# Solenoid valves

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

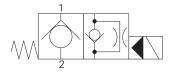




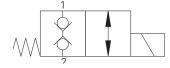
# Solenoid valves

SOLENOID VALVESA-4	SV3-8-O/OP/OS - SOLENOID VALVE	.A-72
SV5-8-C/CM - SOLENOID VALVEA-12	SV3-10-O/OP/OS - SOLENOID VALVE	. <b>A-7</b> 4
SV15-8-C/CM - SOLENOID VALVEA-14	SV5-10-O/OP/OS - SOLENOID VALVE	.A-76
SBV2-8-C - SOLENOID	SV15-10-O/OP/OS - SOLENOID VALVE	.A-78
BI-DIRECTIONAL VALVEA-16	SV13-10-O/OP/OS - SOLENOID VALVE	.A-80
SBV12-8-C/CM - SOLENOID BI-DIRECTIONAL VALVEA-18	SBV11-10-O - SOLENOID BI-DIRECTIONAL VALVE.	.A-82
S217A - DIRECTIONAL CONTROL VALVEA-20	SV3-12-O/OP/OS - SOLENOID VALVE	. <b>A-8</b> 4
S519 - DIRECTIONAL CONTROL VALVEA-22	SV13-12-O/OP/OS - SOLENOID VALVE	.A-86
SBV11-8-C/CM - SOLENOID	SBV11-12-O - SOLENOID VALVE	.A-88
BI-DIRECTIONAL VALVEA-24	SV3-16-O/OP/OS - SOLENOID VALVE	.A-90
SV1-10-C/CM/CR - SOLENOID VALVEA-26	SV13-16-O/OP/OS - SOLENOID VALVE	.A-92
SV11-10-C/CM - SOLENOID VALVEA-28	SV3-20-O/OP/OS - SOLENOID VALVE	. <b>A-9</b> 4
SV3-8-C/CM - SOLENOID VALVEA-30	SV13-20-O/OP/OS - SOLENOID VALVE	.A-96
SV3-10-C/CM/CR - SOLENOID VALVEA-32	SV4-8-O/OM - SOLENOID VALVE	.A-98
SV13-10-C/CM - SOLENOID VALVEA-34	SV14-8-O/OM - SOLENOID VALVE	<b>A-100</b>
SBV1-10-C - SOLENOID VALVEA-36	SV4-10-O/OM/OR - SOLENOID VALVE	<b>\-102</b>
SBV11-10-C - SOLENOID VALVEA-38	SV14-10-O/OM - SOLENOID VALVE	<b>\-10</b> 4
SV3-12-C/CM/CR - SOLENOID VALVEA-40	SV1-8-3/3M - SOLENOID VALVE	<b>\-106</b>
SV13-12-C/CM - SOLENOID VALVEA-42	SV11-8-3/3M - SOLENOID VALVE	
SBV1-12-C - SOLENOID VALVEA-44	SV4-8-3/3P - SOLENOID VALVE	
SBV11-12-C - SOLENOID VALVEA-46	S229 - SOLENOID VALVE	
SV1-16-C/CM/CR - SOLENOID VALVEA-48	S520(H) - SOLENOID VALVE	
SV13-16-C/CM - SOLENOID VALVEA-50	S521(H) - SOLENOID VALVE	
SV2-20-C/CM/CR - SOLENOID VALVEA-52	S525(H) - SOLENOID VALVE	<b>4-11</b> 8
SV13-20-C/CM - SOLENOID VALVEA-54	S526 - SOLENOID VALVE	\-120
SV4-8-C/CM - SOLENOID VALVEA-56	SV1-10-3/3M/3R - SOLENOID VALVE	
SV14-8-C/CM - SOLENOID VALVEA-58	SV11-10-3/3M - SOLENOID VALVE	<b>\-12</b> 4
SV4-10-C/CM/CR - SOLENOID VALVEA-60	SV11A/B-10-3 - SOLENOID VALVE	
SV14-10-C/CM - SOLENOID VALVEA-62	SV4-10-3/3P/3S - SOLENOID VALVE	
S207 - SOLENOID VALVEA-64	SV1M-12-3 - SOLENOID VALVE	
SV5-8-O/OP/OS - SOLENOID VALVEA-66	SV11M-12-3 - SOLENOID VALVE	
SV15-8-O/OP/OS - SOLENOID VALVEA-68	SV2M-12-3P - SOLENOID VALVE	
SBV11-8-O - SOLENOID BI-DIRECTIONAL VALVE A-70	SV12M-12-3 - SOLENOID VALVE	

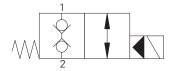
SV4M-12-3P - SOLENOID VALVE	A-138	SV5M-12-4 - SOLENOID VALVE	A-178
SV14M-12-3 - SOLENOID VALVE	A-140	SV15M-12-4 - SOLENOID VALVE	A-180
SV14A/B-12-3 - SOLENOID VALVE	A-141	SV7M-12-4 - SOLENOID VALVE	A-182
SV1-8-4/4M - SOLENOID VALVE	A-142	SV17M-12-4 - SOLENOID VALVE	A-184
SV11-8-4/4M - SOLENOID VALVE	A-144	SV9-8-E - SOLENOID VALVE	A-186
SV2-8-4/4M - SOLENOID VALVE	A-146	SV9-8-F - SOLENOID VALVE	A-187
SV12-8-4/4M - SOLENOID VALVE	A-148	SV9-8-B - SOLENOID VALVE	A-188
SV1-10-4/4M/4R - SOLENOID VALVE	A-150	SV9-8-A - SOLENOID VALVE	A-189
S542 - SOLENOID VALVE	A-152	SV9-8 - SOLENOID VALVE	A-190
SV11-10-4/4M - SOLENOID VALVE	A-154	SV9-10-A - SOLENOID VALVE	A-192
S541 - SOLENOID VALVE	A-156	SV9-10-B - SOLENOID VALVE	A-193
SV2-10-4/4M/4R - SOLENOID VALVE	A-158	SV9-10-E - SOLENOID VALVE	A-194
SV3-10-4/4M/4R - SOLENOID VALVE	A-160	SV9-10-F - SOLENOID VALVE	A-195
SV4-10-4/4M/4R - SOLENOID VALVE	A-162	SV9-10 - SOLENOID VALVE	A-196
SV5-10-4/4M/4R - SOLENOID VALVE	A-164	SV9M-10-E - SOLENOID VALVE	A-198
SV7-10-4/4P/4S - SOLENOID VALVE	A-166	SV9M-10-F - SOLENOID VALVE	A-199
SV17M-10-4P - SOLENOID VALVE	A-168	SV9M-10-B - SOLENOID VALVE	A-200
SV2M-12-4 - SOLENOID VALVE	A-170	SV9M-10-A - SOLENOID VALVE	A-201
SV12M-12-4 - SOLENOID VALVE	A-172	SV9M-10 - SOLENOID VALVE	A-202
SV3M-12-4 - SOLENOID VALVE	A-174	S SERIES - MANUAL OVERRIDES	A-204
SV13M-12-4 - SOLENOID VALVE	A-176	MANUAL OVERRIDE OPTIONS	A-206



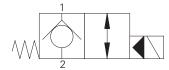
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NC, poppet		L/min (USgpm)	bar (psi)	'
SV5-8-C	C-8-2	23 (6)	210 (3000)	A-12
SV15-8-C	C-8-2	37 (10)	350 (5000)	A-14
SV1-10-C	C-10-2	45 (12)	210 (3000)	A-26
SV11-10-C	C-10-2	45 (12)	350 (5000)	A-28
SV12-10-C	C-10-2	23 (6)	350 (5000)	A-28



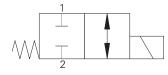
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NC, bi-directional, poppet		L/min (USgpm)	bar (psi)	,
SBV2-8-C	C-8-2	1 (0.25)	210 (3000)	A-16
SBV12-8-C	C-8-2	1 (0.25)	350 (5000)	A-18
S217A	A879	10 (2.6)	210 (3000)	A-20
S519A	A879	12 (3)	210 (3000)	A-22



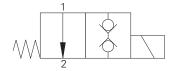
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NC, bi-directional, poppet		L/min (USgpm)	bar (psi)	
SBV11-8-C	C-8-2	60 (15)	350 (5000)	A-24
SBV1-10-C	C-10-2	76 (20)	210 (3000)	A-26
SBV11-10-C	C-10-2	76 (20)	350 (5000)	A-28
SBV1-12-C	C-12-2/2U	114 (30)	210 (3000)	A-44
SBV11-12-C	C-12-2/2U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



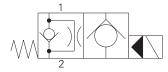
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NC, poppet		L/min (USgpm)	bar (psi)	
SV3-8-C	C-8-2	23 (6)	210 (3000)	A-30
SV3-10-C	C-10-2	45 (12)	210 (3000)	A-32
SV13-10-C	C-10-2	45 (12)	350 (5000)	A-34
SV3-12-C	C-12-2	114 (30)	210 (3000)	A-40
SV13-12-C	C-12-2	114 (30)	350 (5000)	A-42
SV1-16-C	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



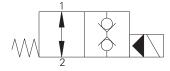
Cavity	Flow rating	Typical pressure	Page
	L/min (USgpm)	bar (psi)	'
C-8-2	11 (3)	210 (3000)	A-56
C-8-2	11 (3)	350 (5000)	A-58
C-10-2	23 (6)	210 (3000)	A-60
C-10-2	23 (6)	350 (5000)	A-62
	C-8-2 C-8-2 C-10-2	Cavity         rating           L/min (USgpm)           C-8-2         11 (3)           C-8-2         11 (3)           C-10-2         23 (6)	Cavity         rating         pressure           L/min (USgpm)         bar (psi)           C-8-2         11 (3)         210 (3000)           C-8-2         11 (3)         350 (5000)           C-10-2         23 (6)         210 (3000)



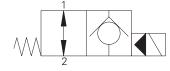
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NO, poppet		L/min (USgpm)	bar (psi)	
S207	A879	1 (.25)	350 (5000)	A-64



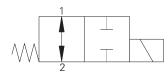
Model	Cavity	Flow rating	Typical pressure	Page	
Solenoid 2/2, NO, poppet		L/min (USgpm)	bar (psi)		
SV5-8-0	C-8-2	23 (6)	210 (3000)	A-66	
SV15-8-0	C-8-2	37 (10)	350 (5000)	A-68	
SV5-10-0	C-10-2	45 (12)	210 (3000)	A-76	
SV15-10-0	C-10-2	45 (12)	350 (5000)	A-78	



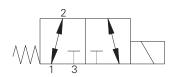
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NO, bi-directional, poppet		L/min (USgpm)	bar (psi)	
SBV11-8-0	C-8-2	60 (15)	350 (5000)	A-70
SBV11-10-0	C-10-2	76 (20)	350 (5000)	A-82
SBV11-12-0	C-12-2/2U	114 (30)	350 (5000)	A-88



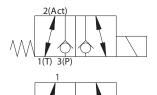
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NO, poppet		L/min (USgpm)	bar (psi)	
SV3-8-0	C-8-2	23 (6)	210 (3000)	A-72
SV3-10-0	C-10-2	45 (12)	210 (3000)	A-74
SV13-10-0	C-10-2	45 (12)	350 (5000)	A-80
SV3-12-0	C-12-2/2U	114 (30)	210 (3000)	A-84
SV13-12-0	C-12-2/2U	114 (30)	350 (5000)	A-86
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



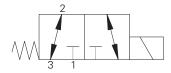
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 2/2, NO, spool		L/min (USgpm)	bar (psi)	
SV4-8-0	C-8-2	13 (4)	210 (3000)	A-98
SV14-8-0	C-8-2	13 (4)	350 (5000)	A-100
SV4-10-0	C-10-2	23 (6)	210 (3000)	A-102
SV14-10-0	C-10-2	23 (6)	350 (5000)	A-104

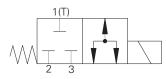


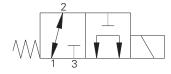
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool		L/min (USgpm)	bar (psi)	
SV4-8-3	C-8-3	13 (4)	210 (3000)	A-110
SV4-10-3	C-10-3	23 (6)	210 (3000)	A-128
S521N	C-10-3	44 (11)	210 (3000)	A
SV4A/B-12-3	C-12-3	42 (11)	210 (3000)	A
SV14A/B-12-3	C-12-3	42 (11)	350 (5000)	A-141

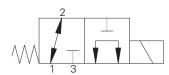


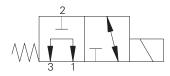
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, poppet		L/min (USgpm)	bar (psi)	
S229	A3531	12 (3)	210 (3000)	A-112
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool		L/min (USgpm)	bar (psi)	
S520H	C-10-3	40 (10)	210 (3000)	A-114

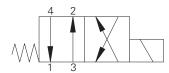












Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool		L/min (USgpm)	bar (psi)	
S525H	C-10-3	30 (8)	210 (3000)	A-118

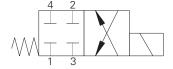
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool	'	L/min (USgpm)	bar (psi)	
S526N-2	C-10-3	35 (9)	210 (3000)	A-120

Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool		L/min (USgpm)	bar (psi)	
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

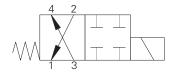
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool	·	L/min (USgpm)	bar (psi)	
SV11A/B-10-3	C-10-3	23 (6)	350 (5000)	A-126
SV1A/B-12-3	C-12-3	38-42 (10-11)	210 (3000)	A
SV11A/B-12-3	C-12-3	38 (10)	350 (5000)	A

Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 3/2, spool		L/min (USgpm)	bar (psi)	
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

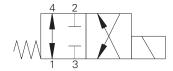
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool	<del></del>	L/min (USgpm)	bar (psi)	
SV1-8-4	C-8-4	11 (3)	210 (3000)	A-142
SV11-8-4	C-8-4	11 (3)	350 (5000)	A-144
SV1-10-4	C-10-4	23 (6)	210 (3000)	A-150
SV11-10-4	C-10-4	23 (6)	350 (5000)	A-154
S542	C-10-4	25 (9)	210 (3000)	A-152



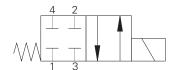
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool		L/min (USgpm)	bar (psi)	
SV2-8-4	C-8-4	13 (4)	210 (3000)	A-146
SV12-8-4	C-8-4	13 (4)	350 (5000)	A-148
SV2-10-4	C-10-4	23 (6)	210 (3000)	A-158
SV2A/B-12-4	C-12-4	42 (11)	210 (3000)	A
SV12A/B-12-4	C-12-4	42 (11)	350 (5000)	A
S541	C-10-4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



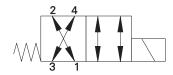
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool		L/min (USgpm)	bar (psi)	
SV3-10-4	C-10-4	23 (6)	210 (3000)	A-160
SV3A/B-12-4	C-12-4	53 (14)	210 (3000)	A
SV13A/B-12-4	C-12-4	35 (14)	350 (5000)	A



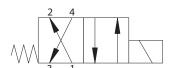
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool		L/min (USgpm)	bar (psi)	
SV4-10-4	C-10-4	23 (6)	210 (3000)	A-162



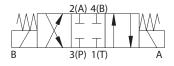
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool		L/min (USgpm)	bar (psi)	
SV5-10-4	C-10-4	23 (6)	210 (3000)	A-164
SV5A/B-12-4	C-12-4	46 (12)	210 (3000)	A-178
SV15A/B-12-4	C-12-4	53 (14)	350 (5000)	A-180



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



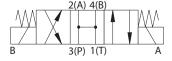
Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/2, spool		L/min (USgpm)	bar (psi)	
SV7-10-4	C-10-4	17 (5)	210 (3000)	A-166
SV7A/B-12-4	C-12-4	46 (12)	210 (3000)	A-182
SV17A/B-12-4	C-12-4	46 (12)	350 (5000)	A-184



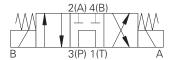
Cavity	Flow rating	Typical pressure	Page
	L/min (USgpm)	bar (psi)	
C-8-4	13 (4)	210 (3000)	A-190
C-10-4	19(5)	210(3000)	A-194
C-10-4	22 (5.8)	210 (3000)	A-198
	C-8-4 C-10-4	Cavity         rating           L/min (USgpm)           C-8-4         13 (4)           C-10-4         19(5)	Cavity         rating         přěssure           L/min (USgpm)         bar (psi)           C-8-4         13 (4)         210 (3000)           C-10-4         19(5)         210(3000)

		2(A) 4	(B)		
M			<b>.</b>   A		$\mathbb{W}$
	$\Lambda$	lΤ		•	
В		3(P) 1	(T)		Α

Model	Cavity	Flow rating	Typical pressure	Page
Solenoid 4/3, spool		L/min (USgpm)	bar (psi)	
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
Solenoid 4/3, spool		L/min (USgpm)	bar (psi)	
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
Solenoid 4/3, spool		L/min (USgpm)	bar (psi)	
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.

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

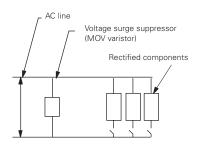
The rectifiers used in these coils may require protection from high voltage surges in some electrical circuits containing highly inductive or capacitive components, These include certain types of motors, solenoids, relays, and transformers.

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

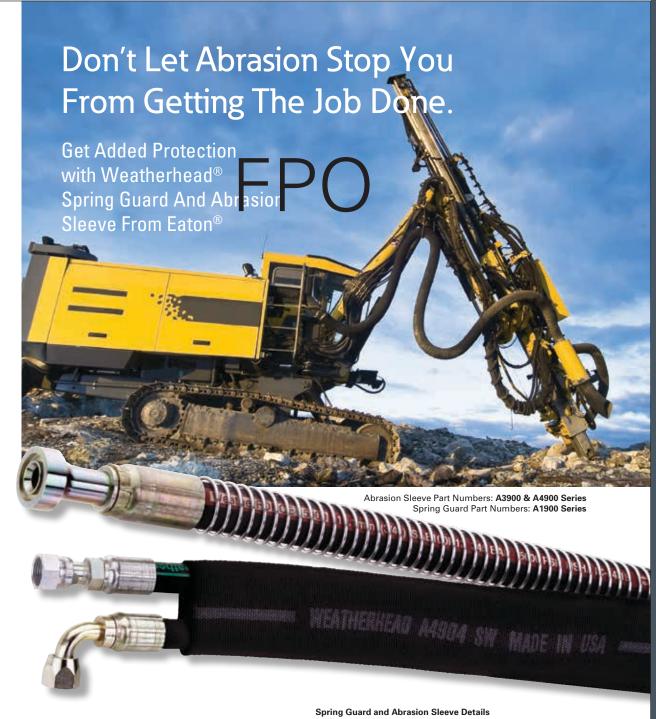
Coils may be hot to touch if used in continuous applications.

# **Marning**

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.



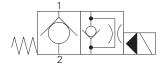


### Features and Benefits

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



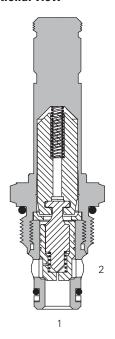
### Operation

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

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS) and	nd 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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

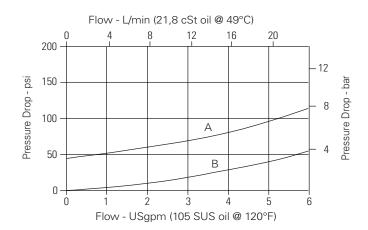
Viton is a registered trademark of E.I. DuPont

# **Description**

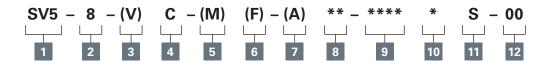
This is a 2-way, 2-position, poppet type, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop

Cartridge only



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



### 1 Function

SV5 - Solenoid valve

# 2 Size

8 - 8 size

# Seal material

Blank - Buna-N V - Viton®

# 4 Style

C - Normally closed

# 5 Manual override option

Blank - No manual override

 ${\bf M}$  - Knob type

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

### 6 Filter option

**Blank** - None **F** - Filter screen

# 7 Valve housing material

Omit for cartridge only

A - Aluminum

### 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

**24 A** - 24VAC

**115A** - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

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.

# 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

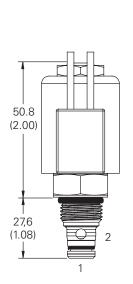
**00** - None

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

#### **Dimensions**

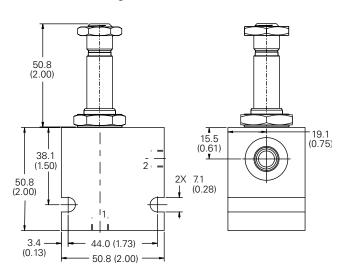
mm (inch)

# Cartridge only



# 26,0 (1.02) Ø 31,7 (1.25) 19,1 (0.75) hex 0.750" - 16 Thd. Ø 12,6 (0.500)

### **Installation drawing**

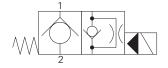


## **Marning**

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

Over tightening may cause valve failure.

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



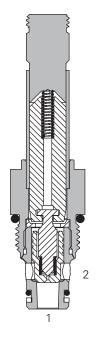
#### Operation

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**

3	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 45	9°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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)
-	·

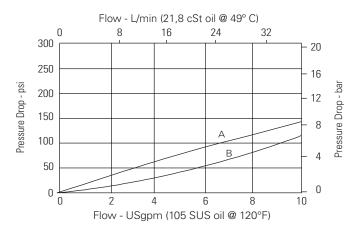
Viton is a registered trademark of E.I. DuPont

### **Description**

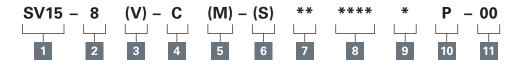
This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally closed solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

### Pressure drop

Cartridge only



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



# **Function**

SV15 - Solenoid valve

2 Size 8 - 8 size

Seal material

Blank - Buna-N

V - Viton°

# Style

C - Normally closed

# Manual override option

Blank - No manual override M - Manual override

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

# Valve housing material

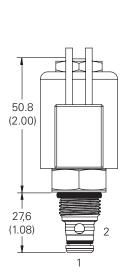
Blank - Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

### **Cartridge only**



### 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.

# Voltage rating

**00** - No coil

12D - 12VDC

**24D** - 24VDC

**36D** - 36VDC

(25-30 ft lbs)

Ø 31,7 (1.25)

19.1

hex

0.750"

Ø 12,6 (0.500)

- 16 Thd.

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

# **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)

### **Coil series**

P - 8 series, 23 W

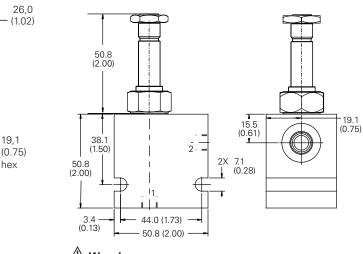
For coil part numbers and dimensions see section C.

### 11 Special features

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

Note: When solenoid valve is Torque cartridge in aluminum ordered as cartridge only, coil nut or steel housing 34-41 Nm 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.

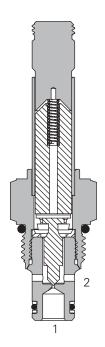
### **Operation**

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/ <b>16/13</b>
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,120 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

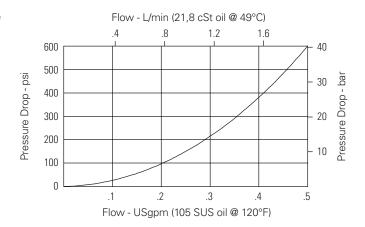
Viton is a registered trademark of E.I. DuPont

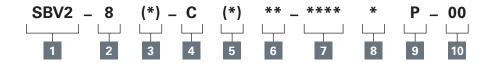
### **Description**

This is a 2-way 2-position, low flow, high pressure bidirectional, 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





### **Function**

SBV2 - Solenoid valve

# Size

8 - 8 size

### Seal material

Blank - Buna-N

V - Viton®

# Style

C - Normally closed

# 5 Valve housing material

Blank - Cartridge only

A - Aluminum

S - Steel

#### **Dimensions**

mm (inch)

# 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

**24A** - 24VAC

115A - 115VAC

230A - 230VAC

(25-30 ft lbs).

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

Torque cartridge in aluminum

Installation drawing (Aluminum)

or steel housing 34-41 Nm

See section J for housing details.

# Voltage rating

**00** - No coil

12D - 12VDC

**24D** - 24VDC

**36D** - 36VDC

# **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)

# **Coil series**

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

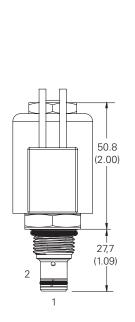
### **Special features**

**00** - None

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

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

### **Cartridge only**



# (1.02)Ø 31.7 (1.25)19.1 (0.75)hex 22,2 (0.87)0.750" hex - 16 Thd. Ø 12,62

(0.497)

26,0

# 50.8 (2.00) 15.5 (0.61) 19.1 (0.75) 38.1 (1.50) - -2X 7.1 (0.28) 50.8 (2.00) 44.0 (1.73) 50.8 (2.00)

### ⚠ 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).

# 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)

### **Operation**

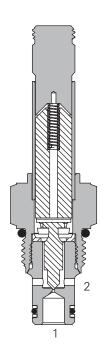
In the de-energized position the valve is blocked in both directions.

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**

C (120°F)
350 bar (5000 psi)
310 bar (4500 psi)
1 L/min (0.25 USgpm)
5 drops/min, max @ 350 bar (5000 psi)
-40° to 100°C (-40° to 212°F)
Continuous from 85% to 110% of nominal voltage
C-8-2
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/ <b>16/13</b>
Aluminum or steel
0,120 kg (0.26 lbs)
02-160777 (Buna-N), 02-160778 (Viton®)

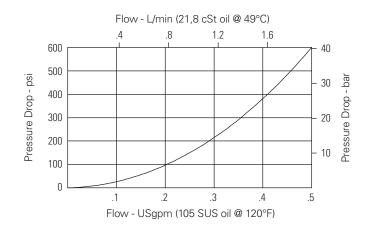
Viton is a registered trademark of E.I. DuPont

### **Description**

This is a 2-way 2-position, low flow, high pressure bidirectional, 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

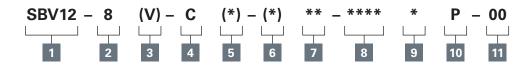
Cartridge only



# 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

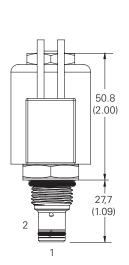
**A** - Aluminum

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

Ø 31,7 (1.25)

22,2

hex

(0.87)

Ø 12,62

(0.497)

19,1 (0.75)

hex

0.750"

- 16 Thd.

**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

is included.

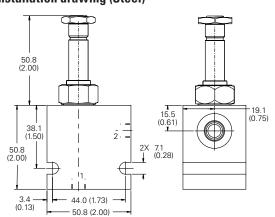
(Only required if valve has special features omitted if "00.")

Note: When solenoid valve is

ordered as cartridge only, coil nut

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

# Installation drawing (Steel)



# ⚠ Warning

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

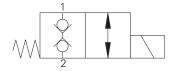
Over tightening may cause valve failure.

# **Marning**

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).

