

Gas Pressure Reducing & Shut-Off Valve Series 71P11A



CAPITAL CONTROLS

The Capital Controls Series 71P11A Gas Pressure Reducing and Shutoff Valve is a diaphragm-type gas pressure regulating valve designed for use on chlorine, sulfur dioxide and ammonia gas service. The valve is used in a gas dispensing system to prevent liquification of the gas by providing a controlled pressure drop in the piping system. Downstream pressure is regulated to a reduced value by adjustment of the control setting. If the downstream pressure exceeds the pressure at which the valve is set, gas flow will be shut off.

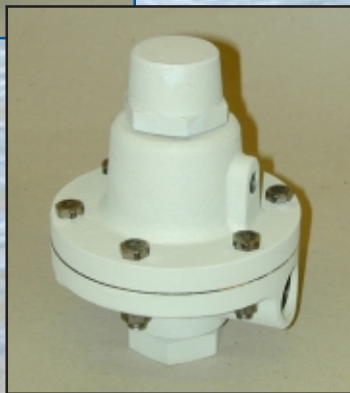
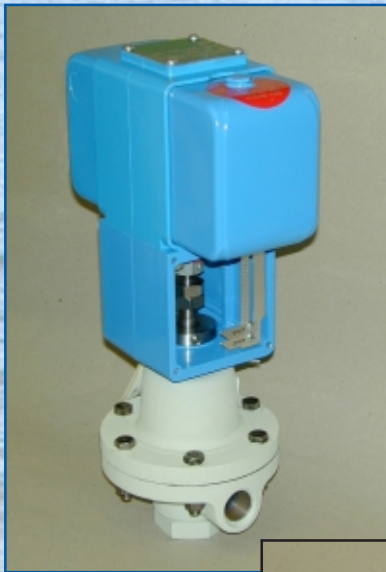
There are three models for use with a variety of control applications:

- 71P11A_01 Manual
- 71P11A_02 Pneumatic/hydraulic
- 71P11A_03 Electric

All models are constructed with materials resistant to corrosion from the gases being controlled. Valves use a self-centering ball stem with a soft TFE seat for positive shut-off.

The control setting for the manual and electric valves are made by adjustment of a mechanical adjustment screw that applies spring tension to the loading diaphragm. The pneumatically actuated unit is controlled by pneumatic or hydraulic pressure applied to the diaphragm.

Fail-safe operation can be accomplished using either the electrically-actuated or pneumatic/hydraulically-actuated units. Either can be configured to permit valve closure on power failure (venting of 3-way solenoid valve for pneumatic unit).



- ◆ Positive shut-off
- ◆ Replaceable inlet capsule
- ◆ Exceeds Chlorine Institute and ASME recommendations
- ◆ Manual and automatic operation
- ◆ Capacities to 12,000 PPD (240 kg/h)
- ◆ For Chlorine, Sulfur Dioxide and Ammonia
- ◆ Rugged field-proven design

Operation

Gas at supply pressure enters the inlet connection and passes through the capsule assembly which houses the valve plug and seat. When the downstream pressure falls below the control pressure, the spring-loaded or pilot-operated diaphragm opens the valve plug and gas flows through the valve entering the downstream piping at the outlet connection. When the downstream pressure exceeds the control pressure, the diaphragm permits the valve plug to seat and gas flow stops.

The desired downstream control pressure should be determined by the type of gas being controlled. Should the downstream pressure exceed the control pressure setting, the diaphragm will move to close the valve, shutting off the gas flow.

Automatic shut-off is accomplished through the action of a 3-way solenoid valve to vent the pilot medium (air or water) or by de-energizing the electric valve operator.

Pressure

Supply: 300 psig (2.1 MPa) max.
Control: 15-45 psig (103-310 kPa)

Power Requirements

Electric: 120 Vac +/- 10%, 50/60 Hz or 240 Vac +/- 10%, 50 Hz @ 150 VA.

