



# TECHNICAL DATA

**HIGH PRESSURE  
SOLENOID VALVE**  
RATED TO 300 PSI (21 BAR)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services 877-384-5464 Fax: 269-945-4495 Email: techsvcs@vikingcorp.com

## 1. DESCRIPTION

The high pressure solenoid valve is a two-way type with one inlet and one outlet. It is a packless, internal pilot operated valve, suitable for use in releasing water pressure from the priming chamber of Viking Model E Series Deluge Valves and Viking Model H Series Flow Control Valves. The solenoid valve has floating diaphragm construction, which requires a minimum pressure drop across the valve to operate properly. The valves are available with a voltage rating of 24V DC in a normally closed or normally open configuration, or 110/50-120/60 normally closed configuration. These solenoid valves are for use with system control units that are listed and/or approved for releasing service for water based fire protection systems.

### Features:

1. Normally closed or Normally open
2. 24 VDC or 110/50-120/60 VAC
3. Easy to clean.
4. Body Style: Straight through
5. Required Accessories: A 50 mesh strainer must be installed on the inlet side of the valve at the priming line connection. This strainer is included as part of the Model E-1 Deluge Valve Trim and Model H Flow Control Valve Trim.
6. NEMA 1 through 9. (See Table 1)



**WARNING:** Cancer and Reproductive Harm-  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Table 1 - Part Numbers and Specifications**

Description <sup>1</sup>	Model <sup>2</sup>	Part Number	For Viking System	Orifice	Wattage	DC Current	Maximum Ambient Temp.	Cv Factor	Listings & Approvals					
									UL	CE	ATEX <sup>6</sup>	CSA	FM <sup>9</sup>	LPCB
<b>Normally Closed</b>														
NEMA 2,3,3S,4,4X	24 VDC	11591	<b>Firecycle III, TotalPac &amp; Special Application</b>	9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	Yes <sup>3</sup>	Yes	No	Yes <sup>8</sup>	Yes	Yes
NEMA 1,2,3,3S,4,4X	110 VAC/50 HZ	11593		9/16"	10.0 AC	416 mA	150°F (65°C)	4.1	Yes <sup>3</sup>	Yes	No	Yes <sup>8</sup>	No	No
NEMA 1,2,3,3S,4,4X	120 VAC/60 HZ	11593		9/16"	10.0 AC	416 mA	150°F (65°C)	4.1	Yes <sup>3</sup>	Yes	No	Yes <sup>8</sup>	No	No
<b>Explosion Proof</b>														
NEMA 3,3S,4,4X,6,6P,7,9	24 VDC	11592		9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	Yes <sup>4</sup>	Yes	No	Yes <sup>7</sup>	Yes	No
NEMA 3,3S,4,4X,6,6P,7,9	110 VAC/50 HZ	11594		9/16"	10.0 AC	416 mA	150°F (65°C)	4.1	Yes <sup>4</sup>	No	No	Yes <sup>7</sup>	No	No
NEMA 3,3S,4,4X,6,6P,7,9	120 VAC/60 HZ	11594		9/16"	10.0 AC	416 mA	150°F (65°C)	4.1	Yes <sup>4</sup>	No	No	Yes <sup>7</sup>	No	No
ATEX, EEx, mII, T4/T5	110 VAC/50 HZ	12359		9/16"	10.0 AC	416 mA	150°F (65°C)	4.1	No	Yes	Yes	No	No	Yes
ATEX, EEx, mII, T4/T5	24 VDC	12360		9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	No	Yes	Yes	No	No	Yes
<b>Normally Open</b>														
NEMA 2,3,3S,4,4X	24 VDC	11595	<b>Firecycle III</b>	9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	Yes <sup>5</sup>	Yes	No	Yes <sup>8</sup>	Yes	Yes
<b>Explosion Proof</b>														
NEMA 3,3S,4,4X,6,6P,7,9	24 VDC	11596	<b>Surefire &amp; Trimpac</b>	9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	Yes <sup>4</sup>	No	No	Yes <sup>7</sup>	Yes	No
ATEX, EEx, mII, T4/T5	24 VDC	12358		9/16"	10.0 DC	416 mA	150°F (65°C)	4.1	No	Yes	Yes	No	No	Yes

