

PRESSURE REDUCING VALVES

The **Series 71P1110 GAS PRESSURE REDUCING VALVE** is a diaphragm type gas pressure regulator which is used in a gas dispensing system to prevent liquefaction of the gas by providing a controlled pressure drop in the piping system. The degree of pressure reduction is controlled by an adjusting screw. If the downstream pressure exceeds the pressure at which the valve is set, shut-off will occur.

Shut-off: Gas flow is positively shut-off when the downstream pressure exceeds the control setting. If shut-off is required under any other conditions, use either the pneumatically-operated or electrically-operated type **GAS PRESSURE REDUCING AND SHUT-OFF VALVES**, Series 71P1120 or 71P1140.

Reduced Pressure Setting: The control pressure is set by a manual adjusting screw under a protecting cap.

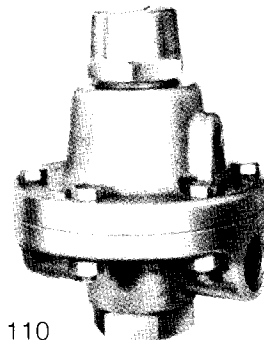
The **SERIES 71P1120 GAS PRESSURE REDUCING AND SHUT-OFF VALVE** is used to prevent liquefaction of gases and to provide a means of shut-off in case of system malfunction. The degree of pressure reduction is determined by the magnitude of an applied pneumatic or hydraulic pressure. When this applied pressure is removed, the regulator shuts off gas flow.

Shut-Off Action: Gas flow is positively shut-off when the downstream pressure exceeds the setting. When it is required to shut off gas flow under any other conditions, a 3-way solenoid valve must be installed in the air supply line to the valve. Controlled shut-off is then possible by deactivating the solenoid valve from any selected control point in the control system.

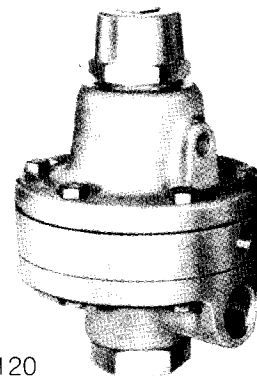
Reduced Pressure Setting: The control pressure is set by adjusting an external pneumatic pressure regulator.

The **SERIES 71P1140 GAS PRESSURE REDUCING VALVE** is a diaphragm type gas pressure regulator which may be used as a shut-off valve by interrupting its source of power. It is usually used in conjunction with a liquid chemical evaporator to prevent liquification and to provide automatic gas shut-off in the event of a system malfunction. The valve requires power for continuous operation and will close when power is interrupted.

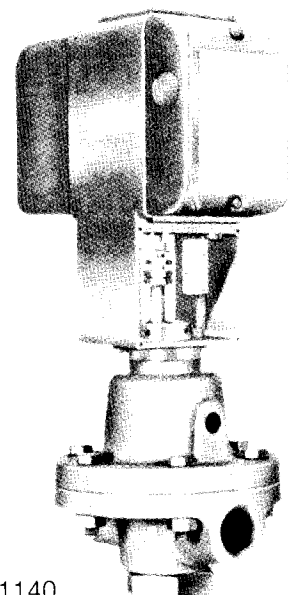
Shut-off Action: Gas flow is positively shut-off when the downstream pressure exceeds the control setting. Power is required to open the valve. When it is required to shut-off gas flow under any other conditions, a SPST switch must be installed in the electric power supply to the valve. Controlled shut-off is then possible by opening the switch from any selected control point



Series 71P1110



Series 71P1120



Series 71P1140

in the control system. Power failure will also cause the valve to close.

Reduced Pressure Setting: The control pressure is set by manually adjusting the position of locknuts on the valve ram.

