

Reliable®

Solenoid Valves

For use in Deluge and Preaction Systems With an Electric Release

Features

1. Normally Closed (Energize to Open)⁽¹⁾
2. 24 VDC (Most Common)
 - 120 VAC - 60 HZ⁽²⁾ (See Table 1)
 - 110 VAC - 50 HZ⁽²⁾ (See Table 1)
3. Easily cleaned / Straight Body Style
4. NEMA Ratings: See Table 1
5. Brass Body & Rubber Seals
With straight through design.

Listing and Approvals

UL Listed and CSA Certified under the name Parker Hannifin Corporation, Skinner Valve Division or Automatic Switch Company (ASCOA).

FM Approvals – See Automatic Water Control Valves.

Description

Solenoid Valves are two-way, pilot operated valves that are listed/approved releasing devices for Reliable Deluge and Preaction Systems utilizing electric detection. The solenoid valves are used in conjunction with a listed/approved releasing control panel, operated by listed/approved electric heat or smoke detectors. The releasing control panel must have a supervised releasing circuit and back up batteries (60 hour for UL and 90 Hour for FM compliance). The system will not operate with a total loss of power so inspection and maintenance of the battery charging function of the control panel is required.

Operation

A normally closed solenoid valve is the primary releasing device located in the trim outlet of the push rod chamber of a deluge control valve. When electrical current is provided from an approved releasing control panel the solenoid valve opens and discharges water pressure from the push rod chamber to a drain line. The



loss of water pressure in the push rod chamber will allow the deluge control valve to open releasing water into the connected sprinkler system piping. The actuation of the system is initiated by electric heat, smoke or flame detector (s) and/or manual release(s) used in conjunction with a solenoid valve releasing device and a releasing control panel. The solenoid valve is an internal pilot operated valve. The solenoid valve has pilot and bleed orifices that utilize 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 the 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 causing the valve to close. Normally closed solenoid valves are used in the trim of Reliable Deluge Valves where an electrical release is required. Notice: when using a normally closed solenoid valve, the system will not operate on total loss of power. The releasing panel used with the solenoid must have battery backup in order to operate the solenoid when the main power supply is lost.

The Reliable Automatic Sprinkler Co., Inc., 103 Fairview Park Drive, Elmsford, New York 10523

Technical Data

SKINNER Normally Closed/Energize to Open (24 VDC-1/2 inch NPT)⁽²⁾

Model No. 73218BN4UNLVNOC111C2⁽¹⁾

Rated Working Pressure: 20 to 175 PSI
Pipe Size: 1/2 inch NPT Female
Watts: 10
Approved by FM

Current: .41 amp Holding

Normally Closed/Energize to Open
Co Factor: 4.0
NEMA: 1,2,3,3S,4,& 4X
UL Listed, CSA Approved

Model 73218BN4UNLVNOH111C2⁽³⁾

XP (Explosion Proof)
Rated Working Pressure: 20 to 175 PSI
Pipe Size: 1/2 inch NPT Female
Watts: 10
Approved by FM

Current: .41 amp Holding

Normally Closed/Energize to Open
Cv Factor: 4.0
NEMA: 1,2,3,3S,4,4X,7,& 9
UL Listed, CSA Approved

ASCOA Normally Closed/Energize to Open (24 VDC-1/2 inch NPT)

Model No. 8210G207⁽⁴⁾

Rated Working Pressure: 20 to 175 PSI
Pipe Size: 1/2 inch NPT Female
Watts: 10.6
Approved by FM

Current: .44 amp Holding

Normally Closed/Energize to Open
Cv Factor: 3.0
NEMA: 1,2,3,3S,4,& 4X
UL Listed, CSA Approved

ASCOA Normally Open/Energize to Close (24 VDC-1/2 inch NPT)⁽⁵⁾

Model No. 8210G217⁽⁴⁾

Rated Working Pressure: 20 to 175 PSI
Pipe Size: 1/2 inch NPT Female
Watts: 10.6
Approved by FM

Current: .44 amp Holding

Normally Open/Energize to Close
Cv Factor: 3.0
NEMA: 1,2,3,3S,4,& 4X
UL Listed, CSA Approved⁽⁴⁾

SKINNER Normally Open/Energize to Close (24 VDC-1/2 inch NPT)⁽⁵⁾

Model 73228BN4UNLVNOC111C2

Rated Working Pressure: 20 to 175 PSI
Pipe Size: 1/2 inch NPT Female
10 Watts
Approved by FM

Current: .41 amp Holding

Normally Open/Energize to Close
Cv Factor: 3.0
NEMA: 1,2,3,3S,4,& 4X
UL Listed, CSA Approved

Notes:

⁽¹⁾ Standard Solenoid for use in Deluge & Preaction Trim, 1/2 inch NPT Normally Closed/Energize to Open

⁽²⁾ 24 VDC is the most common voltage used, but other voltages are available.

