DYNEX
High Pressure Hydraulics

ENGINEERING SPECIFICATIONS

VST Series
Seated Valves

VST SERIES
1 gpm (3,8 L/min) Nominal,
2 gpm (7,6 L/min) Max
15000 psi (1040 bar)

These seated high pressure valves operate at 15000 psi (1040 bar), providing critical advantages compared to spool valves.

Spool lock, caused by a build-up of fine 'silt' particles, can occur when a spool is held in a fixed position at high pressure. Silting does not occur in this seated valve design. The result is reliable shifting, even when the valve remains unactuated for long periods at high pressure.

Valve Functions

VSTV models are two position, two-way valves for venting, unloading, dumping or similar on/off "switching" functions.

Mounting

Special HP03 pattern. Refer to page 2.

Operation

VSTV: Vent Valve.

Rated Flow

VST Vent Valves:

Nominal, 1 U.S. gpm (3,8 L/min);
Maximum, 2 U.S. gpm (7,6 L/min).

Rated Pressure

VST Vent Valves:
15000 psi (1040 bar).

Fluid Recommendations

50 to 1500 SUS (7 to 323 cSt) viscosity;
-20° to 200° F (-29° to +93° C) temperature range.

Recommended Filtration

Use filtration to provide fluid which meets these ISO Code 4406 cleanliness values: 19/17/14.

Tank Port Pressure (Maximum)

Solenoid Actuated Models:
Standard, 3000 psi (210 bar).

Plug-in Terminal Solenoid

For electrical specifications, see table below or refer to Typical Model Code on page 4.

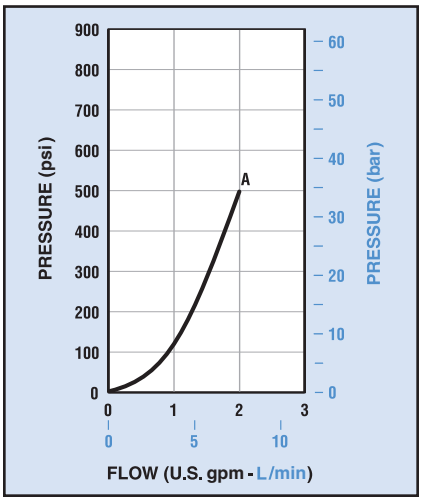


VALVE FLOW CAPACITY

VSTV Models

All vent valves have a nominal rating of 1 U.S. gpm (3,8 L/min), with maximum capacity of 2 U.S. gpm (7,6 L/min).

Pressure Drop (ΔP)



VALVE EFFICIENCY

The table identifies the appropriate pressure drop ΔP curve for model, function and flow path.

Curve A indicates a drop of about 110 psi (8 bar) at 1 U.S. gpm (4 L/min).

Flow Curve Reference

Model (Operation)	Function①	Curve
VSTV	NO	A
	NC	A

① *Refer to Functions in "Typical Model Code" on page 4.*

Solenoid Response Time (ms)

Model	On		Off	
	AC	DC	AC	DC
VSTV	10-18	25-30	20	35

INSTALLATION AND DIMENSIONS

The valve body and overall dimensions vary depending upon the valve operator. Refer to the *Variable Dimensions* table.

Installation drawing dimensions are shown in inches (millimeters in parentheses) and are nominal.

HP03 Valve Mounting

The mounting surface drawing shows the minimum flush or raised surface required for this special pattern.

