

VSW Series Sandwich Valves

Also refer to "Directional Valve Features, Selection and Operating Recommendations" ([dynexdcvoperating.pdf](#))

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BROCHURE NOTES:

Consult the Dynex sales department for a review of any application which requires operating above the rated flows or pressures, or higher than normal operating temperatures.

Specifications shown were in effect when published. Since errors or omissions are possible, contact your sales representative for the most current specifications before ordering. Dynex reserves the right to discontinue or change designs at any time without incurring any obligation.



VSW SERIES SANDWICH VALVES

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-* -10;

A,B→T Dual Decompression:

Model VSWDABT-HP05-* -10;

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).

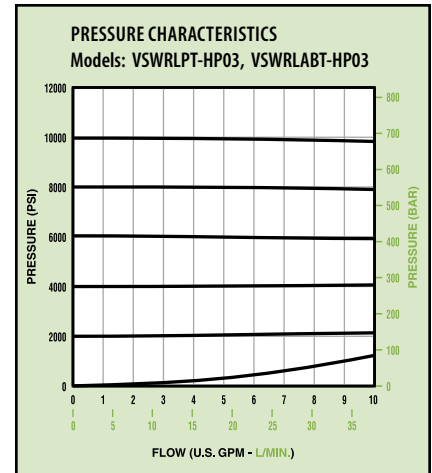
Flow

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: 15 U.S. gpm (57 L/min).

Venting Options

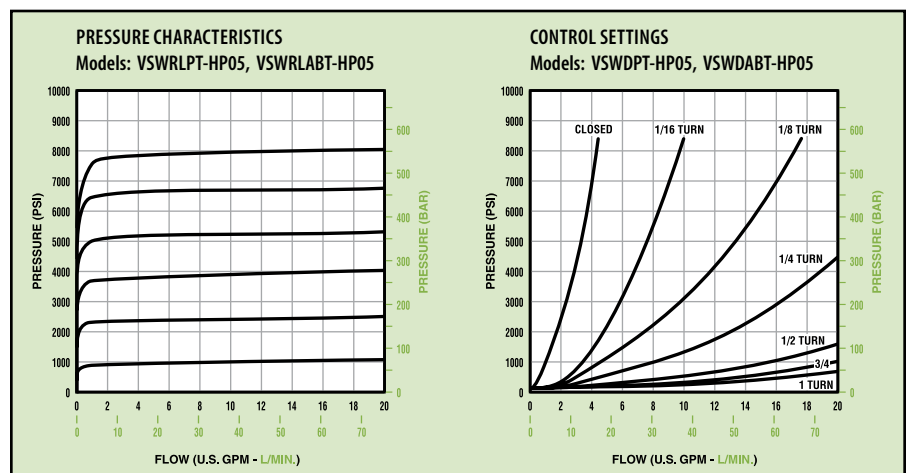
The standard relief valve has a blocked vent port. Decompression models must be vented and this option must be specified in model code.

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.

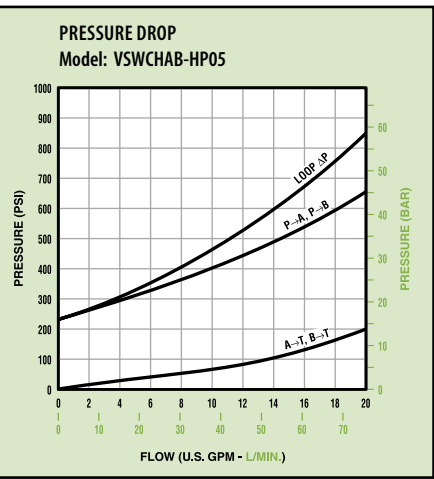
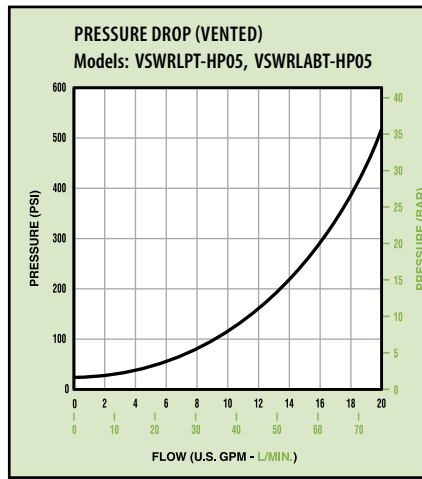
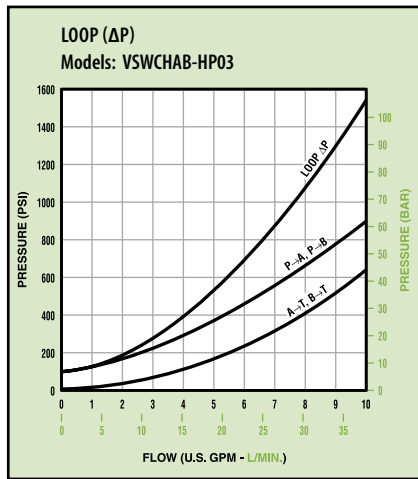