⁽³⁾ Explosion Proof Model for use in Deluge & Preaction Trim (Optional)

⁽⁴⁾ Alternate supplier of standard solenoid for use in Deluge & Preaction Trim, 1/2 inch NPT

⁽⁵⁾ Continuously energized solenoid valves have a limited life expectancy and are not recommended for use.

⁽⁶⁾ 250 lb. pressure valve for systems that require higher pressures

Technical Data...Continue.

SKINNER Normally Closed/Energize to Open (24 VDC-2 inch NPT)

(Used in the Model H 1-1/2 inch deluge valves)

Model 7321GBN99NLVNOC322C2

Rated Working Pressure: 20 to 175 PSI

Pipe Size: 2 inch NPT Female

22 watts

Approved by FM

Current: .41 amp Holding

Normally Closed/Energize to Open

Vertical Installation

NEMA: 1,2,3,3S,4, & 4X

UL Listed, CSA Approved

SKINNER Normally Closed/Energize to Open (24 VDC-1/2 inch NPT)

(Used where high pressure is required; 250 PSI rated)

Model 73212BN4TNLVNOC322C2⁽⁶⁾

Rated Working Pressure: 20 to 250 PSI

Pipe Size: 1/2 inch NPT Female

22 watts

Approved by FM

Current: .41 amp Holding

Normally Closed/Energize to Open

Vertical Installation

NEMA: 1,2,3,3S,4& 4X

UL Listed, CSA Approved

NEMA: Enclosure Type:

(1) General Purpose

(2) Drip Proof

(3 & 3S) Raintight

(4 & 4X) Watertight

(7) Explosion Proof class I. Groups A,B,C, and D

(9) Dust Ignition-Proof Class II, Groups E,F, and G.

Notes:

⁽¹⁾ Standard Solenoid for use in Deluge & Preaction Trim, 1/2 inch NPT Normally Closed/Energize to Open

⁽²⁾ 24 VDC is the most common voltage used, but other voltages are available.

⁽³⁾ Explosion Proof Model for use in Deluge & Preaction Trim (Optional)

⁽⁴⁾ Alternate supplier of standard solenoid for use in Deluge & Preaction Trim, 1/2 inch NPT

⁽⁵⁾ Continuously energized solenoid valves have a limited life expectancy and are not recommended for use.

⁽⁶⁾ 250 lb. pressure valve for systems that require higher pressures

Installation of Solenoid Valves

1. Check nameplate for the correct voltage and the installation and maintenance instructions enclosed with the valve.
2. Remove the plastic plugs, if the unit is not installed in the trim by the factory.
3. Solenoids may be installed in any position but the recommended installation is vertical, with the coil upright.
4. The solenoid must be wired in accordance with local and national electrical codes. Units located in hazardous areas are to be wired with the appropriate electrical fittings.
5. Reliable provides a strainer in the inlet water line (1/4 inch) to restrict foreign matter from entering the solenoid valve.
6. Apply pipe joint compound sparingly to the male threads of the pipe only. Use Teflon tape carefully to prevent any tape from getting into the solenoid valve. Teflon tape can become lodged in the valve and cause it to malfunction.
7. Only wrench flats provided on the body should be used when tightening the valve. Never use the sleeve or enclosure as a lever.

8. The solenoid valve is normally installed on a supervised circuit and depending on the releasing panel, no EOL is required. Never jumper or short the solenoid circuit terminals.

Inspection, Tests and Maintenance

1. It is imperative that the system be inspected and tested in accordance with NFPA 25 and records maintained of the tests. The frequency of the testing may vary due to contaminated water supplies, corrosive water supplies, or corrosive atmospheres.
2. The solenoid valve should be operated at least once a month and checked for cracks, corrosion, leakage, and cleaned or repaired as necessary.
3. After maintenance the valve should be operated to insure it functions properly.
4. The solenoid valve should be replaced every seven years or less if corrosive conditions exist.
5. The diaphragms and seats must be inspected at least once a year to insure that they are in good condition. Replace if necessary.
6. If lubrication is required use high grade silicone grease.
7. Review the installation and maintenance information in the manufacturer's literature.