# 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)



### 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.

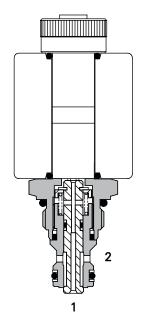
### Sectional view

**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.



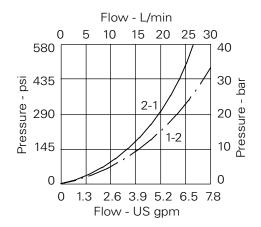
#### Performance data

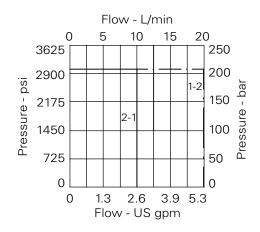
#### **Ratings and specifications**

natings and specimentons	
Performance data is typical with fluid at Viscosity 32 cs	ST (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

#### Pressure drop





<sup>\*</sup>AC coils must be used with a rectifying connector

# 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

S217A N \* - 24 H - 3W
1 2 3 4 5 6

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

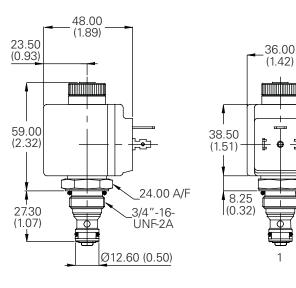
Code	Port size	Housing	g number Steel	
		Aluminium Steel	Steel	
2W	1/4" BSP	A1485		
3W	3/8" BSP	A1043	A14175	
6T	3/8" SAE	A15676	A14843	

### **Dimensions**

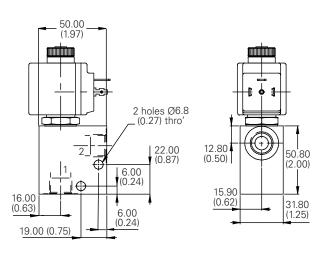
mm (inch)

# **Cartridge only**

Basic code **S217** 

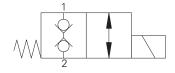


### Installation drawing



# S519 - Directional control valve

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



### 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.

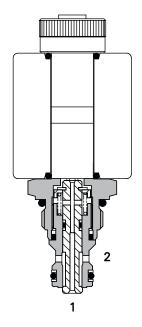
### Sectional view

**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.



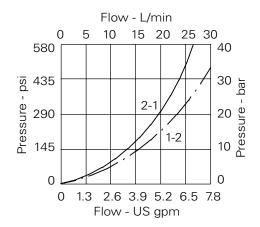
#### Performance data

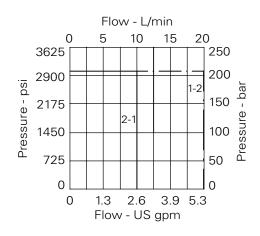
#### **Ratings and specifications**

Performance data is typical with fluid at Viscosity 32 cST (150 SS	SU)
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*
<del></del>	

Viton is a registered trademark of E.I. DuPont

#### Pressure drop





<sup>\*</sup>AC coils must be used with a rectifying connector

# 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

S519 N 3 - H 24 - 3W
1 2 3 4 5 6

1 Function

\$519 - 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

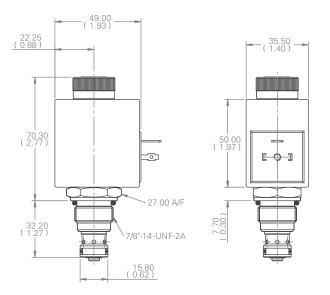
Code	Port size	Housing number	
		Aluminium	Steel
3W	8" BSP	BXP19053	BXP20598
4W	2" BSP	BXP19356	BXP20599
6T	3/8" SAE	BXP19401	BXP20601
8T	2" SAE	BXP19402	BXP20601

### **Dimensions**

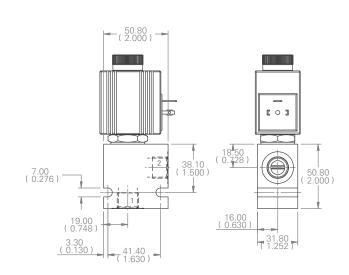
mm (inch)

# **Cartridge only**

Basic code **S217** 

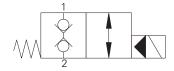


### **Installation drawing**



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

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



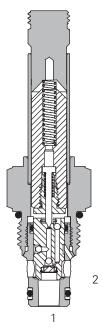
#### Operation

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 4	19°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/ <b>16/13</b>
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,12 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

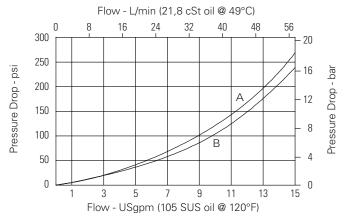
Viton is a registered trademark of E.I. DuPont

## **Description**

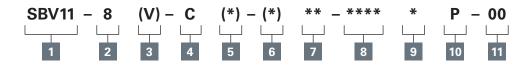
This is a 2-way 2-position, high pressure bi-directional, pilot operated, normally closed poppet type screw in cartridge valve. The valve is ideal for isolating and holding actuators in position.

## Pressure drop

Cartridge only



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



### 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

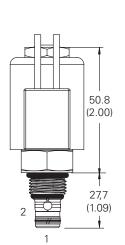
A - Aluminum

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

26,0

(1.02)

19,1

hex

0.750"

Ø 12,6

(0.500)

- 16 Thd.

(0.75)

See section J for housing details.

# 8 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

Ø 31,7 (1.25) **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  ${\sf C}.$ 

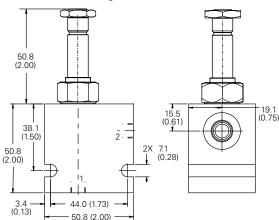
# 11 Special features

**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

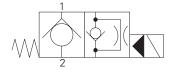
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

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).

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



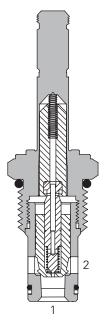
### Operation

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°L)	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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

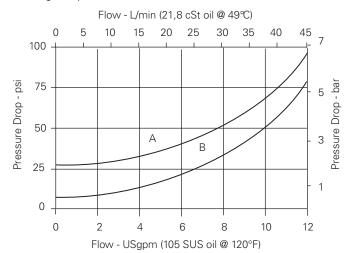
Viton is a registered trademark of E.I. DuPont

### **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.

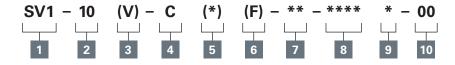
## Pressure drop

Cartridge only



### Pressure drop vs. Flow

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



#### 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.

### 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

<sup>\*</sup>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\*

# 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  $\ensuremath{\mathsf{C}}.$ 

### 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.

# 6 Filter option

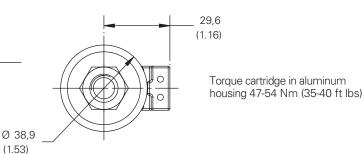
Blank - None

F - Filter screen

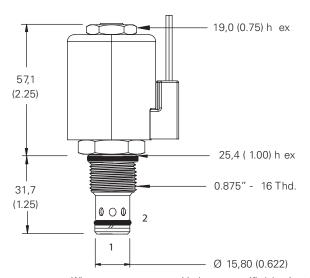
#### **Dimensions**

mm (inch)

### **Cartridge only**



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



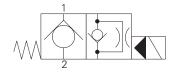
### riangle Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.

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



### **Operation**

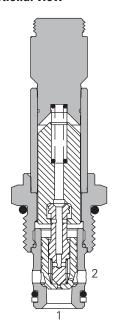
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

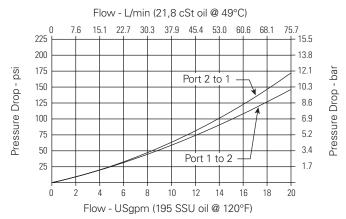
Viton is a registered trademark of E.I. DuPont

### **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

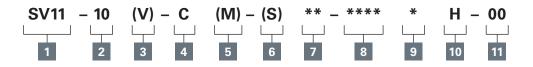
Cartridge only



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

### Α

### Model code



## 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

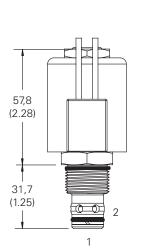
Blank - Cartridge only

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

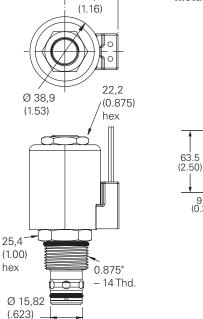
(Only required if valve has special features omitted if "00".)

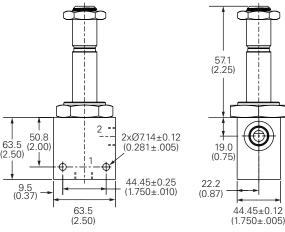
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

29,6

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

# Installation drawings (Steel)

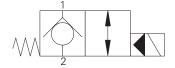




# ⚠ Warning

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

Over tightening may cause valve failure.



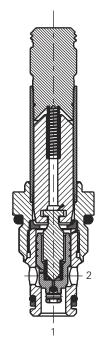
### **Operation**

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°	PF)
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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,28 kg (0.62 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

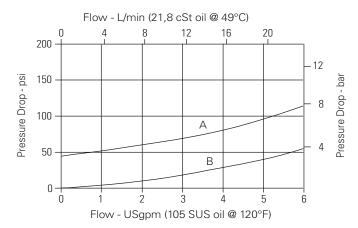
Viton is a registered trademark of E.I. DuPont

## **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.

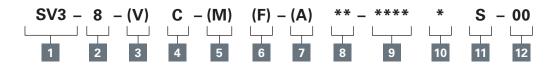
### Pressure drop

Cartridge only



A - Port 1 to port 2 de-energized

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



### **Function**

SV3 - Solenoid valve

# Size

8 - 8 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

C - Normally closed

# Manual override option

Blank - No manual override

M - Knob type

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

# Filter option

Blank - None

F - Filter screen

# Valve housing material

Omit for cartridge only

A - Aluminum

#### 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.

# 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

### 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.

# **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)

### **Coil series**

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

# **Special features**

**00** - None

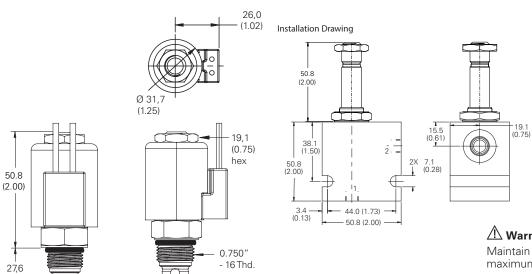
(Only required if valve has special features, omitted if "00".)

### **Dimensions**

mm (inch)

(1.08)

## **Cartridge only**



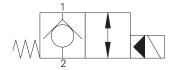
Ø 12.6

(0.500)

# ⚠ Warning

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

Over tightening may cause valve failure.



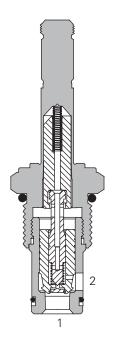
### **Operation**

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) a.	nd 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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight cartridge only	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

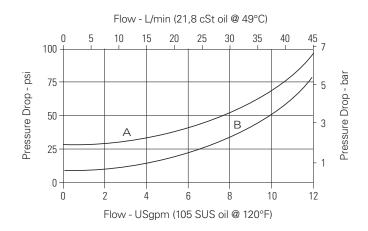
Viton is a registered trademark of E.I. DuPont

# **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

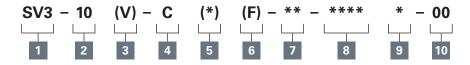
Cartridge only



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

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

#### Model code



### 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.

# 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  $\mathbb{C}$ .

# 10 Special features

**00** - None

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

# 6 Filter options

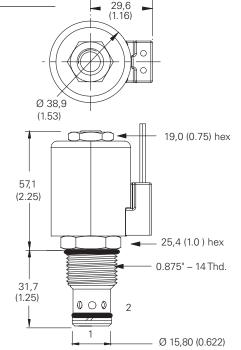
Blank - None

F - Filter screen

# Dimensions

mm (inch)

# Cartridge only

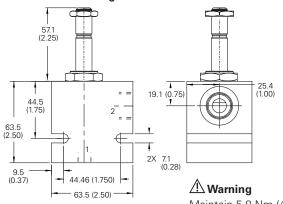


Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

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

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

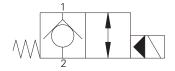
### **Installation drawing**



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

Over tightening may cause valve failure.

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



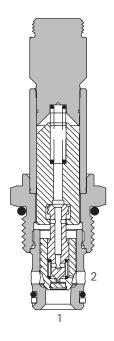
### Operation

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

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS) and	1 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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

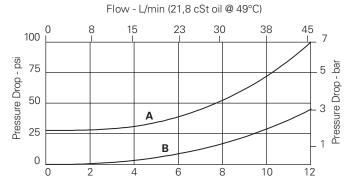
Viton is a registered trademark of E.I. DuPont

### **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**

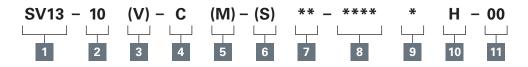
Cartridge only



Flow - USgpm (105 SUS oil @ 120°F)

A - Port 1 to port 2

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



## **Function**

SV13 - Solenoid valve

Size

10 - 10 size

### Seal material

Blank - Buna-N V - Viton®

Style

C - Normally closed

# 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)

housing 68-75 Nm (50-55 ft lbs)

Torque cartridge in steel

# 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.

### Voltage rating

**36D** - 36VDC

00 - No coil 24A - 24VAC **115A** - 115VAC 12D - 12VDC

24D - 24VDC 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)

### **Coil series**

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

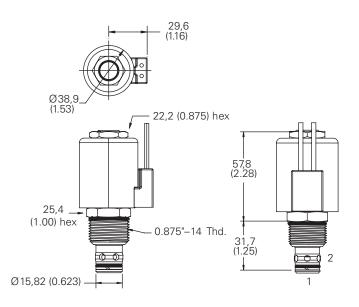
### **Special features**

**00** - None

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

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

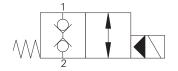
# **Cartridge only**



# riangle Warning

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

Over tightening may cause valve failure.



### **Operation**

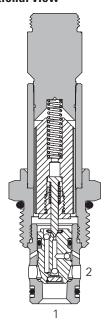
In the de-energized position the valve is blocked in both directions.

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®)

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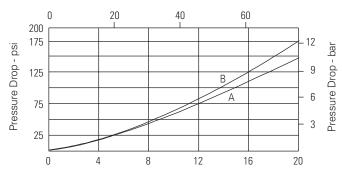
### **Description**

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

Flow - L/min (21,8 cSt oil @ 49°C)

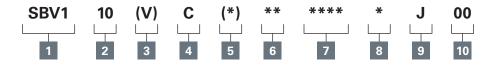


Flow - USgpm (105 SUS oil @ 120°F)

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

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

### Model code



## **Function**

SBV1 - Solenoid bi-directional valve

2 Size **10** - 10 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

C - Normally closed

## 5 Valve housing material

Blank - Cartridge only

A - Aluminum

S - Steel

## Port size

Code	Port size Housing numb		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.

## 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.

## 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)

## **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**

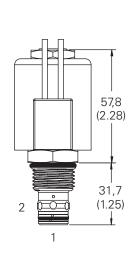
mm (inch)

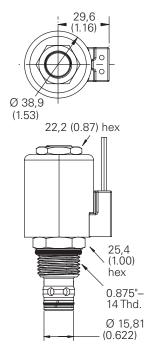
Torque cartridge in housing

S - 68-75 Nm (50-55 ft lbs)

Note: For applications above 210 bar please consult our technical A - 47-54 Nm (35-40 ft lbs) department or use the steel body option.

## **Cartridge only**





## Installation drawing (Aluminum) 57.8 (2.28) (0.87) 19.1 (0.75)50.8 (2.04) 63.5 (2.50) 2X 7.1 (0.28) 9.5 (0.37) 44.46 (1.750) 63.5 (2.50)

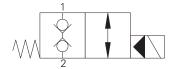
## **⚠** Warning

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

Over tightening may cause valve failure.

## riangle 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).



## Operation

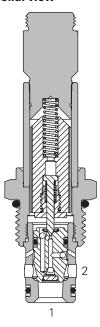
In the de-energized position the valve is blocked in both directions.

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	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/ <b>16/13</b>
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

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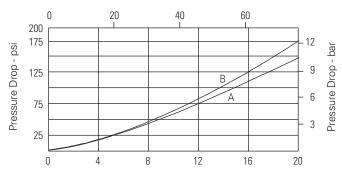
## **Description**

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

Flow - L/min (21,8 cSt oil @ 49°C)

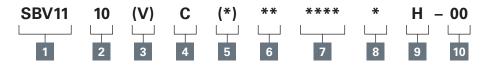


Flow - USgpm (105 SUS oil @ 120°F)

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

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

### Model code



### 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

A - Alumino

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

**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)

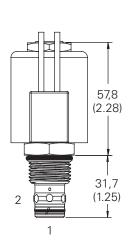
## Torque cartridge in housing

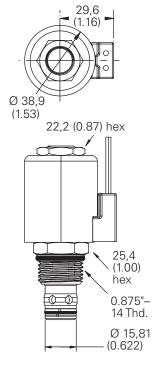
**A** - 47-54 Nm (35-40 ft lbs)

**S** - 68-75 Nm (50-55 ft lbs)

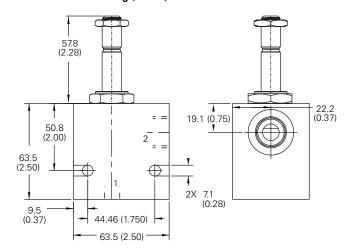
**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

Cartridge only





## **Installation drawing (Steel)**



## **Marning**

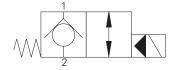
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

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).

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



## Operation

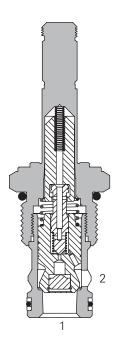
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

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	c) 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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,336 kg (0.74 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

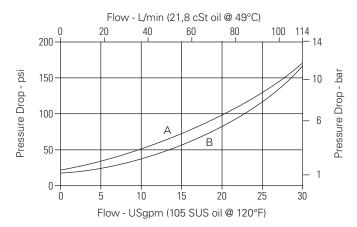
Viton is a registered trademark of E.I. DuPont

## **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

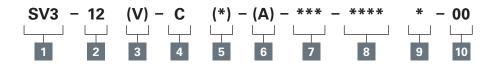


A - Port 1 to port 2 de-energized

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

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

### Model code



## 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.

## 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

voitage rating	
00 - No coil	<b>115A</b> - 115VAC
<b>12D</b> - 12VDC	<b>230A</b> - 230VAC
<b>24D</b> - 24VDC	<b>12B</b> - 12VDC/w diode*
<b>36D</b> - 36VDC	<b>24B</b> - 24VDC/w diode*
<b>24A</b> - 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.")

## 6 Valve housing material

Omit for cartridge only

A - Aluminum (standard)

S - Steel

### **Dimensions**

mm (inch)

Torque cartridge in housing

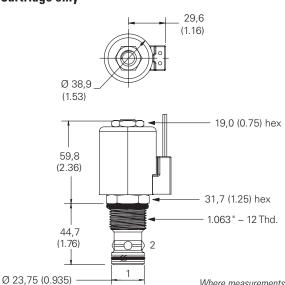
**A** - 81-95 Nm (60-70 ft lbs)

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

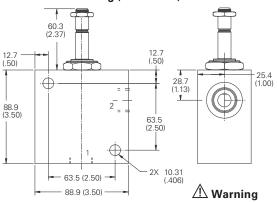
**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

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

## Cartridge only



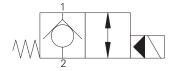
## Installation drawing (Aluminum)



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

Over tightening may cause valve failure.

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



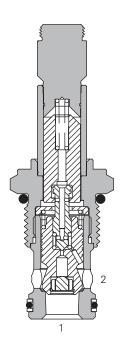
### **Operation**

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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)
Sear Kit	UZ-103889 (Bulla-IV), UZ-1038

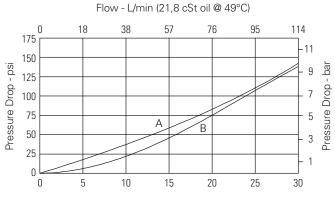
Viton is a registered trademark of E.I. DuPont

## **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

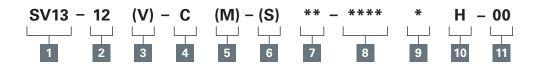


Flow - USgpm (105 SUS oil @ 120°F)

A - Port 1 to port 2

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

### Model code



## 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)

### **Dimensions**

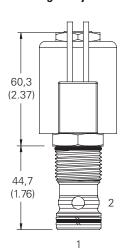
mm (inch)

Torque cartridge in housing

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

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

### **Cartridge only**



## 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

## 8 Voltage rating

See section J for housing details

**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 Coil series

H - 10 series, 29 W

For coil part numbers and dimensions see section C.

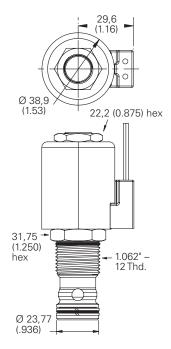
## 11 Special features

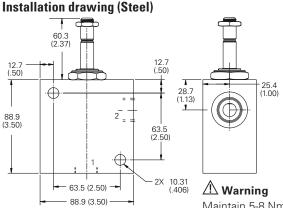
**00** - None

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

**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.





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

Over tightening may cause valve failure.

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

## Operation

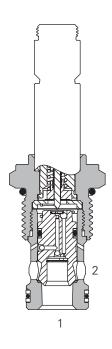
In the de-energized position the valve is blocked in both directions.

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) a	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/ <b>16/13</b>
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

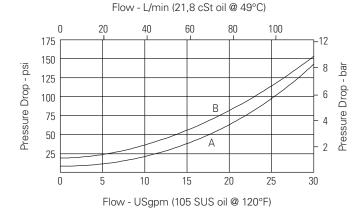
Viton is a registered trademark of E.I. DuPont

## **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

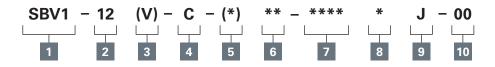
Cartridge only



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

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

### Model code



### 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

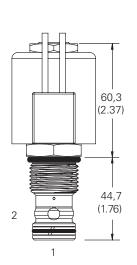
A - Aluminum (standard)

S - Steel

### **Dimensions**

mm (inch)

## **Cartridge only**



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

29,6

22,2 (0.87) hex

1.062"-

12 Thd.

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

Ø 38,9

31,75 (1.250)

Ø 23,75

(0.935)

hex

**24A** - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

Torque cartridge in housing

**A** - 81-95 Nm (60-70 ft lbs) **S** - 102-115 Nm (75-85 ft lbs)

## 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.

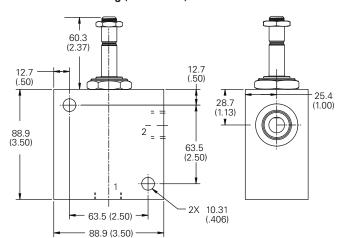
## 10 Special features

**00** - None

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

**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.

## **Marning**

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).

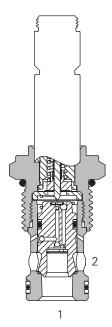
### Operation

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) a	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/ <b>16/13</b>
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

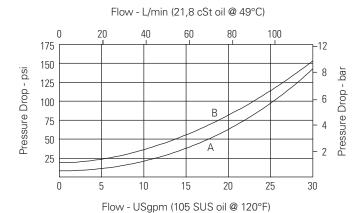
Viton is a registered trademark of E.I. DuPont

## **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

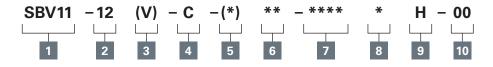
Cartridge only



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

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

### Model code



### 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
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

H - 10 series, 29 W

For coil part numbers and dimensions see section C.

## 10 Special features

**00** - None

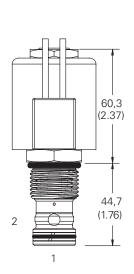
(Only required if valve has special features, omitted if "00.")

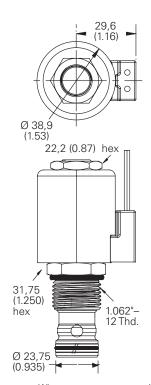
**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

## **Dimensions**

mm (inch)

## **Cartridge only**

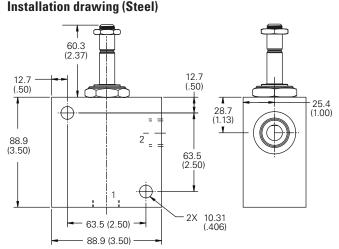




Torque cartridge in housing

**A** - 81-95 Nm (60-70 ft lbs) **S** - 102-115 Nm (75-85 ft lbs)

102 110 1111 (70 00 16 180)



## ⚠ Warning

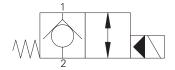
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

## **Marning**

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).

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



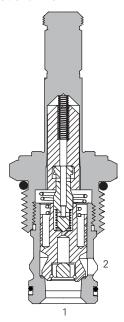
## Operation

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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	1,15 kg (2.53 lbs)
Seal kit	565810 (Buna-N), 02-889609 (Viton®)

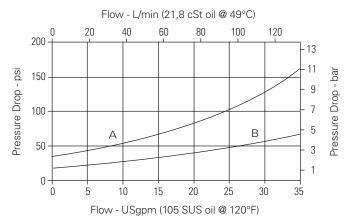
Viton is a registered trademark of E.I. DuPont

## **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

8 Connector types

**G** - ISO 4400 DIN 43650 **Q** - Spade terminals

N - Deutsch (DC only)
Y - Amp JR (DC only)
D - Metripack 150 male

J - Metripack 280 male

For coil part numbers and dimensions see

**Special features** 

(Only required if valve has special features,

Notes: Use J series, 23 W

coils with this solenoid valve.

Blank - No coil

W - Flying lead

(DC only)

(DC only)

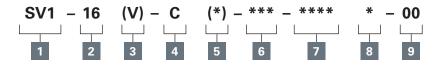
section C.

**00** - None

omitted if "00.")

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

### Model code



## 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**

29,6 (1.16) – Ø 38,9 (1.53)
19,0 (0.75) hex
(2.50) 38,1 (1.50) hex
1.312" – 12 Thd. 44,4 (1.75) 0 0 0 2
1 Ø 28,55 (1.124)

## 6 Port size

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

Torque cartridge in

aluminum housing

108-122 Nm (80-90 ft lbs)

**24A** - 24VAC **115A** - 115VAC

**230A** - 230VAC

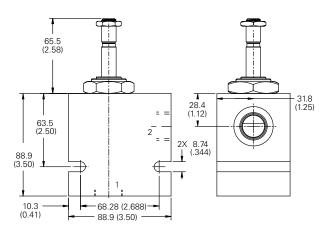
**12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*
\*Optional arc suppression diode.

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

is ordered as cartridge only, coil nut is included.

## Installation drawings

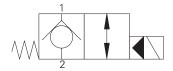


## ⚠ Warning

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

Over tightening may cause valve failure.

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



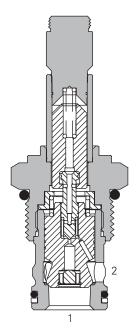
## **Operation**

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

natings 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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®)

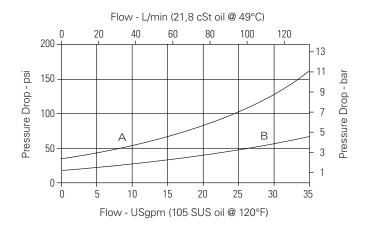
Viton is a registered trademark of E.I. DuPont

## **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

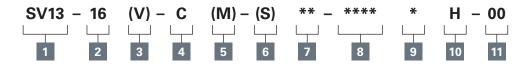


A - Port 2 to port 1 energized

B - Port 1 to port 2 de-energized

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

### Model code



## **Function**

SV13 - Solenoid valve

Size

16 - 16 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

C - Normally closed

## Manual override option

Blank - No manual override M - Manual override

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

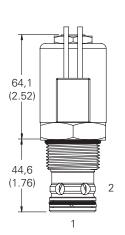
### 6 Valve housing material

Blank - Cartridge only S - Steel

### **Dimensions**

mm (inch)

### **Cartridge only**



## 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

## Voltage rating

Torque cartridge in steel

29,6

22.2 (0.875) hex

1.312"-12 Thd.

housing 136-149 Nm

(100-110 ft lbs)

Ø 38,9 (1.53)

38,1 (1.50)hex

Ø 28.54

(1.124)

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)

## **Coil series**

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

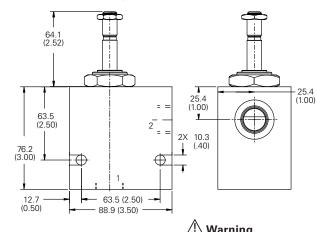
## **Special features**

**00** - None

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

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

## Installation drawing

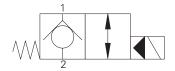


riangle Warning

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

Over tightening may cause valve failure.

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



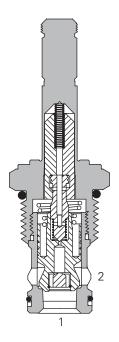
## Operation

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) a	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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	1,2 kg (2.70 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)
15: 1 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:	

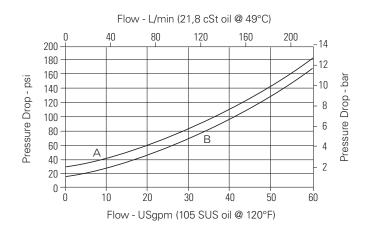
Viton is a registered trademark of E.I. DuPont

## **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.

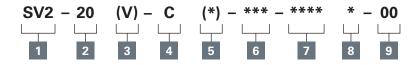
### Pressure drop

Cartridge only



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

### Model code



### 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**

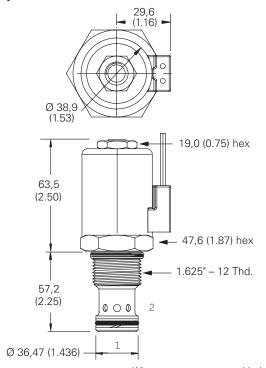
mm (inch)

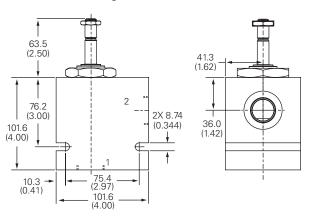
### **Cartridge only**

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**



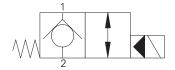


## **Marning**

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

Over tightening may cause valve failure.

