

# DelVal<sup>®</sup> SERIES 51/53

Resilient Seated Butterfly Valves

Wafer & Flanged End

Sizes 26" - 40" / DN 650 - DN 1000



*Leading the Industry with Innovation by Design*

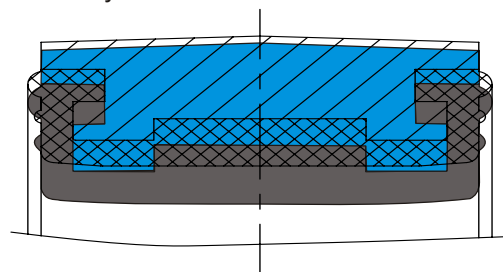


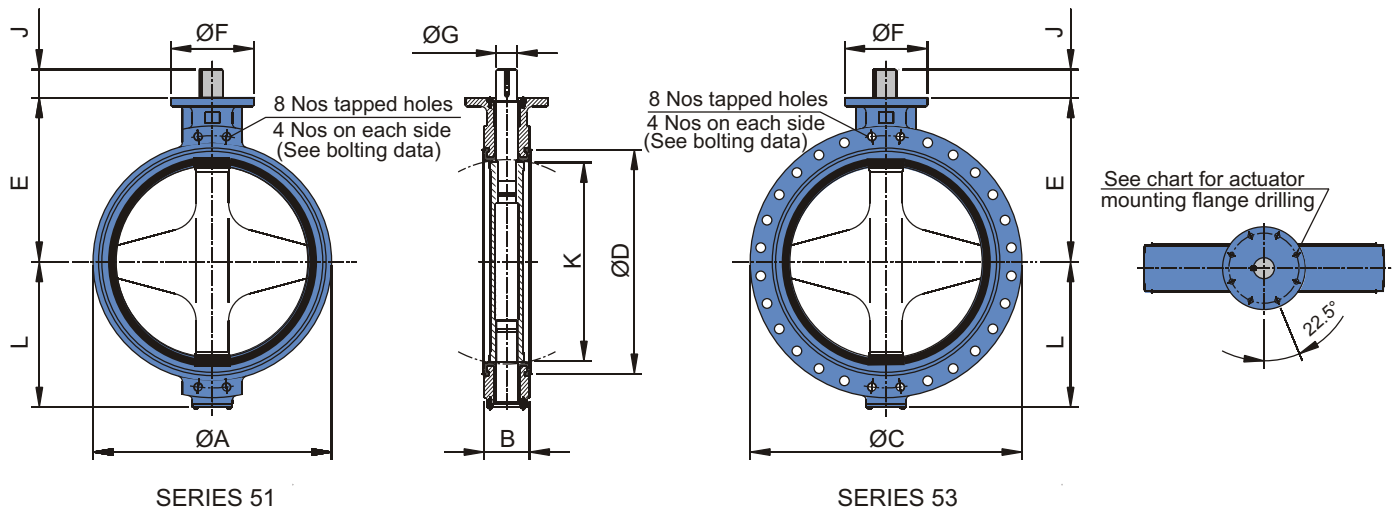
Jamieson Equipment Company  
www.jamiesonequipment.com  
toll free 800.875.0280

DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 51 (Wafer Body) and Series 53 (Flanged End) Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 51/53 Butterfly Valves have been designed to include state-of-the-art features that are described in this bulletin.

