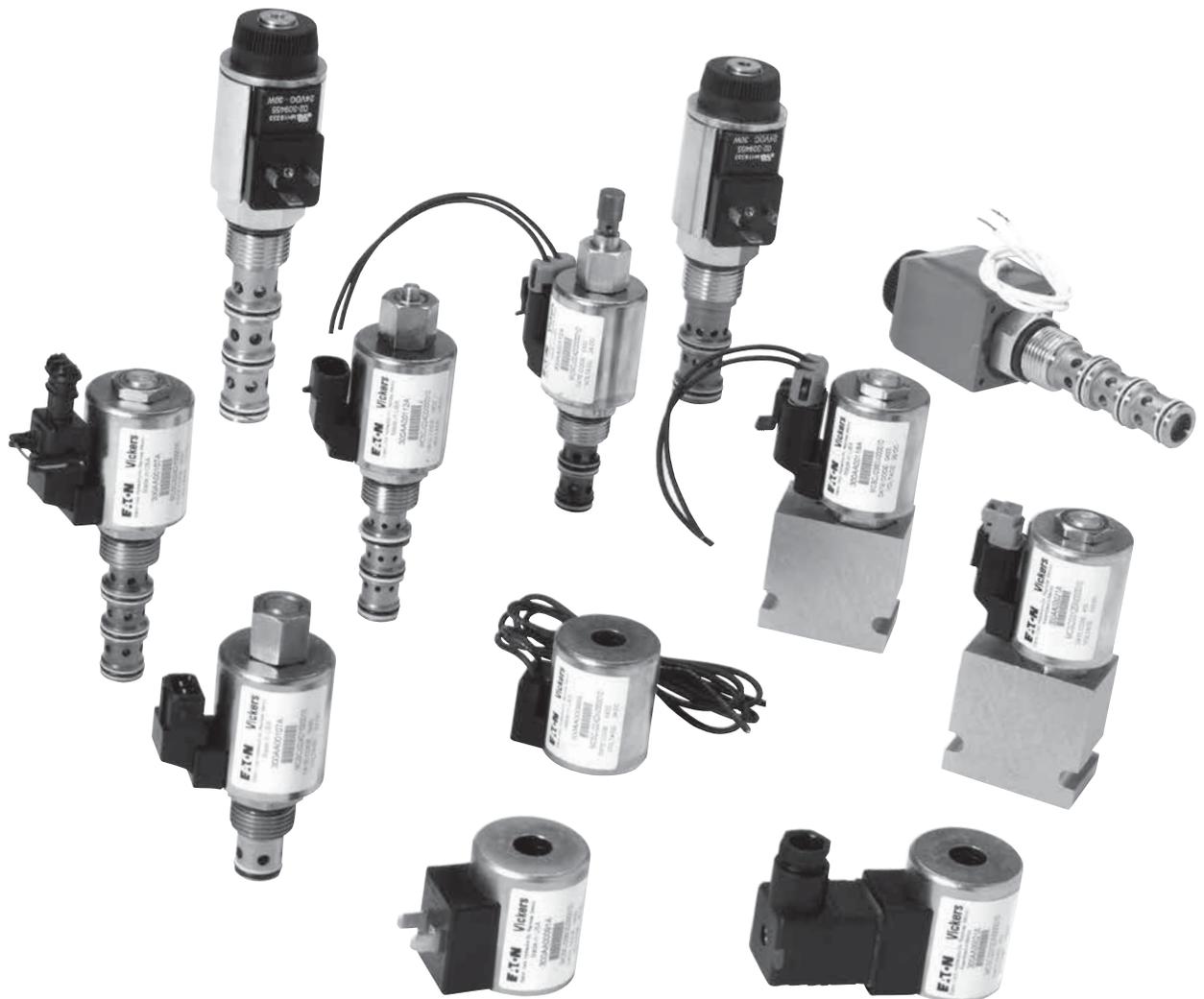


## Solenoid valves

Poppet and Spool type solenoid actuated valves for applications up to 350 bar (5000 psi) and 227 L/min (60 USgpm)



Powering Business Worldwide

# Solenoid valves

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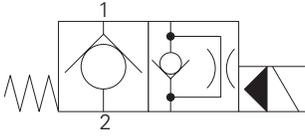
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# Solenoid valves

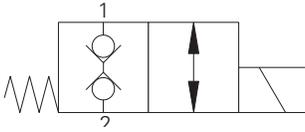
## Section contents/valve locator

A

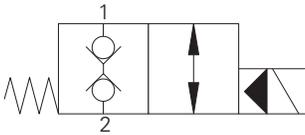
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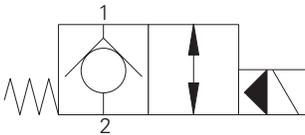
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NC, poppet</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV5-8-C	C-8-2	23 (6)	210 (3000)	A-12
SV15-8-C	C-8-2	37 (10)	350 (5000)	A-14
SV1-10-C	C-10-2	45 (12)	210 (3000)	A-26
SV11-10-C	C-10-2	45 (12)	350 (5000)	A-28
SV12-10-C	C-10-2	23 (6)	350 (5000)	A-28



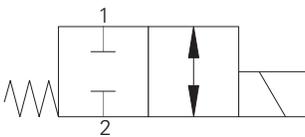
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NC, bi-directional, poppet</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SBV2-8-C	C-8-2	1 (0.25)	210 (3000)	A-16
SBV12-8-C	C-8-2	1 (0.25)	350 (5000)	A-18
S217A	A879	10 (2.6)	210 (3000)	A-20
S519A	A879	12 (3)	210 (3000)	A-22



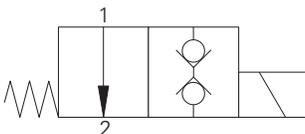
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NC, bi-directional, poppet</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SBV11-8-C	C-8-2	60 (15)	350 (5000)	A-24
SBV1-10-C	C-10-2	76 (20)	210 (3000)	A-26
SBV11-10-C	C-10-2	76 (20)	350 (5000)	A-28
SBV1-12-C	C-12-2/2U	114 (30)	210 (3000)	A-44
SBV11-12-C	C-12-2/2U	114 (30)	350 (5000)	A-46



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NC, poppet</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV3-8-C	C-8-2	23 (6)	210 (3000)	A-30
SV3-10-C	C-10-2	45 (12)	210 (3000)	A-32
SV13-10-C	C-10-2	45 (12)	350 (5000)	A-34
SV3-12-C	C-12-2	114 (30)	210 (3000)	A-40
SV13-12-C	C-12-2	114 (30)	350 (5000)	A-42
SV1-16-C	C-16-2	132 (35)	210 (3000)	A-48
SV13-16-C	C-16-2	132 (35)	350 (5000)	A-50
SV2-20-C	C-20-2	227 (60)	210 (3000)	A-52
SV13-20-C	C-20-2	227 (60)	350 (5000)	A-54

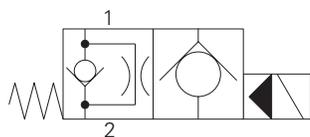


Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NC, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV4-8-C	C-8-2	11 (3)	210 (3000)	A-56
SV14-8-C	C-8-2	11 (3)	350 (5000)	A-58
SV4-10-C	C-10-2	23 (6)	210 (3000)	A-60
SV14-10-C	C-10-2	23 (6)	350 (5000)	A-62

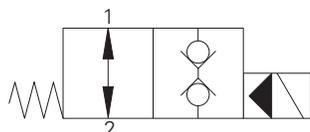


Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 2/2, NO, poppet</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
S207	A879	1 (.25)	350 (5000)	A-64

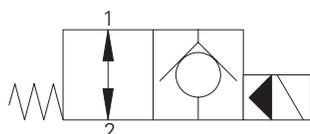
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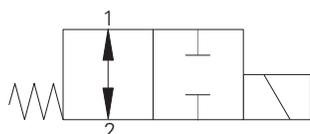
Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 2/2, NO, poppet</i>				
SV5-8-0	C-8-2	23 (6)	210 (3000)	A-66
SV15-8-0	C-8-2	37 (10)	350 (5000)	A-68
SV5-10-0	C-10-2	45 (12)	210 (3000)	A-76
SV15-10-0	C-10-2	45 (12)	350 (5000)	A-78



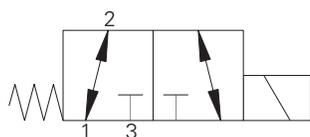
Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 2/2, NO, bi-directional, poppet</i>				
SBV11-8-0	C-8-2	60 (15)	350 (5000)	A-70
SBV11-10-0	C-10-2	76 (20)	350 (5000)	A-82
SBV11-12-0	C-12-2/2U	114 (30)	350 (5000)	A-88



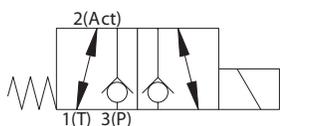
Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 2/2, NO, poppet</i>				
SV3-8-0	C-8-2	23 (6)	210 (3000)	A-72
SV3-10-0	C-10-2	45 (12)	210 (3000)	A-74
SV13-10-0	C-10-2	45 (12)	350 (5000)	A-80
SV3-12-0	C-12-2/2U	114 (30)	210 (3000)	A-84
SV13-12-0	C-12-2/2U	114 (30)	350 (5000)	A-86
SV3-16-0	C-16-2	132 (35)	210 (3000)	A-90
SV13-16-0	C-16-2	132 (35)	350 (5000)	A-92
SV3-20-0	C-20-2	227 (60)	210 (3000)	A-94
SV13-20-0	C-20-2	227 (60)	350 (5000)	A-96



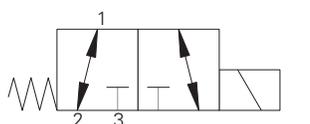
Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 2/2, NO, spool</i>				
SV4-8-0	C-8-2	13 (4)	210 (3000)	A-98
SV14-8-0	C-8-2	13 (4)	350 (5000)	A-100
SV4-10-0	C-10-2	23 (6)	210 (3000)	A-102
SV14-10-0	C-10-2	23 (6)	350 (5000)	A-104



Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 3/2, spool</i>				
SV4-8-3	C-8-3	13 (4)	210 (3000)	A-110
SV4-10-3	C-10-3	23 (6)	210 (3000)	A-128
S521N	C-10-3	44 (11)	210 (3000)	A--
SV4A/B-12-3	C-12-3	42 (11)	210 (3000)	A--
SV14A/B-12-3	C-12-3	42 (11)	350 (5000)	A-141



Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 3/2, poppet</i>				
S229	A3531	12 (3)	210 (3000)	A-112



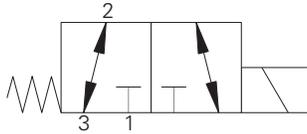
Model	Cavity	Flow rating	Typical pressure	Page
		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
<i>Solenoid 3/2, spool</i>				
S520H	C-10-3	40 (10)	210 (3000)	A-114

# Solenoid valves

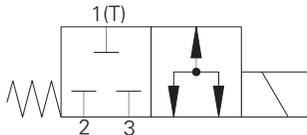
## Valve locator

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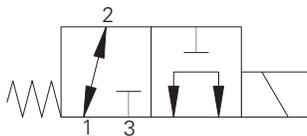
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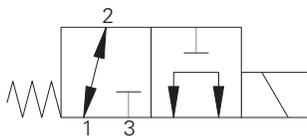
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 3/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
S525H	C-10-3	30 (8)	210 (3000)	A-118



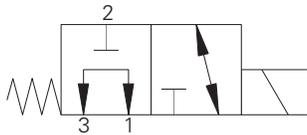
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 3/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
S526N-2	C-10-3	35 (9)	210 (3000)	A-120



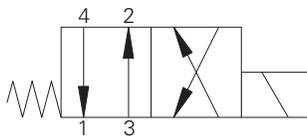
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 3/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV1-8-3	C-8-3	11 (3)	210 (3000)	A-106
SV11-8-3	C-8-3	11 (3)	350 (5000)	A-108
SV1-10-3	C-10-3	23 (6)	210 (3000)	A-122
SV11-10-3	C-10-3	23 (6)	350 (5000)	A-124



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 3/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV11A/B-10-3	C-10-3	23 (6)	350 (5000)	A-126
SV1A/B-12-3	C-12-3	38-42 (10-11)	210 (3000)	A--
SV11A/B-12-3	C-12-3	38 (10)	350 (5000)	A--

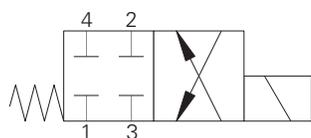


Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 3/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV2A/B-12-3	C-12-3	30-38 (8-10)	210 (3000)	A--
SV12A/B-12-3	C-12-3	30 (8)	350 (5000)	A--

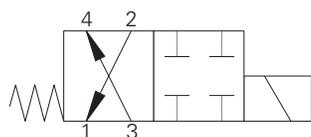


Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV1-8-4	C-8-4	11 (3)	210 (3000)	A-142
SV11-8-4	C-8-4	11 (3)	350 (5000)	A-144
SV1-10-4	C-10-4	23 (6)	210 (3000)	A-150
SV11-10-4	C-10-4	23 (6)	350 (5000)	A-154
S542	C-10-4	25 (9)	210 (3000)	A-152

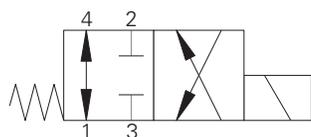
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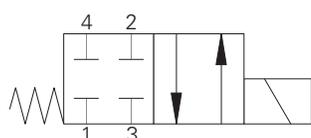
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV2-8-4	C-8-4	13 (4)	210 (3000)	A-146
SV12-8-4	C-8-4	13 (4)	350 (5000)	A-148
SV2-10-4	C-10-4	23 (6)	210 (3000)	A-158
SV2A/B-12-4	C-12-4	42 (11)	210 (3000)	A--
SV12A/B-12-4	C-12-4	42 (11)	350 (5000)	A--
S541	C-10-4	30 (8)	210 (3000)	A-156



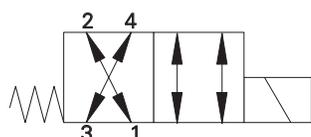
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV3-10-4	C-10-4	23 (6)	210 (3000)	A-160
SV3A/B-12-4	C-12-4	53 (14)	210 (3000)	A--
SV13A/B-12-4	C-12-4	35 (14)	350 (5000)	A--



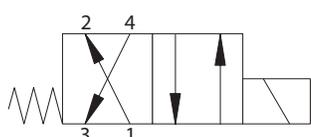
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV4-10-4	C-10-4	23 (6)	210 (3000)	A-162



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV5-10-4	C-10-4	23 (6)	210 (3000)	A-164
SV5A/B-12-4	C-12-4	46 (12)	210 (3000)	A-178
SV15A/B-12-4	C-12-4	53 (14)	350 (5000)	A-180



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV17A/B-10-4	C-10-4	23 (6)	350 (5000)	A-184



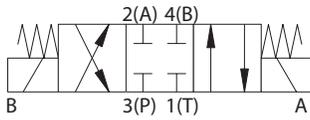
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/2, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV7-10-4	C-10-4	17 (5)	210 (3000)	A-166
SV7A/B-12-4	C-12-4	46 (12)	210 (3000)	A-182
SV17A/B-12-4	C-12-4	46 (12)	350 (5000)	A-184

# Solenoid valves

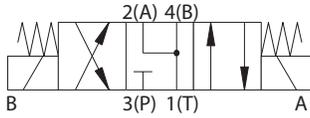
## Valve locator

A

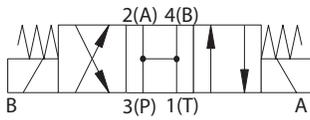
### Functional symbol



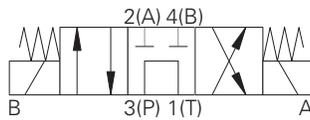
Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/3, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV9-8-E	C-8-4	13 (4)	210 (3000)	A-190
SV9-10-E	C-10-4	19(5)	210(3000)	A-194
SV9A-10-E	C-10-4	22 (5.8)	210 (3000)	A-198



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/3, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV9-8-F	C-8-4	13 (4)	210 (3000)	A-187
SV9-10-F	C-10-4	23 (6)	210 (3000)	A-195
SV9A-10-F	C-10-4	25 (6.5)	210 (3000)	A-199



Model	Cavity	Flow rating	Typical Pressure	Page
<i>Solenoid 4/3, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV9-8-B	C-8-4	13.2 (3.5)	210 (3000)	A-188
SV9-10-B	C-10-4	23 (6)	210 (3000)	A-193
SV9A-10-B	C-10-4	34 (8.9)	210 (3000)	A-200



Model	Cavity	Flow rating	Typical pressure	Page
<i>Solenoid 4/3, spool</i>		<b>L/min (USgpm)</b>	<b>bar (psi)</b>	
SV9-8-A	C-8-4	11.0 (3.0)	210 (3000)	A-189
SV9-10-A	C-10-4	19 (5)	210 (3000)	A-192
SV9A-10-A	C-10-4	25 (6.5)	210 (3000)	A-201

### Quality products and innovative solutions

This catalog gives basic specifications for the full line of Eaton's Integrated Hydraulics screw-in cartridge solenoid valves. Its purpose is to provide a quick, convenient reference tool when choosing Eaton's Integrated Hydraulics cartridge valves or designing a system using these components.

Two pressure ratings are shown for all products featured in this catalog - typical application pressure and fatigue pressure. The typical application pressure rating is the maximum recommended operating pressure for the valve in a given system.

The fatigue pressure rating is the pressure for the valve to be free for infinite life from metal fatigue.

Eaton's Integrated Hydraulics solenoid valves are offered with the widest choice of flow paths and position options to satisfy most requirements. These options include:

- 2-way, 2-position, normally open and normally closed spool and poppet valves
- 3-way, 2-position spool valves
- 4-way, 2-position spool valves
- 4-way, 3-position spool valves

### Valve features and benefits

- Products in this catalog have been fatigue tested for one million cycles at 132% or 10 million cycles at 115% of rated pressure
- Rated flows up to 227 L/min (60 USgpm)
- Poppet and spool designs
- Standard cartridge cavities
- All operating parts are hardened steel, ground and honed for long life and low leakage
- Cartridge design for maximum flexibility and minimal manifold space requirements
- Optional low-cost manual override is available on selected models
- All exposed surfaces are zinc dichromate plated to resist corrosion
- All aluminum manifolds are gold anodized to resist corrosion
- Reliable, economical and compact
- Manual override options are available on all solenoid valves except SBV series valves

**Note:** Solenoid valve coil details are shown in section C.

# Solenoid valves

## Coils

### Coil features and benefits

The solenoid operated directional valves in this catalog are offered with a choice of standard voltages and several types of electrical connections. For other coil ratings and connections, consult your Eaton representative.

Standard AC coils are internally rectified to supply them with DC current, therefore they have no "inrush" current value.

- Coils are rated for continuous duty
- Coils are interchangeable for serviceability

- Variety of voltages and terminations
- Coils offer a one-piece weather-proof encapsulated design, eliminating the need for extra seals
- AC voltage coils are internally full-wave rectified for 50 to 60 cycle (Hz) applications

An arc suppression diode molded into the coil is available as a standard option on DC coils. Also available, are explosion-proof coils and cartridges that are CSA approved and recognized by the US Underwriters Laboratories.

### Protection of internally rectified coils

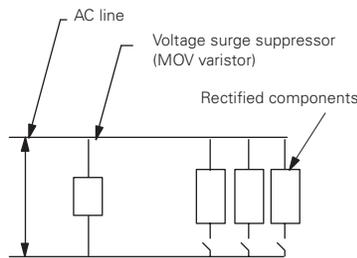
The rectifiers used in these coils may require protection from high voltage surges in some electrical circuits containing highly inductive or capacitive components. These include certain types of motors, solenoids, relays, and transformers.

Protection is simple and inexpensive. It consists of installing a commercially available voltage surge suppressor like the General Electric MOV varistor V130LA20A for 115 volts AC or the V250LA20A for 230 volts AC, across the AC line supplying the rectified

components. A single suppressor will normally protect all of the rectified components in the circuit, as shown in the surge suppressor circuit diagram below.

### Surge suppressor circuit diagram

**Note:** Solenoid valve coil details are shown in section C.



All voltage surge producing components must be installed on this side of suppressor.

Switches on relay contacts only. Relay coils must be connected on the line side of the surge suppressor.

No inductive or capacitive loads can be installed between the surge suppressor and rectified valves without additional precautions.

#### **⚠ Caution**

Coils may be hot to touch if used in continuous applications.

#### **⚠ Warning**

Maintain in 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Overtightening may cause valve or coil failure.

#### **⚠ Warning**

Application of these products beyond published performance specifications may cause valve malfunction which may result in personal injury and/or damage to the machine.

# Don't Let Abrasion Stop You From Getting The Job Done.

Get Added Protection with Weatherhead® Spring Guard And Abrasion Sleeve From Eaton®

# FPO



Abrasion Sleeve Part Numbers: **A3900 & A4900 Series**  
Spring Guard Part Numbers: **A1900 Series**



### Spring Guard and Abrasion Sleeve Details

#### Features and Benefits

- Heavy duty defense against cuts and abrasion
- Sleeve can also be used to bundle two or more hose assemblies for protection and clean routing
- Guard helps prevent kinks and crushing of hose assemblies
- Prevents accidental damage and prolongs hose assembly life

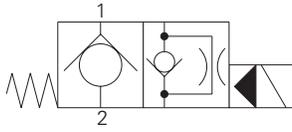
#### Additional Information

For additional part number information please see the "Hose Sleeves and Guards" portion of the "Accessory" section of the Weatherhead® Hose Assembly Master Catalog, or contact your local Heavy Duty District Sales Manager today.

# SV5-8-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
 23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

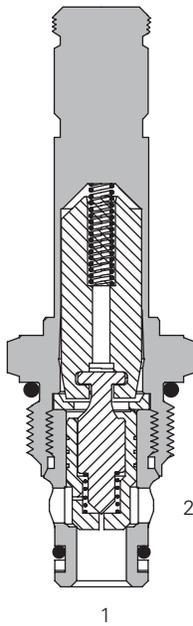
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open from port 2 to 1. In the reverse direction the flow is restricted by the pilot orifice.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	less than 5 drops/min @ 210 bar (3000 psi)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 18 ms De-Energize: 46 ms
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

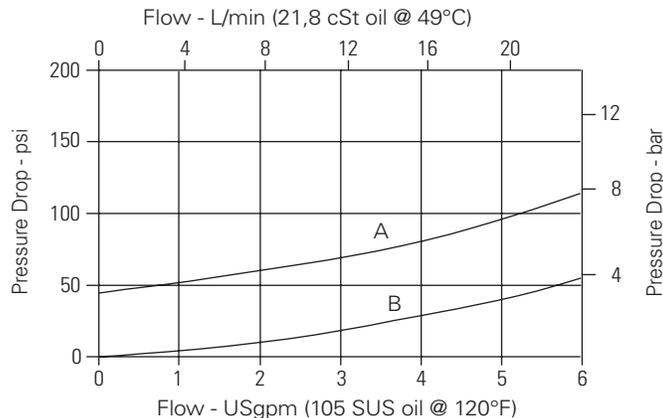
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



A - Port 1 to port 2 de-energized

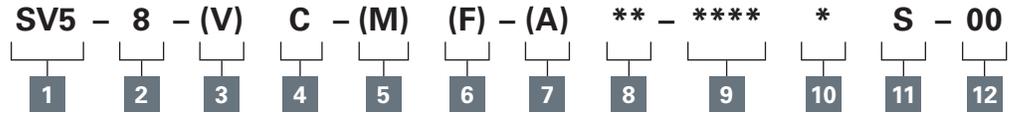
B - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-8-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SV5 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
C - Normally closed

**5 Manual override option**  
Blank - No manual override  
M - Knob type  
For valve dimensions with manual override option installed see page A-980.

**6 Filter option**  
Blank - None  
F - Filter screen

**8 Port size**

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3G	3/8" BSPP	02-160728
4T	SAE 4	02-160730
6T	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housing details.

**9 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.

**10 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**11 Coil series**  
S - 8 series, 20 W  
For coil part numbers and dimensions see section C.

**12 Special features**  
00 - None  
(Only required if valve has special features, omitted if "00".)

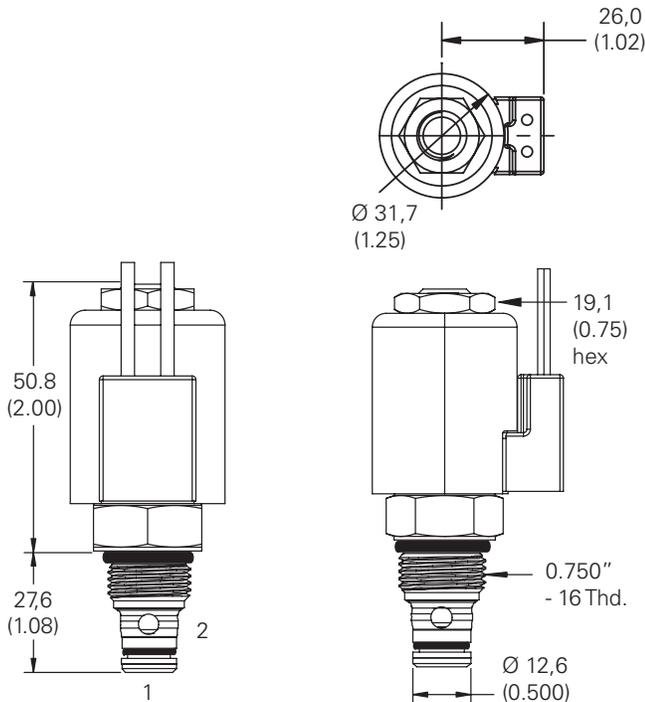
## Dimensions

mm (inch)

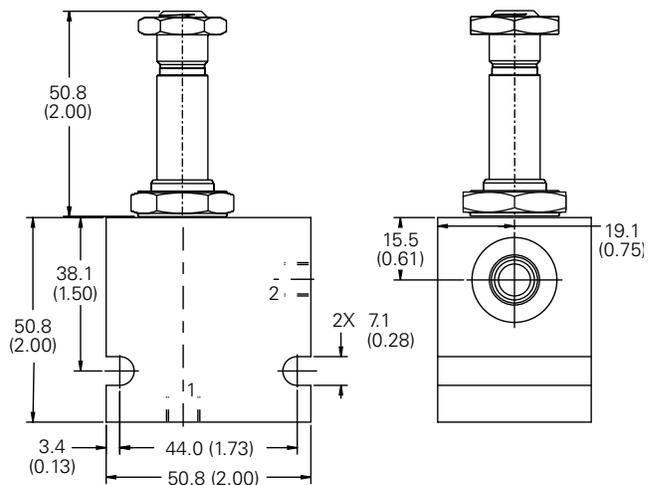
Torque cartridge in aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## Cartridge only



## Installation drawing



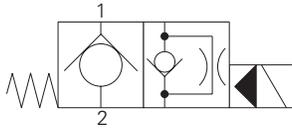
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-8-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
 37 L/min (10 USgpm) • 350 bar (5000 psi)

A



### Operation

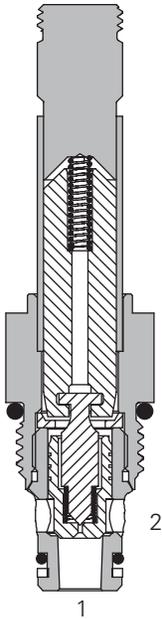
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open from port 2 to 1. In the reverse direction the flow is restricted by the pilot orifice.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	37 L/min (10 USgpm)
Internal leakage, port 2 to port 1	5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

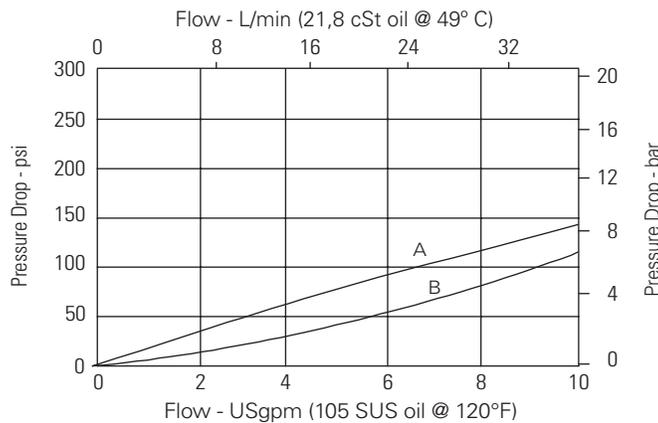
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop

Cartridge only

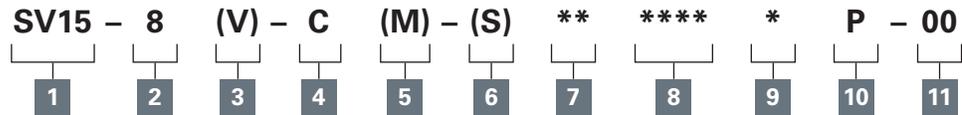


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-8-C/CM - Solenoid valves

Poppet type, normally closed solenoid valve  
37 L/min (10 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV15 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N  
V - Viton\*

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override  
M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only  
S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160733
3G	3/8" BSPP	02-160734
4T	SAE 4	02-160736
6T	SAE 6	02-160737
8T	SAE 8	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has special features omitted if "00.")

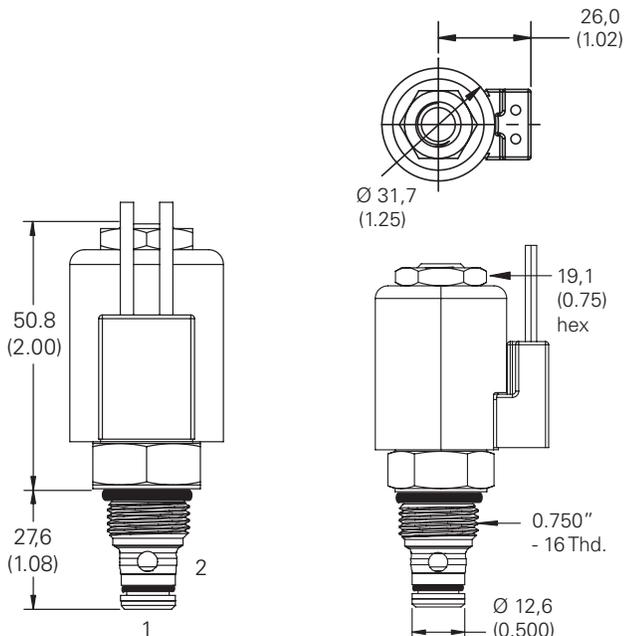
## Dimensions

mm (inch)

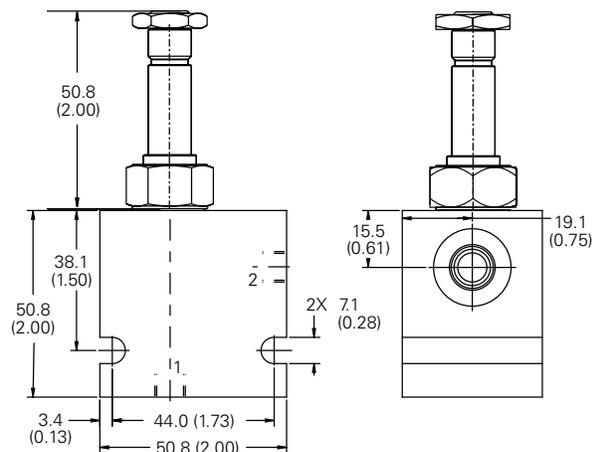
### Cartridge only

Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.



### Installation drawing



### Warning

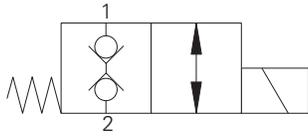
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV2-8-C - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve (low flow version)  
 1 L/min (0.25 USgpm) • 210 bar (3000 psi)

A



## Operation

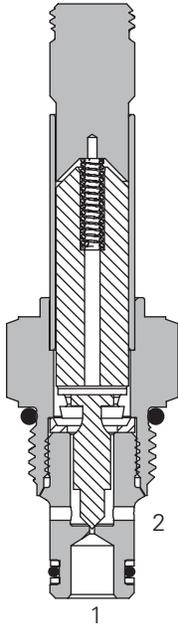
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the poppet is released from the seat allowing flow in both directions.

## Features

Hardened and ground working parts. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	1 L/min (0.25 USgpm)
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,120 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

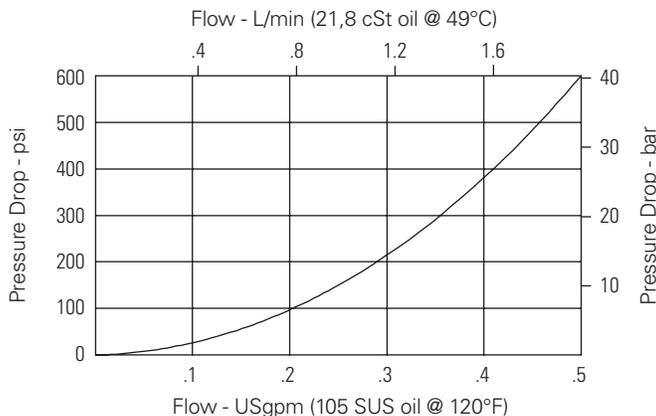
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, low flow, high pressure bi-directional, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position or blocking pilot lines.

## Pressure drop

Cartridge only

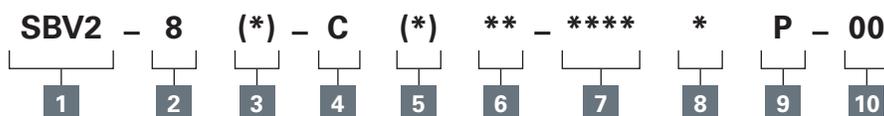


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV2-8-C - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve (low flow version)  
1 L/min (0.25 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SBV2 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
C - Normally closed

**5 Valve housing material**  
Blank - Cartridge only  
A - Aluminum  
S - Steel

**6 Port size**

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
2G	1/4" BSPP	02-160727	02-160733
3G	3/8" BSPP	02-160728	02-160734
4T	SAE 4	02-160730	02-160736
6T	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738

See section J for housing details.

**7 Voltage rating**

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

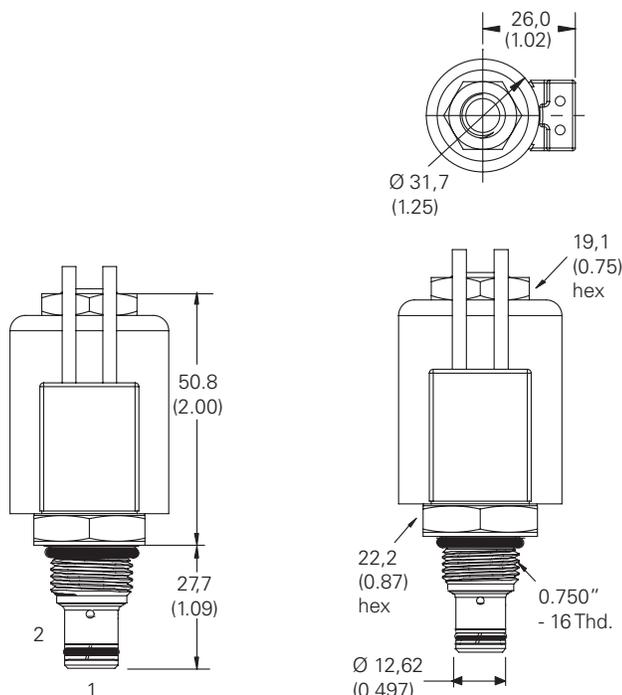
**8 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**9 Coil series**  
P - 8 series, 23 W  
For coil part numbers and dimensions see section C.

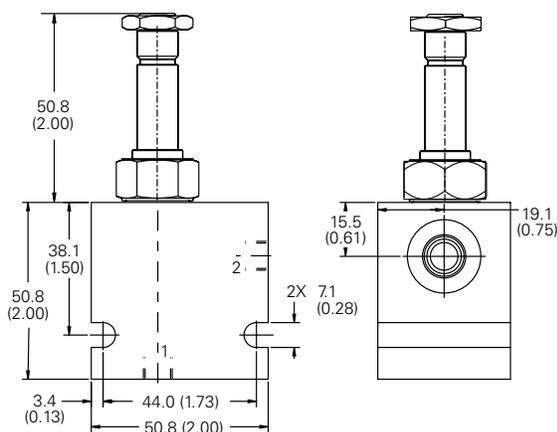
**10 Special features**  
00 - None  
(Only required if valve has special features omitted if "00".)

**Dimensions**  
mm (inch)

## Cartridge only



## Installation drawing (Aluminum)



**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

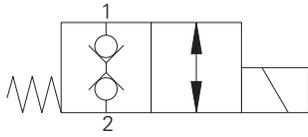
**Warning**  
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV12-8-C/CM - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve (low flow version)  
1 L/min (0.25 USgpm) • 350 bar (5000 psi)

A



## Operation

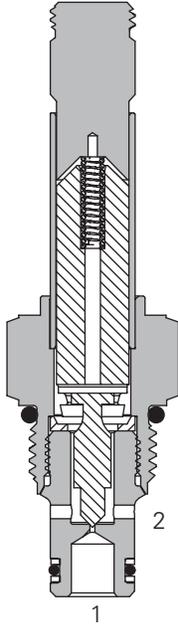
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the poppet is released from the seat allowing flow in both directions.

## Features

Hardened and ground working parts. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	1 L/min (0.25 USgpm)
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,120 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

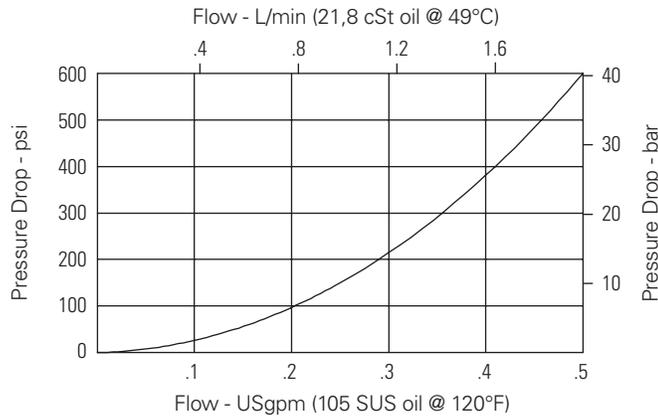
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, low flow, high pressure bi-directional, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position or blocking pilot lines.

## Pressure drop

Cartridge only

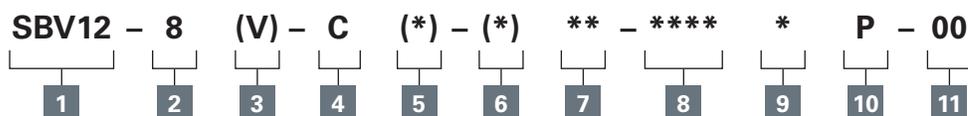


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV12-8-C/CM - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve (low flow version)  
1 L/min (0.25 USgpm) • 350 bar (5000 psi)

## Model code



### 1 Function

SBV12 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override  
M - Manual override

For valve dimensions with manual override option installed see page A-980.

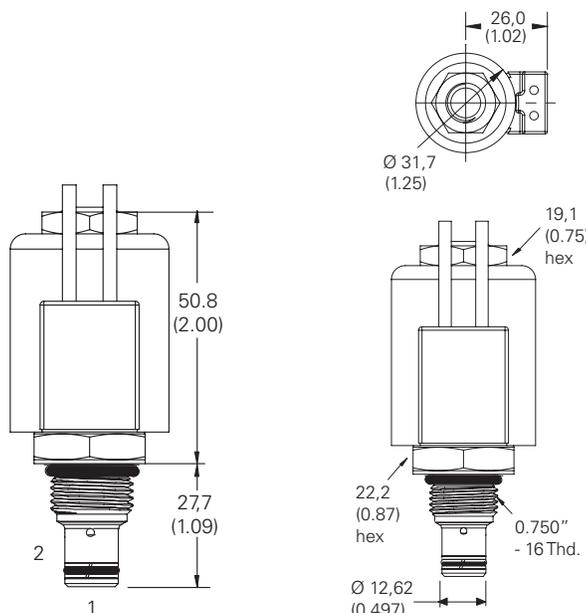
### 6 Valve housing material

Blank - Cartridge only  
A - Aluminum  
S - Steel

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
2G	1/4" BSPP	02-160727	02-160733
3G	3/8" BSPP	02-160728	02-160734
4T	SAE 4	02-160730	02-160736
6T	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W  
For coil part numbers and dimensions see section C.

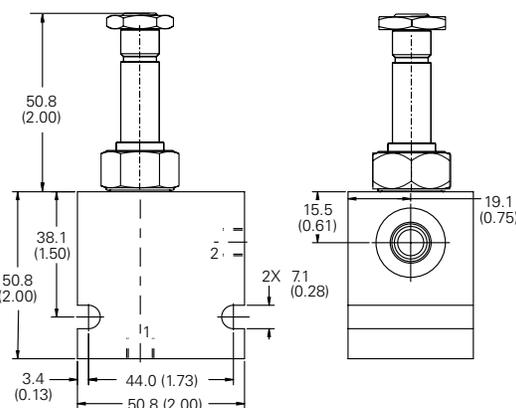
### 11 Special features

00 - None  
(Only required if valve has special features omitted if "00.")

Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft lbs).

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing (Steel)



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

### Warning

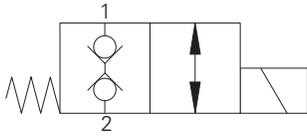
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

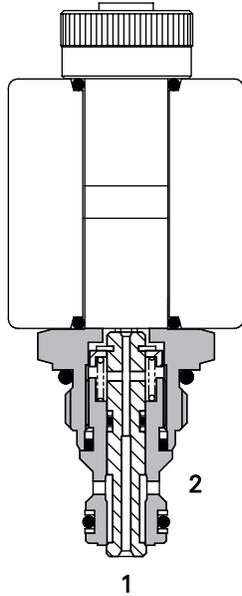
# S217A - Directional control valve

Bi-directional, normally closed poppet solenoid valve  
Up to 10 L/min (2.6 USgpm) • Up to 210 bar (3000 psi)

A



## Sectional view



## Operation

In the de-energized position the valve is blocked in both directions. When the solenoid is energized the poppet is pushed off the seat allowing flow in both directions.

## Features

- Very low leakage poppet design.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with valves of same series.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Performance data

### Ratings and specifications

Performance data is typical with fluid at Viscosity 32 cST (150 SSU)

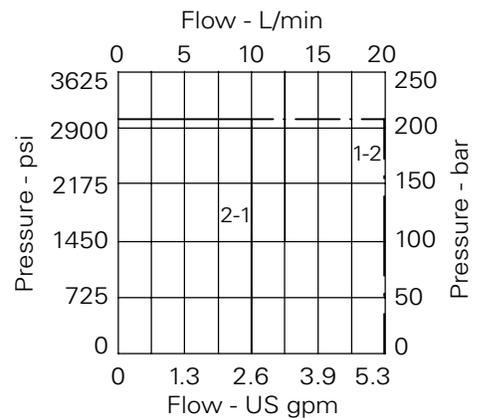
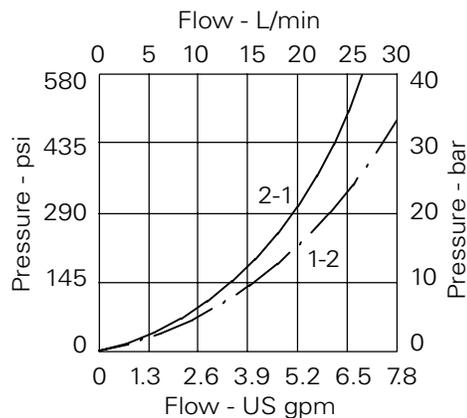
Typical application pressure	210 bar (3000 psi)
Rated flow	Up to 10 L/min (2.6 USgpm)
Nominal flow	10 L/min (2.6 USgpm)
Internal leakage	Less than 0.6 ml/min (10 dpm) 210 bar differential at 32 cSt
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	A879 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	20 Nm (15 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.2 kg (0.4 lbs)
Cartridge weight	0.2 kg (0.4 lbs)
Seal kit	SK1043 (Nitrile) SK1043V (Viton)
Coil part number	C13-*.*/27
Coil voltage available	12, 24 VDC. 110, 220, VAC*

Viton is a registered trademark of E.I. DuPont  
\*AC coils must be used with a rectifying connector

## Description

This is a direct acting, electrically operated 2 way 2 position normally closed poppet style screw in cartridge valve. Ideal for load holding and load lowering applications.

## Pressure drop

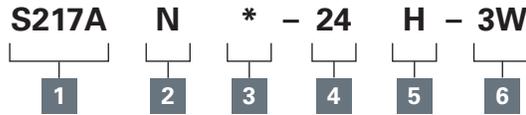


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S217A - Directional control valve

Bi-directional, normally closed poppet solenoid valve  
Up to 10 L/min (2.6 USgpm) • Up to 210 bar (3000 psi)

## Model code



### 1 Function

**S217A** - Normally open

### 2 Seal material

**N** - Nitrile

**V** - Viton®

### 3 Manual Override

**2** - Screw

**3** - Push

(Consult factory for availability)

See page A-980.

### 4 Voltage

**12** - 12 VDC

**24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

### 5 Coil Termination

**H** - ISO 4400 DIN 43650

**F** - Flying lead

**DM** - Deutsch moulded

Other terminations available on request.

### 6 Port sizes

Code	Port size	Housing number	
		Aluminium	Steel
<b>2W</b>	1/4" BSP	A1485	
<b>3W</b>	3/8" BSP	A1043	A14175
<b>6T</b>	3/8" SAE	A15676	A14843

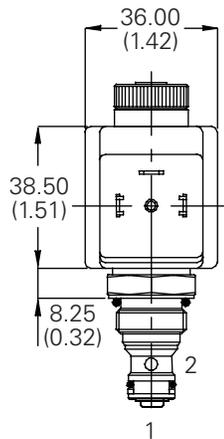
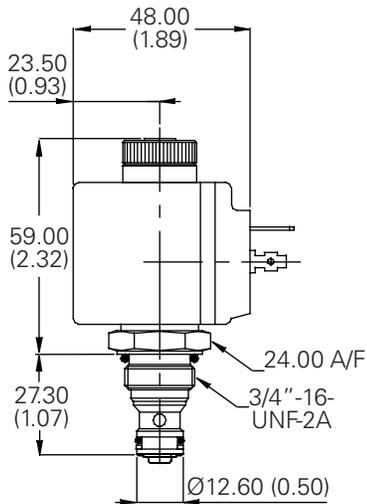
## Dimensions

mm (inch)

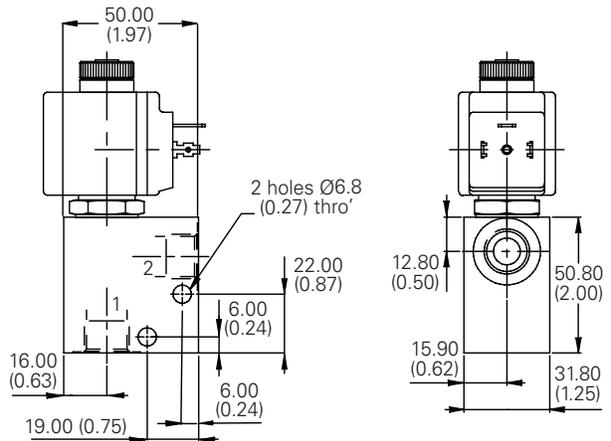
### Cartridge only

Basic code

**S217**



### Installation drawing

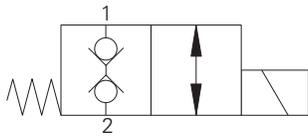


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

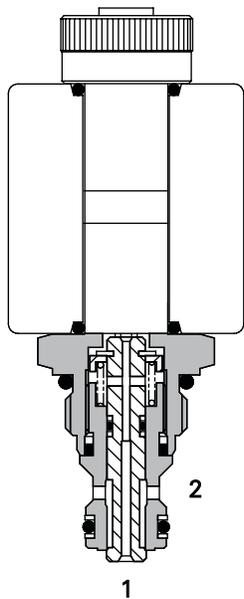
# S519 - Directional control valve

Bi-directional, normally closed poppet solenoid valve  
Up to 12 L/min (3 USgpm) • Up to 210 bar (3000 psi)

A



## Sectional view



## Description

This is a direct acting, electrically operated 2 way 2 position normally closed poppet style screw in cartridge valve. Ideal for load holding and load lowering applications.

## Operation

In the de-energized position the valve is blocked in both directions. When the solenoid is energized the poppet is pushed off the seat allowing flow in both directions.

## Features

- Very low leakage poppet design.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with valves of same series.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Performance data

### Ratings and specifications

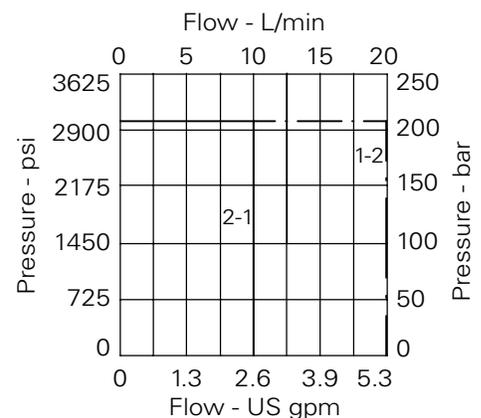
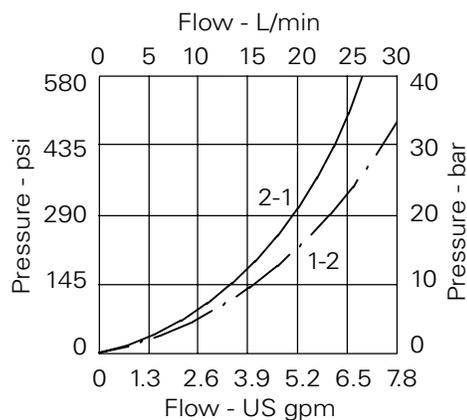
Performance data is typical with fluid at Viscosity 32 cST (150 SSU)

Typical application pressure	210 bar (3000 psi)
Rated flow	Up to 11 L/Min
Nominal flow	10 L/min (3 USgpm)
Internal leakage	Less than 0.6 ml/min (10 dpm) 210 bar differential at 32 cSt
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	AXP12370 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	20 Nm (15 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminum, Steel
Coil weight	0.2 kg (0.4 lbs)
Cartridge weight	0.2 kg (0.4 lbs)
Seal kit	SK1138 (Nitrile) SK1138V (Viton)
Coil part number	C16*-/19
Coil voltage available	12, 24 VDC, 110, 230, VAC*

Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

## Pressure drop

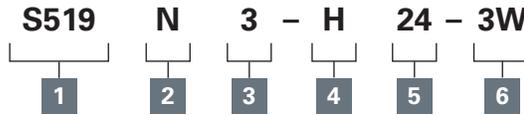


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S519 - Directional control valve

Bi-directional, normally closed poppet solenoid valve  
Up to 12 L/min (3 USgpm) • Up to 210 bar (3000 psi)

## Model code



### 1 Function

**S519** - Normally closed

### 2 Seal material

**N** - Nitrile  
**V** - Viton®

### 3 Manual override

**Bank** - No Manual Override  
**3** - Push  
(Consult factory for availability)  
See page A-980.

### 4 Voltage

**12** - 12 VDC  
**24** - 24 VDC  
**110** - 110 VAC  
**230** - 230 VAC

### 5 Coil termination

**H** - ISO 4400 DIN 43650  
**F** - Flying lead  
**A** - Junior AMP  
**DM** - Deutsch moulded  
Other terminations available on request.

### 6 Port sizes

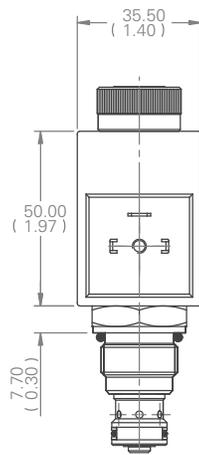
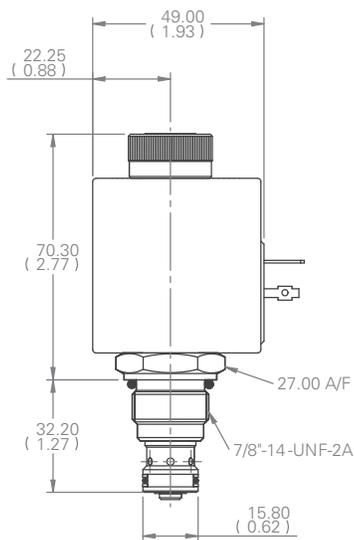
Code	Port size	Housing number	
		Aluminium	Steel
<b>3W</b>	8" BSP	BXP19053	BXP20598
<b>4W</b>	2" BSP	BXP19356	BXP20599
<b>6T</b>	3/8" SAE	BXP19401	BXP20601
<b>8T</b>	2" SAE	BXP19402	BXP20601

## Dimensions

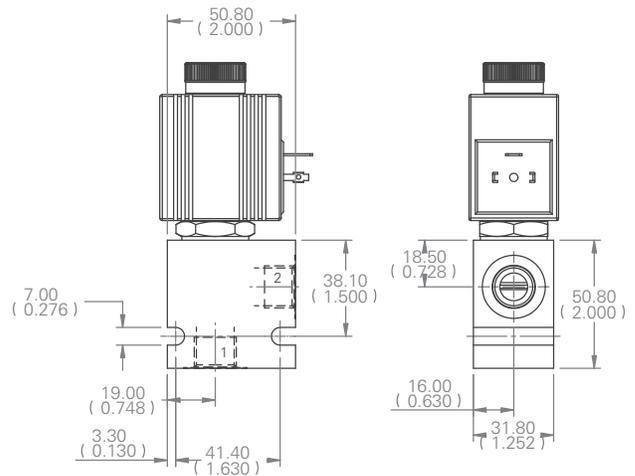
mm (inch)

### Cartridge only

Basic code  
**S217**



### Installation drawing

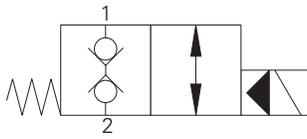


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-8-C/CM - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve  
60 L/min (1.5 USgpm) • 350 bar (5000 psi)

A



## Operation

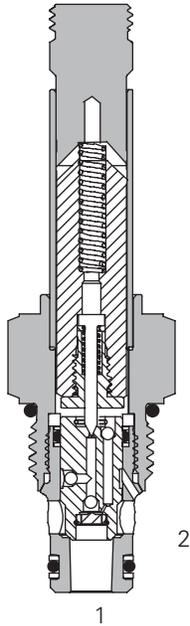
In the de-energized position the valve is blocked in both directions. When the solenoid is energized the pilot poppet is released from the seat allowing the main poppet to open.

A series of internal check valves allows full flow in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	60 L/min (15 USgpm)
Internal leakage, port 1 to port 2 & port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,12 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

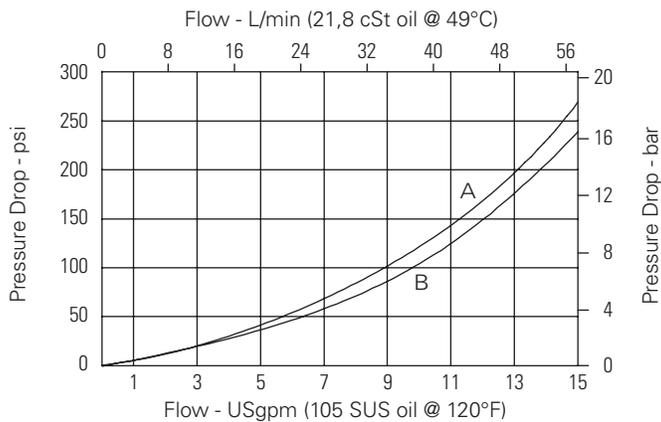
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



A - Port 1 to port 2

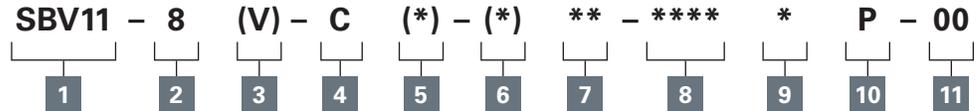
B - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-8-C/CM - Solenoid Bi-directional valve

Bi-directional, normally closed solenoid valve  
60 L/min (15 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SBV11 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

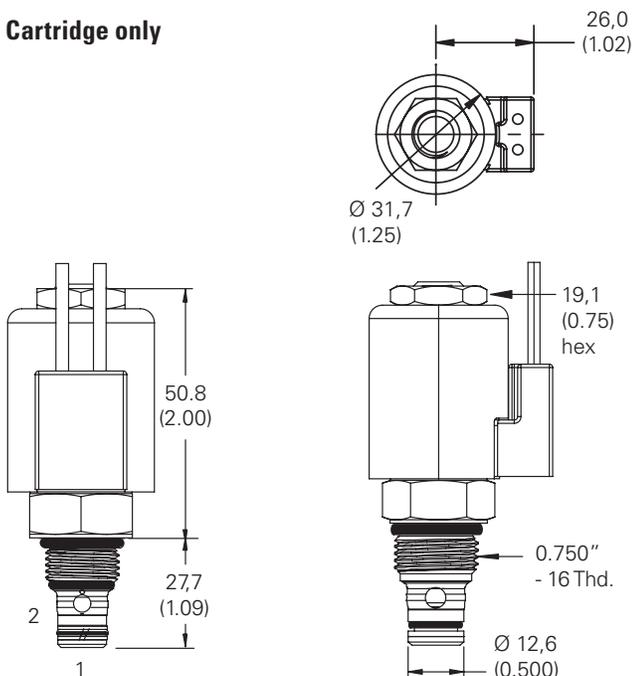
A - Aluminium

S - Steel

### Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
2G	1/4" BSPP	02-160727	02-160733
3G	3/8" BSPP	02-160728	02-160734
4T	SAE 4	02-160730	02-160736
6T	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

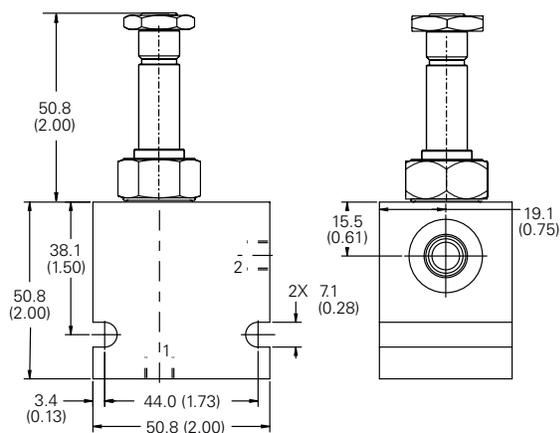
00 - None

(Only required if valve has special features omitted if "00.")

Torque cartridge in aluminium or steel housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing (Steel)



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

### Warning

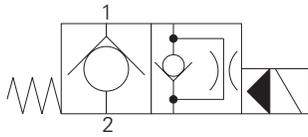
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-C/CM/CR - Solenoid valve

Poppet type, normally closed solenoid valve  
45 L/min (12 USgpm) • 210 bar (3000 psi)

A



## Operation

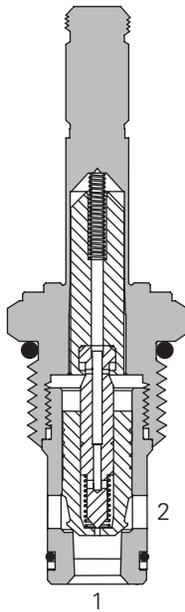
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open from port 2 to 1. In the reverse direction the flow is restricted by the pilot orifice.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	Less than 5 drops/min. max @ 210 bar (3000 psi)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 18 ms, de-energize: 46 ms
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

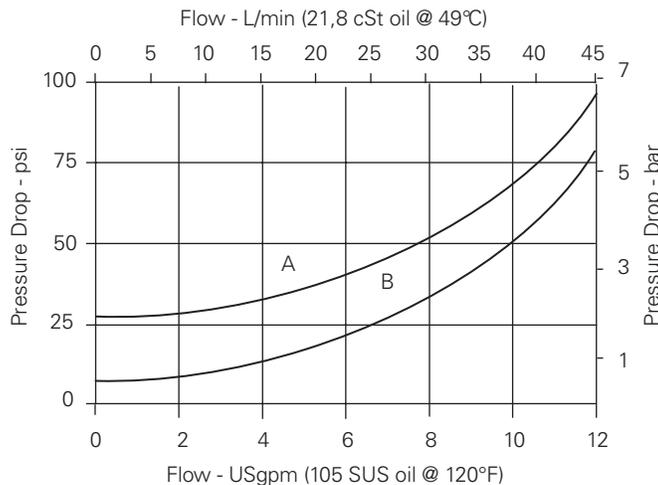
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



### Pressure drop vs. Flow

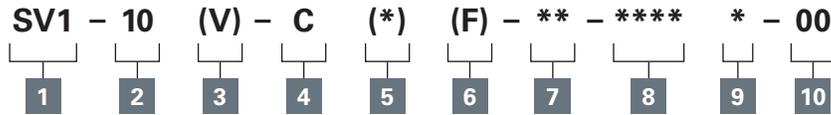
- A** - Port 1 to port 2 de-energized
- B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-C/CM/CR - Solenoid valve

Poppet type, normally closed solenoid valve  
45 L/min (12 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter option

Blank - None

F - Filter screen

## Dimensions

mm (inch)

### Cartridge only

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-175464*
6T	SAE 6	566151*
2G	1/4" BSPP	876702
3G	3/8" BSPP	876703
6H	SAE 6	876700
8H	SAE 8	876701

\*Light duty housing.  
See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

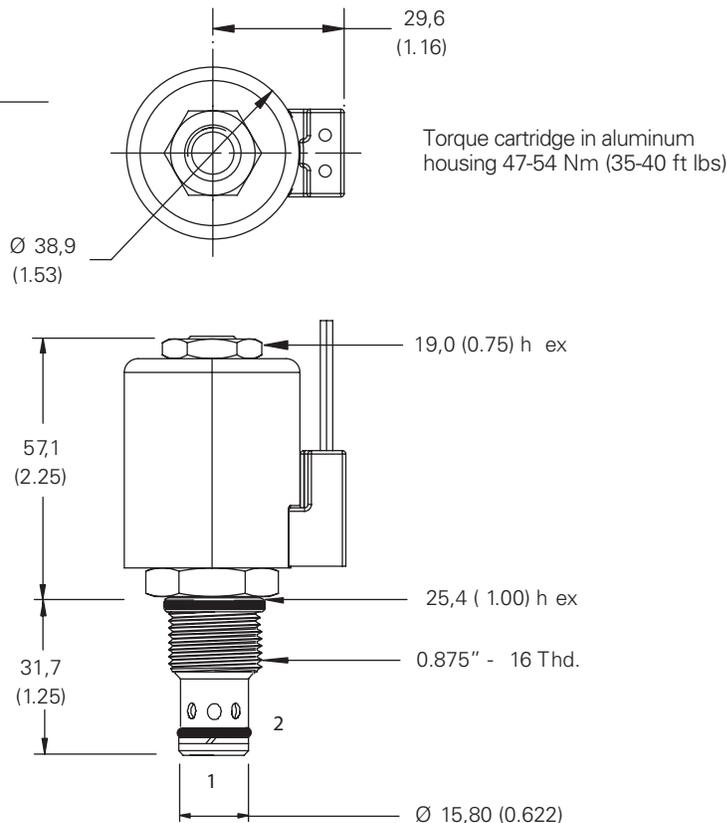
For coil part numbers and dimensions see section C.

### 10 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

**Note:** Use J series, 23 W coils with this solenoid valve.



**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

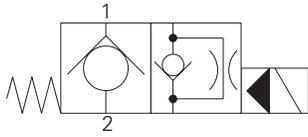
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1 1-10-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
45 L/min (12 USgpm) • 350 bar (5000 psi)

A



## Operation

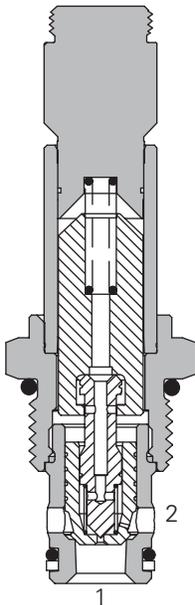
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open from port 2 to 1. In the reverse direction the flow is restricted by the pilot orifice.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

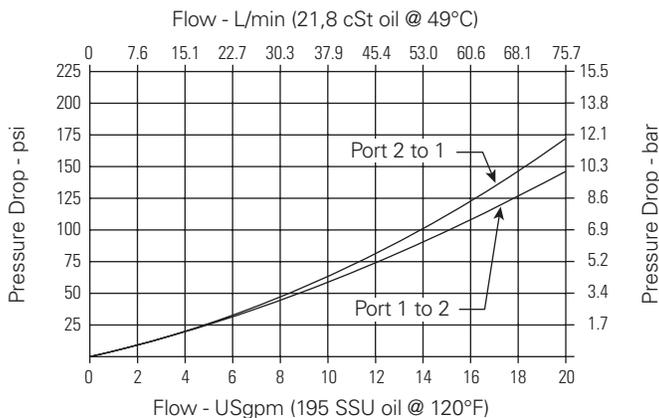
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



A - Port 1 to port 2 de-energized

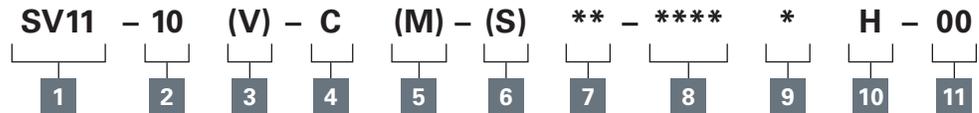
B - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11-10-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
45 L/min (12 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV11 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

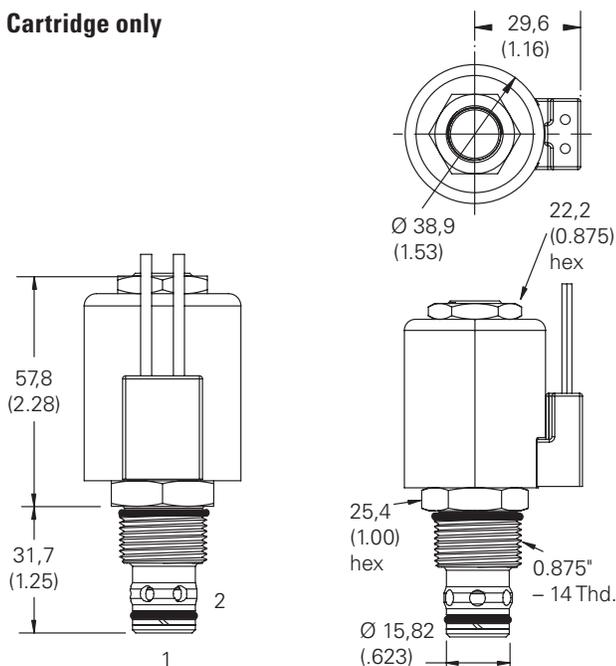
Blank - Cartridge only

S - Steel

### Dimensions

mm (inch)

#### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W For coil part numbers and dimensions see section C.