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



## Operation

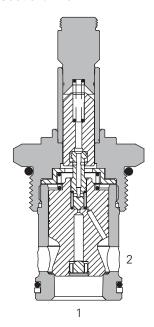
In the de-energized position the valve blocks flow from port 2 to 1 and free flow is allowed from port 1 to 2.

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	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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

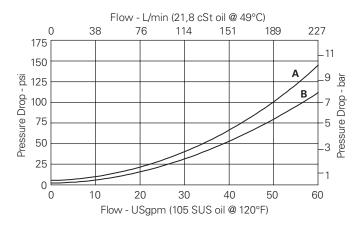
Viton is a registered trademark of E.I. DuPont

## **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

## SV13-20-C/CM - Solenoid valve

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

### Model code

SV13 - 20 00

### **Function**

SV13 - Solenoid valve

2 Size

**20** - 20 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

C - Normally closed

## 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

S - Steel

### **Dimensions**

mm (inch)

## 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

## 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)

## **Coil series**

H - 10 Series, 29 W

For coil part numbers and dimensions see section C.

## **Special features**

**00** - None

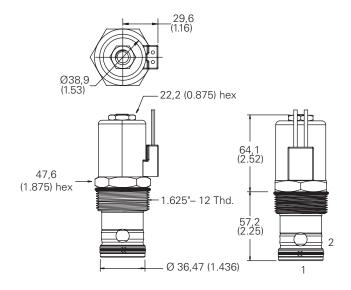
(Only required if valve has special features, omitted if "00".)

## Blank - Cartridge only

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**

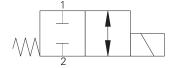


## ⚠ Warning

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

Over tightening may cause valve failure.

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



## Operation

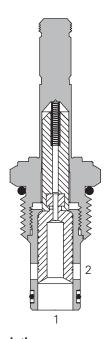
In the de-energized position the valve blocks flow in both directions.

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

эт э	
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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

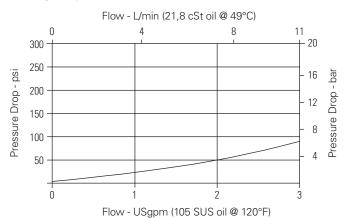
Viton is a registered trademark of E.I. DuPont

## **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.

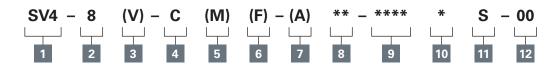
### Pressure drop

Cartridge only



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

### Model code



## 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

Port size

Blank - None

8

**8T** 

F - Filter screen

## 7 Valve housing material

02-160732

Omit for cartridge only

A - Aluminum

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

See section J for housing details.

SAE8

## 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\*

## 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

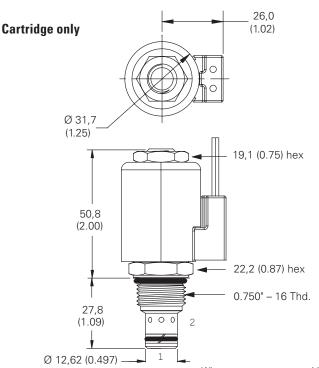
**00** - None

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

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

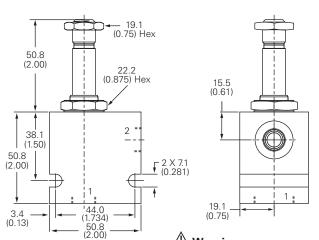
## **Dimensions**

mm (inch)



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

## Installation drawing



### ⚠ Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.



## Operation

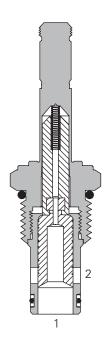
In the de-energized position the valve blocks flow in both directions.

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

go and operations	
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	140cm³ (8.5in³/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (.25 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

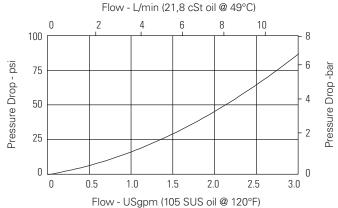
Viton is a registered trademark of E.I. DuPont

## **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

## 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

(M) - (S)

### **Function**

SV14 - Solenoid valve

Size

8 - 8 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

C - Normally closed

## 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

1

Blank - Cartridge only

S - Steel

### **Dimensions**

mm (inch) 26,0 Cartridge only (1.02)Ø 31,7 (125)15,8 (0.62) hex 50.8 (2.00)22,2 (0.87) hex 0.750" - 16 Thd. 27,7 (1.09)0 \varTheta

## 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	r housing details.	

**24A** - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

8 Voltage rating

**00** - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

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)

## **Coil series**

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

## **Special features**

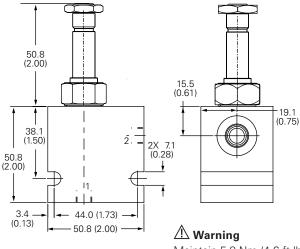
**00** - None

(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



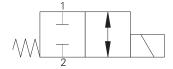
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

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

Ø 12,6 (0.500)

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



## Operation

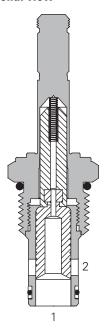
In the de-energized position the valve blocks flow in both directions.

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

natiligs allu specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS) a	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 cm³/min (5 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

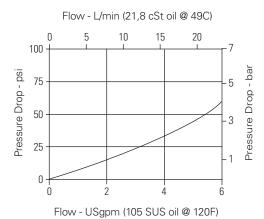
Viton is a registered trademark of E.I. DuPont

## **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.

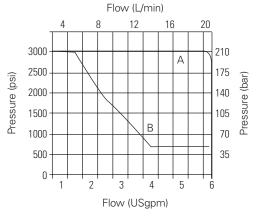
### Pressure drop

Cartridge only



Pressure drop vs. Flow

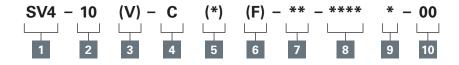
Port 1 to port 2 or port 2 to port 1 energized



### **Operating Limits**

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

### Model code



### **Function**

SV4 - Solenoid valve

Size

10 - 10 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

C - Normally closed

## 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.

## 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.

## **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.

## Filter option

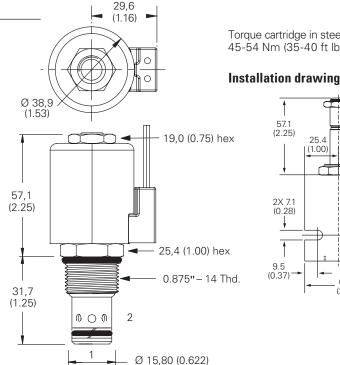
Blank - None

F - Filter screen

## **Dimensions**

mm (inch)

### **Cartridge only**



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

57.1 (2.25)25 4 25.4 (1.00) Hex (1.00) 63.5 2X 7.1 (2.50)(0.28)19.0 (0.75)9.5

63.5

(2.50)

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

# (1.00)20.8 (0.81)

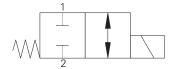
25.4

## riangle Warning

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

Over tightening may cause valve failure.

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



## Operation

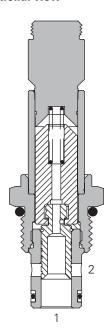
In the de-energized position the valve blocks flow in both directions.

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

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS	S) 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 cm³/min (8.5 in³/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

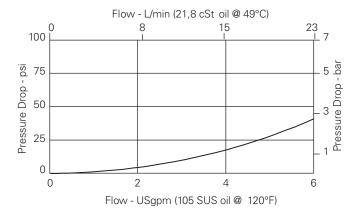
Viton is a registered trademark of E.I. DuPont

## **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

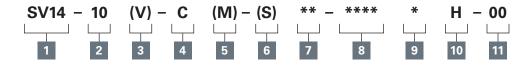
Cartridge only



A - Port 2 to port 1 energized

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

### Model code



## 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

### **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

## 8 Voltage rating

Torque cartridge in steel

housing 68-75 Nm

(50-55 ft lbs)

See section J for housing details.

 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

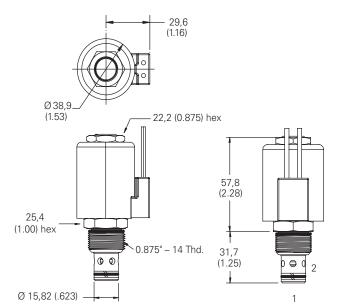
For coil part numbers and dimensions see section C.

## 11 Special features

**00** - None

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

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

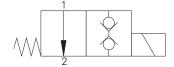


## ⚠ Warning

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

Over tightening may cause valve failure.

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)



### **Operation**

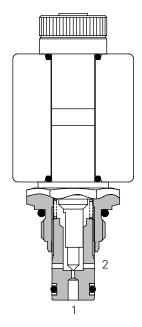
In the de-energized position the valve allows free flow from port 1 to 2. When the solenoid is energized the poppet closes the valve blocking flow from port 1 to 2 and 2 to 1.

### **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**

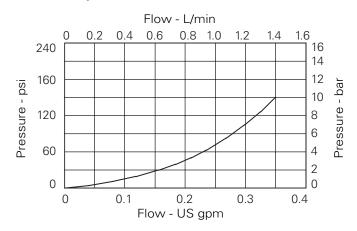
Performance data is typical with viscosity	at 32 cST (150 SSU)
Max working pressure	Port 2 210 bar (3000 psi)
	Port 1 350 bar (5000 psi)
Rated flow	1 L/min (0.25 USgpm)
Internal leakage	0.3 ml/min (5 dpm) when energized 210 bar differential at 32 est.
Temperature range	-30° to 120°C (-22° to +248°F)
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

### **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



<sup>\*</sup>AC coils must be used with a rectifying connector

## 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

S207 V - 24 H - 3W
1 2 3 4 5

1 Function

\$207 - Normally open

2 Seal material

V - Viton®

3 Voltage

12 - 12 VDC

**24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

5 Port sizes

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

4 Coil Termination

H - DIN43650

F - Flying lead

**DM** - Deutsch moulded

Other terminations available on request.

### **Dimensions**

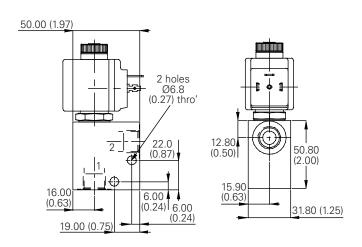
mm (inch)

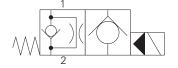
**Note:** For applications above 210 bar please consult our technical department or use the steel body option.

## **Cartridge only**

# 23.50 48.00 (1.85) (0.93) 59.00 (2.32) 24.00 A/F 27.30 (1.07) 24.00 A/F 3/4"-16-UNF-2A (0.32)

## Installation drawing (Aluminum, steel)





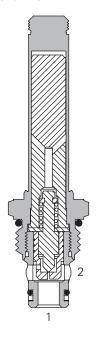
## Operation

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**

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 All general purpose hydraulic fluids such as: Fluids MIL-H-5606, SAE 10, SAE 20 etc Filtration Cleanliness code 18/16/13 Housing material (standard) Aluminum		
Cartridge fatigue pressure (infinite life)  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  All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc Filtration  Cleanliness code 18/16/13 Housing material (standard)  Weight including coil  210 bar (3000 psi) 23 L/min (6 USgpm) 24 Lysin (6 USgpm) 25 Lysin (9 USgpm) 26 Lysin (9 USgpm) 26 Lysin (9 USgpm) 27 Lysin (9 USgpm) 28 Lysin (9 USgpm) 29 Lysin (9 USgpm) 29 Lysin (9 USgpm) 29 Lysin (9 USgpm) 20 Lysin (9 USgpm) 21 Lysin (9 USgpm) 21 Lysin (9 USgpm) 22 Lysin (9 USgpm) 23 L/min (6 USgpm) 23 L/min (6 USgpm) 24 Lysin (9 USgpm) 25 Lysin (9 USgpm) 26 Lysin (9 USgpm) 26 Lysin (9 USgpm) 27 Lysin (9 USgpm) 28 Lysin (9 USgpm) 29 Lysin (9	Performance data is typical with fluid at 21,8 cST (105	SUS) and 49°C (120°F)
Rated flow  Rated flow  Rated flow  Response times (100% rated voltage and flow)  Cavity  Cavity  Cavity  Cavity  Cavity  Cavity  Cavity  Cavity  Cleanliness code 18/16/13  Housing material (standard)  Weight including coil  Cay L/min (6 USgpm)  Response times (3000 psi) with valve energized  Cavity 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  All general purpose hydraulic fluids such as:  MIL-H-5606, SAE 10, SAE 20 etc  Filtration  Cleanliness code 18/16/13  Aluminum  Weight including coil  O,28 kg (0.62 lbs)	Typical application pressure (all ports)	210 bar (3000 psi)
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 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)	Cartridge fatigue pressure (infinite life)	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: 24 ms. De-Energize: 25 ms Cavity C-8-2 All general purpose hydraulic fluids such as: Fluids 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)	Rated flow	23 L/min (6 USgpm)
Coil dutyContinuous from 85% to 110% of nominal voltageResponse times (100% rated voltage and flow)Energize: 24 ms. De-Energize: 25 msCavityC-8-2All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etcFiltrationCleanliness code 18/16/13Housing material (standard)AluminumWeight including coil0,28 kg (0.62 lbs)	Internal leakage	less than 5 drops/min, max @ 210 bar (3000 psi) with valve energized
Response times (100% rated voltage and flow)  Cavity  C-8-2  All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc  Filtration  Cleanliness code 18/ <b>16/13</b> Housing material (standard)  Weight including coil  Cleanliness code 18/28 kg (0.62 lbs)	Temperature range	-40° to 120°C (-40° to 248°F)
CavityC-8-2FluidsAll general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etcFiltrationCleanliness code 18/ <b>16/13</b> Housing material (standard)AluminumWeight including coil0,28 kg (0.62 lbs)	Coil duty	Continuous from 85% to 110% of nominal voltage
Fluids All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc Filtration Cleanliness code 18/ <b>16/13</b> Housing material (standard) Aluminum Weight including coil 0,28 kg (0.62 lbs)	Response times (100% rated voltage and flow)	Energize: 24 ms. De-Energize: 25 ms
FluidsMIL-H-5606, SAE 10, SAE 20 etcFiltrationCleanliness code 18/16/13Housing material (standard)AluminumWeight including coil0,28 kg (0.62 lbs)	Cavity	C-8-2
Housing material (standard)  Weight including coil  Aluminum  0,28 kg (0.62 lbs)	Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc
Weight including coil 0,28 kg (0.62 lbs)	Filtration	Cleanliness code 18/ <b>16/13</b>
	Housing material (standard)	Aluminum
Seal kit 02-165875 (Buna-N), 02-165877 (Viton®)	Weight including coil	0,28 kg (0.62 lbs)
	Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

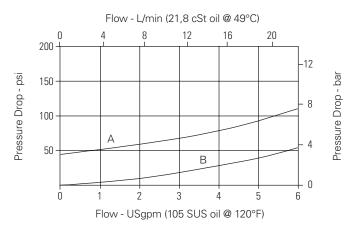
Viton is a registered trademark of E.I. DuPont

### **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

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

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

10 Connector types

G - ISO 4400 DIN 43650

**Q** - Spade terminals

N - Deutsch (DC only) Y - Amp JR (DC only) D - Metripack 150 male

J - Metripack 280 male

**Coil series** 

**Special features** 

(Only required if valve has special features,

Blank - No coil

W - Flying lead

(DC only)

(DC only)

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

**00** - None

omitted if "00".)

### Model code

(V) - OS 00 10

## **Function**

SV5 - Solenoid valve

## Size

8 - 8 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

O - Normally open

## Manual override option

Blank - No manual override

P - Push type

**Dimensions** 

mm (inch)

S - Screw type

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

## Voltage rating

00 - No coil

6

8

Blank - None

F - Filter screen

**12D** - 12VDC

## Valve housing material

Omit for cartridge only

A - Aluminum

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160727
3 <b>G</b>	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.

Filter option

Port size

**24D** - 24VDC

**36D** - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

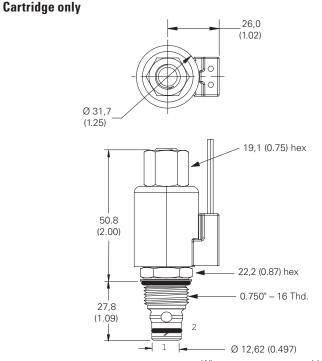
12B - 12VDC/w diode\*

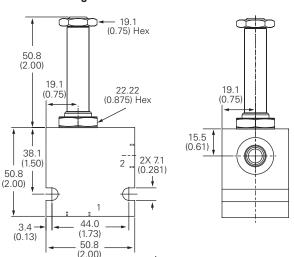
24B - 24VDC/w diode\*

\*Optional arc suppression diode.

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.

## Installation drawing

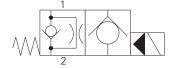




## 🗥 Warning

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

Over tightening may cause valve failure.



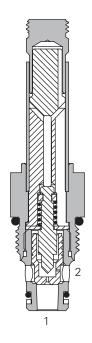
### **Operation**

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

natings and specimentions	
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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

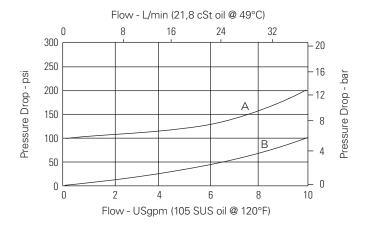
Viton is a registered trademark of E.I. DuPont

## **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

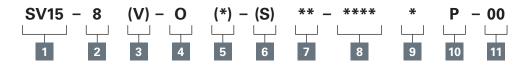
Cartridge only



A - Port 1 to port 2 energized

B - Port 2 to port 1 de-energized

### Model code



## **Function**

SV15 - Solenoid valve

Size

8 - 8 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

O - Normally open

## 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.

## Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160733
3G 4T	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)

## **Coil series**

P - 8 series, 23 W

For coil part numbers and dimensions see section C.

## **Special features**

Note: When solenoid valve

is ordered as cartridge only, coil

**00** - None

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

## Valve housing material

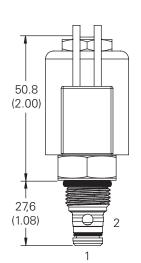
Blank - Cartridge only

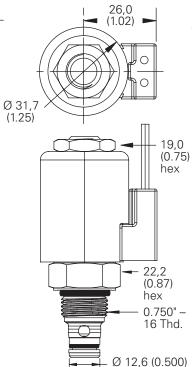
S - Steel

### **Dimensions**

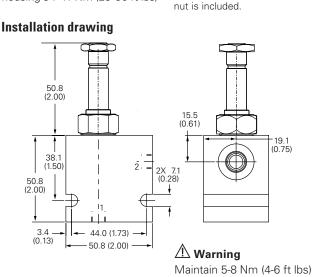
mm (inch)

### **Cartridge only**





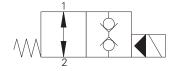
Torque cartridge in steel housing 34-41 Nm (25-30 ft lbs)



maximum torque on valve tube nut.

Over tightening may cause valve failure.

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



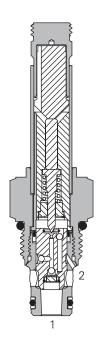
## Operation

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) an	nd 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/ <b>16/13</b>	
Housing material (standard)	Aluminum or steel	
Weight cartridge only	0,12 kg (0.26 lbs)	
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)	

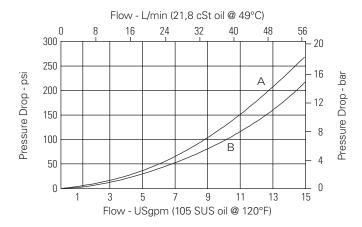
Viton is a registered trademark of E.I. DuPont

### **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

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

### Model code

SBV11 -0 -0010

## **Function**

SBV11 - Solenoid bi-directional valve

Size

8 - 8 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

O - Normally open

## Valve housing material

Blank - Cartridge only

**A** - Aluminum

S - Steel

## 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.

## 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)

## **Coil series**

P - 8 Series, 23 W

For coil part numbers and dimensions see section C.

## **Special features**

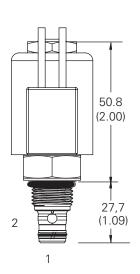
**00** - None

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

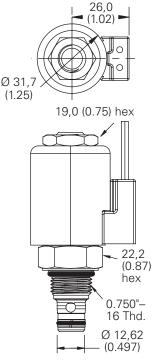
### **Dimensions**

mm (inch)

### **Cartridge only**

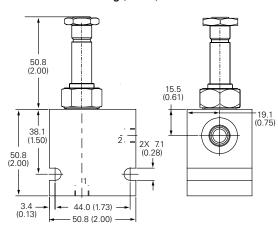


Torque cartridge in aluminum or steel housing 34-41 Nm (25-30 ft lbs)



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

### Installation drawing (Steel)



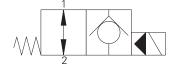
## ⚠ Warning

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).



## **Operation**

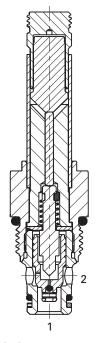
In the de-energized position the valve allows free flow in both directions.

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 (10	5 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®)

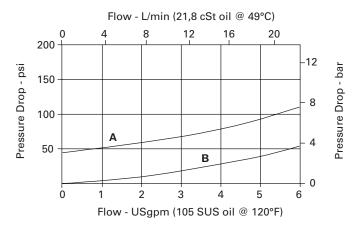
Viton is a registered trademark of E.I. DuPont

## **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

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

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

Model code

SV3 - 8 0 S 00 9 10

Valve housing

Omit for cartridge only

material

A - Aluminum

# **Function**

SV3 - Solenoid valve

#### 2 Size

8 - 8 size

# Seal material

Blank - Buna-N

V - Viton®

#### 4 Style

O - Normally open

# 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.

# 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)

# **Coil series**

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

# **Special features**

**00** - None

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

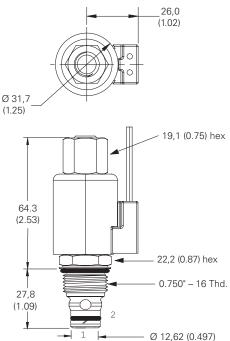
# **Dimensions**

mm (inch)

# **Cartridge only**

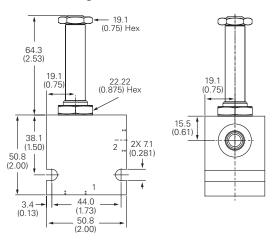
housing 34-41 Nm (25-30 ft lbs)

Torque cartridge in aluminum



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

# **Installation drawing**

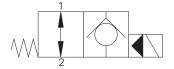


# ⚠ Warning

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

Over tightening may cause valve failure.

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



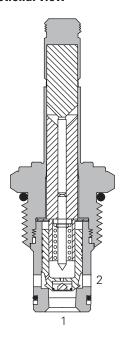
# Operation

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 (12	0° 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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

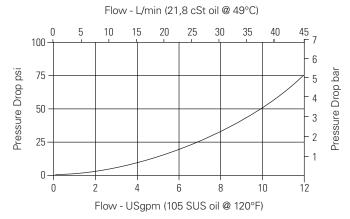
Viton is a registered trademark of E.I. DuPont

# **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

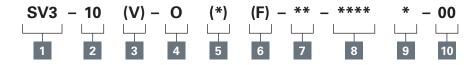
Cartridge only



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

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

#### Model code



### **Function**

SV3 - Solenoid valve

Size

10 - 10 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

O - Normally open

# 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.

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

29,6 (1.16)

**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**

Note: When solenoid valve

nut is included.

is ordered as cartridge only, coil

**00** - None

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

#### 6 Filter option

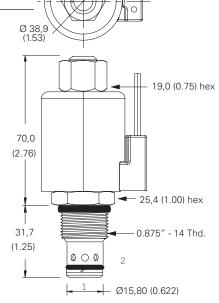
Blank - None

S - Filter Screen

# **Dimensions**

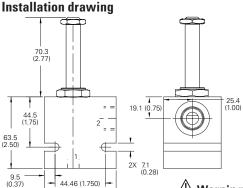
mm (inch)

# Cartridge only



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

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



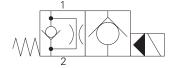
riangle Warning

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.

63.5 (2.50)



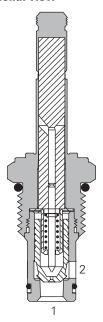
# Operation

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**

go and oppositions	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°L)	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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.087 lbs)
Seal kit	565806 (Buna-N), 566086 (Viton®)

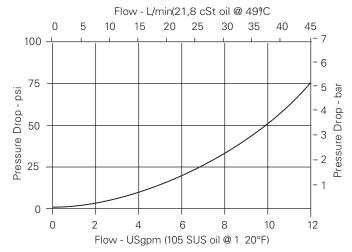
Viton is a registered trademark of E.I. DuPont

#### **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



# 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

 ${f P}$  - 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

<sup>\*</sup>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\*

# 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

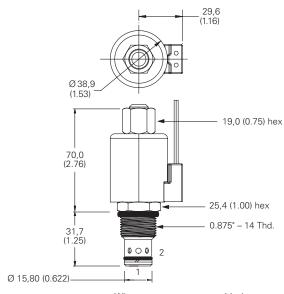
**00** - None

(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.

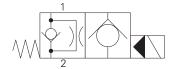


# ⚠ Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.



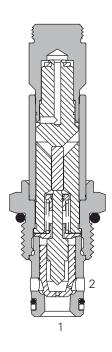
# Operation

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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®)

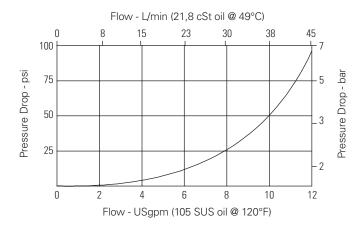
Viton is a registered trademark of E.I. DuPont

# **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

**Coil series** H - 10 series, 29W

**Special features** 

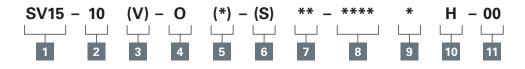
(Only required if valve has special features,

For coil part numbers and dimensions see section C.

**00** - None

omitted if "00".)

#### Model code



# **Function**

SV15 - Solenoid valve

Size

10 - 10 size

Seal material

Blank - Buna-N

V - Viton®

# Style

O - Normally open

# Manual override option

Blank - No manual override

P - Push type

S - Screw type

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

**00** - No coil

12D - 12VDC

24D - 24VDC

**36D** - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

Ø 38.9

(1.53)

25,4

(1.00)hex

Ø 15,82

(0.623)

12B - 12VDC/w diode\*

24A - 24VDC/w diode\*

\*Optional arc suppression diode.

29,6

22,2 (0.875) hex

Voltage rating

# 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)

# 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
3G 6T	3/8" BSPP SAE 6	02-175103 02-175100

See section J for housing details.

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

# 6 Valve housing material

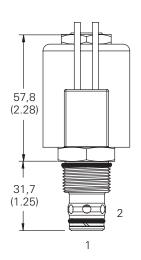
Blank - Cartridge only

S - Steel

### **Dimensions**

mm (inch)

### **Cartridge only**



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

Installation drawing

57.8 (2.28) (0.87) 19.1 (0.75) 50.3 (2.00)2

# 63.5 (2.50) 2X 7.1 (0.28)

# **Warning**

Note: When solenoid valve

is included.

is ordered as cartridge only, nut

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

Over tightening may cause valve failure.

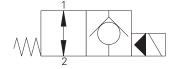
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

44.46 (1.750)

63.5 (2.50)

(0.37)

0.875" -14 Thd.



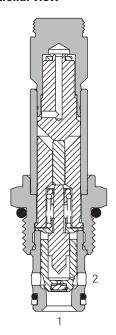
# **Operation**

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

C (120° F)
350 bar (5000 psi)
310 bar (4500 psi)
45 L/min (12 USgpm)
less than 5 drops/min, max @ 350 bar (5000 psi)
-40° to 100°C (-40° to 212°F)
Continuous from 85% to 110% of nominal voltage
C-10-2
All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/ <b>16/13</b>
Steel
0,18 kg (0.39 lbs)
565803 (Buna-N), 566086 (Viton®)

Viton is a registered trademark of E.I. DuPont

#### **Description**

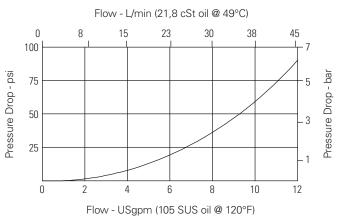
This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

# **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

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

**Coil series** H - 10 series, 29W

**Special features** 

(Only required if valve has special features,

For coil part numbers and dimensions see section C.

11

**00** - None

omitted if "00".)