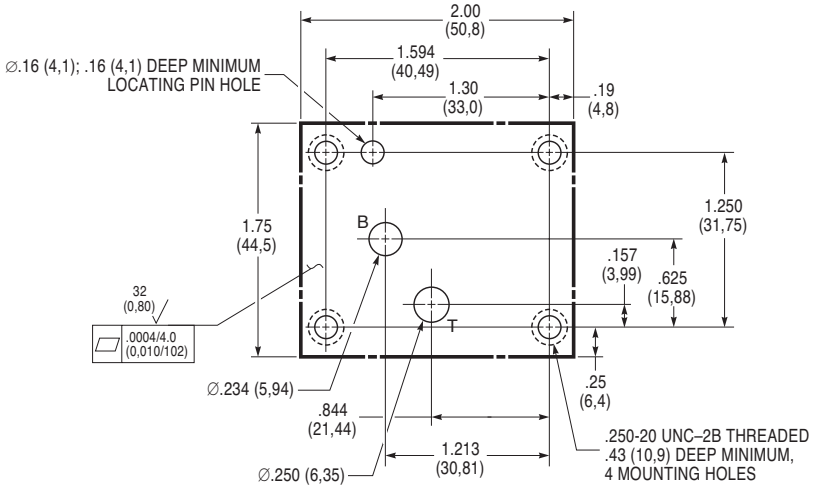
Port o-rings are included with valves.

Mounting bolts must be ordered separately: .250-20 UNC Threaded x 2.00 inch (50,8 mm), Grade 8 or better, four required. Recommended mounting torque is 12 lb-ft (16 N•m).

Solenoid Electrical Data

Solenoid Type①	Volts	Frequency (Hz)②	Coil Resistance (Ohms) at +77° F (+25°C)	Power (Watts)
AC Standard	24AC	60	10.45 - 11.55	36
	115AC	60	250 - 276	36
	230AC	60	–	36
DC Standard	12DC	–	3.8 - 4.2	36
	24DC	–	15.1 - 16.9	36
	125DC	–	368 - 408	36

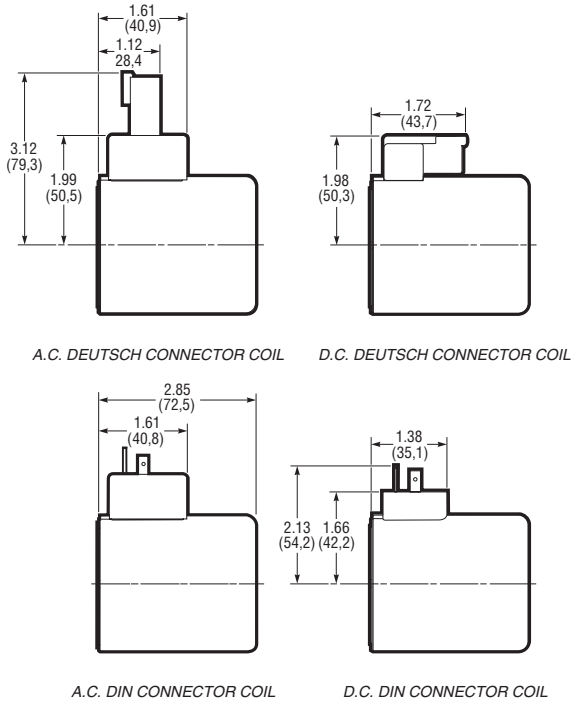
① *Refer to "Typical Model Code" on page 4 for connector options.*
② *Information shown is for 60Hz models only. At other frequencies the coil characteristics must be revised.*



Minimum Mounting Surface, Special HP03 Pattern

Electrical Connections

Plug-In-Terminal Solenoids fit Deutsch DT04-2P Connector, or DIN 43650 Form A (Hirschmann Type) Connector.