### 11 Special features

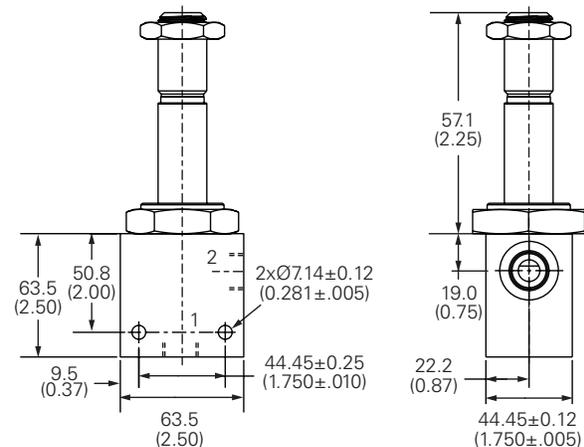
00 - None

(Only required if valve has special features omitted if "00".)

Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

#### Installation drawings (Steel)



#### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

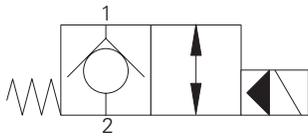
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-8-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

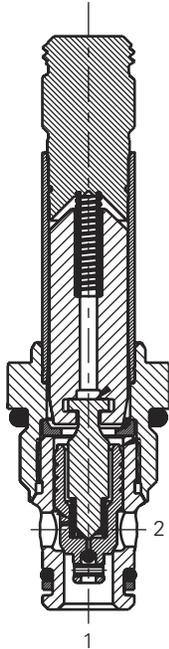
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	less than 5 drops/min @ 210 bar (3000 psi)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 18 ms De-Energize: 46 ms
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

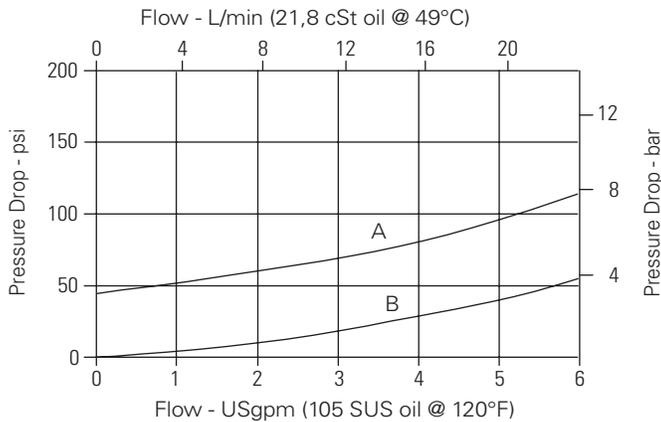
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



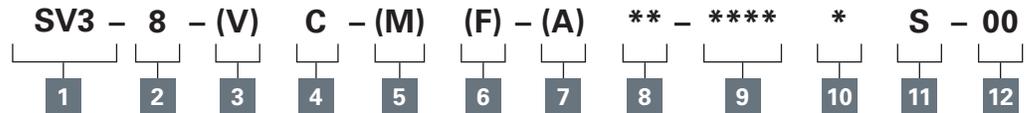
- A** - Port 1 to port 2 de-energized
- B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-8-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

**SV3** - Solenoid valve

### 2 Size

**8** - 8 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton®

### 4 Style

**C** - Normally closed

### 5 Manual override option

**Blank** - No manual override

**M** - Knob type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter option

**Blank** - None

**F** - Filter screen

### 8 Port size

Code	Port size	Housing number
<b>0</b>	Cartridge only	
<b>2G</b>	1/4" BSPP	02-160727
<b>3G</b>	3/8" BSPP	02-160728
<b>4T</b>	SAE 4	02-160730
<b>6T</b>	SAE 6	02-160731
<b>8T</b>	SAE 8	02-160732

See section J for housing details.

### 7 Valve housing material

Omit for cartridge only

**A** - Aluminum

### 10 Connector types

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Flying lead

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

### 11 Coil series

**S** - 8 series, 20 W

For coil part numbers and dimensions see section C.

### 12 Special features

**00** - None

(Only required if valve has special features, omitted if "00".)

### 9 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

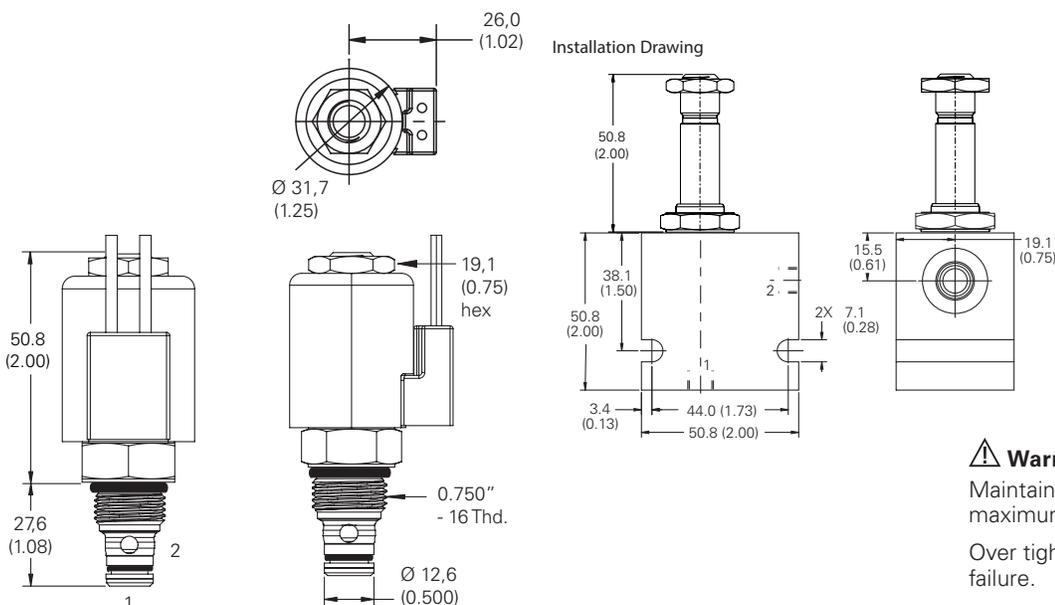
## Dimensions

mm (inch)

Torque cartridge in aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## Cartridge only

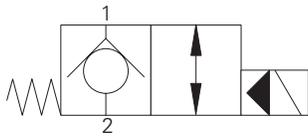


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
 45 L/min (12 USgpm) • 210 bar (3000 psi)

A



## Operation

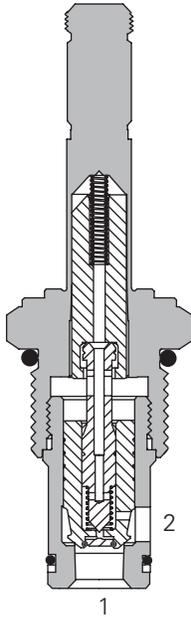
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight cartridge only	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

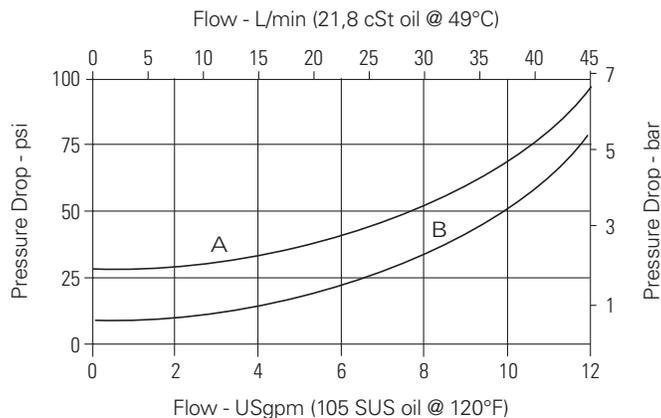
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop curves

Cartridge only



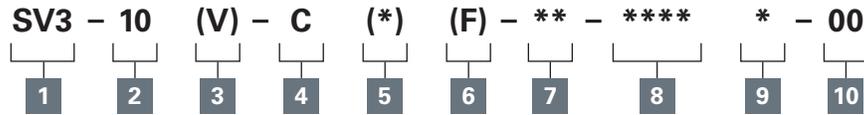
**A** - Port 1 to port 2 de-energized  
**B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
45 L/min (12 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV3 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton\*

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter options

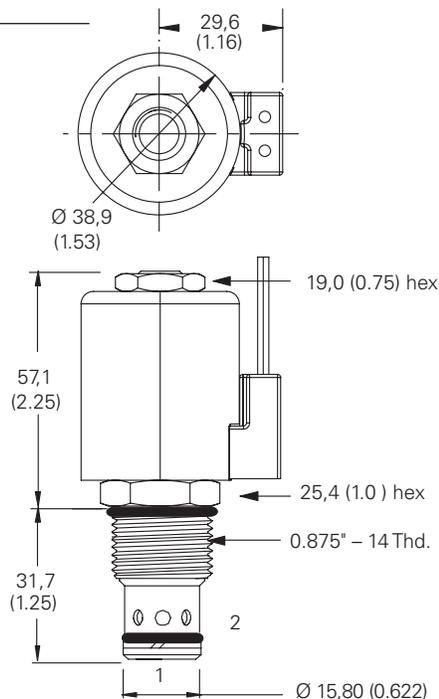
Blank - None

F - Filter screen

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-175462*
2G	1/4" BSPP	876702
3G	3/8" BSPP	876703
6T	SAE 6	566151*
6H	SAE 6	876700
8H	SAE 8	876701

See section J for housing details.  
\*Light duty housing

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Special features

00 - None

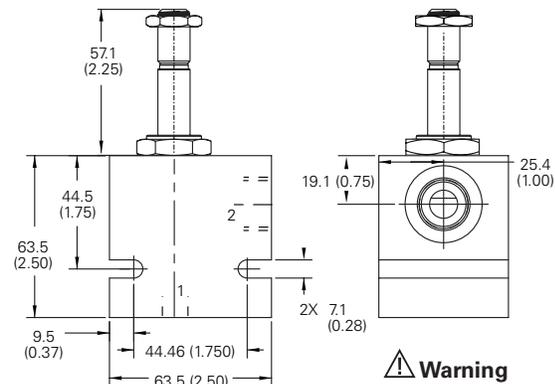
(Only required if valve has special features, omitted if "00.")

Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Note:** Use J series, 23 W coils with this solenoid valve.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

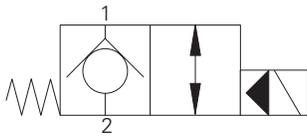
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-10-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve, (free reverse flow)  
 45 L/min (12 USgpm) • 350 bar (5000 psi)

A



## Operation

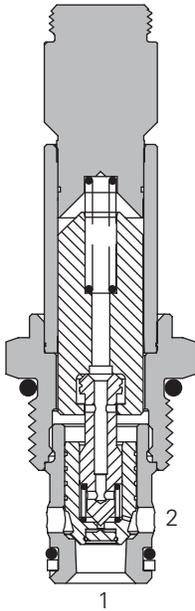
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

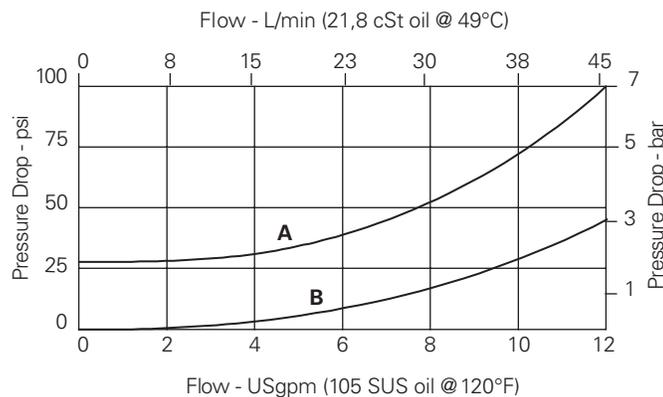
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



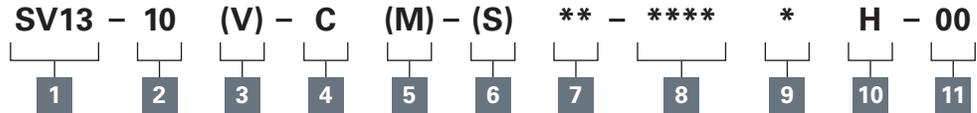
- A** - Port 1 to port 2
- B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-10-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve, (free reverse flow)  
45 L/min (12 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

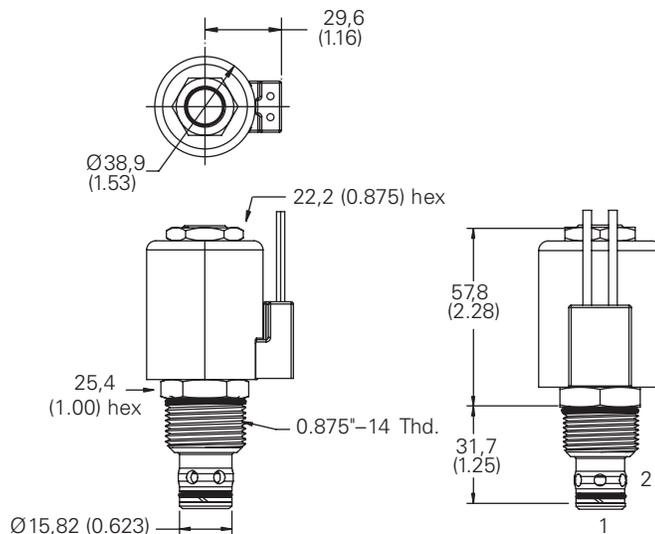
## Dimensions

mm (inch)

Torque cartridge in steel housing 68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## Cartridge only



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

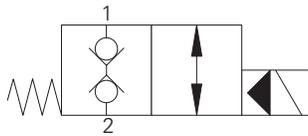
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV1-10-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
76 L/min (20 USgpm) • 210 bar (3000 psi)

A



## Operation

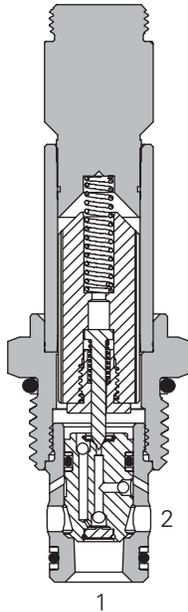
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the pilot poppet is released from the seat allowing the main poppet to open. A series of internal check valves allows full flow in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 210 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage	5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

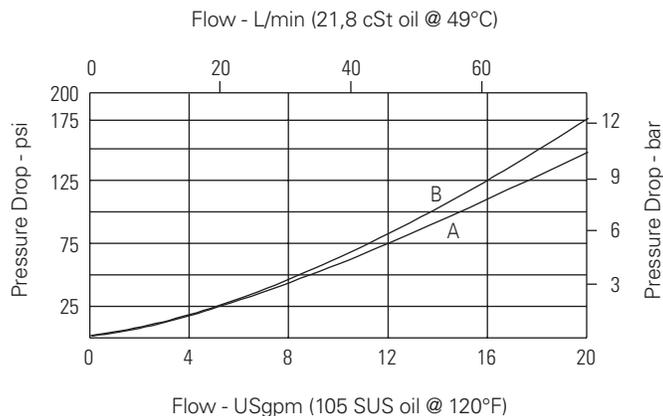
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



- A** - Port 1 to port 2
- B** - Port 2 to port 1

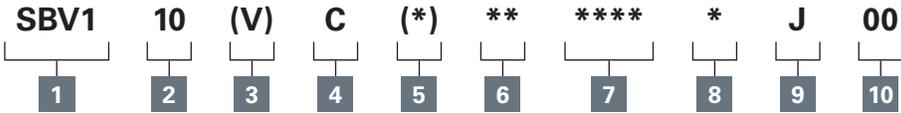
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV1-10-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
76 L/min (20 USgpm) • 210 bar (3000 psi)

A

**Model code**



**1 Function**  
SBV1 - Solenoid bi-directional valve

**2 Size**  
10 - 10 size

**3 Seal material**  
Blank - Buna-N  
V - Viton\*

**4 Style**  
C - Normally closed

**5 Valve housing material**  
Blank - Cartridge only  
A - Aluminum  
S - Steel

**6 Port size**

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
2G	1/4" BSPP	876702	02-175102
3G	3/8" BSPP	876703	02-175103
3B	3/8" BSPP	02-175462	-
6H	SAE 6	876700	-
6T	SAE 6	566151	02-175100
8H	SAE 8	876701	-
8T	SAE 8	-	02-175101

See section J for housing details.

**7 Voltage rating**

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

**8 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Leadwire  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**9 Coil series**  
J - 10 series, 23 W  
For coil part numbers and dimensions see section C.

**10 Special features**  
00 - None  
(Only required if valve has special features, omitted if "00.")

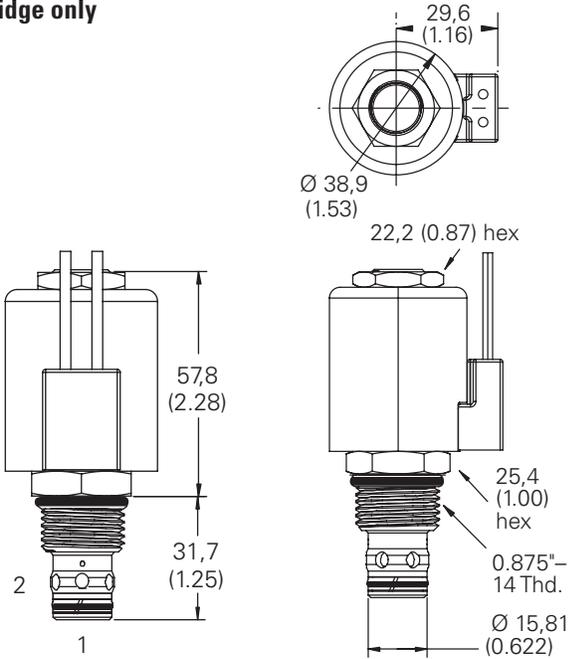
**Dimensions**

mm (inch)

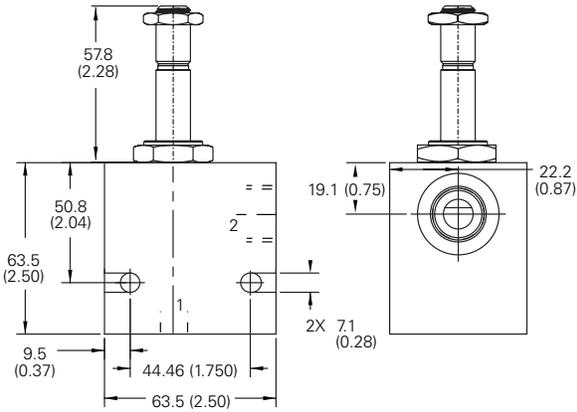
Torque cartridge in housing  
A - 47-54 Nm (35-40 ft lbs)  
S - 68-75 Nm (50-55 ft lbs)

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

**Cartridge only**



**Installation drawing (Aluminum)**



**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

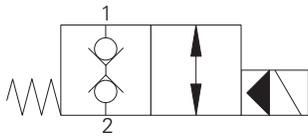
**Warning**  
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-10-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
76 L/min (20 USgpm) • 350 bar (5000 psi)

A



## Operation

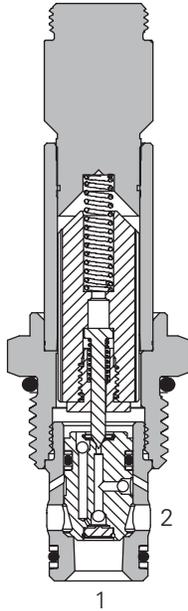
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the pilot poppet is released from the seat allowing the main poppet to open. A series of internal check valves allows full flow in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

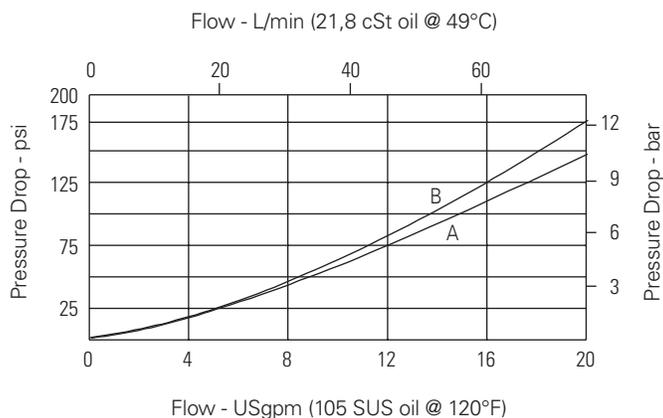
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



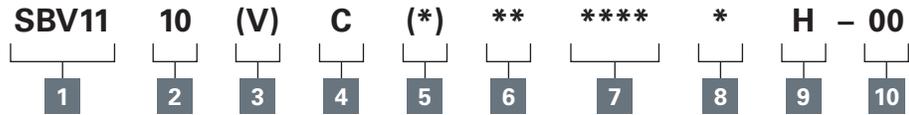
- A** - Port 1 to port 2
- B** - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-10-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
76 L/min (20 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

**SBV11** - Solenoid bi-directional valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 4 Style

**C** - Normally closed

### 5 Valve housing material

**Blank** - Cartridge only  
**A** - Aluminum  
**S** - Steel

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>0</b>	Cartridge only		
<b>2G</b>	1/4" BSPP	876702	02-175102
<b>3G</b>	3/8" BSPP	876703	02-175103
<b>3B</b>	3/8" BSPP	02-175462	-
<b>6H</b>	SAE 6	876700	-
<b>6T</b>	SAE 6	566151	02-175100
<b>8H</b>	SAE 8	876701	-
<b>8T</b>	SAE 8	-	02-175101

See section J for housing details.

### 7 Voltage rating

**00** - No coil  
**12D** - 12VDC  
**24D** - 24VDC  
**36D** - 36VDC

**24A** - 24VAC  
**115A** - 115VAC  
**230A** - 230VAC  
**12B** - 12VDC/w diode\*  
**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil  
**G** - ISO 4400 DIN 43650  
**Q** - Spade terminals  
**W** - Flying lead  
**N** - Deutsch (DC only)  
**Y** - Amp JR (DC only)  
**D** - Metripack 150 male (DC only)  
**J** - Metripack 280 male (DC only)

### 9 Coil series

**H** - 10 series, 29 W  
For coil part numbers and dimensions see section C.

### 10 Special features

**00** - None  
(Only required if valve has special features, omitted if "00.")

## Dimensions

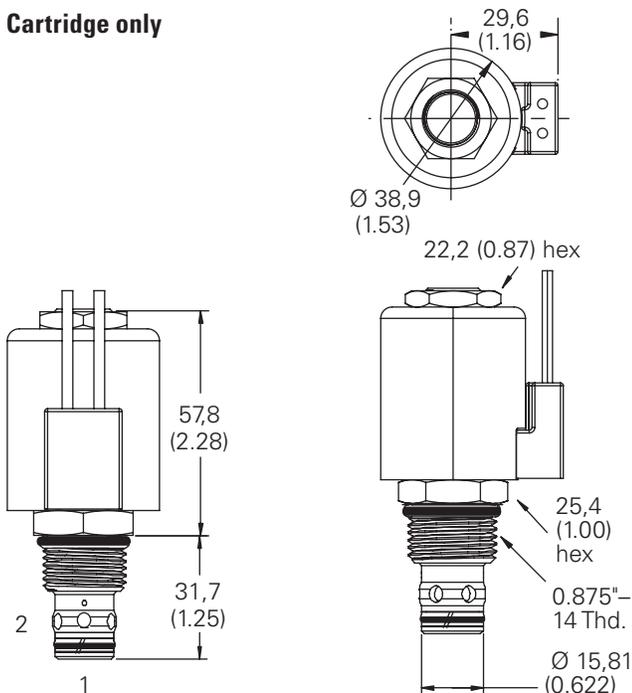
mm (inch)

Torque cartridge in housing

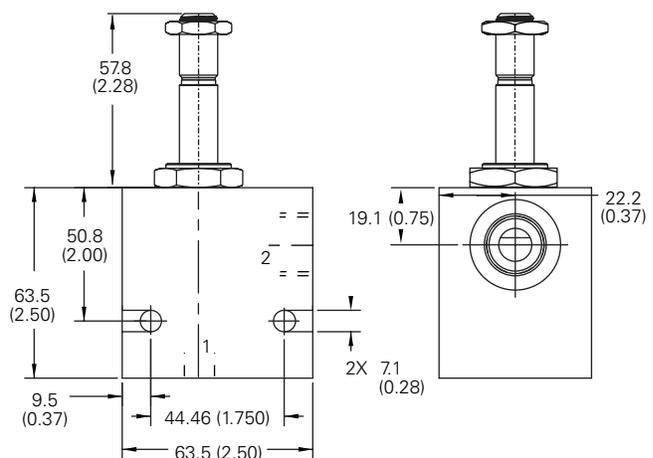
**A** - 47-54 Nm (35-40 ft lbs)  
**S** - 68-75 Nm (50-55 ft lbs)

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

## Cartridge only



## Installation drawing (Steel)



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

### Warning

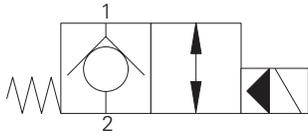
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-12-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
 114 L/min (30 USgpm) • 210 bar (3000 psi)

A



### Operation

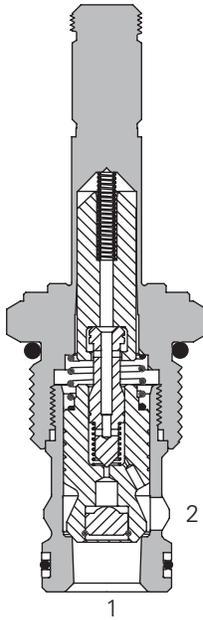
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage (port 2 to port 1)	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 75 ms De-Energize: 150 ms
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi @ 15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,336 kg (0.74 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

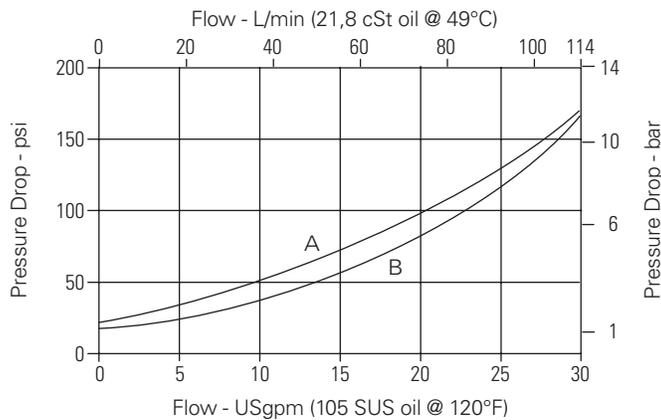
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop curves

Cartridge only



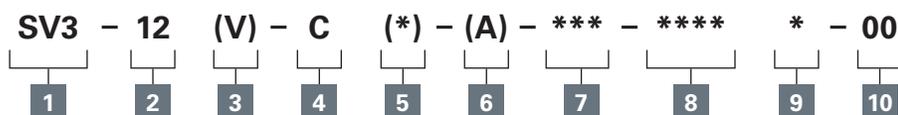
- A** - Port 1 to port 2 de-energized
- B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-12-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
114 L/min (30 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SV3 - Solenoid valve

**2 Size**  
12 - 12 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

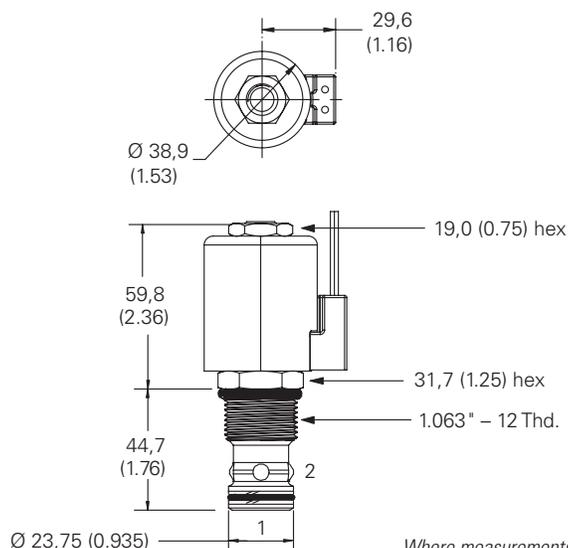
**4 Style**  
C - Normally closed

**5 Manual override option**  
Blank - No manual override  
M - Knob type  
R - Cable type  
For valve dimensions with manual override option installed see page A-980.

**6 Valve housing material**  
Omit for cartridge only  
A - Aluminum (standard)  
S - Steel

**Dimensions**  
mm (inch)

### Cartridge only



**7 Port size**

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
4G	1/2" BSPP	02-161118	02-172062
4GU	1/2" BSPP	02-161116	02-172512
6G	3/4" BSPP	02-161117	02-169665
6GU	3/4" BSPP	02-161115	02-162922
10T	SAE 10	02-160640	02-169744
10TU	SAE 10	02-160641	02-169817
12T	SAE 12	02-160644	02-169782
12TU	SAE 12	02-160645	02-169790

See section J for housing details.

**8 Voltage rating**

00 - No coil	115A - 115VAC
12D - 12VDC	230A - 230VAC
24D - 24VDC	12B - 12VDC/w diode*
36D - 36VDC	24B - 24VDC/w diode*
24A - 24VAC	*Optional arc suppression diode.

**9 Connector types**

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**10 Special features**

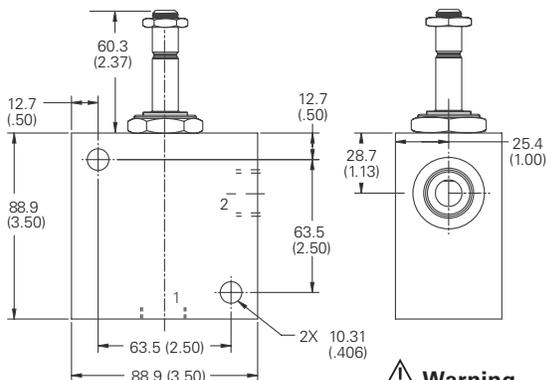
00 - None  
(Only required if valve has special features, omitted if "00.")

Torque cartridge in housing  
A - 81-95 Nm (60-70 ft lbs)  
S - 102-115 Nm (75-85 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Note:** Use J series, 23 W coils with this solenoid valve.

### Installation drawing (Aluminum)



**Warning**

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

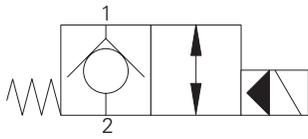
Over tightening may cause valve failure.

*Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.*

# SV13-12-C/CM - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
 114 L/min (30 USgpm) • 350 bar (5000 psi)

A



## Operation

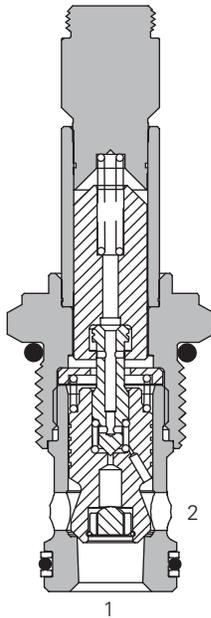
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi @ 15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

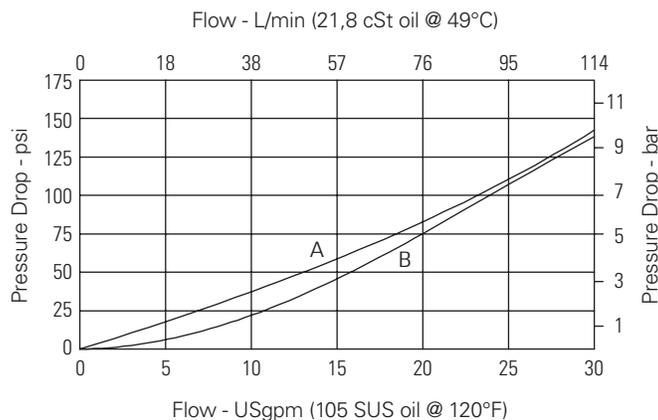
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



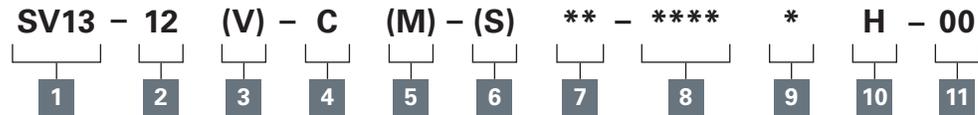
- A** - Port 1 to port 2
- B** - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-12-C/CM - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

A - Aluminum

S - Steel (standard)

### 7 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
4G	1/2" BSPP	02-161118	02-172062
4GU	1/2" BSPP	02-161116	02-172512
6G	3/4" BSPP	02-161117	02-169665
6GU	3/4" BSPP	02-161115	02-162922
10T	SAE 10	02-160640	02-169744
10TU	SAE 10	02-160641	02-169817
12T	SAE 12	02-160644	02-169782
12TU	SAE 12	02-160645	02-169790

See section J for housing details.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has special features, omitted if "00.")

## Dimensions

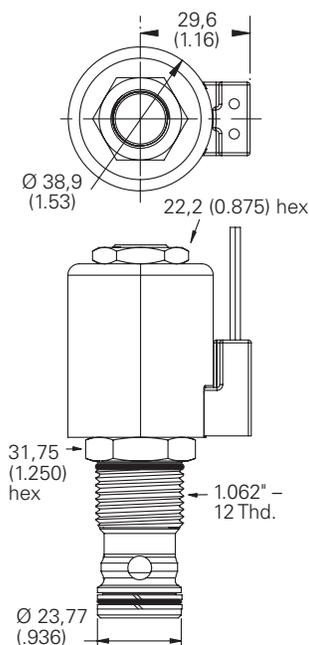
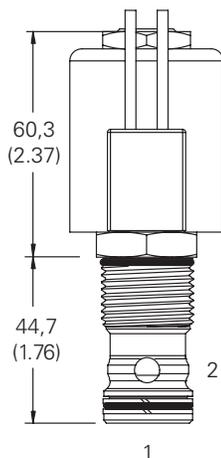
mm (inch)

Torque cartridge in housing

A - 81-95 Nm (60-70 ft lbs)

S - 102-115 Nm (75-85 ft lbs)

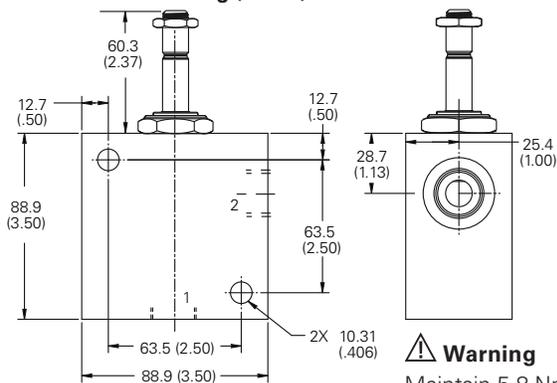
### Cartridge only



**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

### Installation drawing (Steel)



### Warning

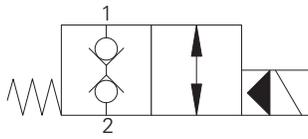
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV1-12-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
 114 L/min (30 USgpm) • 210 bar (3000 psi)

A



### Operation

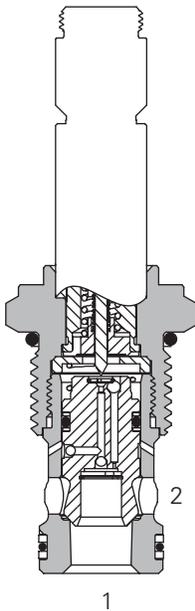
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the pilot poppet is released from the seat allowing the main poppet to open. A series of internal check valves allows full flow in both directions.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi @ 15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

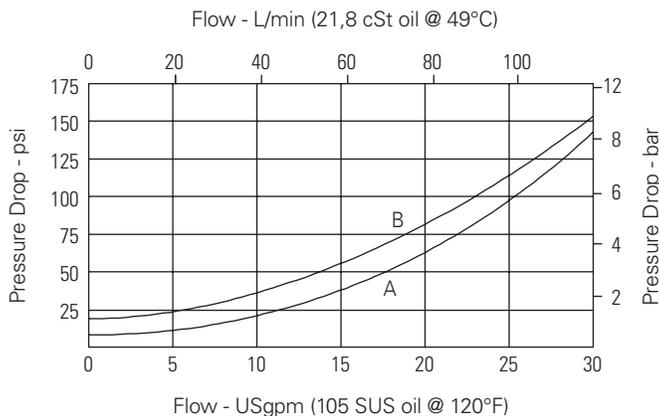
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way 2-position, bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

### Pressure drop

Cartridge only



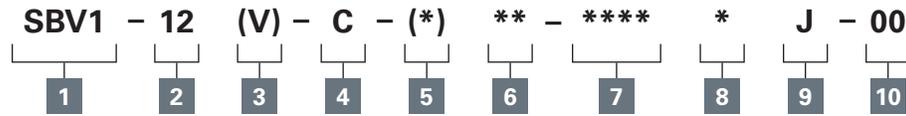
**A** - Port 1 to port 2  
**B** - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV1-12-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
114 L/min (30 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SBV1 - Solenoid bi-directional valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Valve housing material

Blank - Cartridge only

A - Aluminum (standard)

S - Steel

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
4G	1/2" BSPP	02-161118	02-172062
4GU	1/2" BSPP	02-161116	02-172512
6G	3/4" BSPP	02-161117	02-169665
6GU	3/4" BSPP	02-161115	02-162922
10T	SAE 10	02-160640	02-169744
10TU	SAE 10	02-160641	02-169817
12T	SAE 12	02-160644	02-169782
12TU	SAE 12	02-160645	02-169790

See section J for housing details.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 9 Coil series

J - 10 series, 23 W

For coil part numbers and dimensions see section C.

### 10 Special features

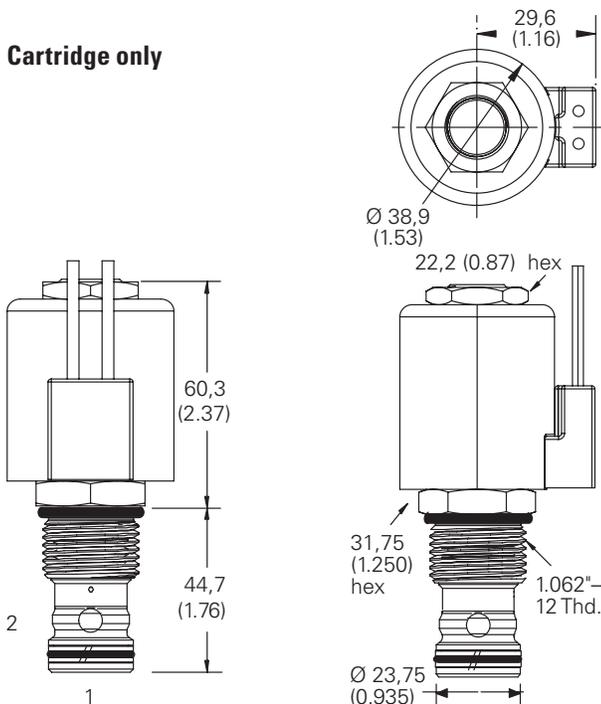
00 - None

(Only required if valve has special features, omitted if "00.")

## Dimensions

mm (inch)

### Cartridge only



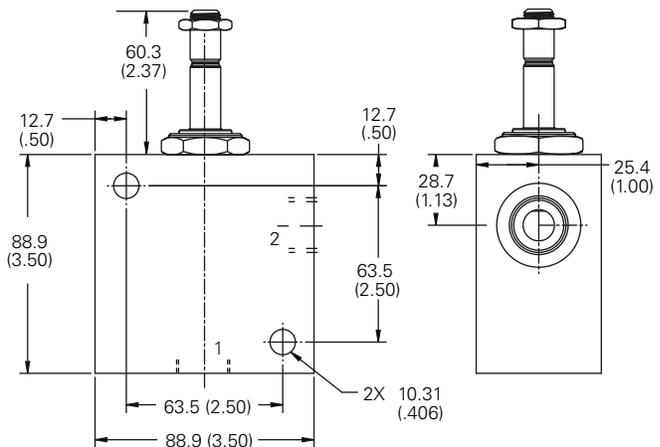
Torque cartridge in housing

A - 81-95 Nm (60-70 ft lbs)

S - 102-115 Nm (75-85 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing (Aluminum)



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

### Warning

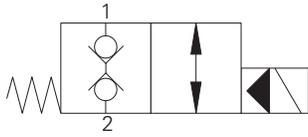
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-12-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
 114 L/min (30 USgpm) • 350 bar (5000 psi)

A



### Operation

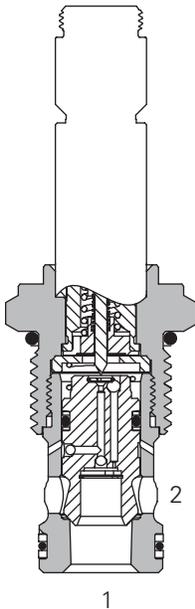
In the de-energized position the valve is blocked in both directions.

When the solenoid is energized the pilot poppet is released from the seat allowing the main poppet to open. A series of internal check valves allows full flow in both directions.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min, max @ 350 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi @ 15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

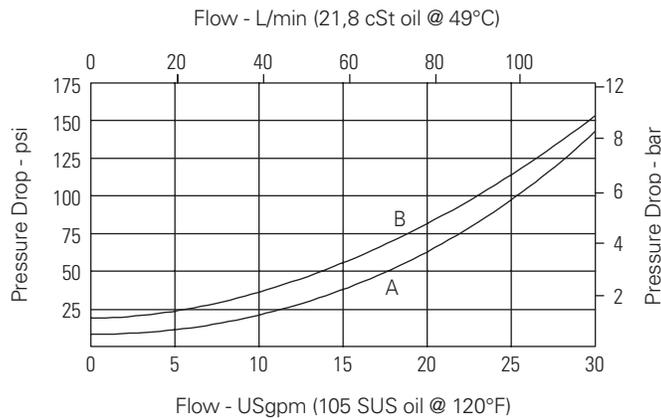
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

### Pressure drop

Cartridge only



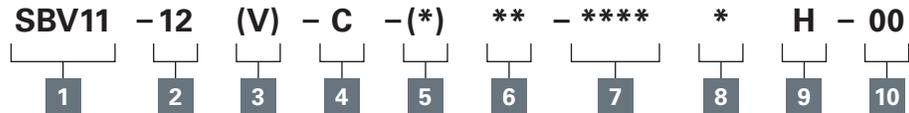
A - Port 1 to port 2  
 B - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-12-C - Solenoid valve

2-way, 2-position, normally closed, bi-directional, poppet type solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

**SBV11** - Solenoid bi-directional valve

### 2 Size

**12** - 12 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton®

### 4 Style

**C** - Normally closed

### 5 Valve housing material

**Blank** - Cartridge only

**A** - Aluminum

**S** - Steel

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>0</b>	Cartridge only		
<b>4G</b>	1/2" BSPP	02-161118	02-172062
<b>4GU</b>	1/2" BSPP	02-161116	02-172512
<b>6G</b>	3/4" BSPP	02-161117	02-169665
<b>6GU</b>	3/4" BSPP	02-161115	02-162922
<b>10T</b>	SAE 10	02-160640	02-169744
<b>10TU</b>	SAE 10	02-160641	02-169817
<b>12T</b>	SAE 12	02-160644	02-169782
<b>12TU</b>	SAE 12	02-160645	02-169790

See section J for housing details.

### 7 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Flying lead

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

### 9 Coil series

**H** - 10 series, 29 W

For coil part numbers and dimensions see section C.

### 10 Special features

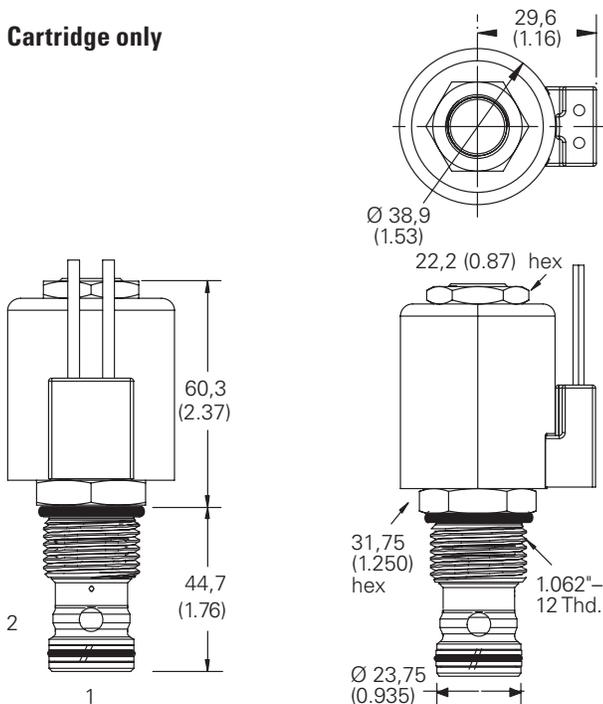
**00** - None

(Only required if valve has special features, omitted if "00.")

## Dimensions

mm (inch)

### Cartridge only

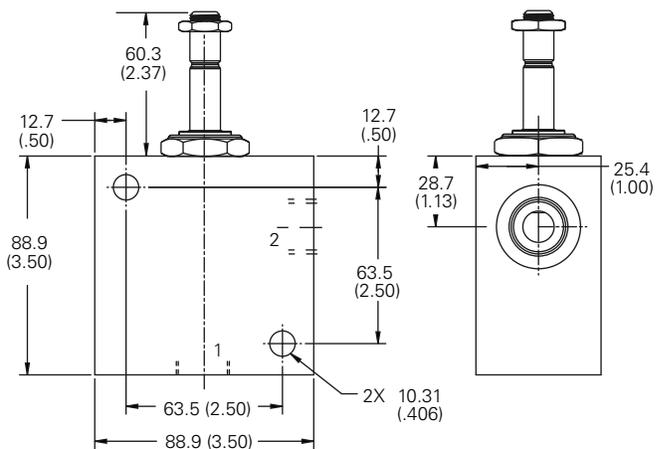


Torque cartridge in housing

**A** - 81-95 Nm (60-70 ft lbs)

**S** - 102-115 Nm (75-85 ft lbs)

### Installation drawing (Steel)



#### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

#### Warning

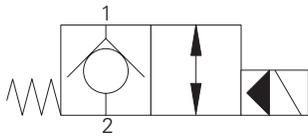
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-16-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
 132 L/min (35 USgpm) • 210 bar (3000 psi)

A



## Operation

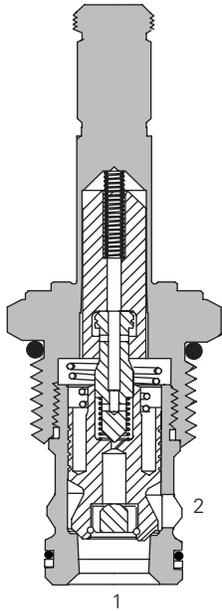
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	1,15 kg (2.53 lbs)
Seal kit	565810 (Buna-N), 02-889609 (Viton®)

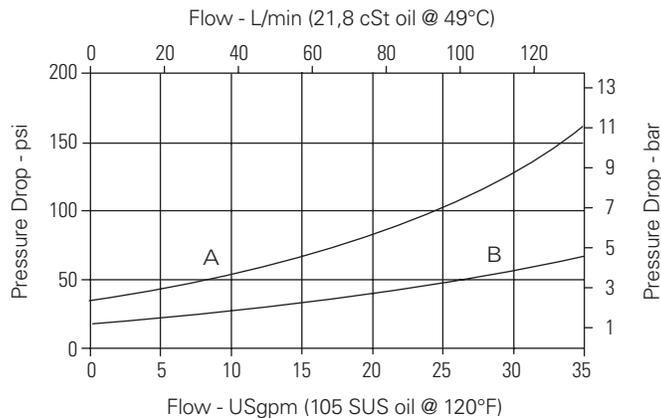
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



**A** - Port 2 to port 1 energized

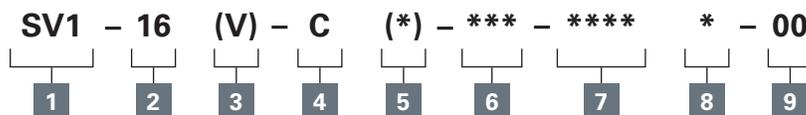
**B** - Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-16-C/CM/CR - Solenoid valve

2-way, 2-position, normally closed, poppet type solenoid valve  
132 L/min (35 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Knob type

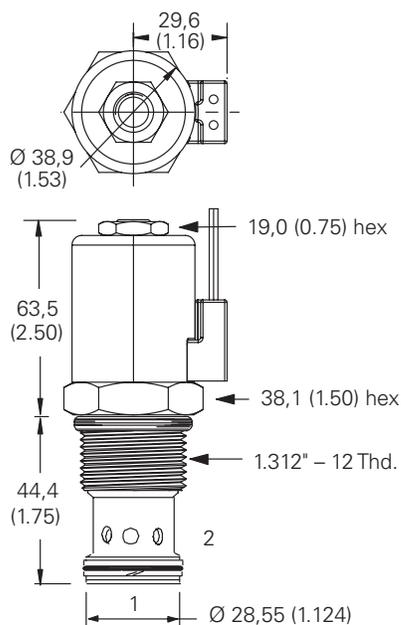
R - Cable type

For valve dimensions with manual override option installed see page A-980.

## Dimensions

mm (inch)

### Cartridge only



### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
6B	3/4" BSPP	02-175463*
12T	SAE 12	566149*
6G	3/4" BSPP	876717
10H	SAE 10	876717
12H	SAE 12	566113

See section J for housing details.  
\*Light duty housing

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 9 Special features

00 - None

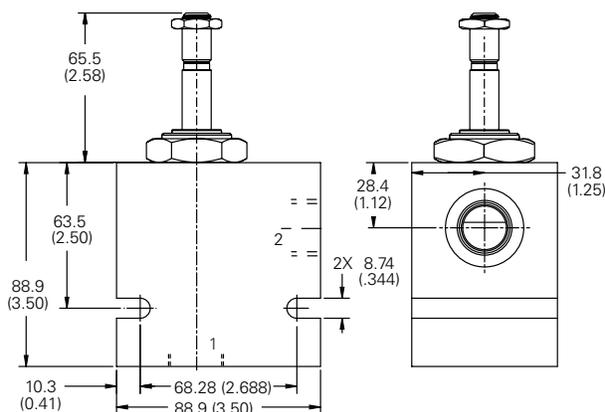
(Only required if valve has special features, omitted if "00.")

Torque cartridge in aluminum housing  
108-122 Nm (80-90 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Notes:** Use J series, 23 W coils with this solenoid valve.

## Installation drawings



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

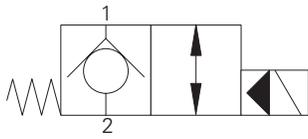
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-16-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve, (free reverse flow)  
 132 L/min (35 USgpm) • 350 bar (5000 psi)

A



### Operation

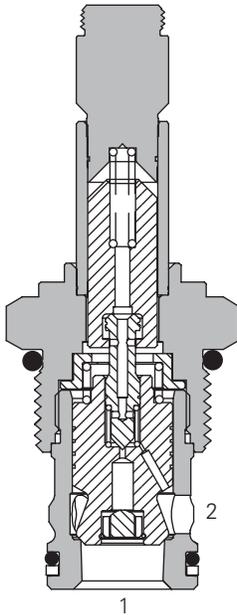
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®)

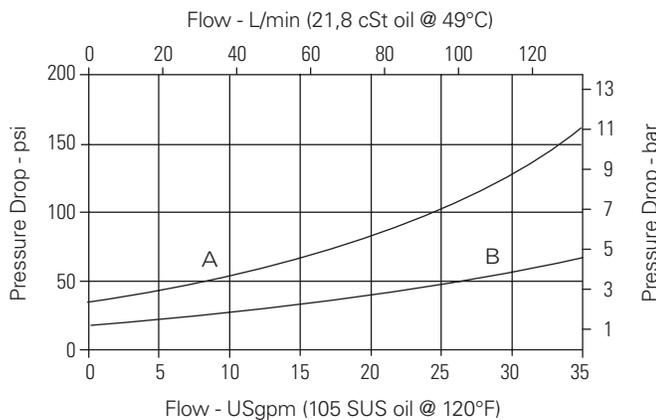
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop

Cartridge only



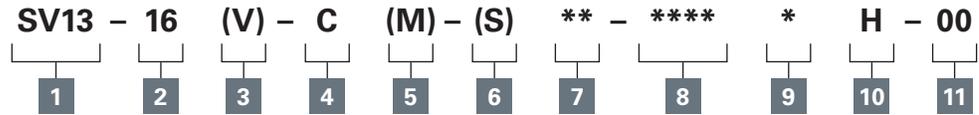
- A** - Port 2 to port 1 energized
- B** - Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-16-C/CM - Solenoid valve

Poppet type, normally closed solenoid valve, (free reverse flow)  
132 L/min (35 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
4G	1/2" BSPP	02-175106
6G	3/4" BSPP	02-175107
10T	SAE 10	02-175104
12T	SAE 12	02-175105

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

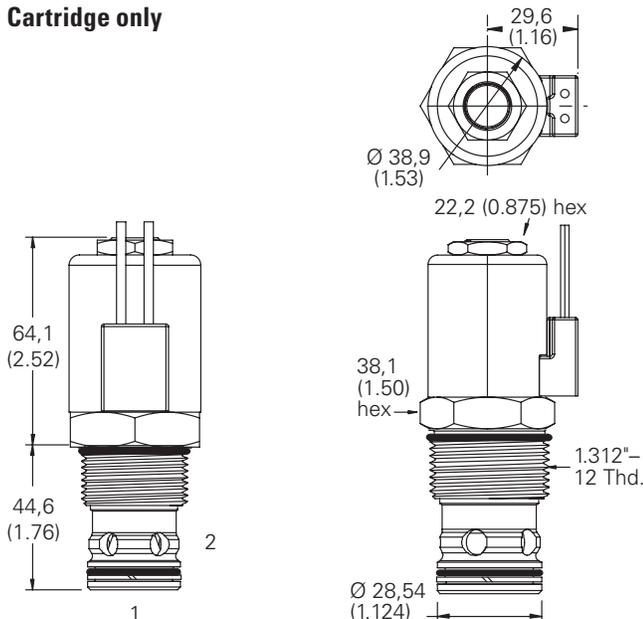
## Dimensions

mm (inch)

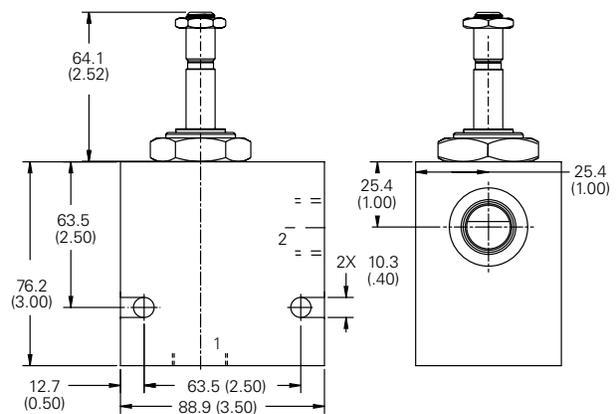
Torque cartridge in steel housing 136-149 Nm (100-110 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Cartridge only



### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

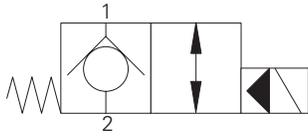
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-20-C/CM/CR - Solenoid valve

Poppet type, normally closed solenoid valve (free reverse flow)  
 227 L/min (60 USgpm) • 210 bar (3000 psi)

A



## Operation

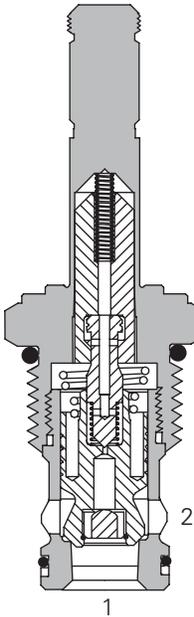
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	1,2 kg (2.70 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

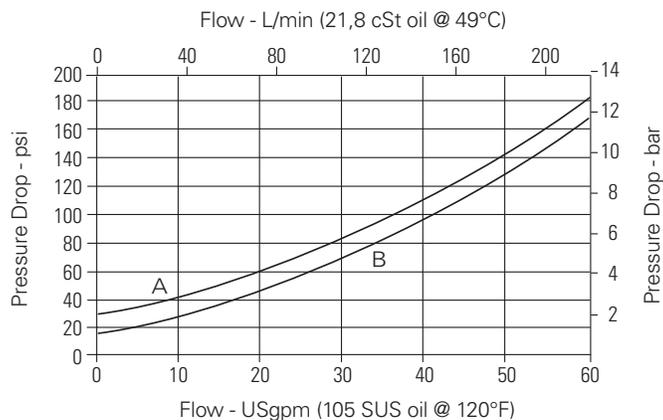
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



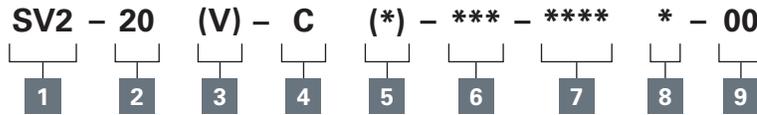
- A - Port 1 to port 2 de-energized
- B - Port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-20-C/CM/CR - Solenoid valve

Poppet type, normally closed solenoid valve (free reverse flow)  
227 L/min (60 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV2 - Solenoid valve

### 2 Size

20 - 20 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
8B	1" BSPP	02-175464*
16T	SAE 16	566409*
6G	3/4" BSPP	876732
8G	1" BSPP	876734
12H	SAE 12	876733
16H	SAE 16	876735

\*Light duty housing.  
See section J for housing details.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 9 Special features

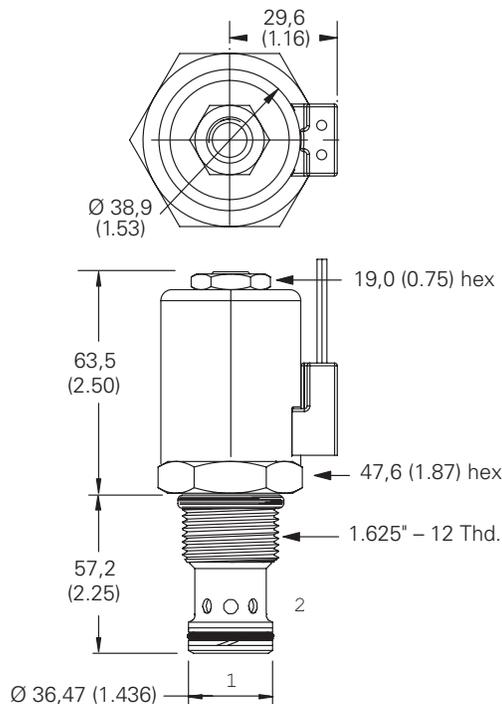
00 - None

(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

### Cartridge only

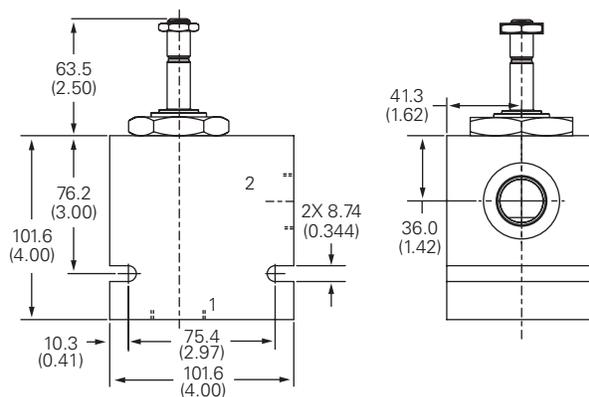


Torque cartridge in aluminum housing  
128-155 Nm (95-115 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Note:** Use J series, 23 W coils with this solenoid valve.

## Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

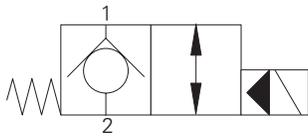
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-20-C/CM - Solenoid valve

Poppet type, pilot operated solenoid valve  
227 L/min (60 USgpm) • 350 bar (5000 psi)

A



## Operation

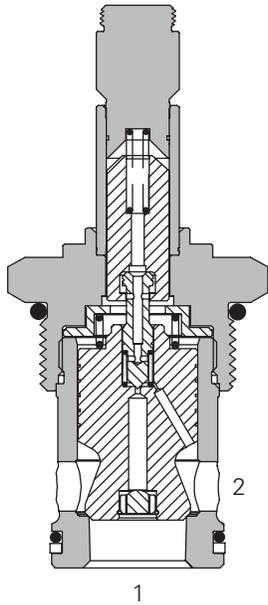
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

When the solenoid is energized the pilot poppet is pulled off the seat allowing the valve to open in both directions.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

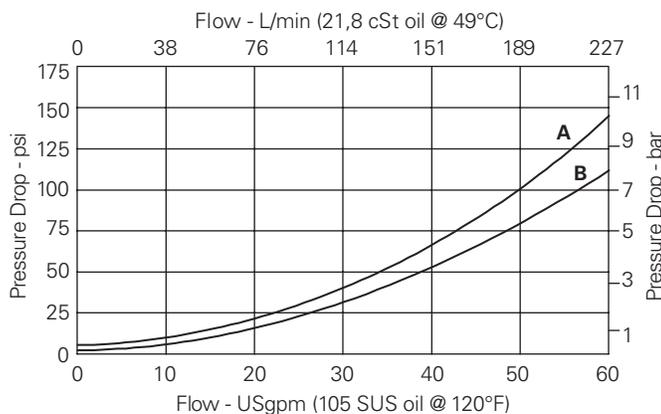
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



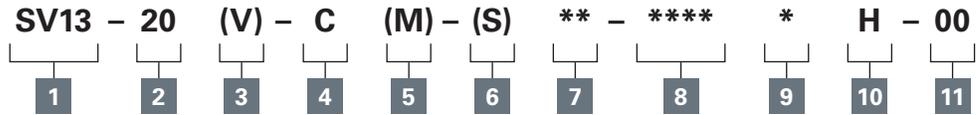
- A** - Port 2 to port 1 energized
- B** - Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-20-C/CM - Solenoid valve

Poppet type, pilot operated solenoid valve  
227 L/min (60 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

20 - 20 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### Dimensions

mm (inch)

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
6G	3/4" BSPP	02-175110
8G	1" BSPP	02-175111
12T	SAE 12	02-175108
16T	SAE 16	02-175109

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

### 11 Special features

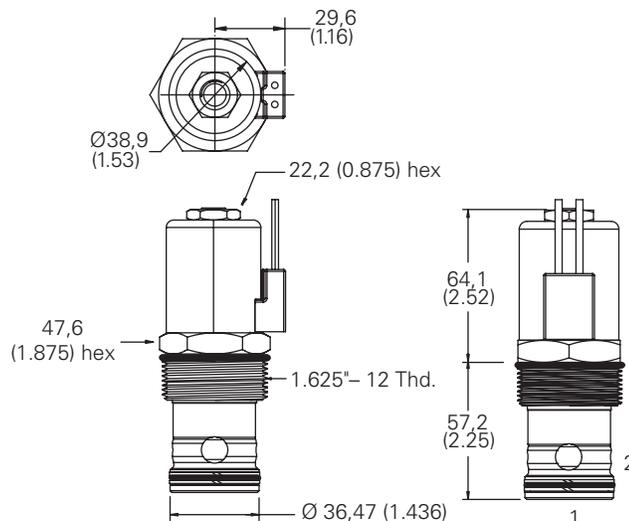
00 - None

(Only required if valve has special features, omitted if "00".)

Torque cartridge in steel housing 163-183 Nm (120-135 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Cartridge only



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

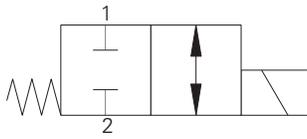
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-8-C/CM - Solenoid valve

Spool type, normally closed solenoid valve  
 11 L/min (3 USgpm) • 210 bar (3000 psi)

A



## Operation

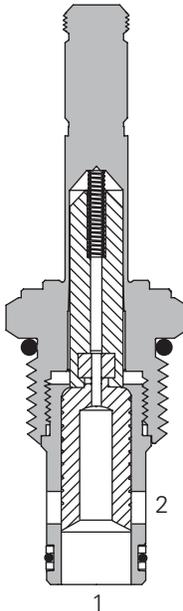
In the de-energized position the valve blocks flow in both directions.

When the solenoid is energized the spool moves allowing the valve to open in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 27 ms. De-Energize: 24 ms
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

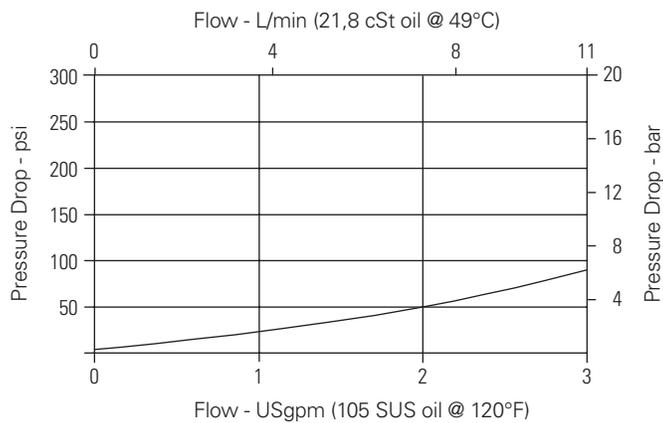
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, direct acting, normally closed solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is de-energized.

