.

UNP started with all plastic Valves with limited size options, today has a complete range of corrosive application valves in both options of Solid plastic Valves and Lined Valves. UNP now has in it's range Ball, Plug, Butterfly, Diaphragm Valves, Non-return Valves, Strainers, Sampling valves, Pipes and Pipe fittings. This completes range of complete piping solution in corrosive applications.

UNP has most modern facility situated at Por with latest moulding technology and highest moulding capacity to manufacture lined valves as large as 24" with Injection moulding machines of largest capacity in the country.

Envisioned for quality and reliability, UNP Polyvalves aims for highest level of Customer satisfaction through its solutions with the commitment for excellence In all spheres of business.

UNP Polyvalves possesses live skill sets headed by highly knowledgeable, technically

experienced entrepreneurs. These experts lead and guide their team with a great vision to achieve high quality standards to make products for its high performance and unmatched quality.

UNP Polyvalves, over all these years has been dealing with almost all chemical process industries in Chlor Alkali, Chemical, Pharmaceutical, Mining, Refineries etc., in India and exporting to 35+ countries in the world including market such as USA, Europe, Latin America, Africa, Russia, South East Asia, Australia etc. . . .

## Achievements

UNP Polyvalves through its technical expertise and involvement in knowing Physical process parameters could help resolving corrosion problems related to valves and piping system in Industries such as Chlor Alkali, CRM in Steel Industries, Chemical injection skids for Oil and Gas and many more chemical plant across the world. UNP today has approvals from leading consultants such as UHDE, Jacobs Engineering, Mott McDonald, Toyo Engineering, Fluor Daniel, TUV, EIL etc., and have worked for their prestigious projects.

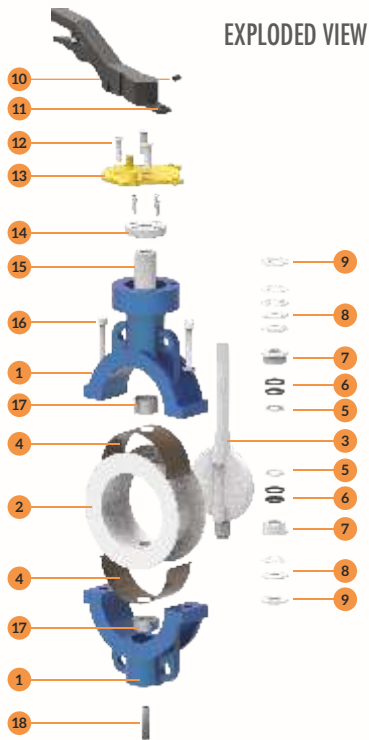
## GENERAL PRODUCT INFORMATION

| BUTTERFLY VALVES                | FEATURE OFFERED   | OPTIONS AVAILABLE   |
|---------------------------------|---|---|
| APPLICATIONS                    | MOST CORROSIVE & AGGRESSIVE CHEMICALS & VAPOURS   |   |
| STANDARDS FOLLOWED              | DESIGN : API 609 WAFER & LUG FACE TO FACE<br>DIMENSIONS : API 609 CATEGORY : A<br>CONNECTION RATING : ANSI B 16.5<br>TEST : API 598 | TEST : ISO 9393-2 OR BS EN 12266-1-2003                             |
| BODY                            | ASTM A 216 GR. WCB  | ASTM A 351 GR. CF8 OR 8M  |
| DISC LINING MATERIALS           | PFA   | FEP/PVDF/ETFE/ECTFE & PPH   |
| SEAT / LINERS                   | ISOSTATICALLY MOULDED PTFE  | ISOSTATICALLY MOULDED TFM / OR MPTFE                                |
| VALVE PAINTING                  | EPOXY 2 PART PAINT  | PU PAINT  |
| TEMPERATURE                     | - 40 DEG.F TO 450 DEG. F (PFA)  | LINING IN FEP, ETFE & PVDF IS AVAILABLE WITH DIFF TEMPERATURE RANGE |
| DISC SEALING                    | CLASS VI, TIGHT SHUT OFF AS PER API 598   |   |
| SHAFT SEALS                     | LOADED PACKING WITH GLAND COVERS ON TOP & BOTTOM  |   |
| MAX. PRESSURE                   | 225 PSI   |   |
| FLOW DIRECTION                  | BI-DIRECTIONAL  |   |
| SPARK TEST FOR LINED COMPONENTS | 20 KVDC   |   |