Table 1.

Reliable Part Number	Voltage	Max. WWP (PSI)	Watts	Skinner Valve Div of Parker Hannifin Part Number	Automatic Switch Company Part Number	Size	NEMA Rating
6871020000 ⁽¹⁾	24 VDC	175	10	73218BN4UNLVNOC111C2 ⁽¹⁾ (Normally Closed/Energize to Open)		½"	1,2,3,3S,4, & 4X
6871020005 ⁽⁵⁾	24 VDC	175	10	73228BN4UNLVNOC111C2 (Normally Open/Energize to Close) ⁽¹⁾		½"	1,2,3,3S,4, & 4X
6871020010 ⁽⁴⁾	24 VDC	175	10.6	(Alternate Supplier)	821OG207-24VDC ⁽⁴⁾ (Normally Closed/Energize to Open)	½"	1,2,3,3S,4,4X,6,6P,7,& 9
6871020015 ⁽⁵⁾	24 VDC	175	10.6	(Alternate Supplier)	821OG217-24VDC (Normally Open/Energize to Close) ⁽⁵⁾	½"	3,3S,4,4X,6,6P,7,& 9
6999990322	24 VDC XP	175	10	73218BN4UNLVNOH111C2 (Explosion Proof) (Normally Closed/Energize to Open)		½"	1,2,3,3S,4,4X,7 & 9
6871080000	24VDC	175	22	7321GBN99NLVNO322C2 (Normally Closed/Energize to Open)		2"	1,2,3,3S,4, & 4X
6871090000	120VAC - 60Hz 110VAC - 50Hz	175		73218BN4UNLVNOC111P3 (Normally Closed/Energize to Open)		½"	1,2,3,3S,4, & 4X
6999990731 ⁽²⁾⁽⁵⁾	120VAC - 60Hz 110VAC - 50Hz	175		73228BN4UNLVOC111P3 ⁽²⁾ (Normal Open/Energize to Close) ⁽⁵⁾		½"	1,2,3,3S,4, & 4X
6999990837 ⁽⁵⁾	24VDC	175	10	73222BN4TNOONOC111C2 ⁽⁵⁾ (Normally Open/Energize to Close)		½"	1,2,3,3S,4, & 4X
6871020020 ⁽⁶⁾	24VDC	250	22	73212BN4TNLVOC322C2 (Normally Closed/Energize to Open)		½"	1,2,3,3S,4, & 4X

Notes:

⁽¹⁾ Standard Solenoid for use in Deluge & Preaction Trim, ½ inch NPT Normally Closed/Energize to Open.

⁽²⁾ 24 VDC is the most common voltage used, but other voltages are available.

⁽³⁾ Explosion Proof Model for use in Deluge & Preaction Trim (Optional)

⁽⁴⁾ Alternate supplier of standard solenoid for use in Deluge & Preaction Trim, ½ inch NPT

⁽⁵⁾ Continuously energized solenoid valves have a limited life expectancy and are not recommended for use.

⁽⁶⁾ 250 lb. pressure valve for systems that require higher pressures

Maintenance of Solenoid Valve

Caution: Do not expose plastic or elastomeric materials to any type of cleaning fluid. Parts should be cleaned with a mild soap and water.

1. Disassemble the valve as per the manufacturer's instructions. Remove extraneous matter. Clean parts in a mild soap and water.
2. Examine surface of the plunger or diaphragm.
3. Inspect orifices in the body, cover, and diaphragm for nicks or dirt.
4. Examine surfaces of the diaphragm or seal in contact with the main orifice. Clean if dirty or replace if damaged or worn.
5. Check all springs. If broken or damaged replace.

Causes of Improper Operations

1. Review the distance from the releasing panel and calculate the power loss and check the available voltage at the connection to the solenoid. The voltage should be at least 85% of the nameplate rating.
2. Check the electrical system by energizing the releasing circuit to the solenoid valve. A metallic "click" that signals that the solenoid valve is working. If you do not hear the click check for loose wires, connections, blown fuses, open circuits or grounded coil. Check for broken lead wires or bad splice connections.
3. Burned out coil: Check for open circuit coil. Replace if necessary. Check supply voltage to insure that the voltage supply is the same as the label or name plate.

