VSW Series Sandwich Valves

Also refer to "Directional Valve Features, Selection and Operating Recommendations" (dynexdcvoperating.pdf)
VALVE DESCRIPTION
VSW Series valves are installed under Dynex high pressure control valves which mount on the special HP03 and HP05 pattern.
These sandwich accessory valves can simplify circuits and reduce installation costs in high pressure systems.
HP03 models are rated to 10 000 psi (700 bar). HP05 models are rated to 8000 psi (560 bar).

Valve Functions
Refer to “Typical Model Code” on page 5 for function flow symbols.
P→T Relief:
Models, VSWRLPT-HP03-10 VSWRLPT-HP05-10;
A,B→T Dual Relief:
Models, VSWRLABT-HP03-10 VSWRLABT-HP05-10;
P→T Decompression:
Model VSWDPT-HP05-]]; A,B→T Dual Decompression:
Model VSWDABT-HP05-]]; Dual Pilot Operated Check:
Model VSWCHAB-HP03-20;
Ratio to open the valve is approximately 7:1 at 10 000 psi (700 bar). The valve will unseat when internal pilot pressure reaches about 14% (1/7) of the load pressure.
Model VSWDABT-HP05-10;
Ratio to open the valve is approximately 4:1 at 8000 psi (560 bar). The valve will unseat when internal pilot pressure reaches about 25% (1/4) of the load pressure.

Seals
Standard o-rings are fluorocarbon (Viton® or equivalent) providing greater fluid compatibility and operation over a wider temperature range.
Optional seals include Buna-N or EPR for use with some phosphate ester fluids.
Contact the Dynex sales department for complete ordering information.

Mounting
Port o-rings are included with valves. Mounting bolts must be ordered separately. Refer to Bolt Kits on page 3 for HP03 pattern and page 4 for HP05 pattern.

VSW-HP03 SPECIFICATIONS
Mounting
Special HP03 mounting interface.
Rated Pressure
10 000 psi (700 bar).
Flow
Model VSWRL1PT and Model VSWRLABT:
5 U.S. gpm (19 L/min) nominal; 10 U.S. gpm (38 L/min) maximum; 0.5 U.S. gpm (1.9 L/min) minimum.
Model VSWCHAB:
5 U.S. gpm (19 L/min) nominal; 8 U.S. gpm (30 L/min) maximum; No minimum flow requirements.

VSW-HP05 SPECIFICATIONS
Mounting
Special HP05 mounting interface.
Rated Pressure
8000 psi (560 bar).
Maximum Drain Port Pressure (Optional Electric Vent Valve)
Standard: 1500 psi (70 bar);
“D” option, high pressure tank port: AC models, 2000 psi (140 bar); DC models, 2500 psi (170 bar).
Flow
All models: 5 U.S. gpm (57 L/min).

Venting Options
The standard relief valve has a blocked vent port. Decompression models must be vented and this option must be specified in model code.
Options for both valves include a remote vent port adapter or an integral vent valve (electric, air or hydraulic actuator).

External Drain
External drain is available on relief and decompression valves by specifying the “XD” option. The internal configuration for this function includes plug, part number 10590270, which is factory installed.
For in-the-field conversions, contact the Dynex sales department.
VALVE EFFICIENCY

Loop pressure drop (ΔP) is the combined drop through the valve (P→A + B→T or P→B + A→T).

The pressure drop curve for check valve models includes resistance to flow through the HP03 directional valve. Valves with Type 3 spool (pressure blocked, “A” and “B” open to tank in the center position) were used to determine typical performance.

INSTALLATION AND DIMENSIONS

HP03 Pattern

These models mount on the HP03 special mounting pattern. See dynexveshp03specs.pdf for minimum mounting surface requirements.

VSW-HP03 BOLT KITS

<table>
<thead>
<tr>
<th>Item:</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolt Kit:</td>
<td>P11-BK-44</td>
<td>For mounting one VSWRL** on 6000 Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 2.75 inches (69.8 mm)</td>
</tr>
<tr>
<td>Bolt Kit:</td>
<td>P11-BK-64</td>
<td>For mounting one VSWRL** on VST Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 4.00 inches (101.6 mm)</td>
</tr>
<tr>
<td>Bolt Kit:</td>
<td>P11-BK-36</td>
<td>For mounting one VSWCHAB on 6000 Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 2.25 inches (57.2 mm)</td>
</tr>
<tr>
<td>Bolt Kit:</td>
<td>P11-BK-56</td>
<td>For mounting one VSWCHAB on VST Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 3.50 inches (88.9 mm)</td>
</tr>
</tbody>
</table>
HP05 Pattern
These models mount on the HP05 special mounting pattern. See dynexveshp05specs.pdf for minimum mounting surface requirements.