# LINED BUTTERFLY VALVES

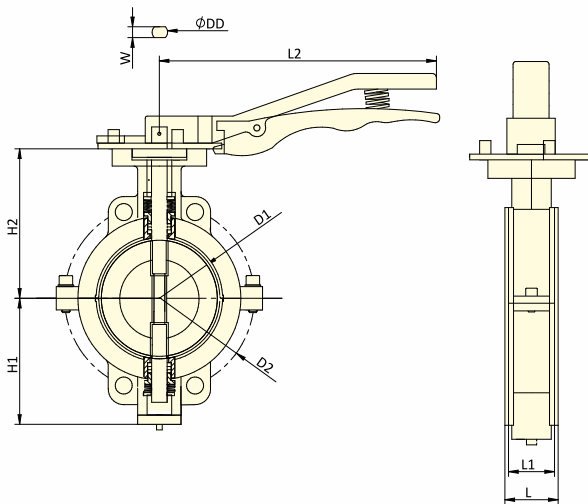
## LEVER OPERATED – WAFER

### MATERIAL LIST



| PART NO. | DESCRIPTION       | MATERIAL OF CONSTRUCTION | QTY. |
|----------|-------------------|--------------------------|------|
| 1        | Body              | ASTM A 216 GR. WCB       | 2    |
| 2        | Seat              | PTFE / MPTFE / TFM       | 1    |
| 3        | Disc              | ASTM A 890 GR. 4A + PFA  | 1    |
| 4        | Seat Pad          | VITON / SILICON          | 2    |
| 5        | Washer            | PTFE                     | 2    |
| 6        | Gland Seals       | VITON                    | 4    |
| 7        | T-Bush            | SS 304                   | 2    |
| 8        | Disc Springs      | 50 Crv 4                 | 6    |
| 9        | Retainer          | SS 304                   | 2    |
| 10       | Pin For Handle    | STEEL                    | 1    |
| 11       | Handle            | WCB                      | 1    |
| 12       | Allen CSK         | HT 12.9                  | 3    |
| 13       | Teeth Plate       | WCB / SS                 | 1    |
| 14       | Thrust Collar Top | SS 304                   | 1    |
| 15       | Sleeve            | SS 304                   | 1    |
| 16       | Body Bolts        | ASTM 193 GR. B7          | 2    |
| 17       | Bush              | PFA                      | 1    |
| 18       | Grub Screw        | STEEL                    | 1    |

### SECTIONAL VIEW



### DIMENSIONS

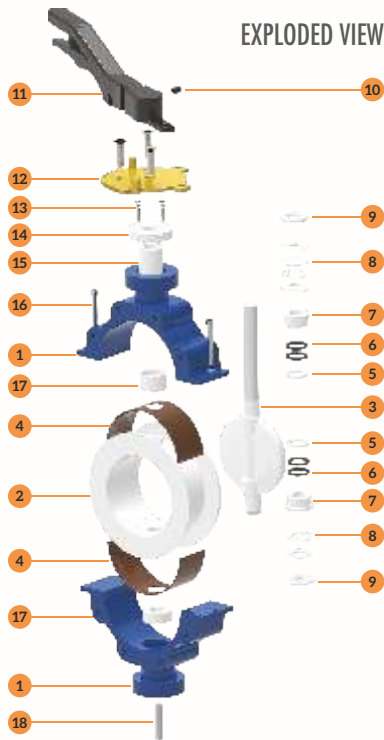
| Size | L ± .12 |    | L1 ± .04 |    | D1 ± .08 |     | D2 ± .08 |     | H1 ± .31 |     | H2 ± .31 |     | L2 ± .31 |     | ØDD  |    | W    |    |
|------|---------|----|----------|----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|------|----|------|----|
|      | INCH    | MM | INCH     | MM | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH | MM | INCH | MM |
| 2"   | 1.85    | 47 | 1.69     | 43 | 1.97     | 60  | 4.76     | 121 | 3.27     | 83  | 4.6      | 117 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 2.5" | 1.97    | 50 | 1.81     | 46 | 2.55     | 65  | 5.51     | 140 | 3.54     | 90  | 5.39     | 137 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 3"   | 1.97    | 50 | 1.81     | 46 | 2.95     | 75  | 6        | 152 | 3.54     | 90  | 5.04     | 128 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 4"   | 2.2     | 56 | 2.04     | 52 | 3.93     | 100 | 7.5      | 191 | 4.52     | 115 | 6.14     | 156 | 10.47    | 266 | 0.71 | 18 | 0.55 | 14 |

All Dimension are in Inches & mm.  
PCD of the Valve can be provided in ANSI / DIN / JIS



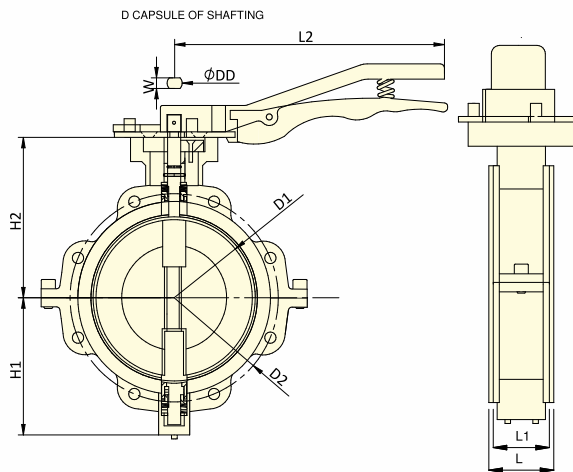
**LINED BUTTERFLY VALVES**  
LEVER OPERATED – FULL LUG

MATERIAL LIST



| PART NO. | DESCRIPTION                | MATERIAL OF CONSTRUCTION | QTY. |
|----------|----------------------------|--------------------------|------|
| 1        | Body                       | ASTM A 216 GR. WCB       | 2    |
| 2        | Seat                       | PTFE / MPTFE / TFM       | 1    |
| 3        | Disc                       | ASTM A 890 GR. 4A + PFA  | 1    |
| 4        | Seat Pad                   | VITON / SILICON          | 2    |
| 5        | Washer                     | PTFE                     | 2    |
| 6        | Gland Seals                | VITON                    | 4    |
| 7        | T-Bush                     | SS 304                   | 2    |
| 8        | Disc Springs               | 50 Crv 4                 | 6    |
| 9        | Retainer                   | SS 304                   | 2    |
| 10       | Pin For Handle             | STEEL                    | 1    |
| 11       | Handle                     | WCB                      | 1    |
| 12       | Teeth Plate                | WCB / SS                 | 1    |
| 13       | Thrust Collar<br>CSK Bolts | HT 12.9                  | 4    |
| 14       | Thrust Collar Top          | HT 12.9                  | 1    |
| 15       | Sleeve                     | SS 304                   | 1    |
| 16       | Body Bolts                 | ASTM 193 GR. B7          | 2    |
| 17       | Bush                       | PFA                      | 2    |
| 18       | Grub Screw                 | STEEL                    | 1    |