VSW SERIES SANDWICH VALVES

VALVE EFFICIENCY

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

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.



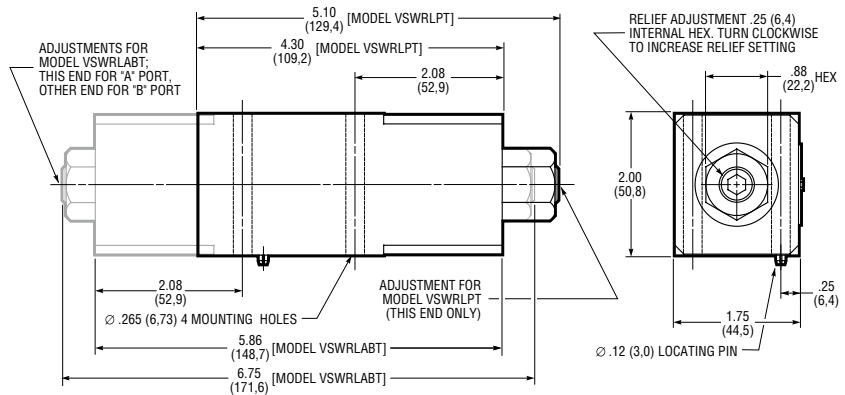
INSTALLATION AND DIMENSIONS

HP03 Pattern

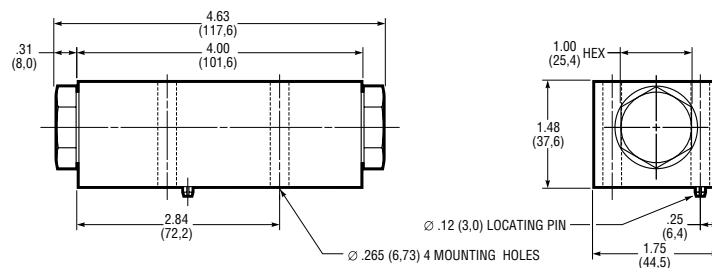
These models mount on the HP03 special mounting pattern. See dynexveshp03specs.pdf for minimum mounting surface requirements.

VSW-HP03 BOLT KITS

Item:	Part Number	Description
Bolt Kit:	P11-BK-44	For mounting one VSWRL** on 6000 Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 2.75 inches (69,8 mm)
Bolt Kit:	P11-BK-64	For mounting one VSWRL** on VST Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 4.00 inches (101,6 mm)
Bolt Kit:	P11-BK-36	For mounting one VSWCHAB on 6000 Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 2.25 inches (57,2 mm)
Bolt Kit:	P11-BK-56	For mounting one VSWCHAB on VST Series (HP03 pattern): Four .250-20 U.N.C. Threaded x 3.50 inches (88,9 mm)



Model VSWRLPT-HP03-10 ($P \rightarrow T$ Relief Valve) and Model VSWRLABT-HP03-10 ($A, B \rightarrow T$ Relief Valve), Shown Printed in Gray



Model VSWCHAB-HP03-20 (Dual Pilot Operated Check Valve)

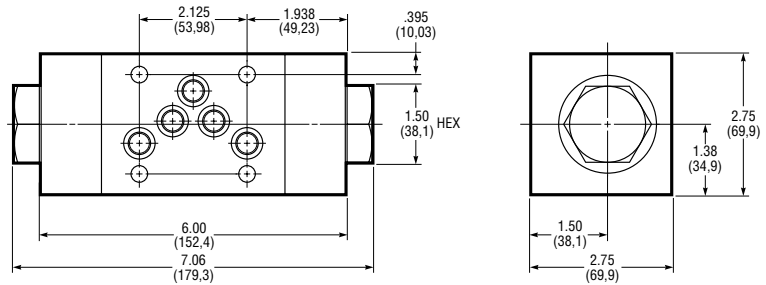
VSW SERIES SANDWICH VALVES

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.