## Pressure drop

Cartridge only



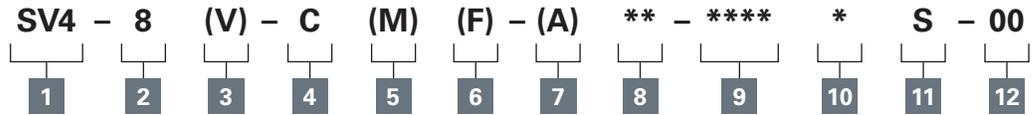
Port 1 to port 2 or port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-8-C/CM - Solenoid valve

Spool type, normally closed solenoid valve  
11 L/min (3 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SV4 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
C - Normally closed

**5 Manual override option**  
Blank - No manual override  
M - Knob type  
For valve dimensions with manual override option installed see page A-980.

**6 Filter option**  
Blank - None  
F - Filter screen

**8 Port size**

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3G	3/8" BSPP	02-160728
4T	SAE 4	02-160730
6T	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housing details.

**9 Voltage rating**

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

**10 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**11 Coil series**  
S - 8 series, 20 W  
For coil part numbers and dimensions see section C.

**12 Special features**  
00 - None  
(Only required if valve has special features, omitted if "00".)

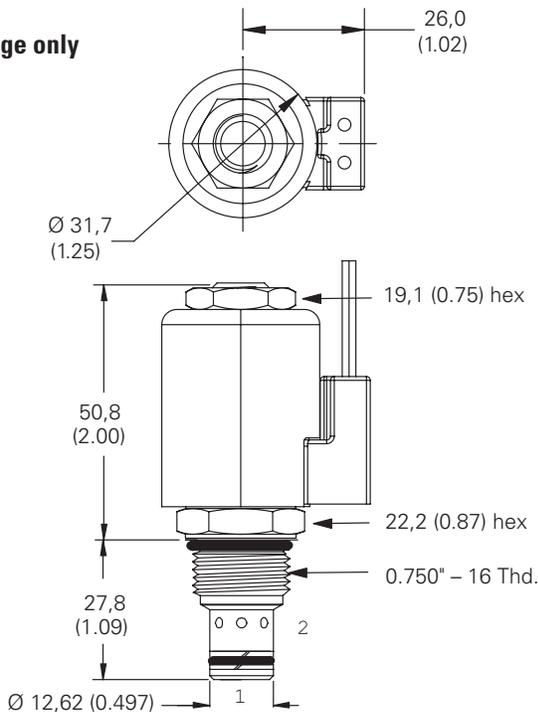
## Dimensions

mm (inch)

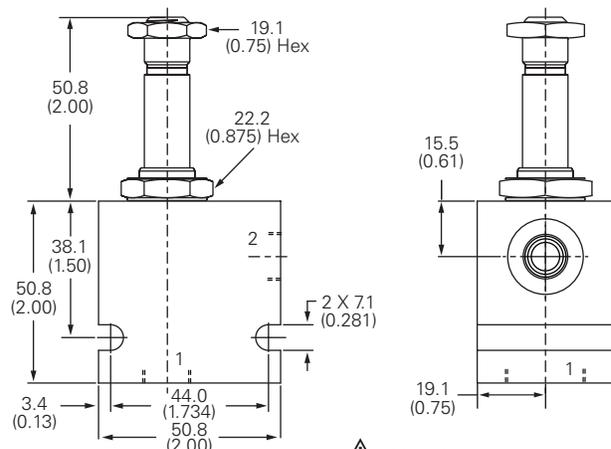
Torque cartridge in aluminum housing  
34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## Cartridge only



## Installation drawing



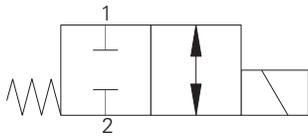
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-8-C/CM - Solenoid valve

Spool type, normally closed solenoid valve, 350 bar  
 11 L/min (3 USgpm) • 350 bar (5000 psi)

A



## Operation

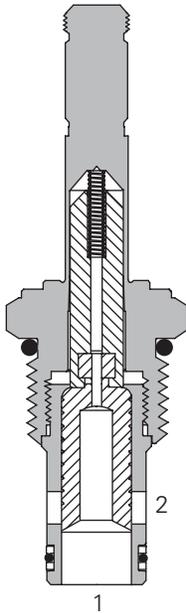
In the de-energized position the valve blocks flow in both directions.

When the solenoid is energized the spool moves allowing the valve to open in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage, port 2 to port 1	140cm <sup>3</sup> (8.5in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (.25 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

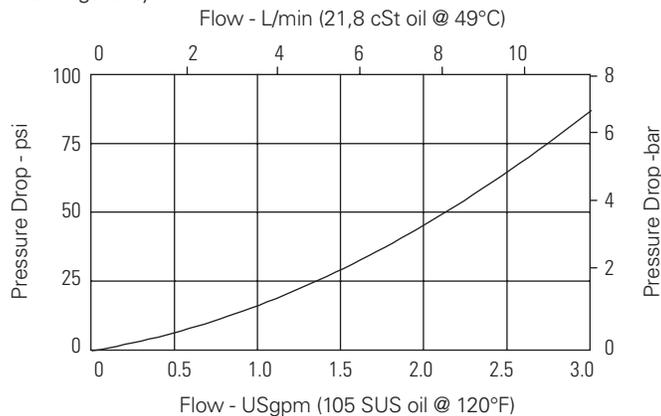
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, high pressure, direct acting, normally closed solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is de-energized.

## Pressure drop

Cartridge only



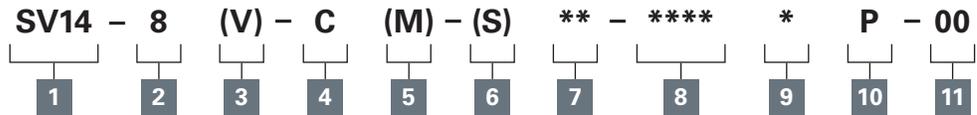
Port 1 to port 2 or port 2 to port 1 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-8-C/CM - Solenoid valve

Spool type, normally closed solenoid valve, 350 bar  
11 L/min (3 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV14 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

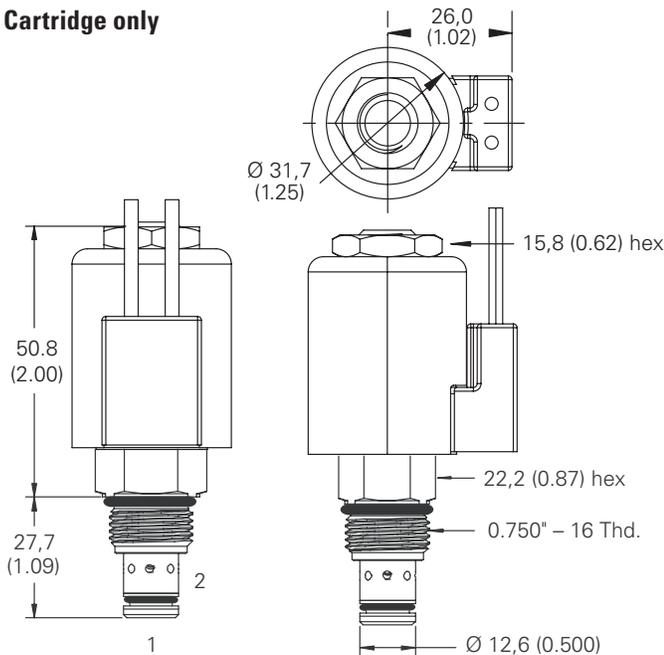
Blank - Cartridge only

S - Steel

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160733
3G	3/8" BSPP	02-160734
4T	SAE 4	02-160736
6T	SAE 6	02-160737
8T	SAE 8	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

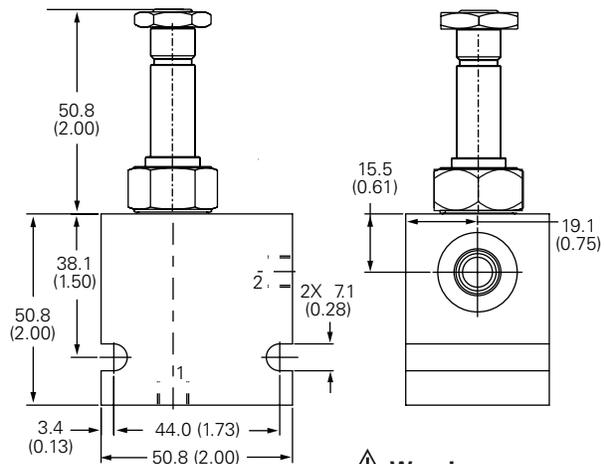
00 - None

(Only required if valve has special features, omitted if "00".)

Torque cartridge in steel housing  
34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

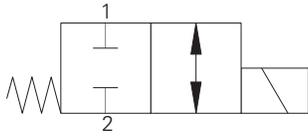
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-C/CM/CR - Solenoid valve

Spool type, normally closed solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

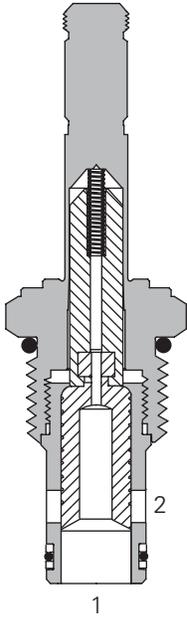
In the de-energized position the valve blocks flow in both directions.

When the solenoid is energized the spool moves allowing the valve to open in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

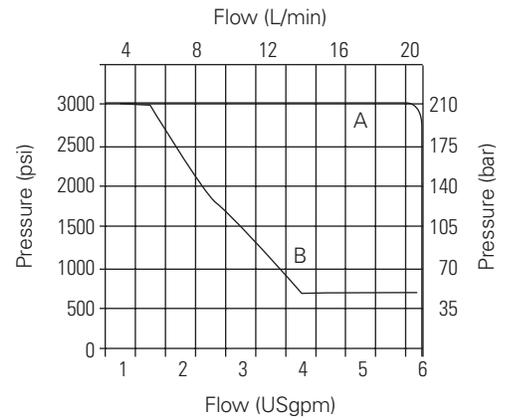
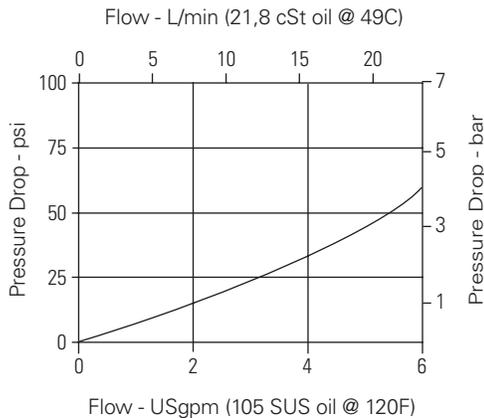
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, direct acting, normally closed solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is de-energized.

## Pressure drop

Cartridge only



## Pressure drop vs. Flow

Port 1 to port 2 or  
port 2 to port 1 energized

## Operating Limits

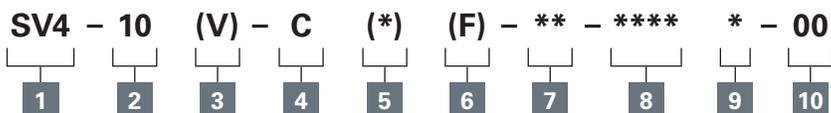
**A** - Port 2 to port 1  
**B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-C/CM/CR - Solenoid valve

Spool type, normally closed solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV4 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

C - Normally closed

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter option

Blank - None

F - Filter screen

### Dimensions

mm (inch)

### Cartridge only

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-175464*
6T	SAE 6	566151*
2G	1/4" BSPP	876702
3G	3/8" BSPP	876703
6H	SAE 6	876700
8H	SAE 8	876701

\*Light duty housing.  
See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

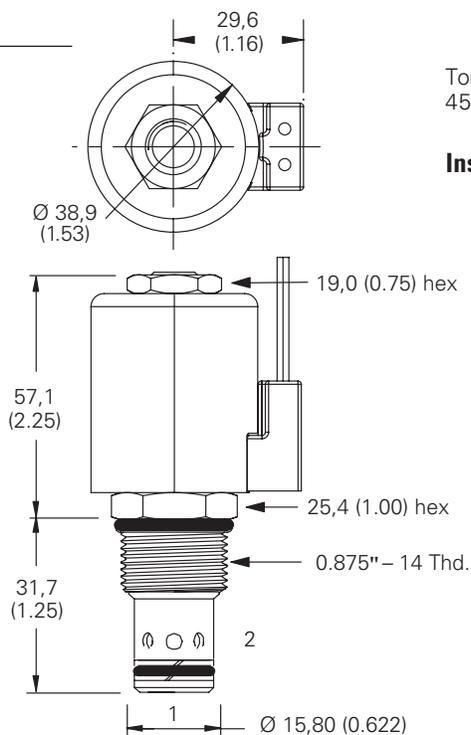
For coil part numbers and dimensions see section C.

### 10 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

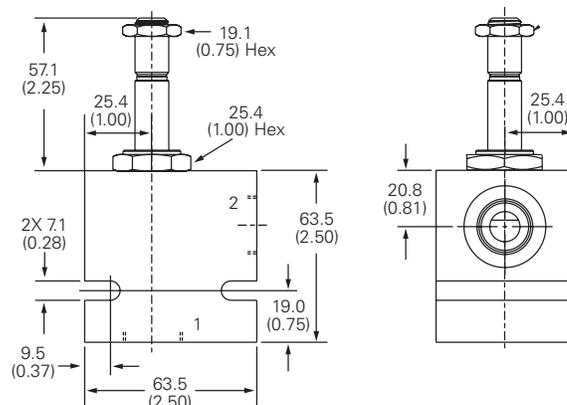
**Note:** Use J series, 23 W coils with this solenoid valve.



Torque cartridge in steel housing  
45-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

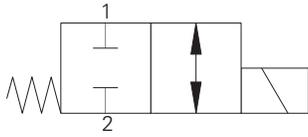
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-10-C/CM - Solenoid valve

Spool type, normally closed solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

A



## Operation

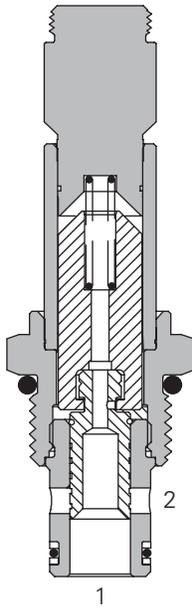
In the de-energized position the valve blocks flow in both directions.

When the solenoid is energized the spool moves allowing the valve to open in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	140 cm <sup>3</sup> /min (8.5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

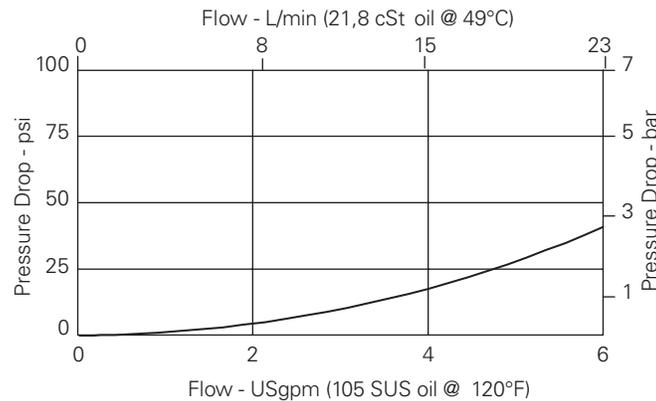
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, high pressure, direct acting, normally closed solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is de-energized.

## Pressure drop

Cartridge only



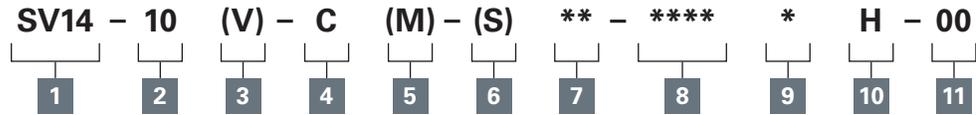
- A** - Port 2 to port 1 energized
- B** - Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-10-C/CM - Solenoid valve

Spool type, normally closed solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

## Model code



A

- 1 Function**  
SV14 - Solenoid valve

---

- 2 Size**  
10 - 10 size

---

- 3 Seal material**  
Blank - Buna-N  
V - Viton®

---

- 4 Style**  
C - Normally closed

---

- 5 Manual override option**  
Blank - No manual override  
M - Manual override  
  
For valve dimensions with manual override option installed see page A-980.

---

- 6 Valve housing material**  
Blank - Cartridge only  
S - Steel

**7 Port size**

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

**8 Voltage rating**

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

- 9 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

---

- 10 Coil series**  
H - 10 Series, 29 W  
For coil part numbers and dimensions see section C.

---

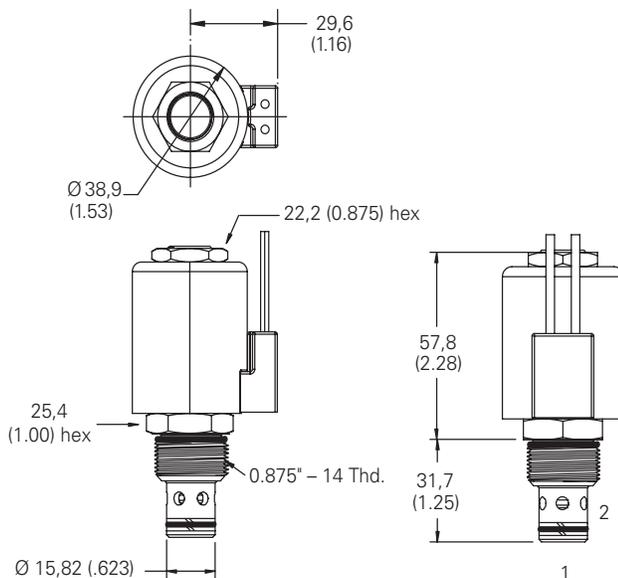
- 11 Special features**  
00 - None  
(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

Torque cartridge in steel housing 68-75 Nm (50-55 ft lbs)

## Cartridge only



**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

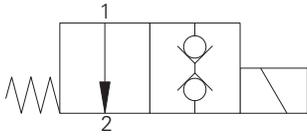
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S207 - Solenoid valve

Poppet type, normally open solenoid valve  
 Port 1 - 1 L/min (0.25 USgpm) • 350 bar (5000 psi)  
 Port 2 - 1 L/min (0.25 USgpm) • 210 bar (3000 psi)

A



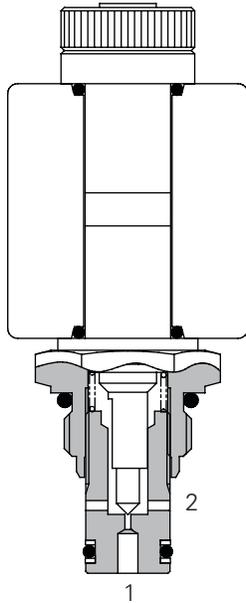
### Operation

In the de-energized position the valve allows free flow from port 1 to 2. When the solenoid is energized the poppet closes the valve blocking flow from port 1 to 2 and 2 to 1.

### Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with valves of same series.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with viscosity at 32 cST (150 SSU)

Max working pressure	Port 2 210 bar (3000 psi) Port 1 350 bar (5000 psi)
Rated flow	1 L/min (0.25 USgpm)
Internal leakage	0.3 ml/min (5 dpm) when energized 210 bar differential at 32 est.
Temperature range	-30° to 120°C (-22° to +248°F)
Cavity	A879 (see Section M)
Torque cartridge into cavity	20 Nm (15 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20, etc
Seal material	Standard Viton with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium
Cartridge material	Working parts hardened and ground steel. External surfaces zinc plated.
Coil Weight	0.2 kg (0.4 lbs)
Weight	0.1 kg (0.2 lbs)
Seal kit	SK1043V (Viton)
Coil part number	C13-*/22
Coil voltage available	12, 24 VDC, 110, 220, VAC*

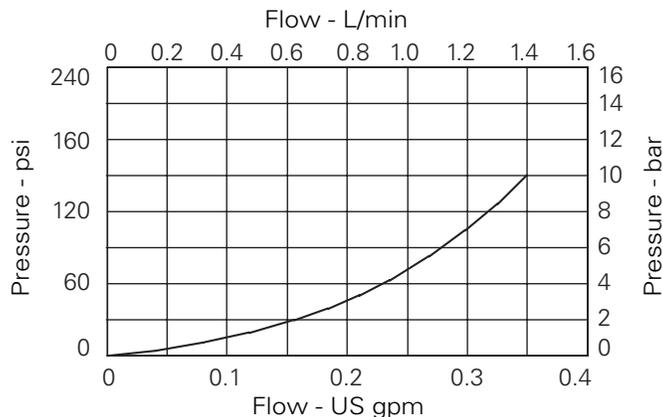
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

### Description

This is a 2-way, 2-position, poppet type, low flow, high pressure, normally open solenoid valve. This valve is used as a pilot valve to control pilot lines or as the pilot valve for logic elements. It can be used to vent systems up to 350 bar (5000psi) on the inlet port but the outlet port should be limited to 210 bar (3000psi).

### Pressure drop

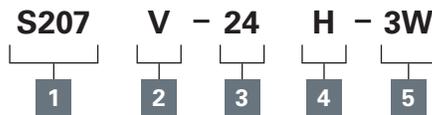


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S207 - Solenoid valve

Poppet type, normally open solenoid valve  
 Port 1 - 1 L/min (0.25 USgpm) • 350 bar (5000 psi)  
 Port 2 - 1 L/min (0.25 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
**S207** - Normally open

**2 Seal material**  
**V** - Viton®

**3 Voltage**  
**12** - 12 VDC  
**24** - 24 VDC  
**110** - 110 VAC  
**220** - 220 VAC

**4 Coil Termination**  
**H** - DIN43650  
**F** - Flying lead  
**DM** - Deutsch moulded

Other terminations available on request.

## 5 Port sizes

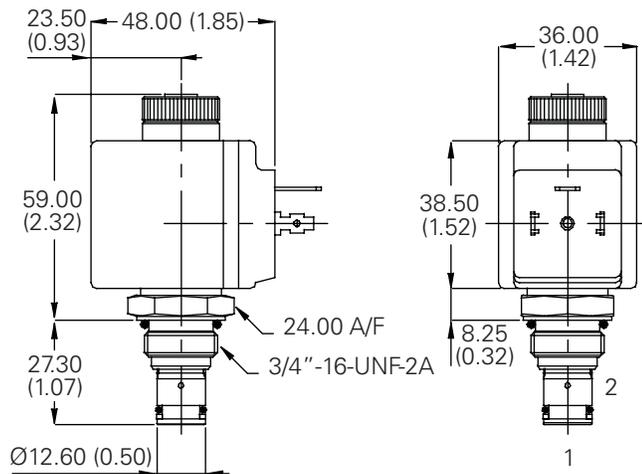
Code	Port size	Housing number - Body only	
		Aluminium	Steel
<b>2W</b>	1/4" BSP	A1485	
<b>3W</b>	3/8" BSP	A1043	A14175
<b>6T</b>	3/8" SAE	A15676	A14843

## Dimensions

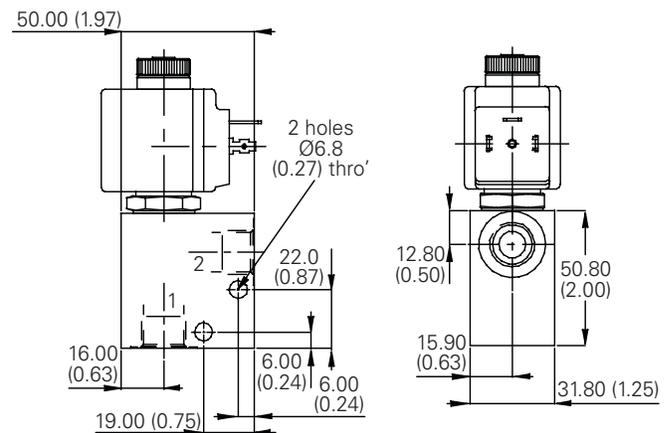
mm (inch)

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

## Cartridge only



## Installation drawing (Aluminum, steel)

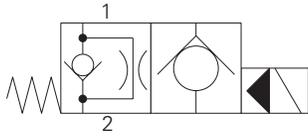


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

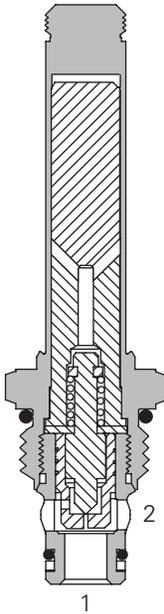
In the de-energized position the valve allows free flow from port 2 to 1 and a restricted flow through the pilot orifice from port 1 to 2.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	less than 5 drops/min, max @ 210 bar (3000 psi) with valve energized
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 24 ms. De-Energize: 25 ms
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

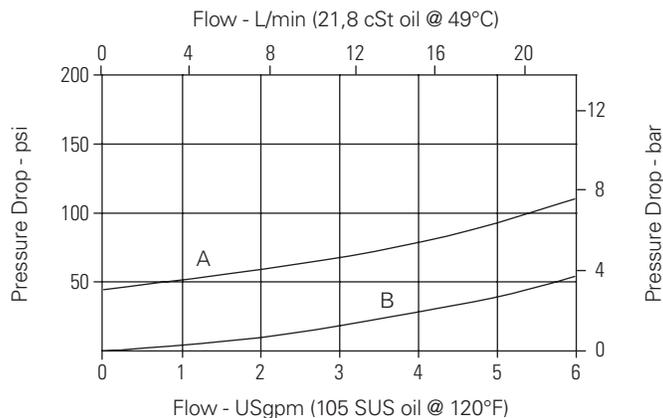
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



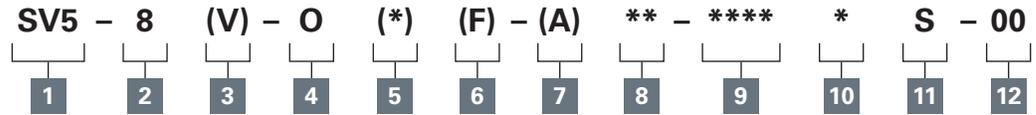
**A** - Port 1 to port 2 energized  
**B** - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



**1 Function**  
SV5 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
O - Normally open

**5 Manual override option**  
Blank - No manual override  
P - Push type  
S - Screw type  
  
For valve dimensions with manual override option installed see page A-980.

**6 Filter option**  
Blank - None  
F - Filter screen

### 8 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3G	3/8" BSPP	02-160728
4T	SAE 4	02-160730
6T	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housing details.

**9 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC

**7 Valve housing material**  
Omit for cartridge only  
A - Aluminum

24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

**10 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**11 Coil series**  
S - 8 series, 20 W

For coil part numbers and dimensions see section C.

**12 Special features**  
00 - None

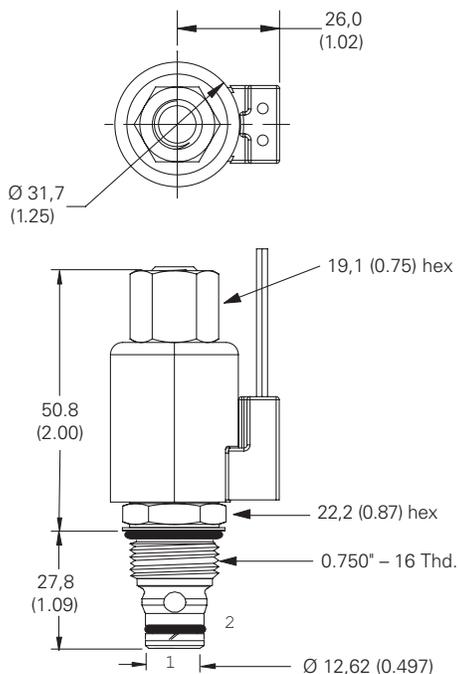
(Only required if valve has special features, omitted if "00".)

**Dimensions**  
mm (inch)

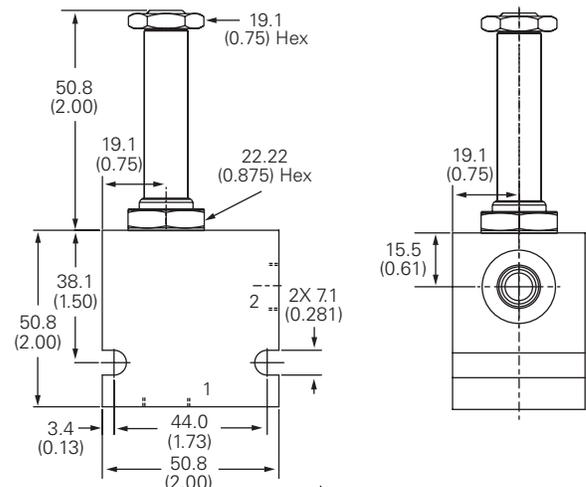
Torque cartridge in aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Cartridge only



### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

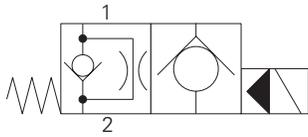
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
 37 L/min (10 USgpm) • 350 bar (5000 psi)

A



## Operation

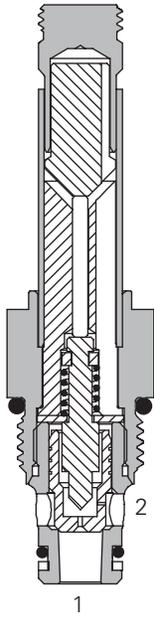
In the de-energized position the valve allows free flow from port 2 to 1 and a restricted flow through the pilot orifice from port 1 to 2.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	37 L/min (10 USgpm)
Internal leakage	5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

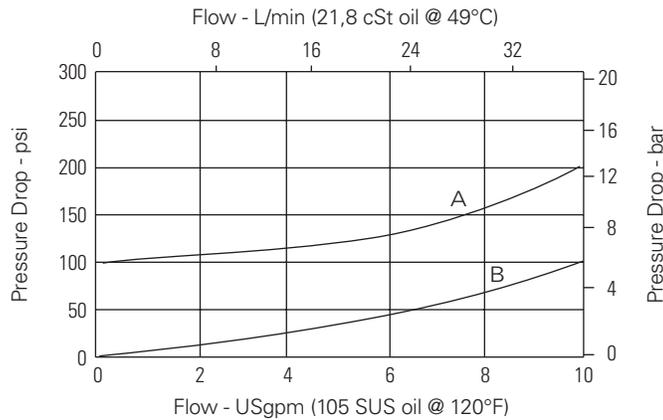
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



A - Port 1 to port 2 energized

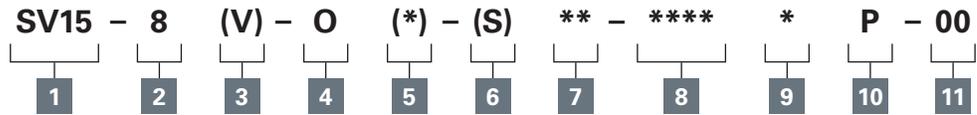
B - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
37 L/min (10 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV15 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

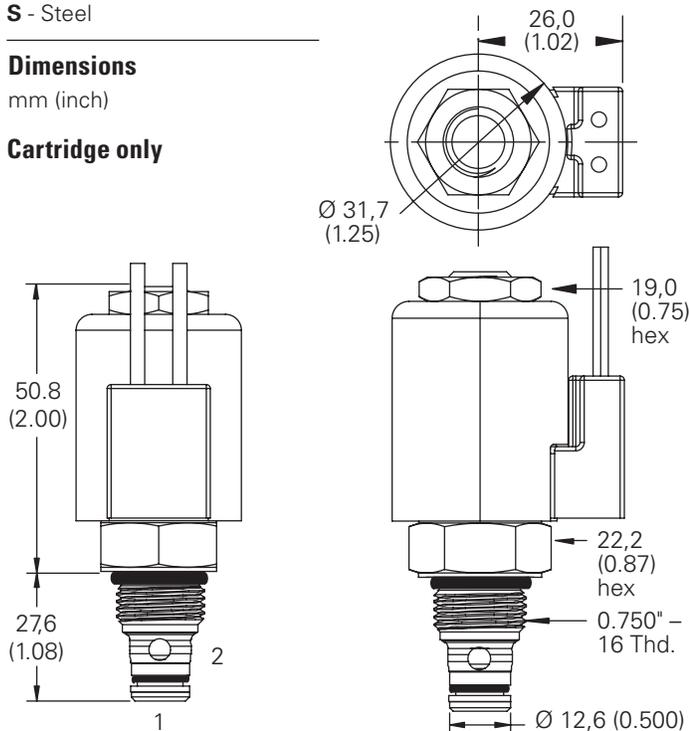
Blank - Cartridge only

S - Steel

### Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160733
3G	3/8" BSPP	02-160734
4T	SAE 4	02-160736
6T	SAE 6	02-160737
8T	SAE 8	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

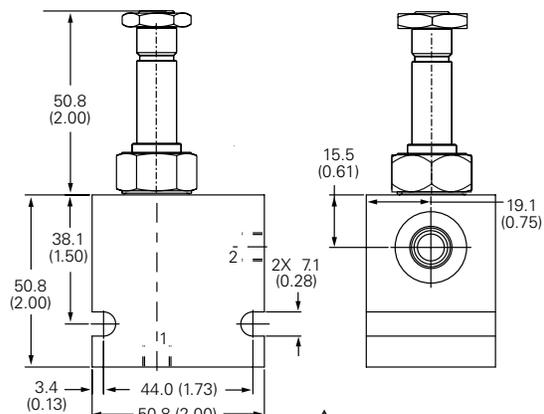
00 - None

(Only required if valve has special features, omitted if "00".)

Torque cartridge in steel housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

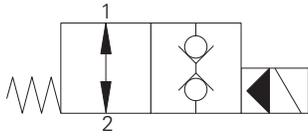
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-8-O - Solenoid Bi-directional valve

Bi-directional, normally open solenoid valve  
60 L/min (1.5 USgpm) • 350 bar (5000 psi)

A



## Operation

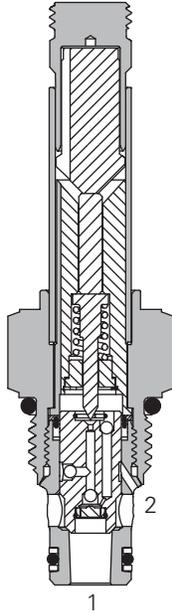
In the de-energized position the valve is open in both directions. A series of internal check valves allows full flow in both directions.

When the solenoid is energized the pilot poppet closes the pilot orifice causing the main poppet to close.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	60 L/min (15 USgpm)
Internal leakage, port 1 to port 2 & port 2 to port 1	5 drops/min max @ 350 bar (5000 psi) when energized
Temperature range	-40° to 100° C (-40° to 212° F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,12 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

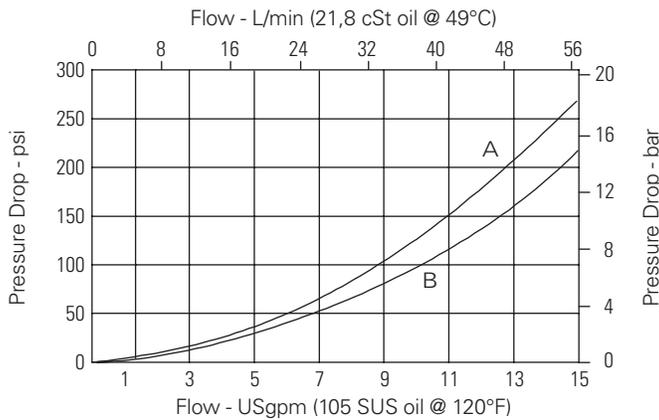
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally open poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



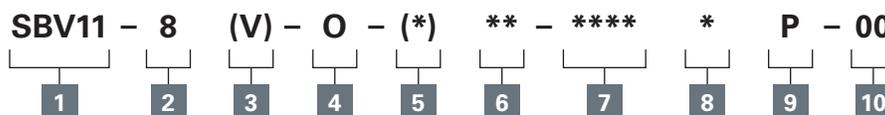
**A** - Port 1 to port 2  
**B** - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-8-O - Solenoid Bi-directional valve

Bi-directional, normally open solenoid valve  
60 L/min (15 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

**SBV11** - Solenoid  
bi-directional valve

### 2 Size

**8** - 8 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton®

### 4 Style

**O** - Normally open

### 5 Valve housing material

**Blank** - Cartridge only

**A** - Aluminum

**S** - Steel

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>0</b>	Cartridge only		
<b>2G</b>	1/4" BSPP	02-160727	02-160733
<b>3G</b>	3/8" BSPP	02-160728	02-160734
<b>4T</b>	SAE 4	02-160730	02-160736
<b>6T</b>	SAE 6	02-160731	02-160737
<b>8T</b>	SAE 8	02-160732	02-160738

See section J for housing details.

### 7 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Flying lead

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male  
(DC only)

**J** - Metripack 280 male  
(DC only)

### 9 Coil series

**P** - 8 Series, 23 W

For coil part numbers and  
dimensions see section C.

### 10 Special features

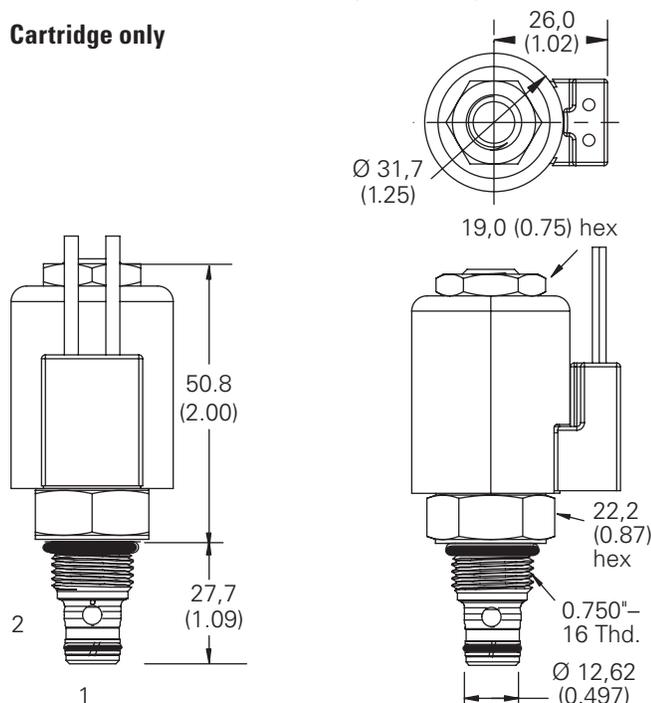
**00** - None

(Only required if valve has special features,  
omitted if "00".)

## Dimensions

mm (inch)

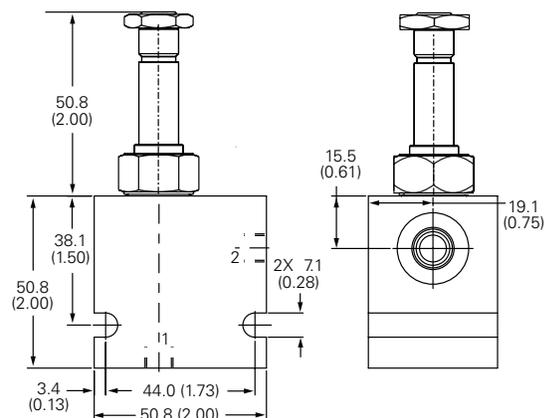
### Cartridge only



Torque cartridge in aluminum  
or steel housing 34-41 Nm  
(25-30 ft lbs)

**Note:** When solenoid valve  
is ordered as cartridge only, coil  
nut is included.

### Installation drawing (Steel)



### Warning

Maintain 5-8 Nm (4-6 ft lbs)  
maximum torque on valve  
tube nut.

Over tightening may cause  
valve failure.

### Warning

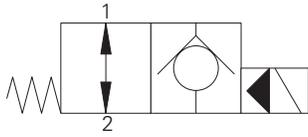
Aluminum housings can be  
used for pressures up to 210  
bar (3000 psi). Steel housings  
must be used for operating  
pressures above 210 bar  
(3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

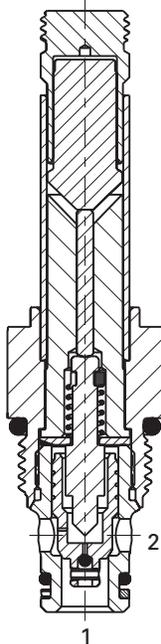
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	less than 5 drops/min, max @ 210 bar (3000 psi) with valve energized
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 24 ms. De-Energize: 25 ms
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N) 02-165877 (Viton®)

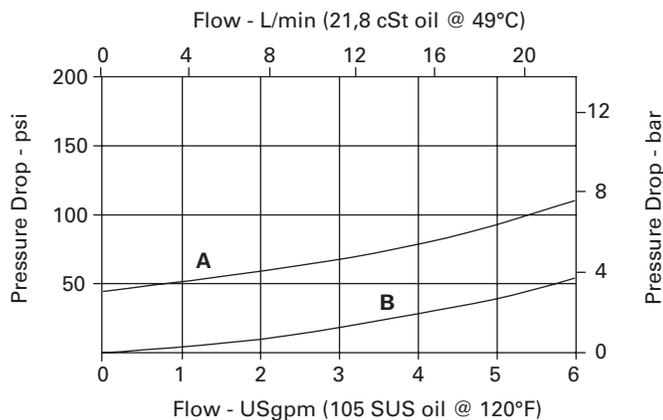
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge Only



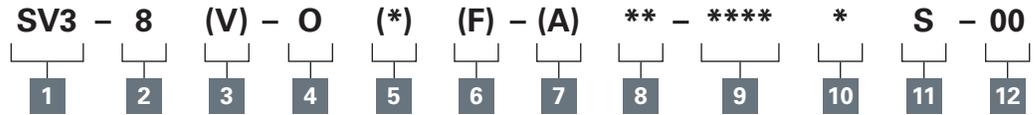
- A - Port 1 to port 2 energized
- B - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-8-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



**1 Function**  
SV3 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
O - Normally open

**5 Manual override option**  
Blank - No manual override  
P - Push type  
S - Screw type  
  
For valve dimensions with manual override option installed see page A-980.

**6 Filter option**  
Blank - None  
F - Filter screen

### 8 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3G	3/8" BSPP	02-160728
4T	SAE 4	02-160730
6T	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housing details.

**9 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC

**7 Valve housing material**  
Omit for cartridge only  
A - Aluminum

24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

**10 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**11 Coil series**  
S - 8 series, 20 W

For coil part numbers and dimensions see section C.

**12 Special features**  
00 - None

(Only required if valve has special features, omitted if "00".)

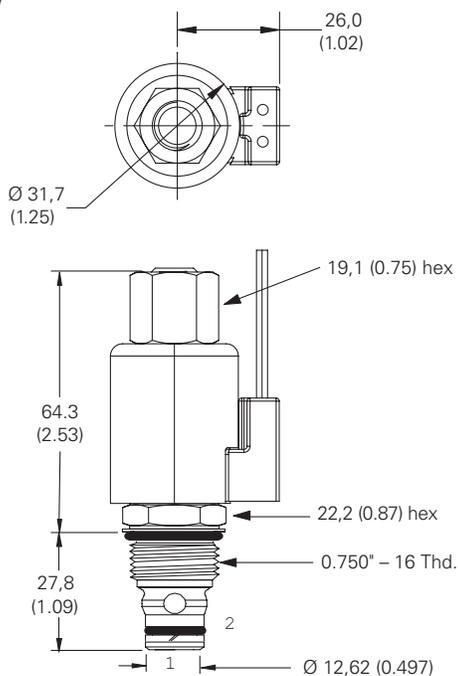
## Dimensions

mm (inch)

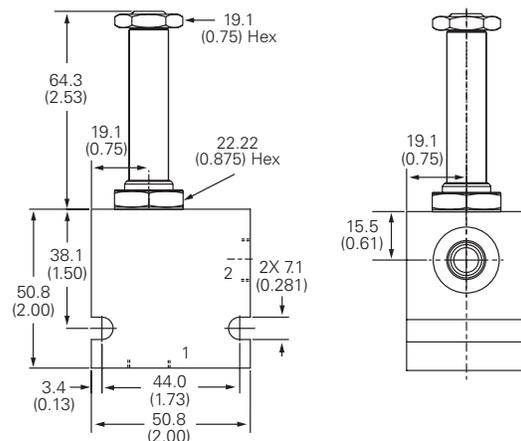
Torque cartridge in aluminum housing 34-41 Nm (25- 30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Cartridge only



### Installation drawing



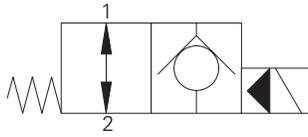
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve (free reverse flow)  
 45 L/min (12 USgpm) • 210 bar (3000 psi)

A



### Operation

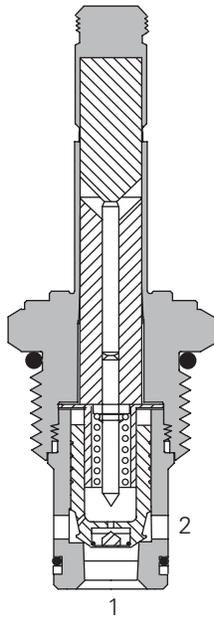
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

### Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

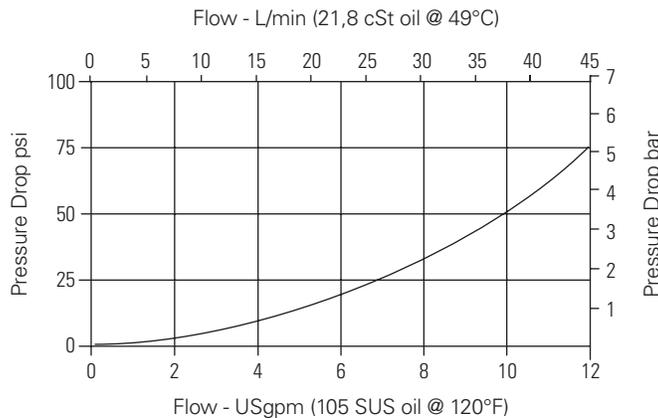
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop

Cartridge only



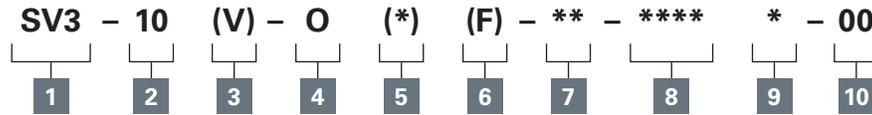
Port 1 to port 2 and port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve (free reverse flow)  
45 L/min (12 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

**SV3** - Solenoid valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton®

### 4 Style

**O** - Normally open

### 5 Manual override option

**Blank** - No manual override

**P** - Push type

**S** - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter option

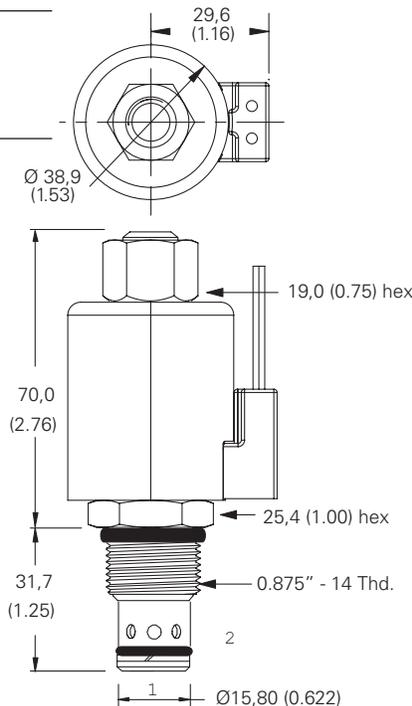
**Blank** - None

**S** - Filter Screen

### Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
<b>0</b>	Cartridge only	
<b>3B</b>	3/8" BSPP	02-175462*
<b>6T</b>	SAE 6	566151*
<b>2G</b>	1/4" BSPP	876702
<b>3G</b>	3/8" BSPP	876703
<b>6H</b>	SAE 6	876700
<b>8H</b>	SAE 8	876701

\*Light duty housing.  
See section J for housing details.

### 8 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**12B** - 12VDC/w diode\*

**24A** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Flying lead

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Special features

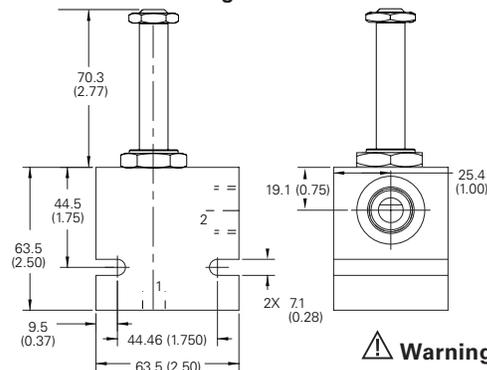
**00** - None

(Only required if valve has special features, omitted if "00".)

Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

**Note:** Use J series, 23 W coils with this solenoid valve.

### Installation drawing



**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

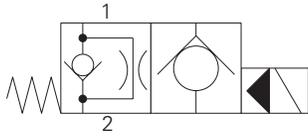
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
45 L/min (12 USgpm) • 210 bar (3000 psi)

A



## Operation

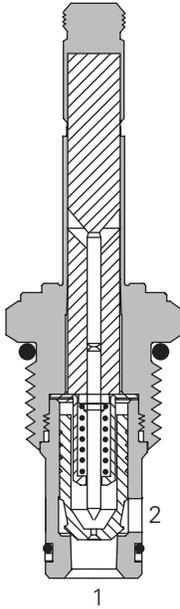
In the de-energized position the valve allows free flow from port 2 to 1 and a restricted flow through the pilot orifice from port 1 to 2.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	Less than 5 drops/min max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565806 (Buna-N), 566086 (Viton®)

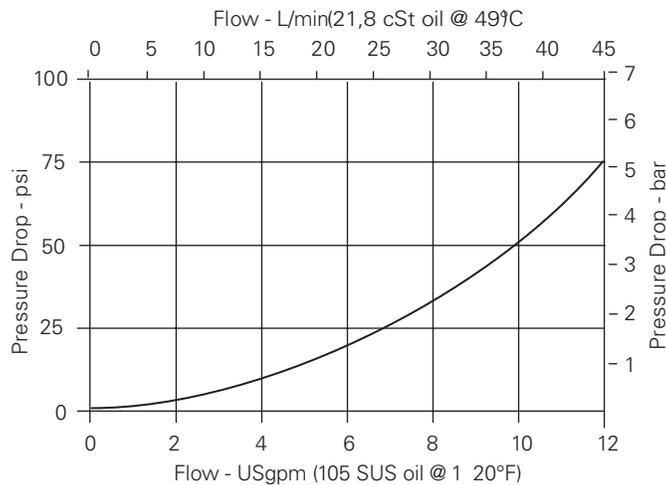
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



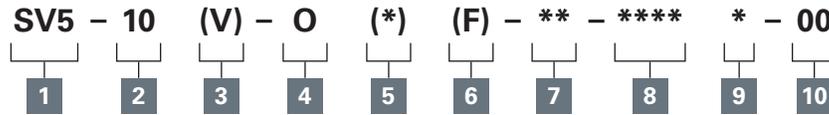
Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
45 L/min (12 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV5 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton\*

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Filter option

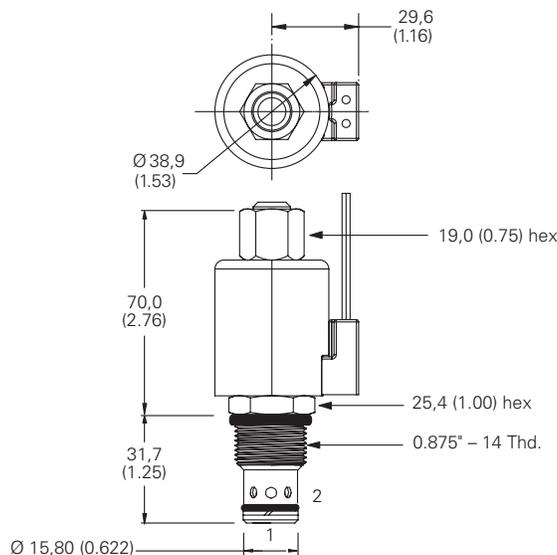
Blank - None

F - Filter screen

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-175464*
6T	SAE 6	566151*
2G	1/4" BSPP	876702
3G	3/8" BSPP	876703
6H	SAE 6	876700
8H	SAE 8	876701

\*Light duty housing.  
See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

**Note:** Use J series, 23 W coils with this solenoid valve.

Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

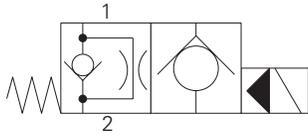
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
45 L/min (12 USgpm) • 350 bar (5000 psi)

A



## Operation

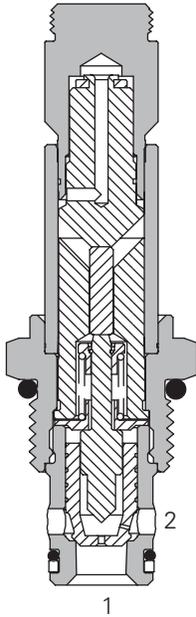
In the de-energized position the valve allows free flow from port 2 to 1 and a restricted flow through the pilot orifice from port 1 to 2.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

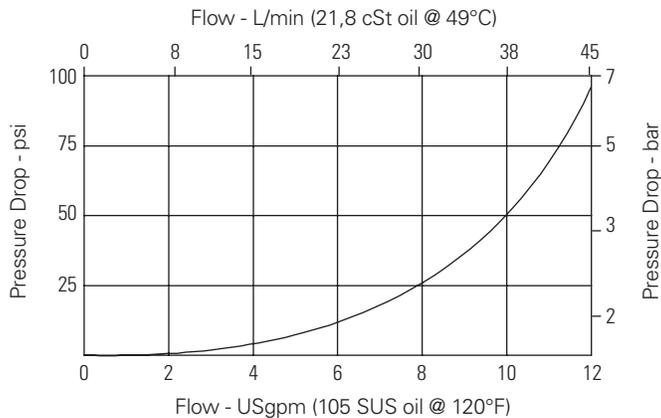
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



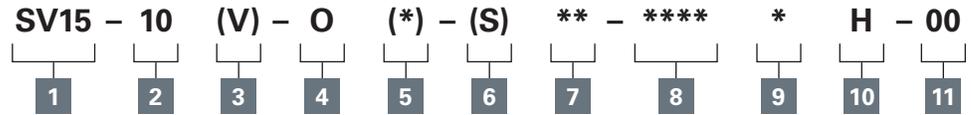
Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
45 L/min (12 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV15 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

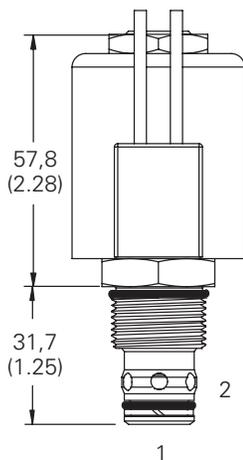
Blank - Cartridge only

S - Steel

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

### 8 Voltage rating

- 00 - No coil
- 12D - 12VDC
- 24D - 24VDC
- 36D - 36VDC
- 24A - 24VAC
- 115A - 115VAC
- 230A - 230VAC
- 12B - 12VDC/w diode\*
- 24A - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

- Blank - No coil
- G - ISO 4400 DIN 43650
- Q - Spade terminals
- W - Leadwire
- N - Deutsch (DC only)
- Y - Amp JR (DC only)
- D - Metripack 150 male (DC only)
- J - Metripack 280 male (DC only)

### 10 Coil series

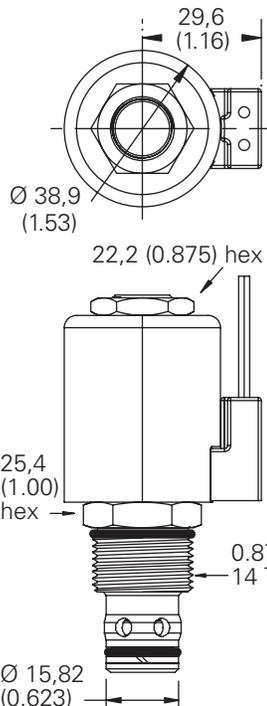
H - 10 series, 29W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

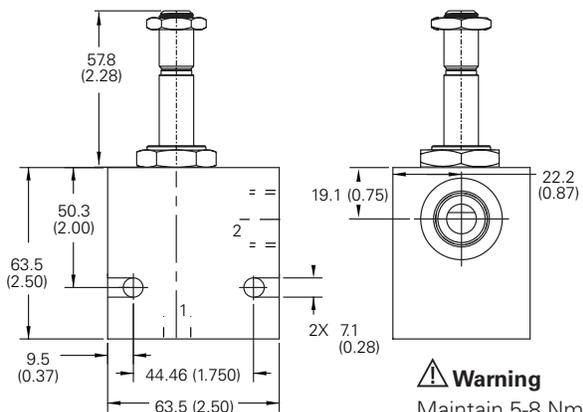
(Only required if valve has special features, omitted if "00".)



Torque cartridge in aluminum housing 68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

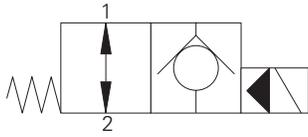
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve (free reverse flow)  
45 L/min (12 USgpm) • 350 bar (5000 psi)

A



## Operation

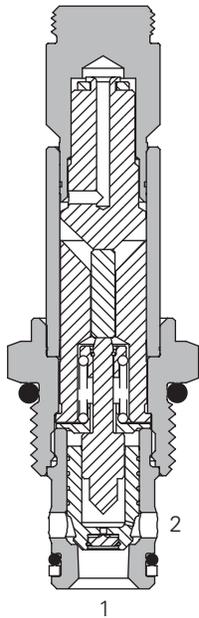
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight including coil	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

Viton is a registered trademark of E.I. DuPont

## Description

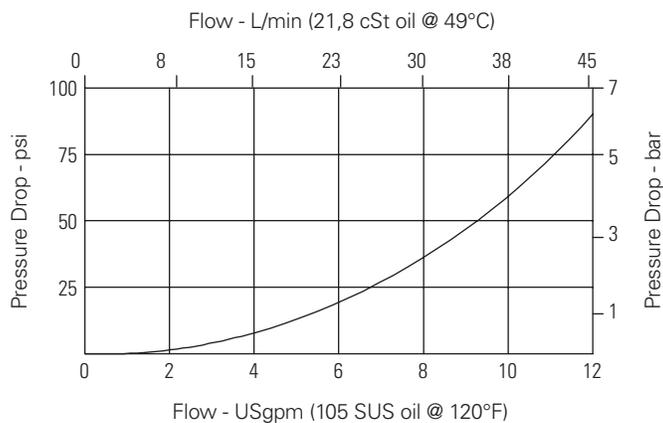
This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Application Note:

This valve is pilot operated and requires a minimum flow of 1-2 L/min (0.3-0.5 USgpm) in order to shift. For operation at very low flow conditions contact your Eaton representative.

## Pressure drop

Cartridge only



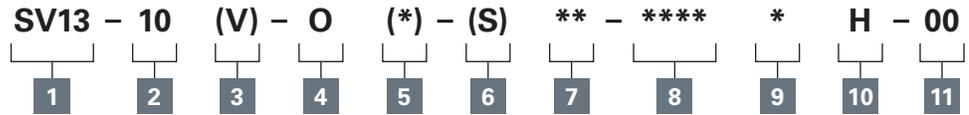
Port 1 to port 2 and port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-10-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve (free reverse flow)  
45 L/min (12 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton<sup>®</sup>

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

### 8 Voltage rating

00	No coil
12D	12VDC
24D	24VDC
36D	36VDC
24A	24VAC
115A	115VAC
230A	230VAC
12B	12VDC/w diode*
24B	24VDC/w diode*

\*Optional arc suppression diode.

### 9 Connector types

Blank	No coil
G	ISO 4400 DIN 43650
Q	Spade terminals
W	Flying lead
N	Deutsch (DC only)
Y	Amp JR (DC only)
D	Metripack 150 male (DC only)
J	Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29W

For coil part numbers and dimensions see section C.

### 11 Special features

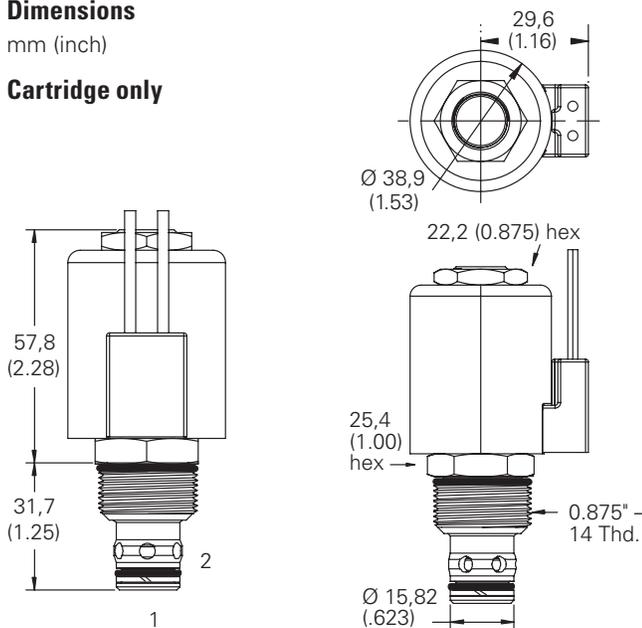
00 - None

(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

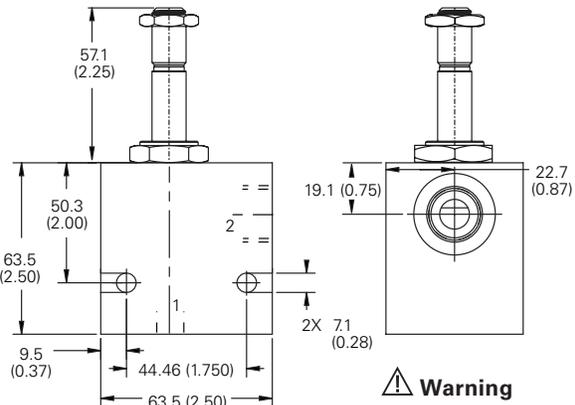
### Cartridge only



Torque cartridge in steel housing 68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

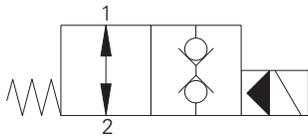
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-10-O - Solenoid Bi-directional valve

Bi-directional, normally open solenoid valve  
76 L/min (20 USgpm) • 350 bar (5000 psi)

A



## Operation

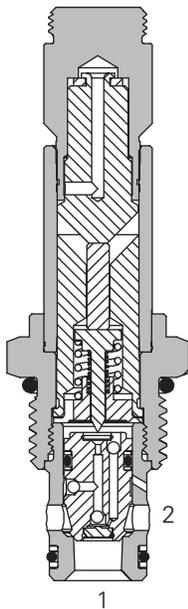
In the de-energized position the valve is open in both directions. A series of internal check valves allows full flow in both directions.

When the solenoid is energized the pilot poppet closes the pilot orifice causing the main poppet to close.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage, port 1 to port 2 or port 2 to port 1	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or Steel
Weight including coil	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

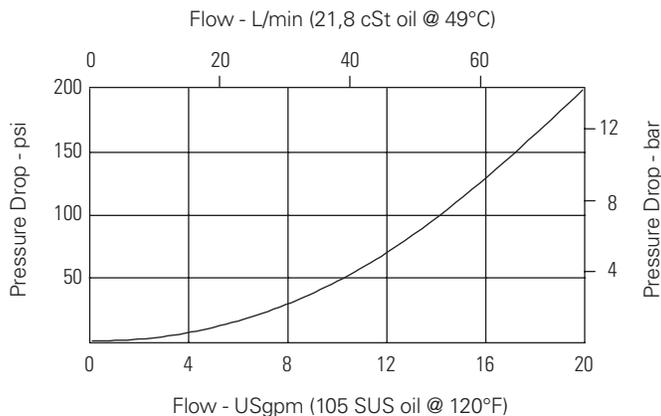
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally open poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



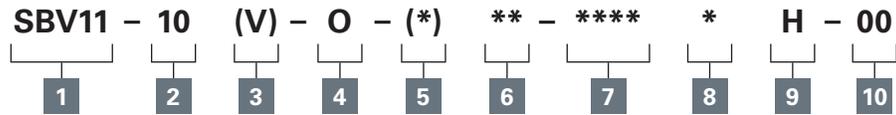
Port 1 to port 2 or port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-10-O - Solenoid Bi-directional valve

Bi-directional, normally open solenoid valve  
76 L/min (20 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

**SBV11** - Solenoid  
bi-directional valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton\*

### 4 Style

**O** - Normally open

### 5 Valve housing material

**Blank** - Cartridge only

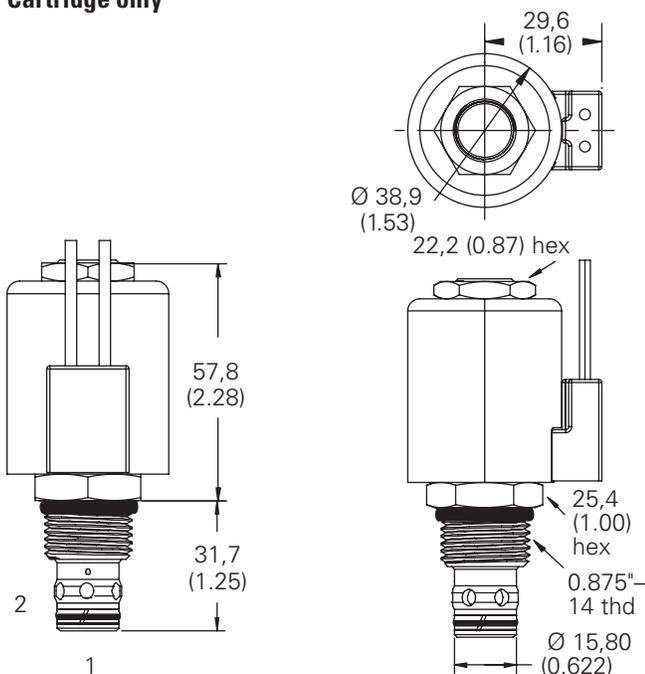
**A** - Aluminum

**S** - Steel

### Dimensions

mm (inch)

### Cartridge only



### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
<b>0</b>	Cartridge only		
<b>2G</b>	1/4" BSPP	876702	02-175102
<b>3G</b>	3/8" BSPP	876703	02-175103
<b>3B</b>	3/8" BSPP	02-175462*	-
<b>6H</b>	SAE 6	876700	-
<b>6T</b>	SAE 6	566151*	02-175100
<b>8H</b>	SAE 8	876701	-
<b>8T</b>	SAE 8	-	02-175101

\*Light duty housing.  
See section J for housing details.