SECTIONAL VIEW



DIMENSIONS

| Size | L ± .12 |    | L1 ± .04 |    | D1 ± .08 |     | D2 ± .08 |     | H1 ± .31 |     | H2 ± .31 |     | L2 ± .31 |     | ØDD  |    | W    |    |
|------|---------|----|----------|----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|------|----|------|----|
|      | INCH    | MM | INCH     | MM | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH | MM | INCH | MM |
| 2"   | 1.85    | 47 | 1.69     | 43 | 1.97     | 60  | 4.76     | 121 | 3.27     | 83  | 4.6      | 117 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 2.5" | 1.97    | 50 | 1.81     | 46 | 2.55     | 65  | 5.51     | 140 | 3.54     | 90  | 5.39     | 137 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 3"   | 1.97    | 50 | 1.81     | 46 | 2.95     | 75  | 6        | 152 | 3.62     | 92  | 5.03     | 128 | 10.47    | 266 | 0.55 | 14 | 0.43 | 11 |
| 4"   | 2.2     | 56 | 2.04     | 52 | 3.93     | 100 | 7.5      | 191 | 4.52     | 115 | 6.18     | 157 | 10.47    | 266 | 0.71 | 18 | 0.55 | 14 |

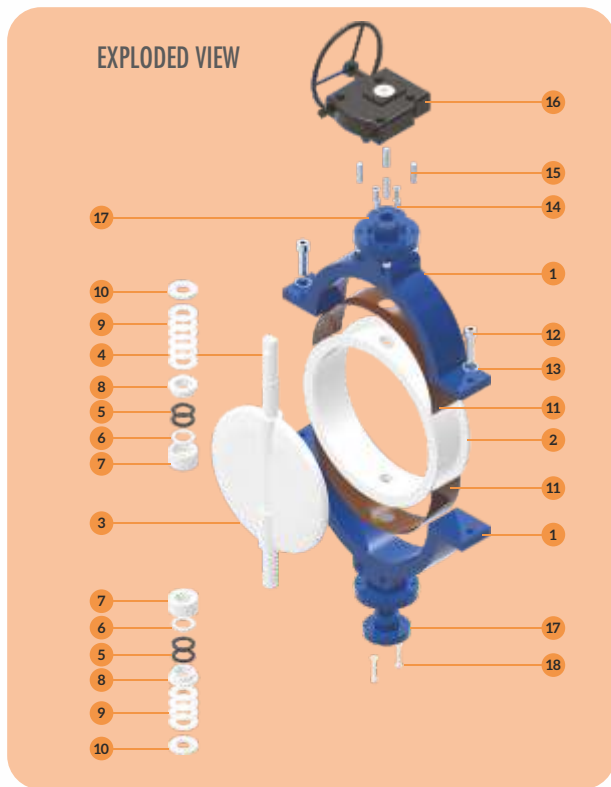
All Dimension are in Inches & mm.  
PCD of the Valve can be provided in ANSI / DIN / JIS

# LINED BUTTERFLY VALVES

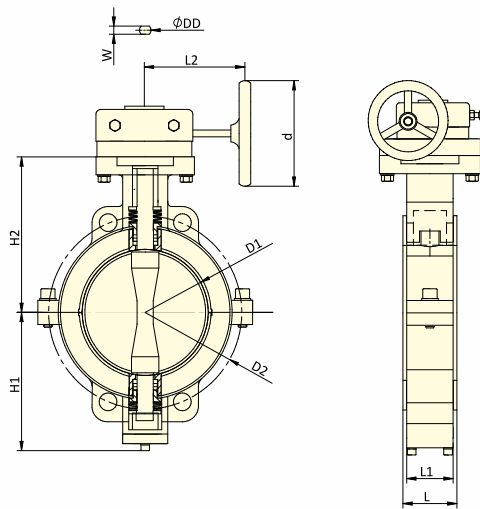
## GEAR OPERATED – WAFER

### MATERIAL LIST

| PART NO. | DESCRIPTION           | MATERIAL OF CONSTRUCTION   | QTY. |
|----------|-----------------------|----------------------------|------|
| 1        | Body                  | ASTM A 216 GR. WCB         | 2    |
| 2        | Seat                  | PTFE / MPTFE / TFM         | 1    |
| 3        | Disc                  | ASTM A 890 GR. 4A + PFA    | 1    |
| 4        | Stem                  | ASTM A 890 GR. 4A Integral | 1    |
| 5        | Gland Seals           | VITON                      | 4    |
| 6        | Washer                | PTFE                       | 2    |
| 7        | Bush                  | PFA                        | 2    |
| 8        | T-Bush                | SS 304                     | 2    |
| 9        | Disc Springs          | 50 Crv 4                   | 10   |
| 10       | Retainer              | SS 304                     | 2    |
| 11       | Seat Pads             | VITON / SILICON            | 2    |
| 12       | Body Bolts            | ASTM 193 GR. B7            | 4    |
| 13       | Spring Washer         | STEEL                      | 2    |
| 14       | Gland Bolts           | HT 12.9                    | 2    |
| 15       | Gearbox Mounting Stud | SS 304                     | 4    |
| 16       | Gear Box              | Cast Iron Epoxy Painted    | 1    |
| 17       | Thrust Collar         | SS 304                     | 2    |
| 18       | Bottom Cover Bolts    | HT 12.9                    | 2    |