#### Model code

SV13 - 10 0 - 00

# **Function**

SV13 - Solenoid valve

# Size

10 - 10 size

# Seal material

Blank - Buna-N

**V** - Viton®

# Style

O - Normally open

# 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.

# Valve housing material

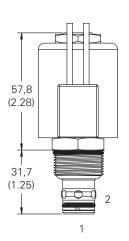
Blank - Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

# **Cartridge only**



# 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.

**00** - No coil

12D - 12VDC

24D - 24VDC

**36D** - 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

Ø 38,9 (1.53)

25,4

(1.00)hex

Ø 15,82

(.623)

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

29,6

22,2 (0.875) hex

#### **Connector types** Voltage rating

**Q** - Spade terminals

W - Flying lead

N - Deutsch (DC only)

Y - Amp JR (DC only)

(DC only)

Blank - No coil

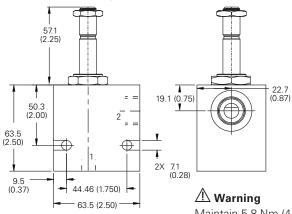
G - ISO 4400 DIN 43650

D - Metripack 150 male

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



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

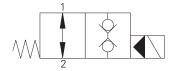
Over tightening may cause valve failure.

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

0.875" -

14 Thd.

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



# Operation

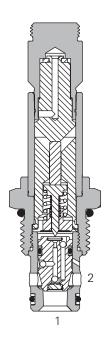
Iln the de-energized position the valve is open in both directions. A series of internal check valves allows full flow in both directions.

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

° C (120° F)
350 bar (5000 psi)
310 bar (4500 psi)
76 L/min (20 USgpm)
5 drops/min, max @ 350 bar (5000 psi)
-40° to 100°C (-40° to 212°F)
Continuous from 85% to 110% of nominal voltage
C-10-2
All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/ <b>16/13</b>
Aluminum or Steel
0,18 kg (0.39 lbs)
565806 (Buna-N), 889627 (Viton®)

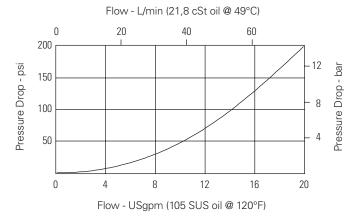
Viton is a registered trademark of E.I. DuPont

# **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

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

8 Connector types

G - ISO 4400 DIN 43650

Q - Spade terminalsW - Flying leadN - Deutsch (DC only)

Y - Amp JR (DC only)

(DC only)

D - Metripack 150 male (DC only)J - Metripack 280 male

**Coil series** 

**Special features** 

(Only required if valve has special features,

**H** - 10 series, 29W For coil part numbers and

dimensions see section C.

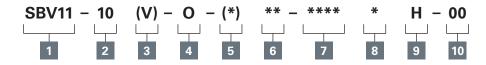
10

**00** - None

omitted if "00".)

Blank - No coil

#### Model code



# 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

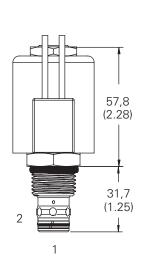
A - Aluminum

**S** - Steel

# **Dimensions**

mm (inch)

#### **Cartridge only**



### 6 Port size

Code	Port size	Housing number	
		Aluminium	Steel
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

\*Light duty housing.

See section J for housing details.

# 7 Voltage rating

Torque cartridge in housing

A - 47-54 Nm (35-40 ft lbs)

**S** - 68-75 Nm (50-55 ft lbs)

, 22,2 (0.87) hex

29,6 (1.16)

25,4

hex

Ø 15,80

(0.622)

(1.00)

0.875"-

14 thd

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

**36D** - 36VDC

**24A** - 24VAC

Ø 38,9

(1.53)

**115A** - 115VAC

230A - 230VAC

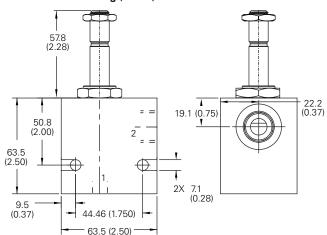
12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

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

# Installation drawing (Steel)



# **⚠** Warning

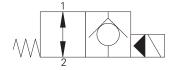
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

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).

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



# Operation

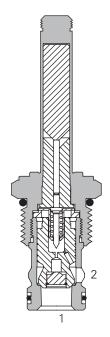
In the de-energized position the valve allows free flow in both directions.

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

Cartridge fatigue pressure (infinite life)  Rated flow  114 L/min (30 USgpn lnternal leakage, port 2 to port 1  less than 5 drops/min, max @ 210 bar (3000 ps Temperature range  -40° to 120°C (-40° to 248°l Coil duty  Continuous from 85% to 110% of nominal voltage Cavity  C-12-2 or C-12-2  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 MIL-H-5606, SAE 10, SAE 20 etc.  Filtration  Cleanliness code 17/15/1  Housing material (standard)  Weight including coil  210 bar (3000 ps 114 L/min (30 USgpn ps 114 L/min (30 USgpn ps 120 USgpn higher pressure drop si@15 USgpn and 20 psi @ 30 USgpn higher pressure drop MIL-H-5606, SAE 10, SAE 20 etc.  All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etc.  Filtration  Cleanliness code 17/15/11  Housing material (standard)  Aluminum Weight including coil		
Cartridge fatigue pressure (infinite life)  Rated flow  114 L/min (30 USgpn lnternal leakage, port 2 to port 1  less than 5 drops/min, max @ 210 bar (3000 ps Temperature range  -40° to 120°C (-40° to 248°l Coil duty  Continuous from 85% to 110% of nominal voltage Cavity  C-12-2 or C-12-2  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 MIL-H-5606, SAE 10, SAE 20 etc.  Filtration  Cleanliness code 17/15/1  Housing material (standard)  Weight including coil  210 bar (3000 ps 114 L/min (30 USgpn ps 114 L/min (30 USgpn ps 120 USgpn higher pressure drop si@15 USgpn and 20 psi @ 30 USgpn higher pressure drop MIL-H-5606, SAE 10, SAE 20 etc.  All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etc.  Filtration  Cleanliness code 17/15/11  Housing material (standard)  Aluminum Weight including coil	Performance data is typical with fluid at 21,8 cs	St (105 SUS) and 49° C (120° F)
Rated flow 114 L/min (30 USgpm Internal leakage, port 2 to port 1 less than 5 drops/min, max @ 210 bar (3000 ps Temperature range -40° to 120°C (-40° to 248°) Coil duty Continuous from 85% to 110% of nominal voltag Cavity C-12-2 or C-12-2 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 17/15/1 Housing material (standard) Aluminur Weight including coil 0,336 kg (0.74 lbs.)	Typical application pressure (all ports)	210 bar (3000 psi)
Internal leakage, port 2 to port 1  Internal leakage, port 2 to port 1  Imperature range  Coil duty  Continuous from 85% to 110% of nominal voltage Cavity  C-12-2 or C-12-2  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 MIL-H-5606, SAE 10, SAE 20 etc  Filtration  Cleanliness code 17/15/1  Housing material (standard)  Weight including coil	Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Temperature range -40° to 120°C (-40° to 248°I Coil duty Continuous from 85% to 110% of nominal voltage Cavity C-12-2 or C-12-2 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 17/15/1 Housing material (standard) Aluminur Weight including coil 0,336 kg (0.74 lbs	Rated flow	114 L/min (30 USgpm)
Coil duty Continuous from 85% to 110% of nominal voltage Cavity C-12-2 or C-12-2 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 17/15/1 Housing material (standard) Weight including coil  C-12-2 or C-12-2 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 Eluids All general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etc Filtration Cleanliness code 17/15/1 Housing material (standard) Aluminum Weight including coil	Internal leakage, port 2 to port 1	less than 5 drops/min, max @ 210 bar (3000 psi)
Cavity  C-12-2 or C-12-2  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 17/15/1  Housing material (standard)  Weight including coil  O,336 kg (0.74 lbs.)	Temperature range	-40° to 120°C (-40° to 248°F)
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 17/15/1  Housing material (standard)  Weight including coil  Add "U" after number if undercut is required. If undercut is not specified expect. If undercut is	Coil duty	Continuous from 85% to 110% of nominal voltage
MIL-H-5606, SAE 10, SAE 20 etc Filtration Cleanliness code 17/ <b>15/1</b> Housing material (standard) Aluminur Weight including coil 0,336 kg (0.74 lbs	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.
Housing material (standard)  Weight including coil  Aluminur  0,336 kg (0.74 lbs	Fluids	All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Weight including coil 0,336 kg (0.74 lbs	Filtration	Cleanliness code 17/ <b>15/12</b>
	Housing material (standard)	Aluminum
Seal kit         02-165889 (Buna-N), 02-165888 (Viton	Weight including coil	0,336 kg (0.74 lbs)
	Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)

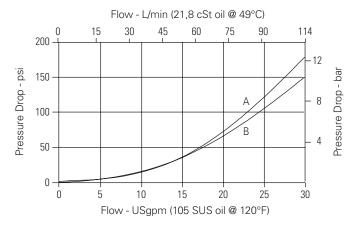
Viton is a registered trademark of E.I. DuPont

# **Description**

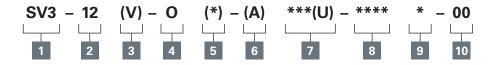
This is a 2-way, 2-position, poppet type, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

# Pressure drop

Cartridge only



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



### **Function**

SV3 - Solenoid valve

2 Size

12 - 12 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

O - Normally open

# 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.

### Valve housing material

Omit for cartridge only

A - Aluminum

# 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

# 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.

# 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**

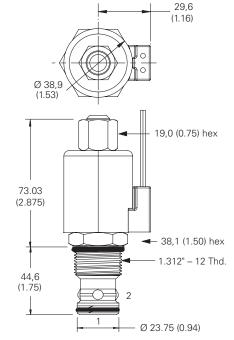
**00** - None

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

# **Dimensions**

mm (inch)

# **Cartridge only**



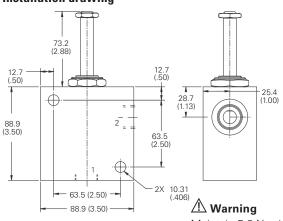
Torque cartridge in aluminum

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

**Installation drawing** 

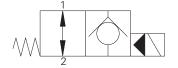
housing 81-95 Nm (60-70 ft lbs)

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



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

Over tightening may cause valve failure.



# Operation

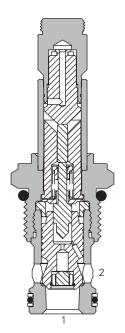
In the de-energized position the valve allows free flow in both directions.

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-12-2 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/ <b>16/13</b>
Housing material (standard)	Steel
Weight including coil	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)
Vitan is a registered trademark of E.I. DuPont	

Viton is a registered trademark of E.I. DuPont

# Description

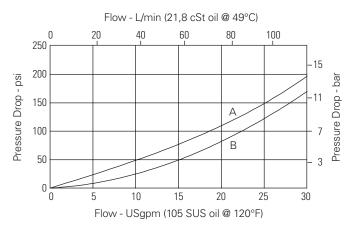
This is a 2-way, 2-position, poppet type, high pressure, pilot operated, normally open solenoid valve. This valve is used in applications requiring low leakage, such as load holding applications or as a general purpose diverter or dump valve.

# **Application Note:**

This value 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

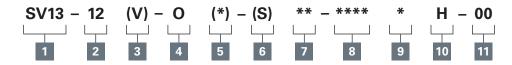


A - Port 1 to port 2 de-energized

B - Port 2 to port 1 de-energized

Poppet type, normally open solenoid valve 114 L/min (30 USgpm) • 350 bar (5000 psi)

#### Model code



# **Function**

SV13 - Solenoid valve

2 Size 12 - 12 size

# Seal material

Blank - Buna-N

**V** - Viton®

# Style

O - Normally open

# 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

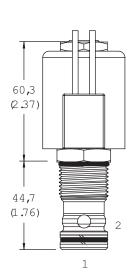
Blank - Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

# Cartridge only



# 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

Ø 38,9 (1.53)

31,75 (1.250)hex

Ø 23,77

(.936)

24B - 24VDC/w diode\*

29,6

(1.16)

22,2 (0.875) hex

12B - 12VDC/w diode\*

\*Optional arc suppression diode.

24A - 24VAC

115A - 115VAC

230A - 230VAC

# **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)

# **Coil series**

H - 10 series, 29 W

For coil dimensions see section C.

# **Special features**

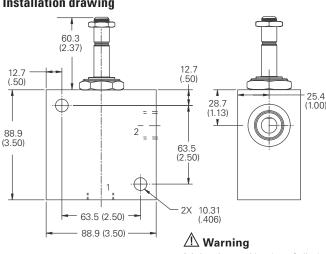
**00** - None

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

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**



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

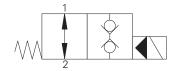
Over tightening may cause valve failure.

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

1.062" -

12 Thd.

# Bi-directional, poppet type, normally open solenoid valve 114 L/min (30 USgpm) • 350 bar (5000 psi)



# Operation

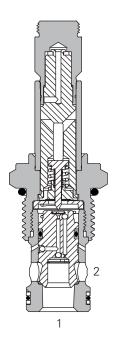
In the de-energized position the valve is open in both directions. A series of internal check valves allows full flow in both directions.

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/ <b>16/13</b>
Housing material (standard)	Aluminum or stee
Weight including coil	0,27 kg (0.59 lbs
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®)
10: 1: 1: 1: 1 (ELD.D.)	

Viton is a registered trademark of E.I. DuPont

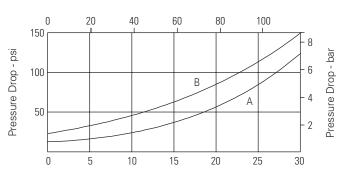
# **Description**

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

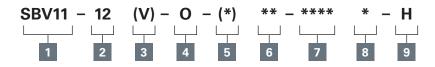
Cartridge only

Flow - L/min (21,8 cSt oil @ 49°C)



Flow - USgpm (105 SUS oil @ 120°F)

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



# 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

# **Dimensions**

mm (inch)

# 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 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.

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

# 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.

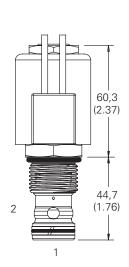
# 10 Special features

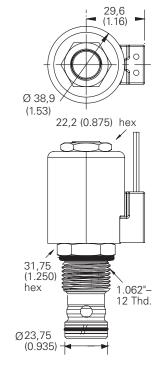
**00** - None

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

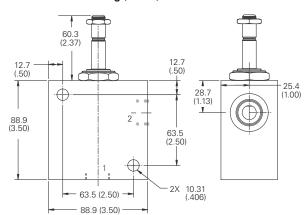
**Note:** When solenoid valve is ordered as cartridge only, coil nut is included.

# Cartridge only





# **Installation drawing (Steel)**



# **⚠** Warning

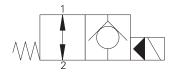
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

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).

Poppet type, normally open solenoid valve 132 L/min (35 USgpm) • 210 bar (3000 psi)



# Operation

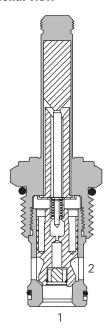
In the de-energized position the valve allows free flow in both directions.

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**

120° F)
210 bar (3000 psi)
210 bar (3000 psi)
132 L/min (35 USgpm)
less than 5 drops/min, max @ 210 bar (3000 psi)
-40° to 120°C (-40° to 248°F)
Continuous from 85% to 110% of nominal voltage
C-16-2
All general purpose hydraulics fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/ <b>16/13</b>
Aluminum
0,9 kg (1.98 lbs)
565810 (Buna-N), 889609 (Viton®)

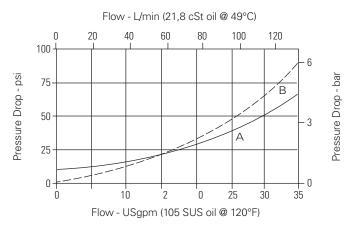
Viton is a registered trademark of E.I. DuPont

# **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

Poppet type, normally open solenoid valve 132 L/min (35 USgpm) • 210 bar (3000 psi)

#### Model code

SV3 - 16 (V) - O (\*) - (A) \*\*\* - \*\*\*\* \* - 00

1 2 3 4 5 6 7 8 9 10

### 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

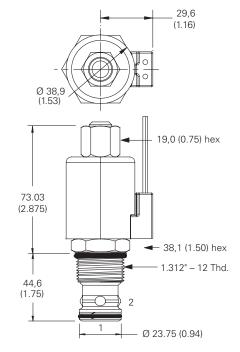
**00** - None

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

#### \_\_\_\_

**Dimensions** mm (inch)

# **Cartridge only**

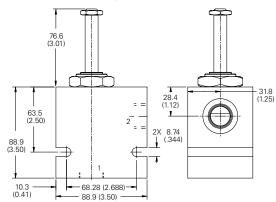


Torque cartridge in aluminum housing 108-122 Nm (80-90 ft lbs)

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

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

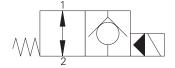
# **Installation drawing**



# **⚠** Warning

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

Over tightening may cause valve failure.



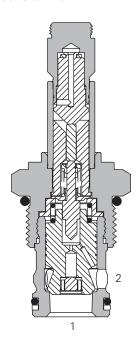
# Operation

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**

gg-	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°L)	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/ <b>16/13</b>
Housing material (standard)	Steel
Weight Cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®)

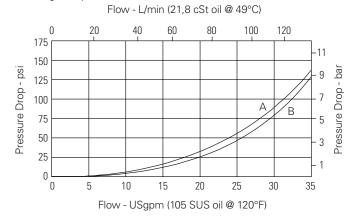
Viton is a registered trademark of E.I. DuPont

### **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.

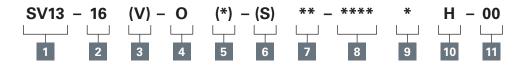
# Pressure drop

Cartridge only



A - Port 2 to port 1 de-energized

 $\boldsymbol{B}$  - Port 1 to port 2



### **Function**

SV13 - Solenoid valve

2 Size **16** - 16 size

Seal material Blank - Buna-N

V - Viton®

# Style

O - Normally open

# 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.

# Valve housing material

Blank - Cartridge only

S - Steel

# 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.

00 - No coil

36D - 36VDC

24A - 24VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

# **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".)

# Voltage rating

24D - 24VDC

\*Optional arc suppression diode

# **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)

12D - 12VDC

115A - 115VAC

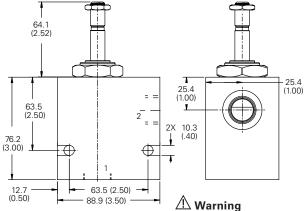
### Note: When solenoid valve is ordered as Cartridge only, nut is included.

# **Installation drawing**

housing 136-149 Nm

(100-110 ft lbs)

Torque cartridge in steel



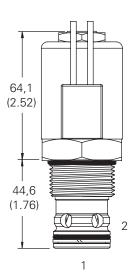
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

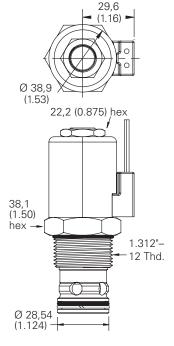
Over tightening may cause

# **Dimensions**

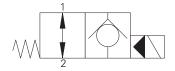
mm (inch)

# **Cartridge only**





Poppet type, normally open solenoid valve 227 L/min (60 USgpm) • 210 bar (3000 psi)



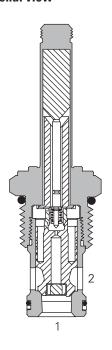
# Operation

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**

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS) and	d 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)	Energize: 75 ms De-Energize: 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®

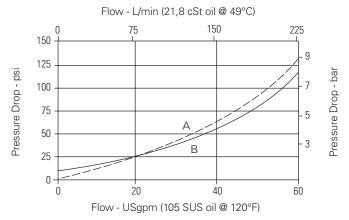
Viton is a registered trademark of E.I. DuPont

# **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

# SV3-20-O/OP/OS - Solenoid valve

Poppet type, normally open solenoid valve 227 L/min (60 USgpm) • 210 bar (3000 psi)

#### Model code

SV3 - 20 (V) - O (\*) - \*\*\* - \*\*\*\* \* - 00

1 2 3 4 5 6 7 8 9

# 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

**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".)

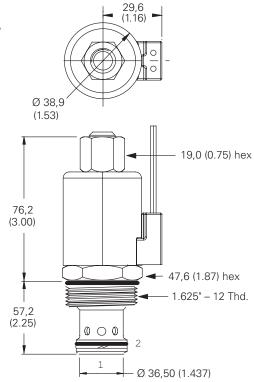
**Note:** Use J series, 23 W coils with this solenoid valve.

# Dimensions

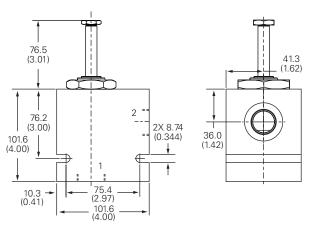
mm (inch)

Torque cartridge in aluminum housing 128-155 Nm (95-115 ft lbs) **Note:** When solenoid valve is ordered as Cartridge only, nut is included.

# Cartridge only

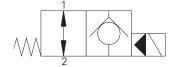


# **Installation drawings**



# **Marning**

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



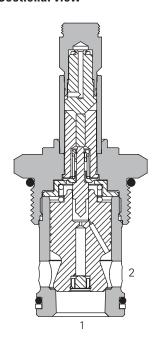
# **Operation**

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/ <b>16/13</b>
Housing material (standard)	Steel
Weight Cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®)

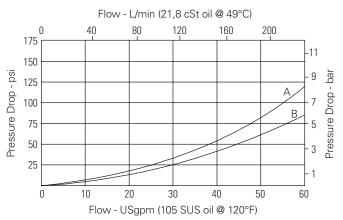
<sup>\*</sup>For application pressure over 280 bar (4000 psi) consult factory Viton is a registered trademark of E.I. DuPont

# **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.

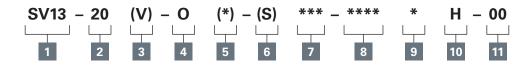
### Pressure drop

Cartridge only



A - Port 2 to port 1 de-energized

**B** - Port 1 to port 2



# **Function**

SV13 - Solenoid valve

2 Size

20 - 20 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

O - Normally open

# 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.

#### Valve housing material

Blank - Cartridge only

S - Steel

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.

# Port size

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

See section J for housing details.

# **Coil series**

H - 10 series, 29 W

For coil part numbers and dimensions see section C

# **Special features**

**00** - None

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

# **Connector types**

Blank - No coil

G - ISO 4400 DIN 43650

**Q** - Spade terminals

W - Flying lead

N - Deutsch (DC only)

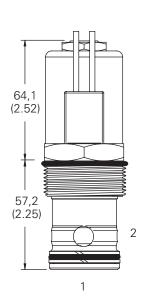
Y - Amp JR (DC only)

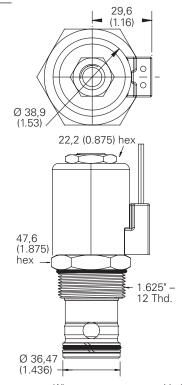
D - Metripack 150 male (DC only)

J - Metripack 280 male (DC only)

**Dimensions** mm (inch)

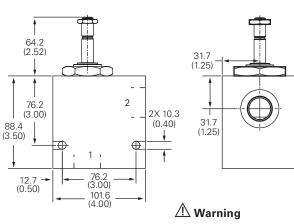
# **Cartridge only**





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

# Installation drawing



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

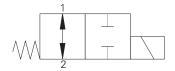
Note: When solenoid valve

is included.

is ordered as Cartridge only, nut

Over tightening may cause valve failure.

Spool type, normally open solenoid valve 13 L/min (4 USgpm) • 210 bar (3000 psi)



# **Operation**

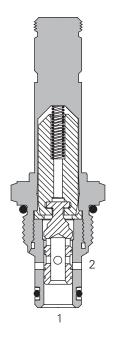
In the de-energized position the valve is open in both directions.

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	spec	citic	ation	18

<b>3</b>	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°	PF)
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 cm3/min (5 in3/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®)

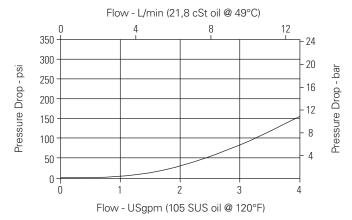
Viton is a registered trademark of E.I. DuPont

# **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

# SV4-8-O/OM - Solenoid valve

Spool type, normally open solenoid valve 13 L/min (4 USgpm) • 210 bar (3000 psi)

Model code

SV4 - 8 (V) - O (M) - (F) (A) \*\* - \*\*\*\* \* S - 00

1 2 3 4 5 6 7 8 9 10 11 12

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

# 7 Valve housing material

Omit for Cartridge only

A - Aluminum

-		
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

Note: When solenoid valve

is ordered as Cartridge only, nut is

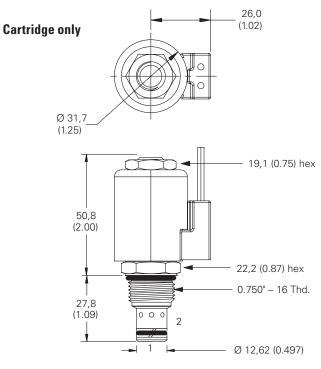
**00** - None

included.

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

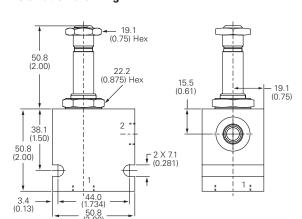
Dimensions

mm (inch)



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

# **Installation drawing**

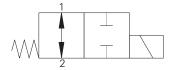


# **⚠** Warning

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

Over tightening may cause valve failure.

Spool type, normally open solenoid valve 13 L/min (3.5 USgpm) • 350 bar (5000 psi)



# **Operation**

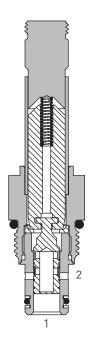
In the de-energized position the valve is open in both directions.

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**

9- ш- ор	
Performance data is typical with fluid at 21,8 cST (105 SUS) as	nd 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 cm3/min (8.5 in3/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight Cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®)

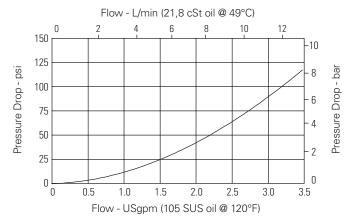
Viton is a registered trademark of E.I. DuPont

# **Description**

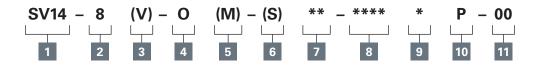
This is a 2-way, 2-position, spool type, high pressure, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

# **Pressure drop**

Cartridge only



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



# 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

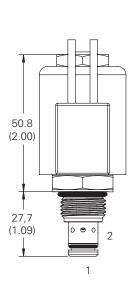
Blank - Cartridge only

S - Steel

#### **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

Ø 31,7 (1.25) **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 or aluminum housing 34-41 Nm is concept (25-30 ft lbs)

19,0

22,2 (0.87)

hex

0.750" -

16 Thd.

Ø 12,6

(0.500)

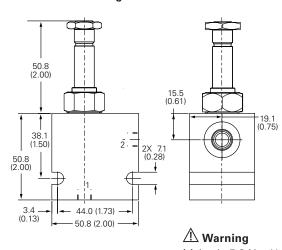
0 \varTheta

(0.75) hex

26.0

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

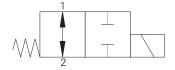
# **Installation drawing**



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

Over tightening may cause valve failure.

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



# **Operation**

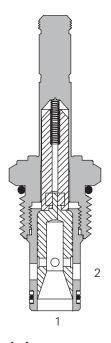
In the de-energized position the valve is open in both directions.

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**

The state of the s	
Performance data is typical with fluid at 21,8 cST (105 SUS) ar	nd 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 cm3/min (5 in3/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including cartridge	0,4 kg (0.87 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®)

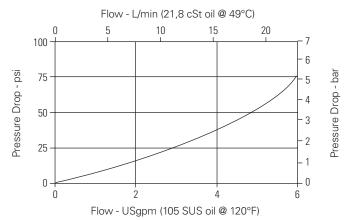
Viton is a registered trademark of E.I. DuPont

# **Description**

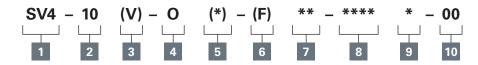
This is a 2-way, 2-position, spool type, direct acting, normally open solenoid valve. This valve is used in applications where the flow needs to be blocked in both directions when the solenoid is energized.

# **Pressure drop**

Cartridge only



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



### **Function**

SV4 - Solenoid valve

2 Size

10 - 10 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

O - Normally open

# 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

# Filter option

Blank - None

F - Filter screen

# 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

<sup>\*</sup>Light duty housing. See section J for housing details.

# 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\*

# 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.

# **Special features**

**00** - None

is included.