Pneumatic/hydraulic:

Supply air or water pressure must be regulated at approximately 5 psi (35 kPa) above desired control pressure.

Auxiliary Switch (electric only)

An internal SPDT switch is supplied for remote indication of valve position or activation of alarms or status condition. Switch is rated for 15 A at 120 or 240 Vac.

Mounting

An optional mounting bracket is available for applications where non-rigid piping is used. Bracket is designed for either wall or 2-inch (DN 50) pipe mounting using a U-bolt attachment.

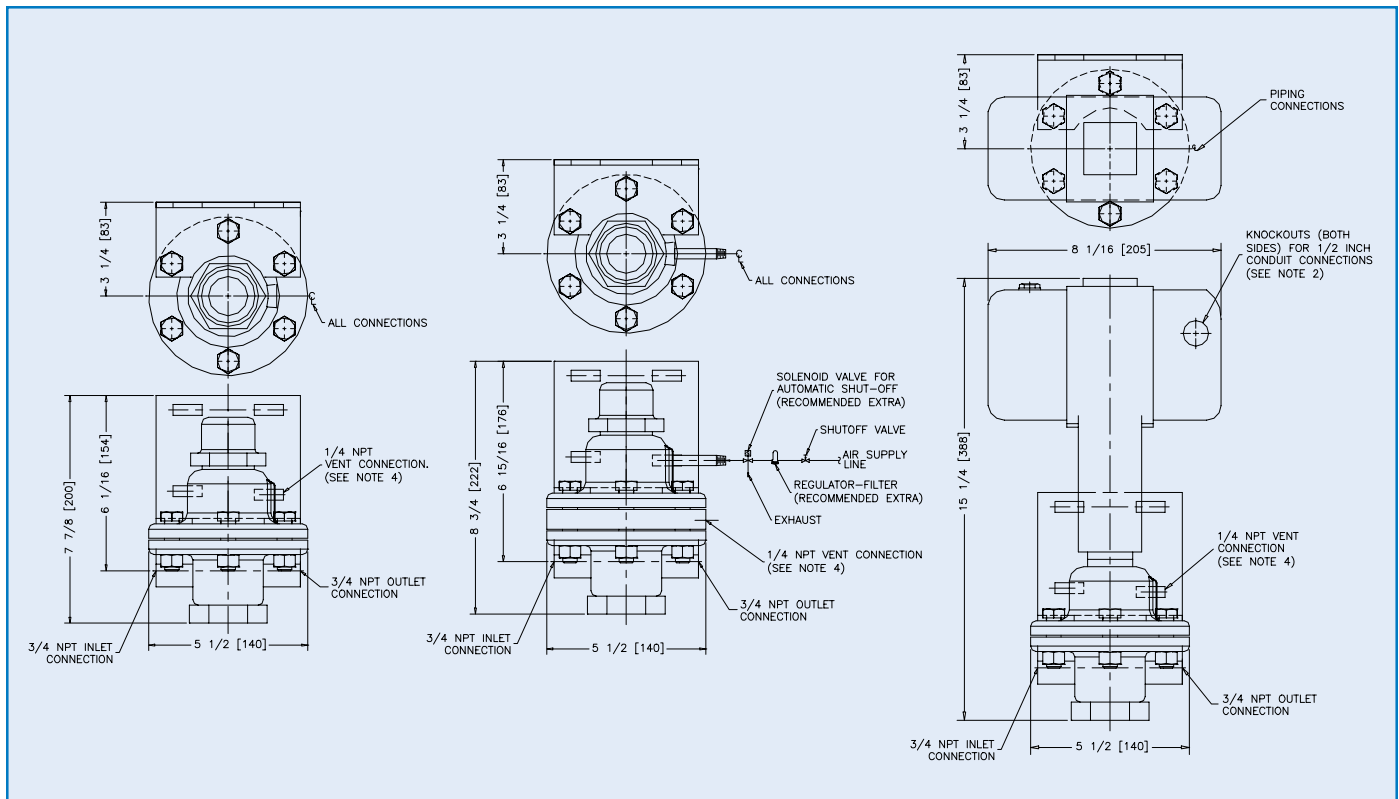
Optional Accessories

Pneumatic pressure regulator (required for 71P11A_02)