Configurations for dual relief and decompression valves, with two pressure adjustments, are shown printed in gray.

The relief valve drawing shows the standard blocked vent port adapter. Venting options for both valves are shown in the decompression valve drawing. Decompression models must be vented and should be specified in model code.

HP05 Mounting Bolt Kits
Mounting bolts must be ordered separately in kit P31-BK-60. This kit contains four .3125-18 U.N.C. Threaded x 3.75 inches (95.2 mm) long, for mounting one VSW valve.
VSW SERIES SANDWICH VALVES

TYPICAL MODEL CODE

<table>
<thead>
<tr>
<th>VSW</th>
<th>RL</th>
<th>PT</th>
<th>HP05</th>
<th>CR</th>
<th>EO</th>
<th>115HA</th>
<th>D</th>
<th>XD</th>
<th>✗</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
</table>

**Valve Type**
- Sandwich Valve

**Function**
- CH: Check Valve
- D: Decompression Valve
- RL: Relief Valve

**No Code**

**Mounting Pattern**
- (Special High Pressure)

<table>
<thead>
<tr>
<th>HP03</th>
<th>HP05</th>
</tr>
</thead>
</table>

**Modification Number**
- Design Number
  - 1: HP05 All Functions, HP03 Relief Valve
  - 2: HP03 Check Valve

**Seals**
- No Code (Standard)
  - Fluorocarbon (Viton® or Fluorel®)
  - EPR
  - Buna-N

**Drain Options**
- No Code: Standard Internal Drain
- XD: External Drain

**“EV” General Options**
- D: High Pressure Tank Port, Maximum: AC models, 2000 psi (140 bar); DC models, 2500 psi (170 bar).
- M: Hand Actuated Manual Override (Fits DIN Connector Standard 43650 Form A ("Hirschmann" type).)

**“EV” Electric Options**
- Plug-In Terminal Solenoids
  - 115HA: Dual Frequency AC, 115V/60Hz/110V/50Hz
  - 230HA: Dual Frequency AC, 230V/60Hz/220V/50Hz
  - 12HD: 12VDC
  - 24HD: 24VDC

**Drain Options (HP05 Only)**
- No Code
- XD: External Drain

**“EV” General Options (HP05 Only)**
- D: High Pressure Tank Port, Maximum: AC models, 2000 psi (140 bar); DC models, 2500 psi (170 bar).
- M: Hand Actuated Manual Override

**Check Valves**
- HP03 Pattern
- HP05 Pattern

| AB | Dual Pilot Operated Check |

**Relief Valves**
- PT: P→T Relief

| ABT | A, B→T Dual Relief |

**Decompression Valves**
- PT: P→T Decompression

| ABT | A, B→T Dual Decompression |

**Options**

**Vent Options (HP05 Only)**
- No Code: Vent Port Blocked
- AC: Air Vent, Normally Closed
- AO: Air Vent, Normally Open
- AV: Vent Port, 1/4" High Pressure Coned and Threaded, 9/16-18 U.N.F.
- BV: Vent Port, G 1/4" (B.S.P.)
- CR: Corrosion Resistant Adjustment
- EC: Electric Vent, Normally Closed
- EO: Electric Vent, Normally Open
- HC: Hydraulic Vent, Normally Closed
- HO: Hydraulic Vent, Normally Open
- SV: Vent Port, No. 4 S.A.E.

**Seals**

<table>
<thead>
<tr>
<th>No Code (Standard)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorocarbon (Viton® or Fluorel®)</td>
</tr>
<tr>
<td>EPR</td>
</tr>
<tr>
<td>Buna-N</td>
</tr>
</tbody>
</table>

**Drain Options**

<table>
<thead>
<tr>
<th>No Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Internal Drain</td>
</tr>
<tr>
<td>XD</td>
</tr>
</tbody>
</table>

**“EV” Electric Options (HP05 Only)**

| 115HA | Dual Frequency AC, 115V/60Hz/110V/50Hz |
| 230HA | Dual Frequency AC, 230V/60Hz/220V/50Hz |
| 12HD | 12VDC |
| 24HD | 24VDC |

**Explosion-Proof Solenoids**

| 24EP | 24VDC |
| 115EP | 115V/60Hz |
| 110EP | 110V/50Hz |
| 220EP | 220V/50Hz |

① Fits DIN Connector Standard 43650 Form A ("Hirschmann" type).
② For other voltages, contact the Dynex sales department.