**Footnotes:**

- <sup>1</sup> Enclosure type: 1 (General Purpose) 2 (Drip-Proof), 3 and 3S (Raintight), 4 and 4X (Watertight), 7 (Explosion-Proof, Class I, Groups A, B, C, and D), 9 (Dust Ignition-Proof Class II, Groups E, F, and G)
- <sup>2</sup> For AC voltages, inrush current (i.e. start plunger moving) = 93 volt amps. Holding current (i.e. to hold plunger open) = 40 volt amps.
- <sup>3</sup> UL Listed as Fire Protection Special System Water Control Release Service (UL 429A Product Category VLTR).
- <sup>4</sup> UL Listed as 429 Hazardous Location
- <sup>5</sup> UL Listed as Safety Shut-off (UL 429)
- <sup>6</sup> For Atex Certification, coil is an HZ10 and includes internal and external ground, with 1500 mm long molded cable. Certificate of Conformity LCIE 02 ATEX 6020 X.
- <sup>7</sup> Explosion-proof versions are CSA recognized to CSA Standards C22.2 Nos. 0, 139, 25, and 30. They are certified for Hazardous Locations Class I, Groups A, B, C and D; Class II, Groups E, F, and G.
- <sup>8</sup> CSA recognized to CSA Standards C22.2 number 0 and number 129.
- <sup>9</sup> FM Approved

**General Notes:**

FM does not allow 110V/50 HZ or 120V/60 Hz solenoid power supplies for fire protection.  
Overall take-out (end of inlet nipple to end of outlet nipple) = 2.95" (74,9 mm). All valves have 1/2" (15 mm) NPT connections.



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### 2. TECHNICAL DATA

#### Specifications

Body: Brass with 1/2" (15 mm) NPT connections

Coil: Class F, Continuous Duty

Maximum Operating Pressure: 300 psi (20.7 bar)

Minimum Operating Pressure: 5 psi (.34 bar)

See Table 1 for enclosure descriptions and recommended ambient temperatures.

#### Material Standards

Seals and Discs: Viton

Tube Sleeve: 303 Stainless Steel

Pilot Guide: 303 Stainless Steel

Pilot Orifice: 303 Stainless Steel

Piston: 303 Stainless Steel

Plunger: 430 Stainless Steel

Spring: 18-8 Stainless Steel

#### Ordering Information

Part Number: See Table 1

Manufacturer: Parker Hannifin Corp. Skinner Valve division

Viking Technical Data may be found on  
The Viking Corporation's Web site at  
<http://www.vikinggroupinc.com>.  
The Web site may include a more recent  
edition of this Technical Data Page.

### 3. LISTINGS AND APPROVALS (See Table 1 for specific model approvals)



UL Listed - VLTR

FM Approved



CE Approved

ATEX Certified - LCIE 02 A

CSA - Standard C22.2

### 4. INSTALLATION

1. Check nameplate for correct unit, including voltage and mode of operation. Follow all installation and maintenance instructions enclosed with the valve.
2. Standard solenoids may be mounted in any position. However, for optimum life and performance, solenoids should be mounted vertically and upright with the coil upright.
3. A 50 mesh strainer is required on the inlet side of the valve at the priming line connection. This strainer is included as part of the Model E-1 Deluge Valve Trim. Install the strainer as indicated on Viking's trim drawing. Install the solenoid according to markings on the valve body. Apply pipe-joint compound sparingly to male pipe threads only. If applied to valve threads, it may enter the valve and cause operation difficulty or leakage. Avoid putting pipe compound on first two male threads as well.
4. The unit must be wired in accordance with local and national electrical codes. For valves equipped with water tight enclosures, the electrical fittings must be approved for use in the hazardous location.
5. Upon completing the installation, the entire system must be tested for proper operation. See system description and testing instructions for additional information.