3-way solenoid valve¹ (for automatic shut-off of 71P11A_02)

Mounting bracket

¹ Required for controlled shut-off. The solenoid valve can be supplied to operate on 120 or 240 volts and 50 or 60 Hz.



Notes for Series 71P11A_01, 02 and 03:

1. Dimensions in parenthesis () are in millimeters. Dimensions provided for reference only.
2. Knockouts for 120 V (+10%), 50-60 Hz., power supply, and alarm switch connections.
3. Support bracket for wall mounting is furnished when specified. Same bracket is suitable for 2" (CN 50) horizontal or vertical pipe mounting by using two u-bolts (not furnished by Capital Controls.)
4. Install vent line without traps (1/2" steel) to outside atmosphere.

Engineering Specifications

Capacity

Self-Actuated	Pneum. Operated	Electr. Operated	Capacities
71P11A0101	71P11A0102	71P11A0103	1,000 lbs/day (20 kg/h) Cl ₂ or SO ₂ Gas
71P11A0201	71P11A0202	71P11A0203	8,000 lbs/day (160 kg/h) Cl ₂ or SO ₂ Gas
71P11A0301	71P11A0302	71P11A0303	12,000 lbs/day (240 kg/h) Cl ₂ or SO ₂ Gas
71P11A0401	71P11A0402	71P11A0403	500 lbs/day (10 kg/h) NH ₃ Gas
71P11A0501	71P11A0502	71P11A0503	4,000 lbs/day (80 kg/h) NH ₃ Gas
71P11A0601	71P11A0602	71P11A0603	6,000 lbs/day (120 kg/h) NH ₃ Gas

Materials of Construction

Component	71P11A01 71P11A02 71P11A03	71P11A04 71P11A05 71P11A06
Valve body	Ductile Cast Iron	Ductile Cast Iron
Diaphragm	KYNAR ¹	KYNAR ¹
Capsule body	Leaded naval bronze	Stainless Steel
Capsule plug	KYNAR	Stainless Steel
Capsule seat	Teflon ²	Teflon ²
Capsule spring	Silver Plated Hastelloy C-276 ³	Hastelloy C-276 ³
Loading Diaphragm	Reinforced Rubber	

Notes:

¹ T.M. Elf Atochem North America Inc.

² T.M. E.I. DuPont Co., Inc.

³ T.M. Haynes International, Inc.

SPECIFICATION FOR MANUAL GAS PRESSURE REDUCING AND SHUTOFF VALVE

The gas pressure reducing and shut-off valve shall be of the spring-loaded, self-actuating, diaphragm type. It shall be suitable for use with (chlorine) (sulfur dioxide) (ammonia) gas and shall have a maximum capacity of _____ PPD. The valve shall reduce and automatically regulate a varying supply pressure to a lower and uniform value. The gas pressure reducing valve shall be Capital Controls Series 71P11A_01, or approved equal. The valve shall be manufactured in a facility with a quality system that has been certified as complying with ISO9001 International Quality Standard. The valve shall have an upstream pressure rating of 300 psig and a control pressure range of 15 to 45 psig, field adjustable with the valve in operation. A connection shall be provided to permit venting of the process gas in the event of a diaphragm failure. The valve plug shall be of the spring loaded, self-centering, ball type with a soft seat that shall permit tight shutoff. A load spring shall maintain the valve open to regulate the valve position. When downstream pressure exceeds the control setting, gas flow shall be shut off. The valve shall be provided with a regulator diaphragm of vinylidene fluoride polymer. The valve seat shall be TFE and the valve plug shall be manufactured from Kynar. The plug and seat shall be enclosed in a capsule assembly that shall be easily removable for cleaning. The valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

