8800 Series Poppet Style Pressure Control Valves

Pilot operated valves provide fast response to regulate pressure. The rugged design is ideal for systems with extreme changes in pressure.

SPECIFICATIONS

Mounting
8800 Series, Line Connected;
P8800 Series, Subplate Mounted
(Available in Size 06 only)

Rated Flow
Size 03:
- Nominal, U.S. 15 gpm (57 L/min);
- Maximum, U.S. 25 gpm (95 L/min)
Size 06:
- Nominal, 40 U.S. gpm (151 L/min);
- Maximum, 60 U.S. gpm (227 L/min)

Rated Pressure
Standard:
- 3000 psi (210 bar)
HP Option:
- 5000 psi (350 bar)

Pressure Adjustment
Standard Pressure Range:
- 100 to 3000 psi (7 to 210 bar)
HP Option
- 100 to 5000 psi (7 to 350 bar)
LP Option:
- 50 to 1000 psi (4 to 70 bar)

Pressure is manually set by turning the maximum pressure adjustment (knurled knob or optional handwheel). Turning clockwise increases pressure. The setting is held by a locknut.

ELECTRIC VENT OPTION

Electrically operated pressure controls are available (normally-open, EVO; or normally-closed, EVC). Pressure is automatically controlled by an integrally mounted D03 valve.

With this option, relief valves can control two pressure levels in a circuit. When the solenoid valve is open, system pressure drops to its lowest level. When the solenoid valve is closed, pressure rises to the control knob setting on the relief valve.

Unloading valves can provide automatic control, diverting pump output to tank during idle portions of the machine cycle.

APPLICATION NOTES

Mounting
Orientation:
- Unrestricted for all models.
Subplate Models: Port o-rings are included. Bolts must be ordered separately, .625-11 U.N.C. Threaded x 3.50 inches (88.9 mm). Recommended torque is 55 lb•ft (75 N•m).

See page 3 for “Subplates and Mounting Bolt Kits”.

Standard Seals
Fluorocarbon (Viton® or Fluorel®)

Fluid Recommendations
Viscosity:
- 50 to 1500 SUS (7 to 325 cSt)
Temperature Range:
- -20° to +200° F (-29° to +93° C.)

Filtration
Use filtration to provide fluid which meets ISO cleanliness level 19/17/14 (ISO Code 4406) or cleaner.

Pressure Surges
Consistent with standard practice, the system should be protected from pressure surges.

Regulation of internally drained valves may be affected by surges in a common tank line serving multiple valves. A separate line is recommended.

PRESSURE DROP (ΔP) ➊

<table>
<thead>
<tr>
<th>Size</th>
<th>Flow U.S. gpm</th>
<th>Flow L/min</th>
<th>Vent. ΔP psi</th>
<th>Vent. ΔP bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>9</td>
<td>34</td>
<td>35</td>
<td>2,4</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>95</td>
<td>165</td>
<td>11,4</td>
</tr>
<tr>
<td>06</td>
<td>27</td>
<td>102</td>
<td>20</td>
<td>1,4</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>227</td>
<td>115</td>
<td>7,9</td>
</tr>
</tbody>
</table>

➊ Pressure drop is comparable for all pressure ranges.
Valve Functions and Operation

RELIEF VALVES
Relief valves are normally closed controls that regulate pressure to a desired preset maximum.
Their most common use is to protect against excessive pressure. The valve is adjusted so it opens at a pressure slightly higher than the load requirement. When reached, the valve diverts excess pump output flow to tank. See Figure 1.
Pressure can be controlled by a remote pressure source, such as a Dynex 8820 Series panel mounted valve.
Relief valves also provide an unloading function, venting pump output flow during idle portions of a machine cycle. Venting can be controlled by a two-position directional control valve (a Dynex D03 valve, for example) in the circuit.

UNLOADING VALVES
Unloading valves are normally closed controls that divert pump output flow directly to tank in response to an external pressure (pilot) signal.
These valves can be used in an accumulator unloading circuit, which provides both relief protection and unloading to divert pump output when the desired accumulator pressure is reached. See Figure 2.
The valve closes when the accumulator is discharged to about 85% of the pre-set pressure. This differential unloading characteristic provides faster accumulator recharge.

INTEGRAL VENT VALVE
Pressure controls with optional electric vent can automatically divert pump output flow to tank during idle portions of a machine cycle. Pressure is controlled by an integrally mounted Dynex D03 valve. See Figure 3.
This vent option is available in normally-open (EVO) or normally-closed (EVC) configurations.
**Installation and Dimensions**

Refer to the table for variable dimensions for line connected models. Note that for installation ease, the pilot head can be rotated 90° counter-clockwise, if desired.

Dimensions for “Electric Vent” option are shown printed in gray.