### 7 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Flying lead

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

### 9 Coil series

**H** - 10 series, 29W

For coil part numbers and dimensions see section C.

### 10 Special features

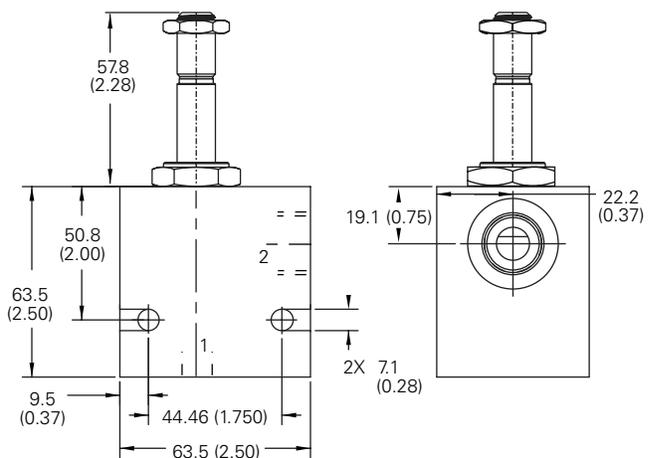
**00** - None

(Only required if valve has special features, omitted if "00".)

Torque cartridge in housing  
**A** - 47-54 Nm (35-40 ft lbs)  
**S** - 68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing (Steel)



#### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

#### Warning

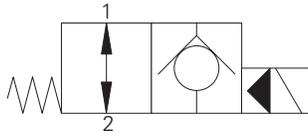
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-12-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 210 bar (3000 psi)

A



## Operation

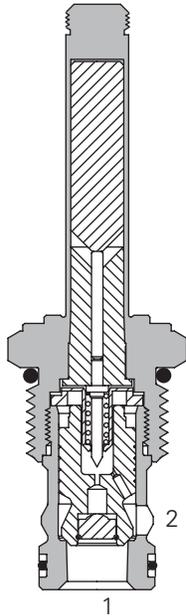
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi@15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 17/15/12
Housing material (standard)	Aluminum
Weight including coil	0,336 kg (0.74 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

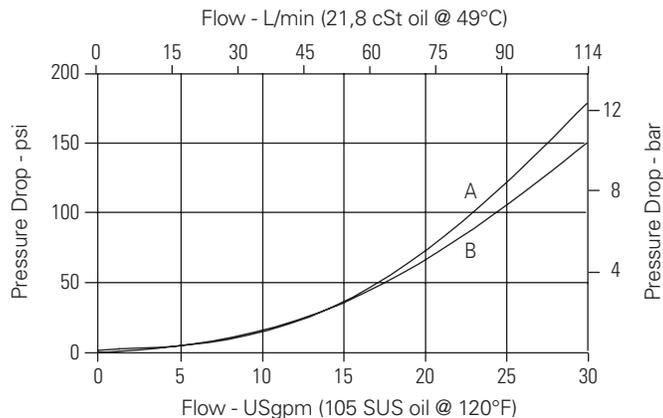
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



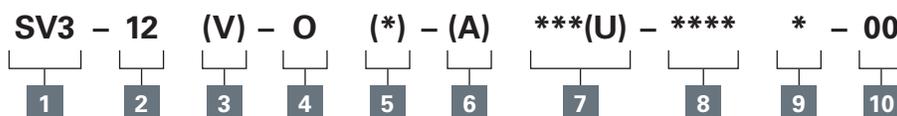
- A - Port 2 to port 1 de-energized
- B - Port 1 to port 2 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-12-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV3 - Solenoid valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Omit for cartridge only

A - Aluminum

### 7 Port size

Code	Port size	Housing number	Cavity
0	Cartridge only		
4G	1/2" BSPP	02-161118	C-12-2
6G	3/4" BSPP	02-161117	C-12-2
10T	SAE 10	02-160640	C-12-2
12T	SAE 12	02-160644	C-12-2
4GU	1/2" BSPP	02-161116	C-12-2U
6GU	3/4" BSPP	02-161115	C-12-2U
10TU	SAE 10	02-160641	C-12-2U
12TU	SAE 12	02-160645	C-12-2U

See section J for housing details.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For dimensions see section C.

### 10 Special features

00 - None

(Only required if valve has special features, omitted if "00.")

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

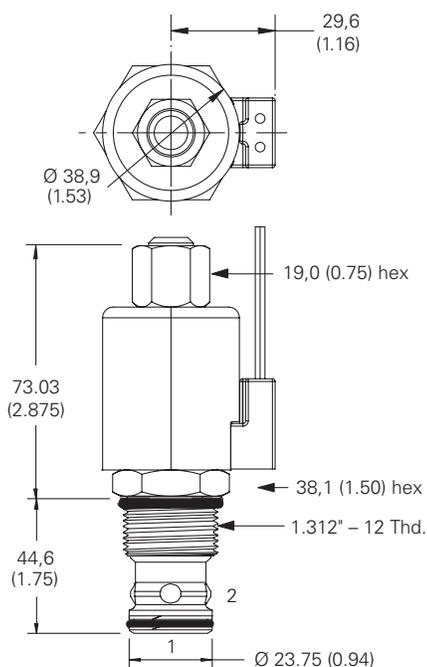
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

## Dimensions

mm (inch)

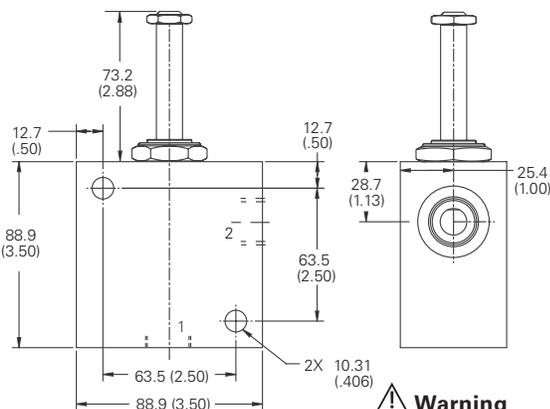
### Cartridge only



Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

Note: Use J series, 23 W coils with this solenoid valve.

### Installation drawing



Note: When solenoid valve is ordered as cartridge only, coil nut is included.

### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

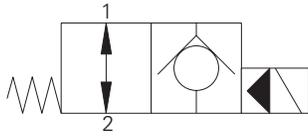
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-12-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

A



## Operation

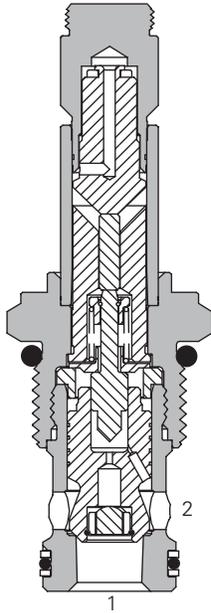
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage	less than 5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi@15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight including coil	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

Viton is a registered trademark of E.I. DuPont

## Description

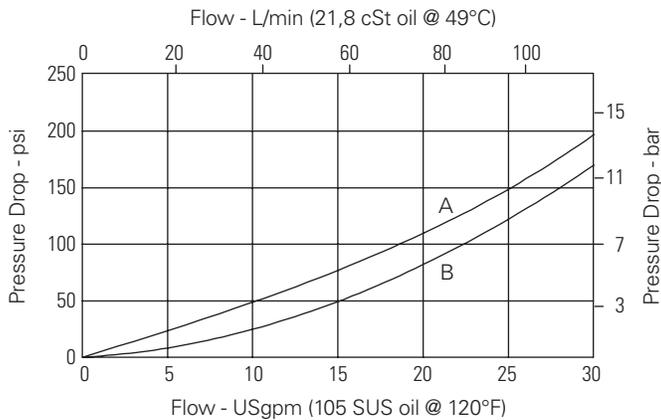
This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Application Note:

This valve is pilot operated and requires a minimum flow of 1-2 L/min (0.3-0.5 USgpm) in order to shift. For operation at very low flow conditions contact your Eaton representative.

## Pressure drop

Cartridge only



A - Port 1 to port 2 de-energized

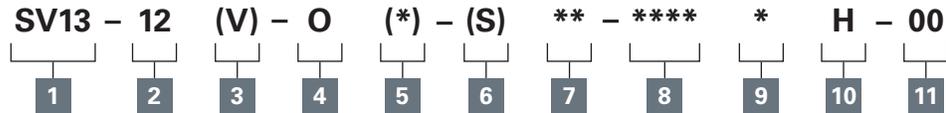
B - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-12-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

12 - 12 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
4G	1/2" BSPP	02-175062
4GU	1/2" BSPP	02-172512
6G	3/4" BSPP	02-169665
6GU	3/4" BSPP	02-162922
10T	SAE 10	02-169744
10TU	SAE 10	02-169817
12T	SAE 12	02-169782
12TU	SAE 12	02-169790

See section J for housings.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W

For coil dimensions see section C.

### 11 Special features

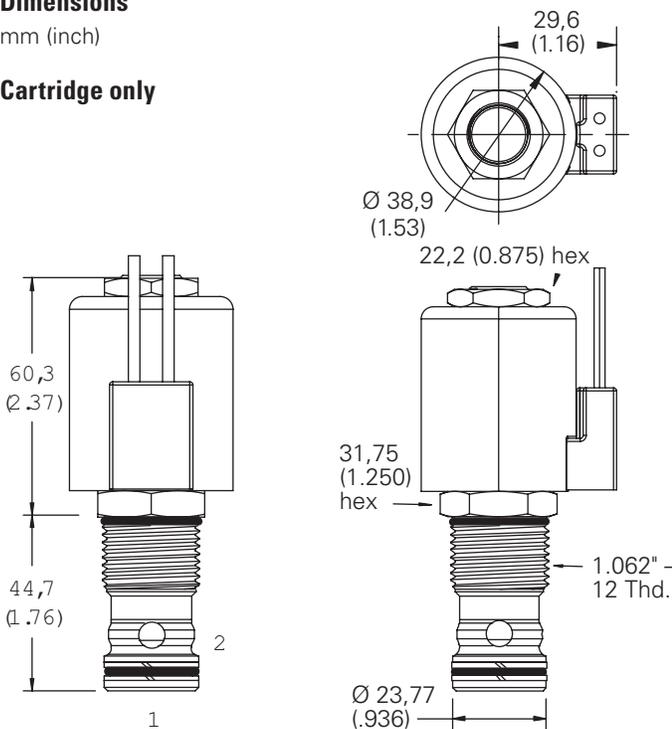
00 - None

(Only required if valve has special features, omitted if "00.")

## Dimensions

mm (inch)

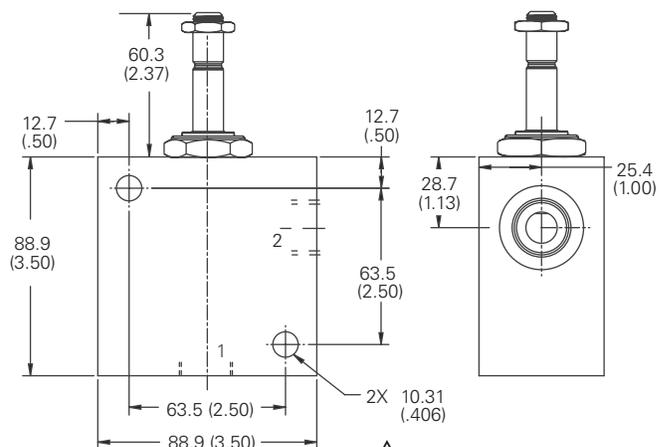
### Cartridge only



Torque cartridge in steel housing  
102-115 Nm (75-85 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

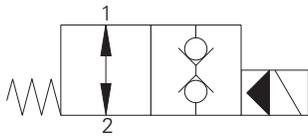
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-12-O - Solenoid valve

Bi-directional, poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

A



## Operation

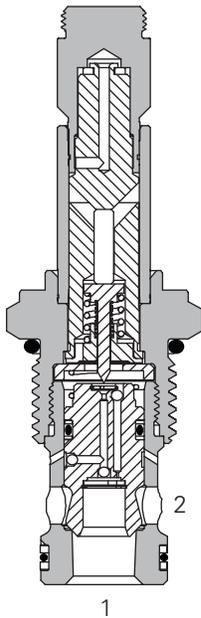
In the de-energized position the valve is open in both directions. A series of internal check valves allows full flow in both directions.

When the solenoid is energized the pilot poppet closes the pilot orifice causing the main poppet to close.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage	5 drops/min, max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-2 or C-12-2U Add "U" after number if undercut is required. If undercut is not specified, expect 10 psi@15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight including coil	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

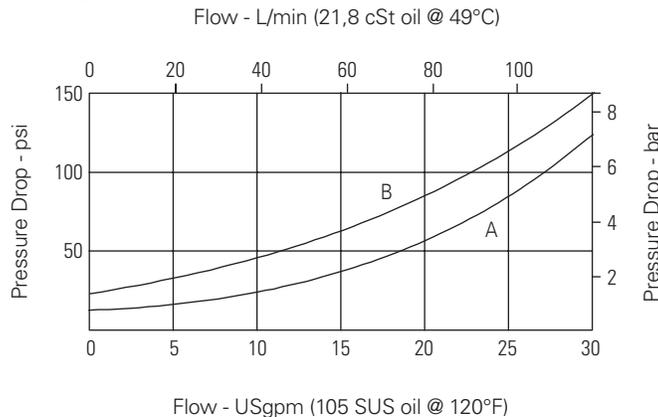
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally open poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



A - Port 1 to port 2

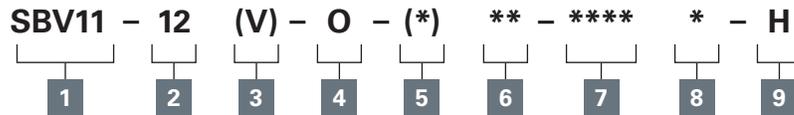
B - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SBV11-12-O - Solenoid valve

Bi-directional, poppet type, normally open solenoid valve  
114 L/min (30 USgpm) • 350 bar (5000 psi)

## Model code



A

- 1 Function**  
SBV11 - Solenoid bi-directional valve

---

- 2 Size**  
12 - 12 size

---

- 3 Seal material**  
Blank - Buna-N  
V - Viton®

---

- 4 Style**  
O - Normally open

---

- 5 Valve housing material**  
Blank - Cartridge only  
A - Aluminum  
S - Steel

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
4G	1/2" BSPP	02-161118	02-172062
4GU	1/2" BSPP	02-161116	02-172512
6G	3/4" BSPP	02-161117	02-169665
6GU	3/4" BSPP	02-161115	02-162922
10T	SAE 10	02-160640	02-169744
10TU	SAE 10	02-160641	02-169817
12T	SAE 12	02-160644	02-169782
12TU	SAE 12	02-160645	02-169790

See section J for housings.

- 6 Port size**
- 7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.

- 8 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

- 9 Coil series**  
H - 10 series, 29 W

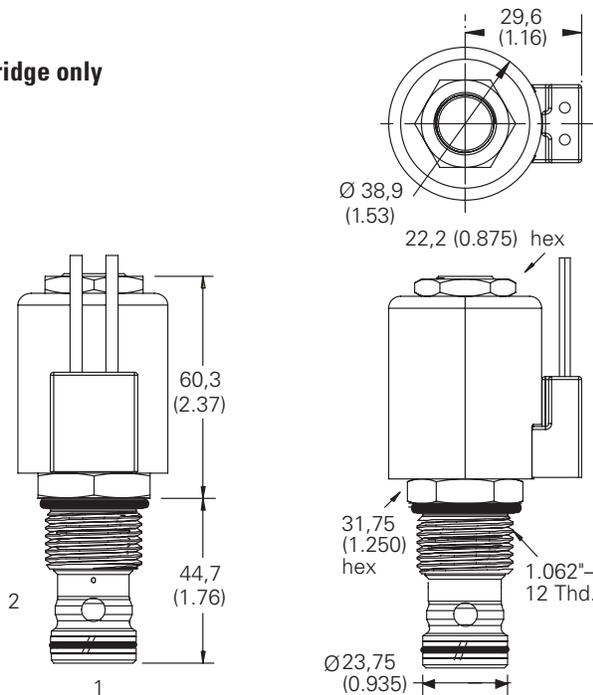
For coil dimensions see section C.

- 10 Special features**  
00 - None  
(Only required if valve has special features, omitted if "00.")

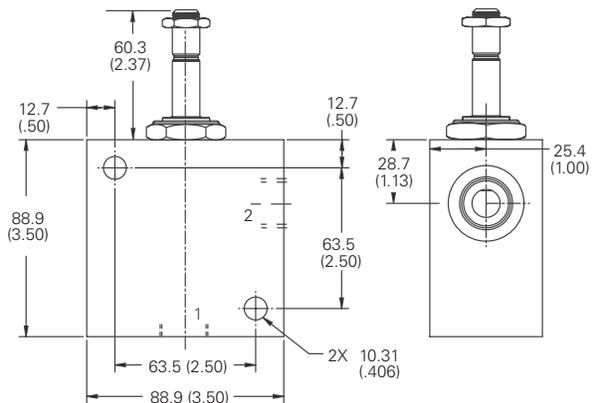
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing (Steel)



**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

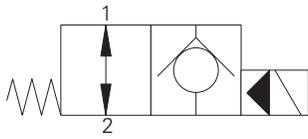
**Warning**  
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings must be used for operating pressures above 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-16-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
132 L/min (35 USgpm) • 210 bar (3000 psi)

A



## Operation

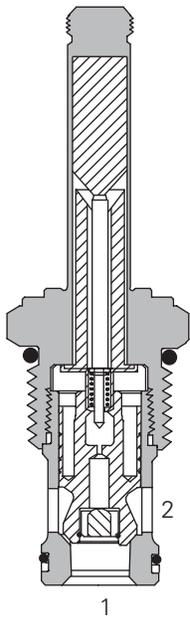
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min, max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,9 kg (1.98 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®)

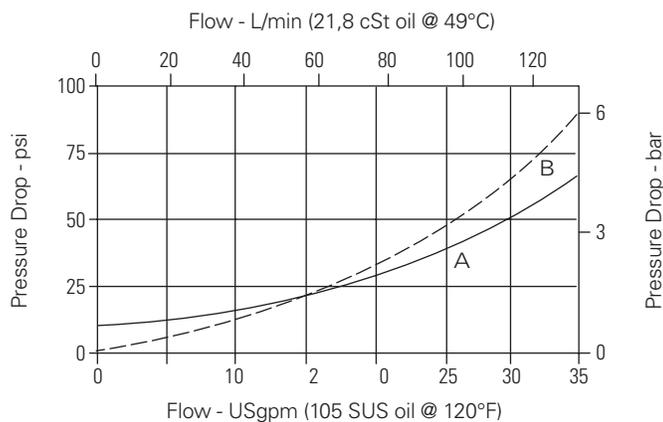
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



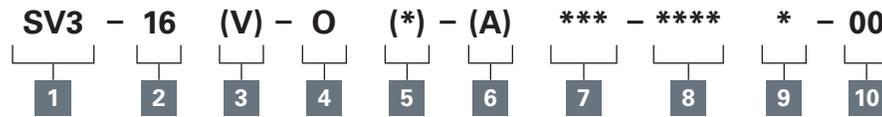
- A** - Port 1 to port 2 energized
- B** - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-16-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
132 L/min (35 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV3 - Solenoid valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Omit for cartridge only

A - Aluminum

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
6B	3/4" BSPP	02-175463*
12T	SAE 12	566149*
6G	3/4" BSPP	876718
10H	SAE 10	876717
12H	SAE 12	566113

\*Light duty housing  
See section J for housings.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil dimensions see section C.

### 10 Special features

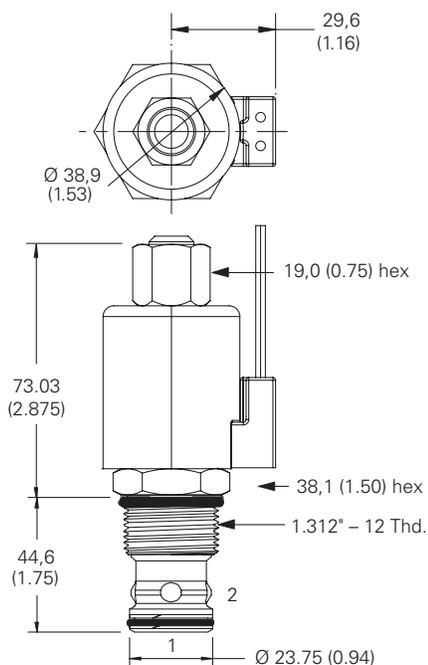
00 - None

(Only required if valve has special features, omitted if "00.")

## Dimensions

mm (inch)

### Cartridge only

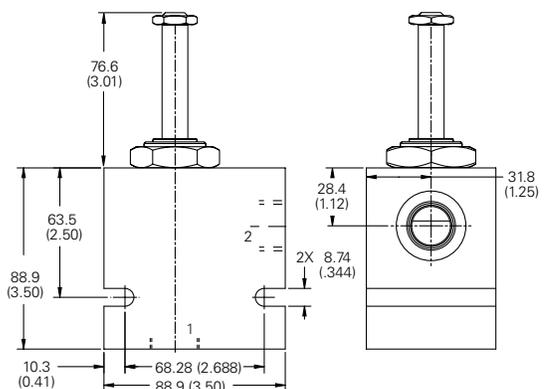


Torque cartridge in aluminum housing 108-122 Nm (80-90 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

**Note:** When J series, 23 W coils with this solenoid valve.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

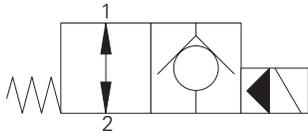
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-16-O/OP/OS - Solenoid valve

Poppet type normally open solenoid valve  
132 L/min (35 USgpm) • 350 bar (5000 psi)

A



## Operation

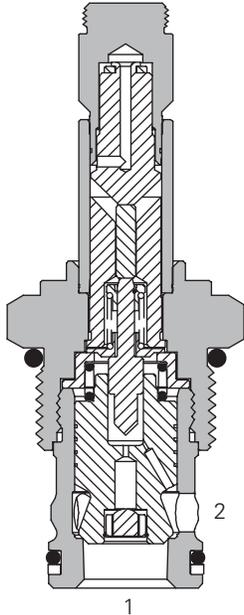
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage	less than 5 drops/min max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®)

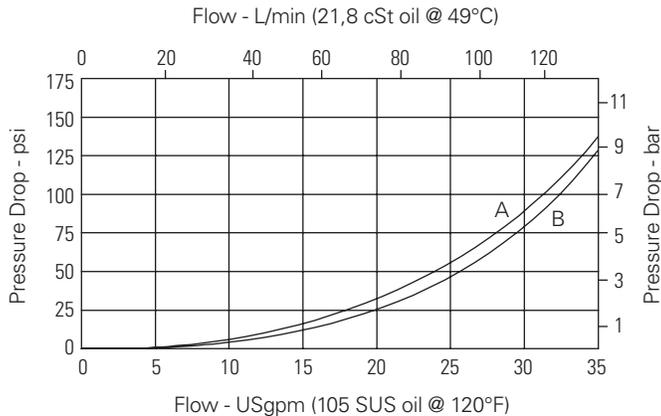
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



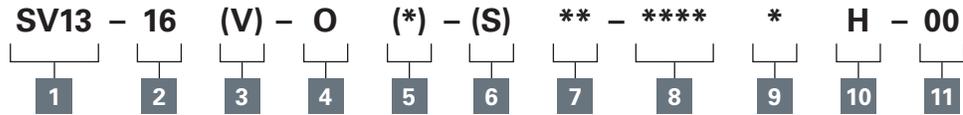
- A** - Port 2 to port 1 de-energized
- B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-16-O/OP/OS - Solenoid valve

Poppet type normally open solenoid valve  
132 L/min (35 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV13 - Solenoid valve

### 2 Size

16 - 16 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override  
P - Push type  
S - Screw type  
For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only  
S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
4G	1/2" BSPP	02-175106
6G	3/4" BSPP	02-175107
10T	SAE 10	02-175104
12T	SAE 12	02-175105

See section J for housing details.

### 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W  
For coil part numbers and dimensions see section C.

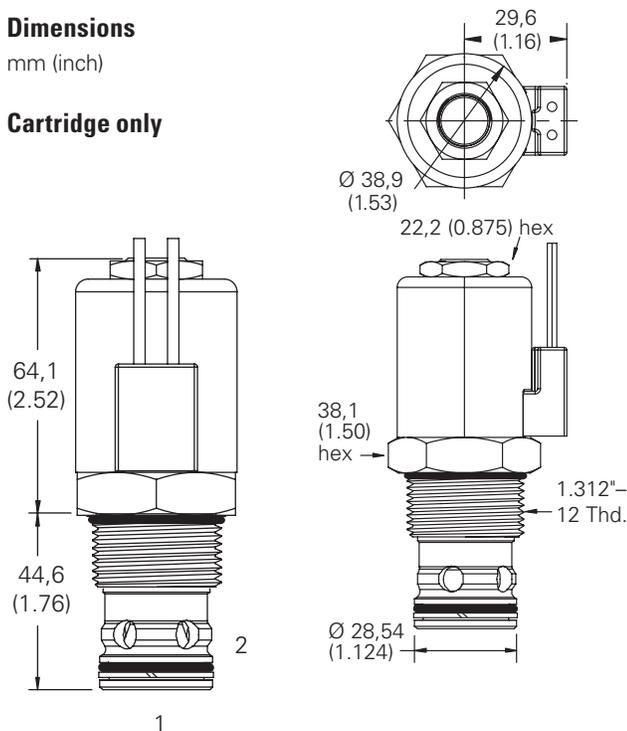
### 11 Special features

00 - None  
(Only required if valve has Special features, omitted if "00".)

## Dimensions

mm (inch)

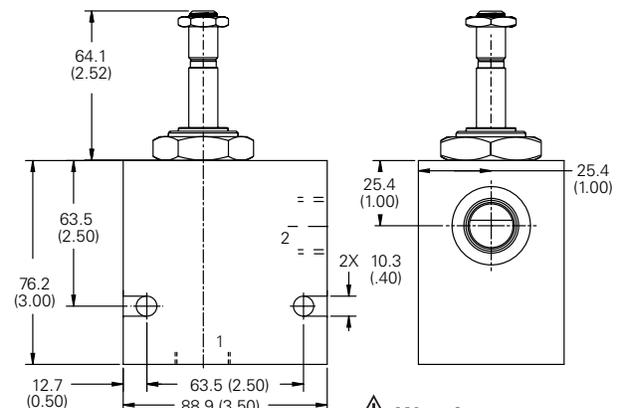
### Cartridge only



Torque cartridge in steel housing 136-149 Nm (100-110 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing



### Warning

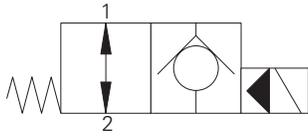
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-20-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
227 L/min (60 USgpm) • 210 bar (3000 psi)

A



## Operation

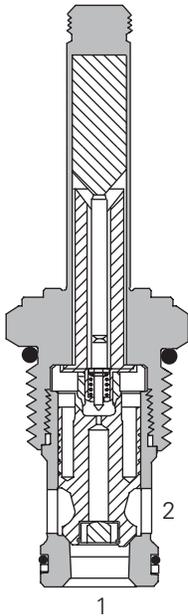
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Engize: 75 ms De-Engize: 150 ms
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	1,2 kg (2.70 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

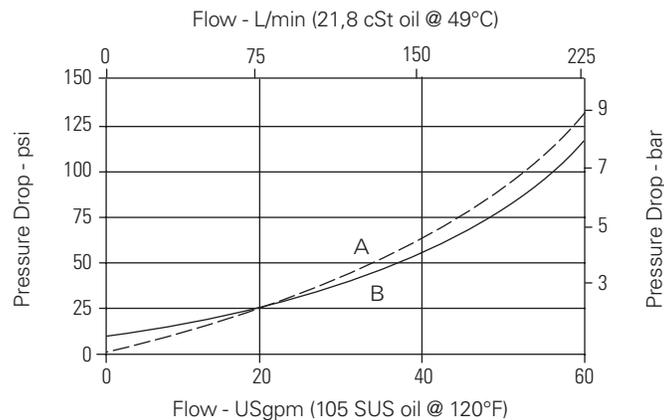
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



**A** - Port 2 to port 1 and port 1 to port 2 de-energized

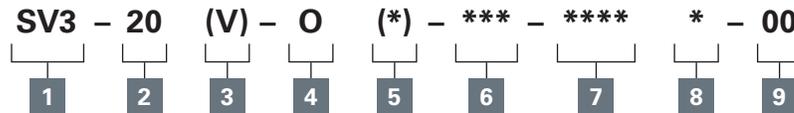
**B** - Port 1 to port 2 energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-20-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
227 L/min (60 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV3 - Solenoid valve

### 2 Size

20 - 20 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override  
P - Push type  
S - Screw type

For valve dimensions with manual override option installed see page A-980

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
8B	1" BSPP	02-175464*
16T	SAE 16	566409*
6G	3/4" BSPP	876732
8G	1" BSPP	876734
12H	SAE 12	876733
16H	SAE 16	876735

\*Light duty housing.  
See section J for housing details.

### 7 Voltage rating

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

For coil dimensions see section C.

### 9 Special features

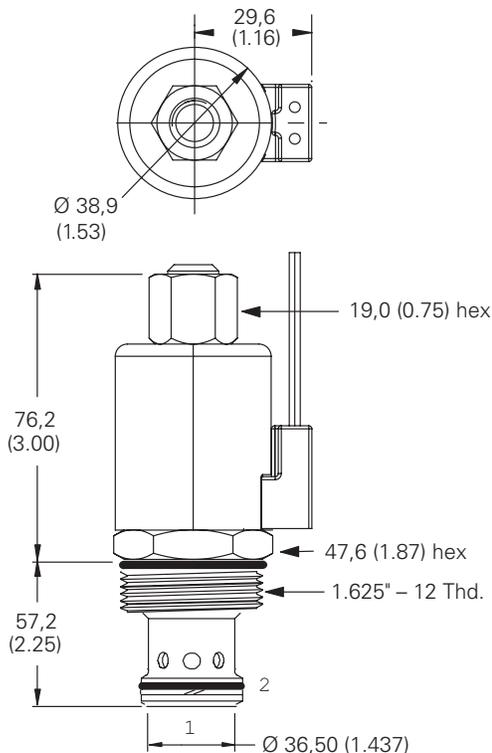
00 - None  
(Only required if valve has Special features, omitted if "00".)

**Note:** Use J series, 23 W coils with this solenoid valve.

## Dimensions

mm (inch)

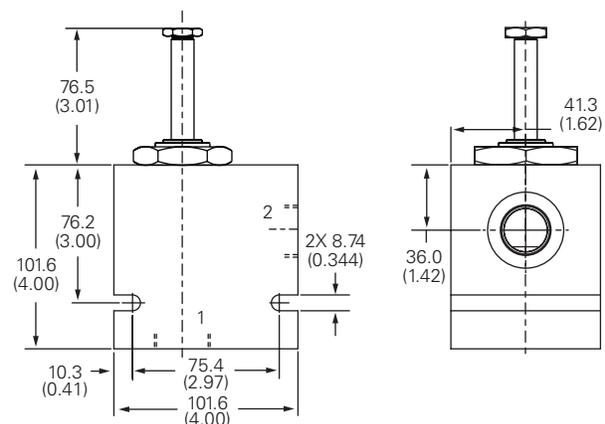
### Cartridge only



Torque cartridge in aluminum housing 128-155 Nm (95-115 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawings



### Warning

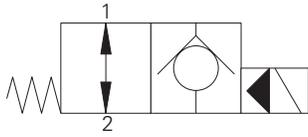
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-20-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
 227 L/min (60 USgpm) • 350 bar (5000 psi)

A



## Operation

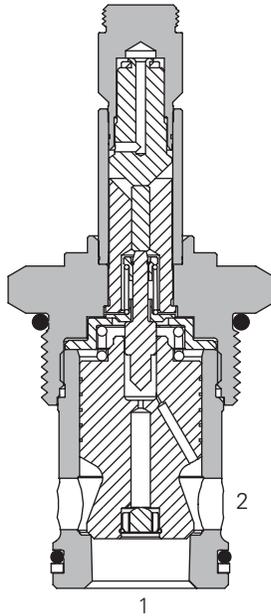
In the de-energized position the valve allows free flow in both directions.

When the solenoid is energized the pilot poppet closes the orifice and the valve closes blocking flow from port 2 to 1 while allowing free flow from port 1 to 2.

## Features

Hardened and ground working parts. Lapped seat for low leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)*
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

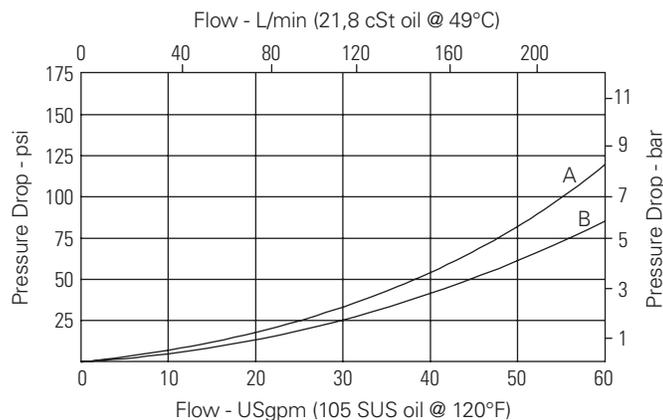
\*For application pressure over 280 bar (4000 psi) consult factory  
 Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

## Pressure drop

Cartridge only



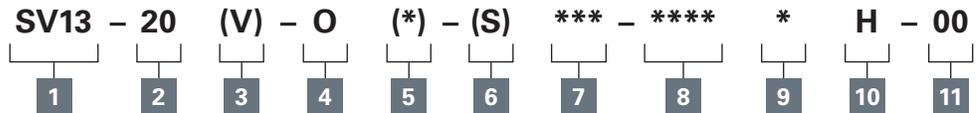
- A** - Port 2 to port 1 de-energized
- B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13-20-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve  
227 L/min (60 USgpm) • 350 bar (5000 psi)

## Model code



A

**1 Function**  
SV13 - Solenoid valve

**2 Size**  
20 - 20 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
O - Normally open

**5 Manual override option**  
Blank - No manual override  
P - Push type  
S - Screw type  
For valve dimensions with manual override option installed see page A-980.

**6 Valve housing material**  
Blank - Cartridge only  
S - Steel

## 7 Port size

Code	Port size	Housing number
0	Cartridge only	
6G	3/4" BSPP	02-175110
8G	1" BSPP	02-175111
12T	SAE 12	02-175108
16T	SAE 16	02-175109

See section J for housing details.

## 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

## 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

## 10 Coil series

H - 10 series, 29 W  
For coil part numbers and dimensions see section C.

## 11 Special features

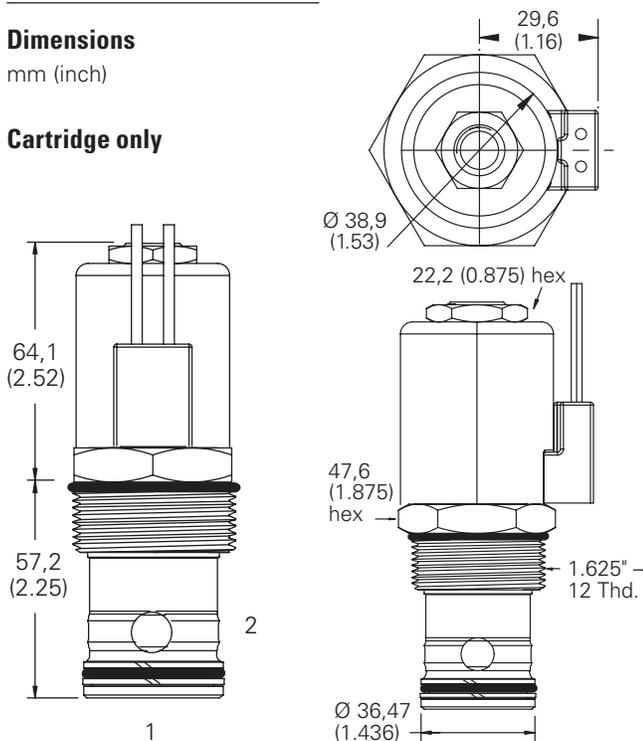
00 - None

(Only required if valve has Special features, omitted if "00".)

## Dimensions

mm (inch)

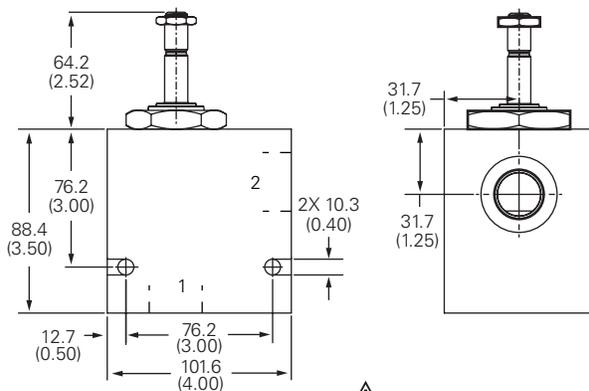
### Cartridge only



Torque cartridge in steel housing 163-183 Nm (120-135 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

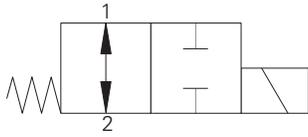
Over tightening may cause valve failure.

*Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.*

# SV4-8-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
 13 L/min (4 USgpm) • 210 bar (3000 psi)

A



### Operation

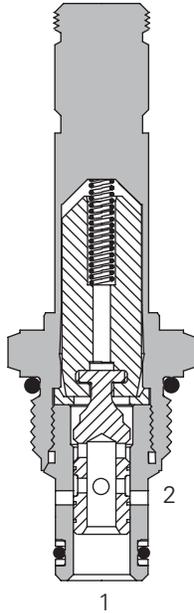
In the de-energized position the valve is open in both directions.

When the solenoid is energized the spool moves causing the valve to close in both directions.

### Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low Pressure drop.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 21 ms De-Energize: 38 ms
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

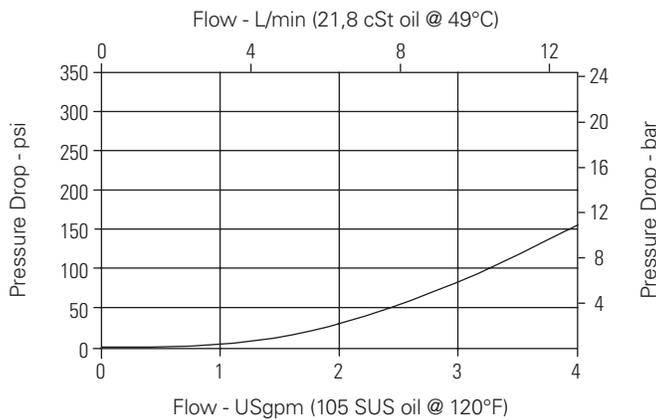
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, spool type, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

### Pressure drop

Cartridge only



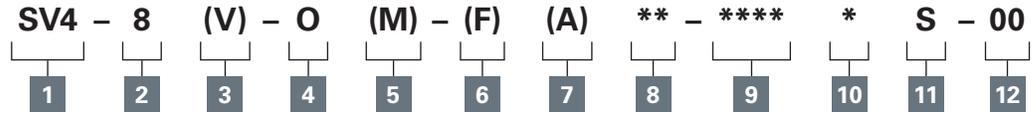
Port 2 to port 1 de-energized  
 Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-8-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
13 L/min (4 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SV4 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
O - Normally open

**5 Manual override option**  
Blank - No manual override  
M - Knob type

For valve dimensions with manual override option installed see page A-980.

**6 Filter option**  
Blank - None  
F - Filter screen

**8 Port size**

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3G	3/8" BSPP	02-160728
4T	SAE 4	02-160730
6T	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housing details.

**9 Voltage rating**

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

**10 Connector types**  
Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

**11 Coil series**  
S - 8 series, 20 W

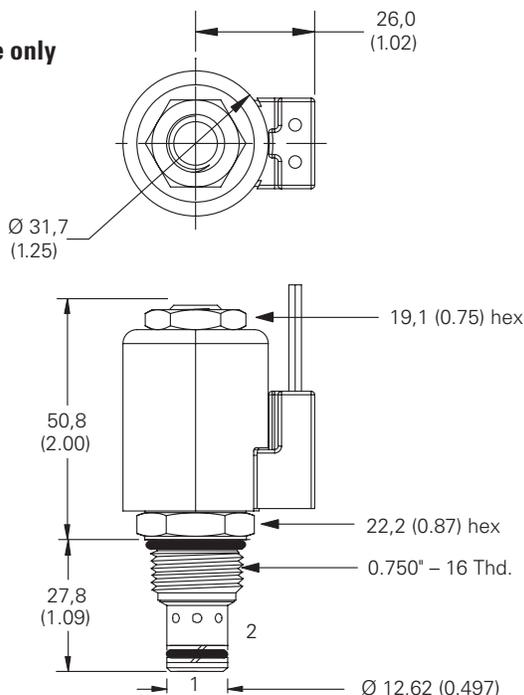
For coil part numbers and dimensions see section C.

**12 Special features**  
00 - None  
(Only required if valve has Special features, omitted if "00".)

## Dimensions

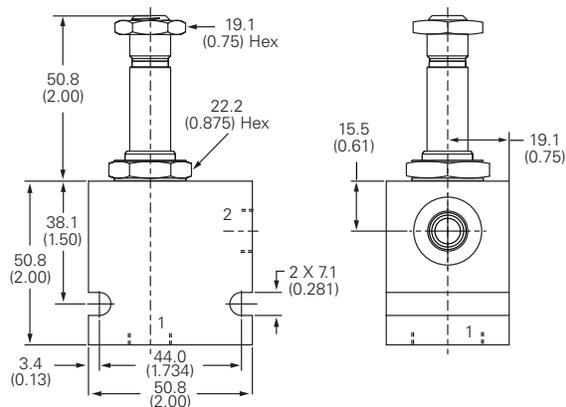
mm (inch)

### Cartridge only



Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

### Installation drawing



**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

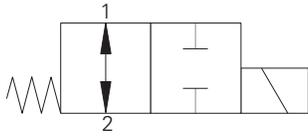
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-8-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
 13 L/min (3.5 USgpm) • 350 bar (5000 psi)

A



## Operation

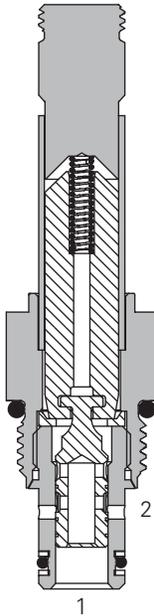
In the de-energized position the valve is open in both directions.

When the solenoid is energized the spool moves causing the valve to close in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	13 L/min (3.5 USgpm)
Internal leakage, port 2 to port 1	140 cm <sup>3</sup> /min (8.5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

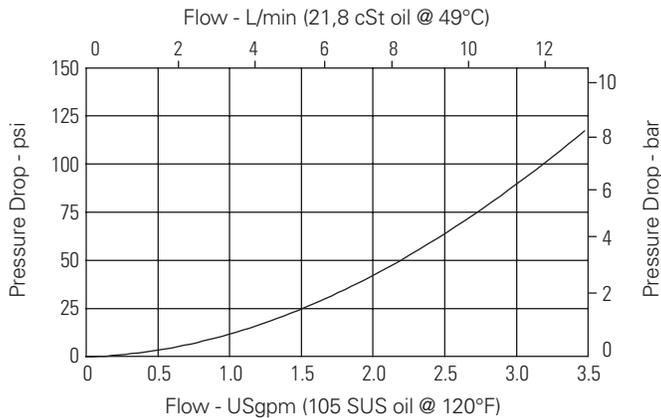
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, high pressure, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

## Pressure drop

Cartridge only



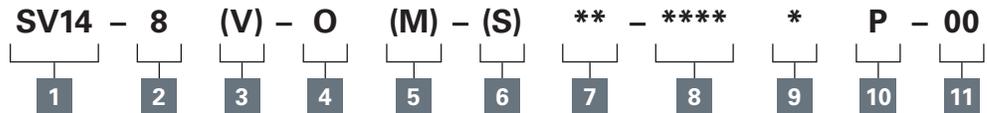
Port 2 to port 1 de-energized  
 Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-8-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
13 L/min (3.5 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV14 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override  
M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only  
S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160733
3G	3/8" BSPP	02-160734
4T	SAE 4	02-160736
6T	SAE 6	02-160737
8T	SAE 8	02-160738

See section J for housing details.

### 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has special features, omitted if "00".)

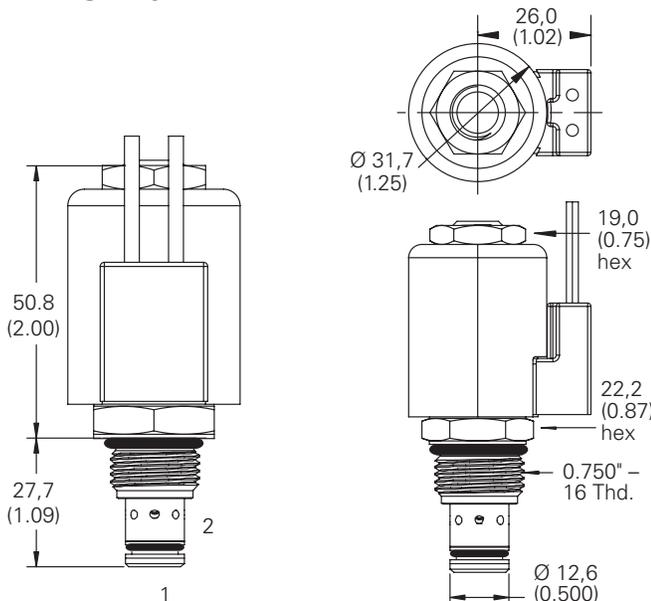
## Dimensions

mm (inch)

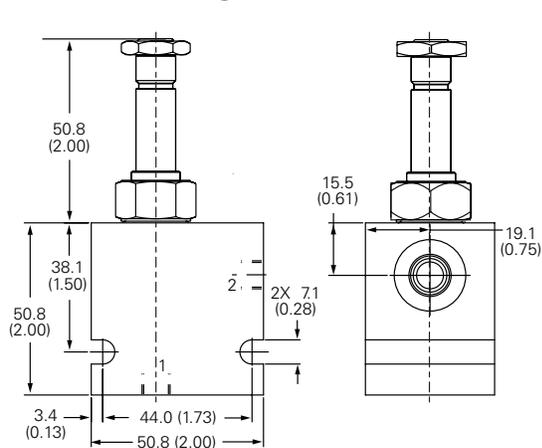
Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Cartridge only



### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

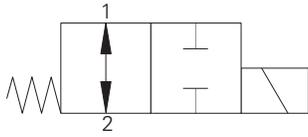
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-O/OM/OR - Solenoid valve

Spool type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

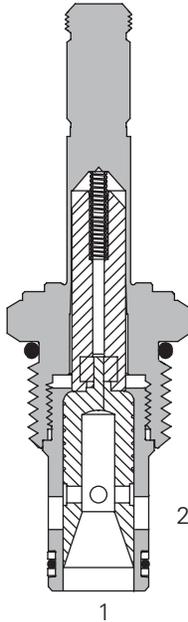
In the de-energized position the valve is open in both directions.

When the solenoid is energized the spool moves causing the valve to close in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage, port 2 to port 1	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including cartridge	0,4 kg (0.87 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

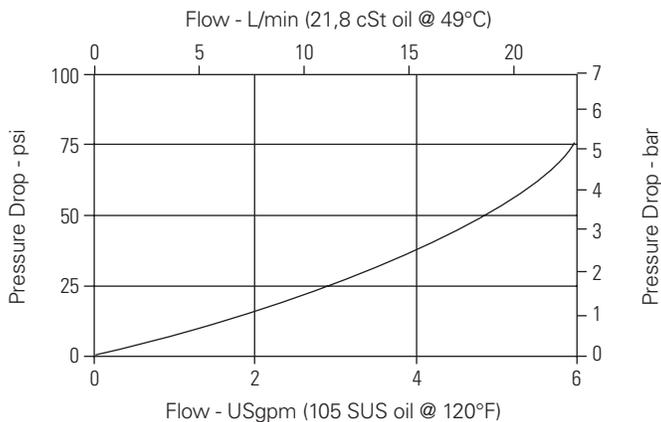
Viton is a registered trademark of E.I. DuPont

## Description

This is a 2-way, 2-position, spool type, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

## Pressure drop

Cartridge only



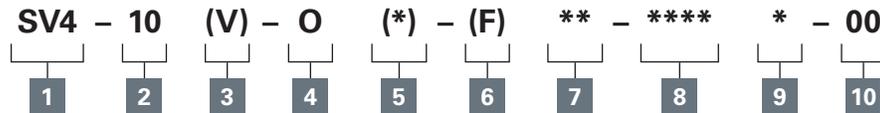
Port 2 to port 1 or  
Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-O/OM/OR - Solenoid valve

Spool type, normally open solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

**1 Function**  
SV4 - Solenoid valve

**2 Size**  
10 - 10 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

**4 Style**  
O - Normally open

**5 Manual override option**  
Blank - No manual override  
M - Knob type  
R - Cable type

For valve dimensions with manual override option installed see page A-980

**6 Filter option**  
Blank - None  
F - Filter screen

## 7 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-175462*
6T	SAE 6	566151*
2G	1/4" BSPP	876702
3G	3/8" BSPP	876703
6H	SAE 6	876700
8H	SAE 8	876701

\*Light duty housing.  
See section J for housing details.

## 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC

24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

## 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

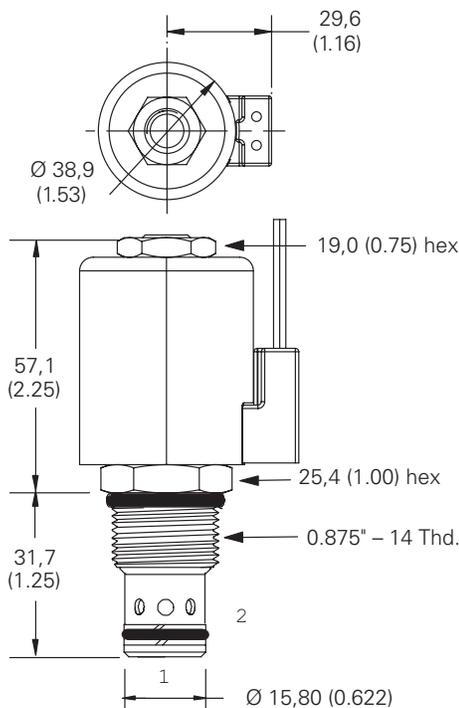
## 10 Special features

00 - None  
(Only required if valve has special features, omitted if "00".)  
**Note:** Use J series, 23 W coils with this solenoid valve.

## Dimensions

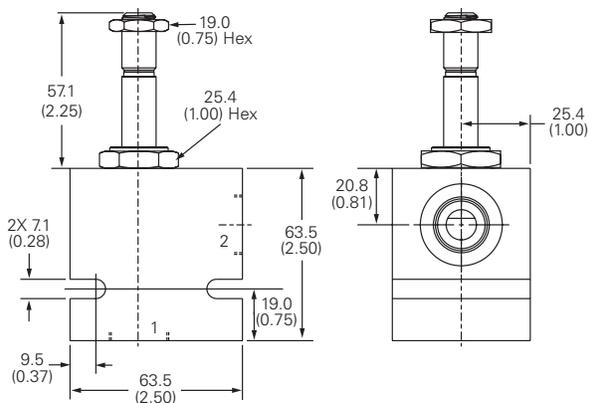
mm (inch)

### Cartridge only



Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

### Installation drawing



**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Warning

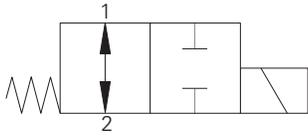
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.  
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-10-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

A



### Operation

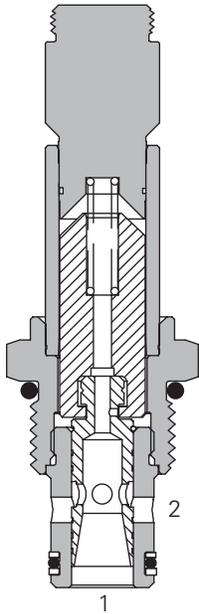
In the de-energized position the valve is open in both directions.

When the solenoid is energized the spool moves causing the valve to close in both directions.

### Features

Hardened, ground and honed working parts to limit leakage. IP69 Tough coil compatibility. Continuously rated. Compact design with low pressure drop. 350 bar working pressure.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage, port 2 to port 1	140 cm <sup>3</sup> /min (8.5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	566806 (Buna-N), 889627 (Viton®)

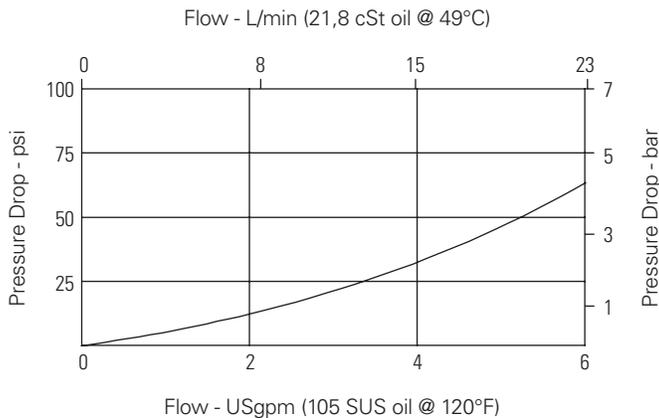
Viton is a registered trademark of E.I. DuPont

### Description

This is a 2-way, 2-position, spool type, high pressure, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

### Pressure drop

Cartridge only



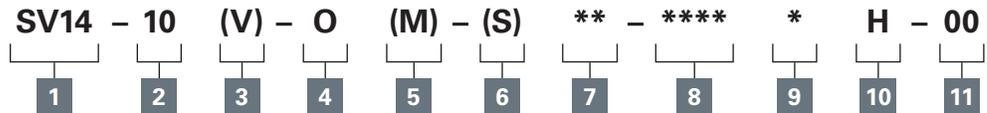
Port 2 to port 1 or  
Port 1 to port 2 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14-10-O/OM - Solenoid valve

Spool type, normally open solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV14 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

O - Normally open

### 5 Manual override option

Blank - No manual override  
M - Manual override

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only  
S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175102
3G	3/8" BSPP	02-175103
6T	SAE 6	02-175100
8T	SAE 8	02-175101

See section J for housing details.

### 8 Voltage rating

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W

For coil part numbers and dimensions see section C.

### 11 Special features

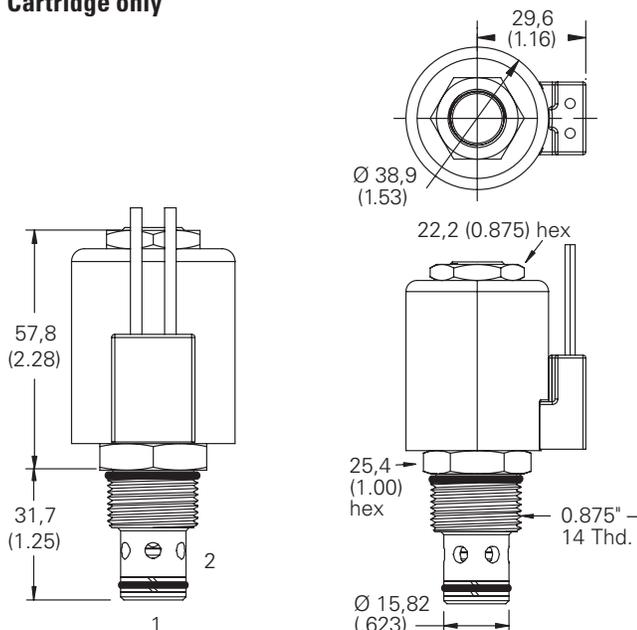
00 - None

(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

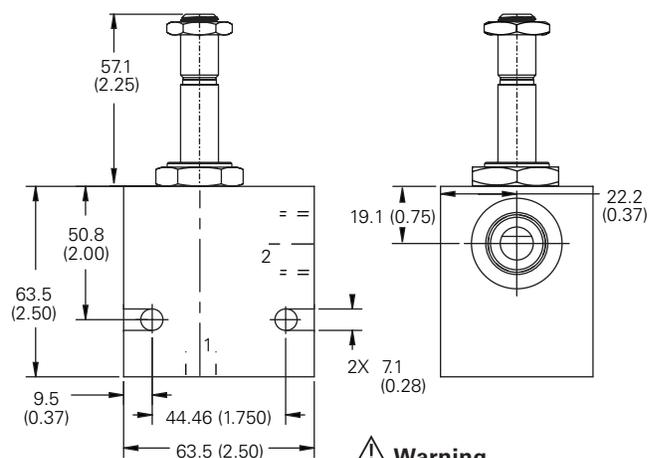
### Cartridge only



Torque cartridge in steel housing  
68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

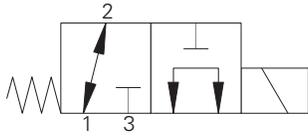
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-8-3/3M - Solenoid valve

3-way, 2-position spool type solenoid valve  
 11 L/min (3 USgpm) • 210 bar (3000 psi)

A



### Operation

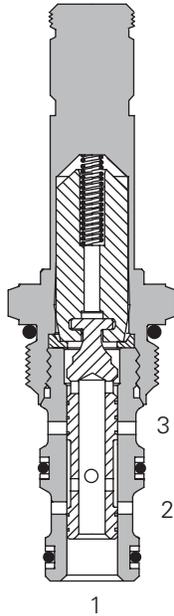
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage (per land)	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®)

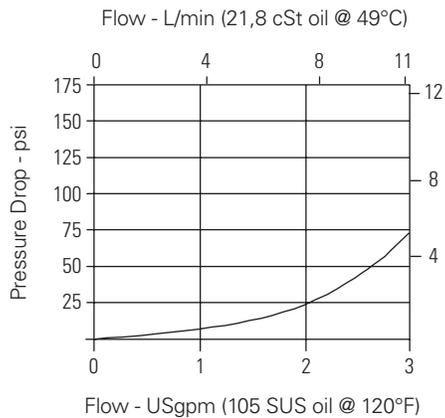
Viton is a registered trademark of E.I. DuPont

### Description

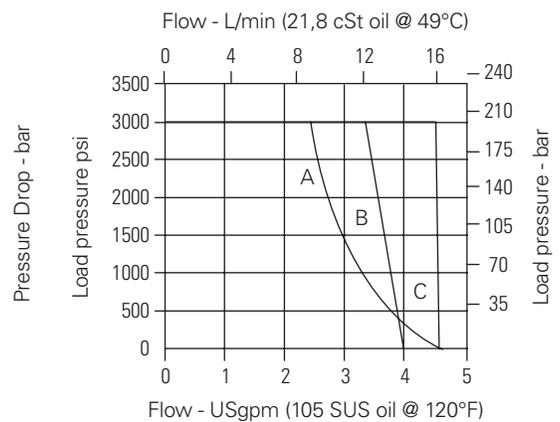
This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

### Pressure drop

Cartridge only



Pressure drop vs. Flow



### Operating Limits

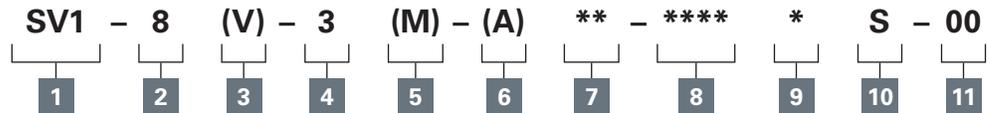
- A** - Selector 1 to 3
- B** - Normally Open
- C** - Normally closed and Selector 1 to 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-8-3/3M - Solenoid valve

3-way, 2-position spool type solenoid valve  
11 L/min (3 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

3 - 3-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Knob type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Omit for Cartridge only

A - Aluminum

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160739
3G	3/8" BSPP	02-160740
4T	SAE 4	02-160741
6T	SAE 6	02-160742

See section J for housing details.

### 8 Voltage rating

Blank - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

### 11 Special features

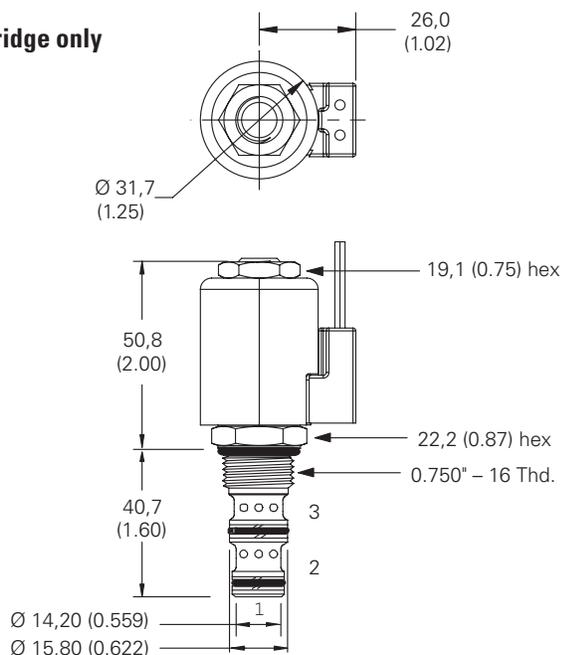
00 - None

(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

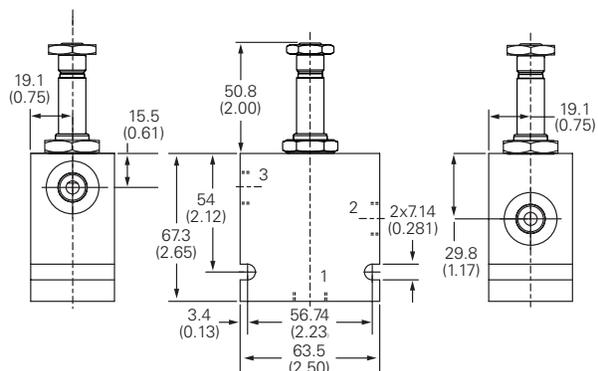
### Cartridge only



Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

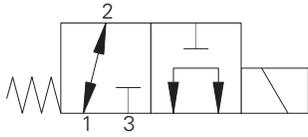
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1 1-8-3/3M - Solenoid valve

3-way, 2-position spool type solenoid valve  
 11 L/min (3 USgpm) • 350 bar (5000 psi)

A



## Operation

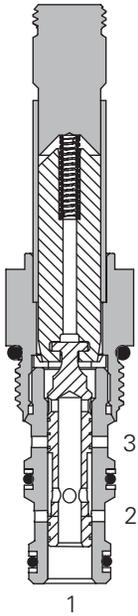
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

In the energized position flow is allowed from port 1 to port 3 while port 2 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage, combined port 2 and port 1	140 cm <sup>3</sup> /min (8.5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,13 kg (0.28 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®)

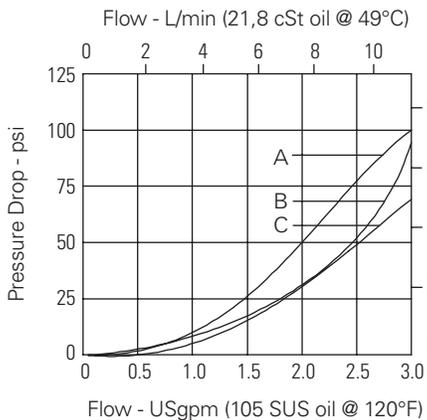
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

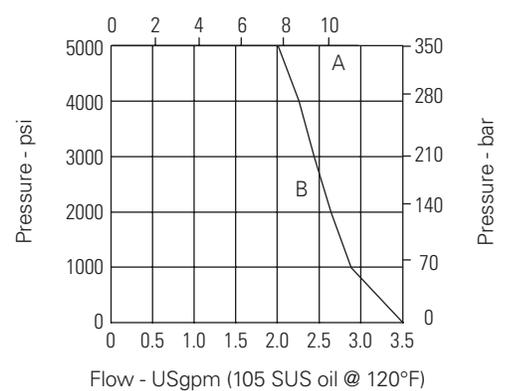
Cartridge only



### Pressure drop vs. Flow

- A** - Port 1 to 2 and 1 to 3
- B** - Port 3 to 1
- C** - Port 2 to 1

Flow - L/min (21,8 cSt oil @ 49°C)



### Operating Limits

- A** - Normally open & closed
- B** - Selector 1 to 2 and 1 to 3

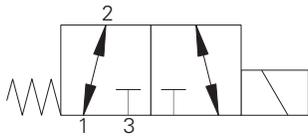
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# SV4-8-3/3P - Solenoid valve

3-way, 2-position spool type solenoid valve  
13 L/min (4 USgpm) • 210 bar (3000 psi)

A



## Operation

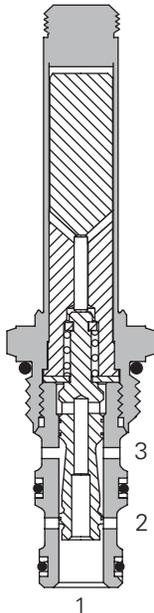
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

In the energized position flow is allowed from port 2 to port 3 while port 1 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 22 ms De-Energize: 27 ms
Cavity	C-8-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,29 kg (0.64 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®)

Viton is a registered trademark of E.I. DuPont

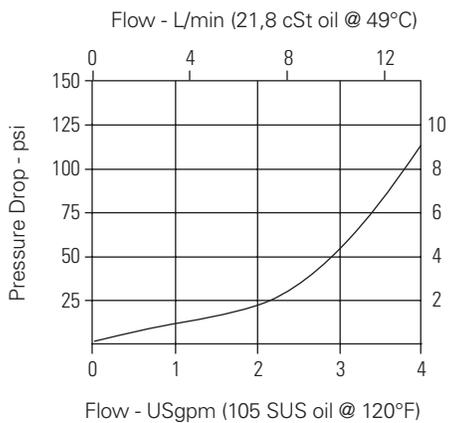
**Note:** Pressure on port 1 should not exceed 20 bar (300 psi).

