Description

The 1-1/2” and 2” Pressure Reducing Diaphragm Valves are an integral part of the In-Line Balanced Pressure Proportioning system and are designed to balance the foam concentrate pressure to the water pressure, at the ratio controller inlet, by controlling the foam concentrate discharge pressure of the valve. Balance is achieved by regulating the volume of foam concentrate discharged to the ratio controller.

The diaphragm valve shall have a diaphragm chamber divided into an upper (water) and lower (foam) compartment, separated by a flexible diaphragm. The diaphragm assembly includes a spool which moves to increase or decrease the discharge orifice area of the valve. The valve senses water and foam concentrate pressure at the ratio controller. As the water supply pressure increases, the pressure in the upper (water) compartment increases forcing the diaphragm and its spool downward, causing the discharge orifice to open. As the valve orifice opens, the foam concentrate flow through the valve increases until the foam concentrate pressure is equal to the water pressure. Conversely, if the water pressure decreases, the pressure in the upper (water) compartment decreases, forcing the diaphragm and its spool upward, causing the valve discharge orifice to gradually close until the pressures are equalized.

Valve operation is direct, requiring no manual activation. A manual override feature is available as an option, for use if the system will not balance automatically.

Features

- May be used with either fresh or salt water
- Operates automatically
- Heavy-duty, thermoplastic diaphragm isolates upper chamber water operating pressure from lower chamber foam line pressure
- Diaphragm assembly, guided top and bottom, is only moving part
- Bronze construction with stainless steel internals for corrosion resistance and compatibility with all foam concentrates

Applications

- Pressure control for remotely mounted ratio controllers in ILBP proportioning systems

Specifications

The Pressure Reducing Diaphragm Valve shall be a globe pattern, diaphragm actuated valve designed for modulating service. When used as part of an ILBP proportioning system, it shall monitor the water and foam concentrate pressure, at the inlet of a remotely mounted ratio controller, in order to maintain equal pressures. The valve shall modulate to throttle the flow of foam concentrate through the valve thereby controlling the foam concentrate pressure at the inlet to the ratio controller. Because it is designed for modulating service it does not provide positive shut off in the closed position.

The valve body and diaphragm chamber shall be constructed of cast bronze and shall have female NPT connections. It shall be available in a 1-1/2” and 2” size. The valve shall have dual spools with two machined seats to allow higher flows through the valve with minimal loss. The stem and spools shall be cast stainless steel and shall be of a one piece design. The diaphragm chamber shall have (2) 1/4” NPT tapped ports 180° opposed in both chambers to allow for installation of the sensing connections and to allow complete flushing of the chamber. The diaphragm separating the upper and lower compartments is comprised of a
DIAPHRAGM VALVE PRESSURE REDUCING SERVICE
NPR250

Specifications (cont.)
proprietary thermoplastic elastomer with superior chemical compatibility. All hardware shall be stainless steel.
The valve can be furnished with an optional manual override feature. Manual override shall have a brass body with stainless steel stem. Operation of the manual override shall force the valve discharge orifice to the open position. This allows for manual regulation of the foam concentrate flow by a separate manual valve. Manual override shall be factory installed when ordered with valve but shall be capable of being field installed on standard valve.

Listings and Approvals
- UL Listed
- ULC Listed

Technical Data
Materials of Construction:
Body: Bronze, ASTM B584
Diaphragm Chamber: Bronze, ASTM B584
Spool: Stainless Steel, 303
Diaphragm Plate: Stainless Steel
Diaphragm: Proprietary Thermoplastic Elastomer

O-Rings: Buna-N
Hardware: Stainless Steel
Manual Override Body: Bronze, ASTM B62
Manual Override Stem: Stainless Steel, 303
Manual Override Handle: Plastic
Pressure Rating: 250 PSI (17.2 Bar)
Max Temp: Rating 150° F (66° C)
Finish: None

Options
Manual Override

Listings and Approvals
- UL Listed
- ULC Listed

Technical Data
Materials of Construction:
Body: Bronze, ASTM B584
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Max Temp: Rating 150° F (66° C)
Finish: None

Options
Manual Override

National Foam operates a continuous program of product development. The right is therefore reserved to modify any specification without prior notice and National Foam should be contacted to ensure that the current issues of all technical data sheets are used.

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ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Connection</th>
<th>Flow Range</th>
<th>Weight</th>
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<tbody>
<tr>
<td>1231-1409-9</td>
<td>1-1/2&quot; Diaphragm Valve</td>
<td>NPT</td>
<td>10-135 GPM (38-511 LPM)</td>
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<tr>
<td>1231-1413-8</td>
<td>2&quot; Diaphragm Valve</td>
<td>NPT</td>
<td>10-250 GPM (38-946 LPM)</td>
<td>36</td>
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<td>1231-1410-0</td>
<td>1-1/2&quot; Diaphragm Valve w/ MOR</td>
<td>NPT</td>
<td>10-135 GPM (38-511 LPM)</td>
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<td>1231-1413-9</td>
<td>2&quot; Diaphragm Valve w/ MOR</td>
<td>NPT</td>
<td>10-250 GPM (38-946 LPM)</td>
<td>38</td>
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</tbody>
</table>

Dimensions

<table>
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<tr>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>C v</th>
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<tr>
<td>1-1/2&quot;</td>
<td>3-9/16 (90)</td>
<td>9-3/8 (238)</td>
<td>5-3/8 (137)</td>
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<td>13-3/8 (340)</td>
<td>27 (102)</td>
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<td>2&quot;</td>
<td>3-3/4 (95)</td>
<td>9-5/8 (245)</td>
<td>6-7/8 (175)</td>
<td>2</td>
<td>13-7/8 (353)</td>
<td>45 (170)</td>
</tr>
</tbody>
</table>

Dimensions- Inched (MM) Flow – GPM (LPM)

1/8" FNPT PORTS IN OVERRIDE STEM
1/4" FNPT WATER SENSING AND FLUSH-OUT PORTS 180° OPPOSED IN UPPER CHAMBER
1/4" FNPT FOAM CONCENTRATE SENSING AND FLUSH-OUT PORTS 180° OPPOSED IN LOWER CHAMBER
1/4" FNPT DRAIN CONNECTION

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