## Features

- + ISO 5211 top plate drilling and stem connection. All gear operators and pneumatic DelTorq actuators are designed to mount directly to DelVal valves.
- + Self-adjusting bi-directional 'U' cup stem sealing prevents entry of external substances from upper stem bore. This packing acts as the tertiary pressure seal.
- + Heavy-duty bronze sleeve bearing to reduce bearing friction and operating torque.
- + Unique stem retention system to provide blow-out stem and easy assembly and disassembly of valve.
- + Heavy-duty one-piece body. Standard coating is an epoxy polyester powder coat of semi-glossy finish with excellent corrosion resistance.
- + High strength disc with hand polished disc edge and hubs for bubble-tight shut off and longer service life.
- + Precision machined radius provided on the upper and lower disc hubs presses against upper and lower seat sealing faces. This achieves primary sealing between disc and seat which isolates the flowing media from stem and body material at all angles of valve disc seating.
- + Nylon PA 12-coated disc option ensures excellent corrosion resistance to several chemical media. The hard, non-porous sintered polymer has very low hygroscopicity and is suitable for use in drinking water.
- + Thick bronze bushing absorbs actuator side thrusts.
- + Bronze vertical thrust bearing eliminates disc displacement due to weight of stem and disc.
- + Heavy-duty square grooved seat design with molded o-ring seals to serve as flange gaskets. EPDM seats are peroxide cured to yield the best elastic properties of the elastomer.
- + Unique "Center-Lock" seat design virtually eliminates any seat movement during the seating and unseating of the disc and isolates the body and stem from line media.
- + Double o-rings are molded in both upper and lower journals providing a superior secondary seal.





| DIMENSIONS (Inch) | Valve Size |       | ØA    | ØC    | *B    | ØD    | E     | L     | ØF    | Top Flange Drilling |              |           | ØG   | J           | Keysize     | K     | Bolting Data |                |                   | Weights In Lbs.         |  |
|-------------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|---------------------|--------------|-----------|------|-------------|-------------|-------|--------------|----------------|-------------------|-------------------------|--|
|                   | Inches     | DN    |       |       |       |       |       |       |       | BC                  | No. of holes | Hole Dia. |      |             |             |       | BC           | Threads UNC-2B | Wafer (Series 51) | Flanged End (Series 53) |  |
|                   | 26         | 650   | 29.33 | 34.25 | 6.50  | 27.83 | 21.85 | 18.70 | 11.81 | 10.00               | 8            | 0.71      | 2.50 | 4.00        | 0.62 x 0.62 | 23.54 | 31.75        | 1 1/4-7        | 581               | 783                     |  |
| 28                | 700        | 31.30 | 36.50 | 6.50  | 29.76 | 22.83 | 19.37 | 11.81 | 10.00 | 8                   | 0.71         | 2.50      | 4.00 | 0.62 x 0.62 | 25.69       | 34.00 | 1 1/4-7      | 620            | 871               |                         |  |
| 30                | 750        | 33.86 | 38.75 | 6.50  | 32.00 | 23.43 | 20.78 | 11.81 | 10.00 | 8                   | 0.71         | 3.00      | 4.00 | 0.75 x 0.75 | 28.23       | 36.00 | 1 1/4-7      | 730            | 930               |                         |  |
| 32                | 800        | 35.43 | 41.75 | 7.48  | 33.82 | 26.38 | 22.24 | 11.81 | 10.00 | 8                   | 0.71         | 3.00      | 4.00 | 0.75 x 0.75 | 29.76       | 38.50 | 1 1/2-6      | 849            | 1049              |                         |  |
| 36                | 900        | 40.35 | 46.00 | 8.00  | 38.27 | 27.76 | 25.20 | 13.78 | 11.73 | 8                   | 0.82         | 3.50      | 5.25 | 0.88 x 0.62 | 34.25       | 42.75 | 1 1/2-6      | 1069           | 1516              |                         |  |
| 40                | 1000       | 44.09 | 50.75 | 8.50  | 41.57 | 30.79 | 26.57 | 13.78 | 11.73 | 8                   | 0.82         | 4.00      | 5.25 | 1.00 x 0.75 | 37.48       | 47.25 | 1 1/2-6      | 1738           | 2178              |                         |  |