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

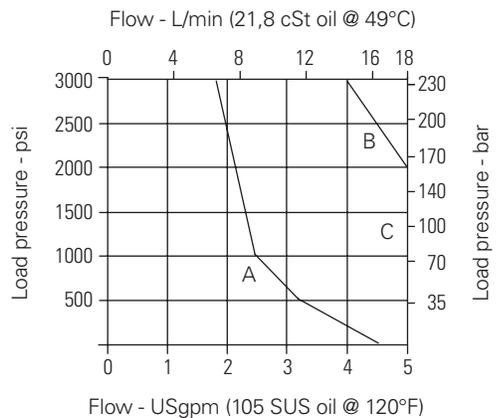
## Pressure drop

Cartridge only



### Pressure drop vs. Flow

Port 2 to 1 and  
port 2 to port 3



### Operating Limits

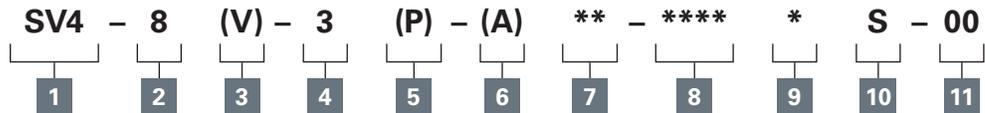
- A** - Normally open port 1 to port 2
- B** - Normally closed port 3 to port 1
- C** - Selector 2 to 1 and 2 to 3

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-8-3/3P - Solenoid valve

3-way, 2-position spool type solenoid valve  
13 L/min (4 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV4 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

3 - 3-way, 2 position

### 5 Manual override option

Blank - No manual override

P - Push type

For valve dimensions with manual override option installed see page A-980.

### 6 Valve housing material

Omit for cartridge only

A - Aluminum

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160739
3G	3/8" BSPP	02-160740
4T	SAE 4	02-160741
6T	SAE 6	02-160742

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

### 11 Special features

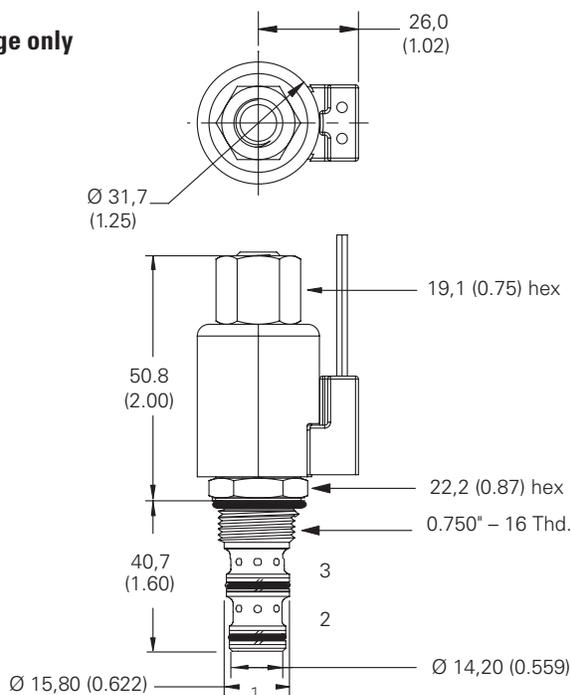
00 - None

(Only required if valve has special features, omitted if "00".)

## Dimensions

mm (inch)

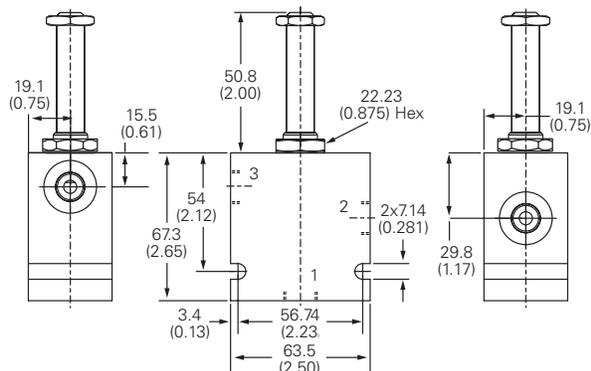
### Cartridge only



Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

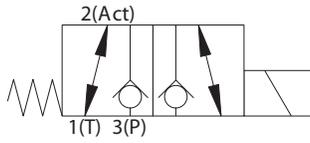
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S229 - Solenoid valve

3-way, 2-position poppet type solenoid valve  
Up to 12L/min (3.2 USgpm) • 210 bar (3000 psi)

A



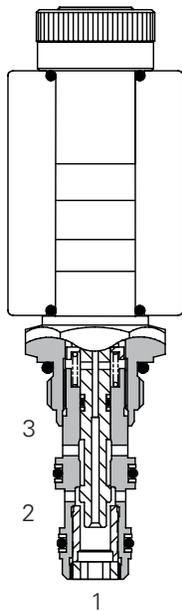
## Operation

In the de-energized condition port 3 is blocked and port 2 is open to port 1. When energized port 3 is open to port 2 and port 1 is blocked.

## Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cST (150 SSU)

Actuator port location	Port 2
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5$ bar (70 psi)	10 L/min (2.6 USgpm)
Internal leakage	Less than .6 ml/min (10 dpm)
Temperature range	-30° to 120°C (-22° to 248°F)
Cavity	A3531 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20, etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium Alloy
Coil weight	0.3 kg (0.6 lbs)
Cartridge weight	0.13 kg (0.3 lbs)
Seal kit	SK119 (Nitrile) SK119V (Viton®)
Coil part number	C16-*.*/29
Coil voltage available	12, 24 VDC, 110, 220, VAC*

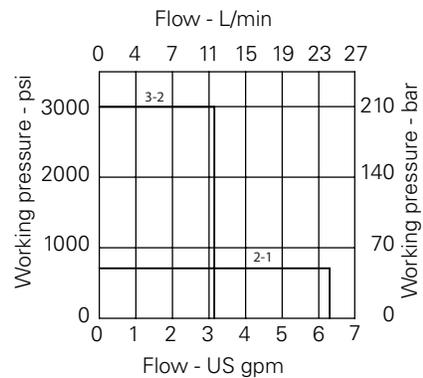
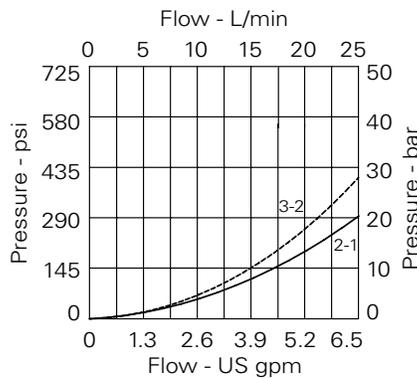
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

## Description

This valve is a 2 position 3 ported poppet solenoid operated diverter screw in cartridge valve. It is ideal for use in systems where low leakage is important.

## Pressure drop

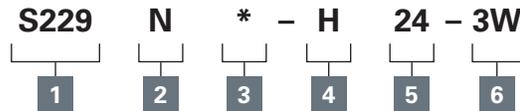


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S229 - Solenoid valve

3-way, 2-position poppet type solenoid valve  
Up to 12L/min (3.2 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function S229

### 2 Seal material

**N** - Nitrile  
**V** - Viton®

### 3 Manual Override

**2** - Screw  
**3** - Push  
(Consult factory for availability).  
See page A-960.

### 4 Coil Termination

**H** - DIN43650  
**F** - Flying lead  
**DM** - Deutsch moulded  
Other terminations available  
on request.

### 5 Voltage

**12** - 12 VDC  
**24** - 24 VDC  
**110** - 110 VAC  
**220** - 220 VAC

### 6 Port size

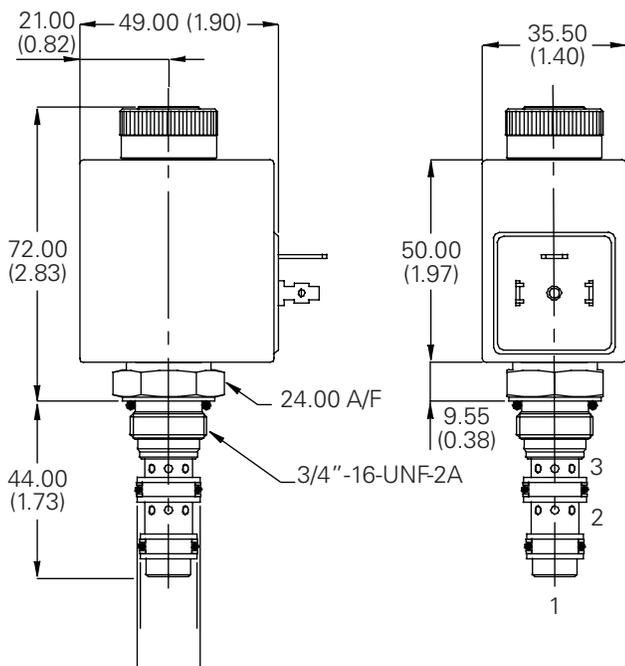
Code	Port size	Housing number - body only
<b>Aluminium</b>		
<b>2W</b>	1/4" BSP	B7724
<b>3W</b>	3/8" BSP	B6684
<b>6T</b>	3/8" SAE	B6516

## Dimensions

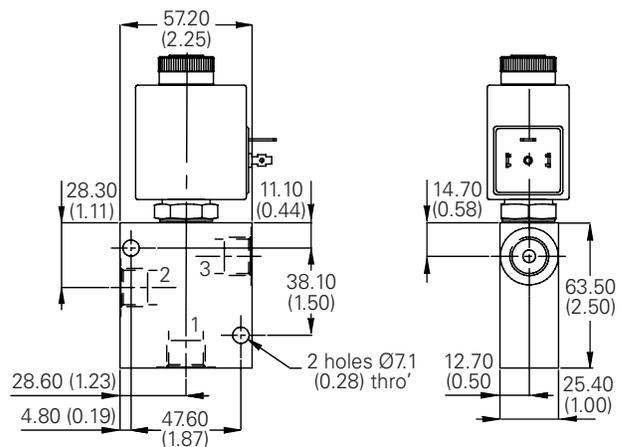
mm (inch)

### Cartridge only

Basic Code  
**S229**



### Installation drawing

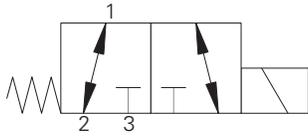


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S520(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 40L/min (10 USgpm) • 210 bar (3000 psi)

A



## Operation

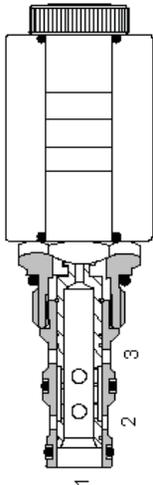
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cST (150 SSU)

Actuator port location	Port 1
Max working pressure	210 bar (3000 psi)
Rated flow at $\Delta P = 5$ bar (70 psi)	Up to 40 L/min (10 USgpm)
Nominal flow	22 L/min (6 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential at 32 centistokes
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-3 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	Most general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs)
Cartridge weight	0.2 kg (0.4 lbs)
Seal kit	SK1030 (Nitrile) SK1030V (Viton®)
Coil part number	S520: C16-*/19 S520(H): C16-*/29
Coil voltage available	12, 24 VDC, 110, 220, VAC*

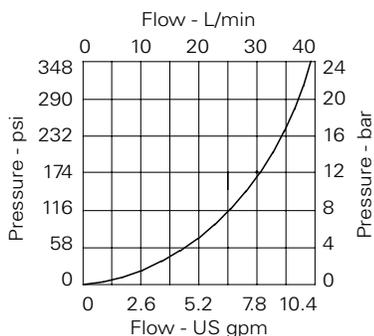
## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

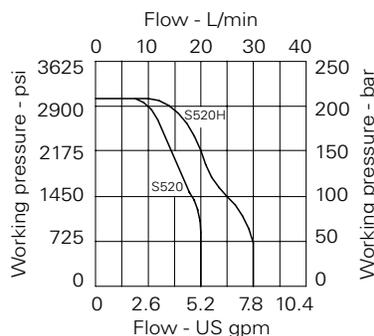
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

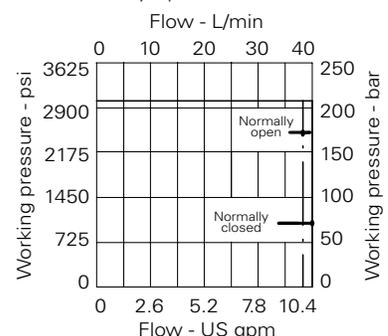
## Pressure drop



## Selector Mode



## Normally closed and Normally open modes

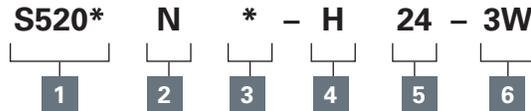


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S520(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 40L/min (10 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

**S520** - Standard valve  
**S520(H)** - Heavy duty valve

### 2 Seal material

**N** - Nitrile  
**V** - Viton®

### 3 Manual Override

**2** - Screw  
(Consult factory for availability).  
See page A-960.

### 4 Coil Termination

**H** - DIN43650  
**F** - Flying leads  
**DM** - Deutsch moulded  
Other terminations available  
on request.

### 5 Voltage

**12** - 12 VDC  
**24** - 24 VDC  
**110** - 110 VAC  
**220** - 220 VAC

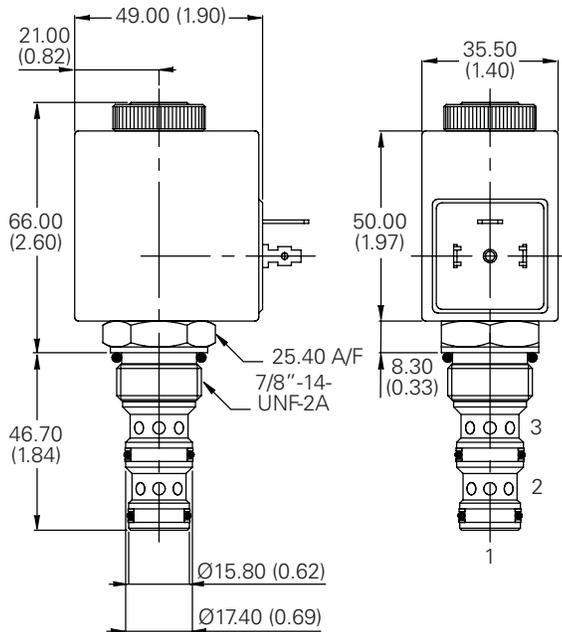
### 6 Port size

Code	Port size	Housing number - body only
		Aluminium
<b>3W</b>	3/8" BSP	B18982
<b>4W</b>	1/2" BSP	B19358
<b>8T</b>	1/2" SAE	B19360

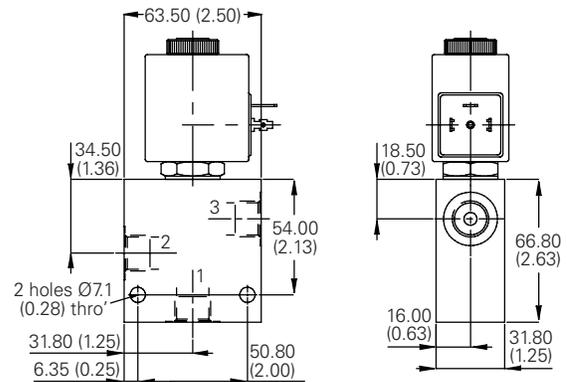
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing

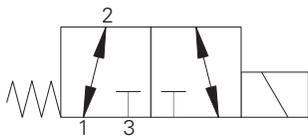


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S521(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 44 L/min (1.15 USgpm) • Up to 210 bar (3000 psi)

A



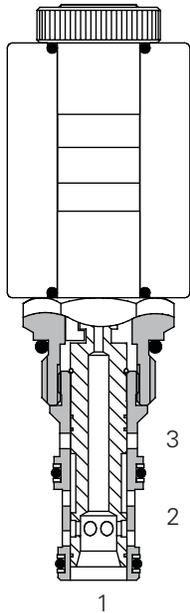
## Operation

In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked. In the energized position flow is allowed from port 2 to port 3 while port 1 is blocked.

## Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with Series S5 valves.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cSt (150 SSU)

Actuator port location	Port 2
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5 \text{ bar (70 psi)}$	17 L/min
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-3 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil Weight	0.3 kg (0.6 lbs)
Weight	0.2 kg (0.4 lbs)
Seal kit	SK1030 (Nitrile) SK1030V (Viton®)
Coil part number	C16-*/*/19 (5521) C16-*/*/29(5521H)
Coil voltage available	12, 24 VDC, 110, 220, VAC*

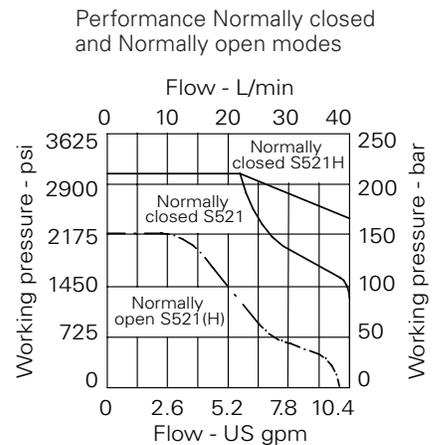
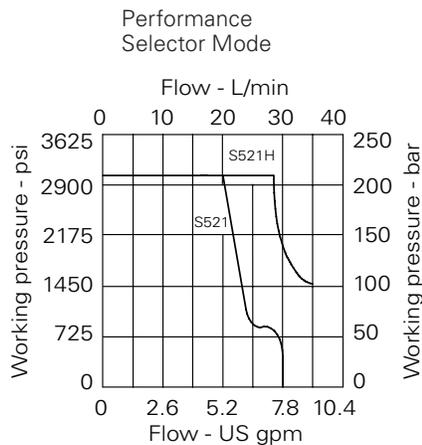
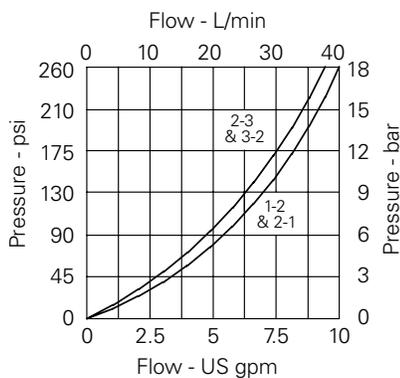
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

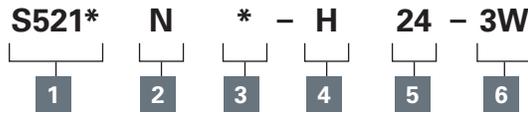


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S521(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 44 L/min (11.5 USgpm) • Up to 210 bar (3000 psi)

## Model code



### 1 Function

**S521** - Standard valve  
**S521(H)** - Heavy duty valve

### 2 Seal material

**N** - Nitrile  
**V** - Viton®

### 3 Manual Override

**2** - Screw  
(Consult factory for availability).  
See page A-960.

### 4 Coil Termination

**H** - DIN43650  
**F** - Flying leads  
**DM** - Deutsch moulded

Other terminations available on request.

### 5 Voltage

**12** - 12 VDC  
**24** - 24 VDC  
**110** - 110 VAC  
**220** - 220 VAC

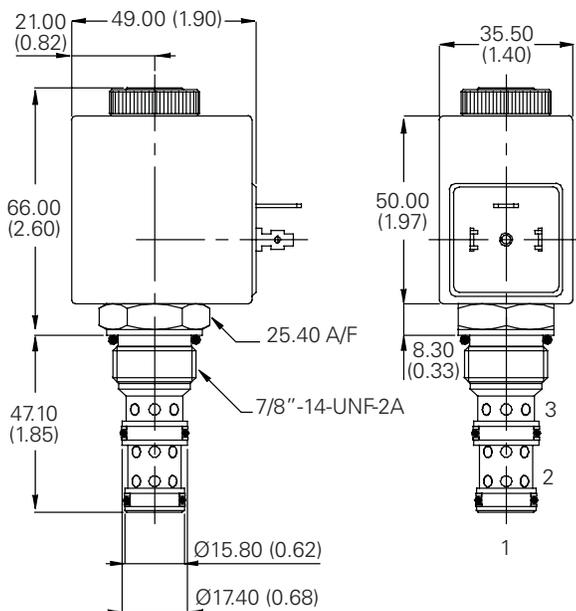
### 6 Port size

Code	Port size	Housing number - body only
		Aluminium
<b>3W</b>	3/8" BSP	B18982
<b>4W</b>	1/2" BSP	B19358
<b>8T</b>	1/2" SAE	B19360

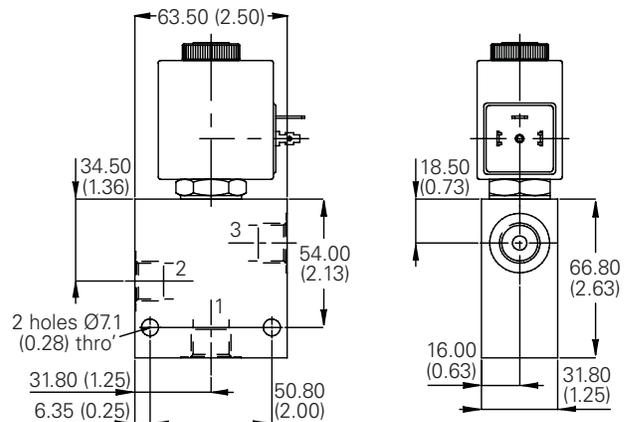
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing

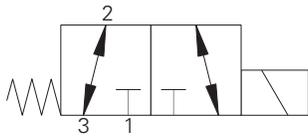


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S525(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 30 L/min (8 USgpm) • 2.10 bar (3000 psi)

A



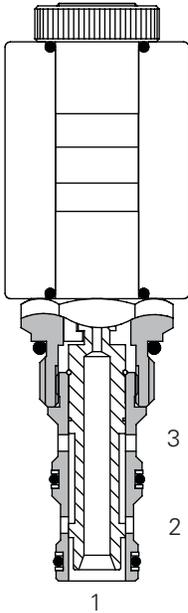
## Operation

In the de-energized position this valve allows flow from port 2 to 3 while port 1 is blocked. In the energized position flow is allowed from port 1 to port 2 while port 3 is blocked.

## Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with Series S5 valves.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical based on Viscosity 32 cST (150 SSU)

Actuator port location	Port 2
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5$ bar (70 psi)	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min 210 bar differential
Temperature range	-30° to 120°C (-22° to 248°F)
Cavity	C-10-3 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	Most general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs)
Cartridge weight	0.2 kg (0.4 lbs)
Seal kit	SK1030 (Nitrile) SK1030V (Viton®)
Coil part number	C16*-/19 (3525) C16*-/29 (5525H)
Coil voltage available	12, 24 VDC, 110, 220, VAC*

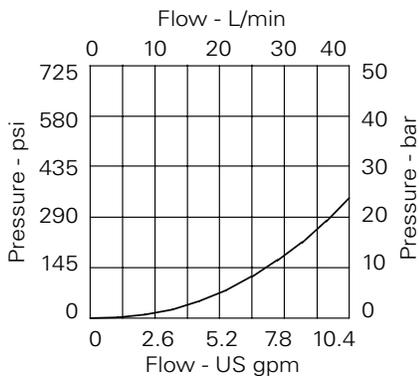
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

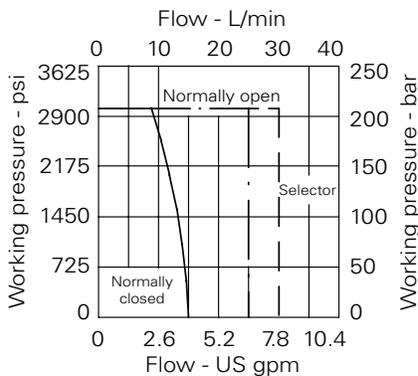
## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

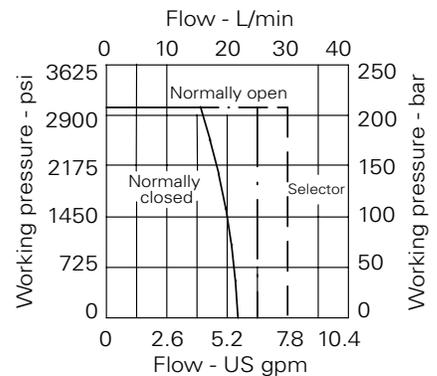
## Pressure drop



## Performance S525



## Performance S525H



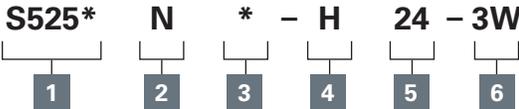
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S525(H) - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)

A

**Model code**



- 1 Function**  
S525 - Standard valve  
S525H - Heavy duty valve

---

- 2 Seal material**  
N - Nitrile  
V - Viton®

---

- 3 Manual override**  
2 - Screw  
(Consult factory for availability).  
See page A-960.

- 4 Coil Termination**  
H - DIN43650  
F - Flying leads  
DM - Deutsch moulded  
Other terminations available on request.

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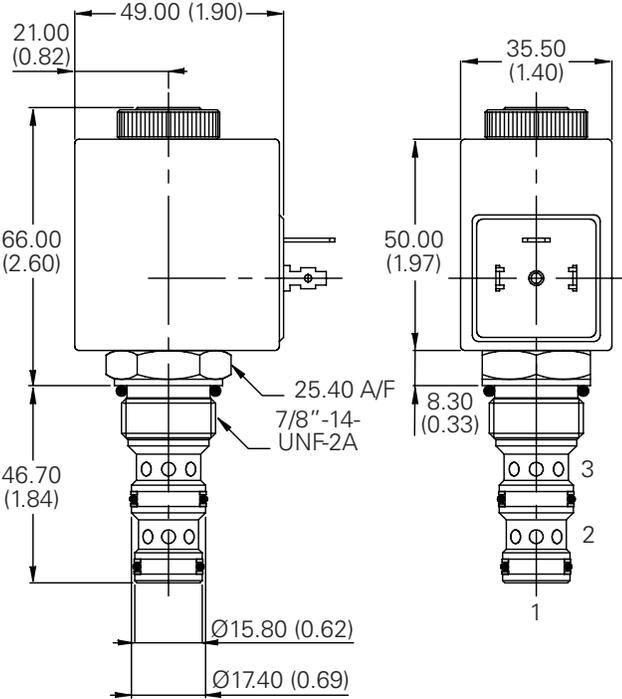
- 5 Voltage**  
12 - 2 VDC  
24 - 24 VDC  
110 - 110 VAC  
220 - 220 VAC

**6 Port size**

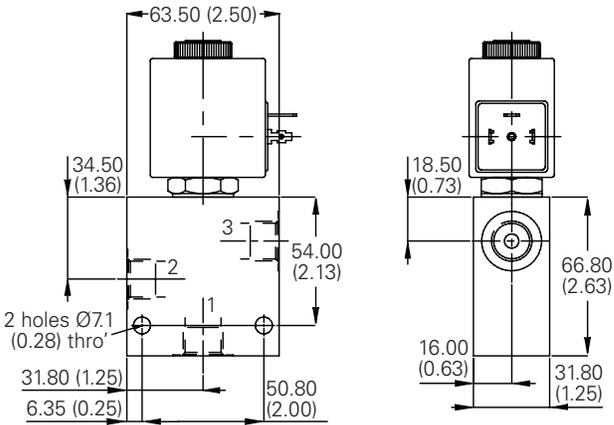
Code	Port size	Housing number - body only
<b>Aluminium</b>		
3W	3/8" BSP	B18982
4W	1/2" BSP	B19358
8T	1/2" SAE	B19360

**Dimensions**  
mm (inch)

**Cartridge only**



**Installation drawing**

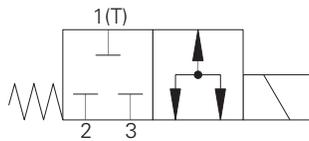


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S526 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 35 L/min (9 USgpm) • 2.10 bar (3000 psi)

A



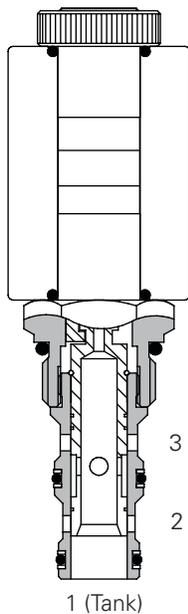
## Operation

In the de-energized condition all ports are closed. When energized all ports are open to each other.

## Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with Series S5 valves.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with Viscosity 32 cST (150 SSU)

Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5$ bar (70 psi)	11 L/min (3 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-3 (see Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs)
Cartridge weight	0.2 kg (0.4 lbs)
Seal kit	SK1030 (Nitrile) SK1030V (Viton®)
Coil part number	C16-*.*/19
Coil voltage available	12, 24 VDC, 110, 220, VAC*

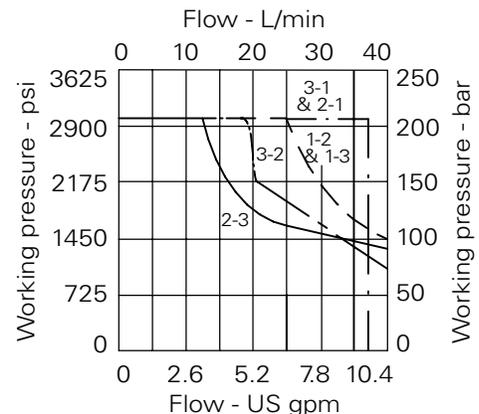
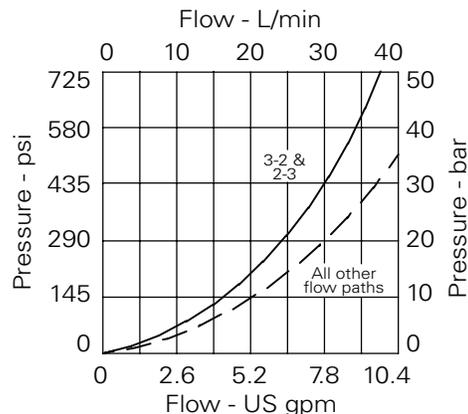
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

## Description

This valve is a 2 position 3 ported solenoid operated screw in cartridge valve suitable as a float valve connecting all ports together when energized.

## Pressure drop

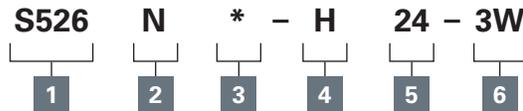


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S526 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

**S526**

### 2 Seal material

**N** - Nitrile

**V** - Viton®

### 3 Manual override

**2** - Screw

(Consult factory for availability).  
See page A-960

### 4 Coil Termination

**H** - DIN43650

**F** - Flying leads

**DM** - Deutsch moulded

Other terminations available  
on request.

### 5 Voltage

**12** - 12 VDC

**24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

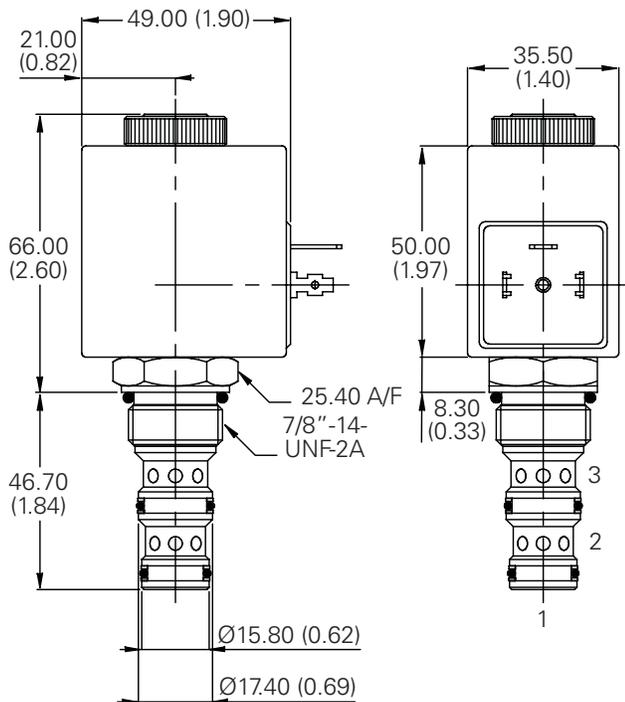
### 6 Port size

Code	Port size	Housing number - body only
		Aluminium
<b>3W</b>	3/8" BSP	B18982
<b>4W</b>	1/2" BSP	B19358
<b>8T</b>	1/2" SAE	B19360

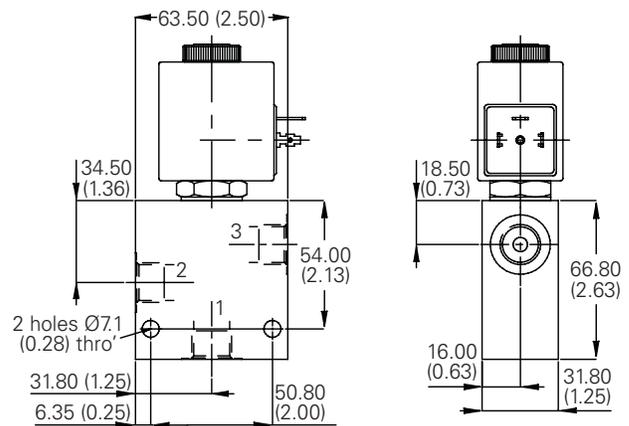
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing

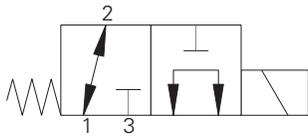


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-3/3M/3R - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 2.10 bar (3000 psi)

A



## Operation

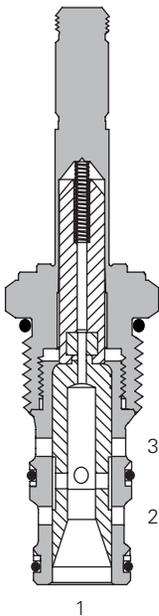
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

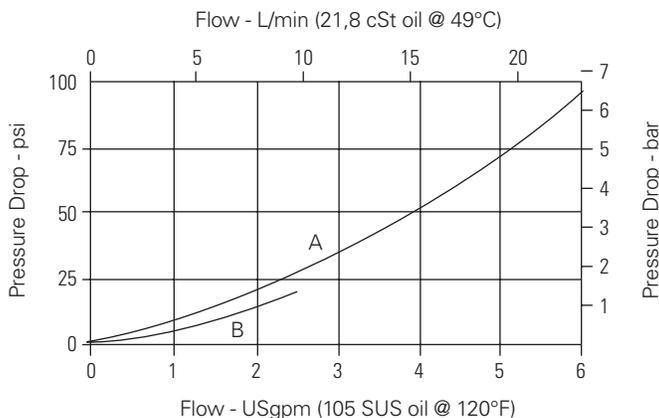
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23L/min (6 USgpm) Max. flow port 1 to 2-10L/min (2.5 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120° C (-40° to 248° F)
Coil duty	Continuous from 85% to 110% of normal voltage
Cavity	C-10-3
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,42 kg (0.93 lbs)
Seal kit	889624 (Buna-N), 889628 (Viton®)

Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

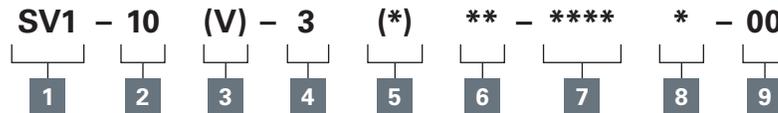


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-3/3M/3R - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

3 - 3-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-173358*
6T	SAE6	566162*
2G	1/4" BSPP	876705
3G	3/8" BSPP	876714
6H	SAE 6	876704
8H	SAE 8	876711

\*Light duty housing  
See section J for housings.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode

### 8 Connector types

Blank - No coil

G - ISO 440 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil dimensions see section C.

### 9 Special features

00 - None

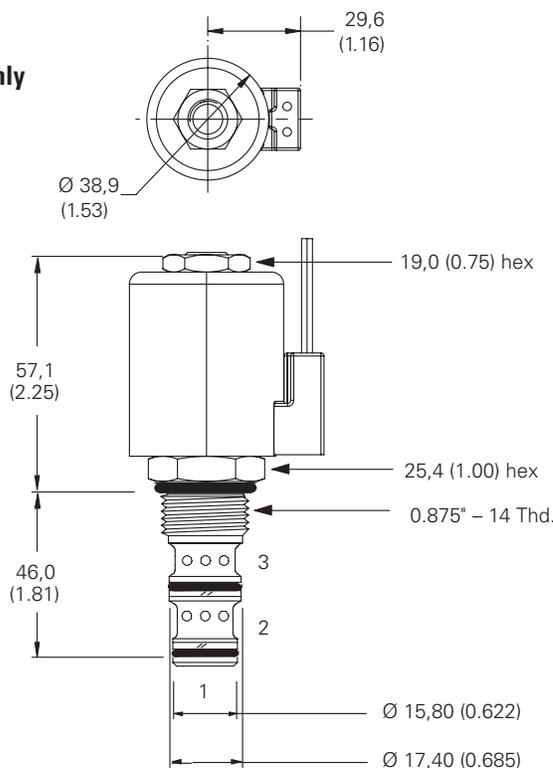
(Only required if valve has Special features, omitted if "00".)

**Note:** Use J series, 23W coils with this solenoid valve.

## Dimensions

mm (inch)

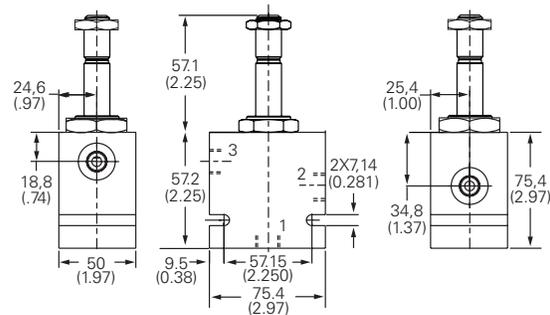
### Cartridge only



Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs).

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

### Installation drawing (Aluminum)



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

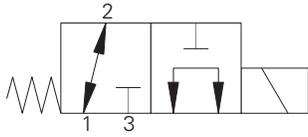
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1 1-10-3/3M - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 350 bar (5000 psi)

A



## Operation

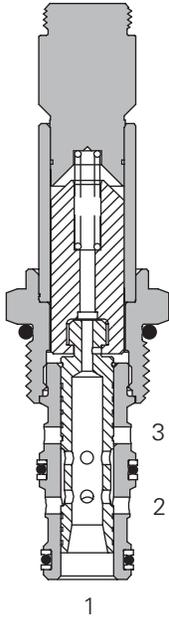
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

In the energized position flow is allowed from port 1 to port 3 while port 2 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical Application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated Flow	23L/min (6 USgpm)
Internal leakage, port 2 to port 1	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max at 350 bar (5000 psi)
Temperature range	-40° to 100° C (-40° to 212° F)
Coil Duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-3
Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,19 kg (0.42 lbs)
Seal kit	889624 (Buna-N) 889628 (Viton®)

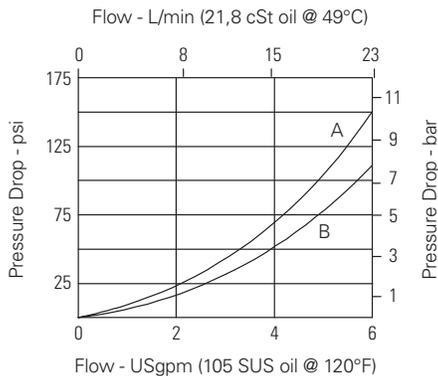
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

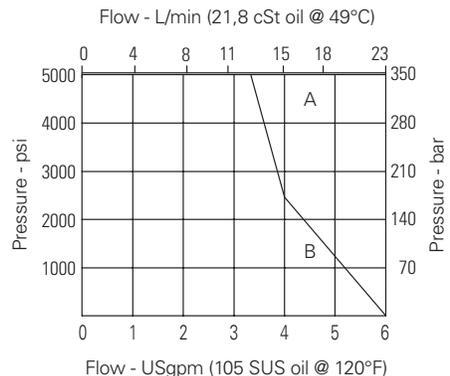
## Pressure drop

Cartridge only



### Pressure drop vs. Flow

- A** - Port 3 to port 1
- B** - Port 1 to port 2



### Operating limits

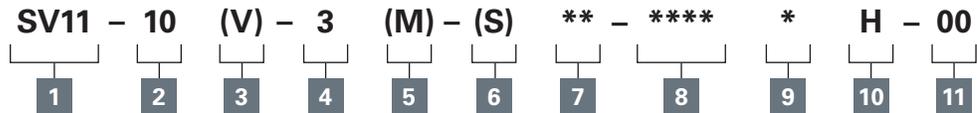
- A** - Normally open, normally closed
- B** - Selector 1 to 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11-10-3/3M - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV11 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

3 - 3 way, 2 position

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with Manual override option installed see page A-980.

### 6 Valve housing material

Blank - Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175127
3G	3/8" BSPP	02-175128
6T	SAE 6	02-175124
8T	SAE 8	02-175125

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode

### 9 Connector types

Blank - No coil

G - ISO 440 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

H - 10 series, 29 W

For coil dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has Special features, omitted if "00".)

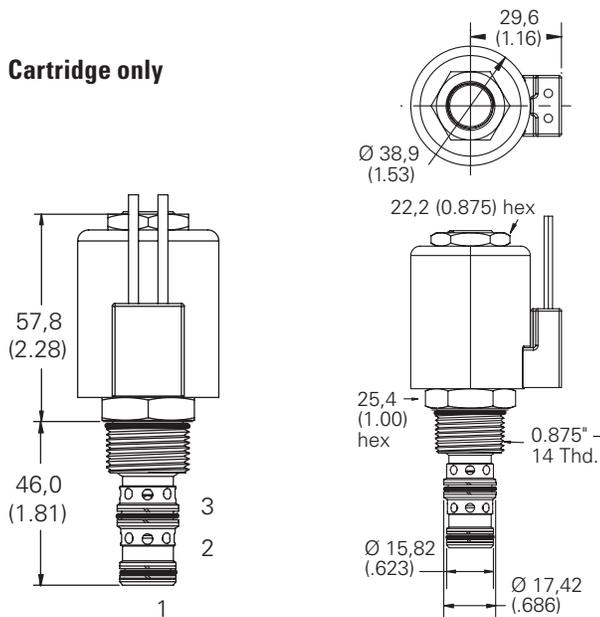
## Dimensions

mm (inch)

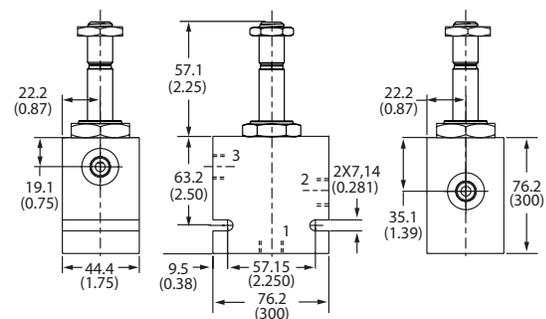
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

### Cartridge only



### Installation drawing



### Warning

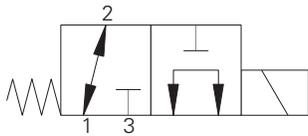
Maintain 5-8 Nm (4-6 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11A/B-10-3 - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 350 bar (5000 psi)

A



## Operation

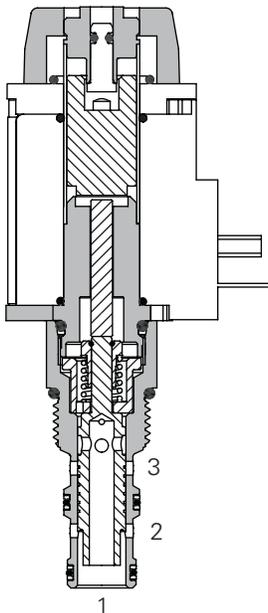
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports except port 1)	350 bar (5000 psi)	
Typical application pressure at port 1	210 bar (3000 psi)	
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)	
Rated flow	SV11A-10-3	17 L/min (5 USgpm)
	SV11B-10-3	23 L/min (6 USgpm)
Internal leakage	350 cc/min (21 in3/min) @ 210 bar (3000 psi)	
Temperature range	-40° to 120°C (-40° to 248°F)	
Coil duty	Continuous from 85% to 110% of nominal voltage	
Cavity	C-10-3	
Fluids	MIL-H-5606, SAE 10, SAE 20, etc.	
Filtration Cleanliness code	18/16/13	
Standard housing materials	Steel	
Weight including coil	SV11A-10-3	0.42 kg (0.92 lbs)
	SV11B-10-3	
Seal kit	Buna-N), (Viton®)	

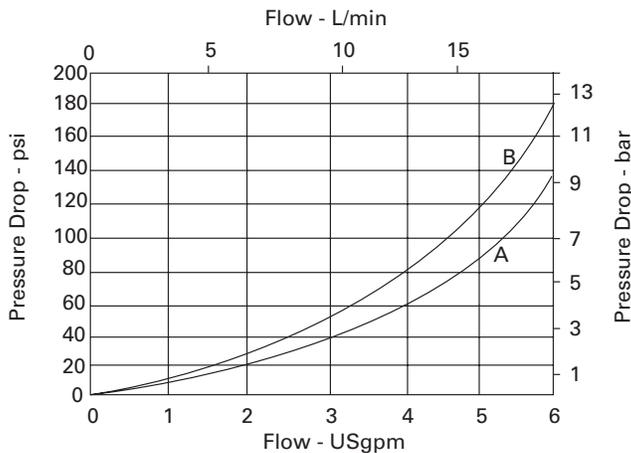
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

Cartridge only



### Pressure drop vs. Flow

- A - Port 1 to port 2
- B - Port 3 to port 1

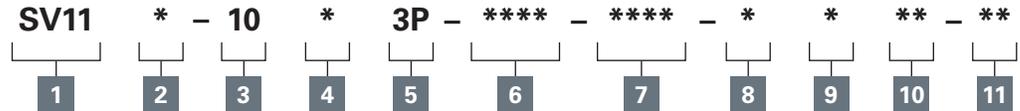
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11A/B-10-3 - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV11 - Solenoid valve

### 2 Max flow

A - 17 L/min (5 USgpm)  
B - 23 L/min (6 USgpm)

### 3 Size

10 - 10 Size

### 4 Seal material

Blank - Buna-N  
V - Viton®

### 5 Syle

3P - 3 way push type manual override

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
A2G	1/4" BSPP	876705	
A3G	3/8" BSPP	876710	
A6H	SAE 6	876704	
A8H	SAE 8	876711	
S2G	1/4" BSPP		02-175127
S3G	1/3" BSPP		02-175128
S6T	SAE 6		02-175124
S8T	SAE 8		02-175125

See section J for housing details.

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode

### 8 Connector types

Blank - No coil  
G - ISO 440 DIN 43650  
W - Flying lead  
C - Deutch on Leads  
H - Metripak 150 on Leads  
F - Weatherpak Male on Leads  
For coil dimensions see section C.

### 9 Coil types

Blank - No coil  
L - L series, (30W EN 490) used for SV11A  
R - R series, (30W) used for SV11B-10

### 10 Coil special features

Blank - No coil  
00 - No special feature

### 11 Special features

00 - None  
(Only required if valve has Special features, omitted if "00".)

## Dimensions

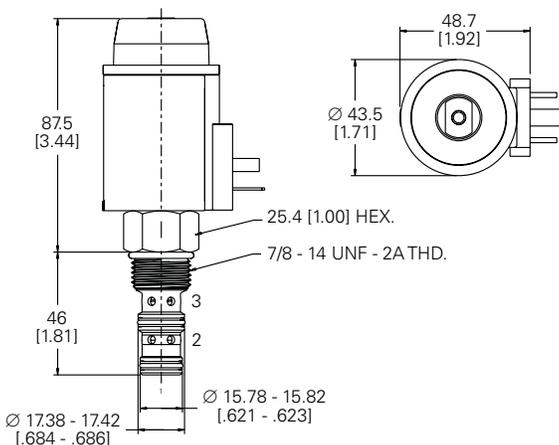
mm (inch)

Torque cartridge in aluminum housing 47-54 Nm (35-40 ft. lbs)

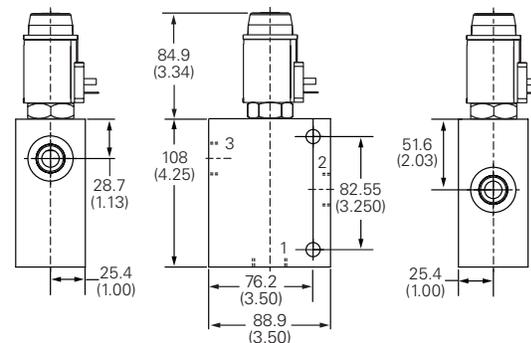
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

**Note:** When solenoid vale is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

### Warning

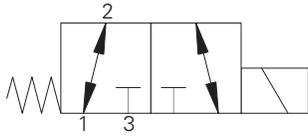
Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-3/3P/3S - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 2.10 bar (3000 psi)

A



## Operation

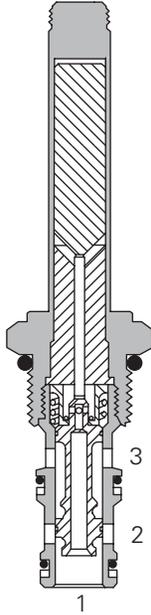
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

In the energized position flow is allowed from port 2 to port 3 while port 1 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure	210 bar (3000 psi)*
*Flow from P1 to P2 must be less than 7,6 L/min (2 USgpm)	
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm) Max. flow port 1 to port 2-10 L/min (2.5 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,42 kg (0.93 lbs)
Seal kit	889624 (Buna-N), 889628 (Viton®)

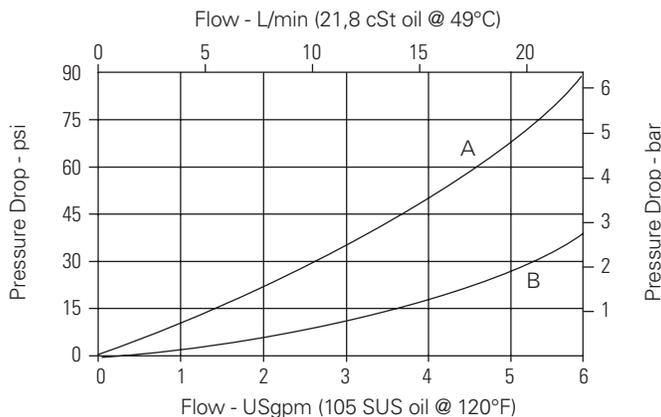
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

Cartridge only



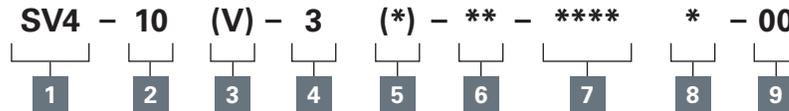
**A** - Port 3 to port 2 energized  
**B** - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-3/3P/3S - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV4 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

3 - 3-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Manual override

P - Push type

S - Screw type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-173358*
6T	SAE6	566162*
2G	1/4" BSPP	876705
3G	3/8" BSPP	876714
6H	SAE 6	876704
8H	SAE 8	876711

\*Light duty housing.  
See section J for housings.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil dimensions see section C.

### 9 Special features

00 - None

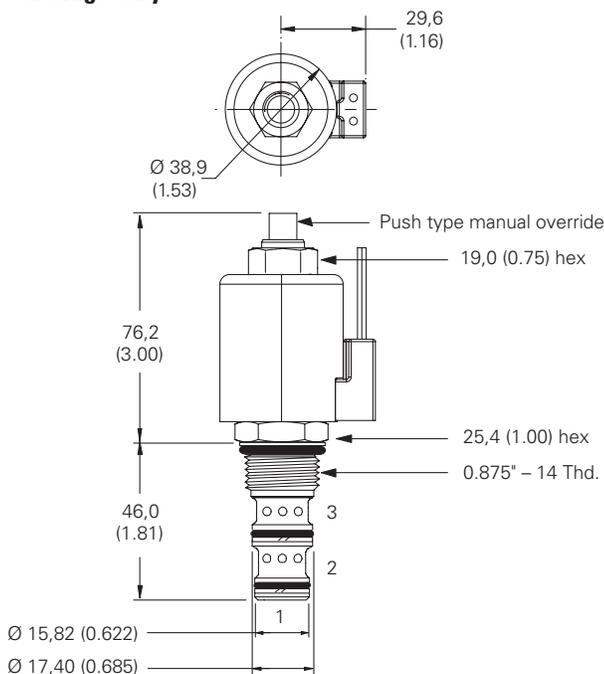
(Only required if valve has Special features, omitted if "00.")

**Note:** Use J series, 23 W coils with this solenoid valve.

## Dimensions

mm (inch)

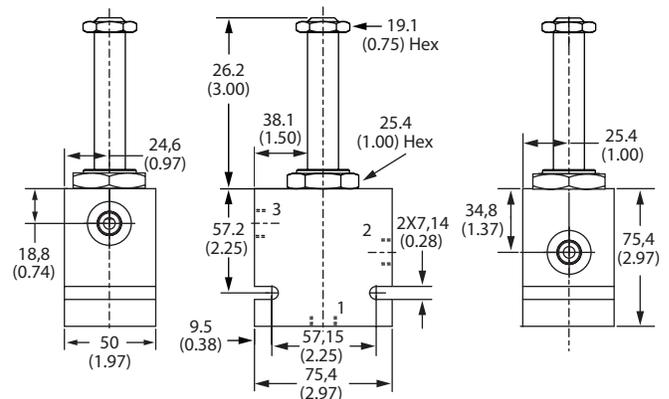
### Cartridge only



Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

### Warning

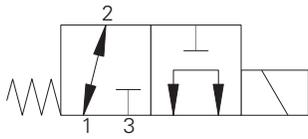
Flow from port 1 to port 2 must be less than 7,6 L/min (2 USgpm).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 2.10 bar (3000 psi)

A



### Operation

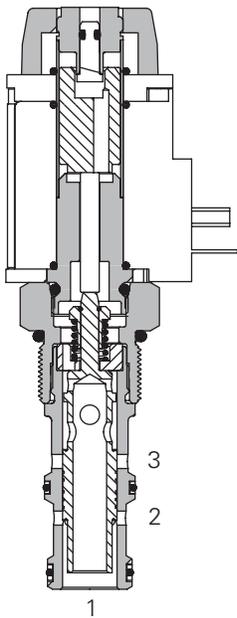
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	42 L/min (11 USgpm) Max flow port 1 to port 2-34 L/min (9 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	9900171-000 (Buna-N), 9900172-000 (Viton®)

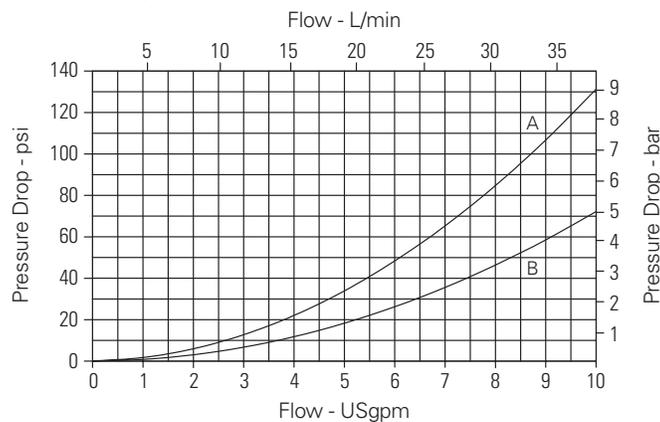
Viton is a registered trademark of E.I. DuPont

### Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

### Pressure drop

Cartridge only



- A** - Port 3 to port 1 energized
- B** - Port 1 to port 2 de-energized

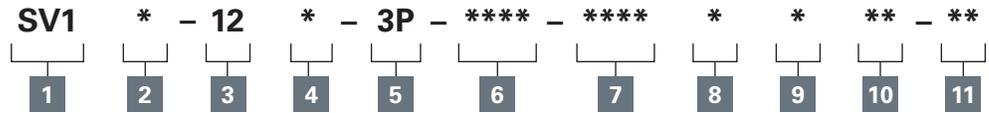
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 210 bar (3000 psi)

A

## Model code



### 1 Function

SV1 - Solenoid valve

### 2 Max flow

M - 42 L/min (11 USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N

V - Viton®

### 5 Style

3P - 3 way, push type manual override

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSP	02-161816
A12H	SAE 12	02-160646

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

### 8 Connector types

Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated

For coil dimensions see section C.

### 9 Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

### 10 Coil special features

Blank - No coil

00 - No special feature

### 11 Special features

00 - None

(Only required if valve has Special features, omitted if "00".)

SF - Soft shift

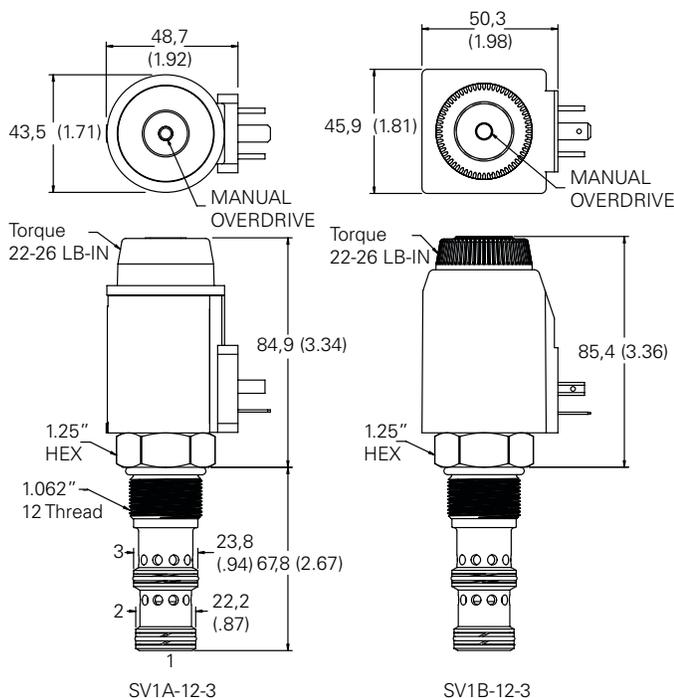
## Dimensions

mm (inch)

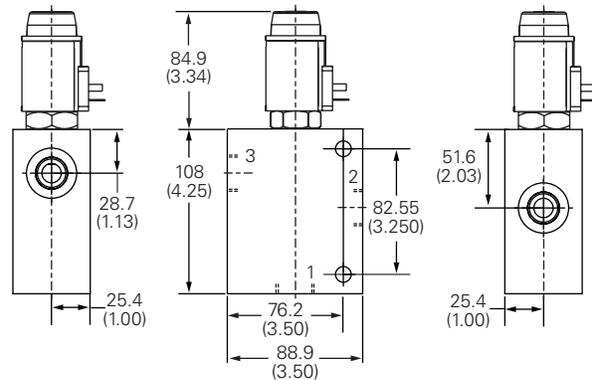
Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing



### Warning

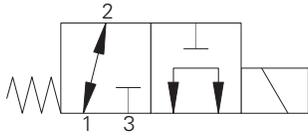
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A



### Operation

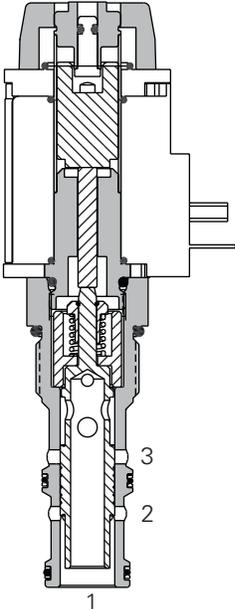
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

In the energized position flow is allowed from port 3 to port 1 while port 2 is blocked.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	42 L/min (11 USgpm) Max. flow port 1 to port 2 - 34 L/min (9 USgpm)
Internal leakage	350 cc/min (21.5 in3/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	9900171-000 Buna-N), 9900172-000 (Viton®)

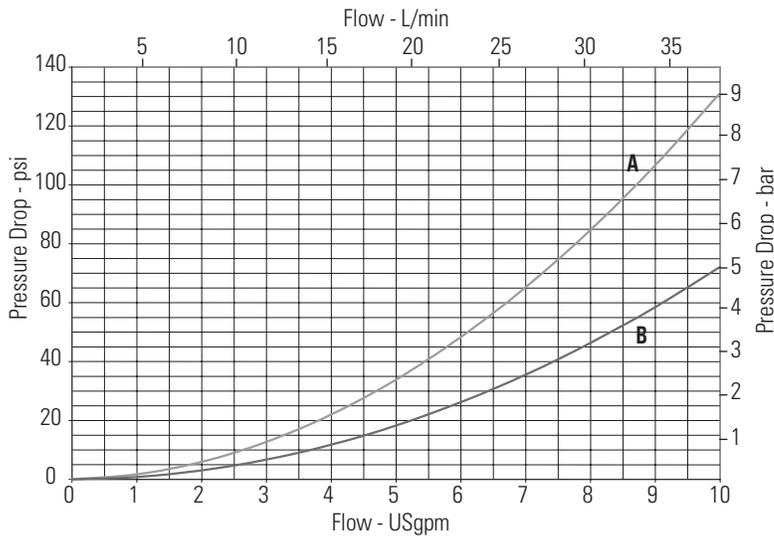
Viton is a registered trademark of E.I. DuPont

### Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

### Pressure drop

Cartridge only



A - Port 3 to port 1 energized  
B - Port 1 to port 2 de-energized

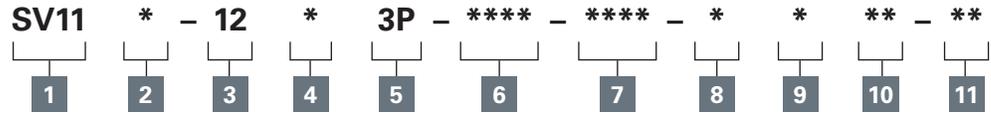
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV11 - Solenoid valve

### 2 Max flow

M - 42 L/min (11 USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N

V - Viton®

### 5 Style

3P - 3 way, push type manual override

### 6 Port size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminium	Steel
A6G	3/4" BSPP	02-161816	
A12H	SAE 12	02-160646	
S4G	1/2" BSPP		02-169815
S6G	3/4" BSPP		02-169814
S10T	SAE 10		02-161070
S12T	SAE 12		02-169816

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

### 8 Connector types

Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated

For coil dimensions see section C.

### 9 Coil types

Blank - No coil  
R - R series (30W) Large ToughCoil

### 10 Coil special features

Blank - No coil  
00 - No special feature

### 11 Special features

00 - None  
(Only required if valve has Special features, omitted if "00".)  
SF - Soft shift

## Dimensions

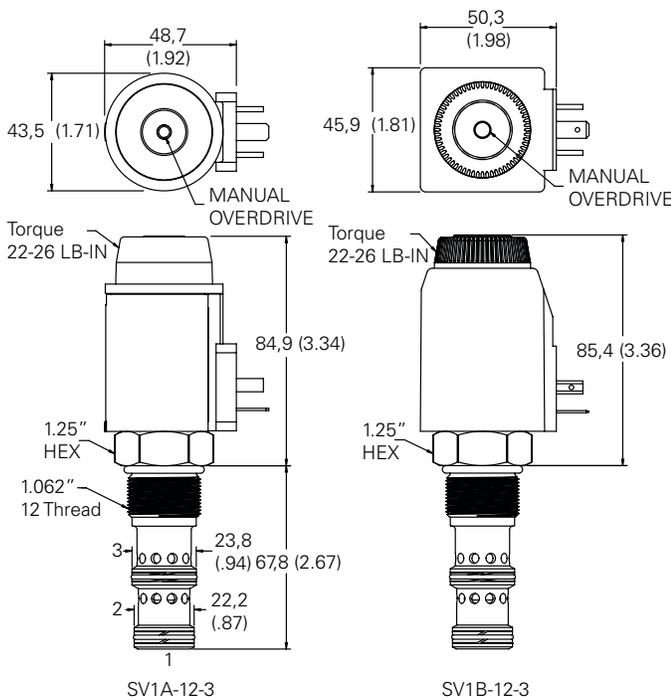
mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)

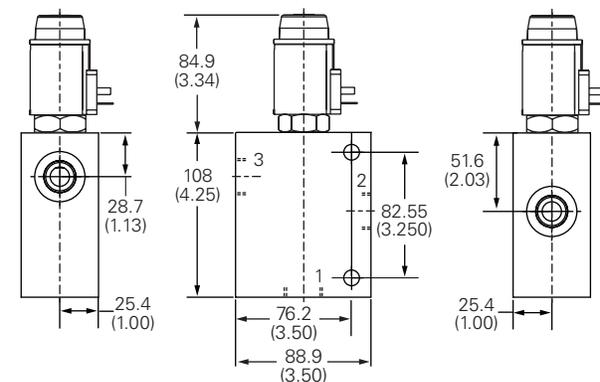
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

### Warning

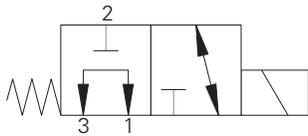
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2M-12-3P - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 2.10 bar (3000 psi)

A



## Operation

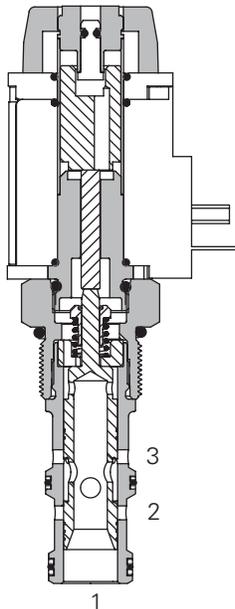
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

In the energized position flow is allowed from port 2 to port 1 while port 3 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	38 L/min (10 USgpm) Max flow port 1 to port 3-34 L/min (9 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	9900171-000 (Buna-N), 9900172-000 (Viton®)

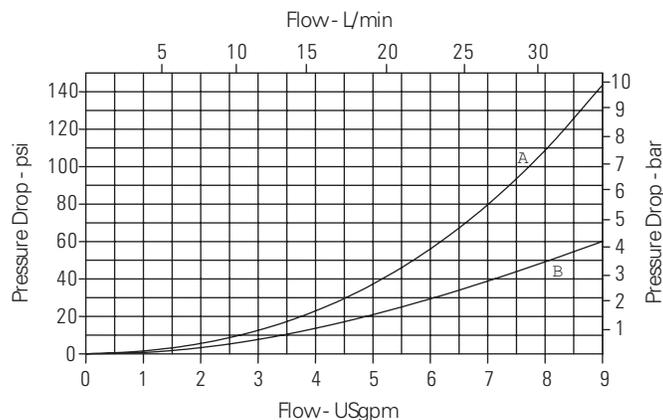
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

Cartridge only



**A** - Port 2 to port 1 energized  
**B** - Port 1 to port 3 de-energized

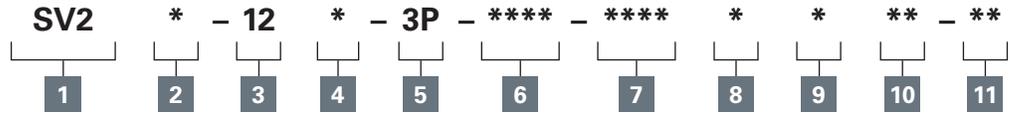
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2M-12-3P - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 210 bar (3000 psi)

A

## Model code



### 1 Function

**SV2** - Solenoid valve

### 2 Max flow

**M** - 38 L/min (10 USgpm)

### 3 Size

**12** - 12 size

### 4 Seal material

**Blank** - Buna-N  
**V** - Viton®

### 5 Style

**3P** - 3 way, push type manual override

### 6 Port size

Code	Port size	Housing number
<b>0</b>	Cartridge only	
<b>A6G</b>	3/4" BSPP	02-161816
<b>A12H</b>	SAE 12	02-160646

### 7 Voltage rating

**00** - No coil  
**12D** - 12VDC  
**24D** - 24VDC  
**12B** - 12VDC/w diode\*  
**24B** - 24VDC/w diode\*  
\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil  
**W** - Flying lead  
**N** - Deutsch male, DT04-2P, integrated  
For coil dimensions see section C.