SPECIFICATION FOR PNEUMATICALLY/HYDRAULICALLY ACTUATED GAS PRESSURE REDUCING AND SHUTOFF VALVE

The gas pressure reducing and shut-off valve shall be of the pneumatically/hydraulically actuated, diaphragm type. It shall be suitable for use with (chlorine) (sulfur dioxide) (ammonia) gas and shall have a maximum capacity of _____ PPD. The valve shall reduce and automatically regulate a varying supply pressure to a lower and uniform value. The gas pressure reducing valve shall be Capital Controls Series 71P11A_02, or approved equal. The valve shall be manufactured in a facility with a quality system that has been certified as complying with ISO9001 International Quality Standard. The valve shall have an upstream pressure rating of 300 psig and a control pressure range of 15 to 45 psig, field adjustable with the valve in operation by manipulation of the loading air/water pressure. It shall have dual diaphragms with an intermediate chamber to permit venting of the process flow should there be a diaphragm failure. The valve plug shall be of the spring loaded, self-centering ball type with a soft seat that shall permit tight shutoff. Air/water pressure shall maintain the valve open to regulate the valve position. When downstream pressure exceeds the control setting, gas flow shall be shutoff. The valve shall be capable of closure by actuation of a 3-way solenoid valve in the air/water line upon receipt of an external contact closure in the event of low vaporizer water level or temperature. The valve shall be provided with a regulator diaphragm of vinylidene fluoride polymer. The valve seat shall be TFE and the valve plug shall be manufactured from Kynar. The plug and seat shall be enclosed in a capsule assembly that shall be easily removable for cleaning. The valve shall be furnished with a 3-way solenoid valve and pressure regulator for the control air/water line. The valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

SPECIFICATION FOR ELECTRICALLY ACTUATED GAS PRESSURE REDUCING AND SHUTOFF VALVE

The gas pressure reducing and shut-off valve shall be of the electrically actuated, diaphragm type. It shall be suitable for use with (chlorine) (sulfur dioxide) (ammonia) gas and shall have a maximum capacity of _____ PPD. The valve shall reduce and automatically regulate a varying supply pressure to a lower and uniform value. The gas pressure reducing valve shall be Capital Controls Series 71P11A_03, or approved equal. The valve shall be manufactured in a facility with a quality system that has been certified as complying with ISO9001 International Quality Standard. The valve shall have an upstream pressure rating of 300 psig and a control pressure range of 15 to 45 psig, field adjustable with the valve in operation. A connection shall be provided to permit venting of the process gas in the event of a diaphragm failure. The valve plug shall be of the spring loaded, self-centering ball type with a soft seat that shall permit tight shutoff. The valve motor shall be of the fail-safe, electro-hydraulic type which shall close on electrical failure. Hydraulic pressure in the motor shall apply force to the spring loaded diaphragm to regulate the valve position. When downstream pressure exceeds the control setting, gas flow shall be shut off. The valve shall also close upon receipt of an alarm or shutdown contact closure from external device such as low water level or low water temperature in the vaporizer. The valve shall be provided with a regulator diaphragm of vinylidene fluoride polymer. The valve seat shall be TFE and the valve plug shall be manufactured from Kynar. The plug and seat shall be enclosed in a capsule assembly which shall be easily removable for cleaning. The valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

Design improvements may be made without notice.

Represented by:



CAPITAL CONTROLS

Severn Trent Water Purification, Inc.
3000 Advance Lane Colmar, PA 18915
Tel: 215-997-4000 • Fax: 215-997-4062
Web: www.severntrentservices.com
E-mail: marketing@severntrentservices.com

UNITED KINGDOM • UNITED STATES • HONG KONG
INDIA • ITALY • MALAYSIA