### SECTIONAL VIEW



### DIMENSIONS

| Size | L ± .12 |     | L1 ± .04 |     | D1 ± .08 |     | D2 ± .08 |     | H1 ± .31 |     | H2 ± .31 |     | L2 ± .31 |     | ØDD  |      | W    |    |
|------|---------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|------|------|------|----|
|      | INCH    | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH | MM   | INCH | MM |
| 6"   | 2.36    | 60  | 2.2      | 56  | 5.9      | 150 | 9.49     | 241 | 6.37     | 162 | 7.63     | 194 | 9.52     | 242 | 0.79 | 20   | 0.55 | 14 |
| 8"   | 2.52    | 64  | 2.36     | 60  | 7.87     | 200 | 11.75    | 298 | 7.2      | 183 | 9.25     | 235 | 9.52     | 242 | 0.98 | 25   | 0.79 | 19 |
| 10"  | 2.83    | 72  | 2.68     | 68  | 9.84     | 250 | 14.25    | 362 | 9.21     | 234 | 9.88     | 251 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 12"  | 3.3     | 84  | 3.07     | 78  | 11.81    | 300 | 17       | 432 | 10.66    | 271 | 11.57    | 294 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 14"  | 3.3     | 84  | 3.07     | 78  | 13.78    | 350 | 18.7     | 476 | 12.2     | 310 | 12.79    | 325 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 16"  | 4.25    | 108 | 4.01     | 102 | 15.74    | 400 | 21.25    | 540 | 13.18    | 335 | 13.58    | 345 | 13.18    | 335 | 1.41 | 36   | 1.1  | 28 |
| 18"  | 4.72    | 120 | 4.49     | 114 | 17.71    | 450 | 22.75    | 578 | 15.55    | 395 | 14.76    | 375 | 13.18    | 335 | 1.41 | 36   | 1.1  | 28 |
| 20"  | 5.23    | 133 | 5        | 127 | 19.44    | 494 | 25       | 635 | 16.73    | 425 | 16.33    | 415 | 13.58    | 345 | 1.79 | 45.5 | 1.41 | 36 |
| 24"  | 6.29    | 160 | 6.06     | 154 | 23.54    | 600 | 29.52    | 749 | 18.7     | 475 | 19.48    | 495 | 13.58    | 345 | 2    | 51   | 1.45 | 37 |

All Dimension are in Inches & mm. | PCD of the Valve can be provided in ANSI / DIN / JIS

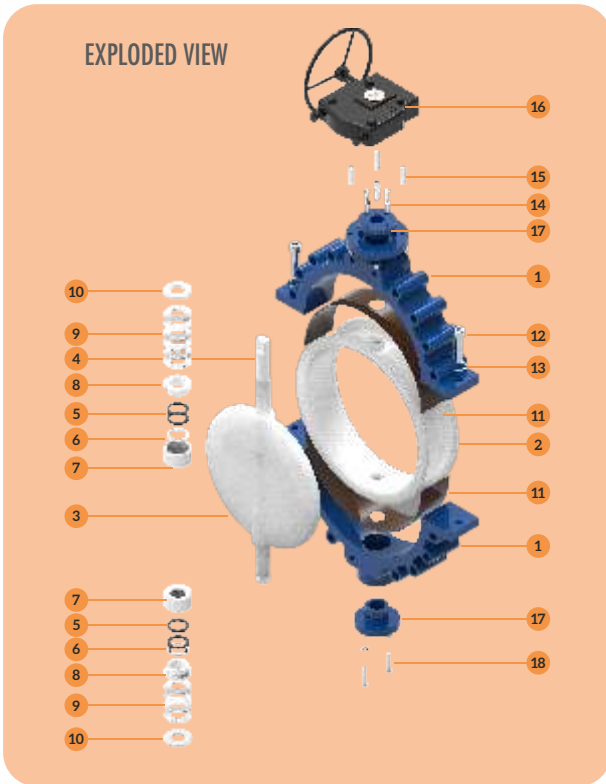


# LINED BUTTERFLY VALVES

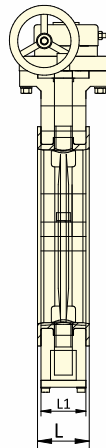
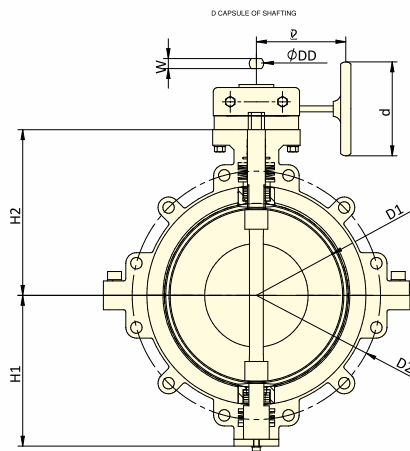
## GEAR OPERATED – FULL LUG

### MATERIAL LIST

| PART NO. | DESCRIPTION           | MATERIAL OF CONSTRUCTION   | QTY. |
|----------|-----------------------|----------------------------|------|
| 1        | Body                  | ASTM A 216 GR. WCB         | 2    |
| 2        | Seat                  | PTFE / MPTFE / TFM         | 1    |
| 3        | Disc                  | ASTM A 890 GR. 4A + PFA    | 1    |
| 4        | Stem                  | ASTM A 890 GR. 4A Integral | 1    |
| 5        | Gland Seals           | VITON                      | 4    |
| 6        | Washer                | PTFE                       | 2    |
| 7        | Bush                  | PFA                        | 2    |
| 8        | T-Bush                | SS 304                     | 2    |
| 9        | Disc Springs          | 50 Crv 4                   | 10   |
| 10       | Retainer              | SS 304                     | 2    |
| 11       | Seat Pads             | VITON / SILICON            | 2    |
| 12       | Body Bolts            | ASTM 193 GR. B7            | 2    |
| 13       | Spring Washer         | STEEL                      | 2    |
| 14       | Gland Bolts           | HT 12.9                    | 2    |
| 15       | Gearbox Mounting Stud | SS 304                     | 4    |
| 16       | Gear Box              | Cast Iron Epoxy Painted    | 1    |
| 17       | Thrust Collar         | SS 304                     | 2    |
| 18       | Bottom Cover Bolts    | HT 12.9                    | 2    |



