

# FireLock® High Pressure Butterfly Valve



**SERIES 766 BUTTERFLY VALVE (SUPERVISED CLOSED)  
INCLUDES WEATHERPROOF ACTUATOR**

The Series 766 high pressure butterfly valve features a weatherproof actuator housing approved for indoor or outdoor use. It has been developed for fire pump metering test lines, per NFPA 20 and rooftop test units, as well as pressure reducing valve by-pass lines per NFPA 14. The Series 766 has a ductile iron body and disc with Nitrile seats. Designed for fire protection services only. Contact Victaulic for details of agency approvals. The Series 766 Butterfly Valve is designed to be SUPERVISED CLOSED. Under normal operating conditions, this valve will be CLOSED, and the internal limit switches will supervise the valve only in the CLOSED position. The valve will be in the open position only during system testing and maintenance.

This supervised closed Series 766 Butterfly Valve should NOT be installed where fluid flow is required as part of normal system operation.



**APPROVALS AND LISTINGS**

	Approval/Listing Service Pressures Series 766 Butterfly Valve		
	cULus	FM	VdS
2"/50mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
2 1/2"/65mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
76.1mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
3"/80mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
108mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
4"/100mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
133mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
5"/125mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
139.7mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
6"/150mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa
159mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
165.1mm	up to 365psi/2517kPa	up to 365psi/2517kPa	n/a
8"/200mm	up to 365psi/2517kPa	up to 365psi/2517kPa	up to 365psi/2517kPa

**JOB/OWNER**

System No. \_\_\_\_\_  
Location \_\_\_\_\_

**CONTRACTOR**

Submitted By \_\_\_\_\_  
Date \_\_\_\_\_

**ENGINEER**

Spec Sect \_\_\_\_\_ Para \_\_\_\_\_  
Approved \_\_\_\_\_  
Date \_\_\_\_\_

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### MATERIAL SPECIFICATIONS

**Body:** Ductile iron conforming to ASTM A-536, grade 65-45-12

**End Face, 2 – 6"/50 – 150mm:** Ductile iron conforming to ASTM A-536, grade 65-45-12

**Seal Retainer, 8"/200mm:** Ductile iron conforming to ASTM A-536, grade 65-45-12

**Coating:** Black alkyd enamel

**Disc:** Ductile iron conforming to ASTM A-536, grade 65-45-12, with electroless nickel coating conforming to ASTM B-733

**Seat:**

- Grade "T3" Nitrile

**Stems:** 416 stainless steel conforming to ASTM A-582

**Stem Seal Cartridge:** C36000 brass

**Bearings:** Stainless Steel with TFE lining

**Stem Seals:** Nitrile

**Stem Retaining Ring:** Carbon steel

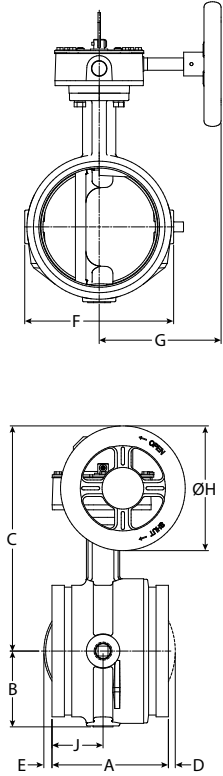
**Actuator:**

- 2 - 8"/50 - 200mm: Brass or bronze traveling nut on a steel lead screw, in a ductile iron housing

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## DIMENSIONS –



Size		Dimensions – Inches/millimeters									
Size	Outside Diameter	End to End A	B	C	D	E	F	G	DIA H	J	
2" 60.3 mm	2.375 60.3	4.25 108.0	2.28 57.9	6.41 162.8	—	—	4.00 101.6	4.22 107.2	4.50 114.3	2.12 53.8	
2½" 73 mm	2.875 73.0	3.77 95.8	2.28 57.9	7.54 191.5	—	—	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0	
76.1 mm	3.000 76.1	3.77 95.8	2.28 57.9	7.54 191.5	—	—	4.00 101.6	4.22 107.2	4.50 114.3	1.77 45.0	
3" 88.9 mm	3.500 88.9	3.77 95.8	2.53 64.3	7.79 197.9	—	—	4.50 114.3	4.22 107.2	4.50 114.3	1.77 45.0	
108 mm	4.250 108.0	4.63 117.6	2.88 73.2	8.81 223.8	—	—	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9	
4" 114.3 mm	4.500 114.3	4.63 117.6	2.88 73.2	8.81 223.8	—	—	5.50 139.7	4.22 107.2	4.50 114.3	2.20 55.9	
133 mm	5.250 133.0	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5	
139.7 mm	5.500 139.7	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.6	
5" 141.3 mm	5.563 141.3	5.88 149.4	3.35 85.1	10.88 276.4	—	—	6.56 166.6	6.19 157.2	6.30 160.0	2.58 65.5	
159 mm	6.250 159.0	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5	
165.1 mm	6.500 165.1	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	2.58 65.5	
6" 168.3	6.625 168.3	5.88 149.4	3.84 97.5	11.38 289.1	—	0.41 10.4	7.52 191.0	6.19 157.2	6.30 160.0	1.90 48.3	
8" 219.1 mm	8.625 219.1	5.33 135.4	5.07 128.8	13.53 343.6	0.80 20.3	1.47 37.3	10.00 254.0	6.19 157.2	8.1 205.7	2.33 59.2	

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**PERFORMANCE**

The chart expresses the frictional resistance of Victaulic Series 766 Supervised CLOSED High Pressure Butterfly Valve in equivalent feet/meters of straight pipe.

