

# FireLock™ High Pressure Butterfly Valve

## Series 765 with Weatherproof Actuator



### 1.0 PRODUCT DESCRIPTION

**Available Sizes**

- 2 – 12"/DN50 – DN300

**Maximum Working Pressure**

- Up to 365 psi/2517 kPa/25 bar

**Application**

- High pressure butterfly valve with an approved weatherproof actuator housing for indoor or outdoor use
- Designed for fire protection services only.

### 2.0 CERTIFICATION/LISTINGS



ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

|              |  |          |  |
|--------------|--|----------|--|
| System No.   |  | Location |  |
| Submitted By |  | Date     |  |

|              |  |           |  |
|--------------|--|-----------|--|
| Spec Section |  | Paragraph |  |
| Approved     |  | Date      |  |

## 2.0 CERTIFICATION/LISTINGS (CONTINUED)

| Size                        |                                                | Approval/Listing Service Pressures |                  |                   |                    |                   |
|-----------------------------|------------------------------------------------|------------------------------------|------------------|-------------------|--------------------|-------------------|
| Nominal<br><br>inches<br>DN | Actual Outside<br>Diameter<br><br>inches<br>mm | Series 765 Butterfly Valve         |                  |                   |                    |                   |
|                             |                                                | cULus<br>psi<br>kPa                | FM<br>psi<br>kPa | VdS<br>psi<br>kPa | LPCB<br>psi<br>kPa | CCC<br>psi<br>kPa |
| 2<br>DN50                   | 2.375<br>60.3                                  | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
| 2½                          | 2.875<br>73.0                                  | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | –                 |
| DN65                        | 3.000<br>76.1                                  | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
| 3<br>DN80                   | 3.500<br>88.9                                  | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
|                             | 4.250<br>108.0                                 | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | 363<br>2500       |
| 4<br>DN100                  | 4.500<br>114.3                                 | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
|                             | 5.250<br>133.0                                 | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | –                 |
| DN125                       | 5.500<br>139.7                                 | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | –                 |
| 5                           | 5.563<br>141.3                                 | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | –                 |
|                             | 6.250<br>159.0                                 | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | 363<br>2500       |
|                             | 6.500<br>165.1                                 | 365<br>2517                        | 365<br>2517      | –                 | 365<br>2517        | 363<br>2500       |
| 6<br>DN150                  | 6.625<br>168.3                                 | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
| 8<br>DN200                  | 8.625<br>219.1                                 | 365<br>2517                        | 365<br>2517      | 365<br>2517       | 365<br>2517        | 363<br>2500       |
| 10<br>DN250                 | 10.750<br>273.0                                | 365<br>2517                        | 300<br>2068      | –                 | 365<br>2517        | 363<br>2500       |
| 12<br>DN300                 | 12.750<br>323.9                                | 365<br>2517                        | 300<br>2068      | –                 | 365<br>2517        | –                 |

## 3.0 SPECIFICATIONS – MATERIAL

**Body:** Ductile iron conforming to ASTM A536, Grade 65-45-12.

**End Face, 2 – 6"/DN50 – DN150:** Ductile iron conforming to ASTM A536, Grade 65-45-12

**Seal Retainer, 8 – 12"/DN200 – DN300:** Ductile iron conforming to ASTM A536, Grade 65-45-12

**Coating:** Black alkyd enamel

**Disc:** Ductile iron conforming to ASTM A536, Grade 65-45-12, with electroless nickel coating conforming to ASTM B733

**Seat:**

**Victaulic Grade "T" Nitrile**

Nitrile (Orange stripe color code) For water related services, this gasket may be specified for temperatures rated up to +150°F/+66°C. NOT COMPATIBLE FOR USE WITH HOT WATER SERVICES OR STEAM SERVICES

**Stems:** 416 stainless steel conforming to ASTM A582

**Stem Seal Cartridge:** Brass

**Bearings:** Stainless steel with TFE lining

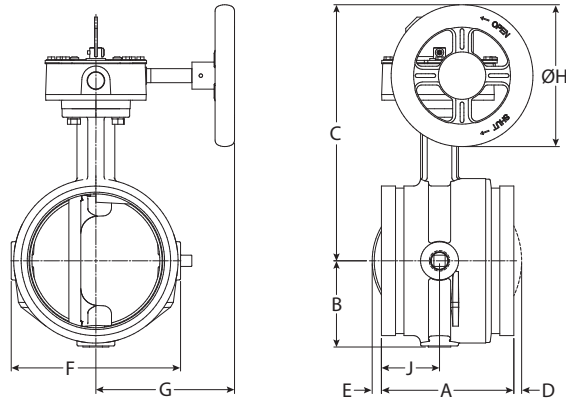
**Stem Seals:** Nitrile

**Stem Retaining Ring:** Carbon steel

**Actuator:**

- **2 – 8"/DN50 – DN200:** Bronze traveling nut on a steel lead screw, in a ductile iron housing
- **10 – 12"/DN250 – DN300:** Steel worm and cast iron quadrant gear, in a cast iron housing