| DIMENSIONS (mm) | Valve Size |      | ØA   | ØC  | *B   | ØD  | E   | L   | ØF  | Top Flange Drilling |              |           | ØG   | J             | Keysize       | K       | Bolting Data |                |                   | Weights In Kg.          |  |
|-----------------|------------|------|------|-----|------|-----|-----|-----|-----|---------------------|--------------|-----------|------|---------------|---------------|---------|--------------|----------------|-------------------|-------------------------|--|
|                 | Inches     | DN   |      |     |      |     |     |     |     | BC                  | No. of holes | Hole Dia. |      |               |               |         | BC           | Threads UNC-2B | Wafer (Series 51) | Flanged End (Series 53) |  |
|                 | 26         | 650  | 745  | 870 | 165  | 707 | 555 | 475 | 300 | 254                 | 8            | 18        | 63.5 | 102           | 15.88 x 15.88 | 598     | 806.45       | 1 1/4-7        | 264               | 356                     |  |
| 28              | 700        | 795  | 927  | 165 | 756  | 580 | 492 | 300 | 254 | 8                   | 18           | 63.5      | 102  | 15.88 x 15.88 | 651           | 863.60  | 1 1/4-7      | 282            | 396               |                         |  |
| 30              | 750        | 860  | 985  | 165 | 813  | 595 | 528 | 300 | 254 | 8                   | 18           | 76.2      | 102  | 19.05 x 19.05 | 717           | 914.40  | 1 1/4-7      | 332            | 423               |                         |  |
| 32              | 800        | 900  | 1060 | 190 | 859  | 670 | 565 | 300 | 254 | 8                   | 18           | 76.2      | 102  | 19.05 x 19.05 | 756           | 977.90  | 1 1/2-6      | 386            | 477               |                         |  |
| 36              | 900        | 1025 | 1170 | 203 | 972  | 705 | 640 | 350 | 298 | 8                   | 21           | 88.9      | 134  | 22.23 x 15.88 | 870           | 1085.85 | 1 1/2-6      | 486            | 689               |                         |  |
| 40              | 1000       | 1120 | 1290 | 216 | 1056 | 782 | 675 | 350 | 298 | 8                   | 21           | 101.6     | 134  | 25.4 x 19.05  | 952           | 1200.15 | 1 1/2-6      | 790            | 990               |                         |  |

\*Face to Face dimension "B", generally conforming to API 609 Category A /BS EN 558-1 Series 20,/ ISO 5752Series 20

| Cv VALUES | Valve Size |     | Disc Opening Angle (In Degree) |      |       |       |       |       |       |       |
|-----------|------------|-----|--------------------------------|------|-------|-------|-------|-------|-------|-------|
|           | Inch       | DN  | 10°                            | 20°  | 30°   | 40°   | 50°   | 60°   | 70°   | 80°   |
| 26        | 650        | 278 | 1096                           | 2705 | 4757  | 7759  | 12121 | 19167 | 28611 | 35264 |
| 28        | 700        | 286 | 1309                           | 3011 | 5379  | 8536  | 13695 | 22258 | 33907 | 40598 |
| 30        | 750        | 416 | 1607                           | 3855 | 6936  | 11158 | 17566 | 28717 | 42467 | 50744 |
| 32        | 800        | 528 | 1947                           | 4527 | 7813  | 12508 | 20253 | 31947 | 48473 | 59094 |
| 36        | 900        | 732 | 2684                           | 5753 | 9568  | 15045 | 24669 | 39184 | 58676 | 75992 |
| 40        | 1000       | 737 | 2895                           | 6889 | 11805 | 19079 | 30253 | 50242 | 73405 | 86598 |

Note :- Rated Cv = The volume of water in USgpm that will pass through a given valve opening at a pressure drop of 1 psi.