### SECTIONAL VIEW



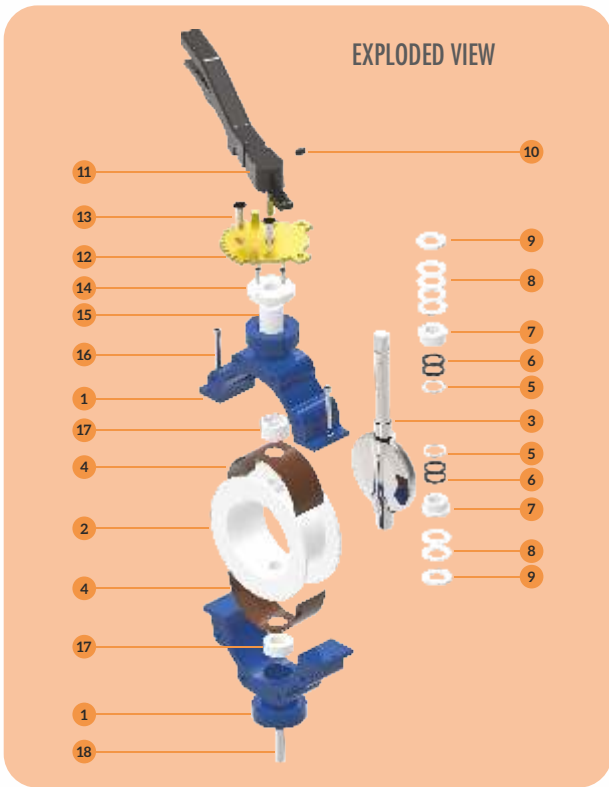
### DIMENSIONS

| Size | L ± .12 |     | L1 ± .04 |     | D1 ± .08 |     | D2 ± .08 |     | H1 ± .31 |     | H2 ± .31 |     | L2 ± .31 |     | ØDD  |      | W    |    |
|------|---------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|----------|-----|------|------|------|----|
|      | INCH    | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH     | MM  | INCH | MM   | INCH | MM |
| 6"   | 2.36    | 60  | 2.2      | 56  | 5.9      | 150 | 9.49     | 241 | 6.4      | 163 | 7.48     | 190 | 9.52     | 242 | 0.79 | 20   | 0.55 | 14 |
| 8"   | 2.52    | 64  | 2.36     | 60  | 7.87     | 200 | 11.75    | 298 | 7.79     | 198 | 9.13     | 232 | 9.52     | 242 | 0.98 | 25   | 0.74 | 19 |
| 10"  | 2.83    | 72  | 2.68     | 68  | 9.84     | 250 | 14.25    | 362 | 8.58     | 218 | 9.84     | 250 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 12"  | 3.3     | 84  | 3.07     | 78  | 11.81    | 300 | 17       | 432 | 10.43    | 265 | 11.33    | 288 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 14"  | 3.3     | 84  | 3.07     | 78  | 13.78    | 350 | 18.7     | 476 | 12.55    | 319 | 12.44    | 316 | 11.49    | 292 | 1.1  | 28   | 0.86 | 22 |
| 16"  | 4.25    | 108 | 4.01     | 102 | 15.74    | 400 | 21.25    | 540 | 13.19    | 335 | 13.58    | 345 | 13.18    | 335 | 1.41 | 36   | 1.1  | 28 |
| 18"  | 4.72    | 120 | 4.49     | 114 | 17.71    | 450 | 22.75    | 578 | 15.74    | 400 | 14.72    | 374 | 13.18    | 335 | 1.41 | 36   | 1.1  | 28 |
| 20"  | 5.23    | 133 | 5        | 127 | 19.44    | 494 | 25       | 635 | 16.73    | 425 | 16.33    | 415 | 13.58    | 345 | 1.79 | 45.5 | 1.41 | 36 |
| 24"  | 6.29    | 160 | 6.06     | 154 | 23.54    | 600 | 29.52    | 749 | 19.37    | 492 | 19.88    | 505 | 13.58    | 345 | 2    | 51   | 1.45 | 37 |

All Dimension are in Inches & mm. | PCD of the Valve can be provided in ANSI / DIN / JIS