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

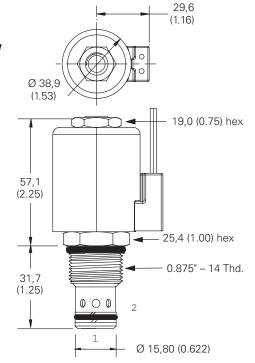
Note: Use J series, 23 W coils with this solenoid valve.

Note: When solenoid valve is

ordered as cartridge only, nut

**Dimensions** mm (inch)

#### **Cartridge only**



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

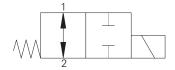
Installation drawing 19.0 (0.75) Hex 57.1 25.4 (1.00) Hex (2.25)25.4 (1.00) 20.8 (0.81) 2X 7.1 (0.28) 63.5 (2.50) 19.0 (0.75)95 63.5 (2.50)riangle Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.

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



# Operation

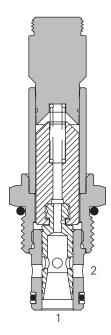
In the de-energized position the valve is open in both directions.

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**

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SU	S) 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 cm3/min (8.5 in3/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	566806 (Buna-N), 889627 (Viton®)
VC :	

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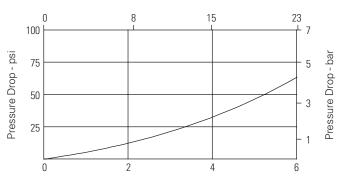
# **Description**

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**

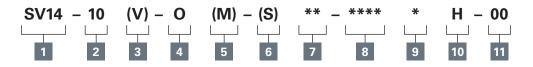
Cartridge only

Flow - L/min (21,8 cSt oil @ 49°C)



Flow - USgpm (105 SUS oil @ 120°F)

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



# **Function**

SV14 - Solenoid valve

2 Size 10 - 10 size

# Seal material

Blank - Buna-N V - Viton®

# Style

O - Normally open

# Manual override option

Blank - No manual override M - Manual override

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

# Valve housing material

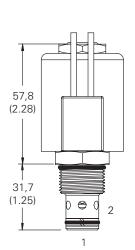
Blank - Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

# **Cartridge only**



# 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.

# 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)

### **Coil series**

H - 10 series, 29 W

For coil part numbers and dimensions see section C

### **Special features**

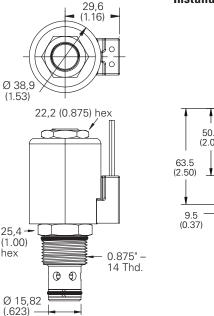
**00** - None

(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, nut is included.

# **Installation drawing**

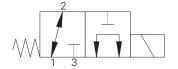


57.1 (2.25) 22.2 (0.37) 19.1 (0.75)50.8 (2.00)2X 7.1 (0.28) 44.46 (1.750) 63.5 (2.50)

# ⚠ Warning

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

Over tightening may cause valve failure.



# Operation

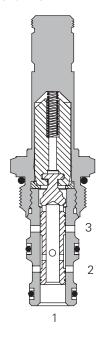
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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**

natings 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 cm3/min (5 in3/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®)

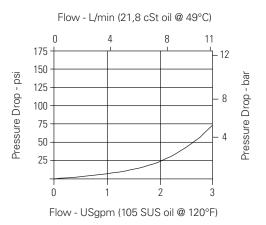
Viton is a registered trademark of E.I. DuPont

# **Description**

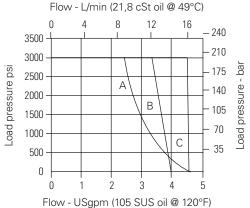
This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

# 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

# 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

S -00

# **Function**

SV1 - Solenoid valve

#### 2 Size

8 - 8 size

# Seal material

Blank - Buna-N

V - Viton®

# Style

3 - 3-way, 2 position

# 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

# Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160739
3 <b>G</b>	3/8" BSPP	02-160740
4T	SAE 4	02-160741
6T	SAE 6	02-160742

24A - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

See section J for housing details.

# Voltage rating

Blank - No coil

12D - 12VDC

24D - 24VDC

**36D** - 36VDC

# 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)

# **Coil series**

S - 8 series, 20 W

For coil part numbers and dimensions see section C.

# **Special features**

**00** - None

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

# **Dimensions**

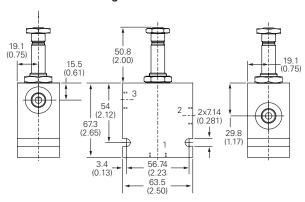
mm (inch)

26,0 Cartridge only (1.02)Ø 31,7 (1.25)19,1 (0.75) hex 50,8 (2.00)22,2 (0.87) hex 0.750" - 16 Thd 40,7 000 3 (1.60)000 2 Ø 14,20 (0.559) Ø 15,80 (0.622)

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**

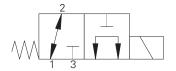


# riangle Warning

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

Over tightening may cause valve failure.

3-way, 2-position spool type solenoid valve 11 L/min (3 USgpm) • 350 bar (5000 psi)



# Operation

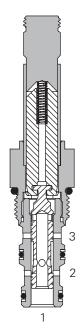
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

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) a	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 cm3/min (8.5 in3/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight Cartridge only	0,13 kg (0.28 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®)

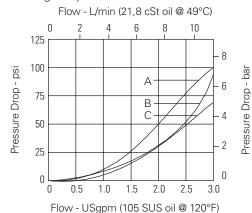
Viton is a registered trademark of E.I. DuPont

# **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

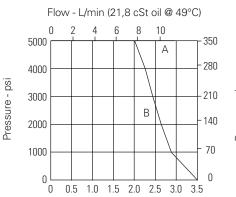
Cartridge only



Pressure drop vs. Flow

**A** - Port 1 to 2 and 1 to 3 **B** - Port 3 to 1

C - Port 2 to 1

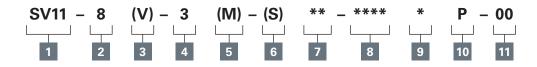


Flow - USgpm (105 SUS oil @ 120°F)

# **Operating Limits**

A - Normally open & closed

B - Selector 1 to 2 and 1 to 3



#### **Function**

SV11 - Solenoid valve

2 Size 8 - 8 size

## Seal material

Blank - Buna-N

V - Viton®

## Style

3 - 3-way, 2 position

## 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

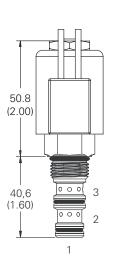
Blank - Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

#### **Cartridge only**



## Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-160743
3G	3/8" BSPP	02-160744
4T	SAE 4	02-160745
6T	SAE 6	02-160746

See section J for housing details.

## Voltage rating

00 - No coil

12D - 12VDC

**24D** - 24VDC

**36D** - 36VDC

Ø 14.2

(0.559)

**24A** - 24VAC

115A - 115VAC

230A - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode

## 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)

#### **Coil series**

P - 8 series, 23 W

For coil part numbers and dimensions see section C

#### **Special features**

**00** - None

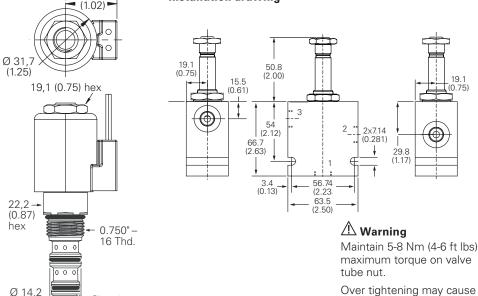
valve failure.

(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**



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

Ø 15,8

(0.622)

#### **Operation**

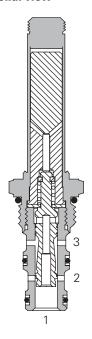
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

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) an	d 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 cm3/min (5 in3/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/ <b>16/13</b>
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

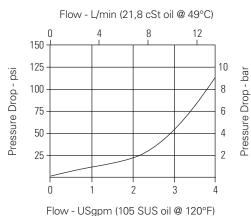
Note: Pressure on port 1 should not exceed 20 bar (300 psi).

#### **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.

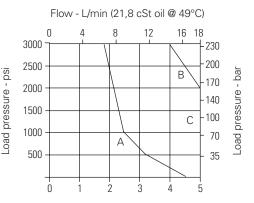
#### Pressure drop

Cartridge only



Pressure drop vs. Flow

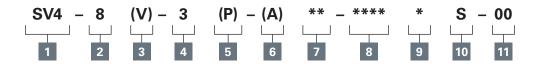
Port 2 to 1 and port 2 to port 3



Flow - USgpm (105 SUS oil @ 120°F)

#### **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



#### 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

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

**00** - None

included.

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

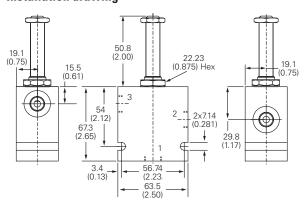
#### **Dimensions**

mm (inch)

26.0 Cartridge only (1.02)Ø 31.7 (1.25)19,1 (0.75) hex 50.8 (2.00)22,2 (0.87) hex 0.750" - 16 Thd 40,7 0 0 3 (1.60)2 Ø 14,20 (0.559) Ø 15,80 (0.622)

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

Installation drawing



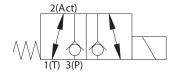
#### **Warning**

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

Over tightening may cause valve failure.

## S229 - Solenoid valve

3-way, 2-position poppet type solenoid valve Up to 12L/min (3.2 USgpm) • 210 bar (3000 psi)



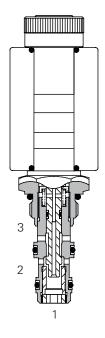
#### **Operation**

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

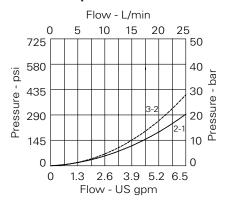
•	
Figures based on Viscosity 32 cST (150 SSU)	
Actuator port location	Port 2
Max working pressure	210 bar (3000 psi
Rated flow	See performance graphs
Nominal flow at □P = 5 bar (70 psi)	10 L/min (2.6 USgpm)
Internal leakage	Less than .6 ml/min (10 dpm)
Temperature range	-30° to 120°C (-22° to 248°F)
Cavity	A3531 (see Section M
Electrical data	See coil data shee
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 cS
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*

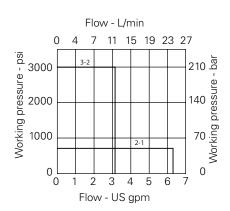
Viton is a registered trademark of E.I. DuPont

#### **Description**

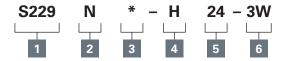
This valve is a 2 position 3 ported poppet solenoid operated diverter screw in cartridge valve. It is ideal for use in systems where low leakage is important.

#### Pressure drop





<sup>\*</sup>AC coils must be used with a rectifying connector



## **Function**

**S229** 

#### 2 Seal material

N - Nitrile

V - Viton®

## **Manual Override**

2 - Screw

**3** - Push

(Consult factory for availability). See page A-960.

## **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
_	1 01 6	3120

Code	Port size	Housing number - body only
		Aluminium
2W	1/4" BSP	B7724
3W	3/8" BSP	B6684
6T	3/8" SAE	B6516

## **Dimensions**

mm (inch)

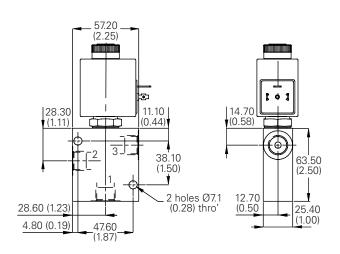
## **Cartridge only**

21.00 - 49.00 (1.90) -

Basic Code S229

## 35.50 (0.82)(1.40)72.00 50.00 (2.83)(1.97)\_**\_**\_ 24.00 A/F 9.55 (0.38).3/4"-16-UNF-2A 44.00 (1.73)

#### **Installation drawing**



## S520(H) - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 40L/min (10 USgpm) • 210 bar (3000 psi)

#### **Operation**

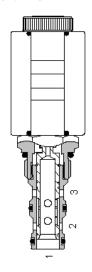
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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	specifi	cations
---------	-----	---------	---------

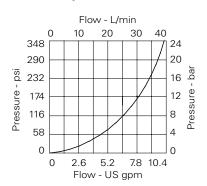
natings and specifications	
Figures based on Viscosity 32 cST (150 SSU)	
Actuator port location	Port 1
Max working pressure	210 bar (3000 psi)
Rated flow at □P = 5 bar (70 psi)	Up to 40 L/min (10 USgpm)
Nominal flow	22 L/min (6 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential 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*

Viton is a registered trademark of E.I. DuPont

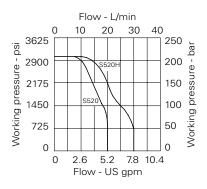
## **Description**

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.

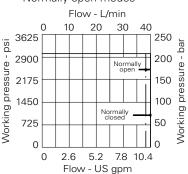
#### Pressure drop



#### Selector Mode



## Normally closed and Normally open modes



<sup>\*</sup>AC coils must be used with a rectifying connector

## S520(H) - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 40L/min (10 USgpm) • 210 bar (3000 psi)

Model code

S520\* N \* - H 24 - 3W
1 2 3 4 5 6

1 Function

**\$520** - Standard valve

\$520(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

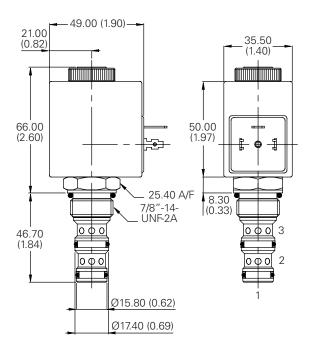
6 Port size

Code	Port size	Housing number - body only
		Aluminium
3W	3/8" BSP	B18982
4W	1/2" BSP	B19358
8T	1/2" SAE	B19360

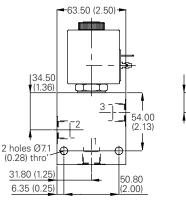
#### **Dimensions**

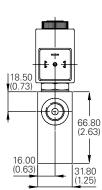
mm (inch)

#### **Cartridge only**



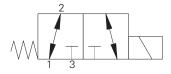
## Installation drawing





## 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)



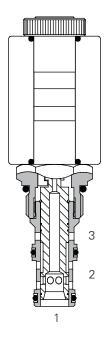
#### Operation

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

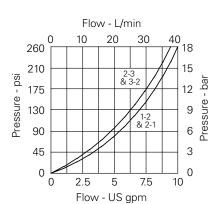
hatings and specifications	
Figures based on Viscosity 32 cST (150 SSU)	
Actuator port location	Port 2
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at □P = 5 bar (70 psi)	17 L/min
nternal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature 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

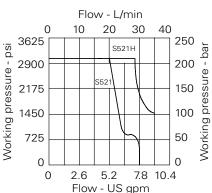
#### **Description**

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.

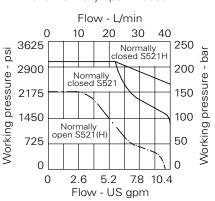
#### Pressure drop



#### Performance Selector Mode



#### Performance Normally closed and Normally open modes



<sup>\*</sup>AC coils must be used with a rectifying connector

## S521(H) - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 44 L/min (11.5 USgpm)  $\cdot$  Up to 210 bar (3000 psi)

Model code

S521\* N \* - H 24 - 3W
1 2 3 4 5 6

1 Function

**\$521** - 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

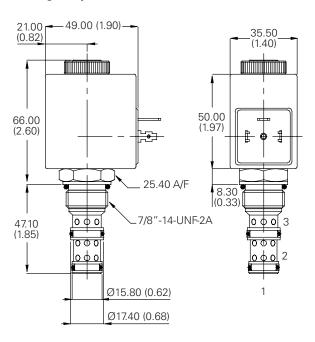
6 Port size

Code	Port size	Housing number - body only
		Aluminium
3W	3/8" BSP	B18982
4W	1/2" BSP	B19358
8T	1/2" SAE	B19360

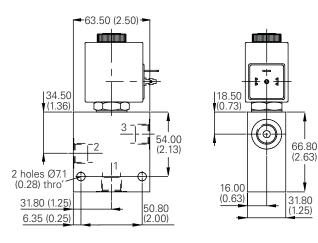
#### **Dimensions**

mm (inch)

#### **Cartridge only**

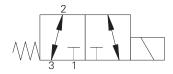


#### **Installation drawing**



## S525(H) - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)



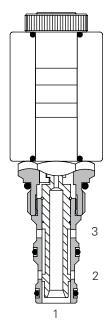
#### Operation

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

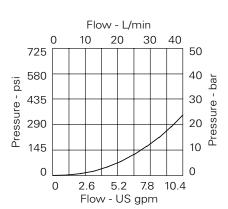
Katings and specifications	
Performance data is typical based on Viscosity 32 cST (150 SSU)	
Actuator port location	Port 2
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at ☐P = 5 bar (70 psi)	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min 210 bar differential
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

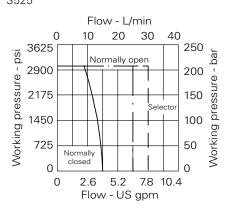
#### Description

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.

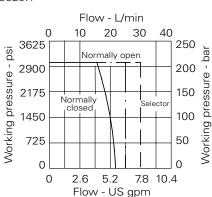
#### Pressure drop



#### Performance S525



#### Performance S525H



<sup>\*</sup>AC coils must be used with a rectifying connector

## S525(H) - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)

Model code

S525\* N \* - H 24 - 3W

1 2 3 4 5 6

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.

5 Voltage

**12** - 2 VDC **24** - 24 VDC

**110** - 110 VAC

**220** - 220 VAC

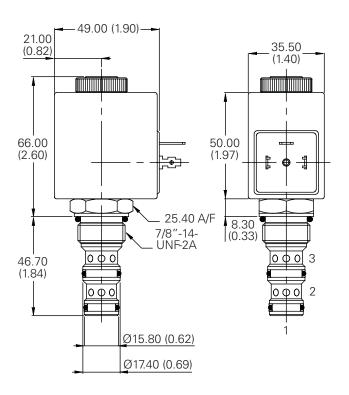
6 Port size

Code	Port size	Housing number - body only
	'	Aluminium
3W	3/8" BSP	B18982
4W	1/2" BSP	B19358
8T	1/2" SAE	B19360

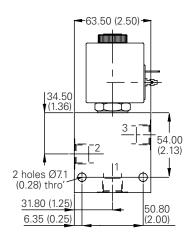
#### **Dimensions**

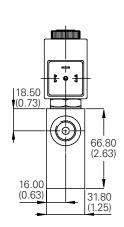
mm (inch)

#### **Cartridge only**



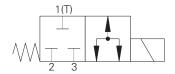
## Installation drawing





## S526 - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)



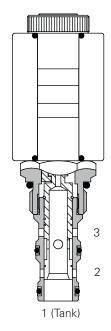
## **Operation**

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**

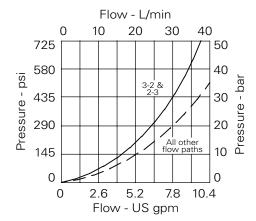
Performance data is typical with Viscosity 32 cST (150 SSU)         Max working pressure       210 bar (3000 psi)         Rated flow       See performance graphs         Nominal flow at □P = 5 bar (70 psi)       11 L/min (3 USgpm)         Internal leakage       Less than 120 ml/min past each land 210 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*	natings and specifications	
Rated flow       See performance graphs         Nominal flow at □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	Performance data is typical with Viscosity 32 cST (150 SSU)	
Nominal flow at □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	Max working pressure	210 bar (3000 psi)
Internal leakageLess than 120 ml/min past each land 210 bar differentialTemperature range-30° to +120°C (-22° to +248°F)CavityC-10-3 (see Section M)Electrical dataSee coil data sheetTorque cartridge into cavity30 Nm (22 lbs ft)Mounting positionUnrestrictedFluidsAll general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etcSeal materialStandard nitrile with PTFE back up ringsFiltrationBS5540/4 Class 18/13 (25 micron or better)Nominal viscosity range15 to 250 cStStandard housing materialsAluminium alloyCoil weight0.3 kg (0.6 lbs)Cartridge weight0.2 kg (0.4 lbs)Seal kitSK1030 (Nitrile) SK1030V (Viton®)Coil part numberC16-*-*/19	Rated flow	See performance graphs
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 SK1030 (Nitrile) SK1030V (Viton®) Coil part number C16-*-*/19	Nominal flow at □P = 5 bar (70 psi)	11 L/min (3 USgpm)
CavityC-10-3 (see Section M)Electrical dataSee coil data sheetTorque cartridge into cavity30 Nm (22 lbs ft)Mounting positionUnrestrictedFluidsAll general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etcSeal materialStandard nitrile with PTFE back up ringsFiltrationBS5540/4 Class 18/13 (25 micron or better)Nominal viscosity range15 to 250 cStStandard housing materialsAluminium alloyCoil weight0.3 kg (0.6 lbs)Cartridge weight0.2 kg (0.4 lbs)Seal kitSK1030 (Nitrile) SK1030V (Viton®)Coil part numberC16-*-*/19	Internal leakage	Less than 120 ml/min past each land 210 bar differential
Electrical data  See coil data sheet Torque cartridge into cavity  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	Temperature range	-30° to +120°C (-22° to +248°F)
Torque cartridge into cavity  Mounting position  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	Cavity	C-10-3 (see Section M)
Mounting positionUnrestrictedFluidsAll general purpose hydraulics fluids such as MIL-H-5606, SAE 10, SAE 20 etcSeal materialStandard nitrile with PTFE back up ringsFiltrationBS5540/4 Class 18/13 (25 micron or better)Nominal viscosity range15 to 250 cStStandard housing materialsAluminium alloyCoil weight0.3 kg (0.6 lbs)Cartridge weight0.2 kg (0.4 lbs)Seal kitSK1030 (Nitrile) SK1030V (Viton®)Coil part numberC16-*-*/19	Electrical data	See coil data sheet
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	Torque cartridge into cavity	30 Nm (22 lbs ft)
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	Mounting position	Unrestricted
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	Fluids	
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	Seal material	Standard nitrile with PTFE back up rings
Standard housing materialsAluminium alloyCoil weight0.3 kg (0.6 lbs)Cartridge weight0.2 kg (0.4 lbs)Seal kitSK1030 (Nitrile) SK1030V (Viton®)Coil part numberC16-*-*/19	Filtration	BS5540/4 Class 18/13 (25 micron or better)
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	Nominal viscosity range	15 to 250 cSt
Cartridge weight         0.2 kg (0.4 lbs)           Seal kit         SK1030 (Nitrile) SK1030V (Viton®)           Coil part number         C16-*-*/19	Standard housing materials	Aluminium alloy
Seal kitSK1030 (Nitrile) SK1030V (Viton®)Coil part numberC16-*-*/19	Coil weight	0.3 kg (0.6 lbs)
Coil part number C16-*-*/19	Cartridge weight	0.2 kg (0.4 lbs)
	Seal kit	SK1030 (Nitrile) SK1030V (Viton®)
Coil voltage available 12, 24 VDC, 110, 220, VAC*	Coil part number	C16-*-*/19
	Coil voltage available	12, 24 VDC, 110, 220, VAC*

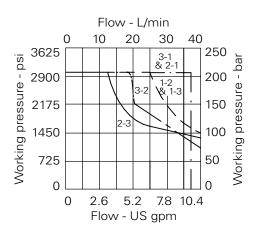
Viton is a registered trademark of E.I. DuPont

#### **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

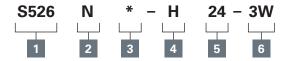




<sup>\*</sup>AC coils must be used with a rectifying connector

3-way, 2-position spool type solenoid valve Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)

#### Model code



## 1 Function S526

## 2 Seal material

**N** - Nitrile

V - Viton®

## 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

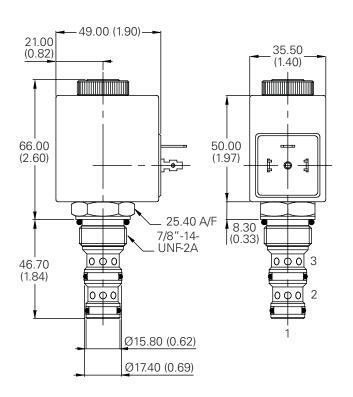
## 6 Port size

Code	Port size	Housing number - body only
		Aluminium
3W	3/8" BSP	B18982
4W	1/2" BSP	B19358
8T	1/2" SAE	B19360

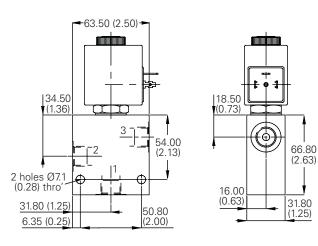
#### **Dimensions**

mm (inch)

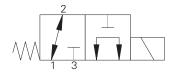
## **Cartridge only**



#### **Installation drawing**



3-way, 2-position, spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)



#### **Operation**

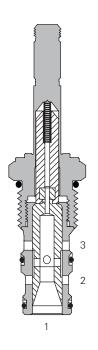
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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**

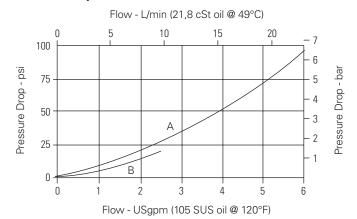
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (120	)° F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	23L/min (6 USgpm) Max. flow port 1 to 2-10L/min (2.5 USgpm)
Internal leakage	164 cm³/min (10 in³/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.

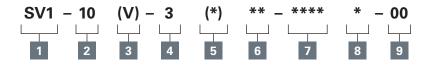
#### Pressure drop



## 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



#### 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	Cartridge only	
3B	3/8" BSPP	02-173358*	
6T	SAE6	566162*	
2G	1/4" BSPP	876705	
3 <b>G</b>	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

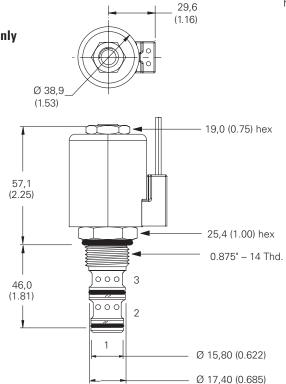
#### **00** - None

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

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

## **Dimensions** mm (inch)

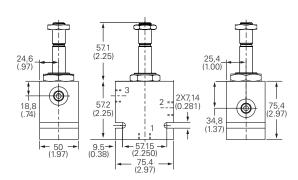
Cartridge only



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.

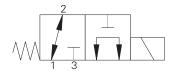
#### Installation drawing (Aluminum)



## ⚠ Warning

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

Over tightening may cause valve failure.



## **Operation**

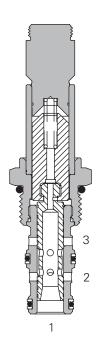
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

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 (12	20° 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 cm³/min (10 in³/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®)
-	

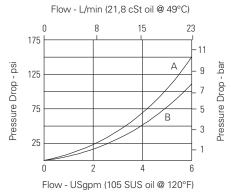
Viton is a registered trademark of E.I. DuPont

#### **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

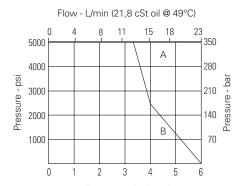
Cartridge only



#### Pressure drop vs. Flow

A - Port 3 to port 1

B - Port 1 to port 2

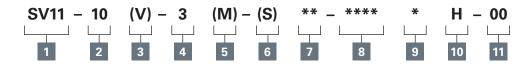


Flow - USgpm (105 SUS oil @ 120°F)

#### **Operating limits**

A - Normally open, normally closed

B - Selector 1 to 2



#### 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 overrride

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

## 7 Port size

Code	Port size	Housing number
0	Cartridge only	
2G	1/4" BSPP	02-175127
3 <b>G</b>	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".)

## 6 Valve housing material

Blank - Cartridge only

S - Steel

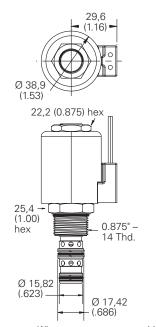
#### **Dimensions**

**Cartridge only** 

mm (inch)

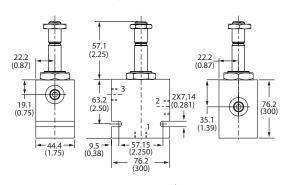
57,8 (2.28)

## 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.

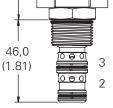
#### **Installation drawing**

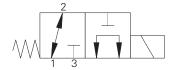


## ⚠ Warning

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

Over tightening may cause valve failure.