Size			Size		
Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe	Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe
2 50	2.375 60.3	6 1.8	6 150	6.625 168.3	14 4.2
2½ 65	2.875 73.0	6 1.8	159 mm	159 mm	14 4.3
76.1 mm	3.000 76.1	6 1.8	165.1 mm	6.500 165.1	14 4.2
3 80	3.500 88.9	7 2.1	8 200	8.625 219.1	16 4.9
4 100	4.500 114.3	8 2.4			
108 mm	108 mm	8 2.4			
5 125	5.563 141.3	12 3.7			
133 mm	133 mm	12 3.7			
139.7 mm	5.500 139.7	12 3.7			

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**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

Size		C <sub>v</sub> (Full Open)	Size		C <sub>v</sub> (Full Open)	Size		C <sub>v</sub> (Full Open)
Nominal Size Inches mm	Actual Outside Diameter Inches mm		Nominal Size Inches mm	Actual Outside Diameter Inches mm		Nominal Size Inches mm	Actual Outside Diameter Inches mm	
2	2.375 60.3	170	5 125	5.563 141.3	1200	8 200	8.625 219.1	3400
2½ 65	2.875 73.0	260	133 mm	133 mm	1200			
76.1 mm	3.000 76.1	260	139.7 mm	5.500 139.7	1200			
3 80	3.500 88.9	440	6 150	6.625 168.3	1800			
4 100	4.500 114.3	820	159 mm	159 mm	1800			
108 mm	108 mm	820	165.1 mm	6.500 165.1	1800			

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

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

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

**Where:**

Q = Flow ( $\frac{m^3}{hr}$ )

ΔP = Pressure (bar)

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

Size		K <sub>v</sub> (Full Open)	Size		K <sub>v</sub> (Full Open)	Size		K <sub>v</sub> (Full Open)
Nominal Size Inches mm	Actual Outside Diameter Inches mm		Nominal Size Inches mm	Actual Outside Diameter Inches mm		Nominal Size Inches mm	Actual Outside Diameter Inches mm	
2	2.375 60.3	147	5 125	5.563 141.3	1040	8 200	8.625 219.1	2940
2½ 65	2.875 73.0	225	133 mm	133 mm	1040			
76.1 mm	3.000 76.1	225	139.7 mm	5.500 139.7	1040			
3 80	3.500 88.9	380	6 150	6.625 168.3	1560			
4 100	4.500 114.3	710	159 mm	159 mm	1560			
108 mm	108 mm	710	165.1 mm	6.500 165.1	1560			

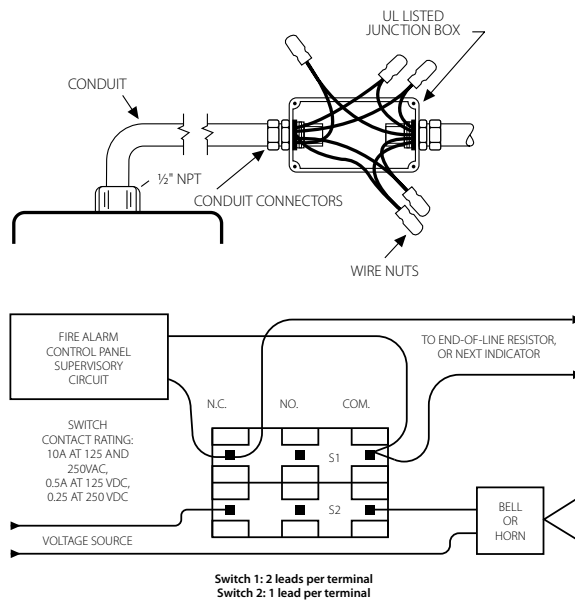
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## SWITCH AND WIRING

1. The supervisory switch contains two single pole, double throw, pre-wired switches.
2. Switches are rated:
  - 10 amps @ 125 or 250 VAC/60 Hz
  - 0.50 amps @ 125 VDC
  - 0.25 amps @ 250 VDC
3. **Switches supervise the valve in the “CLOSED” position.**
4. One switch has two #18 insulated wires per terminal, which permit complete supervision of leads (refer to diagrams and notes on this page). The second switch has one #18 insulated wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
5. A #14 insulated ground lead (green) is provided.
  - Switch #1 = S1 For connection to the supervisory circuit of a UL Listed alarm control panel
  - Switch #2 = S2 Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

- |    |   |  |
|----|---|--|
| S1 | { | Normally Closed: (2) Blue<br>Common: (2) Yellow  |
| S2 | { | Normally Closed: Blue with Orange Stripe<br>Normally Open: Brown with Orange Stripe<br>Common: Yellow with Orange Stripe |



**NOTE:**

The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange strip – S2). In this example, the indicator light and alarm will stay on until the valve is fully **CLOSED**. When the valve is fully **CLOSED**, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).

Only S1 (two leads per terminal) may be connected to the fire alarm control panel.

The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

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**WARRANTY**

Refer to the Warranty section of the current Price List or contact Victaulic for details.

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**NOTE**

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

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**INSTALLATION**

Reference should always be made to the installation sheet included with the valve. Verify you have the latest revision by visiting our website at [www.victaulic.com](http://www.victaulic.com). Further reference can be found in the I-100 Victaulic Field Installation Handbook.

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For complete contact information, visit [www.victaulic.com](http://www.victaulic.com)

10.83 5664 REV B UPDATED 9/2010

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