D08 Pattern
Directional Control Valves

Also refer to "Directional Valve Features, Selection and Operating Recommendations" (dynexdcvoperating.pdf)
VALVE DESCRIPTION

D08 valves are available with a full range of actuators, spools and electrical options, including lever actuated models.

An optional spool stroke adjustment controls the limit of spool travel. This provides manual control of the valve’s metering characteristics. See page 4.

For a description of spools, operators and application information, see dynexdcvoperating.pdf.

Mounting

Subplate, N.F.P.A. D08 (CETOP 8) pattern.

Rated Flow

40 U.S. gpm (151 L/min) nominal; 90 U.S. gpm (341 L/min) maximum.

Rated Pressure

5000 psi (350 bar).

Tank Port Pressure (Maximum)

Standard External Drain: 5000 psi (350 bar).

Internal Drain (“ID” Option):

Manual models, 500 psi (35 bar);

Solenoid models, 1500 psi (105 bar);

Solenoid models with “HT” Option, AC models, 2300 psi (160 bar), DC models, 3000 psi (210 bar);

Air piloted models, 3000 psi (210 bar) 500 psi (35 bar).

Response Time (Full Stroke)

Spring Centered Models:

Solenoid Energized, 40-45 ms.

Spring Returned, 40 ms.

Spring Offset Models:

Solenoid Energized, 50 ms.

Spring Returned, 75 ms.

6600 Series Solenoid Piloted Models

Pilot Pressure:

Minimum, 65 psi (5 bar);

Maximum, 5000 psi (350 bar).

Solenoids:

These models use a D03 valve as a pilot.

Models are available with standard AC or DC solenoids. Optional Plug-In-Terminal Solenoids fit DIN Connector, Standard 43650 Form A (“Hirschmann” type).

See dynexdcvoperating.pdf for “Electrical Connections” and “Explosion Proof Option”.

6800 Series Hydraulic Piloted Models

Pilot Pressure:

Minimum, 65 psi (5 bar);

Maximum, 5000 psi (350 bar).

Required Volume (to shift spool full stroke): 1.352 in³ (22.2 cm³).

6900 Series Air Piloted Models

These models use an air piloted D03 valve as a pilot.

Air Pilot Pressure:

Minimum, 40 psi (3 bar);

Maximum, 200 psi (14 bar).

Required Volume (to shift spool full stroke): 0.220 in³ (3.61 cm³).

VALVE EFFICIENCY

Efficiency for all models is shown by the typical performance curves, above. The table identifies the appropriate pressure drop curve for each spool and flow path.

For example, in the table under spool Type 5, curve “B” is called out to determine the pressure drop for P→A. Looking at the curves, “B” indicates a drop of about 165 psi at 30 U.S. gpm (11.4 bar at 114 L/min).

To determine total “loop” drop, the individual pressure drops for P→A and B→T (or P→B and A→T) must be added.
INSTALLATION AND DIMENSIONS

Valve Mounting
The mounting surface drawing shows the minimum flush or raised surface required for the standard N.F.P.A. D08 pattern. Port o-rings are included with valves. Mounting bolts must be ordered separately: .500-13 U.N.C. Threaded x 1.25 inch (32 mm), Grade 8 or better, six required. Recommended mounting torque is 55 lb-ft (75 N•m).

Pilot and Drain Options
The “Section X-X” drawing shows the location of the orifice for the standard internal pilot configuration, and the plug for standard external drain on solenoid and air piloted models.

For conversion to external pilot, replace with setscrew, 10-2 U.N.C. Threaded x 0.25 inch (6.4) long, part number 10590270.

Solenoid Model Dimensions
Dimensions are shown for both AC and DC solenoids. DC configuration is shown printed in gray.

The overall length of a single solenoid model (not shown) is 9.91 inches (251.7 mm), the same as a double solenoid model (determined by the length of the main valve).

Weight (Mass):
Single Solenoid, AC, 26.0 lb (11.8 kg); DC, 26.5 lb (12.0 kg).
Double Solenoid, AC, 27.0 lb (12.2 kg); DC, 28.3 lb (12.8 kg).

Section X-X

Minimum Mounting Surface, N.F.P.A. D08 (CETOP 8) Pattern

6600 Series, Double Solenoid Piloted Models
Explosion Proof Solenoids

“EP” solenoids with special enclosures are approved by UL and CSA for use in hazardous locations. Overall length of single solenoid models (not shown) is 11.18 inches (284,0 mm).

Weight (Mass):
- Single Solenoid, 31 lb (14.1 kg);
- Double Solenoid, 37 lb (16.8 kg).

Manual Operated Models
Lever actuated valves are available in two or three position models. Models with Code 3 internal operators provide three position, detented operation. Refer to “Typical Model Code” on page 38.

Weight (Mass):
- 27 lb (12,2 kg).

Direct Hydraulic Pilot Operated
As shown, these models use a crossover block to direct pilot pressure from auxiliary ports “X” and “Y”.

Weight (Mass):
- 6.0 lb (2,7 kg).