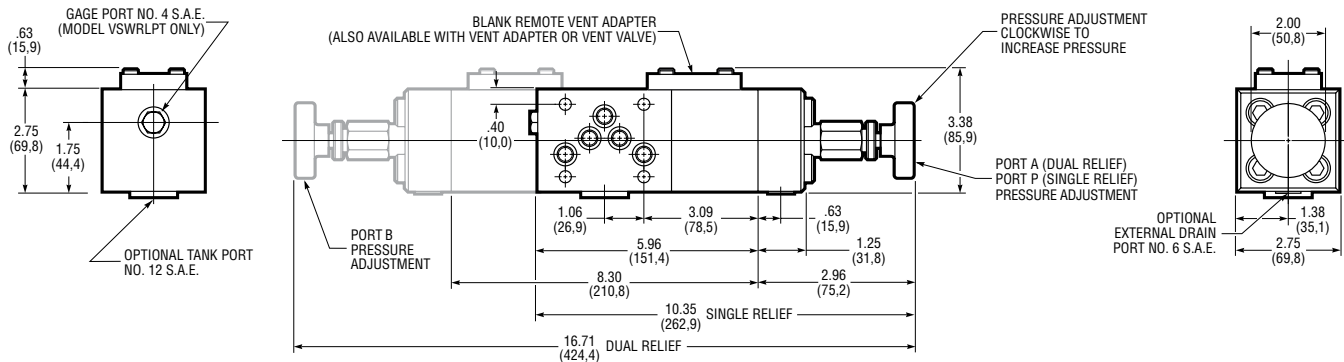
The relief valve drawing shows the standard blocked vent port adapter. Venting options for both valves are shown in the decompression valve drawing. Decompression models must be vented and should be specified in model code.



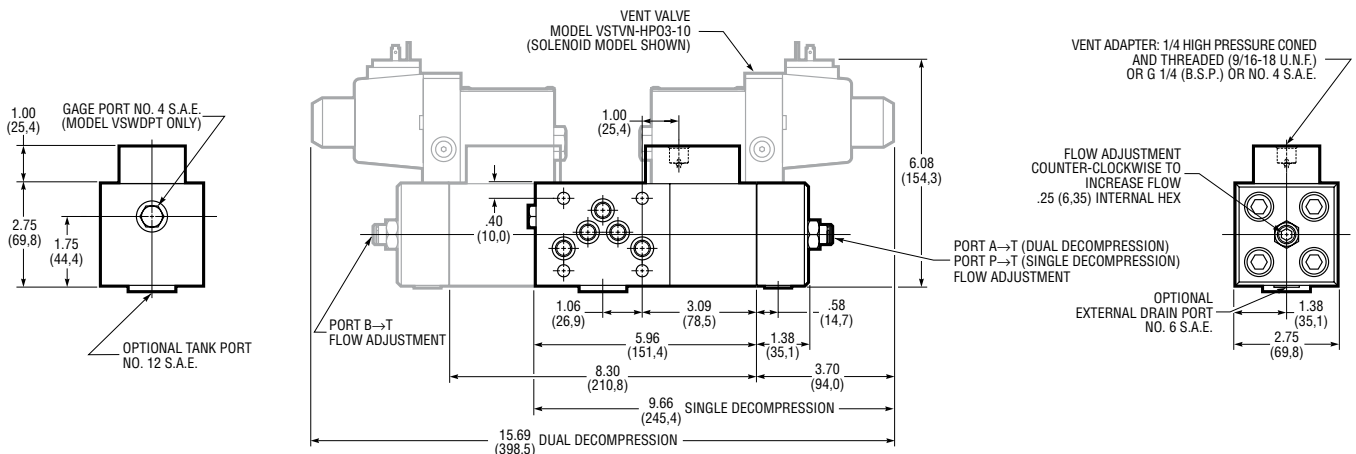
Model VSWCHAB-HP05*-10 (Dual Pilot Operated Check Valve)

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.