### 5. OPERATION

The solenoid valve is an internal pilot operated valve with pilot and bleed orifices utilizing line pressure for operation. Normally closed, de-energized valves open when energized. Power is applied to the solenoid coil, causing the solenoid core to lift, opening the pilot orifice to the outlet side of the valve. This relieves pressure on the top side of the diaphragm and allows the line pressure to open the valve. When de-energized, the solenoid core reseals the pilot orifice, allowing the line pressure to build above the diaphragm, closing the valve.

Normally closed solenoid valves are commonly used as releases for Viking deluge and flow control valves. Opening the solenoid valve allows the deluge or flow control valve to open.

Note: When using a normally closed solenoid valve as a release, a system will not operate automatically on total loss of power. For this reason, it is recommended and normally required that an emergency back-up, supervised power supply be provided to maintain fire protection during interruptions of the main power system and to meet the requirements of appropriate Authorities Having Jurisdiction.



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### 6. INSPECTIONS, TESTS AND MAINTENANCE

**WARNING: THE OWNER IS RESPONSIBLE FOR MAINTAINING THE FIRE PROTECTION SYSTEM IN PROPER OPERATING CONDITION. ANY SYSTEM MAINTENANCE OR TESTING THAT INVOLVES PLACING A CONTROL VALVE OR DETECTION SYSTEM OUT OF SERVICE MAY ELIMINATE THE FIRE PROTECTION OF THAT SYSTEM. PRIOR TO PROCEEDING, NOTIFY ALL AUTHORITIES HAVING JURISDICTION. CONSIDERATION SHOULD BE GIVEN TO EMPLOYMENT OF A FIRE PATROL IN THE AFFECTED AREA.**

**WARNING: PRIOR TO OPERATING THE SOLENOID VALVE, BE SURE TO CLOSE THE SYSTEM CONTROL VALVE TO AVOID UNINTENTIONAL OPERATION OF THE DELUGE VALVE.**

1. Inspections: It is imperative that the system be inspected and tested in accordance with NFPA 25 on a regular basis. The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, or corrosive atmospheres. In addition, the alarm devices, detection systems, or other connected trim may require a more frequent schedule. Refer to the system description and applicable codes for minimum requirements.
2. The valve must be operated at least monthly. The valve must open and close freely. When open, the water flow must be clear and clean at the proper flow rate. When closed, a total water shut-off must be observed. After the test, the strainer must be cleaned. Prior to cleaning the strainer, the priming line valve must be closed and the priming line depressurized. After the strainer is cleaned, the priming line valve must be reopened.
3. The valve must be inspected at least monthly for cracks, corrosion, leakage, etc., and cleaned, repaired, or replaced as necessary.
4. At least annually, the valve diaphragms and seats must be inspected and if necessary, repaired or replaced.

**WARNING: CLOSE SYSTEM CONTROL VALVE, TURN OFF POWER SUPPLY, AND DEPRESSURIZE VALVE BEFORE DISASSEMBLING VALVE. IT IS NOT NECESSARY TO REMOVE THE VALVE FROM THE PIPE LINE TO MAKE INSPECTIONS.**

5. When lubricating valve components, use a high grade silicone grease (Dow Corning® 111 Compound Lubricant or equal).
6. When reassembling, tighten parts to torque values indicated in Parker's maintenance instructions (packed with valve).
7. After maintenance is completed, operate the valve a few times to be sure of proper operation. A metallic "click" signifies the solenoid is operating.
8. It is recommended that the valve be replaced at seven-year intervals. Shorter intervals may be required if the valve is subject to corrosive water supplies or atmospheres.
9. All service must be performed by qualified personnel. Upon completion of inspections or replacement of the valve, the entire system must be checked for proper operation. See appropriate system description and testing instructions for additional information.

### 7. AVAILABILITY

The Viking Solenoid Valve is available through a network of domestic and international distributors. See the Viking Corp. Web site for closest distributor or contact The Viking Corporation.