# METAL DISC BUTTERFLY VALVES

## LEVER & GEAR OPERATED - FULL LUG & WAFER

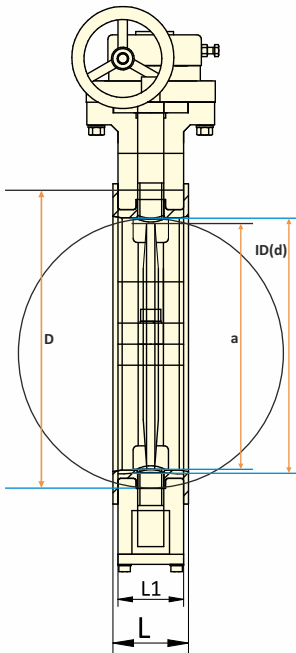


### MATERIAL LIST

| PART NO. | DESCRIPTION       | MATERIAL OF CONSTRUCTION                          | QTY. |
|----------|-------------------|---|------|
| 1        | Body              | ASTM A 216 GR. WCB                                | 2    |
| 2        | Seat              | PTFE / MPTFE / TFM                                | 1    |
| 3        | Disc              | Duplex / Super / Duplex / AL. Bronze / Cf8 / CF8M | 1    |
| 4        | Seat Pad          | VITON / SILICON                                   | 2    |
| 5        | Washer            | PTFE  | 2    |
| 6        | Gland Seals       | VITON   | 4    |
| 7        | T-Bush            | SS 304  | 2    |
| 8        | Disc Springs      | 50 Crv 4  | 6    |
| 9        | Retainer          | SS 304  | 2    |
| 10       | Pin For Handle    | STEEL   | 1    |
| 11       | Handle            | WCB   | 1    |
| 12       | Teeth Plate       | WCB / SS  | 1    |
| 13       | Allen CSK Bolts   | HT 12.9   | 3    |
| 14       | Thrust Collar Top | SS 304  | 1    |
| 15       | Sleeve            | SS 304  | 1    |
| 16       | Body Bolts        | ASTM 193 GR. B7                                   | 2    |
| 17       | Bush              | PFA   | 2    |
| 18       | Grub Screw        | STEEL   | 1    |