Model VSWRLPT-HP05*-10 (P→T Relief Valve) and Model VSWRLABT-HP05*-10 (A, B→T Dual Relief Valve) Shown Printed in Gray



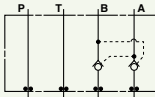
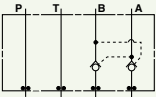
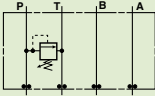
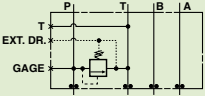
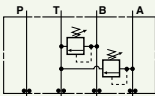
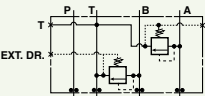
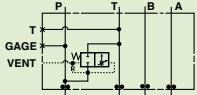
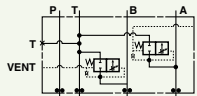
Model VSWDPT-HP05*-10 (P→T Decompression Valve) and Model VSWDABT-HP05*-10 (A, B→T Dual Decompression Valve) Shown Printed in Gray

VSW SERIES SANDWICH VALVES

TYPICAL MODEL CODE

VSW RL PT - HP05 CR - EO - 115HA - D - XD - * - 1 0

Valve Type Sandwich Valve	Mounting Pattern (Special High Pressure) <table border="1" style="width: 100%;"> <tr> <td style="width: 50px;">HP03</td> <td>HP03 Pattern</td> </tr> <tr> <td>HP05</td> <td>HP05 Pattern</td> </tr> </table>	HP03	HP03 Pattern	HP05	HP05 Pattern	Modification Number 0																												
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Function <table border="1" style="width: 100%;"> <tr> <td style="width: 50px;">CH</td> <td>Check Valve</td> </tr> <tr> <td>D</td> <td>Decompression Valve^①</td> </tr> <tr> <td>RL</td> <td>Relief Valve</td> </tr> </table> <p>^① Not available with HP03 Pattern models.</p>	CH	Check Valve	D	Decompression Valve ^①	RL	Relief Valve	Vent Options (HP05 Only)^① <table border="1" style="width: 100%;"> <tr> <td style="width: 50px;">No Code</td> <td>Vent Port Blocked^②</td> </tr> <tr> <td>AC</td> <td>Air Vent, Normally Closed</td> </tr> <tr> <td>AO</td> <td>Air Vent, Normally Open</td> </tr> <tr> <td>AV</td> <td>Vent Port, 1/4 High Pressure Coned and Threaded, 9/16-18 U.N.F.^{③④}</td> </tr> <tr> <td>BV</td> <td>Vent Port, G 1/4 (B.S.P.)^{④⑤}</td> </tr> <tr> <td>CR</td> <td>Corrosion Resistant Adjustment^⑥</td> </tr> <tr> <td>EC</td> <td>Electric Vent, Normally Closed</td> </tr> <tr> <td>EO</td> <td>Electric Vent, Normally Open</td> </tr> <tr> <td>HC</td> <td>Hydraulic Vent, Normally Closed</td> </tr> <tr> <td>HO</td> <td>Hydraulic Vent, Normally Open</td> </tr> <tr> <td>SV</td> <td>Vent Port, No. 4 S.A.E.^④</td> </tr> </table> <p>^① Not available with "CH" check valve function. ^② Not available with "D" function. ^③ Port uses Autoclave, Butech or equivalent fittings. ^④ Vent port adaptor block not offered with Electric, Air or Hydraulic Vent function options. ^⑤ Vent port uses British Standard Pipe fittings. ^⑥ Available with relief valve function only.</p>	No Code	Vent Port Blocked ^②	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. ^{③④}	BV	Vent Port, G 1/4 (B.S.P.) ^{④⑤}	CR	Corrosion Resistant Adjustment ^⑥	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. ^④	Design Number <table border="1" style="width: 100%;"> <tr> <td style="width: 50px;">1</td> <td>HP05 All Functions, HP03 Relief Valve</td> </tr> <tr> <td>2</td> <td>HP03 Check Valve</td> </tr> </table>	1	HP05 All Functions, HP03 Relief Valve	2	HP03 Check Valve
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Options		HP03 Pattern	HP05 Pattern
Check Valves:			
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	-	

"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

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

"EV" Electric Options (HP05 Only)	
<i>Plug-In Terminal Solenoids:^{①②}</i>	
115HA	Dual Frequency AC, 115V/60Hz/110V/50Hz
230HA	Dual Frequency AC, 230V/60Hz/220V/50Hz
12HD	12VDC
24HD	24VDC
<i>Explosion-Proof Solenoids:^②</i>	
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.