### 9 Coil types

**Blank** - No coil  
**R** - R series (30W) Large ToughCoil

### 10 Coil special features

**Blank** - No coil  
**00** - No special feature

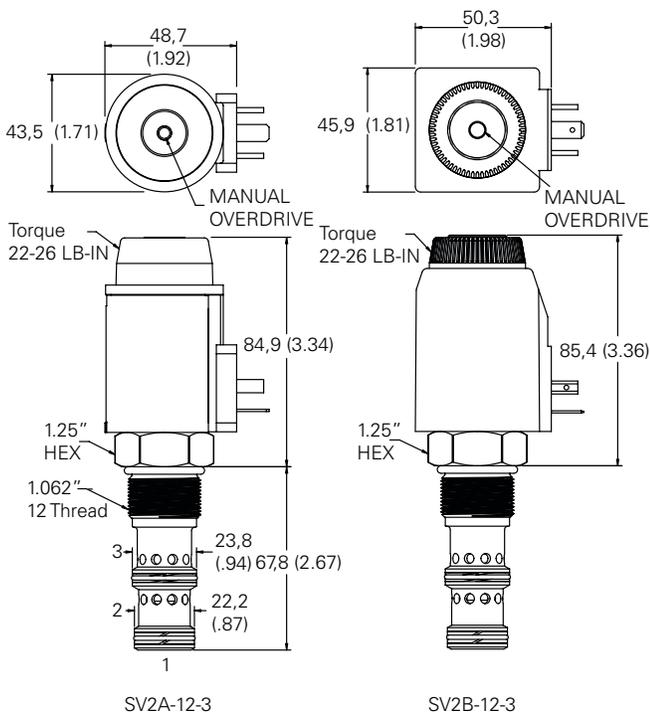
### 11 Special features

**00** - None  
(Only required if valve has Special features, omitted if "00".)  
**SF** - Soft shift

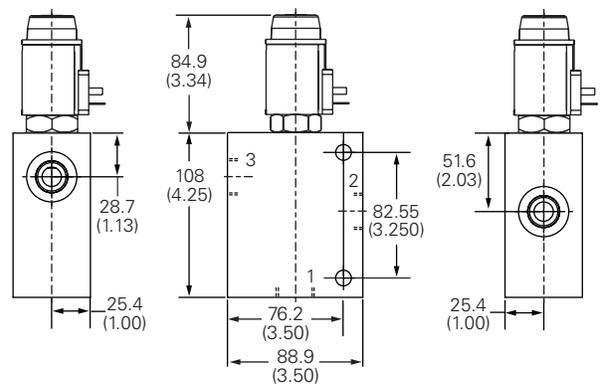
## Dimensions

mm (inch)

### Cartridge only



### Installation drawing



### Warning

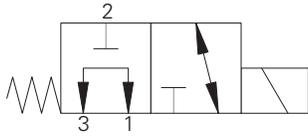
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12M-12-3 - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 350 bar (5000 psi)

A



## Operation

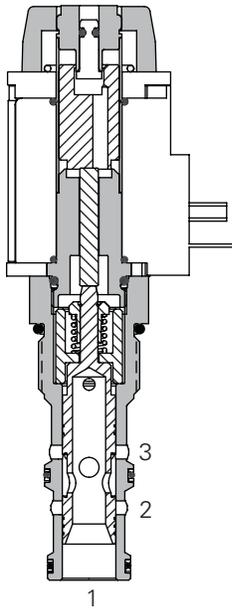
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

In the energized position flow is allowed from port 2 to port 1 while port 3 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	38 L/min (10 USgpm) Max. flow port 1 to port 3 - 34 L/min (9 USgpm)
Internal leakage	350 cc/min (21.5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	9900171-000 Buna-N, 9900172-000 (Viton®)

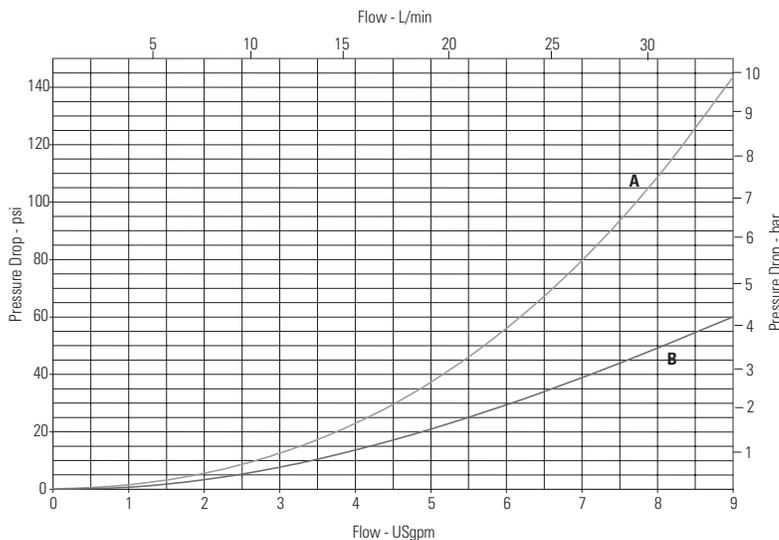
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

Cartridge only



A - Port 2 to port 1 energized  
B - Port 1 to port 3 de-energized

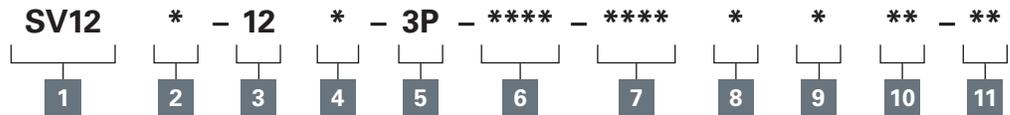
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12M-12-3 - Solenoid valve

3-way, 2-position, spool type solenoid valve  
Up to 34 L/min (9 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

**SV12** - Solenoid valve

### 2 Max flow

**M** - 38 L/min (10 USgpm)

### 3 Size

**12** - 12 size

### 4 Seal material

**Blank** - Buna-N

**V** - Viton®

### 5 Style

**3P** - 3 way, push type manual override

### 6 Port size

**0** - Cartridge only

Code	Port size	Housing number	
		Aluminium	Steel
<b>A6G</b>	3/4" BSPP	02-161816	
<b>A12H</b>	SAE 12	02-160646	
<b>S4G</b>	1/2" BSPP		02-169815
<b>S6G</b>	3/4" BSPP		02-169814
<b>S10T</b>	SAE 10		02-161070
<b>S12T</b>	SAE 12		02-169816

### 7 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

**Blank** - No coil

**W** - Flying lead

**N** - Deutsch male, DT04-2P, integrated

For coil dimensions see section C.

### 9 Coil types

**Blank** - No coil

**R** - R series (30W) Large ToughCoil

### 10 Coil special features

**Blank** - No coil

**00** - No special feature

### 11 Special features

**00** - None

(Only required if valve has Special features, omitted if "00".)

## Dimensions

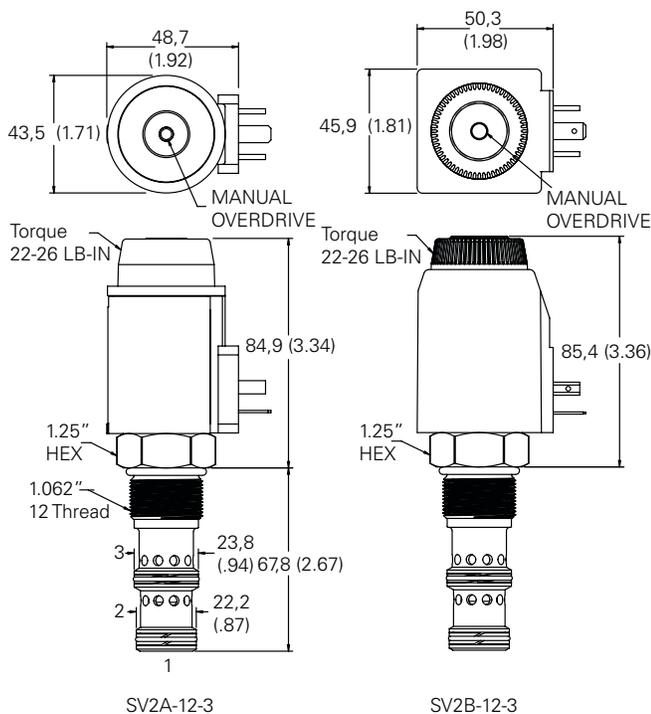
mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)

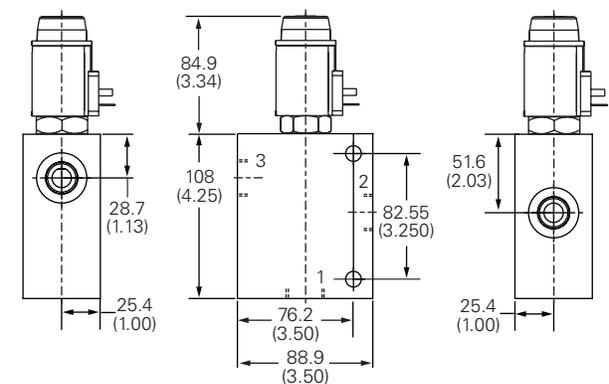
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

### Warning

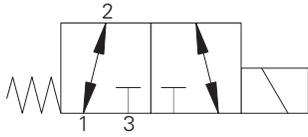
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4M-12-3P - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

A



## Operation

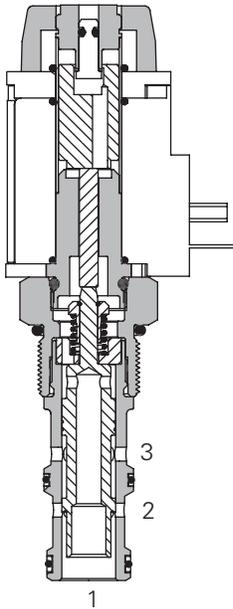
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

In the energized position flow is allowed from port 2 to port 3 while port 1 is blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	42 L/min (11 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	9900171-000 (Buna-N), 9900172-000 (Viton®)

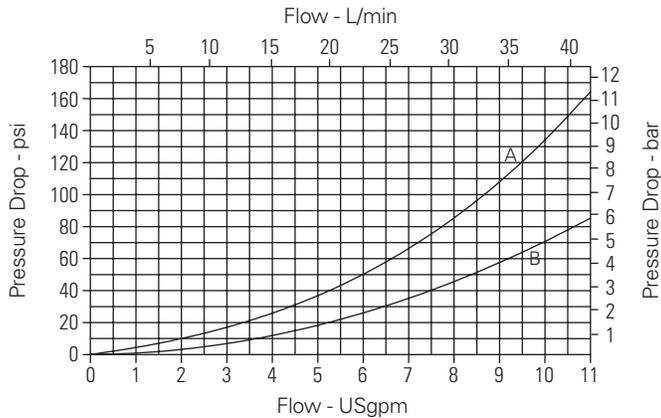
Viton is a registered trademark of E.I. DuPont

## Description

This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

## Pressure drop

Cartridge only



- A** - Port 3 to port 2 energized
- B** - Port 2 to port 1 de-energized

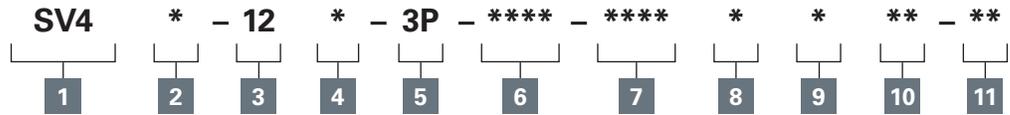
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4M-12-3P - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

A

## Model code



### 1 Function

SV4 - Solenoid valve

### 2 Max flow

M - 42 L/min (11 USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N  
V - Viton®

### 5 Style

3P - 3 way, push type manual override

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	02-161816
A12H	SAE 12	02-160646

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated  
For coil dimensions see section C.

### 9 Coil types

Blank - No coil  
R - R series (30W) Large ToughCoil

### 10 Coil special features

Blank - No coil  
00 - No special feature

### 11 Special features

00 - None  
(Only required if valve has Special features, omitted if "00".)  
SF - Soft shift

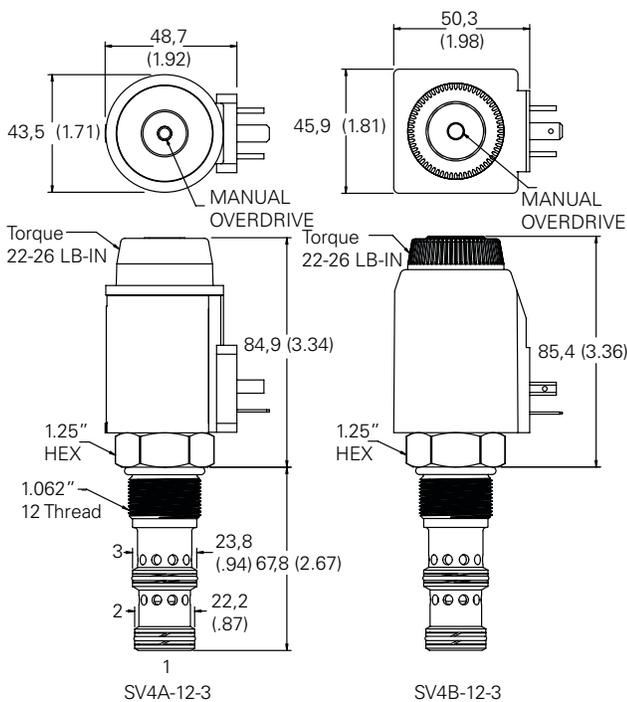
## Dimensions

mm (inch)

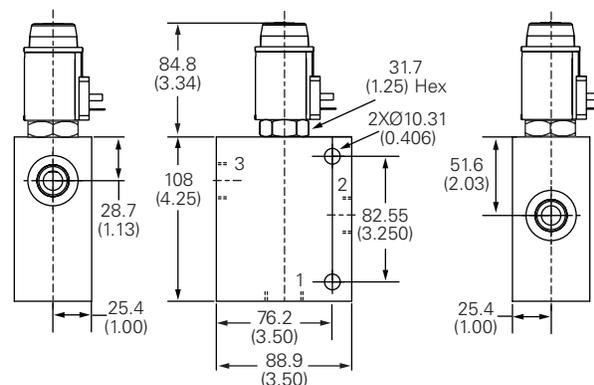
Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing



### Warning

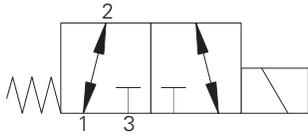
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A



### Operation

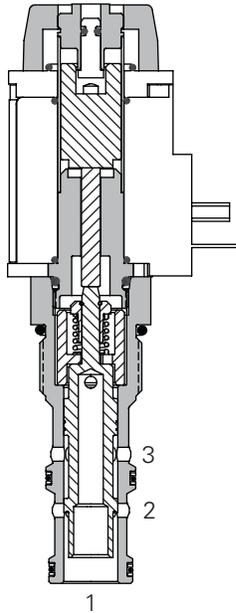
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

In the energized position flow is allowed from port 2 to port 1 while port 3 is blocked.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	42 L/min (11 USgpm)
Internal leakage	350 cc/min (21.5 in3/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-3
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	9900171-000 Buna-N), 9900172-000 (Viton®)

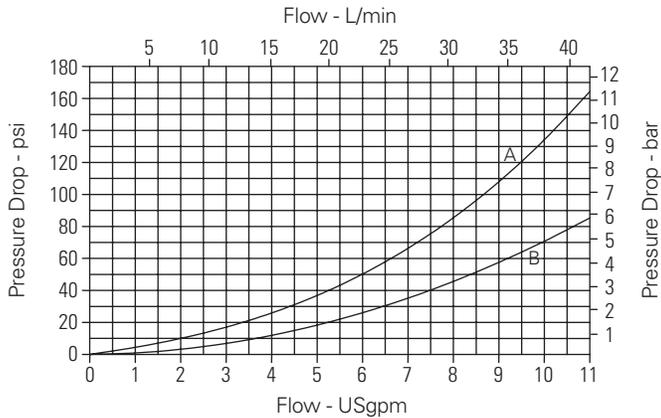
Viton is a registered trademark of E.I. DuPont

### Description

This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

### Pressure drop

Cartridge only



**A** - Port 3 to port 2 energized  
**B** - Port 2 to port 1 de-energized

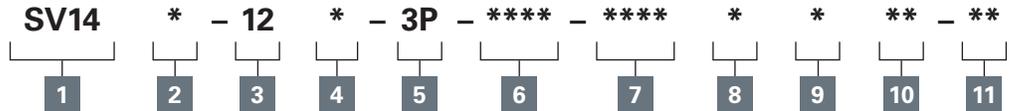
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV14A/B-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV14 - Solenoid valve

### 2 Max flow

M - 42 L/min (11 USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N

V - Viton®

### 5 Style

3P - 3 way, push type manual override

### 6 Port size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminium	Steel
A6G	3/4" BSPP	02-161816	
A12H	SAE 12	02-160646	
S4G	1/2" BSPP		02-169815
S6G	3/4" BSPP		02-169814
S10T	SAE 10		02-161070
S12T	SAE 12		02-169816

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

W - Flying lead (DC only)

N - Deutsch male, DT04-2P, integrated

For coil dimensions see section C.

### 9 Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

### 10 Coil special features

Blank - No coil

00 - No special feature

### 11 Special features

00 - None

(Only required if valve has Special features, omitted if "00".)

## Dimensions

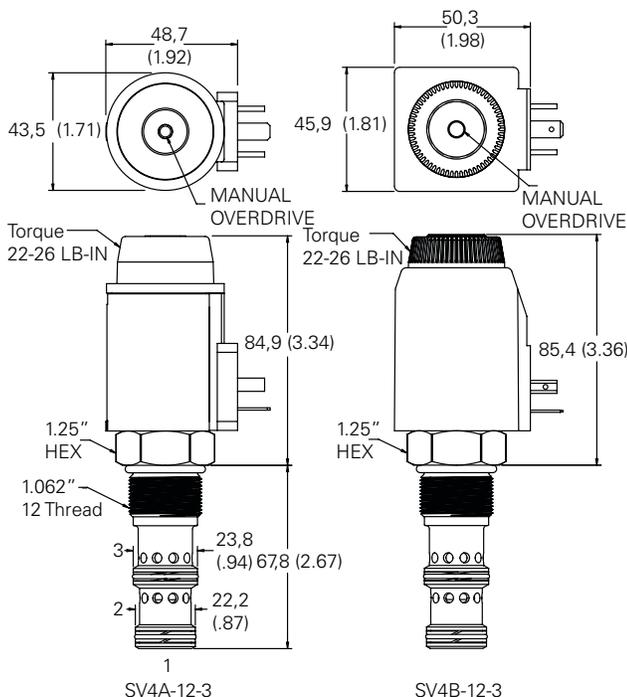
mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)

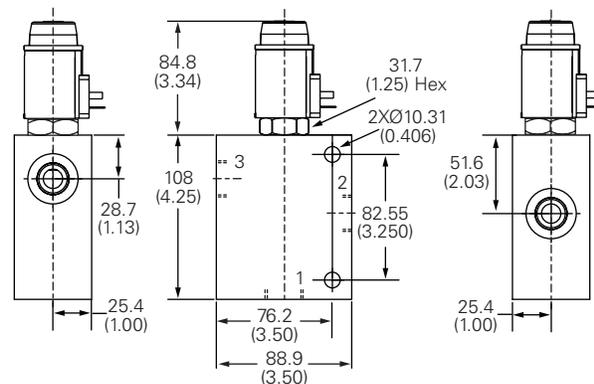
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

### Warning

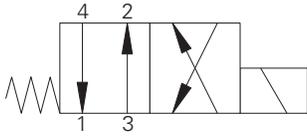
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-8-4/4M - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 2.10 bar (3000 psi)

A



## Operation

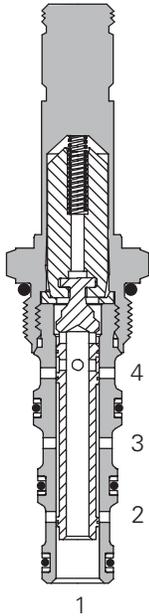
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage (per land)	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,31 kg (0.69 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

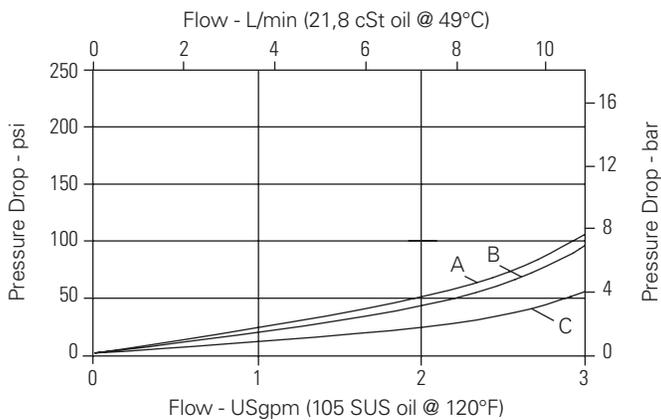
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



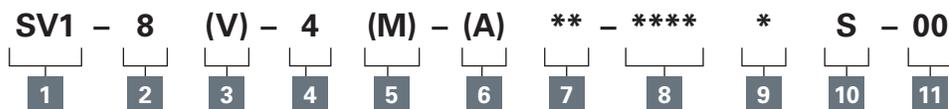
- A** - Port 3 to port 4 or port 3 to port 2
- B** - Port 4 to port 1
- C** - Port 2 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-8-4/4M - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with Manual override option installed, see page A-980.

### 6 Valve housing material

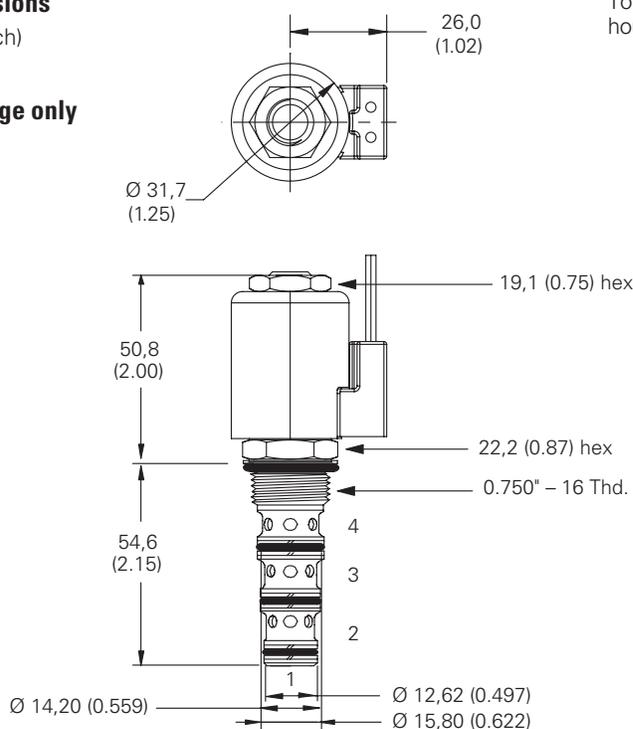
Omit for Cartridge only

A - Aluminum

### Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160747
3G	3/8" BSPP	02-160748
4T	SAE 4	02-160749
6T	SAE 6	02-160750

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

### 10 Coil series

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

### 11 Special features

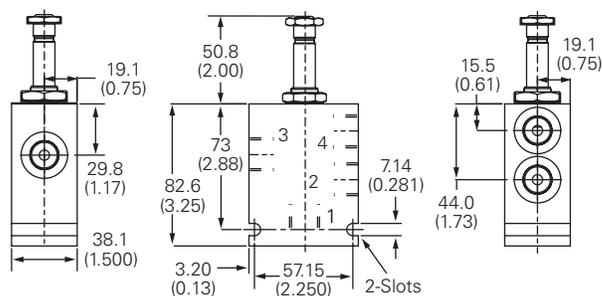
00 - None

(Only required if valve has Special features omitted if "00".)

Torque cartridge in steel housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

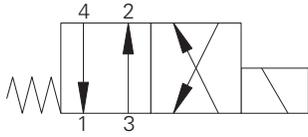
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)

A



## Operation

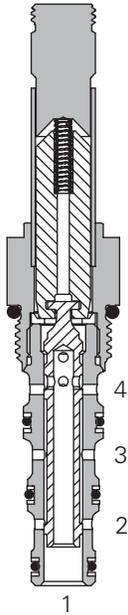
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage (per land)	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight including coil	0,14 kg (0.30 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

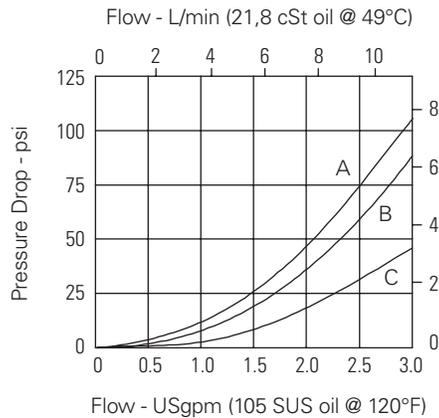
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

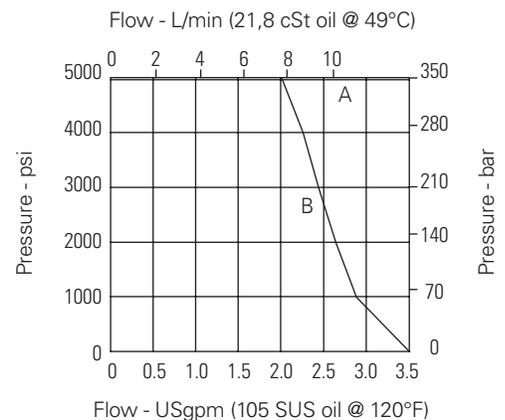
## Pressure drop

Cartridge only



### Pressure drop vs. Flow

- A** - Port 3 to port 4 or port 3 to port 2
- B** - Port 4 to 1
- C** - Port 2 to 1



### Operating Limits

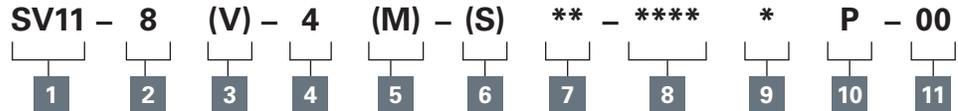
- A** - Port 2 to port 1, 4 to 1, and 3 to 2
- B** - Port 3 to port 4

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV11 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with Manual override option installed, see page A-980.

### 6 Valve housing material

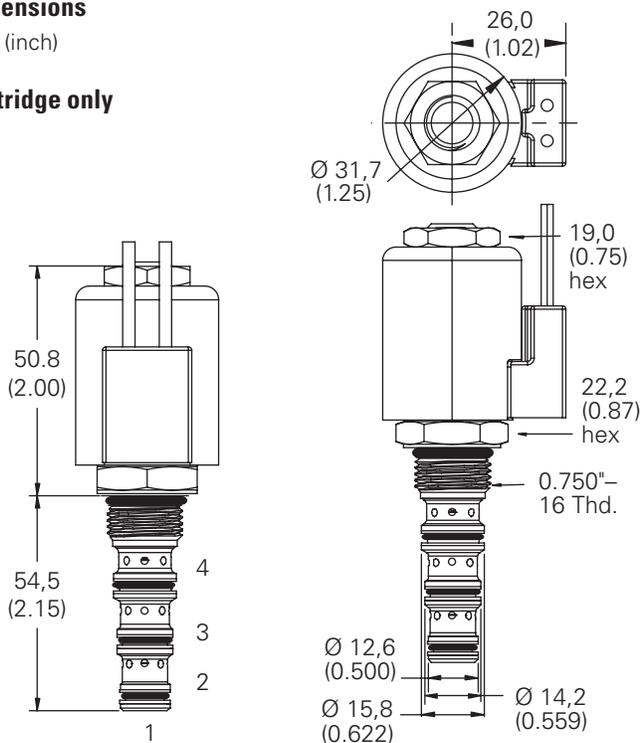
Blank - Cartridge only

A - Aluminum

## Dimensions

mm (inch)

### Cartridge only



### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160751
3G	3/8" BSPP	02-160752
4T	SAE 4	02-160753
6T	SAE 6	02-160754

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

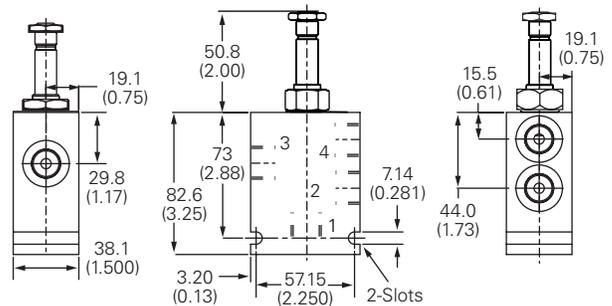
00 - None

(Only required if valve has Special features omitted if "00".)

Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Installation drawing



### Warning

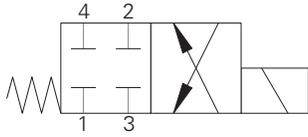
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 13 L/min (4 USgpm) • 2.10 bar (3000 psi)

A



## Operation

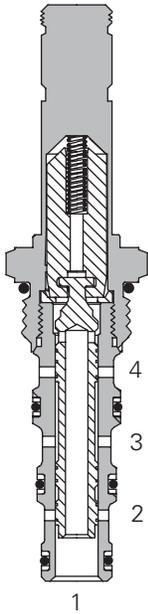
In the de-energized position all ports are blocked.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports..

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize: 21 ms De-Energize: 42 ms
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

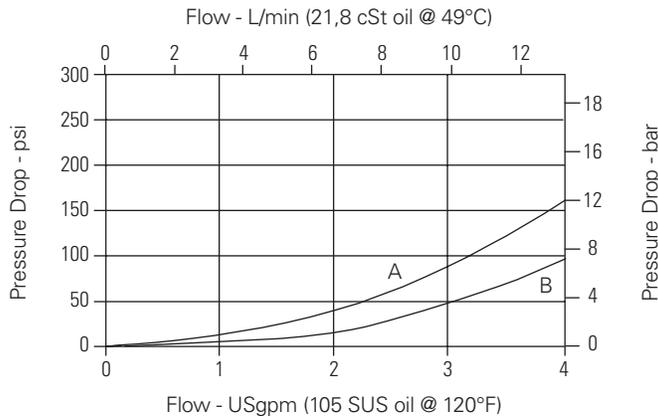
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



**A** - Port 3 to port 4

**B** - Port 2 to port 1

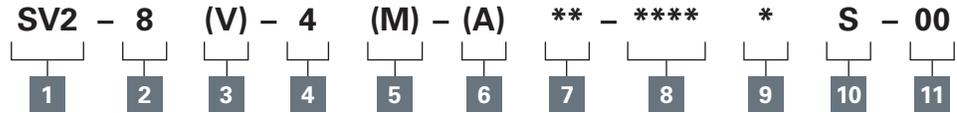
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 13 L/min (4 USgpm) • 210 bar (3000 psi)

A

## Model code



**1 Function**  
SV2 - Solenoid valve

**2 Size**  
8 - 8 size

**3 Seal material**  
Blank - Buna-N  
V - Viton®

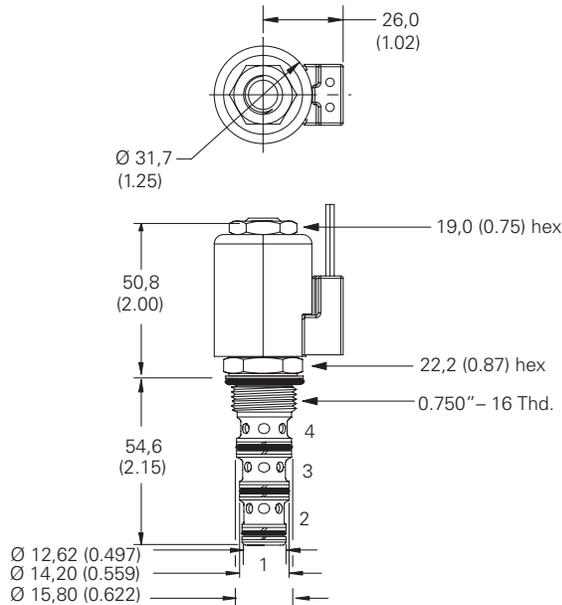
**4 Style**  
4 - 4-way, 2 position

**5 Manual override option**  
Blank - No manual override  
M - Manual override  
For valve dimensions with Manual override option installed, see page A-980.

**6 Valve housing material**  
Omit for Cartridge only  
A - Aluminum

**Dimensions**  
mm (inch)

**Cartridge only**



**7 Port size**

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160747
3G	3/8" BSPP	02-160748
4T	SAE 4	02-160749
6T	SAE 6	02-160750

See section J for housing details.

**8 Voltage rating**

00 - No coil	115A - 115VAC
12D - 12VDC	230A - 230VAC
24D - 24VDC	12B - 12VDC/w diode*
36D - 36VDC	24B - 24VDC/w diode*
24A - 24VAC	*Optional arc suppression diode.

**9 Connector types**

- Blank - No coil
- G - ISO 4400 DIN 43650
- Q - Spade terminals
- W - Flying lead
- N - Deutsch (DC only)
- Y - Amp JR (DC only)
- D - Metripack 150 male (DC only)
- J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

**10 Coil series**

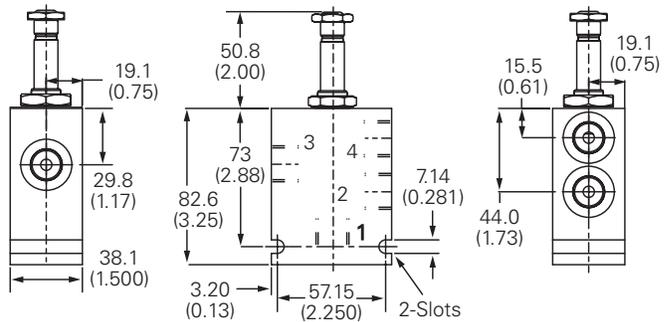
- S - 8 series, 20 W
- For coil part numbers and dimensions see section C.

**11 Special features**

- 00 - None
- (Only required if valve has Special features omitted if "00".)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

**Installation drawing**



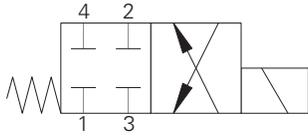
**Warning**  
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)

A



### Operation

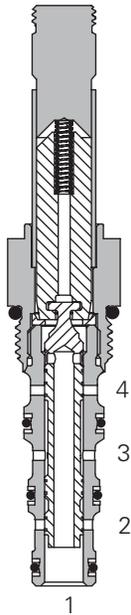
In the de-energized position all ports are blocked.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

### Sectional view



### Performance data

#### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage, port 2 to port 1	82 cm <sup>3</sup> /min (5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight - Cartridge only	0,14 kg (0.30 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

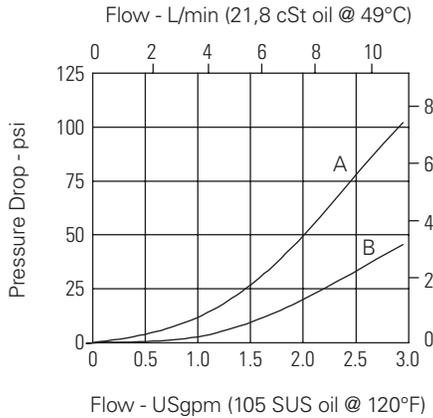
Viton is a registered trademark of E.I. DuPont

### Description

This is a 4-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

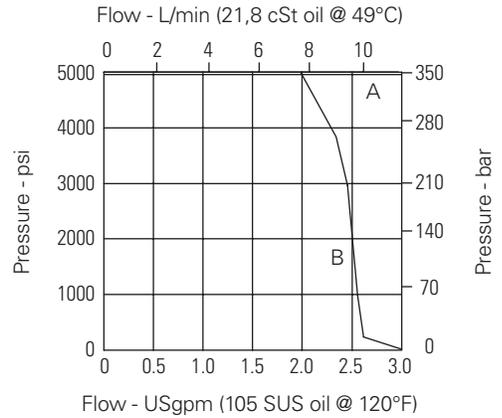
### Pressure drop

Cartridge only



#### Pressure drop vs. Flow

- A - Port 3 to port 4
- B - Port 2 to 1



#### Operating Limits

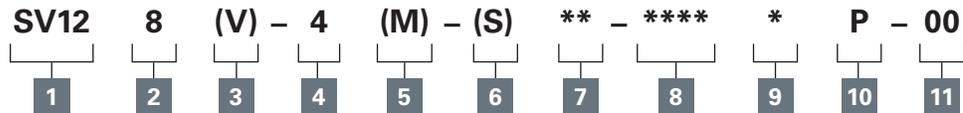
- A - Port 2 to port 1
- B - Port 3 to port 4

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12-8-4/4M - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV12 - Solenoid valve

### 2 Size

8 - 8 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2 position

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with Manual override option installed, see page A-980.

### 6 Valve housing material

Blank - Omit for Cartridge only

A - Aluminum

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160751
3G	3/8" BSPP	02-160752
4T	SAE 4	02-160753
6T	SAE 6	02-160754

See section J for housing details.

### 8 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Coil series

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

### 11 Special features

00 - None

(Only required if valve has Special features omitted if "00".)

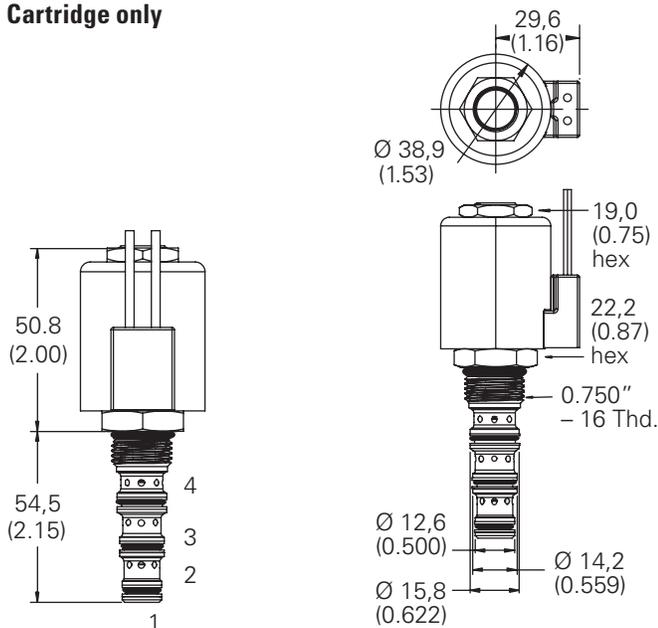
## Dimensions

mm (inch)

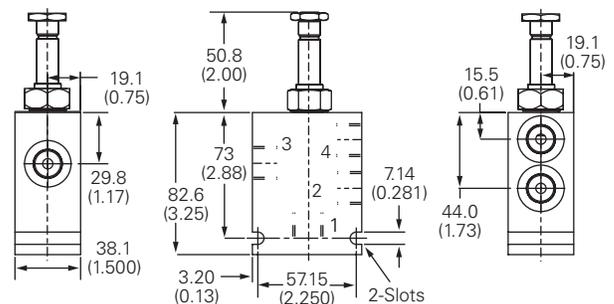
Torque cartridge in steel or aluminum housing 34-41 Nm (25-30 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing



### Warning

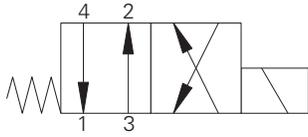
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-4/4M/4R - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 2.10 bar (3000 psi)

A



## Operation

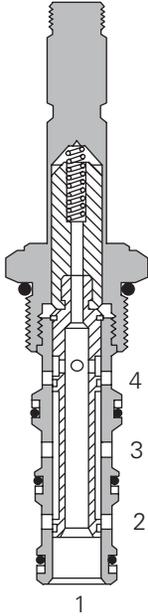
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

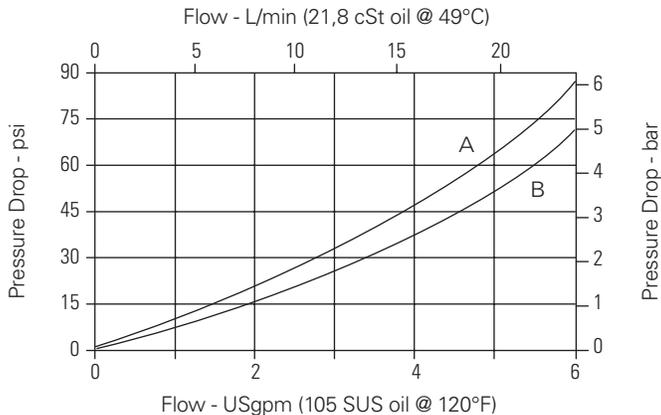
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



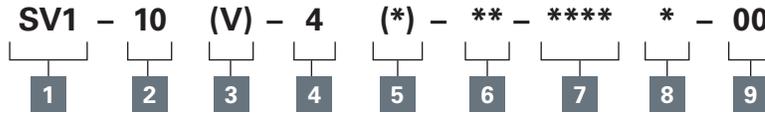
**A** - Port 4 to port 1  
**B** - Port 3 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1-10-4/4M/4R - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV1 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

4 - 4-way, 2 position

### 5 Manual override option

Blank - No manual override  
M - Knob type  
R - Cable type

For valve dimensions with Manual override option installed, see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing.  
See section J for housing details.

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 9 Special features

00 - None  
(Only required if valve has Special features omitted if "00".)

## Dimensions

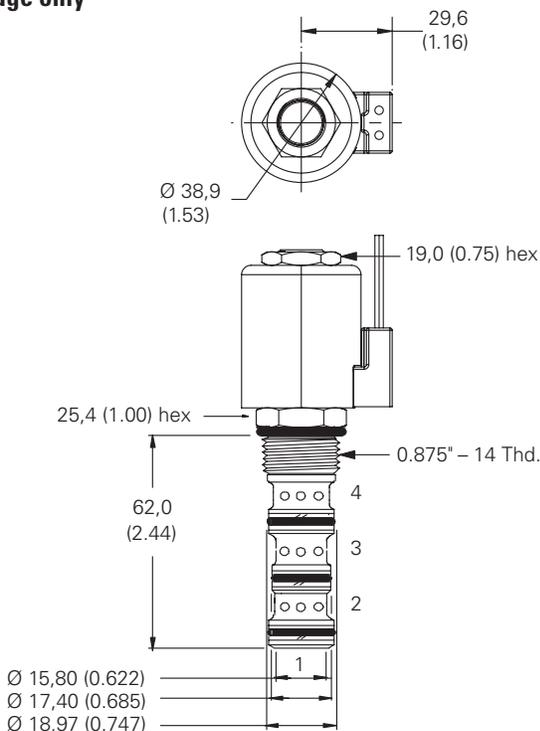
mm (inch)

Torque cartridge in aluminum housing 47-54 Nm (33-46 ft lbs)

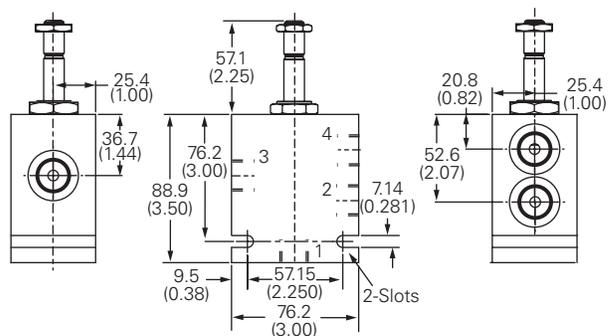
**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

**Note:** Use J series 23W coils with this solenoid valve.

## Cartridge only



## Installation drawing



### Warning

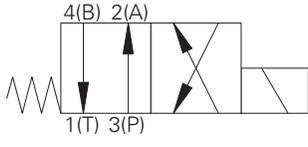
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S542 - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 35 L/min (9 USgpm) • 2.10 bar (3000 psi)

A



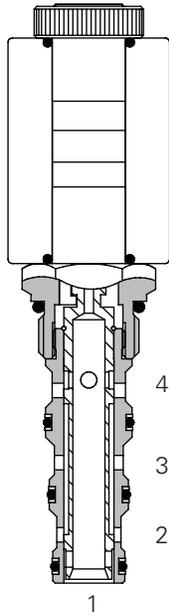
### Operation

In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2. In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

### Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with valves of same series.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.
- Reversible coil without affecting performance.

### Sectional view



### Performance data

#### Ratings and specifications

Figures based on Viscosity 32 cSt (150 SSU)

Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5$ bar (70 psi)	20 L/min (5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential at 32 cSt
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	Most general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc.
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (.6 lbs)
Cartridge weight	0.205 kg (.45 lbs)
Seal kit	SK1031 (Nitrile) SK1031V (Viton®)
Coil part number	C16-*/19
Coil voltage available	12, 24 VDC, 110, 220, VAC*

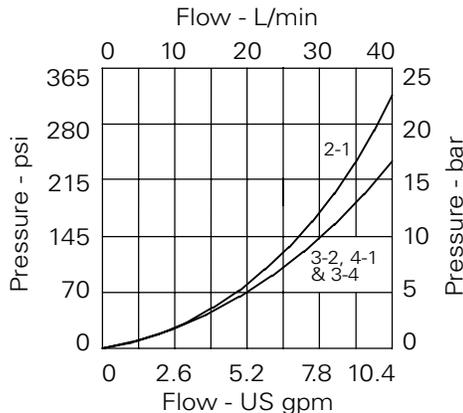
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

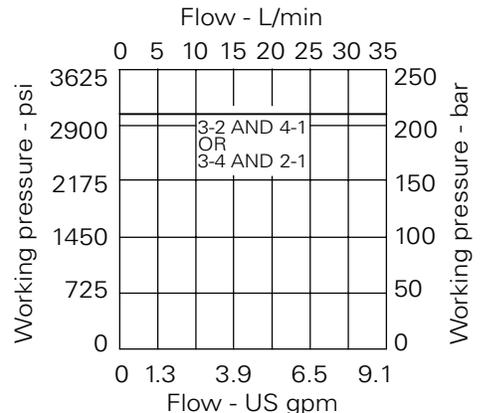
### Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

### Pressure drop



### Performance

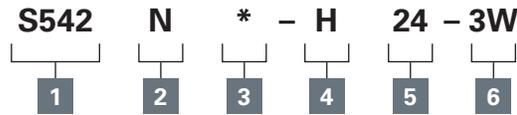


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S542 - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

**S542**

### 2 Seals

**N** - Nitrile

**V** - Viton

### 3 Manual Override

**2** - Screw

(Consult factory for availability).  
See page A-960

### 4 Coil Termination

**H** - DIN43650

**F** - Flying leads

**DM** - Deutsch moulded

Other terminations available  
on request

### 5 Voltage

**12** - 12 VDC

**24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

### 6 Port sizes

Code	Port size	Housing number - Body only
		Aluminium
<b>3W</b>	3/8" BSP	B19240
<b>4W</b>	1/2" BSP	B19228
<b>8T</b>	1/2" SAE	B19229

## Dimensions

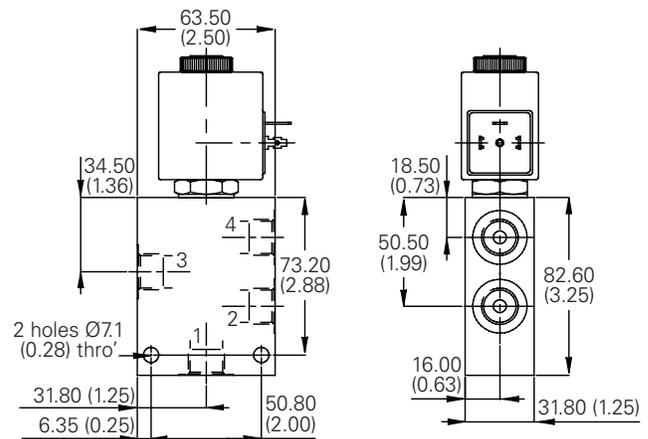
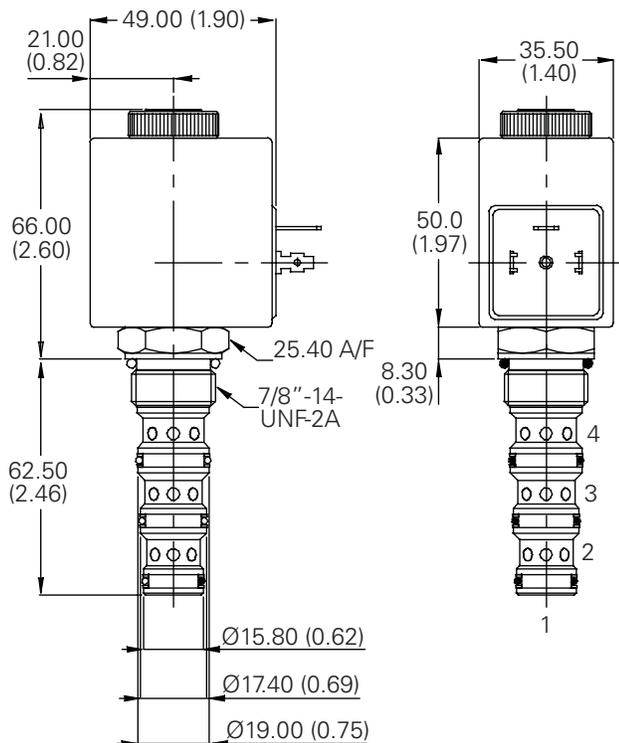
mm (inch)

### Cartridge only

Basic Code

**S542**

### Installation drawing

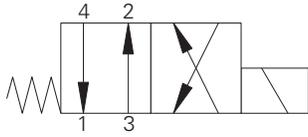


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV1 1-10-4/4M - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

A



## Operation

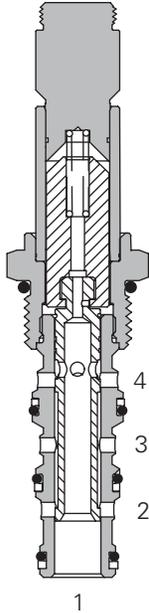
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage, port 2 to port 1	82 cm <sup>3</sup> /min. (5 in <sup>3</sup> /min) max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight Cartridge only	0,21 kg (0.46 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

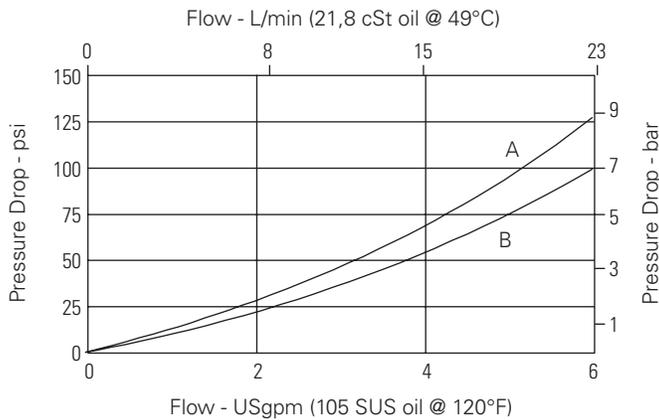
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



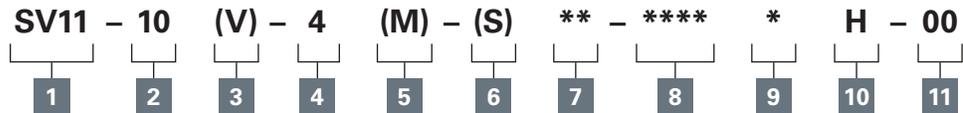
**A** - Port 3 to port 2  
**B** - Port 4 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV11-10-4/4M - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 350 bar (5000 psi)

## Model code



A

### 1 Function

SV11 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override option

Blank - No manual override

M - Manual override

For valve dimensions with Manual override option installed see page A-980.

### 6 Valve housing material

Blank - Omit for Cartridge only

S - Steel

### 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175139
3G	3/8" BSPP	02-175140
6T	SAE 6	02-175137
8T	SAE 8	02-175138

See section J for housing details.

### 8 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Coil types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 10 Coil series

H - 10 series, 29W

For coil part numbers and dimensions see section C.

### 11 Special features

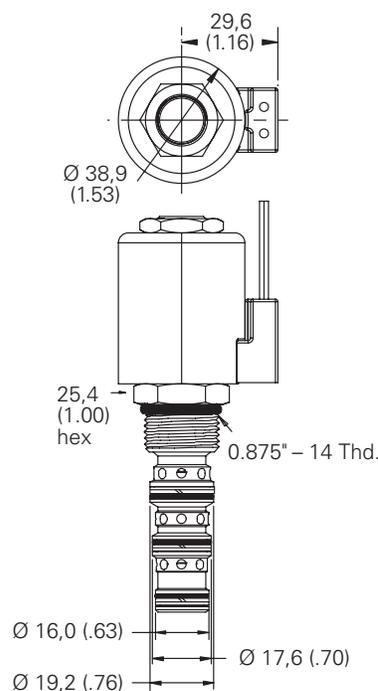
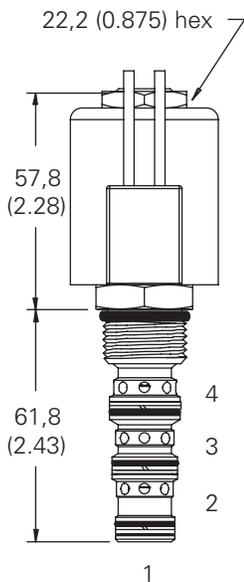
00 - None

(Only required if valve has Special features omitted if "00".)

## Dimensions

mm (inch)

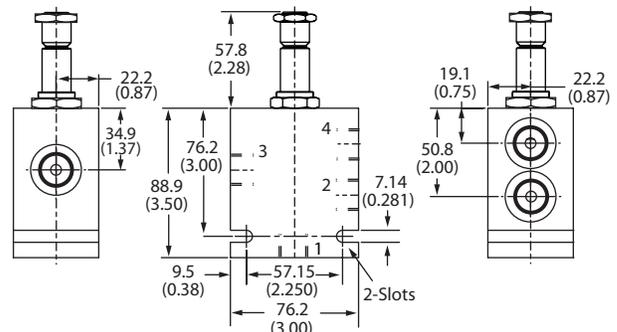
### Cartridge only



Torque cartridge in steel housing 68-75 Nm (50-55 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

### Installation drawing



### Warning

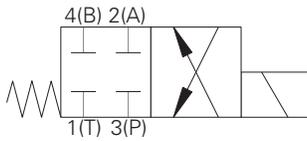
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S541 - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 30 L/min (8 USgpm) • 2.10 bar (3000 psi)

A



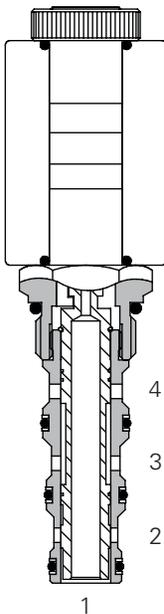
## Operation

In the de-energized position all ports are blocked. In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

- High flow capacity with reduced space requirements.
- No dynamic seals.
- Standard valve bodies and common cavities.
- One-piece encapsulated coil with minimal amperage draw.
- Oil immersed armature solenoid.
- Various coil terminals and voltages.
- Coil interchangeability with valves of same series.
- Manual override, seal variations and other options available.
- Sealed coil arrangement to protect stem from corrosion.
- Reversible coil without affecting performance.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with Viscosity 32 cST (150 SSU)

Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\Delta P = 5$ bar (70 psi)	20 L/min (5 USgpm)
Internal leakage	Less than 120 ml/min 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs)
Cartridge weight	0.13 kg (0.3 lbs)
Seal kit	SK1031 (Nitrile) SK1031V (Viton)
Coil part number	C16-*/19
Coil voltage available	12, 24 VDC, 110, 220, VAC*

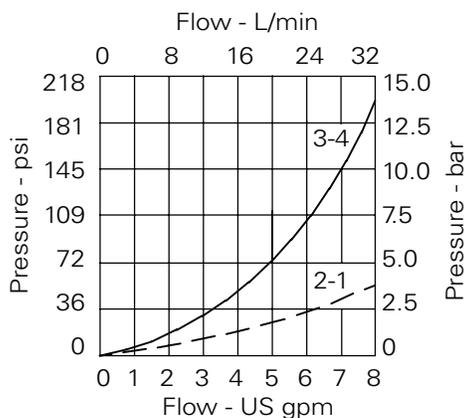
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

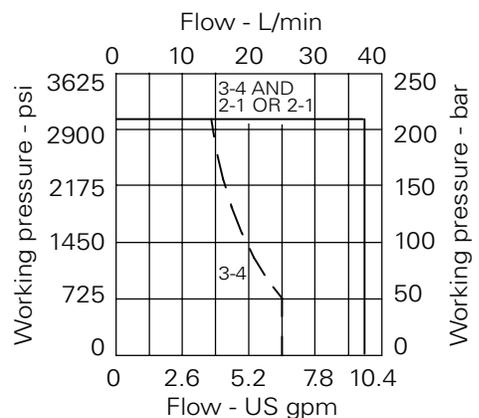
## Description

This is a 4-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop



## Performance



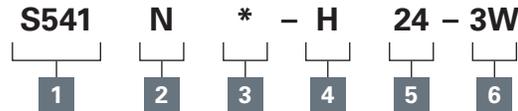
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# S541 - Solenoid valve

4-way, 2-position spool type solenoid valve  
Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)

A

## Model code



### 1 Function

**S541**

### 2 Seal material

**N** - Nitrile

**V** - Viton

### 3 Manual Override

**2** - Screw

(Consult factory for availability).  
See page A-960.

### 4 Coil Termination

**H** - DIN43650

**F** - Flying leads

**DM** - Deutsch moulded

Other terminations available on request

### 5 Voltage

**12** - 12 VDC

**24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

### 6 Port size

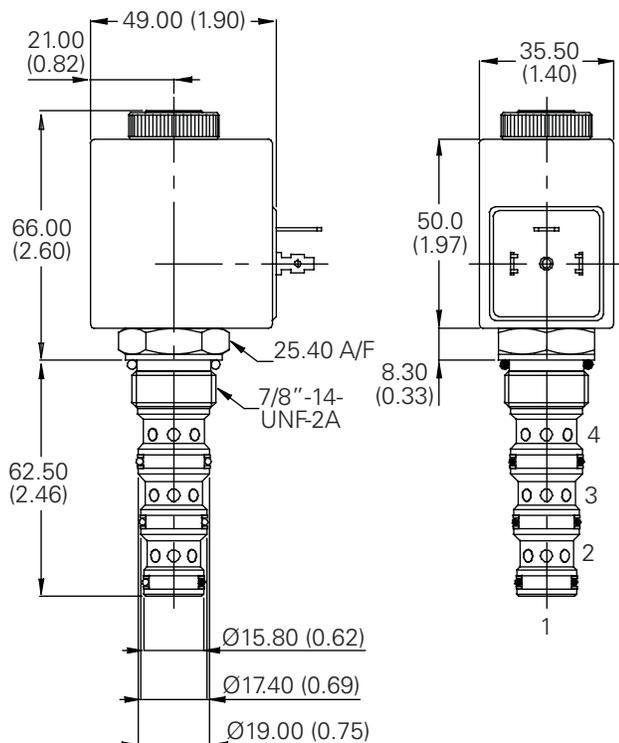
Code	Port size	Housing number - Body only
		Aluminium
<b>3W</b>	3/8" BSP	B19240
<b>4W</b>	1/2" BSP	B19228
<b>8T</b>	1/2" SAE	B19229

## Dimensions

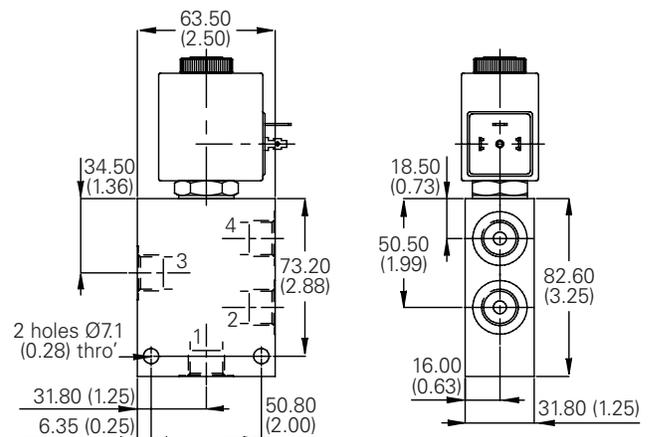
mm (inch)

### Cartridge only

Basic Code  
**S541**



### Installation drawing

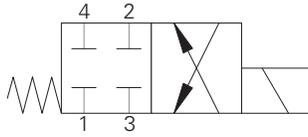


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

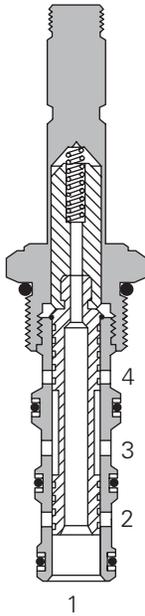
In the de-energized position all ports are blocked.

In the energized position flow is allowed from port 3 to port 4 and from port 2 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

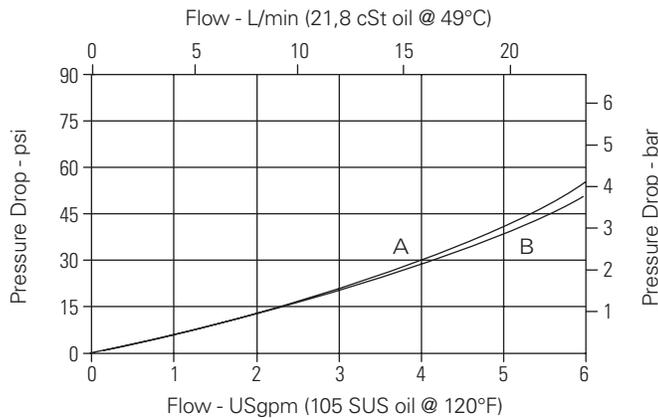
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



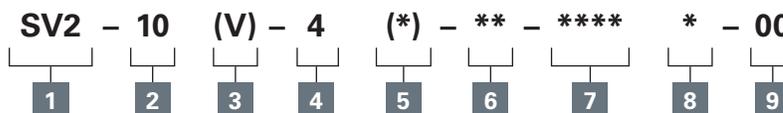
**A** - Port 3 to port 4  
**B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV2 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override option

Blank - No manual override  
M - Knob type  
R - Cable type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing  
See section J for housing details.

### 7 Voltage rating

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230 - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

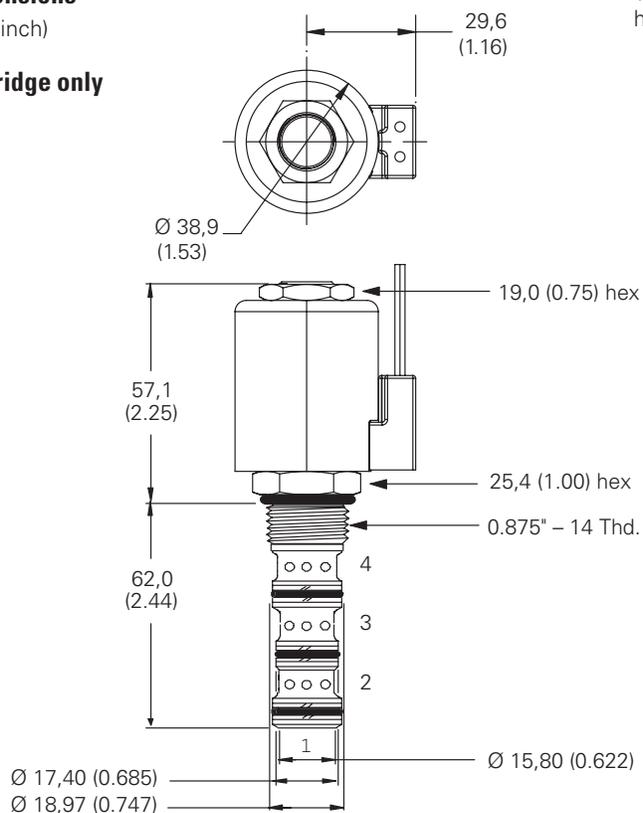
### 9 Special features

00 - None  
(Only required if valve has Special features omitted if "00".)  
**Note:** Use J series 23, W coils with this solenoid valve.