| TORQUE (Lb-Inch)                   | Valve Size                                 |       | 26"   | 28"   | 30"   | 32"   | 36"   | 40"   |
|------------------------------------|--|-------|-------|-------|-------|-------|-------|-------|
|                                    | Full Rated Pressure Valve $\Delta P$ , PSI | 50    | 14691 | 17364 | 20090 | 23762 | 31241 | 37037 |
|                                    | 100  | 19488 | 23364 | 27285 | 32878 | 44029 | 54649 |       |
|                                    | 150  | 24338 | 29382 | 34515 | 41949 | 56817 | 72260 |       |
| Reduced Disc Dia. $\Delta P$ , PSI | 50   | 9408  | 11204 | 12965 | 15532 | 20727 | 27302 |       |

| TORQUE (Nm)                        | Valve Size                                 |      | 3.5  | 7    | 10   | 1660 | 1962 | 2270 | 2685 | 3530 | 4185 |
|------------------------------------|--|------|------|------|------|------|------|------|------|------|------|
|                                    | Full Rated Pressure Valve $\Delta P$ , Bar | 3.5  | 1660 | 1962 | 2270 | 2685 | 3530 | 4185 |      |      |      |
|                                    | 7  | 2202 | 2640 | 3083 | 3715 | 4975 | 6174 |      |      |      |      |
|                                    | 10   | 2750 | 3320 | 3900 | 4740 | 6420 | 8165 |      |      |      |      |
| Reduced Disc Dia. $\Delta P$ , Bar | 3.5  | 1063 | 1266 | 1465 | 1755 | 2342 | 3085 |      |      |      |      |

# Material of Construction

## Body

- Cast Iron ASTM A126 Class B
- Ductile Iron ASTM A536 Grade 65-45-12
- Carbon Steel ASTM A 216 WCB

## Disc

- Nylon 12 Coated Ductile Iron ASTM A536 Grade 65-45-12
- DI ASTM A 536 Grade 65-45-12 + Aroxy coated
- 316 Stainless Steel ASTM A351 Grade CF8M

## Stem

- 410 Stainless Steel ASTM A479 Type 410
- 316 Stainless Steel ASTM A276 Type 316
- Carbon Steel BS 970

## Seat

- EPDM - Food Grade
- Buna-N - Food Grade
- Viton® / FKM - Food Grade
- Silicone

## Operators:

- Gear Operators can be direct mounted to valves for manual operation.
- All valves can be direct mounted with pneumatic actuators or electric actuators and accessories for complete automation options such as fail open/close & positioner controlled. Valves can be mounted with manual overrides.

## Seat Temperature Range:

| Seat Type   | Temperature Range |                |
|-------------|-------------------|----------------|
|             | Min.              | Max.           |
| EPDM        | -13° F (-25°C)    | 302° F (150°C) |
| BUNA-N      | -13° F (-25°C)    | 212° F (100°C) |
| Viton®/ FKM | 23° F (-5°C)      | 392° F (200°C) |
| Silicone    | -58° F (-50°C)    | 356° F (180°C) |

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## Parts List:

| Item No. | Part Description | Qty |
|----------|------------------|-----|
| 1        | BODY             | 1   |
| 2        | DISC             | 1   |
| 3        | SEAT             | 1   |
| 4        | STEM             | 1   |
| 5        | 'U' CUP SEAL     | 1   |
| 6        | BEARING          | 2   |
| 7        | RETAINER CIRCLIP | 1   |
| 8        | RETAINING RING   | 1   |
| 9        | SOC. HD. SCREW   | 6   |
| 10       | BEARING SPACER   | 1   |
| 11       | THRUST BEARING   | 1   |
| 12       | 'O' RING         | 1   |
| 13       | BOTTOM PLATE     | 1   |
| 14       | WASHER           | 6   |
| 15       | HEX. BOLT        | 6   |
| 16       | KEY              | 1   |
| 17       | SOC. SCREW       | 1   |

## General Design and Manufacturing Standard:

API 609 / BS EN -593

Note : Flanged body construction conforming to 'U' section wafer body as per EN-593

## Testing Standard:

API 598 / BS EN 12266-1

## Pressure Rating:

For bi-directional bubble tight shut off and full vacuum service with disc in the closed position.

| Inch     | DN         | PSIG | BARG |
|----------|------------|------|------|
| 26"- 40" | 650 - 1000 | 50   | 3.5  |
| 26"- 40" | 650 - 1000 | 150  | 10   |