## 4.0 DIMENSIONS



| Size         |                  | Dimensions        |                   |                   |                   |                   |                   |                   |                   |                   |  | Weight       |
|--------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|--------------|
| Nominal      | Outside Diameter | End to End        |                   |                   |                   |                   |                   |                   |                   |                   |  | Approx. Each |
| inches<br>DN | inches<br>mm     | A<br>inches<br>mm | B<br>inches<br>mm | C<br>inches<br>mm | D<br>inches<br>mm | E<br>inches<br>mm | F<br>inches<br>mm | G<br>inches<br>mm | H<br>inches<br>mm | J<br>inches<br>mm |  | lb<br>kg     |
| 2            | 2.375            | 4.25              | 2.28              | 6.41              | —                 | —                 | 4.00              | 4.22              | 4.50              | 2.12              |  | 8.2          |
| DN50         | 60.3             | 108               | 58                | 163               | —                 | —                 | 102               | 107               | 114               | 54                |  | 3.7          |
| 2½           | 2.875            | 3.77              | 2.28              | 7.54              | —                 | —                 | 4.00              | 4.22              | 4.50              | 1.77              |  | 9.7          |
|              | 73.0             | 96                | 58                | 192               | —                 | —                 | 102               | 107               | 114               | 45                |  | 4.4          |
| DN65         | 3.000            | 3.77              | 2.28              | 7.54              | —                 | —                 | 4.00              | 4.22              | 4.50              | 1.77              |  | 9.7          |
|              | 76.1             | 96                | 58                | 192               | —                 | —                 | 102               | 107               | 114               | 45                |  | 4.4          |
| 3            | 3.500            | 3.77              | 2.53              | 7.79              | —                 | —                 | 4.50              | 4.22              | 4.50              | 1.77              |  | 10.7         |
| DN80         | 88.9             | 96                | 64                | 198               | —                 | —                 | 114               | 107               | 114               | 45                |  | 4.9          |
|              | 4.250            | 4.63              | 2.88              | 8.81              | —                 | —                 | 5.50              | 4.22              | 4.50              | 2.20              |  | —            |
|              | 108.0            | 118               | 73                | 224               | —                 | —                 | 140               | 107               | 114               | 56                |  | —            |
| 4            | 4.500            | 4.63              | 2.88              | 8.81              | —                 | —                 | 5.50              | 4.22              | 4.50              | 2.20              |  | 14.0         |
| DN100        | 114.3            | 118               | 73                | 224               | —                 | —                 | 140               | 107               | 114               | 56                |  | 6.4          |
|              | 5.250            | 5.88              | 3.35              | 10.88             | —                 | —                 | 6.56              | 6.19              | 6.30              | 2.58              |  | —            |
|              | 133.0            | 149               | 85                | 276               | —                 | —                 | 167               | 157               | 160               | 66                |  | —            |
| DN125        | 5.500            | 5.88              | 3.35              | 10.88             | —                 | —                 | 6.56              | 6.19              | 6.30              | 2.58              |  | —            |
|              | 139.7            | 149               | 85                | 276               | —                 | —                 | 167               | 157               | 160               | 66                |  | —            |
| 5            | 5.563            | 5.88              | 3.35              | 10.88             | —                 | —                 | 6.56              | 6.19              | 6.30              | 2.58              |  | 25.4         |
|              | 141.3            | 149               | 85                | 276               | —                 | —                 | 167               | 157               | 160               | 66                |  | 11.5         |
|              | 6.250            | 5.88              | 3.84              | 11.38             | —                 | 0.41              | 7.52              | 6.19              | 6.30              | 2.58              |  | —            |
|              | 159.0            | 149               | 98                | 289               | —                 | 10                | 191               | 157               | 160               | 66                |  | —            |
|              | 6.500            | 5.88              | 3.84              | 11.38             | —                 | 0.41              | 7.52              | 6.19              | 6.30              | 2.58              |  | 28.7         |
|              | 165.1            | 149               | 98                | 289               | —                 | 10                | 191               | 157               | 160               | 66                |  | 13.0         |
| 6            | 6.625            | 5.88              | 3.84              | 11.38             | —                 | 0.41              | 7.52              | 6.19              | 6.30              | 2.58              |  | 28.7         |
| DN150        | 168.3            | 149               | 98                | 289               | —                 | 10                | 191               | 157               | 160               | 66                |  | 13.0         |
| 8            | 8.625            | 5.33              | 5.07              | 12.63             | 0.80              | 1.47              | 10.00             | 6.19              | 6.30              | 2.33              |  | 43.0         |
| DN200        | 219.1            | 135               | 129               | 321               | 20                | 37                | 254               | 157               | 160               | 59                |  | 19.5         |
| 10           | 10.750           | 6.40              | 6.37              | 15.64             | 1.41              | 1.81              | 12.25             | 8.10              | 9.00              | —                 |  | 80.6         |
| DN250        | 273.0            | 163               | 162               | 397               | 36                | 46                | 311               | 206               | 229               | —                 |  | 36.5         |
| 12           | 12.750           | 6.50              | 7.36              | 16.64             | 2.30              | 2.80              | 14.25             | 8.10              | 9.00              | —                 |  | 94.6         |
| DN300        | 323.9            | 165               | 187               | 423               | 58                | 71                | 362               | 206               | 229               | —                 |  | 42.9         |