Engineering Specifications

Materials of Construction

Component	Series 71P11 ____ A	Series 71P11 ____ B
Valve body	Ductile Cast Iron	Ductile Cast Iron
Diaphragm	KYNAR ¹	KYNAR
Capsule body	Leaded naval bronze	Stainless Steel
Capsule plug	KYNAR	Stainless steel
Capsule seat	Teflon ²	Teflon
Capsule spring	Silver Plated Hastelloy C-276 ³	Hastelloy C-276
Loading Diaphragm	71P112 ____ only Reinforced Rubber	

1. T.M. Pennwalt Corp.

2. T.M.: E.I. DuPont Co., Inc.

3. T.M. Haynes International, Inc.

Venting Provision: The valves are primarily designed for service with hazardous gases. The upper valve body is provided with a vent connection so that in the event of a malfunction (ruptured diaphragm) the gas may be vented to an appropriate area.

Pressure

Supply: 300 psig (2.1 MPa) max.

Control: 15-45 psig (103-310 kPa)

Power Requirements

Series 71P1120: Supply air or water pressure must be regulated at approximately 5 psi (35 kPa) above the desired reduced pressure.

Series 71P1140: Electric power

120 V ac \pm 10% 50 or 60 Hz or 240 V ac \pm 10% 50 Hz at 150 VA

Auxiliary Switch: Series 71P1140

An internal SPDT switch is supplied for remote indication of valve position or activating alarms or indicators. The switch is rated at 15 A 120 or 240 V ac.

Mounting: In applications where non-rigid piping is used, an optional mounting bracket is available. The bracket is designed for mounting either on a wall or on a 2-inch (DN 50) pipe using a U-bolt.

Capacity

VALVE CAPACITY IS DEPENDENT ON AN INTERCHANGEABLE CAPSULE ASSEMBLY.

Self-actuated	Pneum. Operated	Electr. Operated	Capacities
71P1111A	71P1121A	71P1141A	1,000 lbs/day (20 kg/h) Cl ₂ or SO ₂ Gas
71P1112A	71P1122A	71P1142A	8,000 lbs/day (160 kg/h) Cl ₂ or SO ₂ Gas
71P1113A	71P1123A	71P1143A	12,000 lbs/day (240 kg/h) Cl ₂ or SO ₂ Gas
71P1111B	71P1121B	71P1141B	500 lbs/day (10 kg/h) NH ₃ Gas
71P1112B	71P1122B	71P1142B	4,000 lbs/day (80 kg/h) NH ₃ Gas
71P1113B	71P1123B	71P1143B	6,000 lbs/day (120 kg/h) NH ₃ Gas

Required Accessories³

Pneumatic pressure regulator (71P112 ____ only)

Optional Accessories

3-way solenoid air supply valve⁴ (71P112 ____ only)

Support bracket for either wall or 2-inch (DN50) pipe

U-bolt mounting⁵

Ordering Information:

Specify:

Model or Series Number

Gas

Capacity

Accessories

³ All accessory items are available from Fischer & Porter Company.

⁴ Required for controlled shut-off. This valve can be supplied to operate on 120 or 240 volts and 50 or 60 Hz.

⁵ Required for mounting directly in non-rigid pipelines.

Series 71P1110 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 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.

Equipment Description

The pressure reducing valve shall have a maximum capacity of _____ lb/day (_____ kg/hr) and shall be entirely suitable for _____ gas service.

The pressure reducing valve shall be of the self-actuated, diaphragm-type in which gas pressure is automatically regulated to a uniformly controlled value. The loading chamber shall be provided with a vent for connection to an external vent system.

The control pressure setting shall be capable of field adjustment within the 15-45 psig (103-310 kPa) control range even when the valve is in operation.

The valve plug and seat shall be housed in a capsule assembly which shall be readily removable for inspection and cleaning or change of capacity.

The valve seat shall be constructed of non-metallic corrosion resistant material to provide positive seating action and absolute shut-off on valve closure.

The pressure reducing valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

The pressure reducing valve shall be Fischer & Porter Series 71P1110.

Series 71P1120 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 pressure setting, the pneumatically loaded diaphragm opens the valve plug. Gas then flows through the valve entering the downstream piping at the outlet connection. When the downstream pressure exceeds the pressure setting, the diaphragm permits the valve plug to seat and gas flow stops.

Controlled shut-off is brought about by the action of the solenoid valve which, when de-energized, opens the loading chamber to the atmosphere, releasing the downward force on the diaphragm and permitting the valve plug to seat.