#### **Operation**

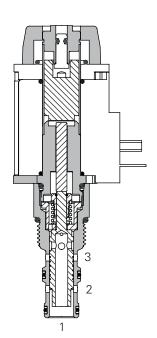
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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 SU	S) 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 SV11B-10-3	17 L/min (5 USgpm) 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		Continuos 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 SV11B-10-3	0.42 kg (0.92 lbs)
Seal kit		Buna-N), (Viton®)

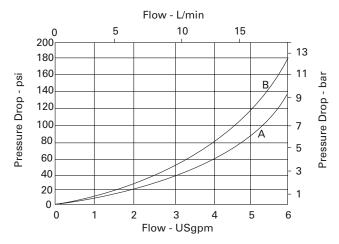
Viton is a registered trademark of E.I. DuPont

## **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.

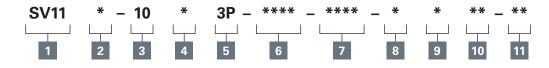
#### Pressure drop

Cartridge only



#### Pressure drop vs. Flow

**A** - Port 1 to port 2 **B** - Port 3 to port 1



#### 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 overrride

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

## 7 Voltage rating

See section J for housing details.

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

## W - Flying leadC - Deutch on I

C - Deutch on LeadsH - Metripak 150 on Leads

**Blank** - No coil **G** - ISO 440 DIN 43650

**F** - Weatherpak Male on Leads For coil dimensions see section C.

**Connector types** 

## 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)

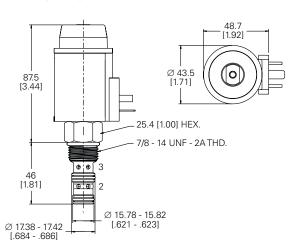
12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

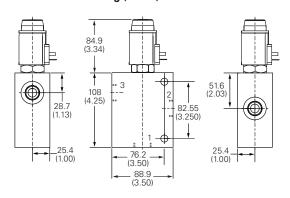
\*Optional arc suppression diode

**Note:** When solenoid vale is ordered as Cartridge only, coil nut is included.

#### **Cartridge only**



## Installation drawing (Steel)



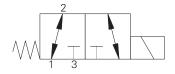
### ⚠ Warning

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).

#### **M** Warning

Maintain 2.5-3 Nm (1.8-2.2 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

3-way, 2-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)



#### **Operation**

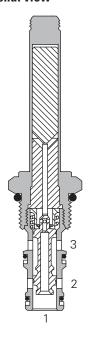
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

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 4	9°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 cm³/min (10 in³/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®)

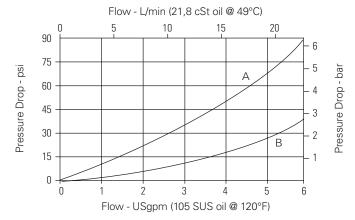
Viton is a registered trademark of E.I. DuPont

#### **Description**

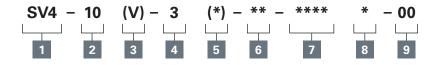
This is a 3-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

#### Pressure drop

Cartridge only



**A** - Port 3 to port 2 energized **B** - Port 2 to port 1 de-energized



#### **Function**

**SV4** - Solenoid valve

2 Size

**10** - 10 size

#### Seal material

Blank - Buna-N

V - Viton®

#### Style

3 - 3-way, 2 position

## 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.

#### Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-173358*
6T	SAE6	566162*
2G	1/4" BSPP	876705
3 <b>G</b>	3/8" BSPP	876714
6H	SAE 6	876704
8H	SAE 8	876711

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

## Voltage rating

12D - 12VDC

24D - 24VDC

## **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.

## 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.

## **00** - No coil

**36D** - 36VDC

24B - 24VDC/w diode\* \*Optional arc suppression diode.

12B - 12VDC/w diode\*

24A - 24VAC

115A - 115VAC

230A - 230VAC

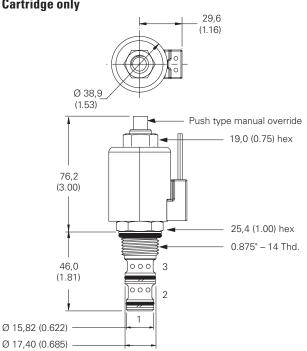
#### **Dimensions**

mm (inch)

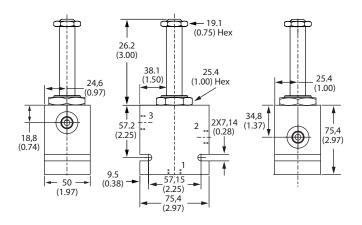
Torque cartridge in aluminum housing 47-54 Nm (35-40 ft lbs)

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

#### Cartridge only



#### Installation drawing



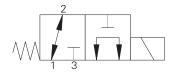
#### ⚠ Warning

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

Over tightening may cause valve failure.

#### ⚠ Warning

Flow from port 1 to port 2 must be less than 7,6 L/min (2 USgpm).



#### **Operation**

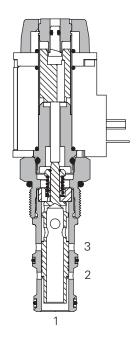
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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 SU	S) 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 cm³/min (21.5 in³/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®)

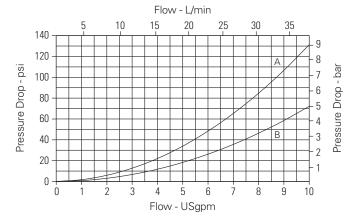
Viton is a registered trademark of E.I. DuPont

#### **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

## SV1M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 34 L/min (9 USgpm) • 210 bar (3000 psi)

#### Model code

SV1 \* - 12 \* - 3P - \*\*\*\* - \*\*\*\* \* \* \* \*\* - \*\*

1 2 3 4 5 6 7 8 9 10 11

#### 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" 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\*

## .

**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

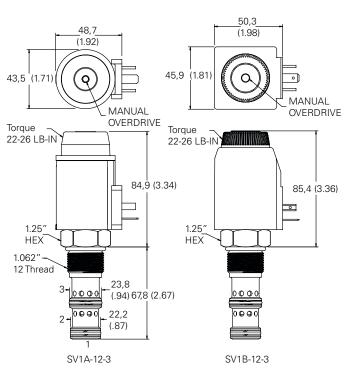
#### **Dimensions**

mm (inch)

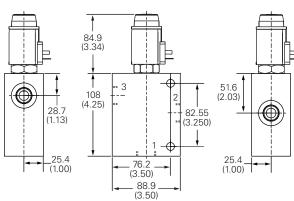
Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

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

#### **Cartridge only**



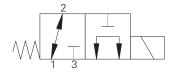
## Installation drawing



#### **Marning**

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

3-way, 2-position spool type solenoid valve Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)



#### Operation

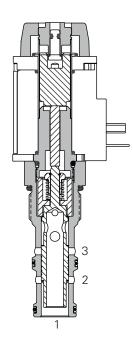
In the de-energized position this valve allows flow from port 1 to 2 while port 3 is blocked.

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	Continuos 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®)
Vitar is a maistered trademark of ELD Donat	

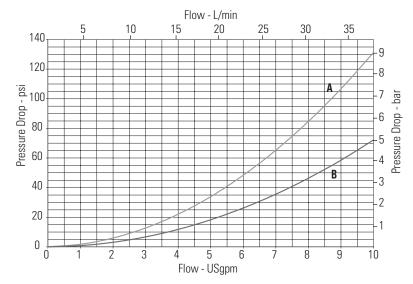
Viton is a registered trademark of E.I. DuPont

## **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

## SV11M-12-3 - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

#### Model code

SV11 \* - 12 \* 3P - \*\*\*\* - \* \* \* \* - \*\*

1 2 3 4 5 6 7 8 9 10 11

#### 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®

#### 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\*

Blank - No coil

W - Flying lead

N - Deutsch male, DT04-2P,

**Connector types** 

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**

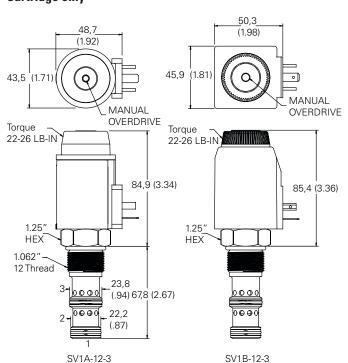
mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)

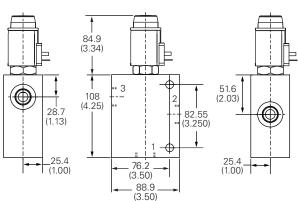
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

**Note:** When solenoid vale is ordered as Cartridge only, coil nut is included.

#### **Cartridge only**



## **Installation drawing (Steel)**



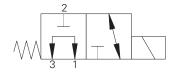
#### **⚠** Warning

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).

3-way, 2-position, spool type solenoid valve Up to 34 L/min (9 USgpm) • 210 bar (3000 psi)



#### Operation

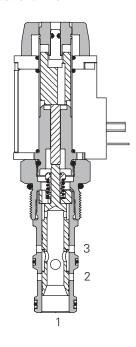
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

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 cm³/min (21.5 in³/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®)

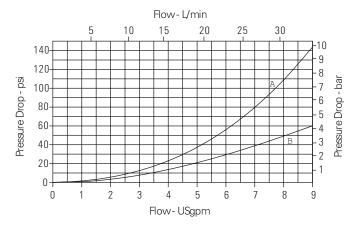
Viton is a registered trademark of E.I. DuPont

#### **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

## SV2M-12-3P - Solenoid valve

3-way, 2-position, spool type solenoid valve Up to 34 L/min (9 USgpm) • 210 bar (3000 psi)

#### Model code

SV2 \* - 12 \* - 3P - \*\*\*\* \* \* \* \* \* - \*\*

1 2 3 4 5 6 7 8 9 10 11

8 Connector types

N - Deutsch male, DT04-2P,

For coil dimensions see section C.

Blank - No coil

W - Flying lead

integrated

#### 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

#### **Dimensions**

mm (inch)

#### 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.

## 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

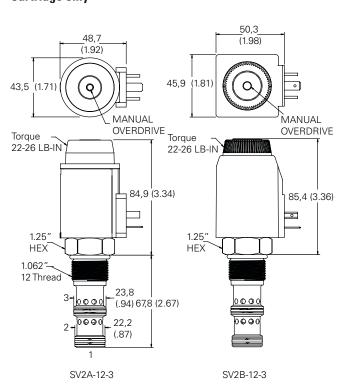
(Only required if valve has Special features, omitted if "00".)

SF - Soft shift

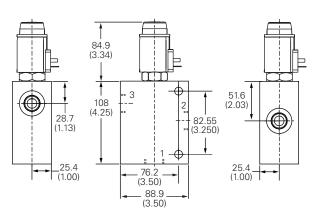
Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

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

#### **Cartridge only**



## **Installation drawing**



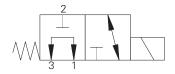
## **Warning**

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.

A-135

3-way, 2-position, spool type solenoid valve Up to 34 L/min (9 USgpm) • 350 bar (5000 psi)



#### Operation

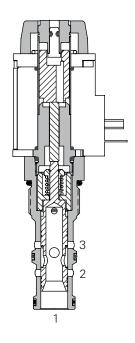
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

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 in³/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuos 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®)

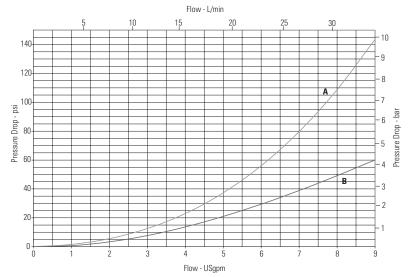
Viton is a registered trademark of E.I. DuPont

## **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

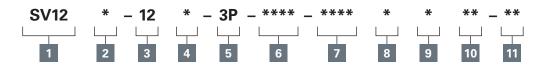
Cartridge only



- A Port 2 to port 1 energized
- **B** Port 1 to port 3 de-energized

3-way, 2-position, spool type solenoid valve Up to 34 L/min (9 USgpm) • 350 bar (5000 psi)

#### Model code



#### **Function**

SV12 - Solenoid valve

## Max flow

**M** - 38 L/min (10 USgpm)

## Size

12 - 12 size

#### Seal material

Blank - Buna-N

V - Viton®

### Style

3P - 3 way, push type manual override

#### 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

## Voltage rating

**00** - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

Torque cartridge in aluminum

housing 81-95 Nm (60-70 ft. lbs)

## 9 Coil types Blank - No coil

R - R series (30W) Large ToughCoil

#### **Coil special features**

Blank - No coil

00 - No special feature

## **Special features**

**00** - None

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

mm (inch)

## 8 Connector types Blank - No coil

W - Flying lead

N - Deutsch male, DT04-2P, integrated

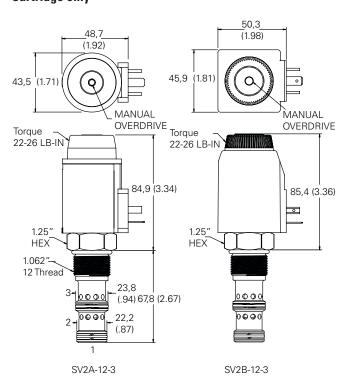
For coil dimensions see section C.

#### **Dimensions**

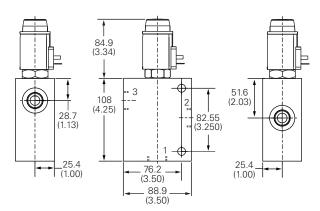
Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs)

Note: When solenoid vale is ordered as Cartridge only, coil nut is included.

#### **Cartridge only**



#### Installation drawing (Steel)



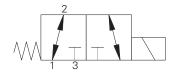
### ⚠ Warning

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).

3-way, 2-position spool type solenoid valve Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)



#### Operation

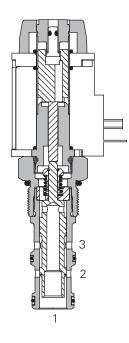
In the de-energized position this valve allows flow from port 2 to 1 while port 3 is blocked.

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 (12	20°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®)

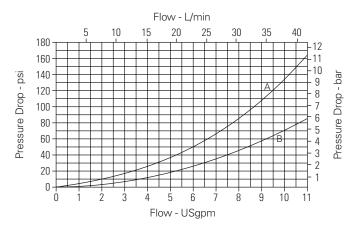
Viton is a registered trademark of E.I. DuPont

### **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

## SV4M-12-3P - Solenoid valve

3-way, 2-position spool type solenoid valve Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

#### Model code

SV4 3P -12 5

8 Connector types

N - Deutsch male, DT04-2P,

For coil dimensions see section C.

Blank - No coil

W - Flying lead

integrated

## **Function**

SV4 - Solenoid valve

## Max flow

M - 42 L/min (11 USgpm)

## Size

12 - 12 size

## Seal material

Blank - Buna-N

V - Viton®

#### Style

3P - 3 way, push type manual override

## **Dimensions**

mm (inch)

#### Port size

Code	Port size	Housing number
0	Cartridge only	
A6G	3/4" BSPP	02-161816
A12H	SAE 12	02-160646

## Voltage rating

**00** - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

## 9 Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

## **Coil special features**

Blank - No coil

00 - No special feature

## **Special features**

**00** - None

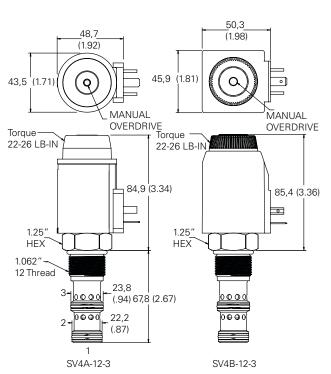
(Only required if valve has Special features, omitted if "00".)

SF - Soft shift

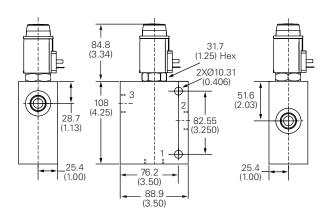
#### Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

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

## **Cartridge only**



#### **Installation drawing**



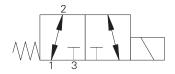
## ⚠ Warning

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.

A-139

3-way, 2-position spool type solenoid valve Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)



#### **Operation**

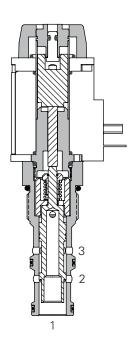
In the de-energized position this valve allows flow from port 1 to 3 while port 2 is blocked.

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	Continuos 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®)

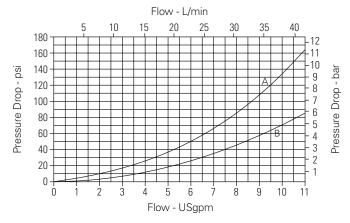
Viton is a registered trademark of E.I. DuPont

#### **Description**

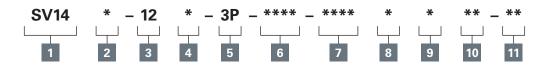
This is a 3-way 2-position, high pressure, direct acting, spool type solenoid valve. This valve can be used in applications requiring separate pressure and tank lines, such as a single acting cylinder or any other application where a three way two position solenoid valve is needed.

#### Pressure drop

Cartridge only



**A** - Port 3 to port 2 energized **B** - Port 2 to port 1 de-energized



#### 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®

#### Style

**3P** - 3 way, push type manual override

#### **Dimensions**

mm (inch)

## 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\*

Torque cartridge in aluminum

housing 81-95 Nm (60-70 ft. lbs)

\*Optional arc suppression diode.

# **N** - Deutsch male, DT04-2P, integrated For coil dimensions see section C.

8 Connector types

W - Flying lead (DC only)

Blank - No coil

## 9 Coil types

Blank - No coil

**R** - R series (30W) Large ToughCoil

## 10 Coil special features

Blank - No coil

00 - No special feature

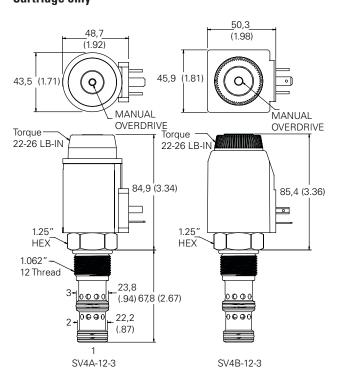
#### 11 Special features

**00** - None

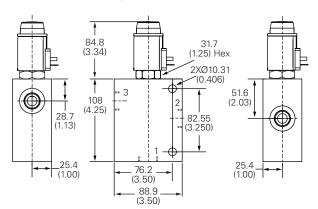
(Only required if valve has Special features, omitted if "00".)

Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs) **Note:** When solenoid vale is ordered as Cartridge only, coil nut is included.

## **Cartridge only**



#### Installation drawing (Steel)



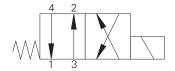
#### **Marning**

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).

4-way, 2-position, spool type solenoid valve Up to 11 L/min (3 USgpm) • 210 bar (3000 psi)



#### **Operation**

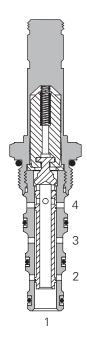
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

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**

<b>3</b>	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120	0°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 cm³/min (5 in³/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®)

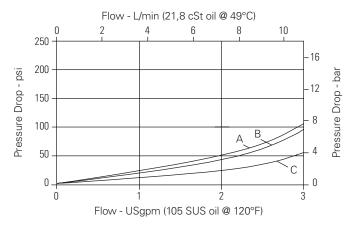
Viton is a registered trademark of E.I. DuPont

## **Description**

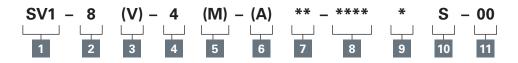
This is a 4-way 2-position, direct acting, spool type solenoid valve. This valve can be used in applications where the motion of a double acting cylinder or a motor needs to be reversed.

## **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



#### 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.  $\label{eq:page}$ 

## 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

**2D** - 12VDC **115A** - 115VAC

**24D** - 24VDC **230A** - 230VAC

**36D** - 36VDC **12B** - 12VDC/w diode\*

**24B** - 24VDC/w diode\*
\*Optional arc suppression diode.

24A - 24VAC

## 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

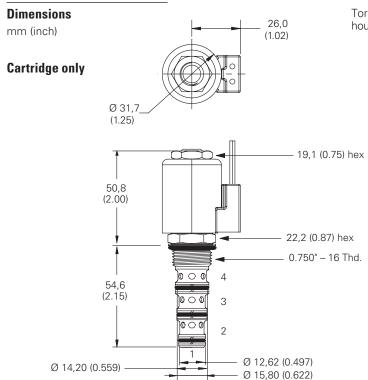
**00** - None

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

## 6 Valve housing material

Omit for Cartridge only

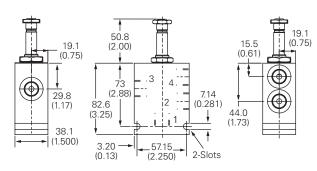
A - Aluminum



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

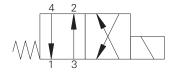


## **⚠** Warning

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

Over tightening may cause valve failure.

4-way, 2-position spool type solenoid valve Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)



#### **Operation**

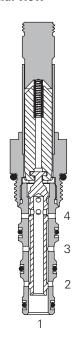
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

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

natings and specifications	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 45	9°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 cm³/min (5 in³/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®)

Pressure - psi

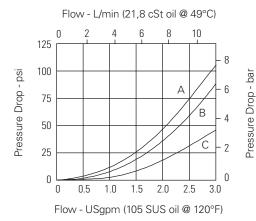
Viton is a registered trademark of E.I. DuPont

#### **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

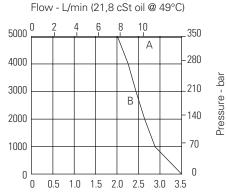
Cartridge only



## 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



Flow - USgpm (105 SUS oil @ 120°F)

#### **Operating Limits**

**A** - Port 2 to port 1, 4 to 1, and 3 to 2

**B** - Port 3 to port 4

### **Function**

SV11 - Solenoid valve

## Size

8 - 8 size

### Seal material

Blank - Buna-N

V - Viton®

### Style

4 - 4-way, 2 position

### Manual override option

Blank - No manual override

#### M - Manual override

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

### Valve housing material

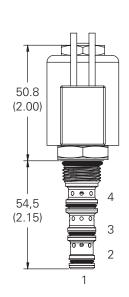
Blank - Cartridge only

A - Aluminum

#### **Dimensions**

mm (inch)

### **Cartridge only**



### 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.

### 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

### **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

### **Special features**

**00** - None

is included.

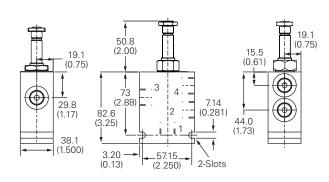
(Only required if valve has Special features omitted if "00".)

Note: When solenoid valve is

ordered as Cartridge only, nut

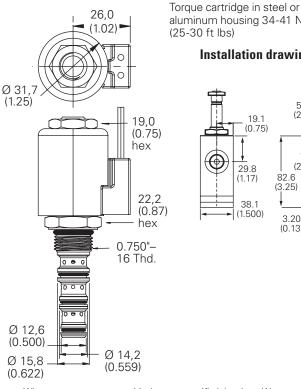
aluminum housing 34-41 Nm (25-30 ft lbs)

### **Installation drawing**

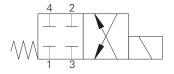


### 🗥 Warning

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



4-way, 2-position spool type solenoid valve Up to 13 L/min (4 USgpm) • 210 bar (3000 psi)



### Operation

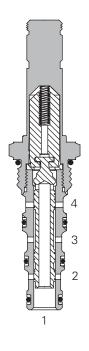
In the de-energized position all ports are blocked.

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°I	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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

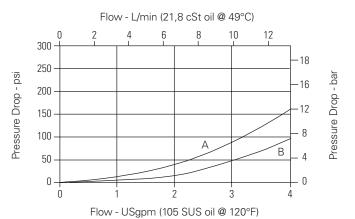
Viton is a registered trademark of E.I. DuPont

#### **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 1

# 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)

#### Model code

SV2 - 8 (V) - 4 (M) - (A) \*\* - \*\*\*\* \* S - 00

1 2 3 4 5 6 7 8 9 10 11

### 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)

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.

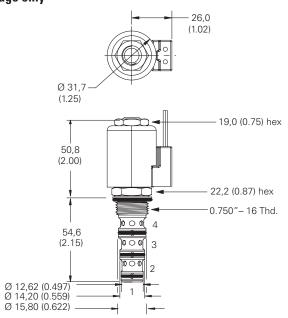
### 11 Special features

**00** - None

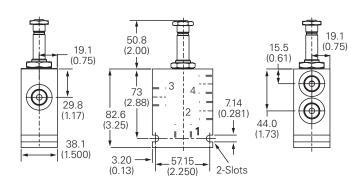
(Only required if valve has Special features omitted if "00".)

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**



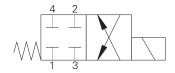
### **Installation drawing**



### ⚠ Warning

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

4-way, 2-position spool type solenoid valve Up to 11 L/min (3 USgpm) • 350 bar (5000 psi)



### Operation

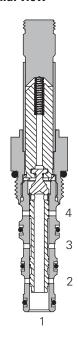
In the de-energized position all ports are blocked.

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**

natings and opcomoditions	
Performance data is typical with fluid at 21,8 cST (105 SUS) a	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 cm³/min (5 in³/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/ <b>16/13</b>
Housing material (standard)	Steel
Weight - Cartridge only	0,14 kg (0.30 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®)

Pressure Drop - bar

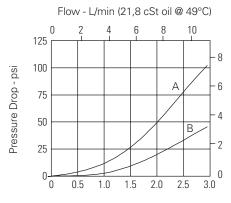
Viton is a registered trademark of E.I. DuPont

### **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



Flow - USgpm (105 SUS oil @ 120°F)

#### Flow - L/min (21,8 cSt oil @ 49°C) 5000 350 Α 280 4000 Pressure - psi 210 3000 140 2000 В 70 1000 1.0 1.5 2.0

Flow - USgpm (105 SUS oil @ 120°F)

#### 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

### Function

SV12 - Solenoid valve

Size

8 - 8 size

### Seal material

Blank - Buna-N

V - Viton®

### Style

4 - 4-way, 2 position

### Manual override option

Blank - No manual override

M - Manual override

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

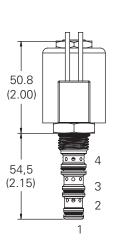
### 6 Valve housing material

Blank - Omit for Cartridge only A - Aluminum

#### **Dimensions**

mm (inch)

# Cartridge only



### 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.

### Voltage rating

Torque cartridge in steel or

36D - 36VDC

(25-30 ft lbs)

Ø 38,9

(1.53)

Ø 12,6

(0.500)

Ø 15,8 (0.622)

**00** - No coil **24A** - 24VAC **12D** - 12VDC 115A - 115VAC

24D - 24VDC 230A - 230VAC

hex

Ø 14,2

(0.559)

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.

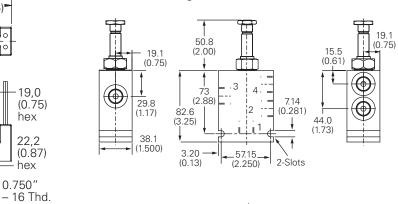
### **Special features**

**00** - None

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

Note: When solenoid valve is ordered as Cartridge only, nut aluminum housing 34-41 Nm is included

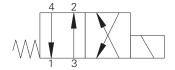
## **Installation drawing**



### 🗥 Warning

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

4-way, 2-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)



### Operation

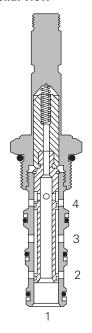
In the de-energized position this valve allows flow from port 4 to port 1 and from port 3 to port 2.

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**

3.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 4.	9°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 cm³/min (10 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

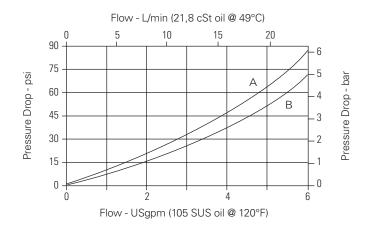
Viton is a registered trademark of E.I. DuPont

### **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

SV1 - 10 (V) - 4 (\*) - \*\* - \*\*\*\* \* - 00

1 2 3 4 5 6 7 8 9

#### 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.

#### **Dimensions**

mm (inch)

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
3 <b>G</b>	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.

Torque cartridge in aluminum housing 47-54 Nm (33-46 ft lbs)

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

### 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)

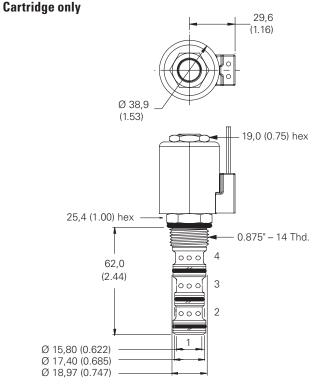
For coil part numbers and dimensions see section C.