X” and “Y” Port Function

<table>
<thead>
<tr>
<th>Model</th>
<th>Port “X”</th>
<th>Port “Y”</th>
</tr>
</thead>
<tbody>
<tr>
<td>681</td>
<td>Actuator A</td>
<td>External Drain</td>
</tr>
<tr>
<td>682</td>
<td>External Drain</td>
<td>Actuator B</td>
</tr>
<tr>
<td>685</td>
<td>Actuator A</td>
<td>Actuator B</td>
</tr>
</tbody>
</table>

6800 Series, Direct Hydraulic Piloted
**Air Piloted Models**

Overall length of single actuator configuration (not shown) is 9.91 inches (257.7 mm), the same as a double actuator model (determined by the length of the main valve).

Weight (Mass):
- Single Actuator, 24 lb (10.9 kg)
- Double Actuator, 25 lb (11.3 kg)

**Spool Stroke Adjustment (SSA Option)**

The limit of spool travel can be controlled with a spool stroke adjustment. This provides manual control of the valve’s metering characteristics.

The drawing shows an end cover with “1SSA” option on the standard port “A” end of valve. The “2SSA” configuration, with adjustments on both ends, is shown printed in gray.

For single adjustment on port “B” end, contact the Dynex sales department.

### D08 SUBPLATE AND BOLT KITS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>P16-D08-.75</td>
<td>Bottom Ports, 3/4-14 N.P.T.F.</td>
</tr>
<tr>
<td>P16-D08-1</td>
<td>Bottom Ports, 1-11-1/2 N.P.T.F.</td>
</tr>
<tr>
<td>PSO16-D08-.75</td>
<td>Side Ports, 3/4-14 N.P.T.F.</td>
</tr>
<tr>
<td>PSO16-D08-1</td>
<td>Side Ports, 1-11-1/2 N.P.T.F.</td>
</tr>
<tr>
<td>PSO16-D08-16</td>
<td>Side Ports, No. 16 S.A.E.</td>
</tr>
<tr>
<td>P16-BK-20</td>
<td>Six .500-13 U.N.C. threaded x 1.25 inch (31.8 mm)</td>
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</tbody>
</table>
### TYPICAL MODEL CODE

<table>
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<tr>
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<tbody>
<tr>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>–</td>
<td>D08</td>
<td>–</td>
<td>115DF</td>
<td>–</td>
<td>R</td>
<td>–</td>
<td>T</td>
<td>–</td>
</tr>
</tbody>
</table>

- **Valve Type**
  - 6: Subplate Mounted Directional Control

- **Actuator**
  - 1: Manual Lever
  - 6: Solenoid Operated
  - 8: Hydraulic Piloted
  - 9: Air Piloted

- **Reverse Flow Option**
  - R: Reverse Flow (Code 4 Operator Only)

- **Solenoid Options**
  - BH3A: 3-pin Connector for single solenoid models on port “A” end
  - BH3B: 3-pin Connector for single solenoid models on port “B” end
  - BH5A: 5-pin Connector for single or double solenoid models on port “A” end
  - BH5B: 5-pin Connector for single or double solenoid models on port “B” end

- **C**
  - CSA and UL Recognized Coils (Etched with Symbol)

- **CG**
  - Cable Grip for .38 to .44 inch (9.5 to 11.1 mm) O.D. machine tool cable

- **HT**
  - High Pressure Tank Port: 2300 psi (160 bar) maximum AC models; 3000 psi (210 bar) maximum DC models

- **M**
  - Hand Actuated Manual Override

- **SL**
  - Solenoid Lights (available 115DF AC only)

- **T**
  - Terminal Strip

### SPOOLS

- **5**
  - Closed Crossover
  - Open Crossover

- **6**

- **8**

- **9**

- **56**

- **58**

### GENERAL OPTIONS

- **1SSA**
  - Spool Stroke Adjustment on port “A” end of valve

- **2SSA**
  - Spool Stroke Adjustment on both ends of valve

- **CH**
  - Flow Control (Pilot Choke) – 3000 psi (210 bar) maximum

- **ID**
  - Internal Drain

- **XP**
  - External Pilot

### ELECTRICAL OPTIONS

#### Standard AC Solenoids (Dual Frequency):
- **24DF**: 24V/60Hz, 24V/50Hz
- **115DF**: 115V/60Hz, 110V/50Hz
- **230DF**: 230V/60Hz, 220V/50Hz
- **460DF**: 460V/60Hz, 440V/50Hz

#### Plug-In Terminal AC Solenoids:
- **115HA**: 115V/60Hz, 110V/50Hz
- **230HA**: 230V/60Hz, 220V/50Hz

#### Explosion-Proof AC Solenoids:
- **115EP**: 115V/60Hz
- **110EP**: 110V/50Hz
- **220EP**: 220V/50Hz

#### Standard DC Solenoids:
- **12DC**: 12VDC
- **24DC**: 24VDC

#### Plug-In Terminal DC Solenoids:
- **12HD**: 12VDC
- **24HD**: 24VDC

#### Explosion-Proof DC Solenoids:
- **12EP**: 12VDC
- **24EP**: 24VDC

- **Fits DIN Connector Standard 43650 Form A (“Hirschmann” type).**