Equipment Description

The pressure reducing and shut-off valve shall have a maximum capacity of _____ lbs/day (_____ kg/hr) and shall be entirely suitable for _____ gas service.

The pressure reducing and shut-off valve shall be of the air operated, diaphragm-type in which gas pressure is automatically reduced to a lower value. The valve shall contain a central chamber which is provided with a vent for connection to an external vent system.

The reduced pressure setting shall be capable of field adjustment within the 15-45 psig (103-310 kPa) control range even when the valve is in operation.

The valve seat shall be constructed of non-metallic corrosion resistant material to provide positive seating and absolute shut-off on valve closure.

The valve plug and seat shall be housed in a capsule assembly which shall be readily removable for inspection and cleaning or change of capacity.

The pressure reducing and shut-off valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

Consumption of air by the pressure reducing and shut-off valve shall be negligible.

The pressure reducing and shut-off valve shall be Fischer & Porter Model 71P1120.

Series 71P1140 Operation

Gas supply pressure enters the inlet connection and passes through the capsule assembly which houses the valve plug and seat. With power applied to the electric valve actuator, the spring-loaded diaphragm opens the valve plug when the downstream pressure falls below the pressure setting. Gas then flows through the valve entering the downstream piping at the outlet connection. When the downstream pressure exceeds the pressure setting, the diaphragm permits the valve plug to seat and gas flow stops.

Controlled shut-off is brought about by the action of an SPST switch in the electric supply line which, when opened, de-energizes the electric operator releasing the downward spring force on the diaphragm, permitting the spring loaded valve plug to seat. This same action occurs on power failure.

Equipment Description

The pressure reducing valve shall have a maximum capacity of _____ lbs/day (_____ kg/hr) and shall be entirely suitable for _____ gas service.

The pressure reducing and shut-off valve shall be an electrically operated, diaphragm-type in which gas pressure is automatically regulated to a lower value. The power supply shall be _____ V _____ Hz. The valve shall close on electrical failure. The main spring chamber shall be provided with a vent for connection to an external vent system.

The valve shall be supplied with an auxiliary SPDT switch rated at 15 A 120 or 240 V ac used for remote indication of valve position or activating alarms.

The control pressure setting shall be capable of field adjustment within the 15-45 psig (103-310 kPa) control range when the valve is in operation.

The valve seat shall be constructed of nonmetallic corrosion resistant material to provide positive seating and absolute shut-off on valve closure.

The valve plug and seat shall be housed in a capsule assembly which shall be readily removable for inspection and cleaning or change of capacity.

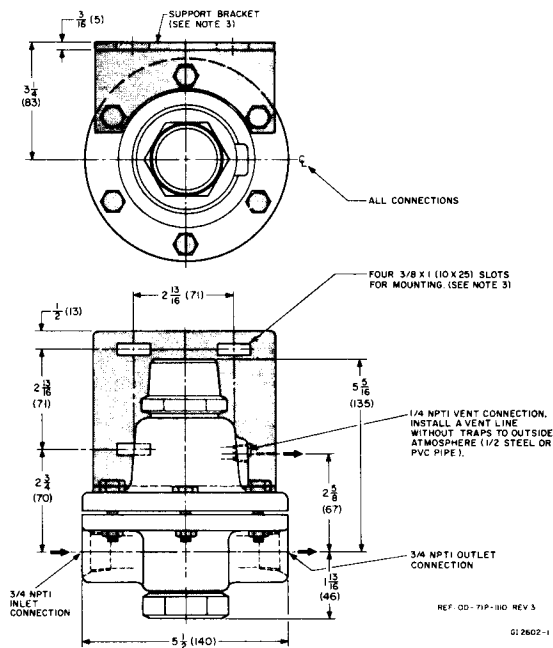
It shall not be necessary to remove the valve from the line to change the capsule assembly or remove the electric operator.

The pressure reducing and shut-off valve shall be suitable for wall mounting or mounting directly into a rigid pipeline without additional support.

The pressure reducing and shut-off valve shall be Fischer & Porter Series 71P1140.