Note: Only trained and experienced personnel should attempt to test, replace or repair the solenoid valves.

Caution

1. Before Closing a fire protection system control valve for inspection and/or maintenance, permission to take the system out of service must be obtained from the proper authorities and all persons who might be affected by the outage. Particular care must be taken to notify those responsible for monitoring the system and the fire service organization responsible for the response in the event of a fire.
2. After putting the system back in service, notify the proper authorities and all persons who might be affected and those responsible for monitoring the system. Particular care must be taken to notify those responsible for monitoring the system and the fire service organization responsible for the response in the event of a fire.
3. **Replacement or repair of a solenoid valve should only be done by trained and experienced personnel. A damaged or improperly repaired solenoid could cause the fire protection system to be impaired or inoperable. This impairment could result in the loss of life or property. A fire patrol or fire watch may be required to insure that there is not a loss of life or property. The owner is responsible to insure that all maintenance and repair is done properly and that prudent measures are taken to protect life and property.**
4. Any and all inspections and repairs should be done in accordance with the solenoid manufacturer's instructions and this bulletin.
5. Prior to taking the system out of service, ensure that the control valve for the system is closed, and all of the authorities are notified that you are taking the system out of service. Before the system is put back in service, the solenoid valve should be tested to insure that it is functioning properly. If alarm technicians are testing the alarms, do not let them remove the wiring or put the solenoid out of service without testing to insure the system functions properly.

Notes:

- (1) Standard Solenoid for use in Deluge & Preaction Trim, ½ inch NPT Normally Closed/Energize to Open.
- (2) 24 VDC is the most common voltage used, but other voltages are available.
- (3) Explosion Proof Model for use in Deluge & Preaction Trim (Optional)
- (4) Alternate supplier of standard solenoid for use in Deluge & Preaction Trim, ½ inch NPT
- (5) Continuously energized solenoid valves have a limited life expectancy and are not recommended for use.
- (6) 250 lb. pressure valve for systems that require higher pressures

WARNING:

THE OWNER IS RESPONSIBLE FOR MAINTAINING THE FIRE PROTECTION SYSTEM IN PROPER OPERATING CONDITION. ANY SYSTEM MAINTENANCE, REPAIR OR TESTING THAT INVOLVES TAKING THE SYTEM OUT OF SERVICE, MAY IMPAIR THE FIRE PROTECTION FOR THE AREA OF THE FACILITY PROTECTED BY THAT SYSTEM. NOTIFY ALL AUTHORITIES HAVING JURISDICTION AND/OR OTHER PERSONNEL WHEN THE SYSTEM IS TAKEN OUT OF SERVICE AND WHEN THE SYSTEM IS RETURNED TO SERVICE. IT MAY BE NECESSARY TO ESTABLISH A FIRE WATCH OR PATROL. IT IS ALSO THE OWNER'S RESPONSIBILITY TO INSURE THAT ONLY TRAINED AND EXPERIENCED PERSONELL INSPECT, TEST, REPLACE OR REPAIR THE SOLENOID VALVES USED IN THE FIRE PROTECTION SYSTEM.

ONLY TRAINED AND EXPERIENCED MAINTENANCE PERSONNEL SHOULD BE ALLOWED TO INSTALL, TEST AND REPAIR SOLENOID VALVES

NORMALLY OPEN ENERGIZE TO CLOSE VALVES REQUIRE THE SOLENOID COIL TO BE CONTINUALLY ENERGIZED WHICH CAN CAUSE DAMAGE TO THE SOLENOID VALVE OR THE RELEASING PANEL. THE SOLENOID VALVES AND RELEASING PANELS SHOULD BE INSPECTED ON A REGULAR BASIS.

RELEASING PANEL SHOULD HAVE BATTERY BACKUP AND THE CHARGING FEATURE OF THE PANEL SHOULD BE INSPECTED ON A REGULAR BASIS.

FOR ANY QUESTIONS OR COMMENTS CONTACT RELIABLE TECHNICAL SERVICES AT (800) 55-RASCO OR SEE OUR WEB SITE AT www.reliablesprinkler.com

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Productsmanufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by



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