DE\EDL\PORV-DN
Double-Interlock Pre-action, Electro-Pneumatic Release System

Also available with manual reset DE\EDL\PORV-DN-MR.

Electrically and pneumatically, pilot controlled, double-interlock pre-action valve, actuated by the pipeline pressure. The valve is closed in its normal, set position and opens when the pressure drops in a gas pressurized supervisory pilot line, sensed by the relay valve, and the solenoid valve is energized. An emergency manual release valve is fitted as standard.

CERTIFICATION & COMPLIANCE

- ANSI FCI 70-2 Class VI seat leakage class
- UL listed under VLFT category
- Fire tested to EN ISO 6182-5:2006 (2”-6” only)
- Lloyd's Register & ABS approvals

FEATURES & BENEFITS

- High pressure (PN25/375psi), high flow systems
- Automatic or manual emergency actuation
- Industrial & commercial fire suppression
- Hazardous, flammable & explosion classified area fire suppression
- Superior design featuring exceptionally low pressure losses at high flow rates
- Low lifelong maintenance costs due to straightforward design
- Applicable for water, seawater & foam
- Out of box fully assembled & tested valves
- Factory trimmed for vertical & horizontal installations without modification
- Extensive valve & trim materials selection and corrosion protection coating

TYPICAL APPLICATIONS

Machine Rooms
Cold Storage Protected Areas
High Rise Buildings & Offices
Power Plants
Archives, Museums, Libraries & Water Sensitive Depots
OPERATION

The basic control valve [1] used in this pre-action system is a direct-sealing elastomeric diaphragm, hydraulically operated control valve engineered specifically for fire protection systems.

In the standby position, the pre-action valve is held closed by the upstream water pressure, trapped in the valve’s control chamber. The water pressure enters the control chamber through the priming line ball valve [2], a Y-type strainer [3], a check valve [4] and a T-restrictor [5].

The pre-action valve opens automatically when both conditions below occur simultaneously:
1. A fire alarm control panel (F&G panel) energizes the 2/2-way N.C. solenoid [10] (or de-energizes the coil of a continuously energized ED 100% normally open solenoid for SIL 3-4 rated systems).
2. The pressure in the dry (pneumatically-pressurized) automatic sprinkler line drops, following bursting of one (or more) of the automatic sprinklers.

When both conditions occur, water is drained from the pre-action valve’s control chamber through the 2/2-way N.C. solenoid. The valve opens instantly allowing water to flow into the pipeline, through the open sprinklers and over the protected area. Pressure switches on the valve’s downstream port [11] and the check valve’s downstream port [12] provide electrical indication to the fire alarm control panel of rising water pressure (the valve has opened) and drop in air (or gas) pressure (one or more sprinklers have burst).

Manual emergency actuation is enabled by opening the emergency manual activation valve [6]. The pre-action valve opens instantly and allows water to flow into the pipeline and through the open sprinklers over the protected area.

Resetting, maintenance and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.
### TYPICAL MATERIALS

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>Standard</th>
<th>Industrial Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Valve Body</td>
<td>See Series 100 Engineering Data</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ball Valve</td>
<td>Bronze, Stainless Steel Ball</td>
<td>Stainless Steel 316</td>
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<tr>
<td>3</td>
<td>Y-Type Strainer</td>
<td>Bronze, Stainless Steel Screen</td>
<td>Stainless Steel 316</td>
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<tr>
<td>4</td>
<td>Check Valve</td>
<td>Bronze</td>
<td>Stainless Steel 316</td>
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<tr>
<td>5</td>
<td>T Restrictor</td>
<td>Brass</td>
<td>Stainless Steel 316</td>
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<tr>
<td>6</td>
<td>Manual Emergency Valve</td>
<td>Bronze</td>
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<td>7</td>
<td>Drip Valve</td>
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<td>Pressure Gauge</td>
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<td>9</td>
<td>66-2UL Relay</td>
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<tr>
<td>10</td>
<td>2/2 Way N.C. Solenoid</td>
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<tr>
<td>11</td>
<td>PSH (Pressure Switch High)</td>
<td>Specified Upon Request</td>
<td>Specified Upon Request</td>
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<tr>
<td>12</td>
<td>PSL (Pressure Switch Low)</td>
<td>Specified Upon Request</td>
<td>Specified Upon Request</td>
</tr>
<tr>
<td>13</td>
<td>Riser Check Valve</td>
<td>Ductile Iron</td>
<td>Ductile Iron</td>
</tr>
</tbody>
</table>