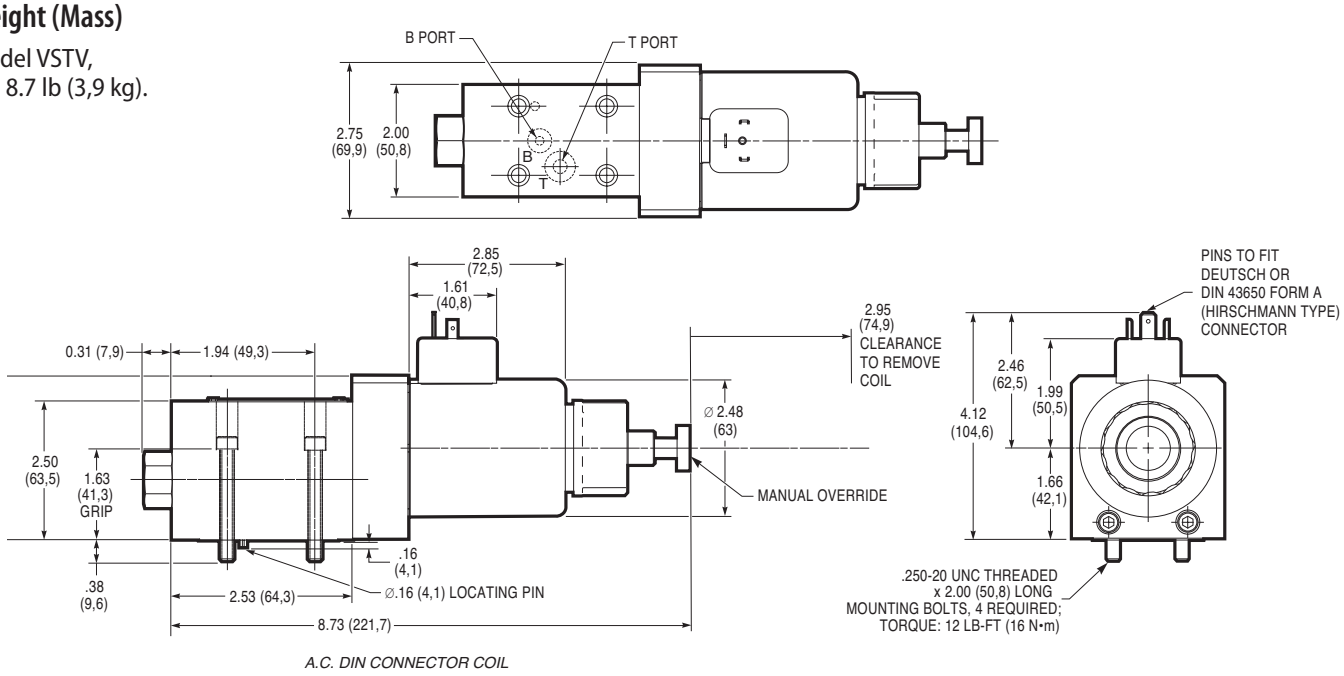


Electrical Connector Options

Solenoid Models

Weight (Mass)

Model VSTV,
AC, 8.7 lb (3,9 kg).



Solenoid Actuator Models (Standard Plug-In Terminal)

Hydraulic Piloted Models

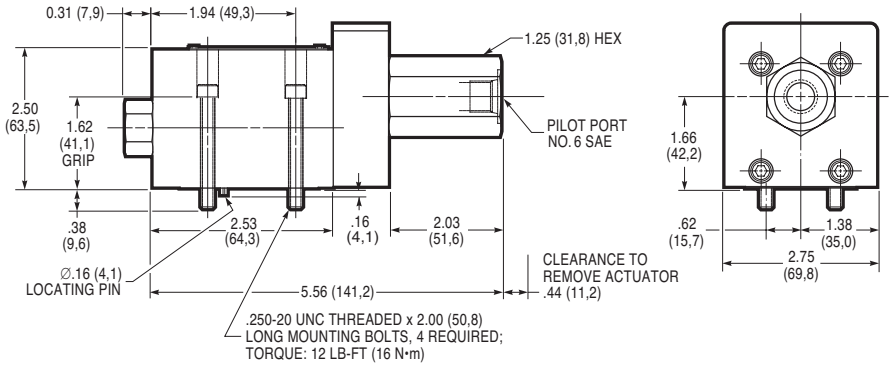
Weight (Mass)

6.2 lb (2,8 kg).