### 8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



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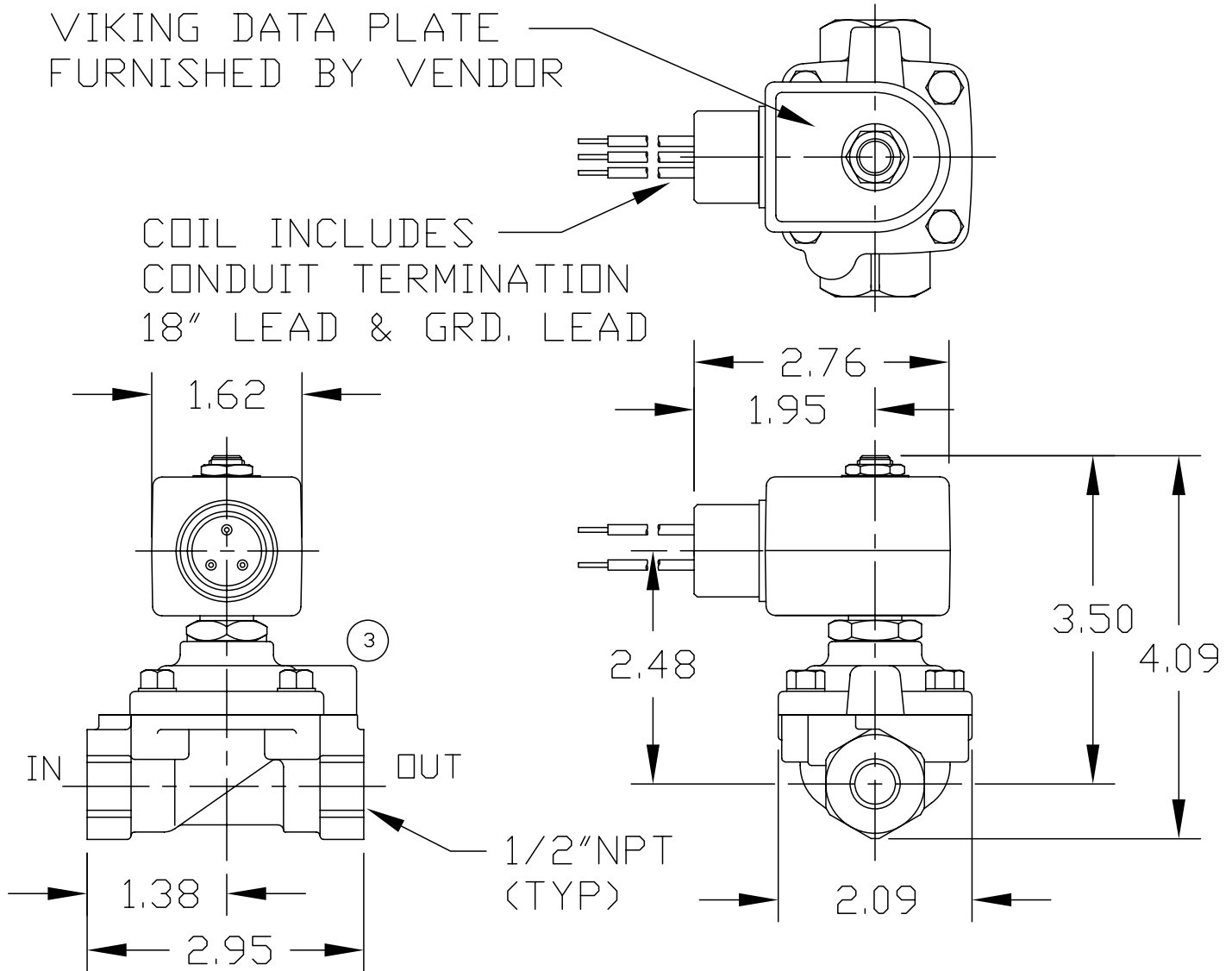
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VIKING DATA PLATE  
FURNISHED BY VENDOR

COIL INCLUDES  
CONDUIT TERMINATION  
18" LEAD & GRD. LEAD



**Figure 1** - Dimensions are the same for all models