### 9 Special features

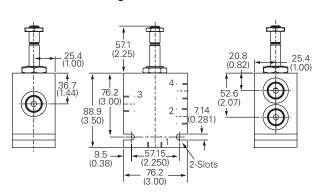
**00** - None

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

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



#### **Installation drawing**

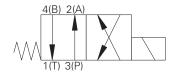


### ⚠ Warning

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

### S542 - Solenoid valve

4-way, 2-position spool type solenoid valve Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)



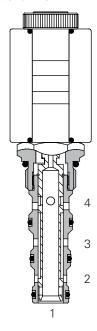
#### **Operation**

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**

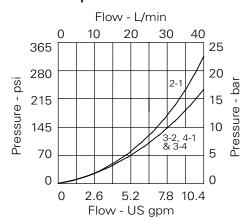
natings and opcontoations	
Figures based on Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at $\square P = 5$ bar (70 psi)	20 L/min (5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential at 32 cSt
Temperature 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

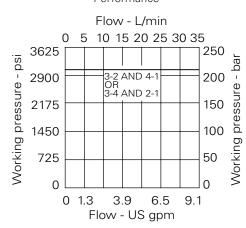
### **Description**

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



<sup>\*</sup>AC coils must be used with a rectifying connector

4-way, 2-position spool type solenoid valve Up to 35 L/min (9 USgpm) • 210 bar (3000 psi)

#### Model code

S542 N \* - H 24 - 3W
1 2 3 4 5 6

# 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
3W	3/8" BSP	B19240
4W	1/2" BSP	B19228
8T	1/2" SAE	B19229

#### **Dimensions**

mm (inch)

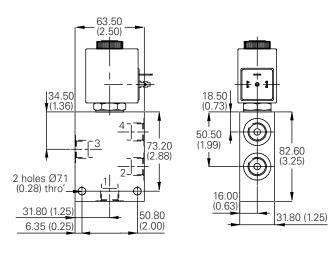
# **Cartridge only**Basic Code

**S542** 

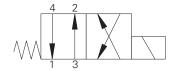
### 49.00 (1.90) -21.00 35.50 (0.82)(1.40)50.0 66.00 (2.60)(1.97)**\*** 25.40 A/F 8.30 7/8"-14-(0.33)UNF-2A 0 0 0 62.50 (2.46)3 0 0 0 oφol Ø15.80 (0.62) Ø17.40 (0.69)

Ø19.00 (0.75)

### **Installation drawing**



4-way, 2-position, spool type solenoid valve 23 L/min (6 USgpm) • 350 bar (5000 psi)



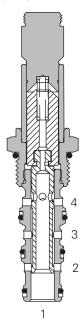
### Operation

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 4	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/ <b>16/13</b>
Housing material (standard)	Steel
Weight Cartridge only	0,21 kg (0.46 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

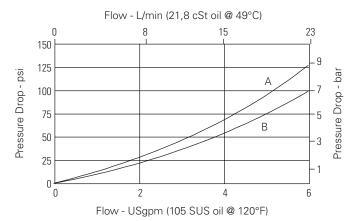
Viton is a registered trademark of E.I. DuPont

#### **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

**Coil series** 

**Special features** 

(Only required if valve has Special features

**H** - 10 series, 29W For coil part numbers and dimensions

11

**00** - None

omitted if "00".)

### 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

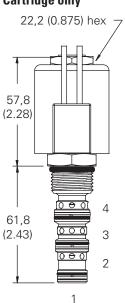
Blank - Omit for Cartridge only

S - Steel

#### **Dimensions**

mm (inch)

### **Cartridge only**



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.

00 - No coil

12D - 12VDC

24D - 24VDC

**36D -** 36VDC

24A - 24VAC

115A - 115VAC

230A - 230VAC

Ø 38,9

(1.53)

25,4 (1.00)

Ø 16,0 (.63)

Ø 19,2 (.76)

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

296

Voltage rating

### 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)

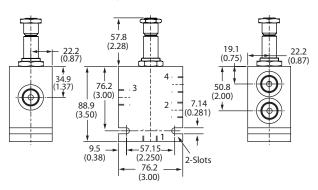
**J** - Metripack 280 male (DC only)

For coil part numbers and dimensions see section C.

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**



### **Marning**

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

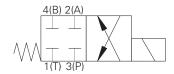
Where measurements are critical request certified drawings. We reserve the right to change specifications without notice.

0.875" - 14 Thd.

Ø 17,6 (.70)

# S541 - Solenoid valve

4-way, 2-position spool type solenoid valve Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)



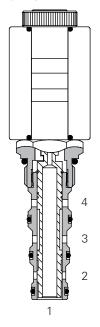
#### **Operation**

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**

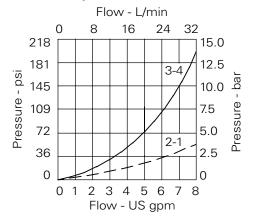
Performance data is typical with Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow at ☐P = 5 bar (70 psi)	20 L/min (5 USgpm)
Internal leakage	Less than 120 ml/min 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	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

#### **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

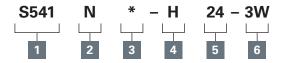


#### Performance Flow - L/min 0 10 20 30 40 3625 250 3-4 AND 2-1 OR 2 Working pressure - psi 2900 200 Working pressure -2175 150 100 1450 725 50 0 0 2.6 5.2 7.8 10.4 Flow - US gpm

<sup>\*</sup>AC coils must be used with a rectifying connector

4-way, 2-position spool type solenoid valve Up to 30 L/min (8 USgpm) • 210 bar (3000 psi)

#### 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
3W	3/8" BSP	B19240
4W	1/2" BSP	B19228
8T	1/2" SAE	B19229

#### **Dimensions**

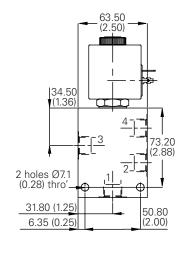
mm (inch)

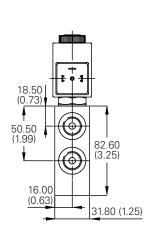
### **Cartridge only**

Basic Code **S541** 

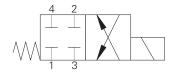
# -49.00 (1.90) → 21.00 35.50 (0.82)(1.40)50.0 66.00 (1.97)(2.60)<del>\_</del> 25.40 A/F 8.30 7/8"-14-(0.33)UNF-2A 0 62.50 (2.46) Ø15.80 (0.62) Ø17.40 (0.69) Ø19.00 (0.75)

### Installation drawing





4-way, 2-position, spool type solenoid valve 23 L/min (6 USgpm) • 210 bar (3000 psi)



### Operation

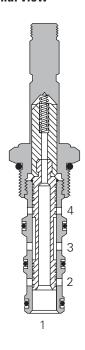
In the de-energized position all ports are blocked.

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 cm³/min (10 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)
	•

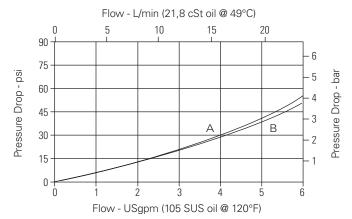
Viton is a registered trademark of E.I. DuPont

#### **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.

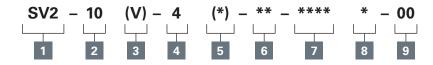
#### Pressure drop

Cartridge only



**A** - Port 3 to port 4 **B** - Port 1 to port 2

#### Model code



#### **Function**

**SV2** - Solenoid valve

### Size

**10** - 10 size

### Seal material

Blank - Buna-N V - Viton®

### Style

4 - 4-way, 2-position

### 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.

Ø 18,97 (0.747)

### Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G 3G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

<sup>\*</sup>Light duty housing See section J for housing details.

### Voltage rating

29,6

**00** - No coil

12D - 12VDC

24D - 24VDC

**36D** - 36VDC

24A - 24VAC

115A - 115VAC

230 - 230VAC

12B - 12VDC/w diode\*

24B - 24VDC/w 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.

### **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

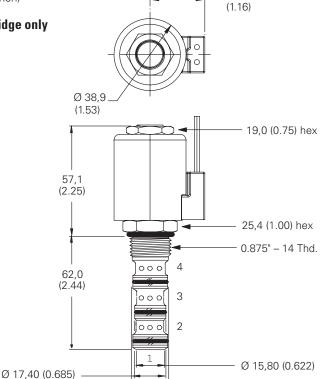
nut is included.

is ordered as Cartridge only, coil

### **Dimensions**

mm (inch)

**Cartridge only** 



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

### **Installation drawing**

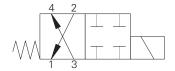
25.4 (1.00) (2.25)25.4 (1.00) (0.82)76.2 52.6 (2.07) (3.00) 88.9 (3.50) 714 9.5 (2.250)(0.38)2-Slots 76.2 (3.00)

### 🗥 Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.



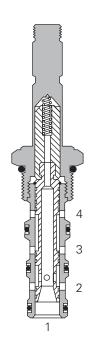
### Operation

In the de-energized position flow is allowed from port 3 to port 4 and from port 2 to port 1. 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	S) 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 cm³/min (10 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

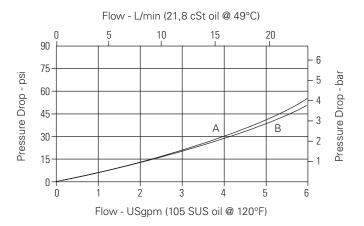
Viton is a registered trademark of E.I. DuPont

#### **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

4-way, 2-position, spool type solenoid valve 23 L/min (6 USgpm) • 210 bar (3000 psi)

#### Model code

SV3 - 10 (V) - 4 (\*) - \*\* - \*\*\*\* \* - 00

1 2 3 4 5 6 7 8 9

### 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.

#### **Dimensions**

mm (inch)

### 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

<sup>\*</sup>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\*

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

### 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  ${\sf C}.$ 

### 9 Special features

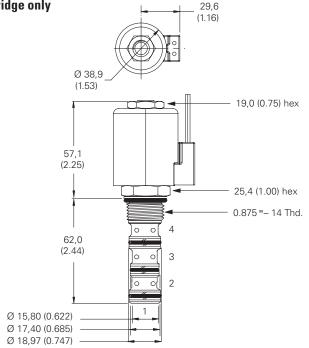
**00** - None

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

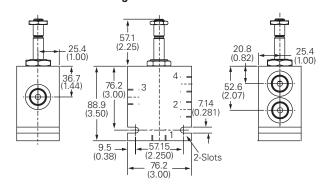
**Note:** Use J series 23, W coils with this solenoid valve.

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

# Cartridge only



### **Installation drawing**

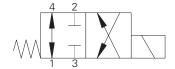


### ⚠ Warning

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

Over tightening may cause valve failure.

<sup>\*</sup>Optional arc suppression diode.



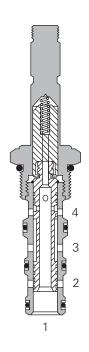
### Operation

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 (1	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 cm³/min (10 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

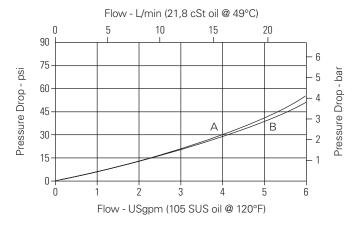
Viton is a registered trademark of E.I. DuPont

#### **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.

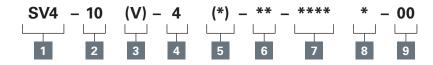
#### Pressure drop

Cartridge only



**A** - Port 3 to port 4 **B** - Port 1 to port 2

#### Model code



#### 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

<sup>\*</sup>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  $\mathbb{C}.$ 

### 9 Special features

**00** - None

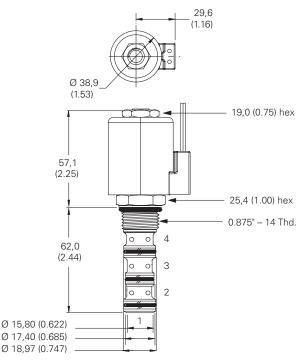
(Only required if valve has Special features omitted if "00".)

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

### **Dimensions**

mm (inch)

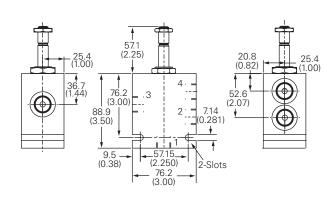
### **Cartridge only**



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

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

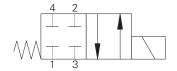
#### **Installation drawing**



### ⚠ Warning

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

Over tightening may cause valve failure.



### Operation

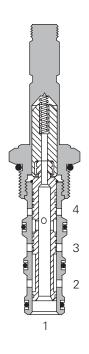
In the de-energized position all ports are blocked.

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

19° C (120° F)
210 bar (3000 psi)
210 bar (3000 psi)
23 L/min (6 USgpm)
164 cm³/min (10 in³/min) max @ 210 bar (3000 psi)
-40° to 120°C (-40° to 248°F)
Continuous from 85% to 110% of nominal voltage
C-10-4
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/ <b>16/13</b>
Aluminum
0,44 kg (0.96 lbs)
889625 (Buna-N), 566080 (Viton®)

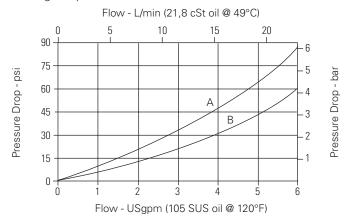
Viton is a registered trademark of E.I. DuPont

### **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

# SV5-10-4/4M/4R - Solenoid valve

4-way, 2-position, spool type solenoid valve 23 L/min (6 USgpm) • 210 bar (3000 psi)

Blank - No coil

W - Flying lead

(DC only)

(DC only)

see section C.

**00** - None

omitted if "00".)

**Connector types** 

**G** - ISO 4400 DIN 43650 **Q** - Spade terminals

N - Deutsch (DC only)Y - Amp JR (DC only)D - Metripack 150 male

J - Metripack 280 male

For coil part numbers and dimensions

**Special features** 

(Only required if valve has Special features

Note: Use J series 23 W coils

with this solenoid valve.

#### Model code

SV5 - 10 (V) - 4 (\*) - \*\* - \*\*\*\* \* - 00 1 2 3 4 5 6 7 8 9

#### 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.

Ø 38,9

(1.53)

57,1

(2.25)

62,0

(2.44)

Ø 15,80 (0.622)

Ø 17,40 (0.685) Ø 18,97 (0.747)

#### **Dimensions**

Cartridge only

mm (inch)

# Torque cartridge in steel

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

29,6 (1.16)

Code	FOIL SIZE	nousing 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.

Port size

### 7 Voltage rating

36D - 36VDC

4

3

**00** - No coil **24A** - 24VAC

**12D** - 12VDC **115A** - 115VAC

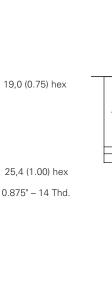
**24D** - 24VDC **230A** - 230VAC

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

**24B** - 24VDC/w diode\*
\*Optional arc suppression diode.

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

### Installation drawing



#### 19 1 (0.75) Hex 25.4 (1.00)(2.25)(1.00) Hex 20.8 25.4 (1.00) 36.7 76.2 (1.44) <u>†</u> (2.07)(3.00)7.14 88.9 (0.281)(3.50)57.15 9.5 2-Slots (2.250)(0.38)76.2

# ⚠ Warning

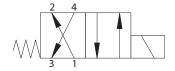
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

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

A-165

4-way, 2-position, spool type solenoid valve 17 L/min (5 USgpm) • 210 bar (3000 psi)



### Operation

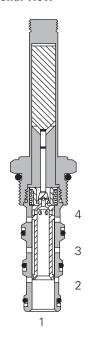
In the de-energized position this valve allows flow from port 3 to port 4 and from port 2 to port 1.

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**

g	
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49° C (12	°0° 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 cm³/min (10 in³/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/ <b>16/13</b>
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	889625 (Buna-N), 566080 (Viton®)

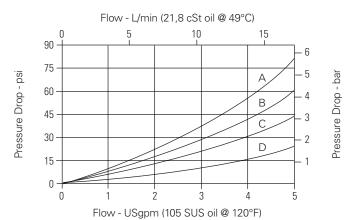
Viton is a registered trademark of E.I. DuPont

### **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

# 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

SV7 - 10 00

#### **Function**

SV7 - Solenoid valve

### Size

10 - 10 size

### Seal material

Blank - Buna-N V - Viton®

Style

4 - 4-way, 2-position

### 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.

Ø 18,97 (0.747)

### Port size

Code	Port size	Housing number
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE 6	566161*
2G 3G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713

<sup>\*</sup>Light duty housing See section J for housing details.

### 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.

Torque cartridge in steel

## 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.

### **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.

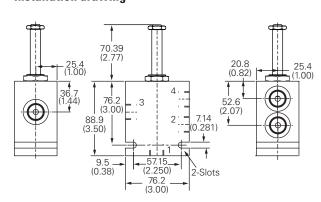
Note: When solenoid valve is ordered as Cartridge only, nut housing 47-54 Nm (35-40 ft lbs) is included.

#### **Dimensions**

mm (inch)

29,6 **Cartridge only** (1.16) Ø 38,9 (1.53) 19,0 (0.75) hex 69,8 (2.75)25,4 (1.00) hex 0.875" - 14 Thd. 4 62,0 (2.44)3 Ø 15,80 (0.622) Ø 17,40 (0.685)

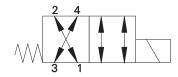
### **Installation drawing**



### **Warning**

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

4-way, 2-position, spool type solenoid valve 17 L/min (5 USgpm) • 350 bar (5000 psi)



### Operation

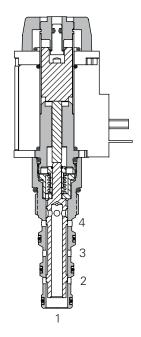
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1 in both directions.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1in 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 in³/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuos 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®

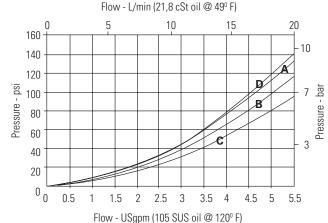
Viton is a registered trademark of E.I. DuPont

#### **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



110W - 03gpiii (103 303 0ii @

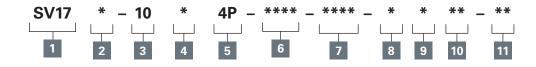
A - Port 3 to port 2 energized

B - Port 3 to port 4 de-energized

C - Port 2 to port 1 de-energized

**D** - Port 4 to port 1 energized

#### Model code



### **Function**

SV17 - Solenoid valve

### Max flow

M - 23 L/min (6 USgpm)

#### 3 Size

**10 -** 10 Size

#### Seal material

Blank - Buna-N V - Viton®

### Style

**Dimensions** 

mm (inch)

4P - 4 way push type manual override

### Port size

Code	Port size	Housing	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	

### Voltage rating

**00** - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

# **Connector types**

Blank - No coil

W - Flying lead (DC only)

N - Deutsch male, DT04-2P,

For coil part numbers and dimensions see section C.

integrated

Torque cartridge in aluminum

Torque cartridge in steel

### Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

### **Coil special features**

Blank - No coil

00 - No special feature

#### **Special features**

**00 -** None

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

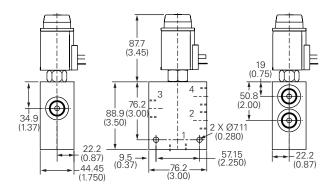
Note: When solenoid vale is ordered as Cartridge only, coil

nut is included.

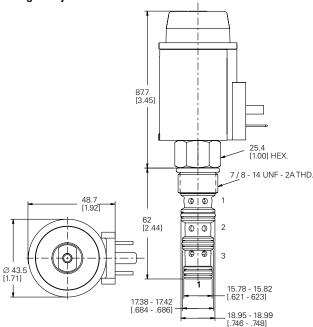
housing 47-54 Nm (35-40 ft. lbs)

housing 68-75 Nm (50-55 ft. lbs)

# Installation drawing (Steel)



### **Cartridge only**



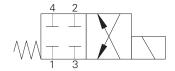
### 🗥 Warning

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).

4-way, 2-position, spool type solenoid valve Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)



### Operation

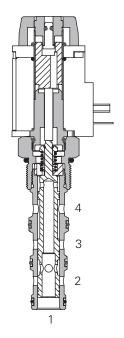
In the de-energized position all ports are blocked.

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)	l 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 cm³/min (21.5 in³/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®)

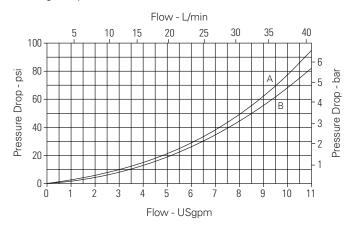
Viton is a registered trademark of E.I. DuPont

### **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

# SV2M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve Up to 42 L/min (11 USgpm) • 210 bar (3000 psi)

#### Model code

SV<sub>2</sub> 12

### **Function**

**SV2** - Solenoid valve

### Max flow

**M** - 42 L/min (11USgpm)

### Size

12 - 12 size

#### Seal material

Blank - Buna-N V - Viton®

### Style

4P - 4-way, push type manual override

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.

### 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

### **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

8 Connector types

N - Deutsch male, DT04-2P,

For coil part numbers and dimensions

Blank - No coil

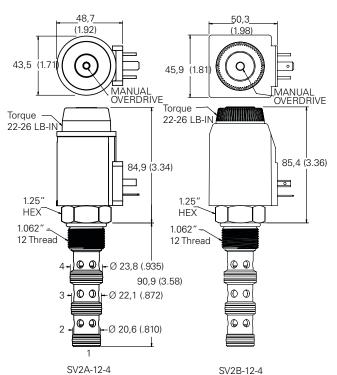
W - Flying lead

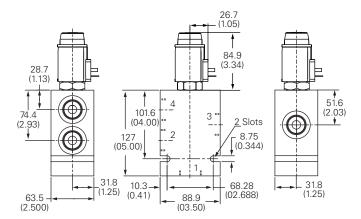
integrated

see section C.

### **Cartridge only**

# **Installation drawing**





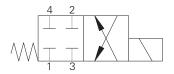
### riangle Warning

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.

A-171

4-way, 2-position, spool type solenoid valve Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)



### Operation

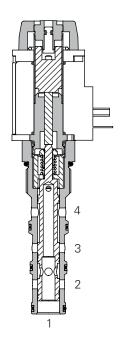
In the de-energized position all ports are blocked.

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	Continuos 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®)

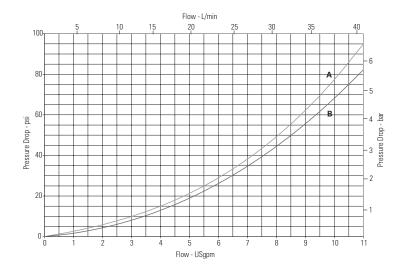
Viton is a registered trademark of E.I. DuPont

#### 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

# SV12M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve Up to 42 L/min (11 USgpm) • 350 bar (5000 psi)

#### Model code

SV12 \* - 12 \* 4P - \*\*\*\* - \*\*\*\* - \* \* \*\* - \*\*

1 2 3 4 5 6 7 8 9 10 11

### 1 Function

SV12 - Solenoid valve

### 2 Max flow

M - 42 L/min (11USgpm)

# 3 Size

**12** - 12 size

### 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		
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.

### 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)

8 Connector types

W - Flying lead (DC only)

For coil part numbers and dimensions

N - Deutsch male, DT04-2P,

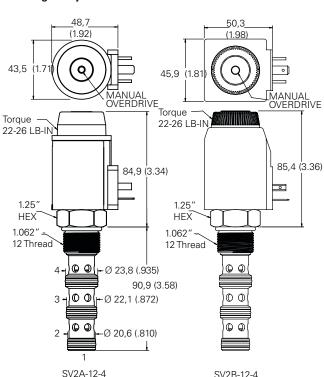
Blank - No coil

integrated

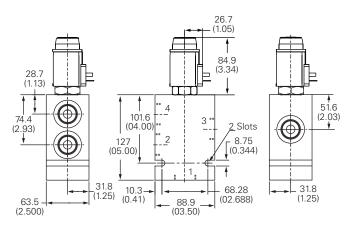
see section C.

**Notes:** When solenoid vale is ordered as Cartridge only, coil nut is included.

### **Cartridge only**



### Installation drawing (Steel)

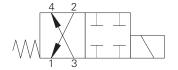


### **Marning**

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).

### igwedge Warning

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.



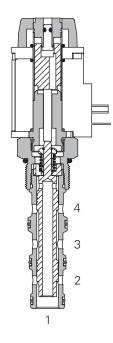
### **Operation**

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	9° 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®)

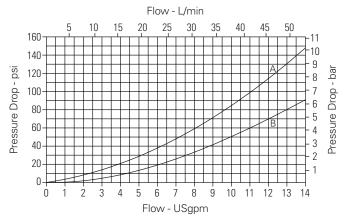
Viton is a registered trademark of E.I. DuPont

#### 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

# SV3M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

#### Model code

SV3 \* - 12 \* - 4P - \*\*\*\* - \*\*\*\* \* \* \* \*\* - \*\*

1 2 3 4 5 6 7 8 9 10 11

### 1 Function

SV3 - Solenoid valve

### 2 Max flow

M - 53 L/min (14USgpm)

# 3 Size

**12** - 12 size

### 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.

### 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)

Connector types

Blank - No coil

W - Flying lead

see section C.

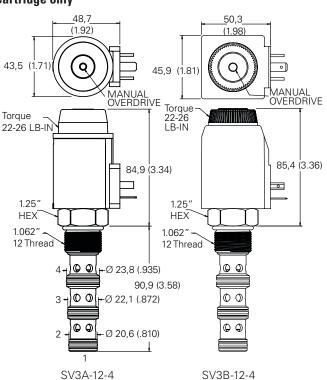
N - Deutsch male.

DT04-2P, integrated

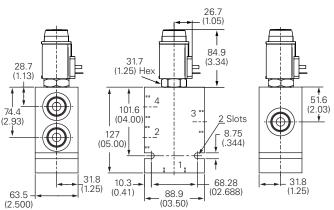
For coil part numbers and dimensions

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

### **Cartridge only**



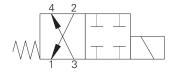
### **Installation drawing**



### ⚠ Warning

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

4-way, 2-position, spool type solenoid valve Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)



#### Operation

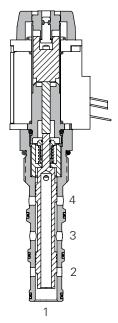
In the de-energized position flow is allowed from port 3 to port 4 and from port 2 to port 1 in both directions .

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

natings 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 in3/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuos 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®)
·	

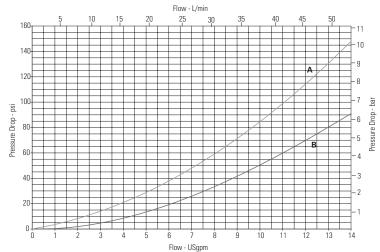
Viton is a registered trademark of E.I. DuPont

#### 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

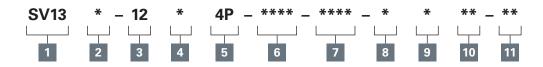


A - Port 3 to port 4

**B** - Port 2 to port 1

4-way, 2-position, spool type solenoid valve Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

#### 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

### 6 Port Size

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

### 7 Voltage rating

**00** - No coil

**12D** - 12VDC

**24D** - 24VDC

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

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

### 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)

8 Connector types

W - Flying lead (DC only)

For coil dimensions see section C.

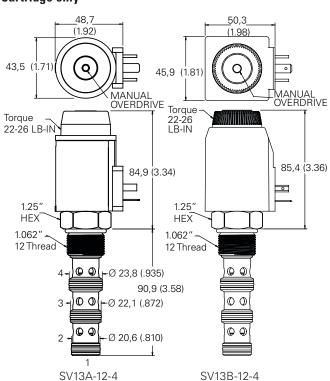
N - Deutsch male, DT04-2P,

Blank - No coil

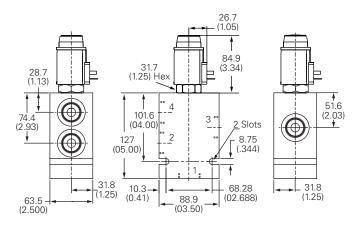
integrated

**Notes:** When solenoid vale is ordered as Cartridge only, coil nut is included.

#### **Cartridge only**



#### **Installation drawing (Steel)**

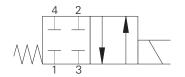


### ⚠ Warning

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).



### Operation

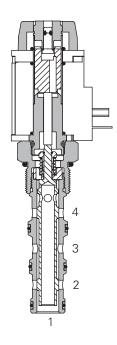
In the de-energized position all ports are blocked.