## 5.0 PERFORMANCE

The chart expresses the frictional resistance of Victaulic FireLock™ Series 765 High Pressure Butterfly Valve in equivalent feet/meters of straight pipe.

| Size                    |                                         | Equivalent<br>Feet/M of Pipe |
|-------------------------|-----------------------------------------|------------------------------|
| Nominal<br>inches<br>mm | Actual Outside Diameter<br>inches<br>mm |                              |
| 2<br>DN50               | 2.375<br>60.3                           | 6<br>1.8                     |
| 2 ½                     | 2.875<br>73.0                           | 6<br>1.8                     |
| DN65                    | 3.000<br>76.1                           | 6<br>1.8                     |
| 3<br>DN80               | 3.500<br>88.9                           | 7<br>2.1                     |
|                         | 4.250<br>108.0                          | 8<br>2.4                     |
| 4<br>DN100              | 4.500<br>114.3                          | 8<br>2.4                     |
|                         | 5.250<br>133.0                          | 12<br>3.7                    |
| DN125                   | 5.500<br>139.7                          | 12<br>3.7                    |
| 5                       | 5.563<br>141.3                          | 12<br>3.7                    |
|                         | 6.250<br>159.0                          | 14<br>4.3                    |
|                         | 6.500<br>165.1                          | 14<br>4.2                    |
| 6<br>DN150              | 6.625<br>168.3                          | 14<br>4.2                    |
| 8<br>DN200              | 8.625<br>219.1                          | 16<br>4.9                    |
| 10<br>DN250             | 10.750<br>273.0                         | 18<br>5.5                    |
| 12<br>DN300             | 12.750<br>323.9                         | 19<br>5.8                    |

## 5.1 PERFORMANCE

C<sub>v</sub> values for flow of water at +60°F/+16°C with a fully open valve are shown in the table below. For additional details, contact Victaulic.

### Formulas for C<sub>v</sub> Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

#### Where:

Q = Flow (GPM)

ΔP = Pressure Drop (psi)

C<sub>v</sub> = Flow Coefficient

### Formulas for K<sub>v</sub> Values:

$$\Delta P = \frac{Q^2}{K_v^2}$$

$$Q = K_v \times \sqrt{\Delta P}$$

#### Where:

Q = Flow (m<sup>3</sup>/hr)

ΔP = Pressure Drop (Bar)

K<sub>v</sub> = Flow Coefficient

| Size                    |                                               |  | Flow Coefficient                              |
|-------------------------|-----------------------------------------------|--|-----------------------------------------------|
| Nominal<br>inches<br>mm | Actual<br>Outside<br>Diameter<br>inches<br>mm |  | Full Open<br>C <sub>v</sub><br>K <sub>v</sub> |
| 2<br>DN50               | 2.375<br>60.3                                 |  | 170<br>147                                    |
| 2 ½                     | 2.875<br>73.0                                 |  | 260<br>225                                    |
| DN65                    | 3.000<br>76.1                                 |  | 260<br>225                                    |
| 3<br>DN80               | 3.500<br>88.9                                 |  | 440<br>380                                    |
|                         | 4.250<br>108.0                                |  | 820<br>710                                    |
| 4<br>DN100              | 4.500<br>114.3                                |  | 820<br>710                                    |
|                         | 5.250<br>133.0                                |  | 1200<br>1040                                  |
| DN125                   | 5.500<br>139.7                                |  | 1200<br>1040                                  |
| 5                       | 5.563<br>141.3                                |  | 1200<br>1040                                  |
|                         | 6.250<br>159.0                                |  | 1800<br>1560                                  |
|                         | 6.500<br>165.1                                |  | 1800<br>1560                                  |
| 6<br>DN150              | 6.625<br>168.3                                |  | 1800<br>1560                                  |
| 8<br>DN200              | 8.625<br>219.1                                |  | 3400<br>2940                                  |
| 10<br>DN250             | 10.750<br>273.0                               |  | 5800<br>5020                                  |
| 12<br>DN300             | 12.750<br>323.9                               |  | 9000<br>7790                                  |