Dimensions

Series 71P1110

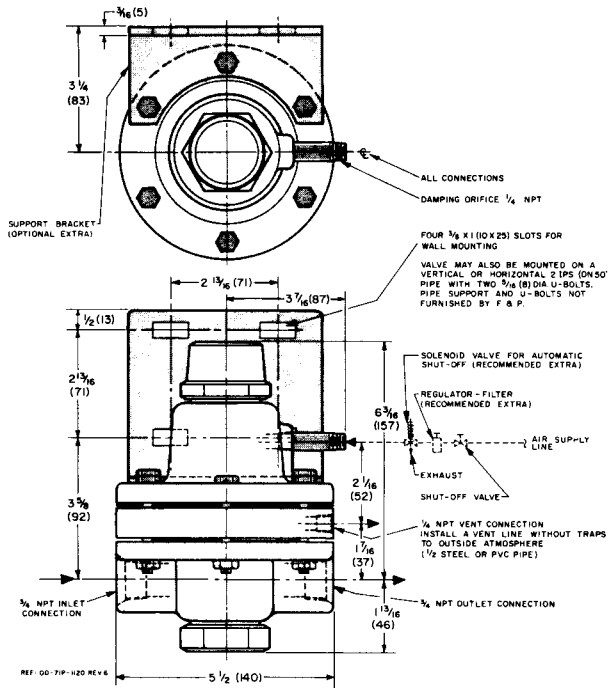


Notes:

- Dimensions in parenthesis () are in millimeters. Dimensions provided for reference only.
- This drawing is third angle projection as shown:
- Support bracket for wall mounting is furnished when specified. Same bracket is suitable for 2" (DN 50) horizontal or vertical pipe mounting by using two u-bolts (not furnished by F&P).

Dimensions

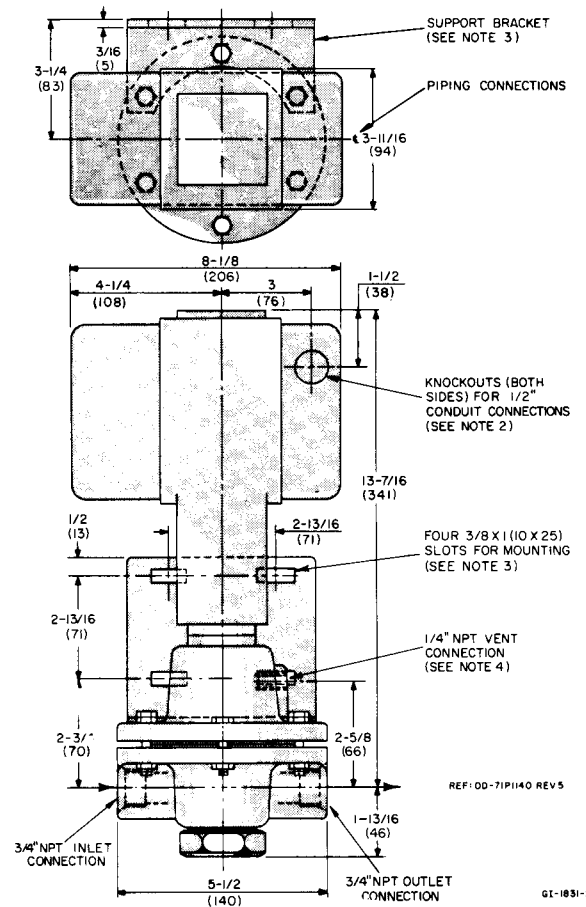
Series 71P1120



Notes:

1. Dimensions in parenthesis () are in millimeters. Dimensions provided for reference only.
2. This drawing is third angle projection as shown: Ⓢ

Series 71P1140



Notes:

1. Dimensions are in inches. Dimensions in parentheses () indicate millimeters.
2. Knockouts for 120 V ($\pm 10\%$), 50-60 Hz, 10 power supply.
3. Support bracket for wall mounting is furnished when specified. Same bracket is suitable for 2" (DN 50) horizontal or vertical pipe mounting by using two u-bolts (not furnished by F&P).
4. Install vent line ($\frac{1}{2}$ " steel or PVC) to outside atmosphere.



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