**Weight (Mass)**

Size 03:
- 17 lb (7.7 kg)

Size 06:
- Subplate Mounted, 16 lb (7.3 kg);
- Line Connected, 20 lb (9.1 kg)

**DIMENSIONS – LINE CONNECTED**

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>03</th>
<th>06</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2.62 (66,5)</td>
<td>3.31 (84,1)</td>
</tr>
<tr>
<td>B</td>
<td>2.50 (63,5)</td>
<td>3.00 (76,2)</td>
</tr>
<tr>
<td>C</td>
<td>4.62 (117,3)</td>
<td>5.62 (142,7)</td>
</tr>
<tr>
<td>D</td>
<td>8.38 (212,9)</td>
<td>9.38 (238,3)</td>
</tr>
<tr>
<td>E</td>
<td>4.12 (104,6)</td>
<td>4.44 (112,8)</td>
</tr>
<tr>
<td>F</td>
<td>1.62 (41,1)</td>
<td>1.84 (46,7)</td>
</tr>
<tr>
<td>G</td>
<td>1.31 (33,3)</td>
<td>1.66 (42,2)</td>
</tr>
<tr>
<td>H</td>
<td>2.62 (66,5)</td>
<td>3.31 (84,1)</td>
</tr>
<tr>
<td>J</td>
<td>3.12 (79,2)</td>
<td>4.50 (114,3)</td>
</tr>
</tbody>
</table>

**SUBPLATES AND BOLT KITS**

P17 (06 Size) subplates are available for mounting under P8800 models.

Valve mounting bolts are supplied when ordering subplates. When ordering valves and subplates together, valves are not mounted on subplates.

The gray area in the drawing indicates the minimum mounting surface required for mounting these valves when a subplate is not used.

**Mounting Bolt Kits**

Mounting bolts are not included when ordering valve alone. The table includes available mounting bolt kits.

**P8800 SERIES (POPPET STYLE)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subplates:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P17-3/4</td>
<td>Bottom Ports, 3/4-14 N.P.T.F.</td>
<td></td>
</tr>
<tr>
<td>P17-1</td>
<td>Side Ports, 1–11-1/2 N.P.T.F.</td>
<td></td>
</tr>
<tr>
<td>Bolt Kit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P17-BK</td>
<td>Four .625-11 U.N.C. Threaded x 3.50 inches (88,9 mm)</td>
<td></td>
</tr>
</tbody>
</table>

**P8800 Series, Subplate Mounted (Size 06 Only)**

**8800 Series, Line Connected**
Valve Mounting

No Code — Line Connected
P — Subplate Mounted

Valve Type

88 — Pressure Control

Valve Function

Subplate | Line
--- | ---
19 — Relief
39 — Accumulator Unloading

Nominal Size

03 — 1/2 Inch N.P.T. Ports
06 — 3/4 Inch or 1 Inch N.P.T. Ports

Options

No Code — Standard, adjustable 100 to 3000 psi (7 to 210 bar)
LP — Adjustable 50 to 1000 psi (4 to 70 bar)
HP — Adjustable 100 to 5000 psi (7 to 350 bar)
EVO — Electric Vent, Normally Open
EVC — Electric Vent, Normally Closed
HW — Handwheel
CR — Corrosion Resistant

Electric Vent Options

STANDARD SOLENOIDS:
24/DF — Dual Frequency, 24/60, 24/50
115/DF — Dual Frequency, 115/60, 110/50
230/DF — Dual Frequency, 230/60, 220/50
460/DF — Dual Frequency, 460/60, 440/50
12VDC — Direct Current, 12 Volts
24VDC — Direct Current, 24 Volts
115/60 EPW — Explosion Proof Solenoid
110/50 EPW — Explosion Proof Solenoid
220/50 EPW — Explosion Proof Solenoid

PLUG-IN TERMINAL SOLENOIDS:
115/HAC — Dual Frequency, 115/60, 110/50
230/HAC — Dual Frequency, 230/60, 220/50
12/HDC — Direct Current, 12 Volts
24/HDC — Direct Current, 24 Volts

SOLENOID OPTIONS:
C — CSA and UL Recognized Coils (Etched with Symbol)
M — Hand Actuated Manual Override
T — Terminal Strip
CG — Cable Grip, for 3/8 to 7/16 inch (9.5 to 11.1 mm) O.D. machine tool cable
SL — Solenoid Lights (Available 115/DF AC Only)
HPT — High Pressure Tank Port
BH3A — 3-pin Connector (NFPA standard T3.539-1980), for single solenoid models, on port “A” end of valve
BH5A — 5-pin Connector for single or double solenoid models on port “A” end of valve
BH3B — 5-pin Connector, for single or double solenoid models on port “B” end of valve
BH5B — 5-pin Connector for single or double solenoid models on port “B” end of valve

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