## Dimensions

mm (inch)

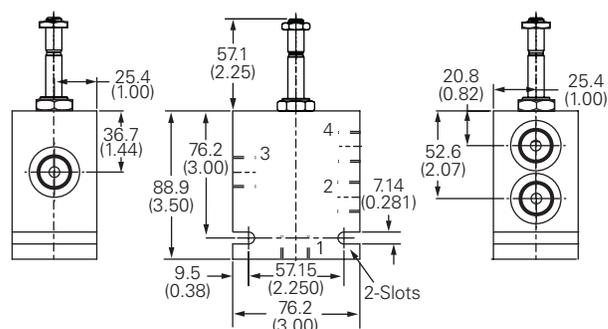
### Cartridge only



Torque cartridge in steel housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

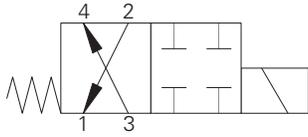
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

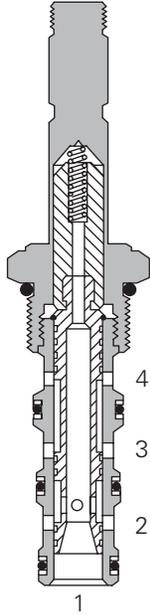
In the de-energized position flow is allowed from port 3 to port 1 and from port 2 to port 4.

In the energized position all ports are blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

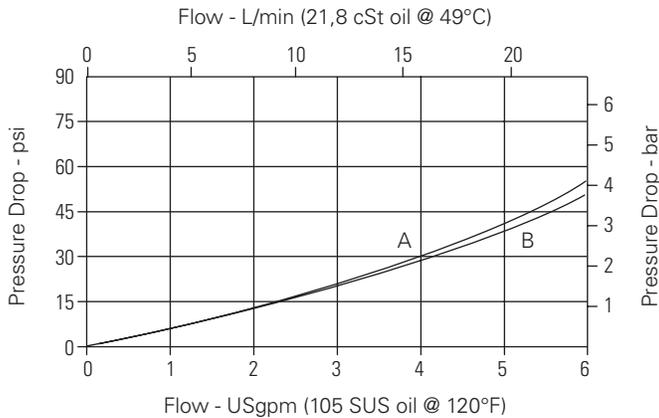
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



**A** - Port 3 to port 4

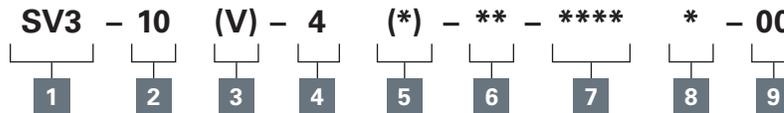
**B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV3 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override

option  
Blank - No manual override  
M - Knob type  
R - Cable type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing  
See section J for housing details.

### 7 Voltage rating

00 - No coil	24A - 24VAC
12D - 12VDC	115A - 115VAC
24D - 24VDC	230A - 230VAC
36D - 36VDC	12B - 12VDC/w diode*
	24B - 24VDC/w diode*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)  
For coil part numbers and dimensions see section C.

### 9 Special features

00 - None  
(Only required if valve has Special features omitted if "00".)  
**Note:** Use J series 23, W coils with this solenoid valve.

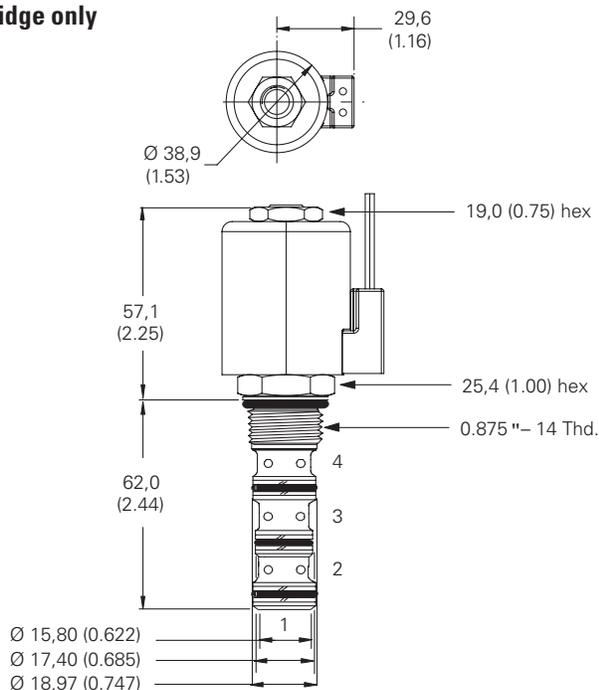
## Dimensions

mm (inch)

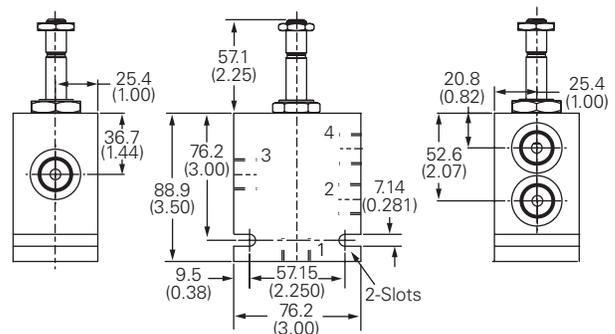
Torque cartridge in steel housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Cartridge only



### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

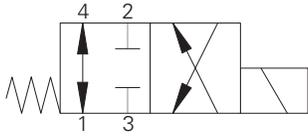
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
 23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

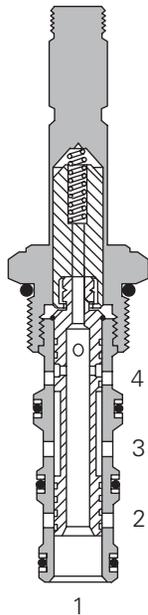
In the de-energized position flow is allowed from port 1 to port 4. Port 2 - port 3 is blocked.

In the energized position flow is allowed from port 1 to port 2, and from port 3 to port 4.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

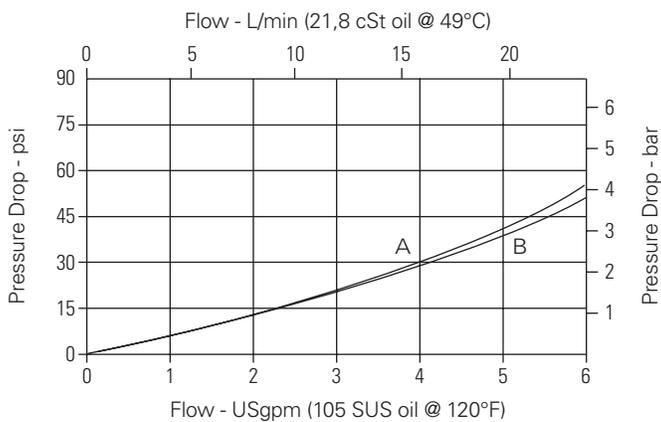
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications with double acting actuators held in position by a pilot operated check valve or overcenter valve to ensure the pilot line is drained to tank.

## Pressure drop

Cartridge only



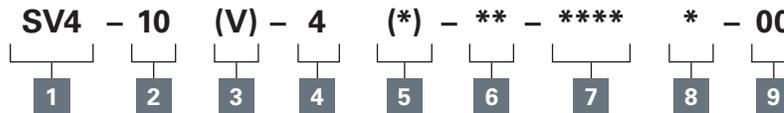
**A** - Port 3 to port 4  
**B** - Port 1 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV4-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV4 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N  
V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override option

Blank - No manual override  
M - Knob type  
R - Cable type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing  
See section J for housing details.

### 7 Voltage rating

00 - No coil  
12D - 12VDC  
24D - 24VDC  
36D - 36VDC  
24A - 24VAC  
115A - 115VAC  
230A - 230VAC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil  
G - ISO 4400 DIN 43650  
Q - Spade terminals  
W - Flying lead  
N - Deutsch (DC only)  
Y - Amp JR (DC only)  
D - Metripack 150 male (DC only)  
J - Metripack 280 male (DC only)  
For coil part numbers and dimensions see section C.

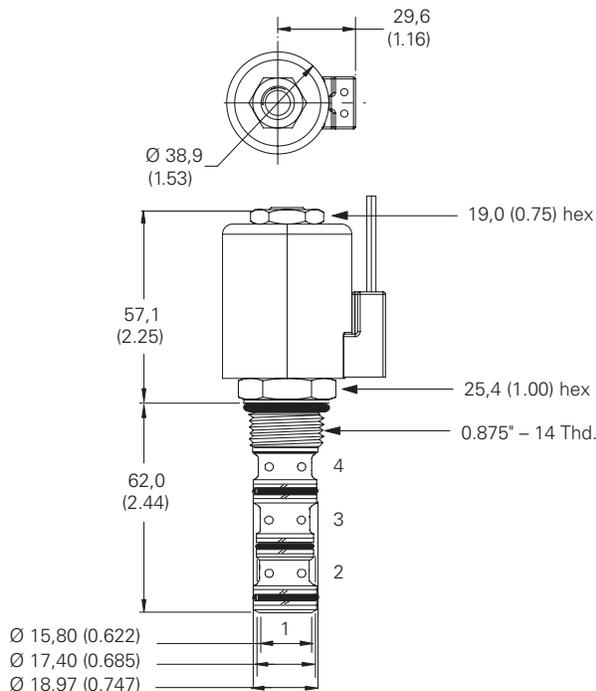
### 9 Special features

00 - None  
(Only required if valve has Special features omitted if "00".)  
**Note:** Use J series 23, W coils with this solenoid valve.

## Dimensions

mm (inch)

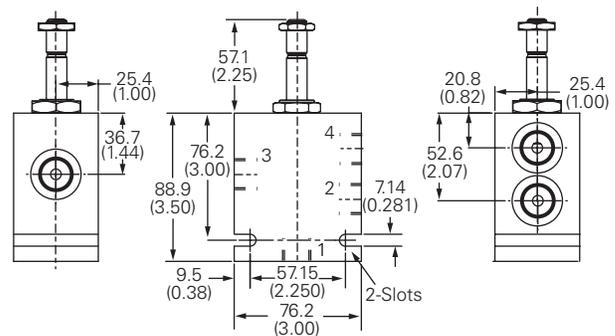
### Cartridge only



Torque cartridge in steel housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

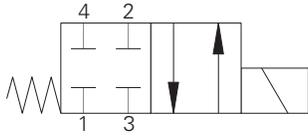
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

A



## Operation

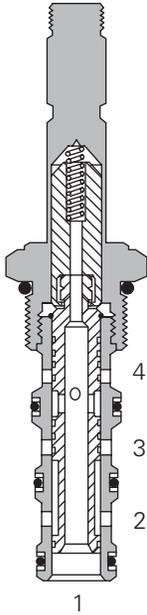
In the de-energized position all ports are blocked.

In the energized position flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

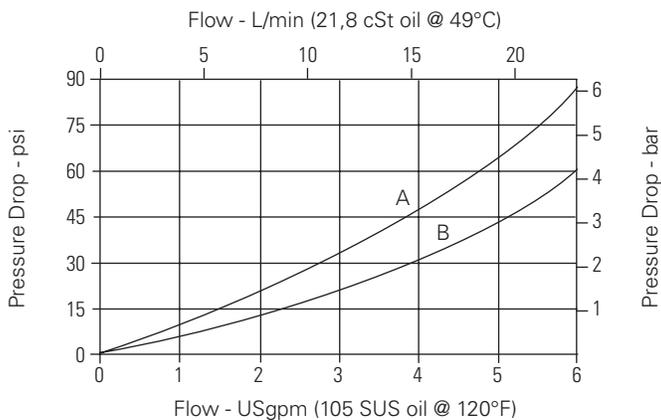
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



**A** - Port 1 to port 4

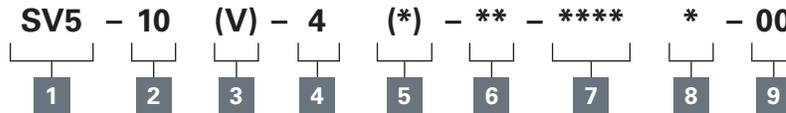
**B** - Port 3 to port 2

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve  
23 L/min (6 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV5 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override option

Blank - No manual override

M - Knob type

R - Cable type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing  
See section J for housing details.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 9 Special features

00 - None

(Only required if valve has Special features omitted if "00".)

**Note:** Use J series 23 W coils with this solenoid valve.

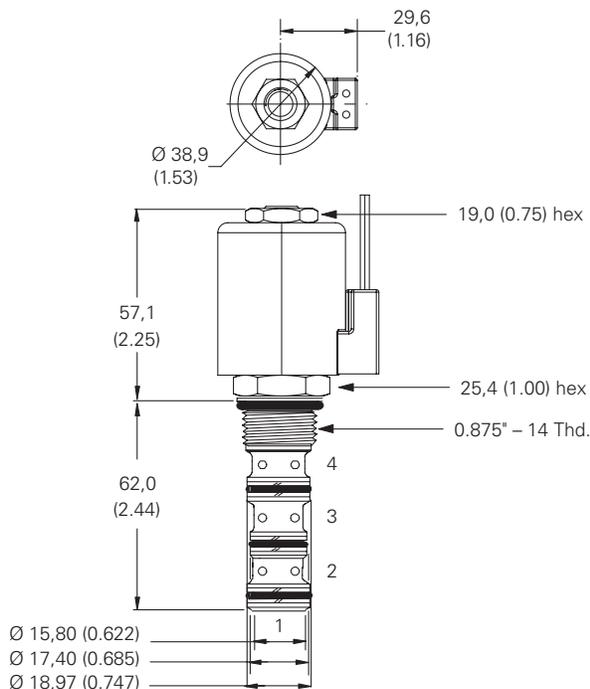
## Dimensions

mm (inch)

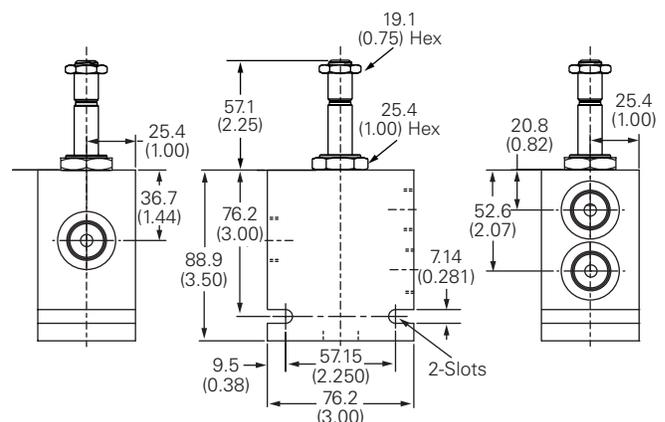
Torque cartridge in steel housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing



### Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

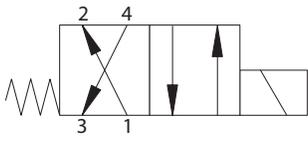
Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV7-10-4/4P/4S - Solenoid valve

4-way, 2-position, spool type solenoid valve  
 17 L/min (5 USgpm) • 210 bar (3000 psi)

A



## Operation

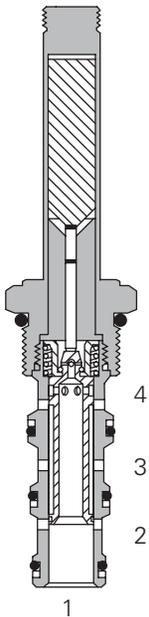
In the de-energized position this valve allows flow from port 3 to port 4 and from port 2 to port 1.

In the energized position flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	17 L/min (5 USgpm)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

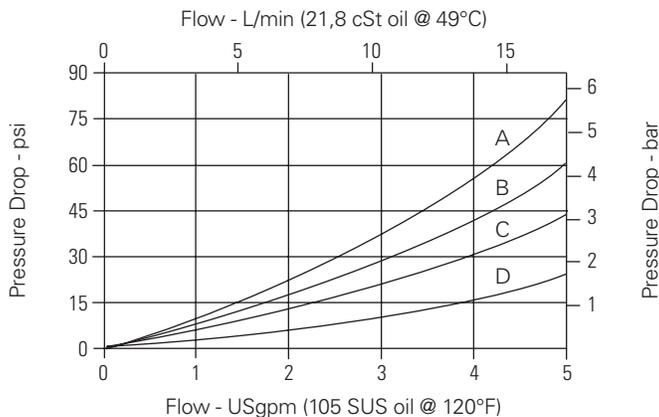
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



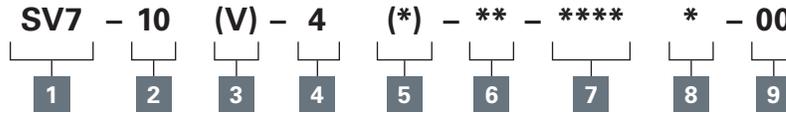
- A - Port 4 to port 1 energized
- B - Port 3 to port 2 energized
- C - Port 3 to port 4 de-energized
- D - Port 2 to port 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV7-10-4/4P/4S - Solenoid valve

4-way, 2-position, spool type solenoid valve  
17 L/min (5 USgpm) • 210 bar (3000 psi)

## Model code



A

### 1 Function

SV7 - Solenoid valve

### 2 Size

10 - 10 size

### 3 Seal material

Blank - Buna-N

V - Viton®

### 4 Style

4 - 4-way, 2-position

### 5 Manual override option

Blank - No manual override

P - Push type

S - Screw type

For valve dimensions with Manual override option installed see page A-980.

### 6 Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

\*Light duty housing  
See section J for housing details.

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650

Q - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

### 9 Special features

00 - None

(Only required if valve has Special features omitted if "00".)

**Note:** Use J series 23 W coils with this solenoid valve.

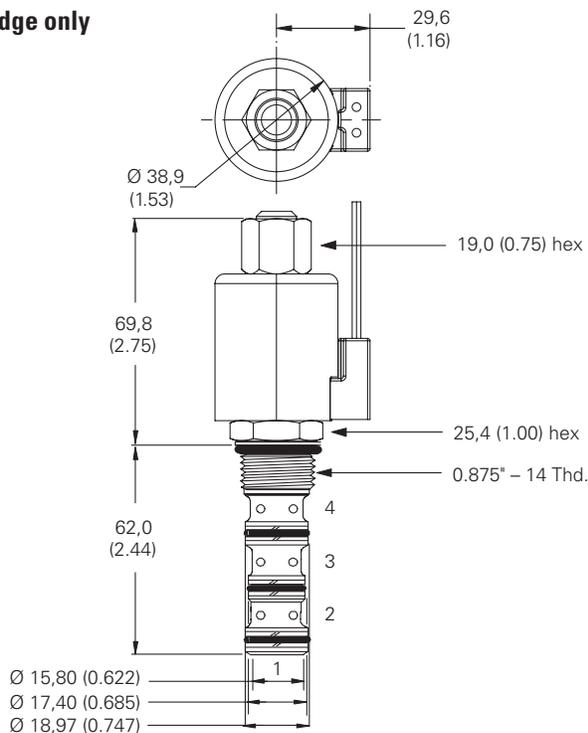
## Dimensions

mm (inch)

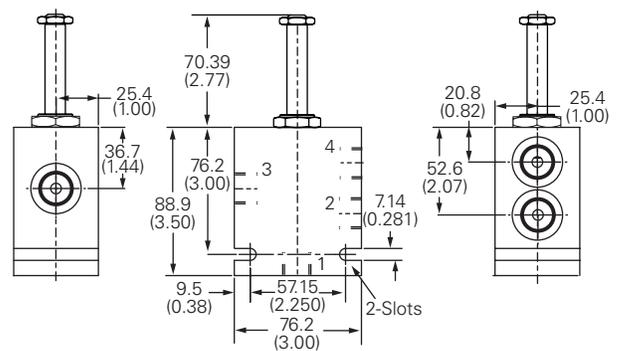
Torque cartridge in steel housing 47-54 Nm (35-40 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Cartridge only



### Installation drawing



### Warning

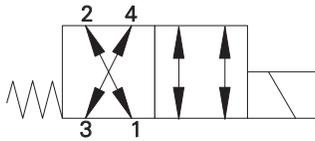
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV17M-10-4P - Solenoid valve

4-way, 2-position, spool type solenoid valve  
17 L/min (5 USgpm) • 350 bar (5000 psi)

A



## Operation

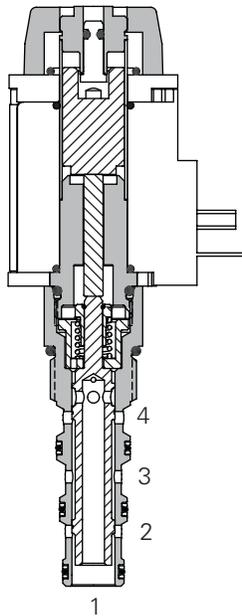
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1 in both directions.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1 in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	17 L/min (5 USgpm)
Internal leakage	350 cc/min (21.5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.44 kg (0.96 lbs)
Seal kit	889625 Buna-N), 566080 (Viton®)

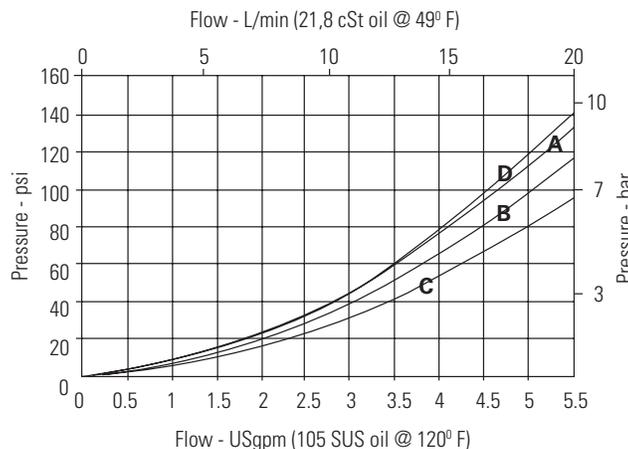
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, high pressure, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



- A** - Port 3 to port 2 energized
- B** - Port 3 to port 4 de-energized
- C** - Port 2 to port 1 de-energized
- D** - Port 4 to port 1 energized

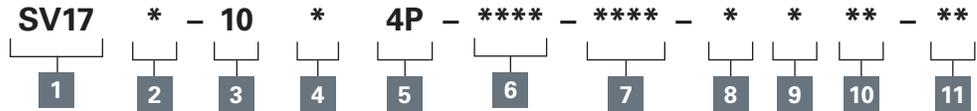
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV17M-10-4P - Solenoid valve

4-way, 2-position, spool type solenoid valve  
17 L/min (5 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV17 - Solenoid valve

### 2 Max flow

M - 23 L/min (6 USgpm)

### 3 Size

10 - 10 Size

### 4 Seal material

Blank - Buna-N

V - Viton®

### 5 Style

4P - 4 way push type manual override

### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
A2G	1/4" BSPP	02-185804	
A3G	3/8" BSPP	02-185805	
A6H	SAE 6	02-185802	
A8H	SAE 8	02-185803	
S2G	1/4" BSPP		02-175139
S3G	3/8"		02-175140
S6T	SAE 6		02-175137
S8T	SAE 8		02-175140

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

W - Flying lead (DC only)

N - Deutsch male, DT04-2P, integrated

For coil part numbers and dimensions see section C.

### 9 Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

### 10 Coil special features

Blank - No coil

00 - No special feature

### 11 Special features

00 - None

(Only required if valve has Special features omitted if "00".)

## Dimensions

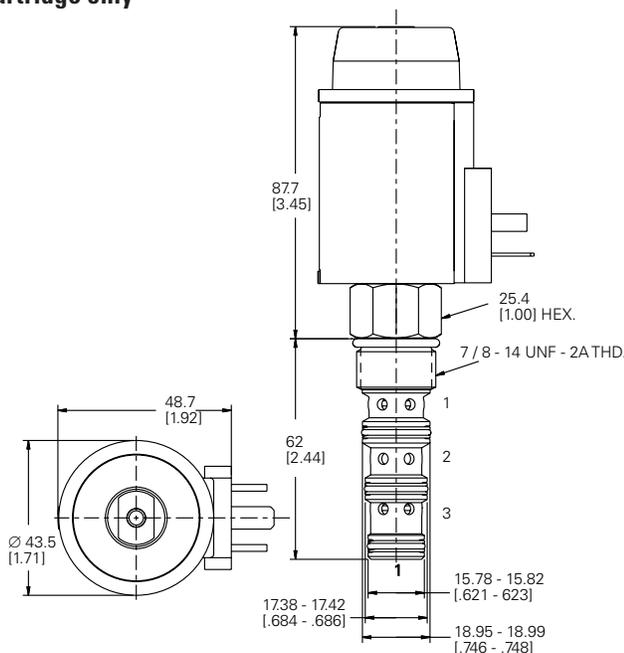
mm (inch)

Torque cartridge in aluminum housing 47-54 Nm (35-40 ft. lbs)

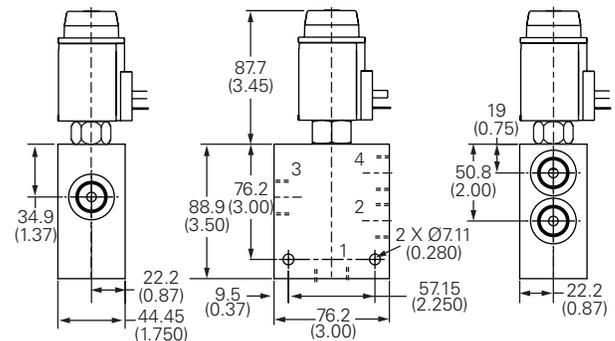
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

### Warning

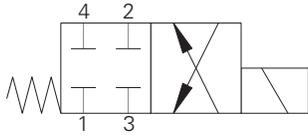
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

A



## Operation

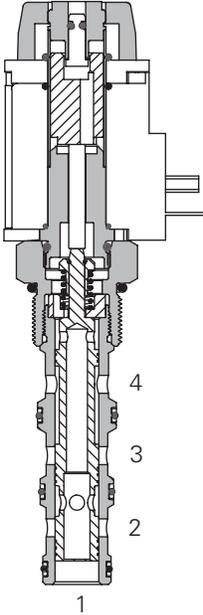
In the de-energized position all ports are blocked.

In the energized position flow is allowed between port 3 to port 4 and between port 2 to port 1 in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low Pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	42 L/min (11 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	2160979 (Buna-N), 2160980 (Viton®)

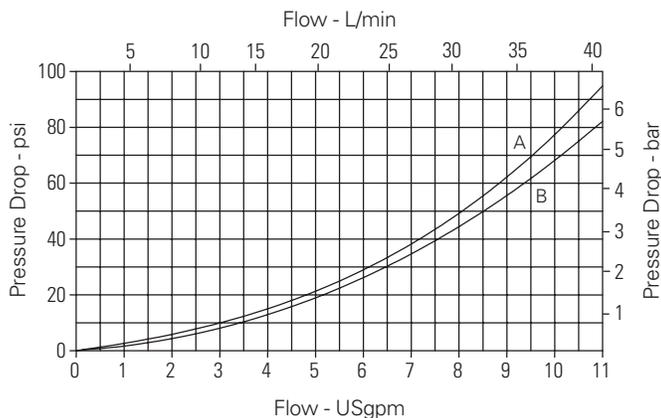
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



- A** - Port 2 to port 1
- B** - Port 3 to port 4

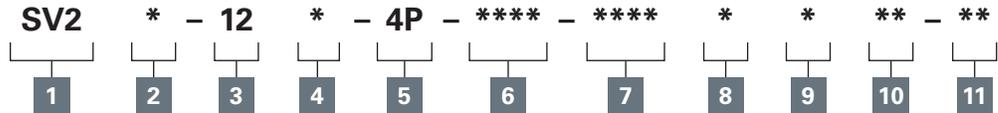
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV2M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

A

## Model code



- 1 Function**  
SV2 - Solenoid valve

---

- 2 Max flow**  
M - 42 L/min (11USgpm)

---

- 3 Size**  
12 - 12 size

---

- 4 Seal material**  
Blank - Buna-N  
V - Viton®

---

- 5 Style**  
4P - 4-way, push type manual override

---

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	5986432-001
A10T	SAE 10	6030517-001
A12H	SAE 12	5986436-001

See section J for housing details.

- 7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
  
\*Optional arc suppression diode.

---

- 8 Connector types**  
Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated  
  
For coil part numbers and dimensions see section C.

---

- 9 Coil types**  
Blank - No coil  
L - L series (30W EN 490) used for SV2A-12  
R - R series (30W) Large ToughCoil

---

- 10 Coil special features**  
Blank - No coil  
00 - No special feature

---

- 11 Special features**  
00 - None  
  
(Only required if valve has special features omitted if "00".)  
SF - Soft shift

---

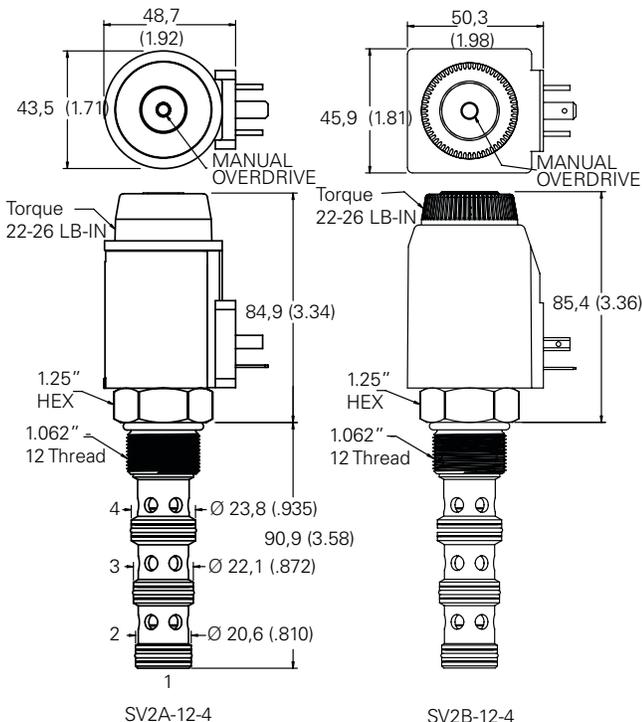
## Dimensions

mm (inch)

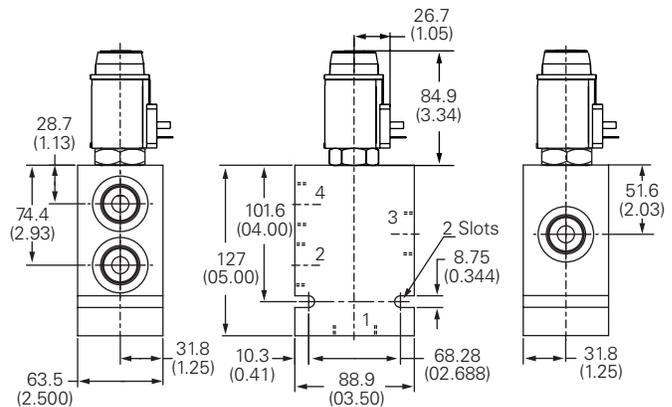
Torque cartridge in steel  
housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing



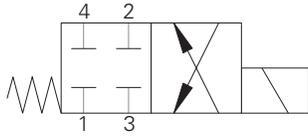
**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A



## Operation

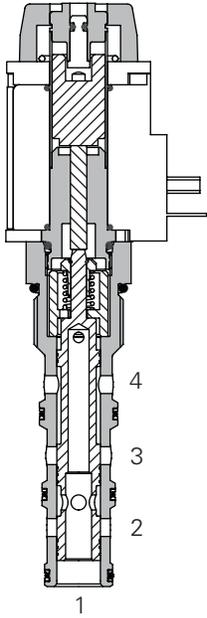
In the de-energized position all ports are blocked.

In the energized position flow is allowed between port 3 to port 4 and between port 2 to port 1 in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	42 L/min (11 USgpm)
Internal leakage	350 cc/min (21.5 in3/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	2160979 Buna-N), 2160980 (Viton®)

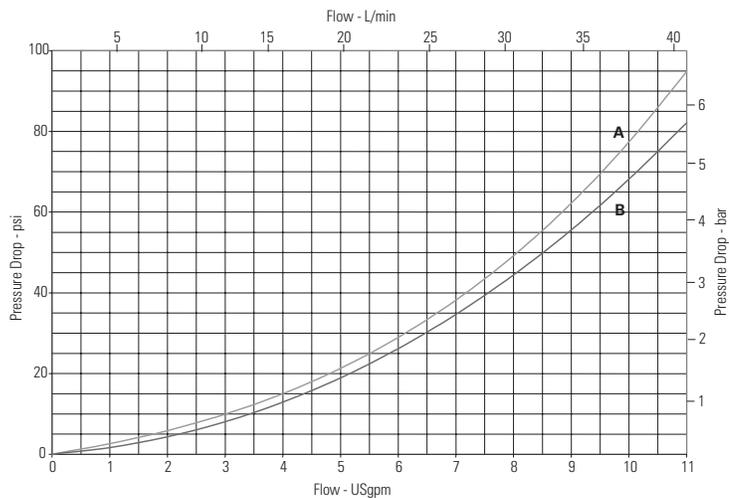
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, high pressure, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



**A** - Port 2 to port 1  
**B** - Port 1 to port 4

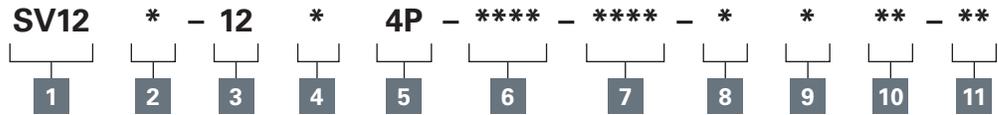
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV12M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

A

## Model code



- 1 Function**  
SV12 - Solenoid valve

---

- 2 Max flow**  
M - 42 L/min (11USgpm)

---

- 3 Size**  
12 - 12 size

---

- 4 Seal material**  
Blank - Buna-N  
V - Viton®

---

- 5 Style**  
4P - 4-way, push type manual override

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
A6G	3/4" BSPP	5986432-001	
A10H	SAE 10	5986434-001	
A12H	SAE 12	5986436-001	
S6G	3/4" BSPP		5991073-001
S10T	SAE 10		5991074-001
S12T	SAE 12		5991075-001

- 6 Port size**

---

- 7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

---

- 8 Connector types**  
Blank - No coil  
W - Flying lead (DC only)  
N - Deutsch male, DT04-2P, integrated

For coil part numbers and dimensions see section C.

- 9 Coil types**  
Blank - No coil  
L - L series (30W EN 490) used for SV12A-12  
R - R series (30W) Large ToughCoil

---

- 10 Coil special features**  
Blank - No coil  
00 - No special feature

---

- 11 Special features**  
00 - None

(Only required if valve has Special features omitted if "00".)

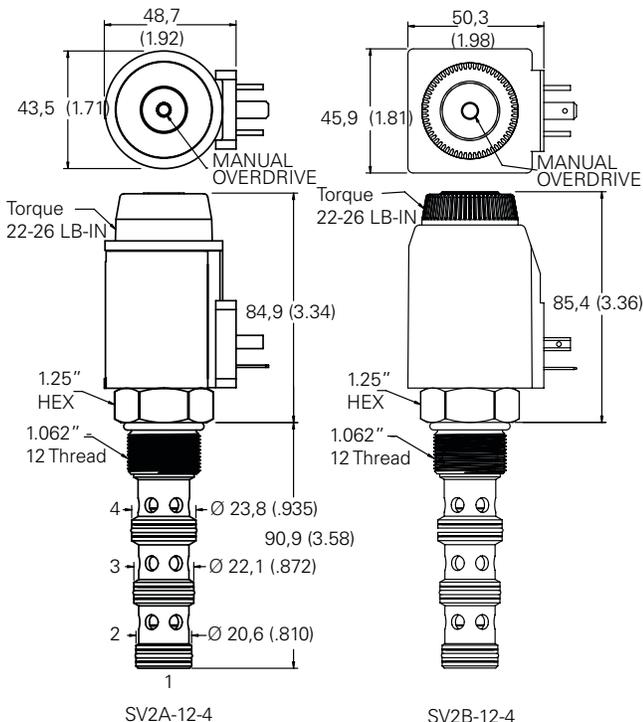
## Dimensions

mm (inch)

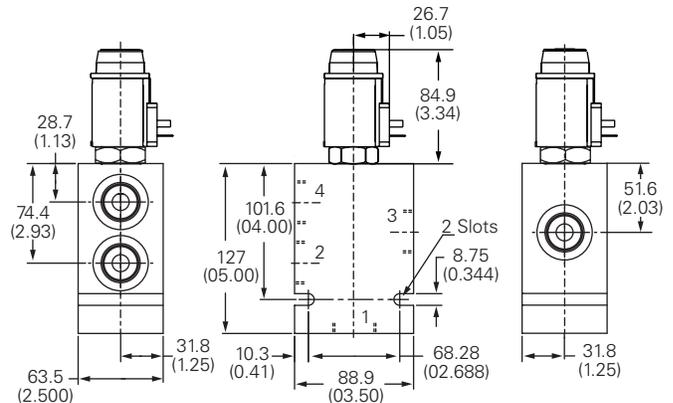
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Notes:** When solenoid vale is ordered as Cartridge only, coil nut is included.

## Cartridge only



## Installation drawing (Steel)



**Warning**  
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

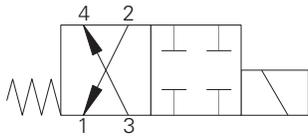
**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

A



## Operation

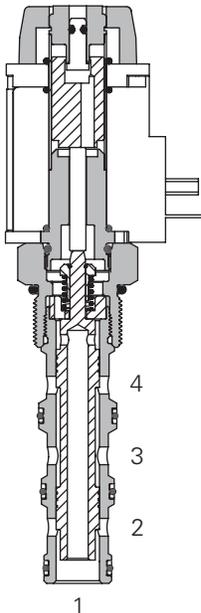
In the de-energized position flow is allowed from port 3 to port 4 and from port 2 to port 1 in both directions.

In the energized position all ports are blocked.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	53 L/min (14 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	2160979 (Buna-N), 2160980 (Viton®)

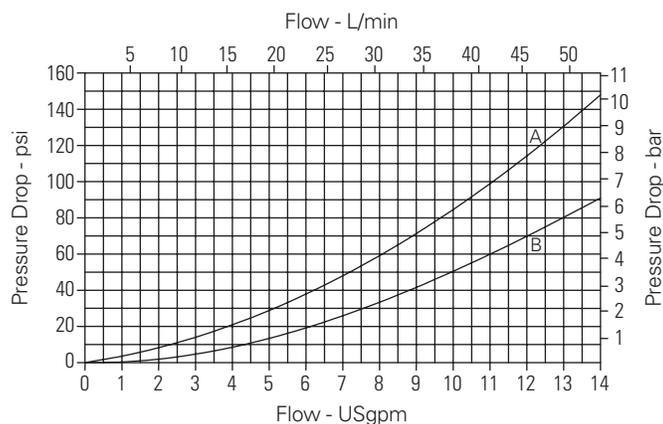
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



**A** - Port 3 to port 4

**B** - Port 2 to port 1

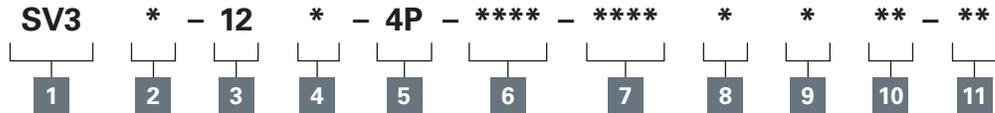
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV3M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

A

## Model code



**1 Function**  
SV3 - Solenoid valve

**2 Max flow**  
M - 53 L/min (14USgpm)

**3 Size**  
12 - 12 size

**4 Seal material**  
Blank - Buna-N  
V - Viton®

**5 Style**  
4P - 4-way, push type manual override

**6 Port Size**

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	5986432-001
A10T	SAE 10	6030517-001
A12H	SAE 12	5986436-001

See section J for housing details.

**7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.

**8 Connector types**  
Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated  
For coil part numbers and dimensions see section C.

**9 Coil types**  
Blank - No coil  
L - L series (30W EN 490) used for SV3A-12  
R - R series (30W) Large ToughCoil

**10 Coil series**  
Blank - No coil  
00 - No special feature

**11 Special features**  
00 - None  
(Only required if valve has Special features omitted if "00".)  
SF - Soft shift

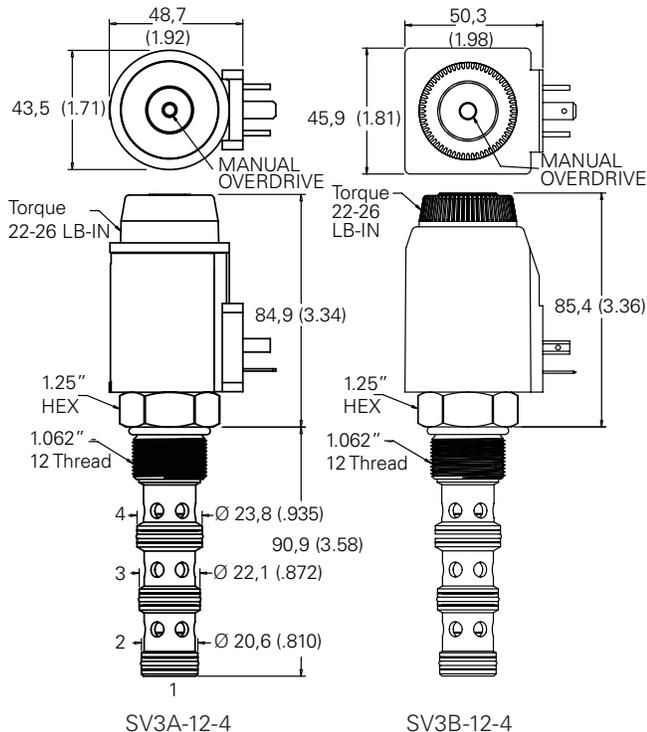
## Dimensions

mm (inch)

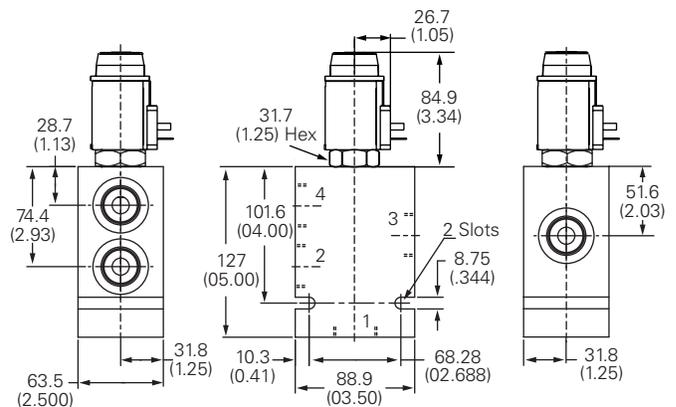
Torque cartridge in steel housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing



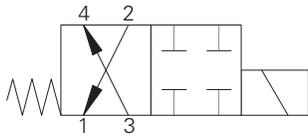
**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

A



### Operation

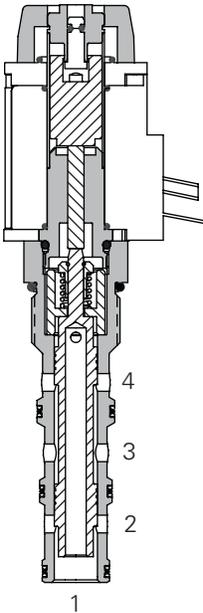
In the de-energized position flow is allowed from port 3 to port 4 and from port 2 to port 1 in both directions .

In the energized position all ports are blocked.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports. Working pressure 350 bar.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	53 L/min (14 USgpm)
Internal leakage	350 cc/min (21.5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	2160979 Buna-N, 2160980 (Viton®)

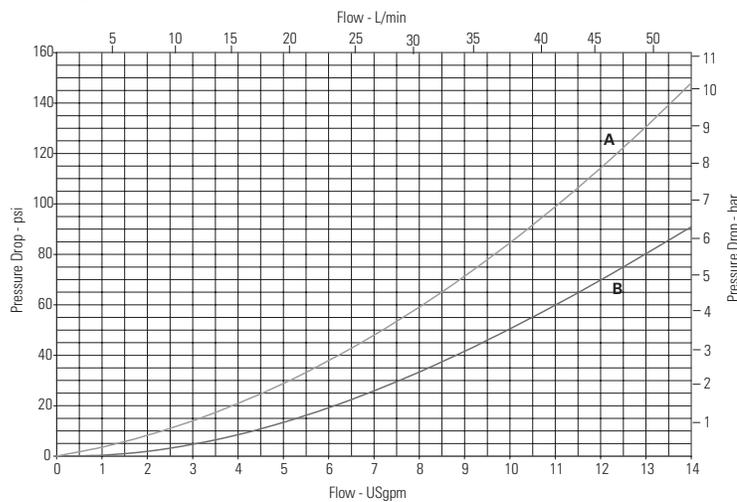
Viton is a registered trademark of E.I. DuPont

### Description

This is a 4-way 2-position, direct acting, high pressure, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

### Pressure drop

Cartridge only



**A** - Port 3 to port 4  
**B** - Port 2 to port 1

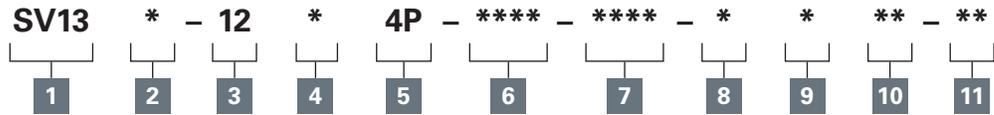
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV13M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

A

## Model code



- 1 Function**  
SV13 - Solenoid valve
- 2 Max flow**  
M - 53 L/min (14 USgpm)
- 3 Size**  
12 - 12 size
- 4 Seal material**  
Blank - Buna-N  
V - Viton®
- 5 Style**  
4P - 4 way, push type manual override

Code	Port size	Housing number	
		Aluminium	Steel
0	Cartridge only		
A6G	3/4" BSPP	5986432-001	
A10H	SAE 10	5986434-001	
A12H	SAE 12	5986436-001	
S6G	3/4" BSPP		5991073-001
S10T	SAE 10		5991074-001
S12T	SAE 12		5991075-001

- 6 Port Size**
- 7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.
- 8 Connector types**  
Blank - No coil  
W - Flying lead (DC only)  
N - Deutsch male, DT04-2P, integrated  
For coil dimensions see section C.
- 9 Coil types**  
Blank - No coil  
R - R series (30W)  
Large ToughCoil
- 10 Coil special features**  
Blank - No coil  
00 - No special feature
- 11 Special features**  
00 - None  
(Only required if valve has Special features, omitted if "00".)

## Dimensions

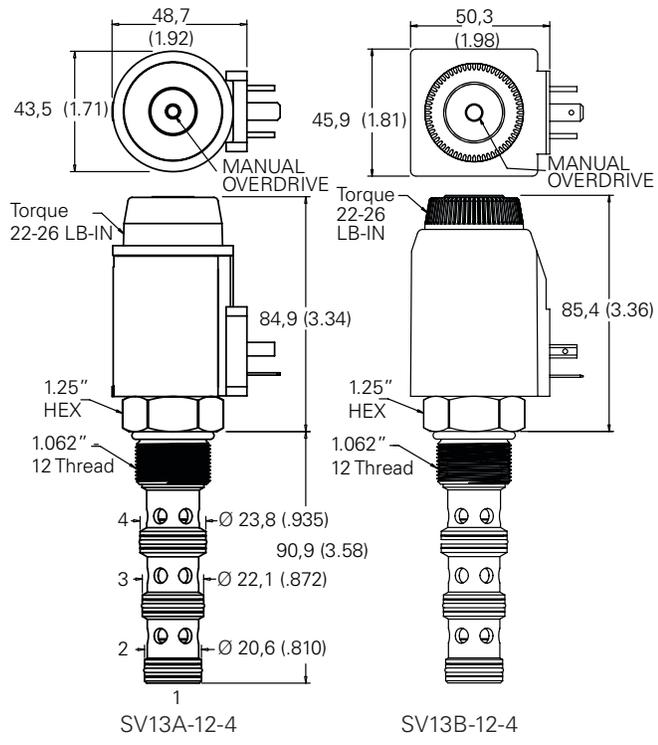
mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)

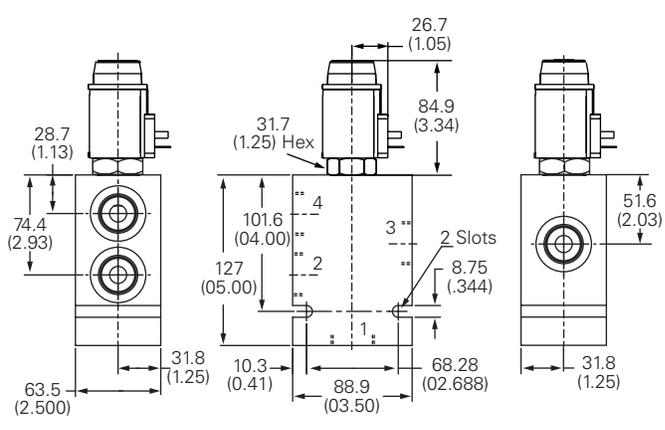
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Notes:** When solenoid valve is ordered as Cartridge only, coil nut is included.

### Cartridge only



### Installation drawing (Steel)



**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

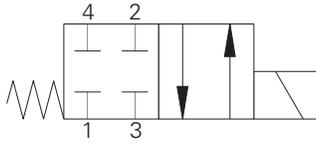
**Warning**  
Aluminum housings can be used for pressures up to 210 bar (3000 psi). Steel housings **must** be used for operating pressures **above** 210 bar (3000 psi).

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

A



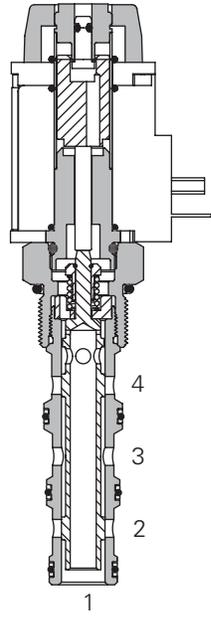
### Operation

In the de-energized position all ports are blocked. In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1 in both directions.

### Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

### Sectional view



### Performance data

#### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120° F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	53 L/min (14 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	2160979 (Buna-N), 2160980 (Viton®)

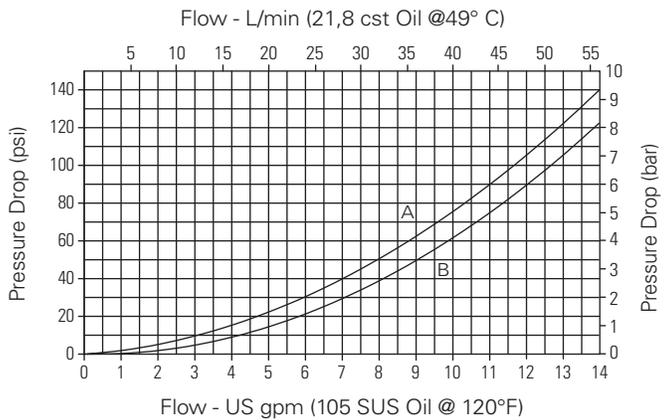
Viton is a registered trademark of E.I. DuPont

### Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

### Pressure drop

Cartridge only



**A** - Port 3 to port 2  
**B** - Port 4 to port 1

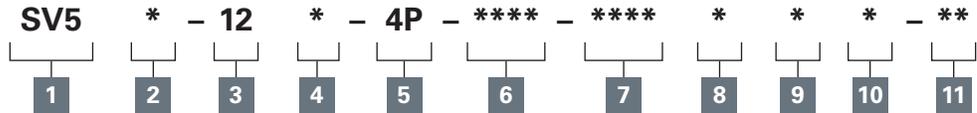
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV5M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

A

## Model code



**1 Function**  
SV5 - Solenoid valve

---

**2 Max flow**  
M - 53 L/min (14USgpm)

---

**3 Size**  
12 - 12 size

---

**4 Seal material**  
Blank - Buna-N  
V - Viton®

---

**5 Style**  
4P - 4-way, push type manual override

**6 Port Size**

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	5986432-001
A10T	SAE 10	6030517-001
A12H	SAE 12	5986436-001

See section J for housing details.

**7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*  
\*Optional arc suppression diode.

**8 Connector types**  
Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated  
For coil part numbers and dimensions see section C.

**9 Coil types**  
Blank - No coil  
R - R series (30W)  
Large ToughCoil

---

**10 Coil special features**  
Blank - No coil  
00 - No special feature

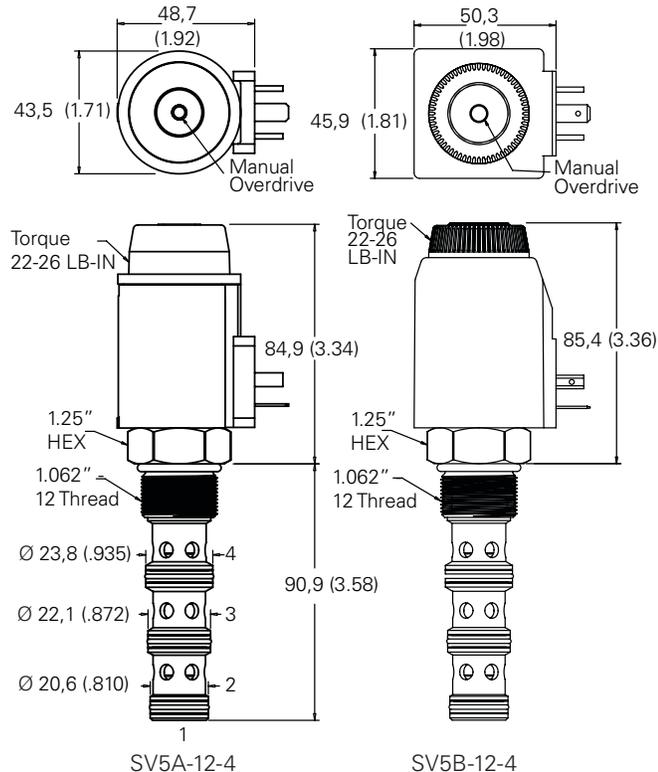
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**11 Special features**  
00 - None  
(Only required if valve has Special features omitted if "00".)  
SF - Soft shift

## Dimensions

mm (inch)

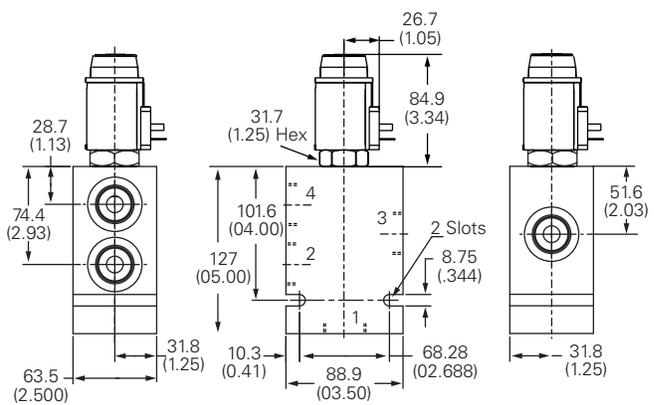
### Cartridge only



Torque cartridge in steel housing 81-95 Nm (60-75 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing



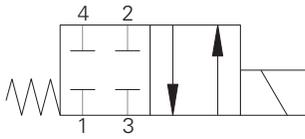
**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

A



## Operation

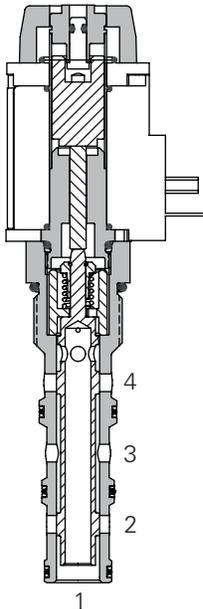
In the de-energized position all ports are blocked.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1 in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	53 L/min (14 USgpm)
Internal leakage	350 cc/min (21.5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	2160979 Buna-N, 2160980 (Viton®)

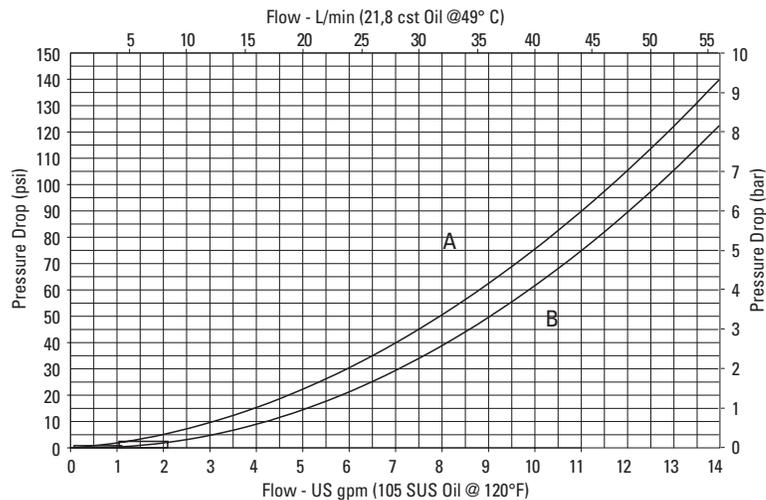
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, high pressure, spool type solenoid valve. This valve can be used in applications where a double acting actuator needs to be isolated.

## Pressure drop

Cartridge only



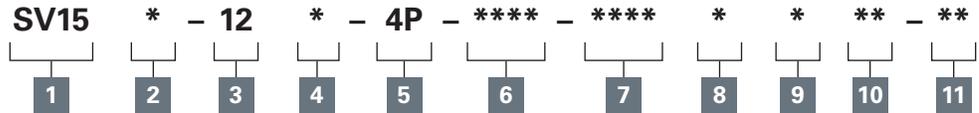
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV15M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV15 - Solenoid valve

### 2 Max flow

M - 53 L/min (14USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N

V - Viton

### 5 Style

4P - 4-way, push type manual override

### 6 Port Size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminium	Steel
A6G	3/4" BSPP	5986432-001	
A10H	SAE 10	5986434-001	
A12H	SAE 12	5986436-001	
S6G	3/4" BSPP		5991023-001
S10T	SAE 10		5991074-001
S12T	SAE 12		5991075-001

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

W - Flying lead (DC only)

N - Deutsch male, DT04-2P, integrated

For coil part numbers and dimensions see section C.

### 9 Coil types

Blank - No coil

R - R series (30W)

Large ToughCoil

### 10 Coil special features

Blank - No coil

00 - No special feature

### 11 Special features

00 - None

(Only required if valve has Special features omitted if "00".)

## Dimensions

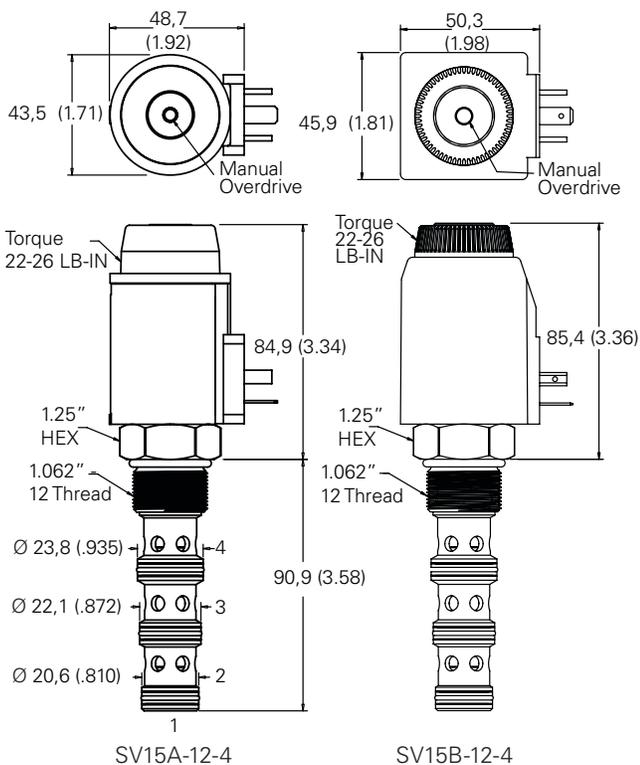
mm (inch)

Torque cartridge in steel housing  
102-115 Nm (75-85 ft lbs)

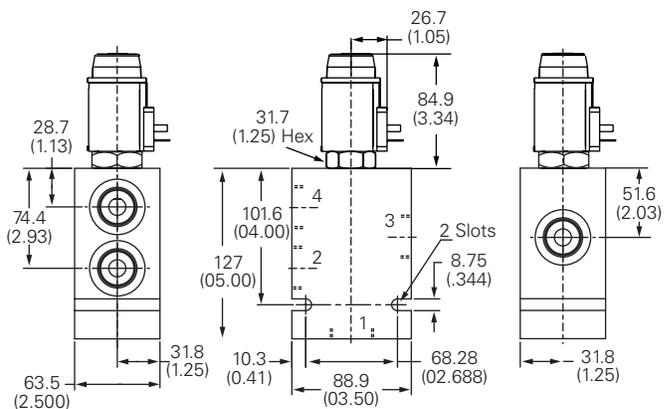
Torque cartridge in aluminium  
housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing (Steel)



### Warning

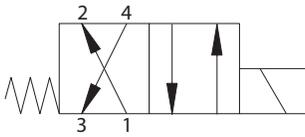
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV7M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 46 L/min (12 USgpm) • 210 bar (3000 psi)

A



## Operation

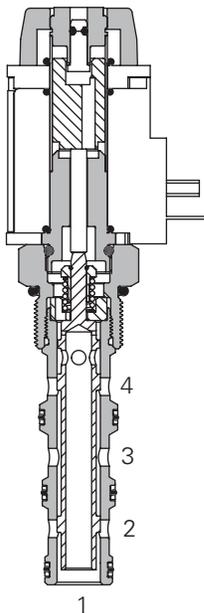
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	46 L/min (12 USgpm)
Internal leakage	300 cm <sup>3</sup> /min (21.5 in <sup>3</sup> /min) max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 8/16/13
Housing material (standard)	Aluminum
Weight including coil	0,86 kg (1.9 lbs)
Seal kit	2160979 (Buna-N), 2160980 (Viton®)

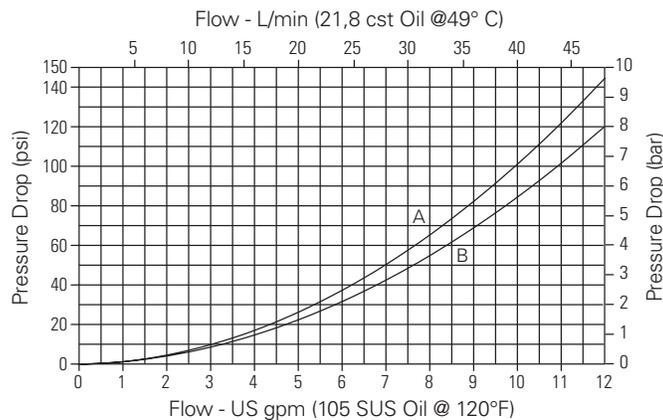
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## Pressure drop

Cartridge only



**A** - Port 2 to port 1, port 3 to port 4

**B** - Port 3 to port 2, port 4 to port 1

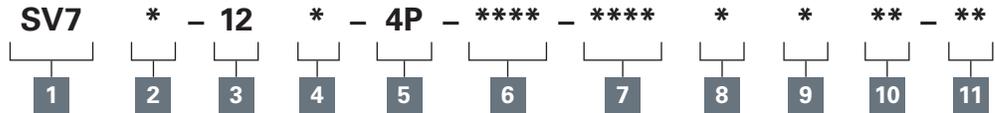
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV7M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 46 L/min (12 USgpm) • 210 bar (3000 psi)

A

## Model code



**1 Function**  
SV7 - Solenoid valve

---

**2 Max flow**  
M - 46 L/min (12 USgpm)

---

**3 Size**  
12 - 12 size

---

**4 Seal material**  
Blank - Buna-N  
M - Viton

---

**5 Style**  
4P - 4 way, push type manual override

---

**6 Port size**

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	5986432-001
A10T	SAE 10	6030517-001
A12H	SAE 12	5986436-001

See section J for housing details.

**7 Voltage rating**  
00 - No coil  
12D - 12VDC  
24D - 24VDC  
12B - 12VDC/w diode\*  
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

---

**8 Connector types**  
Blank - No coil  
W - Flying lead  
N - Deutsch male, DT04-2P, integrated

For coil part numbers and dimensions see section C.