(1) Refer to materials selection guidelines, Engineering Data - Materials: Ductile Iron A-536 65-45-12; Cast Steel A-216 WCB; Cast Steel A-352 LCB; Austenitic Stainless Steel A-351/CF8M; Super Duplex 2507; Nickel-Aluminum-Bronze B-148 UNS C95800

(2) Consult factory

* General representation of valve
### GENERAL ARRANGEMENT & DIMENSIONS

<table>
<thead>
<tr>
<th>Valve</th>
<th>2” (50)</th>
<th>2.5” (65)</th>
<th>3” (80)</th>
<th>4” (100)</th>
<th>6” (150)</th>
<th>8” (200)</th>
<th>10” (250)</th>
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<tr>
<td>A_0</td>
<td>9 7/8</td>
<td>243</td>
<td>10</td>
<td>253</td>
<td>13 3/16</td>
<td>336</td>
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<tr>
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<td>170</td>
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<td>170</td>
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<td>203</td>
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<td>234</td>
<td>11 3/16</td>
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<td>9 7/8</td>
<td>238</td>
<td>9 7/8</td>
</tr>
</tbody>
</table>

* Approximate dimensions
**Check valve not included in dimensions
*** Grooved model length

* General representation of valve

* General representation of valve
**Typical Installation**

1. Double-Interlock Pre-Action Valve, Electro-Pneumatic Release System
2. PPCS (Pneumatic Pressure Control System)
3. Automatic Sprinkler Line
4. Fire Alarm Control Panel
5. PSL (Pressure Switch Low Air)
6. PSH (Pressure Switch High Water)
7. Heat / Smoke / Other Detectors

*Not all items pictured reflect products sold by OCV.*
TECHNICAL DATA

Temperature:
• Media up to 80°C = 176°F
• Elastomers suitable for extreme climates available upon request

Sizes:
• UL Listed Sizes: Model 68: 2”-10”
• Straight Flow: 2”-24”

End Connections:
• Flanged:
  ISO-PN16 & ISO-PN25
  ANSI B16.42 & B16.5 Class #150 and #300
  Additional options available upon request
• Grooved:
  Sizes: 2”-8”

Pressure Rating:
• 250 psi for Class #150
• 375 psi for Class #300

Body and Cover Material:
• Ductile Iron
• Stainless Steel
• Cast Steel
• NAB

Trim Material:
• Bronze/Brass - Copper
• Stainless Steel
• Monel

Optional Components:
• Spring
• Position Indicator
• Pressure Switch
• Alarm Test Trim
• Upstream Drain Valve
• Limit/Proximity Switch

Items to Specify:
• Electrical features other than standard (24VDC, IP65/NEMA4)
• If explosion proof accessories are required such as solenoids, pressure switches, etc., please define classification
• Control trim material other than standard
• Required standards, certifications and approvals

ENGINEERING SPECIFICATIONS

The pre-action valve shall be hydraulically operated, direct elastomeric diaphragm-seal, single chamber weir type. The valve shall consist of three major components: the body, the cover and the diaphragm assembly. The diaphragm assembly shall be the only moving part. The diaphragm forms a sealed control chamber in the upper portion of the valve, separating operating pressure from line pressure. Packing glands, stuffing boxes and dynamic O-ring seals are not permitted and there shall not be shafts, discs, bearings or pistons operating the valve. No hourglass shaped disc retainers shall be permitted, and no V-type, U-type or other slotted type disc guides shall be used. The valve shall contain a nylon reinforced rubber diaphragm, elastic & resilient through its entire surface without vulcanized radial seals and/or reinforcements. The diaphragm assembly shall not be guided by any shafts or bearings and shall not be in close contact with other valve parts except for its sealing surface. The pre-action valve shall be fully trimmed, hydrostatically and operationally tested at the factory. Maintenance, disassembly and reassembly of all the valve's components shall be made possible on-site and in-line, without the need to remove the valve from the line. Main valve body and bonnet standard material shall be Ductile Iron or Cast Steel. Main valve body and bonnet surfaces shall include a fire red epoxy coating. Other materials and coatings available upon request. The pre-action valve shall be a Model 68 DE\EL\PORV-DN, UL Listed under VLFT category, as manufactured by OCV Fluid Solutions, Tulsa, OK, USA.

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