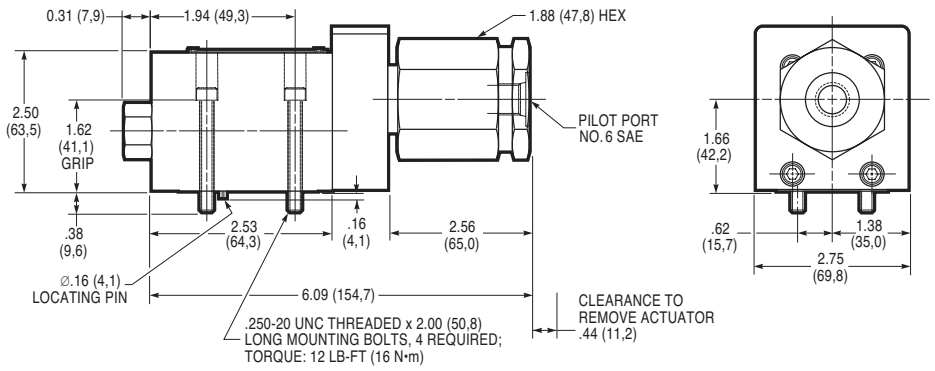
Air Piloted Models

Weight (Mass)

7.0 lb (3,2 kg).



Hydraulic Actuated Models ("H" Actuator Option)



Air Actuated Models ("A" Actuator Option)

Hydraulic and Air Actuated Models

Minimum Pilot Pressure:

Hydraulic, 350 psi (24 bar).
Air, 40 psi (2,8 bar).

These values are based on zero tank pressure. For hydraulic actuated models, as back pressure increases above zero, the minimum pilot pressure must be increased by the same amount.

Maximum Pilot Pressure:

Hydraulic, 3000 psi (210 bar).
Air, 200 psi (13,8 bar).

Required volume to shift the valve:

Hydraulic, 0.018 in^3 (0,30 cm^3).
Air, 0.640 in^3 (10,49 cm^3).

Tank Port Pressure (Maximum)

Hydraulic and Air Actuated Models:
3000 psi (210 bar).

VST SUBPLATE AND BOLT KITS

Part Number	Description
Subplates:	
PSO32-VST-SAE8	Side Ports, No. 8 SAE
PS032-VST-BSP6	Side Ports, G 3/8 (BSPP)
PS032-VST-.56MP	Side Ports, 9/16 Medium Pressure Coned and Threaded, .8125-16 UN Threaded①
Mounting Bolt Kit:	
P22-BK-32	Four .500-20 UNC Threaded x 2.00 inch (50,8 mm)

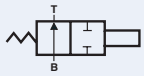
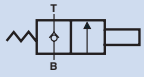
① *"P" port fits Medium Pressure Coned and Threaded, (Autoclave, Butech, or equivalent fitting).*

TYPICAL MODEL CODE

VST V NO – HP03 – 115DA – E – 2 0

Valve Type	
VST	Subplate Mounted Seated Valve

Operations	
V	Vent

Functions①		
Vent Valve:		
NO	Spring Offset Open	
NC	Spring Offset Closed	

① *As shown in the schematic, the "T" port on these valves must be connected to tank. For maximum tank port pressures, refer to page 1.*

Valve Size	
HP03	High Pressure Special Mounting Pattern

Design Number

Modification Number

Seals	
No Code (Standard)	Fluorocarbon (Viton® or Fluorel®)
E	EPR (Ethylene-Propylene Rubber)①

① *Contact the Dynex Sales department for complete ordering information.*

Electrical Options			
AC Solenoids Deutsch Connector:①		*DC Solenoids Deutsch Connector:①*	
115DA	115V/60Hz, 110V/50Hz	12DD	12VDC
230DA	230V/60Hz, 220V/50Hz	24DD	24VDC
24DA	24V/60Hz, 24V/50Hz	125DD	125VDC
AC Solenoids DIN Connector:②		*DC Solenoids DIN Connector:②*	
115HA	115V/60Hz, 110V/50Hz	12HD	12VDC
230HA	230V/60Hz, 220/50Hz	24HD	24VDC

① *Fits Deutsch DT04-2P Connector.*
② *Fits DIN 43650 Form A (Hirschmann Type) Connector.*

Actuators	
H	Hydraulic Actuator
A	Air Actuator



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