# INSTALLATION DETAILS OF LINED BUTTERFLY VALVE

## WAFER & LUGGED CONSTRUCTION



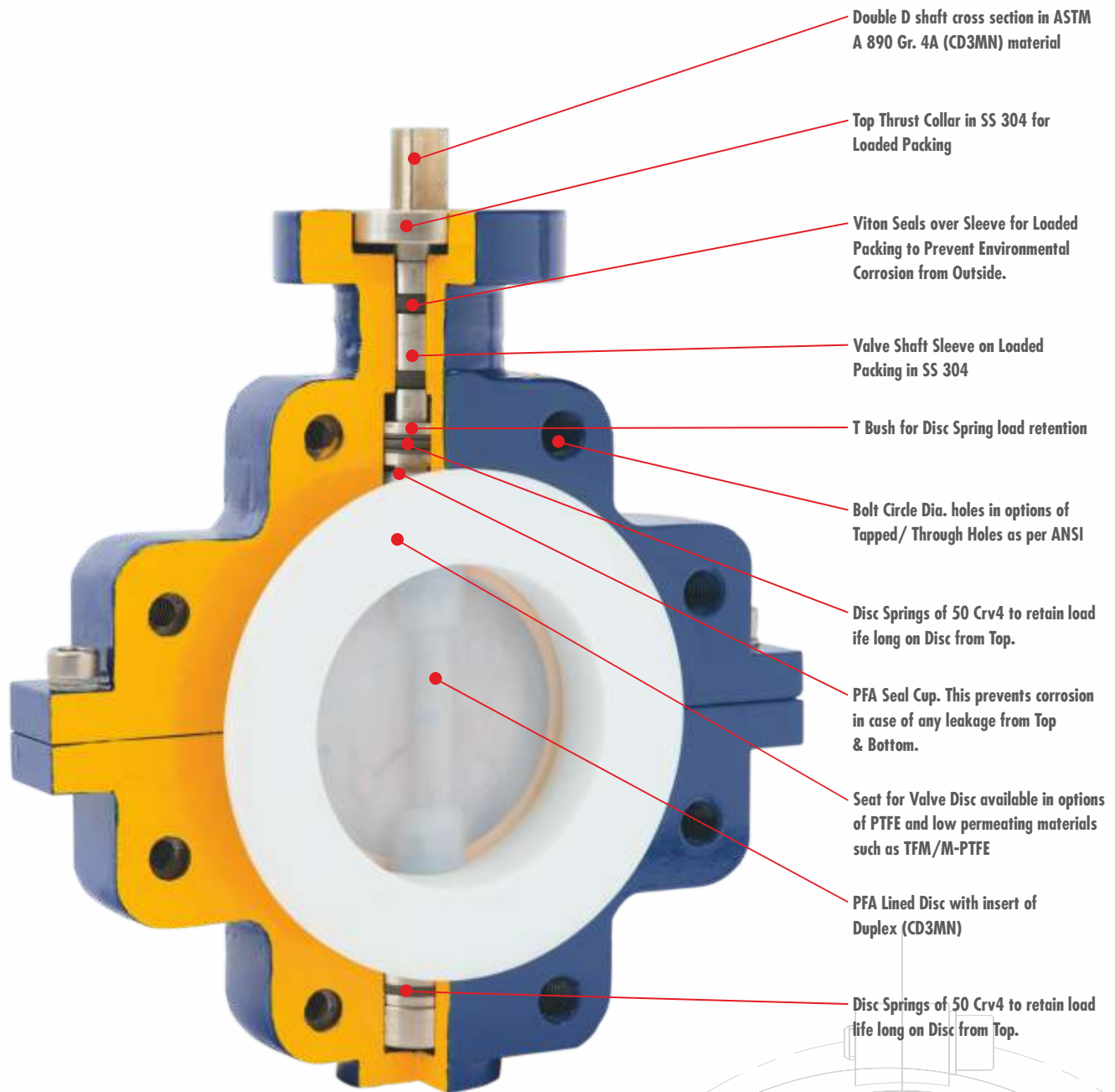
### MINIMUM PIPE ID REQUIRED FOR FULL DISC OPENING

| Size (MM) | F / F |     | D    |     | a                          |     | Pipe I.D Req.(d) |     |
|-----------|-------|-----|------|-----|----------------------------|-----|------------------|-----|
|           | INCH  | MM  | INCH | MM  | INCH                       | MM  | INCH             | MM  |
| 600       | 6.29  | 160 | 27.6 | 700 | 22.6                       | 575 | 23.0             | 585 |
| 500       | 5.23  | 133 | 23.0 | 584 | 18.7                       | 477 | 19.3             | 490 |
| 450       | 4.72  | 120 | 21.0 | 534 | 16.9                       | 430 | 17.3             | 440 |
| 400       | 4.25  | 108 | 18.5 | 470 | 15.1                       | 384 | 15.4             | 390 |
| 350       | 3.3   | 84  | 16.2 | 412 | 13.3                       | 338 | 13.5             | 344 |
| 300       | 3.3   | 84  | 15.0 | 380 | 11.3                       | 286 | 11.5             | 292 |
| 250       | 2.83  | 72  | 12.7 | 323 | 9.3                        | 236 | 9.5              | 242 |
| 200       | 2.52  | 64  | 10.6 | 270 | 7.4                        | 187 | 7.6              | 193 |
| 150       | 2.36  | 60  | 8.5  | 216 | 5.4                        | 136 | 5.5              | 140 |
| 125       | 2.36  | 60  | 7.3  | 185 | 4.2                        | 107 | 4.4              | 110 |
| 100       | 2.2   | 56  | 6.2  | 157 | 3.2                        | 80  | 3.3              | 83  |
| 80        | 1.97  | 50  | 5.0  | 127 | 2.1                        | 52  | 2.2              | 55  |
| 65        | 1.97  | 50  | 4.1  | 105 | 1.42                       | 36  | 1.54             | 39  |
| 50        | 1.85  | 47  | 3.6  | 92  | VALVE DISC OPEN INSIDE "L" |     |                  |     |

L = Face to face dimension of Butterfly Valve  
 a = Chord of disc in open position  
 ID (d) = Minimum Pipe ID Required  
 50mm to 100mm size Lever Type, Above 100mm size Gear Type



# VALVE FEATURES



Double D shaft cross section in ASTM A 890 Gr. 4A (CD3MN) material

Top Thrust Collar in SS 304 for Loaded Packing

Viton Seals over Sleeve for Loaded Packing to Prevent Environmental Corrosion from Outside.

Valve Shaft Sleeve on Loaded Packing in SS 304

T Bush for Disc Spring load retention

Bolt Circle Dia. holes in options of Tapped/ Through Holes as per ANSI

Disc Springs of 50 Crv4 to retain load life long on Disc from Top.

PFA Seal Cup. This prevents corrosion in case of any leakage from Top & Bottom.

Seat for Valve Disc available in options of PTFE and low permeating materials such as TFM/M-PTFE

PFA Lined Disc with insert of Duplex (CD3MN)

Disc Springs of 50 Crv4 to retain load life long on Disc from Top.



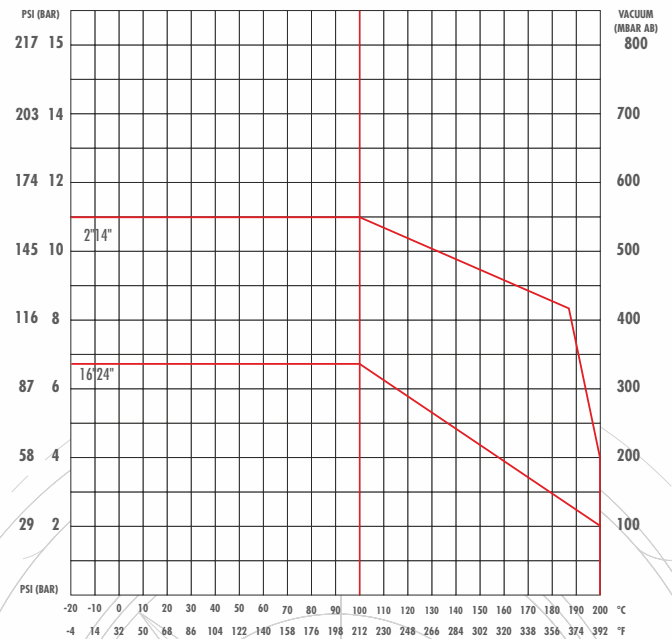
## C<sub>v</sub> VALUES FOR BUTTERFLY VALVE AT DIFFERENT POSITIONS

| SIZE | 20°  | 30°  | 40°  | 50°  | 60°   | 70°   | 80°   | 90°   |
|------|------|------|------|------|-------|-------|-------|-------|
| 2"   | 5.8  | 13   | 28   | 49   | 74    | 107   | 137   | 155   |
| 2.5" | 9.3  | 22   | 47   | 81   | 125   | 180   | 232   | 263   |
| 3"   | 17   | 38   | 83   | 145  | 220   | 313   | 388   | 455   |
| 4"   | 23   | 56   | 110  | 188  | 296   | 447   | 563   | 678   |
| 5"   | 44   | 95   | 191  | 296  | 528   | 748   | 945   | 1177  |
| 6"   | 70   | 151  | 273  | 458  | 748   | 1108  | 1415  | 1734  |
| 8"   | 110  | 267  | 539  | 922  | 1369  | 2105  | 2796  | 3538  |
| 10"  | 203  | 406  | 824  | 1346 | 1867  | 2807  | 4234  | 5232  |
| 12"  | 307  | 605  | 1154 | 1995 | 3091  | 4599  | 6914  | 8363  |
| 14"  | 406  | 765  | 1369 | 2088 | 3341  | 5278  | 8329  | 10161 |
| 16"  | 591  | 1142 | 1717 | 2842 | 4907  | 7598  | 10730 | 13166 |
| 18"  | 771  | 1456 | 2587 | 4466 | 7250  | 10672 | 14210 | 17284 |
| 20"  | 1032 | 1879 | 3456 | 6206 | 9454  | 13688 | 18050 | 20880 |
| 24"  | 1125 | 2494 | 4849 | 8607 | 13166 | 19082 | 24592 | 28420 |