---

**9 Coil types**  
Blank - No coil  
R - R series (30W)  
Large ToughCoil

---

**10 Coil special feature**  
Blank - No coil  
00 - No special feature

---

**11 Special features**  
00 - None  
(Only required if valve has Special features omitted if "00".)  
SF - Soft shift

---

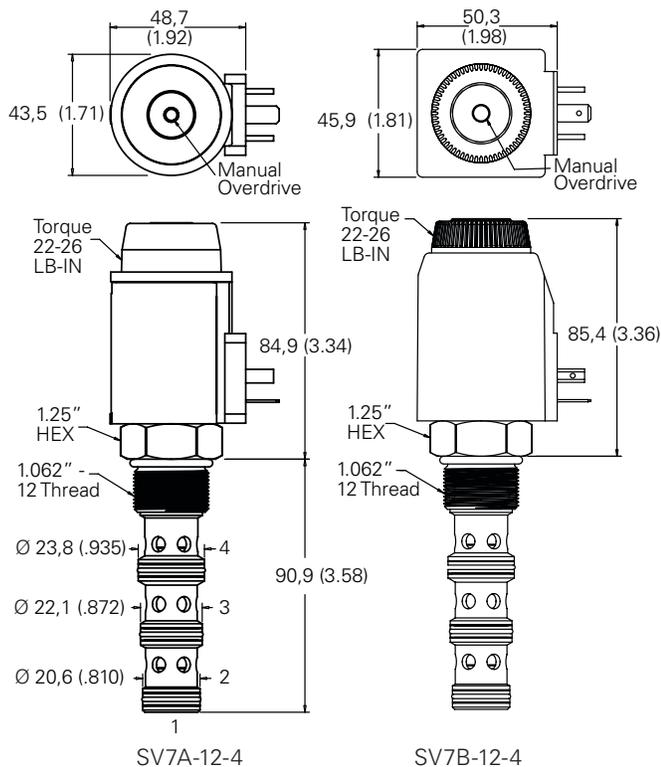
## Dimensions

mm (inch)

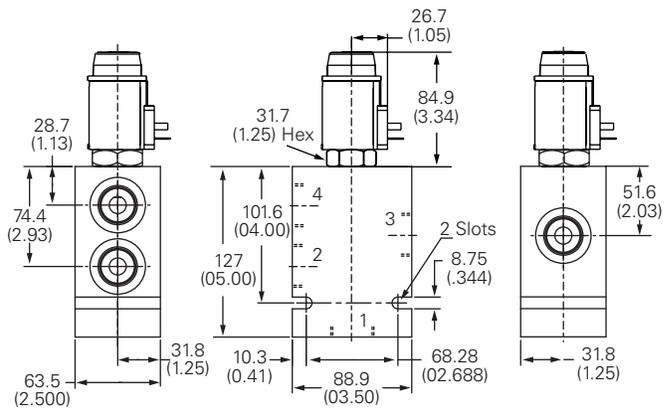
Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

## Cartridge only



## Installation drawing



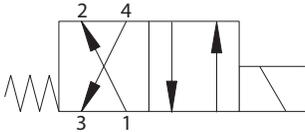
**Warning**  
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV17M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 46 L/min (12 USgpm) • 350 bar (5000 psi)

A



## Operation

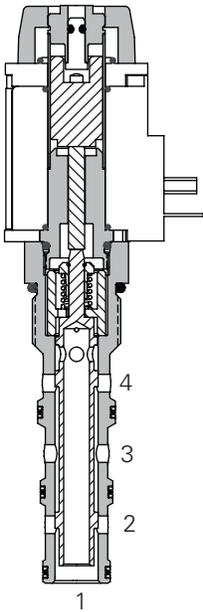
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1 in both directions.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1 in both directions.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports. Working pressure 350 bar.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports except port 1)	350 bar (5000 psi)
Typical application pressure at port 1	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	350 bar (5000 psi)
Rated flow	38 L/min (10 USgpm)
Internal leakage	350 cc/min (21.5 in <sup>3</sup> /min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-12-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration Cleanliness code	18/16/13
Standard housing materials	Steel
Weight including coil	0.68 kg (1.5 lbs)
Seal kit	2160979 Buna-N, 2160980 (Viton®)

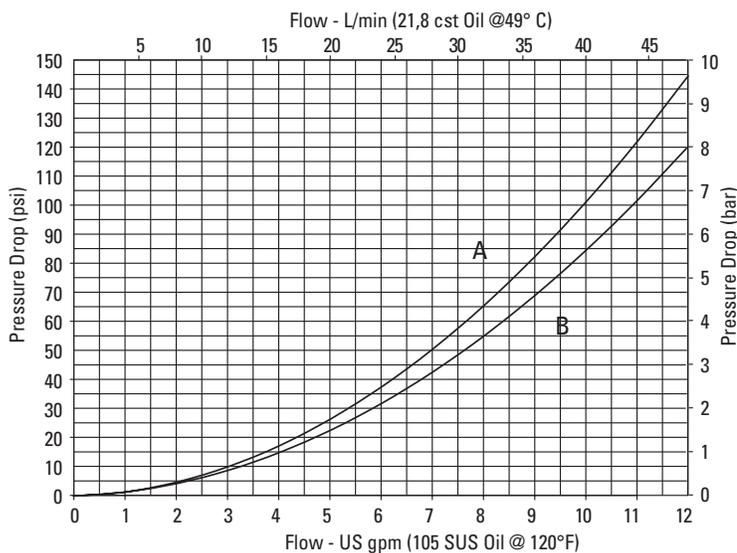
Viton is a registered trademark of E.I. DuPont

## Description

This is a 4-way 2-position, direct acting, high pressure, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed

## Pressure drop

Cartridge only



**A** - Port 2 to port 1, port 3 to port 4

**B** - Port 3 to port 4, port 3 to port 2

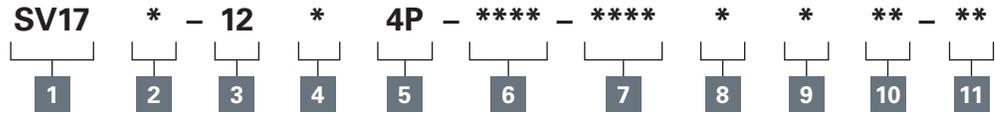
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV17M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve  
Up to 46 L/min (12 USgpm) • 350 bar (5000 psi)

A

## Model code



### 1 Function

SV17 - Solenoid valve

### 2 Max flow

M - 38 L/min (10 USgpm)

### 3 Size

12 - 12 size

### 4 Seal material

Blank - Buna-N

V - Viton

### 5 Style

4P - 4 way, push type manual override

### 6 Port Size

0 - Cartridge only

Code	Port size	Housing number	
		Aluminium	Steel
A6G	3/4" BSPP	5986432-001	
A10H	SAE 10	5986434-001	
A12H	SAE 12	5986436-001	
S6G	3/4" BSPP		5991073-001
S10T	SAE 10		5991074-001
S12T	SAE 12		5991075-001

### 7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 8 Connector types

Blank - No coil

W - Flying lead (DC only)

N - Deutsch male, DT04-2P, integrated

For coil part numbers and dimensions see section C.

### 9 Coil types

Blank - No coil

R - R series (30W)

Large ToughCoil

### 10 Coil Special Feature

Blank - No coil

00 - No special feature

### 11 Special features

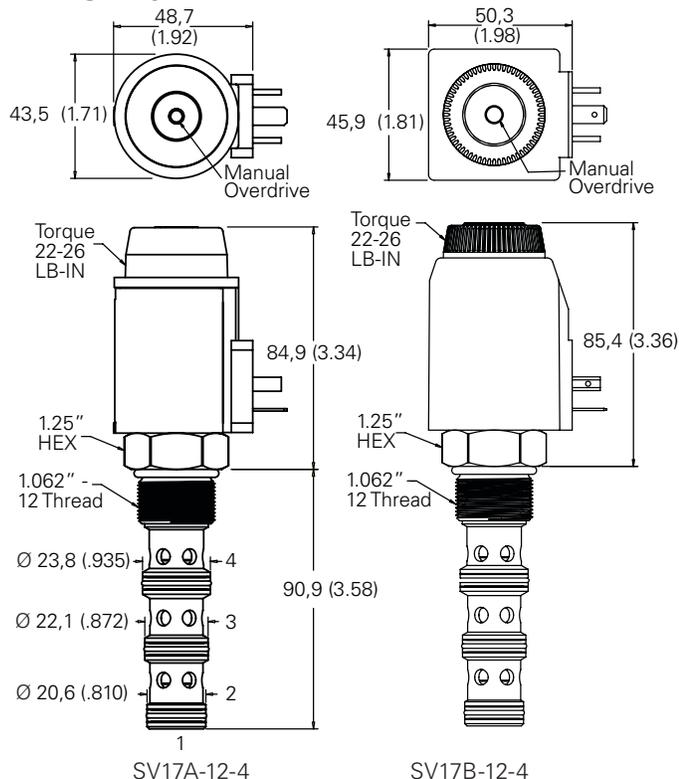
00 - None

(Only required if valve has Special features omitted if "00".)

## Dimensions

mm (inch)

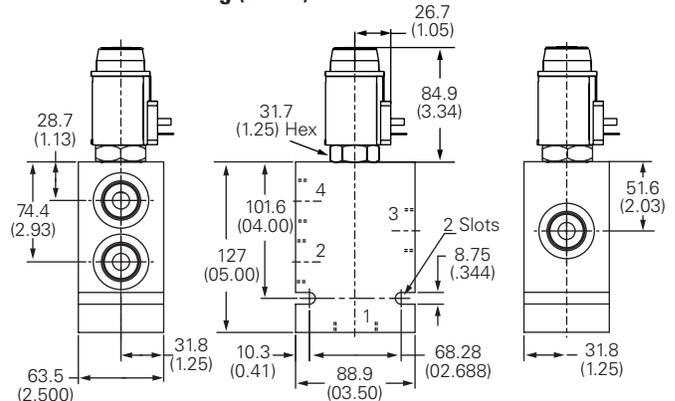
### Cartridge only



Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

### Installation drawing (Steel)



### Warning

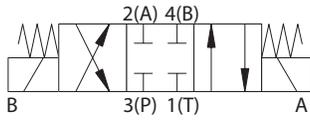
Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-8-E - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • Up to 210 bar (3000 psi)

A



## Operation

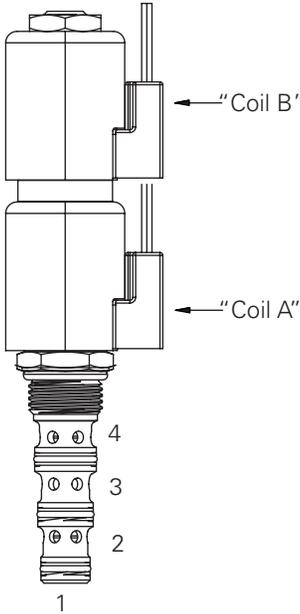
In the de-energized (center) position, all ports are blocked. When solenoid A is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

When solenoid B is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	11,000 psi per NFPA/T2-6-1 R2-2000
Max flow	13.2 L/min (3.5 USgpm)
Temperature range	-40° to 120°C (-40° to 248°F)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Standard housing material	Aluminum
Weight including coil	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

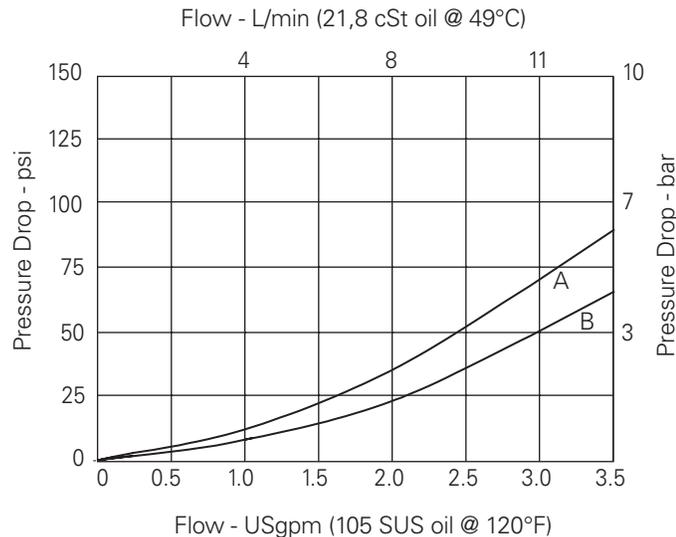
\*AC coils must be used with a rectifying connector

Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. All ports closed in the de-energized position. This valve is ideal for small flow applications where an actuator needs to be moved in both directions and stopped in any position.

## Pressure drop



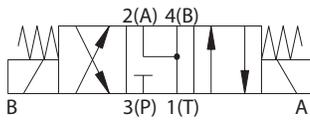
A - Port 3 to port 2 or port 4

B - Port 2 to port 4 or port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-8-F - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • Up to 210 bar (3000 psi)



## Operation

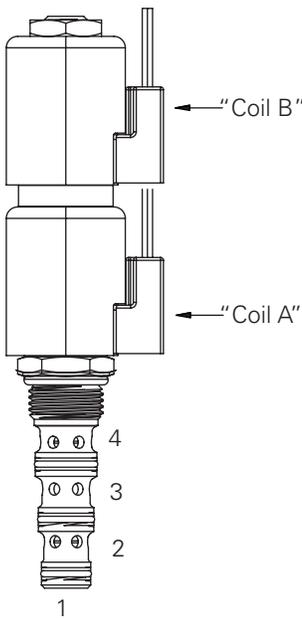
In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid A is energized, flow is

directed from port 3 to port 4 and from port 2 to port 1. When solenoid B is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	11,000 psi per NFPA/T2-6-1 R2-2000
Max flow	13.2 L/min (3.5 USgpm)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	23W
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Standard Housing material	Aluminum
Weight including coil	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

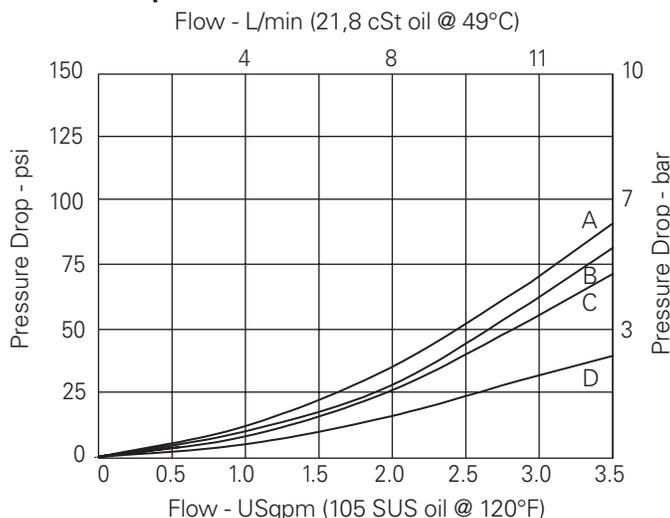
Viton is a registered trademark of E.I. DuPont

Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition Port 2 and 4 are open to tank with the inlet port 3 blocked. This valve is ideal for small flow applications where an actuator needs to be moved in both directions and stopped in any position while allowing the service ports to decay to tank pressure in the de-energized condition.

## Pressure drop



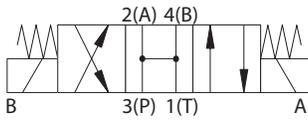
- A** - Port 4 or port 1 de-energized
- B** - Port 3 to port 2 or port 4 to port 1
- C** - Port 2 or port 1 de-energized
- D** - Port 2 or 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-8-B - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • Up to 210 bar (3000 psi)

A



## Operation

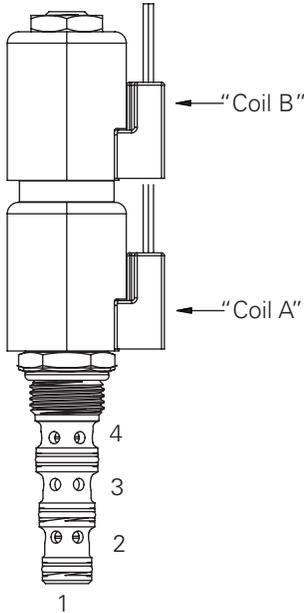
In the central de-energized position all ports are open. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1.

When solenoid 'B' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	11,000 psi per NFPA/T2-6-1 R2-2000
Max flow	13.2 L/min (3.5 USgpm)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	23W
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Standard housing material	Aluminum
Weight including coil	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

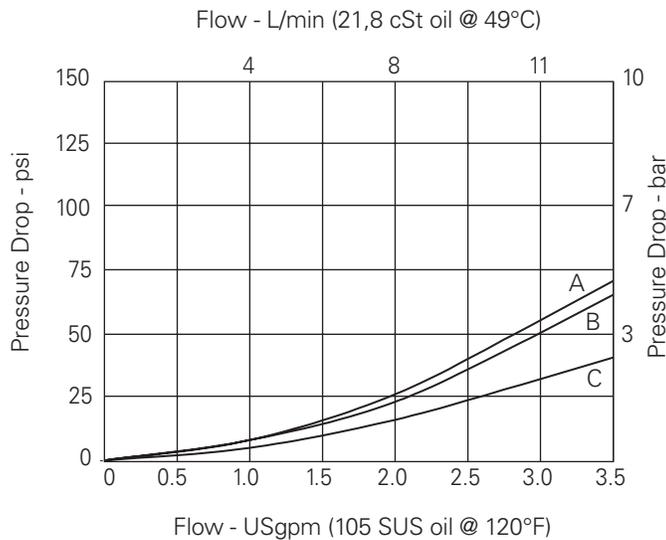
Viton is a registered trademark of E.I. DuPont

Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition all ports are open to tank. This valve is ideal for small flow applications where an actuator needs to be moved in both directions.

## Pressure drop



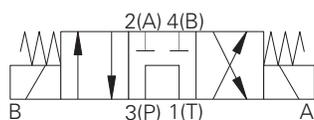
- A** - Port 4 or port 1 to port 4  
Port 3 to port 1 de-energized
- B** - Port 3 to port 2 or port 4
- C** - Port 2 or port 1  
Port 2 or 4 to 1 de-energized

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-8-A - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • 210 bar (3000 psi)

A



## Operation

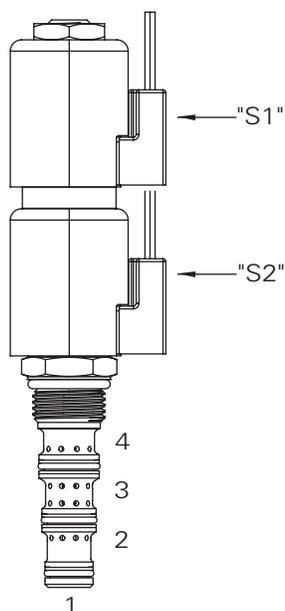
In the central de-energized position flow is allowed from inlet port 3 to tank port 1 and ports 2 and 4 are blocked

When solenoid 'A' is energized flow is allowed from ports 3 to 4 and ports 2 to 1. When solenoid 'B' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Tough coil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	11,000 psi per NFPA/T2-6-1 R2-2000
Max flow	13.2 L/min (3.5 USgpm)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	23W
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Standard housing material	Aluminum
Weight including coil	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)
Internal leakage	164 cm <sup>3</sup> /min (10 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

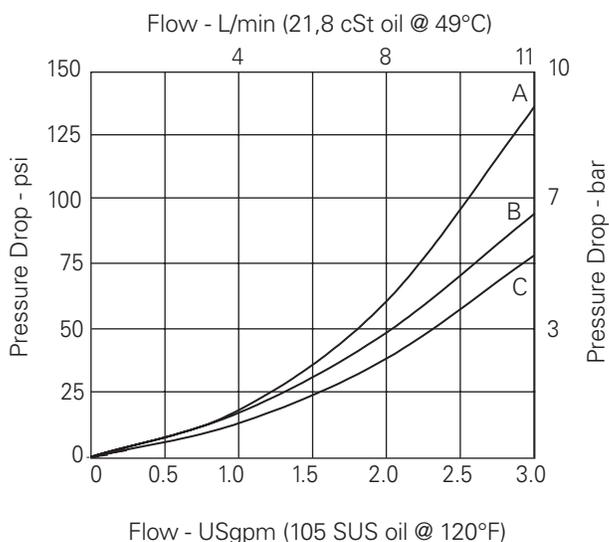
\*AC coils must be used with a rectifying connector

Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition the inlet Port 3 is open to tank with port 2 and 4 blocked. This valve is ideal for small flow applications where an actuator needs to be moved in both directions. In the de-energized condition inlet flow is allowed to tank.

## Pressure drop



- A** - Port 3 or port 2 or port 4
- B** - Port 3 to port 1 de-energized
- C** - Port 2 or port 4 to port 1

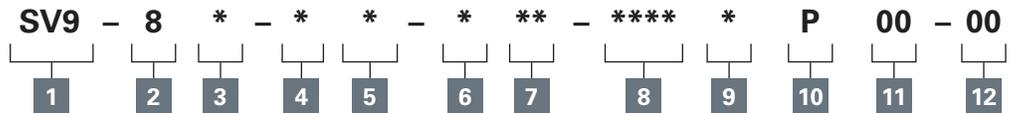
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-8 - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • Up to 210 bar (3000 psi)

A

## Model code



### 1 Function

**SV9** - Solenoid valve

### 2 Size

**8** - 8 size

### 3 Seal material

**N** - Buna-N

**V** - Viton

### 5 Manual override option

**0** - No manual override

**M** - Manual override

For valve dimensions with manual override, see pages A980.

### 6 Housing Material

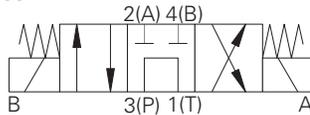
**0** - Cartridge only

**A** - Aluminum

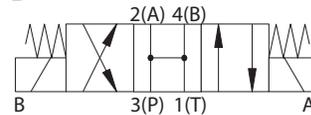
**S** - Steel

### 4 Spool center condition

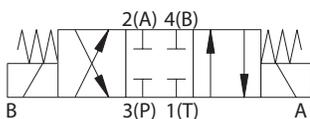
**A**



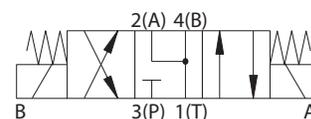
**B**



**E**



**F**



### 7 Port sizes

Code	Port size	Housing number	
		Aluminium	Steel
<b>0</b>	Cartridge only		
<b>2G</b>	1/4" BSPP	02-160747	02-160753
<b>3G</b>	3/8" BSPP	02-160748	02-160754
<b>4T</b>	SAE 4	02-160749	02-160751
<b>6T</b>	SAE 6	02-160750	02-160752

See section J for housing details.

### 8 Voltage rating <sup>1</sup>

**000** - No coil

**012D** - 12VDC

**024D** - 24VDC

**036D** - 36VDC

**012B** - 12VDC/w diode\*

**024B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types <sup>1</sup>

**0** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**N** - Deutsch male

**W** - Leadwire

**C** - Deutch on Leads

**H** - Metripak 150 on Leads

**F** - Weatherpak Male on Leads

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

### 10 Coil series <sup>1</sup>

**0** - No Coil

**P** - 8 series, 23W

### 11 Coil special features <sup>1</sup>

**00** - None

### 12 Valve Special features <sup>1</sup>

**00** - None

(Only required if valve has Special features omitted if "00".)

<sup>1</sup> These model digits are not stamped on the valve.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

## SV9-8 - Solenoid valve

4-way, 3-position, screw-in cartridge, solenoid valve  
Up to 13 L/min (3.5 USgpm) • 210 bar (3000 psi)

### Dimensions

mm (inch)

Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft. lbs.)

Valve is shown with "W" coil. See other coils in Section C.

**Note:** When solenoid valve is ordered as Cartridge only, coil nut and coil spacer included.

When solenoid valve is ordered without coils, it will be supplied with coil spacer and coil nut.

This valve uses the P series, 8 size, 23 W coil.

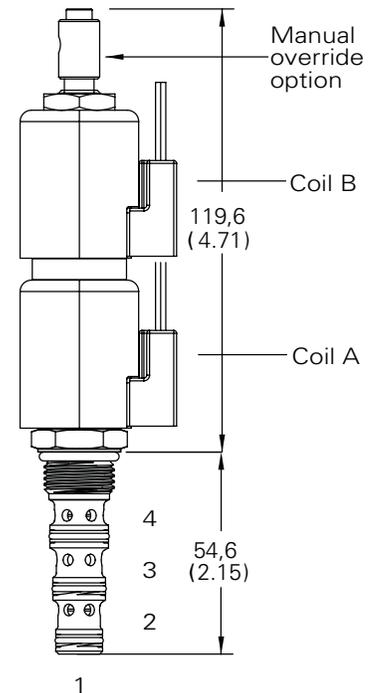
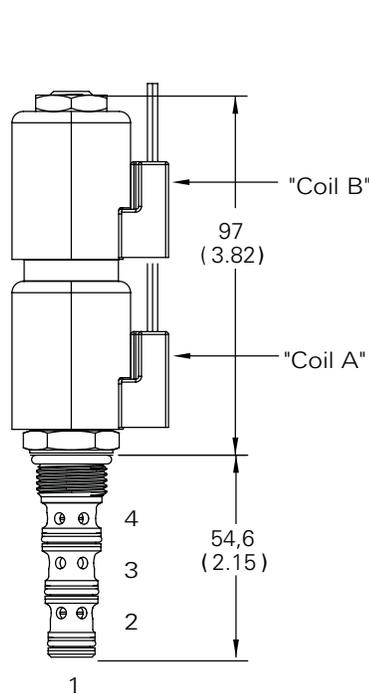
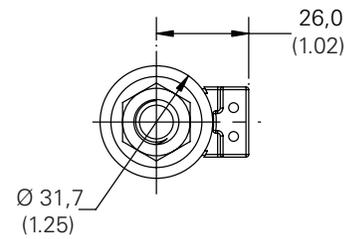
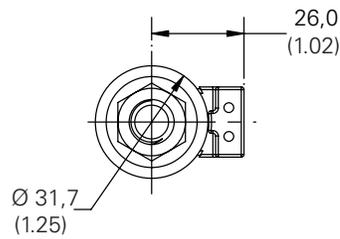
### Spare Parts

Coil Nut	565558
Coil Spacer	02-186730

### ⚠ Warning

Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

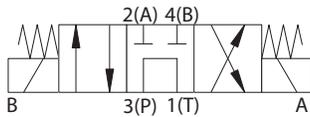


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-10-A - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 19 L/min (5 USgpm) • 2.10 bar (3000 psi)

A

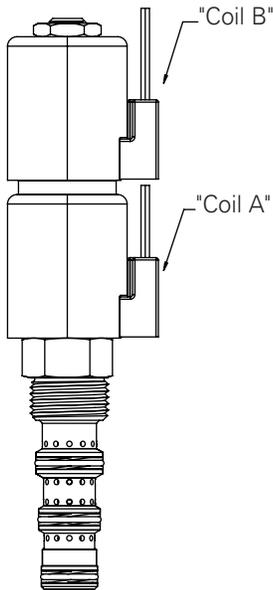


## Operation

In the de-energized position, this valve allows flow from port 3 to port 1 and blocks ports 2 and 4. When solenoid 1 (S1) is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

When solenoid 2 (S2) is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
Max flow	5 USgpm
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	23W
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0.95Kg (2.1 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)
Internal leakage	246 cm <sup>3</sup> /min (15 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

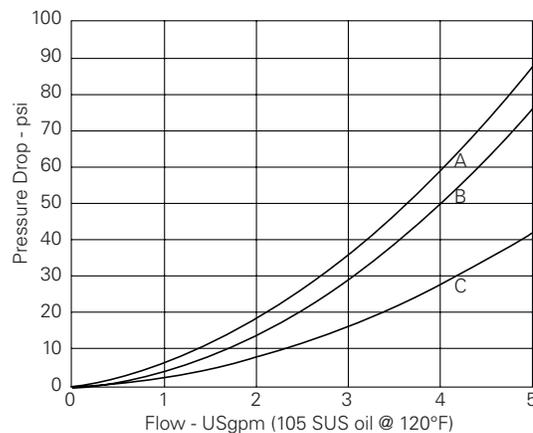
Viton is a registered trademark of E.I. DuPont  
Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

The SV9-10-B is a 4-way, 3-position, direct acting, spool type directional valve.

## Pressure drop

Cartridge only



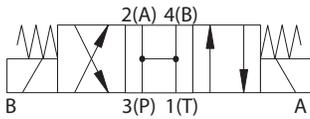
- A** - Port 3 to port 1, de-energized
- B** - Port 3 to port 2, port 3 to port 4
- C** - Port 2 to port 1, port 4 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-10-B - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

A

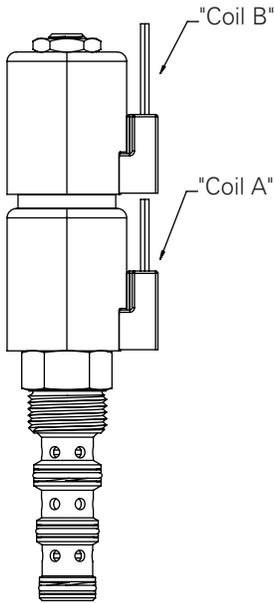


## Operation

In the de-energized position, all ports are open to each other. When solenoid 1 (S1) is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

When solenoid 2 (S2) is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
Max flow	6 USgpm
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	26W
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0.95 Kg (2.1 lbs)
Seal kit	889625 Buna-N, 566080 (Viton®)
Internal leakage	246 cm <sup>3</sup> /min (15 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

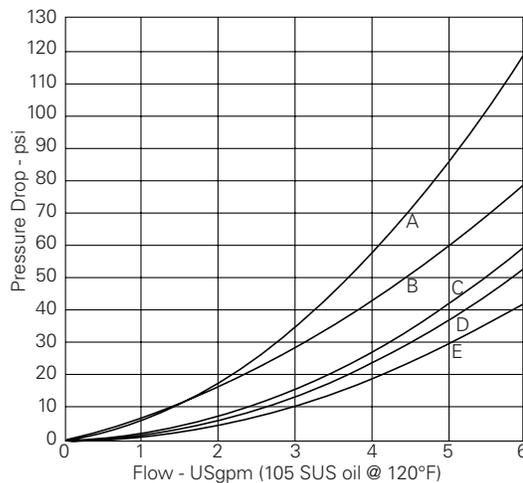
Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

The SV9-10-B is a 4-way, 3-position, direct acting, spool type directional valve.

## Pressure drop

Cartridge only



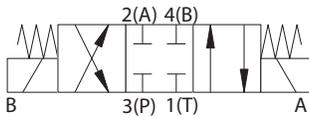
- A** - Port 3 to port 1, de-energized
- B** - Port 3 to port 2, port 3 to port 4
- C** - Port 4 to port 1, port 2 to port 1, de-energized
- D** - Port 2 to port 1
- E** - Port 4 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-10-E - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 2.10 bar (3000 psi)

A

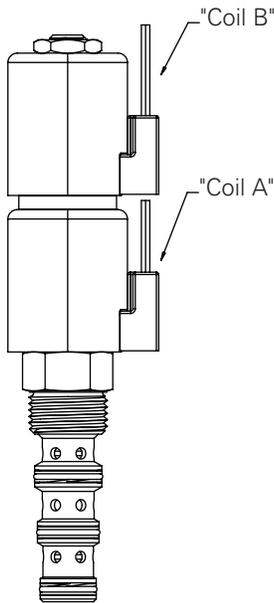


## Operation

In the de-energized (center) position, all ports are blocked. When solenoid 1 (S1) is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

When solenoid 2 (S2) is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Sectional view



## Performance data

### Ratings and specifications

*Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)*

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
Max flow	6 USgpm
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	26W
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0.95 Kg (2.1 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)
Internal leakage	246 cm <sup>3</sup> /min (15 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

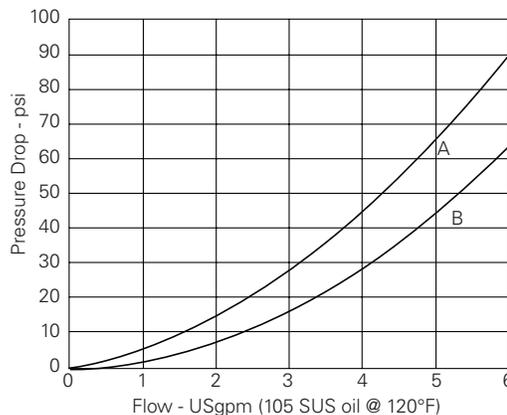
Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

The SV9-10-E is a 4-way, 3-position, direct acting, spool type directional valve.

## Pressure drop

Cartridge only



**A** - Port 3 to port 2, port 3 to port 4

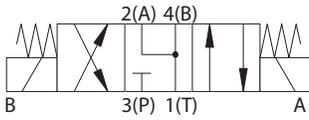
**B** - Port 2 to port 1, port 4 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-10-F - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

A

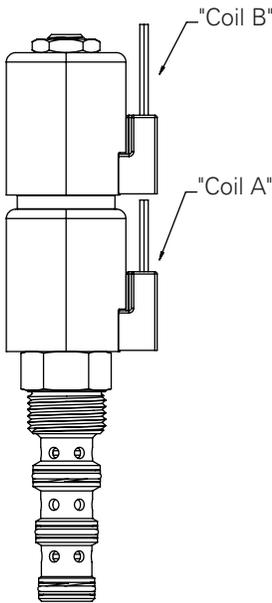


## Operation

In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid 1 (S1) is energized, flow is directed from port

3 to port 4 and from port 2 to port 1. When solenoid 2 (S2) is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Sectional view



## Performance data

### Ratings and specifications

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
Max flow	6 USgpm
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	26W
Cavity	C-10-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0.95 Kg (2.1 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)
Internal leakage	246 cm <sup>3</sup> /min (15 in <sup>3</sup> /min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

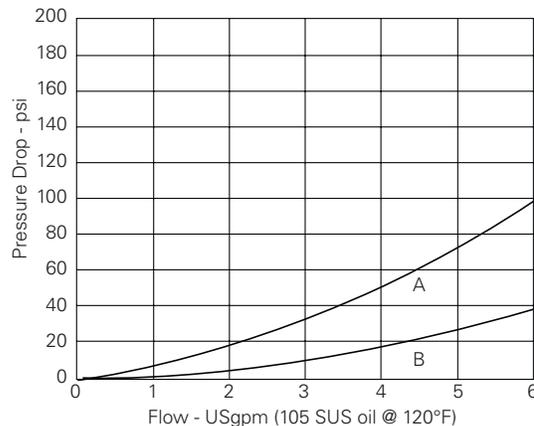
Endurance tested to 1 million cycles at full rated flow and pressure.

## Description

The SV9-10-F is a 4-way, 3-position, direct acting, spool type directional valve.

## Pressure drop

Cartridge only



A - Port 3 to port 2, port 3 to port 4

B - Port 2 to port 1, port 4 to port 1

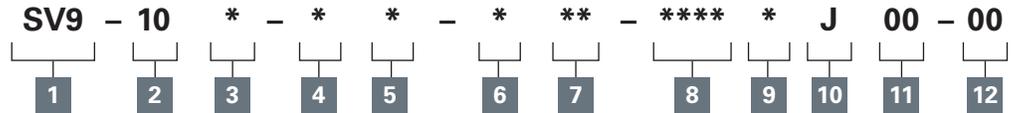
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9-10 - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 23 L/min (6 USgpm) • 2.10 bar (3000 psi)

A

## Model code



### 1 Function

**SV9** - Solenoid valve

### 2 Size

**10** - 10 size

### 3 Seal material

**Blank** - Buna-N

**V** - Viton

### 5 Manual override option

**Blank** - No manual override

**M** - Manual override

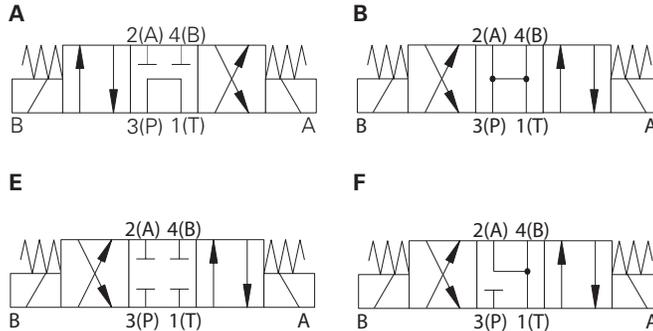
### 6 Housing material

**0** - Cartridge only

**A** - Aluminum

**S** - Steel

### 4 Spool center condition



### 7 Port sizes

Code	Port size	Housing number	
		Aluminium light duty	Aluminium fatigue rated
<b>Blank</b>		Cartridge only	
<b>3B</b>	3/8" BSPP	02-179705	
<b>2G</b>	1/4" BSPP		876709
<b>3G</b>	3/8" BSPP		876715
<b>6H</b>	SAE 4		876708
<b>8H</b>	SAE 6		876713
<b>6T</b>	SAE 6	566161	

See section J for housings.

### 8 Voltage rating <sup>1</sup>

**00** - No coil

**012D** - 12VDC

**024D** - 24VDC

**036D** - 36VDC

**024A** - 24VAC

**115A** - 115VAC

**230A** - 230VAC

**012B** - 12VDC/w diode\*

**024B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types <sup>1</sup>

**Blank** - No coil

**G** - ISO 4400 DIN 43650

**Q** - Spade terminals

**W** - Leadwire

**N** - Deutsch (DC only)

**Y** - Amp JR (DC only)

**D** - Metripack 150 male (DC only)

**J** - Metripack 280 male (DC only)

### 10 Coil series <sup>1</sup>

**Blank** - No Coil

**J** - 10 series, 23W

### 11 Coil special features <sup>1</sup>

**Blank** - None

### 12 Valve Special features <sup>1</sup>

**00** - None

(Only required if valve has Special features omitted if "00".)

<sup>1</sup> These model digits are not stamped on the valve.

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

## Dimensions

mm (inch)

Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft. lbs.)

Valve is shown with "W" coil. See other coils in Section C.

**Note:** When solenoid valve is ordered as Cartridge only, coil nut is included.

When solenoid valve is ordered without coils, it will be supplied with only the nut. The spacer must be ordered separately.

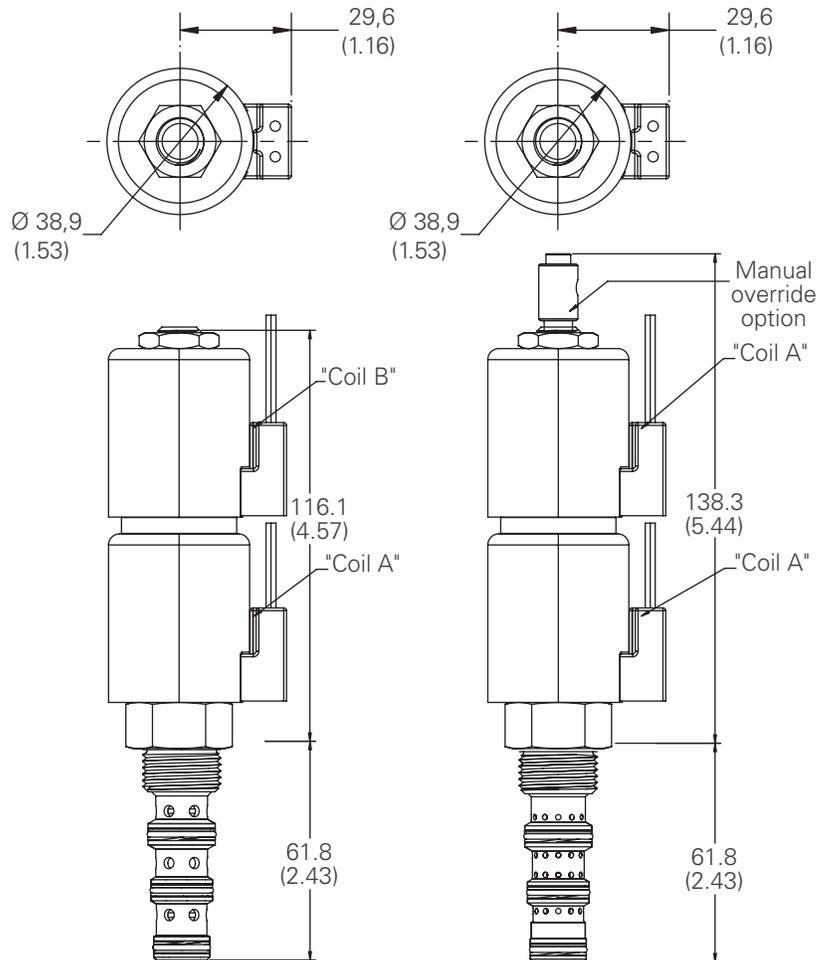
This valve uses the J series, 23 W coil.

### Spare parts

Coil nut	565558
Coil spacer	02-179226

## ⚠ Warning

Maintain 5-8 Nm (4-6 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

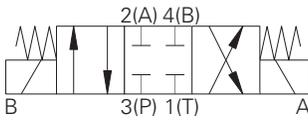


Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9M-10-E - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 25 L/min (6.5 USgpm) • 210 bar (3000 psi)

A



## Operation

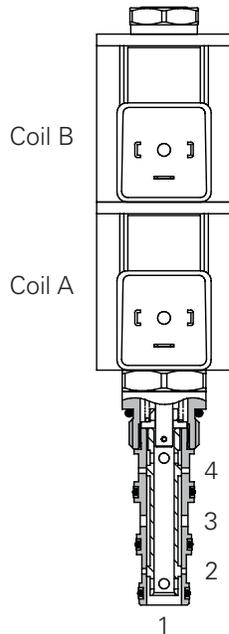
In the de-energized position all ports are closed. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1.

When solenoid 'B' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cSt (150 SSU)

Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Viton® with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs) two per valve
Cartridge weight	0.25 kg (0.55 lbs)
Seal kit	SK1034 (Nitrile) SK1034V (Viton)

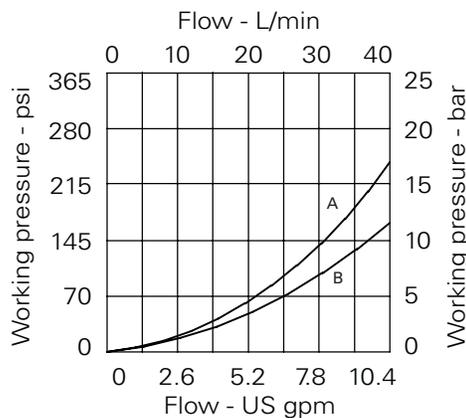
Viton is a registered trademark of E.I. DuPont

\*AC coils must be used with a rectifying connector

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. All ports closed in the de-energized position. This valve is ideal for small flow applications where an actuator needs to be moved in both directions and stopped in any position.

## Pressure drop



**A** - Port 3 to port 2 or port 4

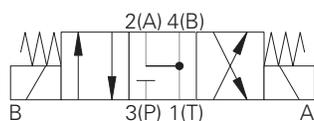
**B** - Port 2 to port 4 or port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9M-10-F - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 25 L/min (6.5 USgpm) • 210 bar (3000 psi)

A



## Operation

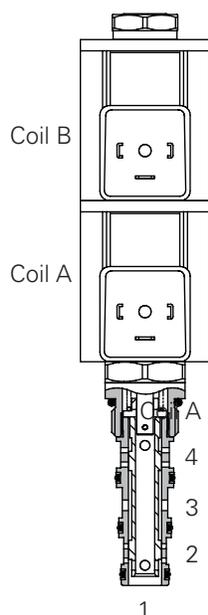
In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid A is energized, flow is directed

from port 3 to port 4 and from port 2 to port 1. When solenoid B is energized, flow is directed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cST (150 SSU)

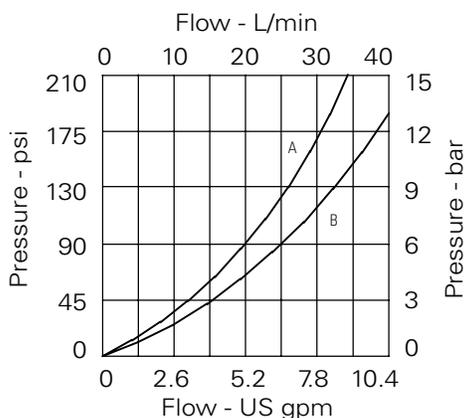
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graph
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back – up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs) two per valve
Cartridge weight	0.25 kg (0.55 lbs)
Seal kit	SK1034 (Nitrile) SK1034V (Viton)

Viton is a registered trademark of E.I. DuPont

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition Port 2 and 4 are open to tank with the inlet port 3 blocked. This valve is ideal for small flow applications where an actuator needs to be moved in both directions and stopped in any position while allowing the service ports to decay to tank pressure in the de-energized condition.

## Pressure drop



**A** - Spool shifted port 3-2, port 3-4 and port 2-1 and port 4-1

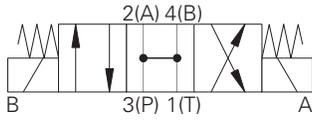
**B** - Spool centered port 3-2, port 3-4 and port 2-1 and port 4-1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9M-10-B - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 34 L/min (8.9 USgpm) • 210 bar (3000 psi)

A



## Operation

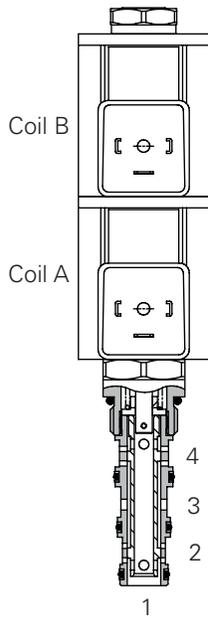
In the de-energized position all ports are open. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1.

When solenoid 'B' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cSt (150 SSU)

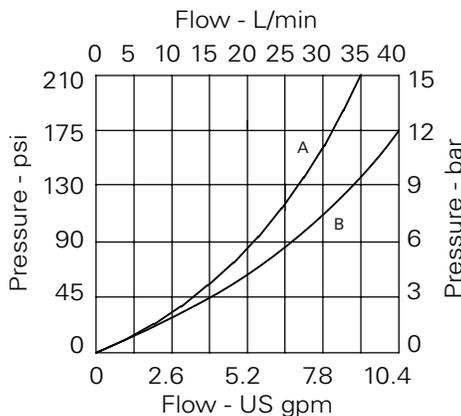
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow	34 L/min (8.9 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs) two per valve
Cartridge weight	0.25 kg (0.55 lbs)
Seal kit	SK1034 (Nitrile) SK1034V (Viton)

Viton is a registered trademark of E.I. DuPont

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition all ports are open to tank. This valve is ideal for small flow applications where an actuator needs to be moved in both directions.

## Pressure drop



**A** - Spool shifted port 3-2, port 3-4 and port 2-1 and port 4-1

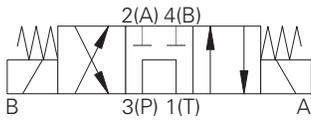
**B** - Spool centered port 2-1 and port 4-1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# SV9M-10-A - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 25 L/min (6.5 USgpm) • 210 bar (3000 psi)

A



## Operation

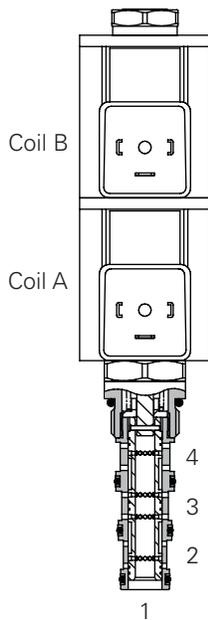
In the central de-energized position. Flow is allowed from inlet port 3 to port 1 and ports 2 and 4 are blocked. When solenoid 'B' is energized flow is allowed from port 3 to 4 and port 2 to 1.

When solenoid 'A' is energized flow is allowed from port 3 to port 2 and from port 4 to port 1.

## Features

Hardened, ground and honed working parts to limit leakage. IP69K Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

## Sectional view



## Performance data

### Ratings and specifications

Figures based on Viscosity 32 cST (150 SSU)

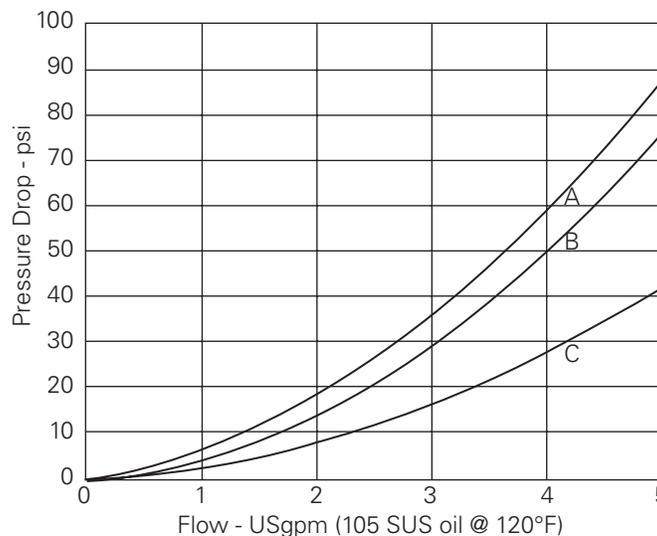
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graph
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section M)
Electrical data	See coil data sheet
Torque cartridge into cavity	30 Nm (22 lbs ft)
Mounting position	Unrestricted
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc
Seal material	Standard nitrile with PTFE back up rings
Filtration	BS5540/4 Class 18/13 (25 micron or better)
Nominal viscosity range	15 to 250 cSt
Standard housing materials	Aluminium alloy
Coil weight	0.3 kg (0.6 lbs) two per valve
Cartridge weight	0.25 kg (0.55 lbs)
Seal kit	SK1034 (Nitrile) SK1034V (Viton)

Viton is a registered trademark of E.I. DuPont

## Description

This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition the inlet Port 3 is open to tank with port 2 and 4 blocked. This valve is ideal for small flow applications where an actuator needs to be moved in both directions. In the de-energized condition inlet flow is allowed to tank.

## Pressure drop



- A** - Port 3 to port 1, de-energized
- B** - Port 3 to port 2, port 3 to port 4
- C** - Port 2 to port 1, port 4 to port 1

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.



# SV9M-10 - Solenoid valve

4-way, 3-position spool type solenoid valve  
Up to 32 L/min (8.5 USgpm) • 210 bar (3000 psi)

## Model code

**SV9A - 10 \* - \* \* - \* \*\* - \*\*\*\* \* L 00 - 00**

1 2 3 4 5 6 7 8 9 10 11 12

A

### 1 Function

**SV9M** - Solenoid valve

### 2 Size

**10** - 10 size

### 3 Seal material

**N** - Buna-N

**V** - Viton

### 5 Manual override option

**0** - No manual override

**M** - Manual override

For valve dimensions with manual override, see pages A-961.

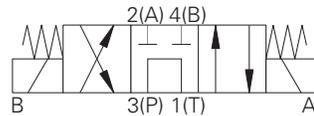
### 6 Housing material

**0** - Cartridge only

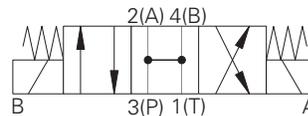
**A** - Aluminum

### 4 Spool center condition

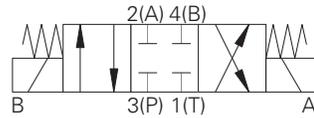
**A**



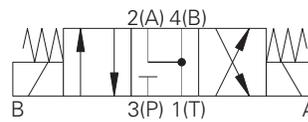
**B**



**E**



**F**



### 7 Port sizes

Code	Port size	Housing number
Aluminium		
<b>0</b>	Cartridge only	
<b>3G</b>	3/8" BSP	B19240
<b>4G</b>	1/2" BSP	B19228
<b>8T</b>	1/2" SAE	B19229

### 8 Voltage rating<sup>1</sup>

**000** - No coil

**012D** - 12VDC

**024D** - 24VDC

**036D** - 36VDC

**012B** - 12VDC/w diode\*

**024B** - 24VDC/w diode\*

\*Optional arc suppression diode.

### 9 Connector types<sup>1</sup>

**0** - No coil

**W** - Leadwire

**N** - Deutsch male, DT04-2P, integrated

### 10 Coil series<sup>1</sup>

**0** - No Coil

**L** - 10 series, 28W Large ToughCoil

### 11 Coil special features<sup>1</sup>

**00** - None

### 12 Valve special features<sup>1</sup>

**00** - None

<sup>1</sup> These model digits are not stamped on the valve.

# S Series - Manual overrides

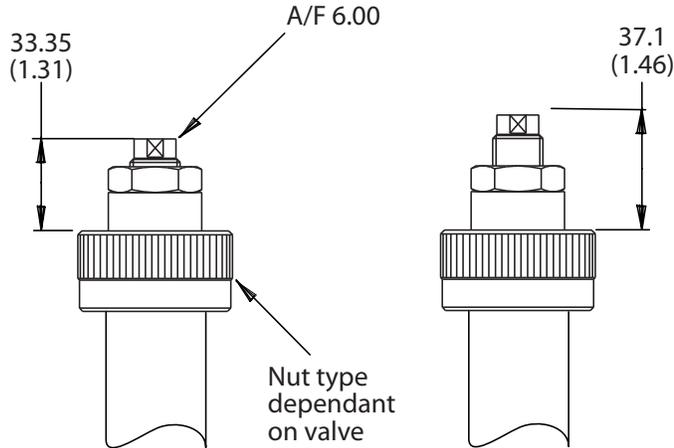
13 mm Tube

A

S2 Series

Consult factory for availability

## Screw, normally closed manual override - type 2

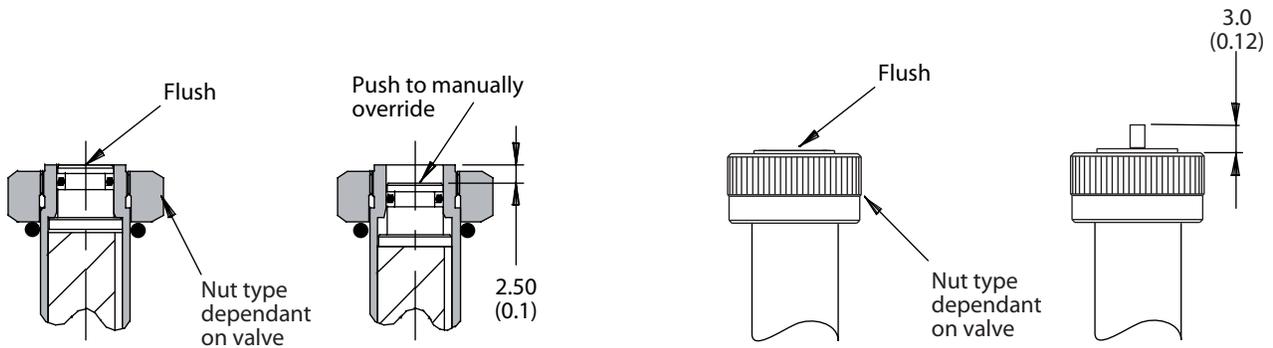


Manually operated position

Normal position

Available for S217, S229

## Push manual override - type 3



Push to manually override

Available for S217

Push to manually override

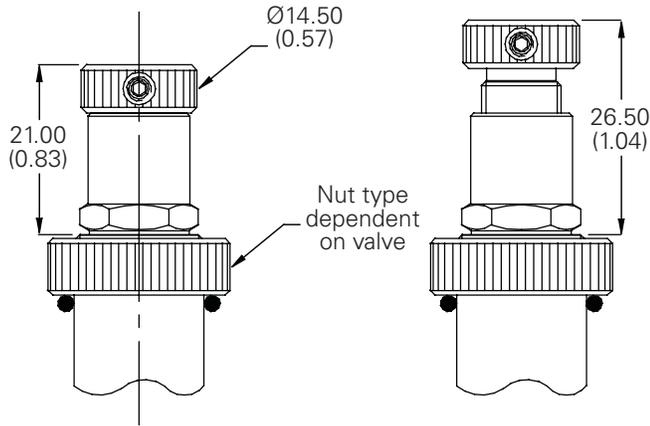
Available for S229

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

S5 Series

Consult factory for availability

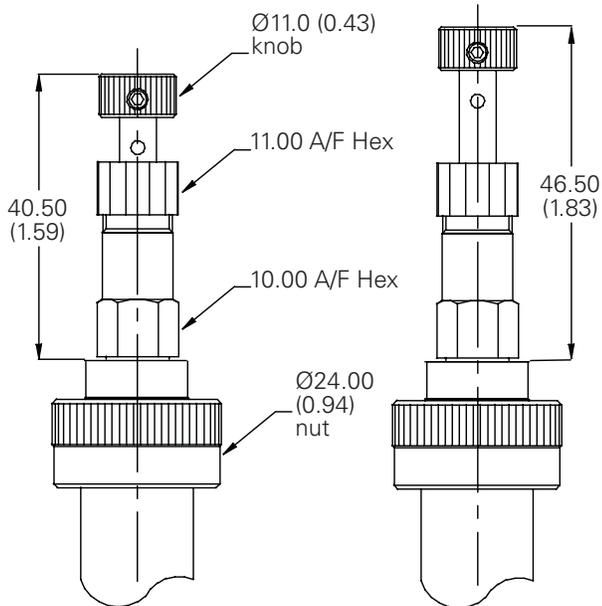
Screw manual override - Type 2



Manually operated position  
Available for: S520, S521,  
S525, S526, S541, S542

Normal position

Push/pull manual override - Type M



Normal position  
Available for: SV9A-10-A,  
SV9A-10-B, SV9A-10-E,  
SV9A-10-F, SV9A-10-G

Pulled out

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# Manual override options

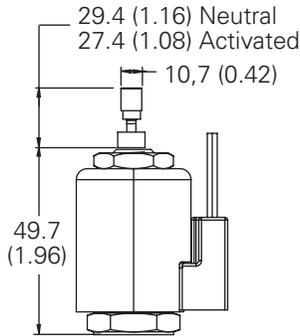
Push type overrides (type P and S)

**Note:** Manual override is available on all solenoid cartridge valves, except SBV series valves.

## **Warning**

The Manual override option is intended for emergency use, not for continuous duty operation.

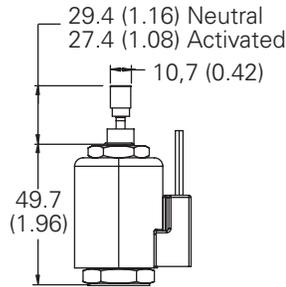
### Manual override "S" screw type



8-Series – 210 bar valves

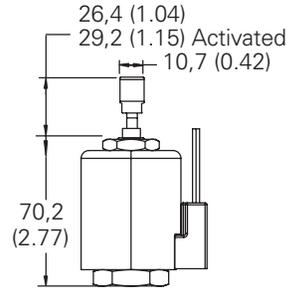
### To override:

1. Turn the override button clockwise until it stops.



8-Series – 350 bar valves

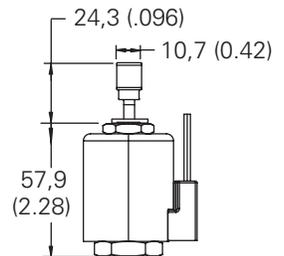
2. The override button will remain activated until the override button is turned counterclockwise.



10, 12, 16, 20-Series – 210 bar valves

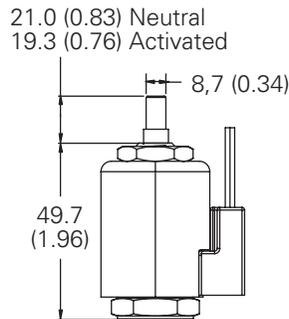
### To release:

1. Turn the override button counterclockwise until it stops.



10, 12, 16, 20-Series – 350 bar valves

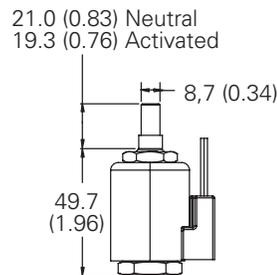
### Manual override "P" push type



8-Series – 210 bar valves

### To override:

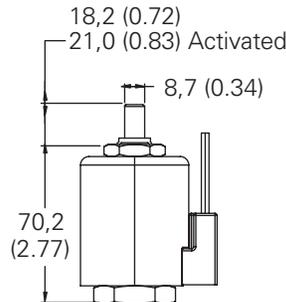
1. Push the override button to stop and hold.



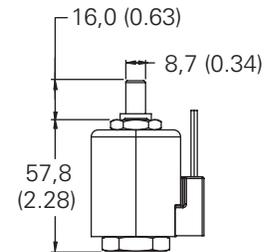
8-Series – 350 bar valves

### To release:

1. Remove pressure from the override button.



10, 12, 16, 20-Series – 210 bar valves



10, 12, 16, 20-Series – 350 bar valves

### Manual override "P" & "S" options are available on the following models:

SV13-10-0P/0S-0-00	SV3-10-0S-0-00	SV3-8-CM-0-00	SV5-10-0S-0-00
SV13-12-0P/0S-0-00	SV3-12-0P-0-00	SV3-8-0P-0-00	SV5-8-0P-0-00
SV13-16-0P/0S-0-00	SV3-12-0S-0-00	SV3-8-0S-0-00	SV5-8-0S-0-00
SV13-20-0P/0S-0-00	SV3-16-0P-0-00	SV4-10-3P-0-00	SV7-10-4P-0-00
SV15-10-0P/0S-0-00	SV3-16-0S-0-00	SV4-10-3S-0-00	SV7-10-4S-0-00
SV15-8-0P/0S-0-00	SV3-20-0P-0-00	SV4-8-3P-0-00	
SV3-10-0P-0-00	SV3-20-0S-0-00	SV5-10-0P-0-00	

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

**Warning**

The Manual override option is intended for emergency use, not for continuous duty operation.

**Note:** Manual override is available on all solenoid cartridge valves, except SBV series valves.

# Manual override options

Pull type overrides (type M and R)

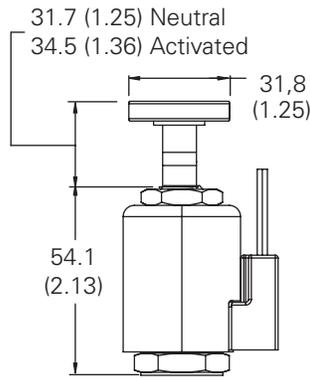
## Manual override "M" pull type

**To override:**

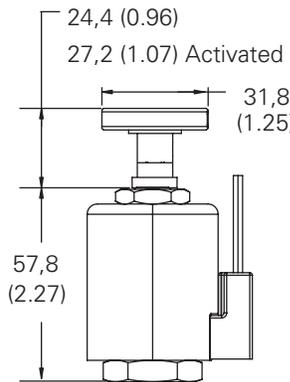
1. Pull up knob until the override tooth is completely out of the detent base.
2. Turn the knob clockwise until the override tooth is resting securely on top of the detent base slot.

**To release:**

1. Pull up knob slightly from surface.
2. Turn the knob clockwise until the override tooth is securely engaged in slot of the detent base.

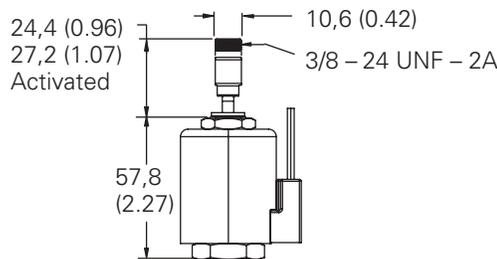


**8-Series – 210 bar and 350 bar values**



**10, 12, 16, 20-Series – 210 bar and 350 bar values**

## Manual override "R" cable type (not available on size 8 models)



**Manual override "M" options are available on the following models:**

SBV11-8-CM-0-00	SV1-16-CM-0-00	SV13-20-CM-0-00	SV2-10-4M-0-00	SV4-10-CM-0-00
SBV12-8-CM-0-00	SV11-8-3M-0-00	SV14-10-CM-0-00	SV2-10-CM-0-00	SV4-10-0M-0-00
SV1-10-3M-0-00	SV11-8-4M-0-00	SV14-10-0M-0-00	SV2-20-CM-0-00	SV4-8-CM-0-00
SV1-10-4M-0-00	SV12-10-CM-0-00	SV14-8-CM-0-00	SV2-8-4M-0-00	SV4-8-0M-0-00
SV1-10-CM-0-00	SV12-8-4M-0-00	SV14-8-0M-0-00	SV3-10-4M-0-00	SV5-10-4M-0-00
SV11-10-3M-0-00	SV13-10-CM-0-00	SV15-8-CM-0-00	SV3-10-CM-0-00	SV5-8-CM-0-00
SV11-10-4M-0-00	SV13-12-CM-0-00	SV1-8-3M-0-00	SV3-12-CM-0-00	
SV11-10-CM-0-00	SV13-16-CM-0-00	SV1-8-4M-0-00	SV4-10-4M-0-00	

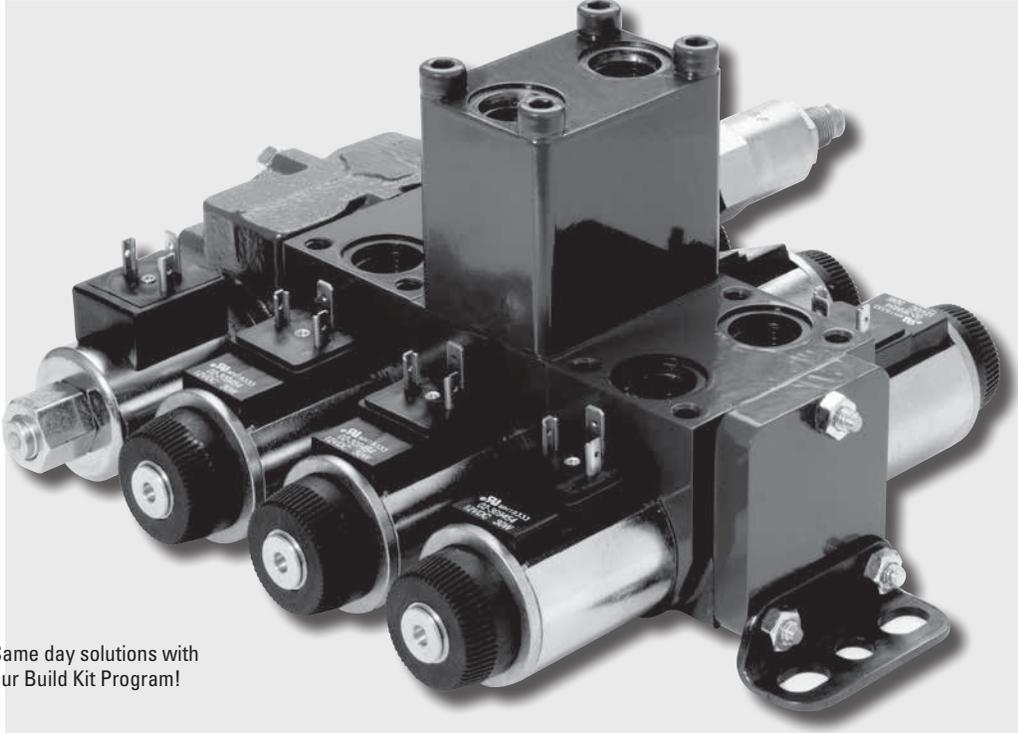
**Manual override "R" options are available on the following models:**

SV1-10-3R-0-00	SV2-10-4R-0-00	SV3-10-CR-0-00	SV4-10-0R-0-00	SV1-16-CR-0-00
SV1-10-4R-0-00	SV2-10-CR-0-00	SV4-10-4R-0-00	SV5-10-4R-0-00	SV2-20-CR-0-00
SV1-10-CR-0-00	SV3-10-4R-0-00	SV4-10-CR-0-00	SV3-12-CR-0-00	

Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

# Versatile, Proven, Best Value

## Sectional Design for Multiple Configurations



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### MDG Mobile Valve

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