## BREAK TORQUE VALUES FOR BUTTERFLY VALVES

| SIZE | TORQUE IN Nm | TORQUE IN LB INCH |
|------|--------------|-------------------|
| 2"   | 30           | 265               |
| 2.5" | 30           | 265               |
| 3"   | 30           | 265               |
| 4"   | 60           | 530               |
| 5"   | 110          | 972               |
| 6"   | 125          | 1105              |
| 8"   | 180          | 1591              |
| 10"  | 360          | 3183              |
| 12"  | 480          | 4243              |
| 14"  | 800          | 7072              |
| 16"  | 1200         | 10608             |
| 18"  | 2018         | 17840             |
| 20"  | 2460         | 21746             |
| 24"  | 3075         | 27183             |

## PRESSURE - TEMPERATURE GRAPH FOR WCB+ PFA / PTFE LINED BUTTERFLY VALVES





## WEIGHT / VALVE

| SIZE | KGS.   |        | LBS.    |         |
|------|--------|--------|---------|---------|
|      | INCHES | WAFER  | FULLLUG | WAFER   |
| 2"   | 5.00   | 6.50   | 11      | 14.30   |
| 2.5" | 6.00   | 7.50   | 13      | 16.50   |
| 3"   | 7.00   | 8.60   | 15      | 19.00   |
| 4"   | 9.00   | 13.40  | 20      | 16.08   |
| 5"   | 20.00  | 23.00  | 44      | 50.60   |
| 6"   | 23.00  | 25.50  | 51      | 56.10   |
| 8"   | 26.00  | 30.50  | 57      | 67.10   |
| 10"  | 45.00  | 51.00  | 112     | 112.20  |
| 12"  | 62.00  | 75.00  | 136     | 165.00  |
| 14"  | 66.00  | 80.00  | 145     | 176.00  |
| 16"  | 112.00 | 135.00 | 246     | 297.00  |
| 18"  | 157.00 | 189.00 | 346     | 415.80  |
| 20"  | 288.00 | 346.00 | 634     | 761.20  |
| 24"  | 420.00 | 504.00 | 924     | 1109.00 |

## CODE USED

| TYPE OF VALVE        | CODE |
|----------------------|------|
| WAFER TYPE BUTTERFLY | BFWR |
| FULL LUG BUTTERFLY   | BFFL |

| BODY CASTINGS            | CODE |
|--------------------------|------|
| ASTM A 216 GR. WCB       | C1   |
| ASTM A 351 GR. CF8       | C2   |
| ASTM A 351 GR. CF8M      | C3   |
| ALLOY 20                 | C4   |
| ASTM A 890 GR. 4A(CD3MN) | C5   |

| TRIM INSERTS             | CODE |
|--------------------------|------|
| ALLOY 20                 | T4   |
| ASTM A 890 GR. 4A(CD3MN) | T5   |
| SUPER DUPLEX             | T6   |

| OPERATION | CODE |
|-----------|------|
| LEVER     | L    |
| GEAR      | G    |
| BARE STEM | B    |

## CODE USED

| LINING MATERIAL | CODE |
|-----------------|------|
| PFA             | L1   |
| FEP             | L2   |
| PVDF            | L3   |
| ETFE            | L4   |
| ANTISTATIC PFA  | L7   |

| SEAT WITH BACKING PADS | CODE |
|------------------------|------|
| PTFE WITH SILICON      | PS   |
| PTFE WITH VITON        | PV   |
| TFM WITH SILICON       | TS   |
| TFM WITH VITON         | TV   |

| FASTNERS          | CODE |
|-------------------|------|
| SS 304            | F2   |
| SS 316            | F3   |
| HIGH TENSILE      | F4   |
| ASTM A 193 GR. B7 | F5   |

| LOCKING      | CODE |
|--------------|------|
| PROVIDED     | Y    |
| NOT PROVIDED | N    |

| SIZE |      |    |    |    |    |    |     |     |     |     |     |     |     |
|------|------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| 2"   | 2.5" | 3" | 4" | 5" | 6" | 8" | 10" | 12" | 14" | 16" | 18" | 20" | 24" |
| CODE |      |    |    |    |    |    |     |     |     |     |     |     |     |
| 02   | 2H   | 03 | 04 | 05 | 06 | 08 | 10  | 12  | 14  | 16  | 18  | 20  | 24  |

## HOW TO READ

| CODE            | BFFLC1T5L1PSF5GN08             |      |
|-----------------|--------------------------------|------|
| VALVE TYPE      | BUTTERFLY FULL LUG             | BFFL |
| CASTING         | ASTM A 216 GR. WCB             | C1   |
| TRIM INSERT     | ASTMA 890 GR. 4A(CD3MN)        | T5   |
| LINING MATERIAL | PFA                            | L1   |
| SEAT/LINER      | PTFE WITH SILICON BACKING PADS | PS   |
| FASTNERS        | ASTM A 193 GR. B7              | F5   |
| OPERATION       | GEAR                           | G    |
| LOCKING         | NO                             | N    |
| SIZE            | 8"                             | 08   |



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