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 SU	IS) and 10° C (120° E)
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 cm³/min (21.5 in³/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®)

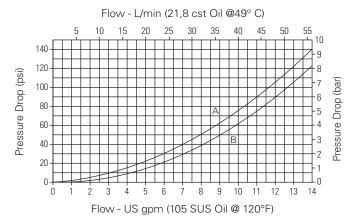
Viton is a registered trademark of E.I. DuPont

### **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

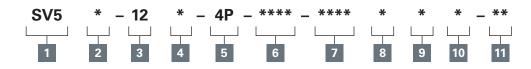


- A Port 3 to port 2
- **B** Port 4 to port 1

# SV5M-12-4 - Solenoid valve

4-way, 2-position, spool type solenoid valve Up to 53 L/min (14 USgpm) • 210 bar (3000 psi)

#### 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.

### 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

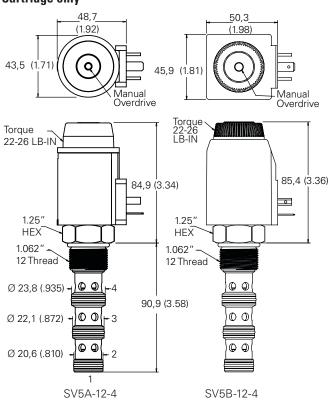
(Only required if valve has Special features omitted if "00".)

SF - Soft shift

#### **Dimensions**

mm (inch)

### **Cartridge only**



Torque cartridge in steel housing 81-95 Nm (60-75 ft lbs)

**Connector types** 

N - Deutsch male, DT04-2P,

For coil part numbers and dimensions

Blank - No coil

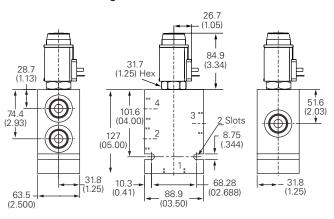
W - Flying lead

integrated

see section C.

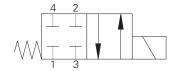
**Note:** When solenoid valve is ordered as Cartridge only, nut is included.

#### **Installation drawing**



### **Marning**

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.



### Operation

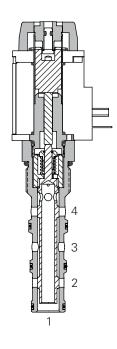
In the de-energized position all ports are blocked.

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 (1.	20°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 in³/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuos 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/ <b>16/13</b>
Standard housing materials	Steel
Weight including coil	0.86 kg (1.9 lbs)
Seal kit	2160979 Buna-N), 2160980 (Viton®)

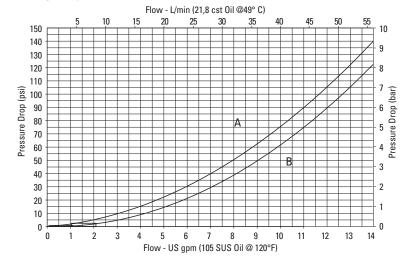
Viton is a registered trademark of E.I. DuPont

### 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 2

**B** - Port 4 to port 1

4-way, 2-position, spool type solenoid valve Up to 53 L/min (14 USgpm) • 350 bar (5000 psi)

#### 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.

## 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 aluminum housing 81-95 Nm (60-70 ft lbs)

**Connector types** 

W - Flying lead (DC only)

For coil part numbers and dimensions

N - Deutsch male, DT04-2P,

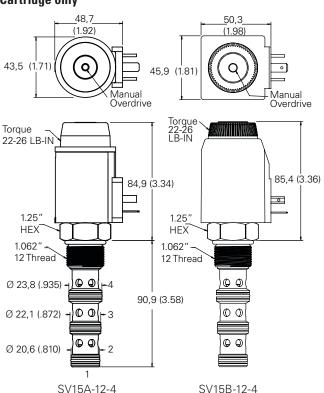
Blank - No coil

integrated

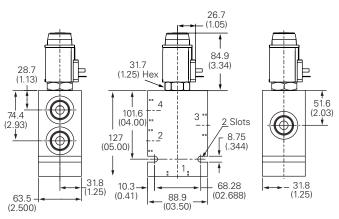
see section C.

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

#### **Cartridge only**

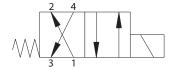


#### Installation drawing (Steel)



#### riangle Warning

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.



#### **Operation**

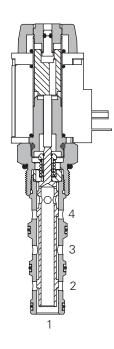
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1.

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 cm³/min (21.5 in³/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®)

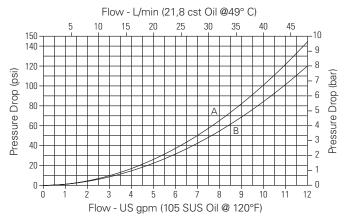
Viton is a registered trademark of E.I. DuPont

#### **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.

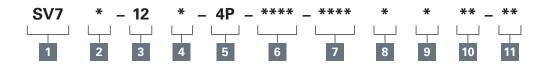
#### Pressure drop

Cartridge only



- A Port 2 to port 1, port 3 to port 4
- **B** Port 3 to port 2, port 4 to port 1

#### Model code



#### **Function**

SV7 - Solenoid valve

#### Max flow

M - 46 L/min (12 USgpm)

3 Size 12 - 12 size

Seal material

Blank - Buna-N

M - Viton

#### Style

manual override

#### 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.

#### Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

\*Optional arc suppression diode.

## Coil types

Blank - No coil

R - R series (30W) Large ToughCoil

#### Coil special feature

Blank - Noil coil

00 - No special feature

#### **Special features**

**00** - None

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

SF - Soft shift

## 5 4P - 4 way, push type

#### **Dimensions**

mm (inch)

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Connector types** 

N - Deutsch male, DT04-2P,

For coil part numbers and dimensions

Blank - No coil

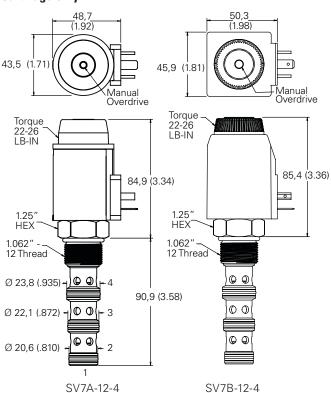
W - Flying lead

integrated

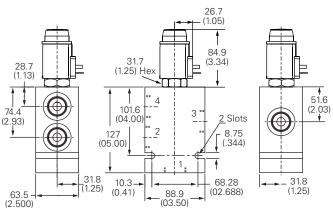
see section C.

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.

4-way, 2-position, spool type solenoid valve Up to 46 L/min (12 USgpm) • 350 bar (5000 psi)

2 4 3 1

#### **Operation**

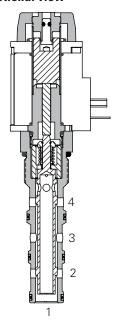
In the de-energized position this valve allows flow between port 3 to port 4 and between port 2 to port 1 in both directions.

In the energized position flow is allowed between port 3 to port 2 and between port 4 to port 1in 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**

natings and opcomoditions	
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 in³/min) @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuos 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/ <b>16/13</b>
Standard housing materials	Steel
Weight including coil	0.68 kg (1.5 lbs)
Seal kit	2160979 Buna-N), 2160980 (Viton®)

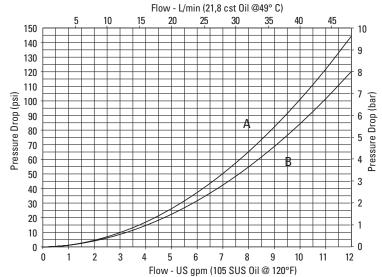
Viton is a registered trademark of E.I. DuPont

#### **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

4-way, 2-position, spool type solenoid valve Up to 46 L/min (12 USgpm) • 350 bar (5000 psi)

#### Model code



#### **Function**

SV17 - Solenoid valve

#### Max flow

**M** - 38 L/min (10 USgpm)

Size **12** - 12 size

#### 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	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	

#### Voltage rating

\*Optional arc suppression diode.

#### 9 Coil types Blank - No coil

R - R series (30W) Large ToughCoil

#### **Coil Special Feature**

Blank - Noil coil

00 - No special feature

#### **Special features**

**00** - None

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

#### 00 - No coil 12D - 12VDC

**24D** - 24VDC

12B - 12VDC/w diode\*

24B - 24VDC/w diode\*

Torque cartridge in aluminum housing 81-95 Nm (60-70 ft lbs)

**Connector types** 

W - Flying lead (DC only)

For coil part numbers and dimensions

N - Deutsch male, DT04-2P,

Blank - No coil

integrated

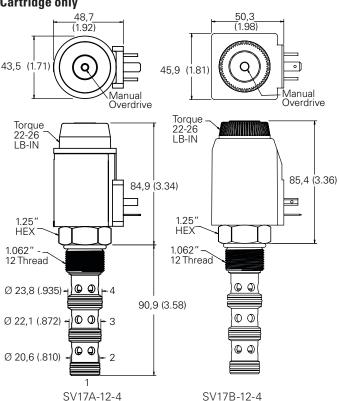
see section C.

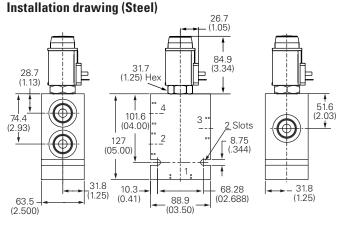
Note: When solenoid valve is ordered as Cartridge only, nut is included.

#### **Dimensions**

mm (inch)

#### **Cartridge only**



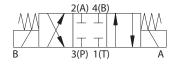


#### riangle Warning

Maintain 2.5-3 Nm (1.8-2.2 ft lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

## 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)



#### **Operation**

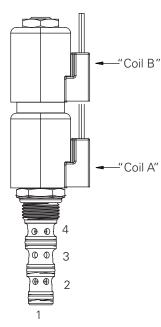
In the de-energized (center) position, all ports are blocked. When solenoid A is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

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)

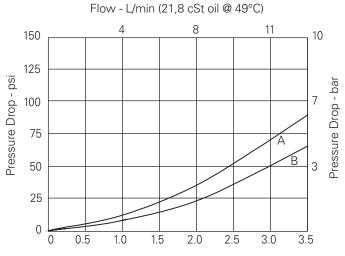
Viton is a registered trademark of E.I. DuPont

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



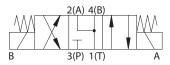
Flow - USgpm (105 SUS oil @ 120°F)

A - Port 3 to port 2 or port 4

**B** - Port 2 to port 4 or port 1

<sup>\*</sup>AC coils must be used with a rectifying connector

4-way, 3-position, screw-in cartridge, solenoid valve Up to 13 L/min (3.5 USgpm) • Up to 210 bar (3000 psi)



#### **Operation**

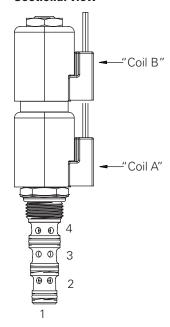
In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid A is energized, flow is

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**

P. (	
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°	<i>†</i> /
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)

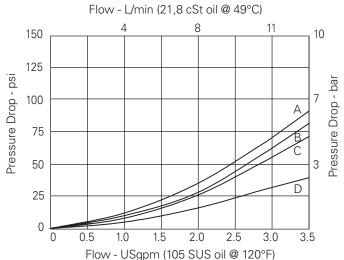
Viton is a registered trademark of E.I. DuPont

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.

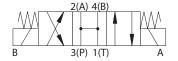
#### Pressure drop



- 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

## 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)



#### Operation

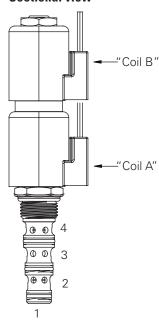
In the central de-energized position all ports are open. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1.

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 1	64 cm³/min (10 in³/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

Flow - USgpm (105 SUS oil @ 120°F)

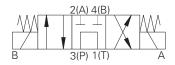
A - Port 4 or port 1 to port 4 Port 3 to port 1 de-energized

B - Port 3 to port 2 or port 4

**C** - Port 2 or port 1

Port 2 or 4 to 1 de-energized

4-way, 3-position, screw-in cartridge, solenoid valve Up to 13 L/min (3.5 USgpm) • 210 bar (3000 psi)



#### **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 H.

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	9°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 cm³/min (10 in³/min) max. @ 210 bar (3000 psi)

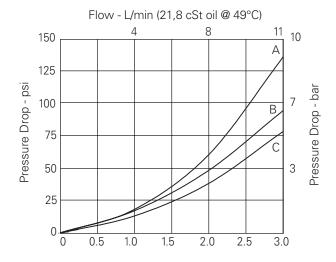
Viton is a registered trademark of E.I. DuPont

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 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



Flow - USgpm (105 SUS oil @ 120°F)

- 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

<sup>\*</sup>AC coils must be used with a rectifying connector

## 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)

#### 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.

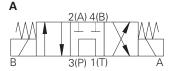
#### 6 Housing Material

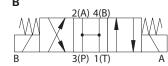
0 - Cartridge only

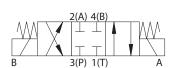
A - Aluminum

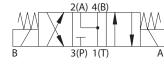
S - Steel

#### 4 Spool center condition









## 7 Port sizes

Ε

Code	Port size	ze Housing number	
		Aluminium	Steel
0	Cartridge only		
2G	1/4" BSPP	02-160747	02-160753
3G	3/8" BSPP	02-160748	02-160754
4T	SAE 4	02-160749	02-160751
6T	SAE 6	02-160750	02-160752

F

See section J for housing details.

#### 8 Voltage rating 1

**000** - No coil

**012D** - 12VDC

**024D** - 24VDC

**036D** - 36VDC

012B - 12VDC/w diode\*

024B - 24VDC/w diode\*

\*Optional arc suppression diode.

#### 9 Connector types 1

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 1

0 - No Coil

P - 8 series, 23W

## 11 Coil special features 1

**00** - None

## 12 Valve Special features 1

**00** - None

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

<sup>&</sup>lt;sup>1</sup> These model digits are not stamped on the 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.

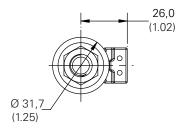
#### **Spare Parts**

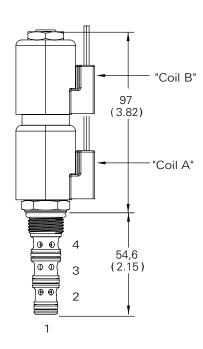
Coil Nut	565558
Coil Spacer	02-186730

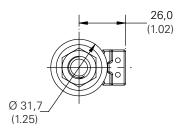
#### ⚠ Warning

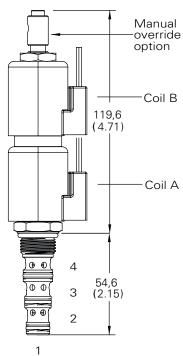
Maintain 5-8 Nm (4-6 ft lbs) maximum torque on valve tube nut.

Over tightening may cause valve failure.

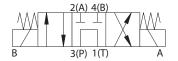








4-way, 3-position spool type solenoid valve Up to 19 L/min (5 USgpm) • 210 bar (3000 psi)

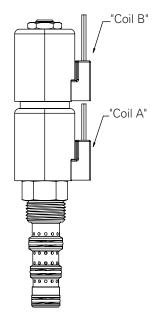


#### **Operation**

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 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

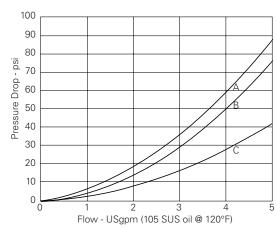
Endurance tested to 1 million cycles at full rated flow and pressure.

#### **Description**

The SV9-10-B is a 4-way, 3-position, direct acting, spool type directional valve.

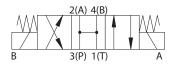
#### Pressure drop

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

4-way, 3-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

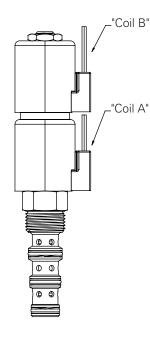


#### **Operation**

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 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)
· · · · · · · · · · · · · · · · · · ·	·

Viton is a registered trademark of E.I. DuPont

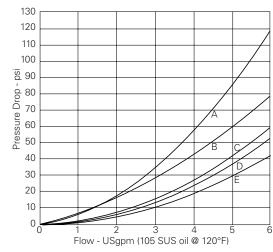
Endurance tested to 1 million cycles at full rated flow and pressure.

#### **Description**

The SV9-10-B is a 4-way, 3-position, direct acting, spool type directional valve.

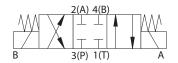
#### Pressure drop

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
- **B** Port 4 to port 1

4-way, 3-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

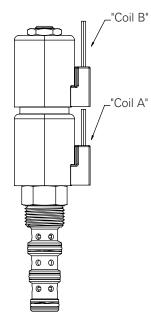


#### **Operation**

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 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)

Viton is a registered trademark of E.I. DuPont

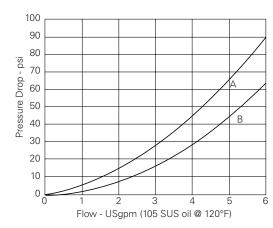
Endurance tested to 1 million cycles at full rated flow and pressure.

#### **Description**

The SV9-10-E is a 4-way, 3-position, direct acting, spool type directional valve.

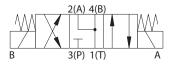
#### Pressure drop

Cartridge only



- A Port 3 to port 2, port 3 to port 4
- **B** Port 2 to port 1, port 4 to port 1

4-way, 3-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

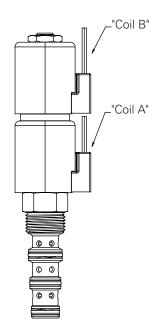


#### **Operation**

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 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	S) 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

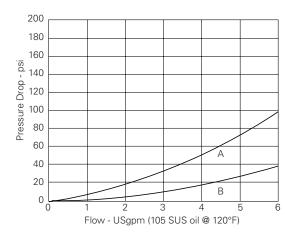
Endurance tested to 1 million cycles at full rated flow and pressure.

#### **Description**

The SV9-10-F is a 4-way, 3-position, direct acting, spool type directional valve.

#### Pressure drop

Cartridge only

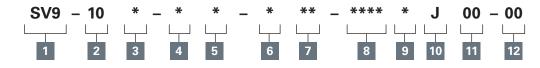


- A Port 3 to port 2, port 3 to port 4
- **B** Port 2 to port 1, port 4 to port 1

## SV9-10 - Solenoid valve

4-way, 3-position spool type solenoid valve Up to 23 L/min (6 USgpm) • 210 bar (3000 psi)

#### 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

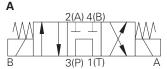
#### 6 Housing material

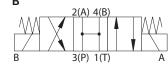
0 - Cartridge only

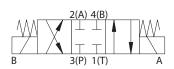
A - Aluminum

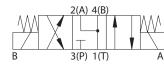
S - Steel

#### 4 Spool center condition









## 7 Port sizes

E

Port size	Housing number	
	Aluminium light duty	Aluminium fatigue rated
	Cartridge only	
3/8" BSPP	02-179705	
1/4" BSPP		876709
3/8" BSPP		876715
SAE 4		876708
SAE 6		876713
SAE 6	566161	
	3/8" BSPP 1/4" BSPP 3/8" BSPP SAE 4 SAE 6	Aluminium light duty Cartridge only 3/8" BSPP 02-179705 1/4" BSPP 3/8" BSPP SAE 4 SAE 6

F

See section J for housings.

#### 8 Voltage rating 1

**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 1

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 1

Blank - No Coil

**J** - 10 series, 23W

## 11 Coil special features 1

Blank - None

## 12 Valve Special features 1

**00** - None

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

<sup>&</sup>lt;sup>1</sup> These model digits are not stamped on the valve.

#### **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.

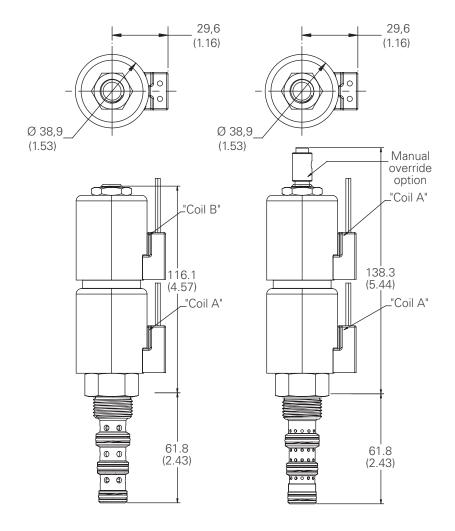
This valve uses the J series, 23 W coil.

#### Spare parts

Coil nut	565558
Coil spacer	02-179226

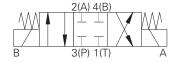
#### ⚠ Warning

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



## 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)



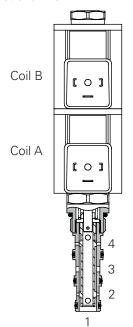
#### **Operation**

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

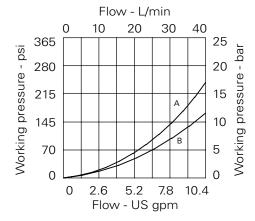
Figures based on Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section 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

#### **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

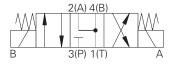


A - Port 3 to port 2 or port 4

**B** - Port 2 to port 4 or port 1

<sup>\*</sup>AC coils must be used with a rectifying connector

4-way, 3-position spool type solenoid valve Up to 25 L/min (6.5 USgpm) • 210 bar (3000 psi)



#### **Operation**

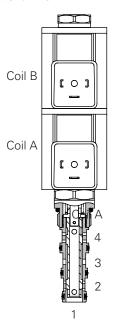
In the de-energized (center) position, port 1, port 2, and port 4 are open to each other while port 3 is blocked. When solenoid A is energized, flow is directed

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 Large ToughCoil compatibility. Continuously rated. Compact design with low pressure drop. Rated pressure on all ports.

#### Sectional view



#### Performance data

#### **Ratings and specifications**

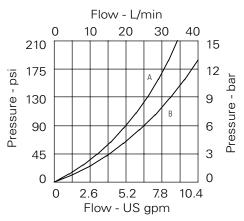
Figures based on Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graph
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section 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.

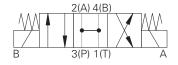
#### Pressure drop



- 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

## 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)



#### Operation

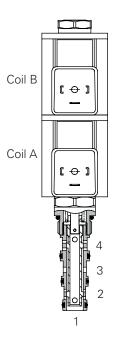
In the de-energized position all ports are open. When solenoid 'A' is energized flow is allowed from port 3 to port 4 and port 2 to port 1.

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**

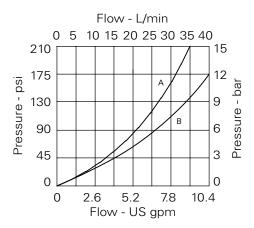
Figures based on Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graphs
Nominal flow	34 L/min (8.9 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (See Section 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**

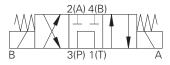
This is a 4 way 3 position, direct acting, spool type solenoid valve. In the de-energized condition all ports are open to tank. This valve is ideal for small flow applications where an actuator needs to be moved in both directions.

#### 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

4-way, 3-position spool type solenoid valve Up to 25 L/min (6.5 USgpm) • 210 bar (3000 psi)



#### **Operation**

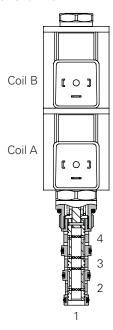
In the central de-energized position. Flow is allowed from inlet port 3 to port 1 and ports 2 and 4 are blocked. When solenoid 'B' is energized flow is allowed from port 3 to 4 and port 2 to 1.

# 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**

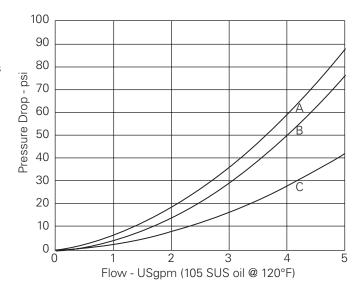
go opoorrious	
Figures based on Viscosity 32 cST (150 SSU)	
Max working pressure	210 bar (3000 psi)
Rated flow	See performance graph
Nominal flow	25 L/min (6.5 USgpm)
Internal leakage	Less than 120 ml/min past each land 210 bar differential
Temperature range	-30° to +120°C (-22° to +248°F)
Cavity	C-10-4 (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

4-way, 3-position spool type solenoid valve Up to 32 L/min (8.5 USgpm) • 210 bar (3000 psi)

#### **Dimensions**

mm (inch)

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

Torque cartridge in Aluminum or steel housing 43 - 46 Nm (32 - 34 ft lbs).

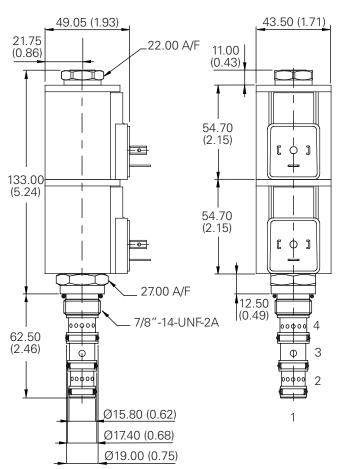
Torque Coil Nut Torque 5-7 Nm (4 - 5 ft lbs) When solenoid valve is ordered without coils, it will be supplied with the nut.

This valve uses the L series, 30W coil.

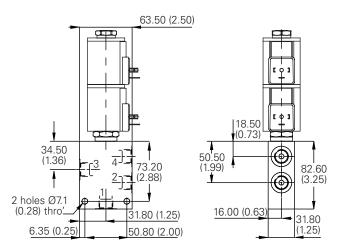
#### Spare parts

Coil nut	6025028-00
Coll flut	0023028-00

#### **Cartridge only**



#### Installation drawing (Steel)



## 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

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

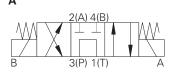
For valve dimensions with manual override, see pages A-961.

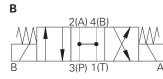
#### 6 Housing material

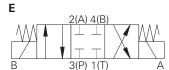
0 - Cartridge only

A - Aluminum

4 Spool center condition









#### 7 Port sizes

Code	Port size	Housing number
		Aluminium
0	Cartridge only	
3 <b>G</b>	3/8" BSP	B19240
4G	1/2" BSP	B19228
8T	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>

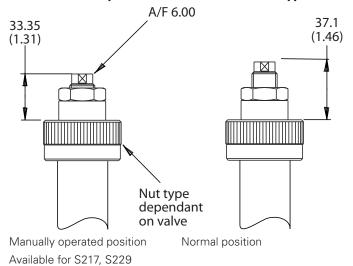
**00** - None

<sup>&</sup>lt;sup>1</sup> These model digits are not stamped on the valve.

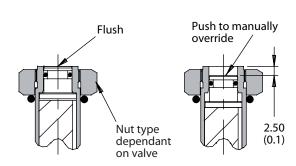
#### S2 Series

#### **Consult factory for availability**

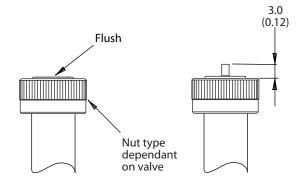
#### Screw, normally closed manual override - type 2



#### Push manual override - type 3



Push to manually override Available for S217

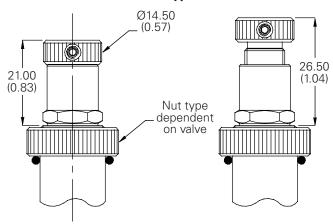


Push to manually override Available for S229

#### S5 Series

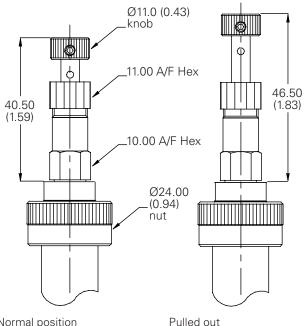
#### **Consult factory for availability**

#### Screw manual override - Type 2



Manually operated position Available for: S520, S521, S525, S526, S541, S542 Normal position

#### Push/pull manual override - Type M



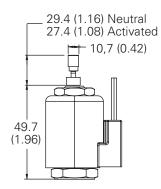
Normal position Available for: SV9A-10-A, SV9A-10-B, SV9A-10-E, SV9A-10-F, SV9A-10-G

**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.

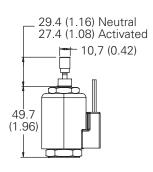
## Manual override "S" screw type



8-Series - 210 bar valves

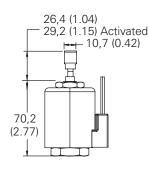
#### To override:

**1.** Turn the override button clockwise until it stops.



8-Series - 350 bar valves

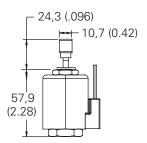
2. The override button will remain activated until the override button is turned counterclockwise.



10, 12, 16, 20-Series – 210 bar valves

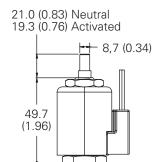
#### To release:

1. Turn the override button counterclockwise until it stops.



10, 12, 16, 20-Series – 350 bar valves

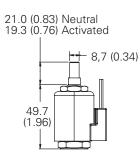
## Manual override "P" push type



8-Series - 210 bar valves

#### To override:

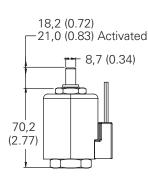
**1.** Push the override button to stop and hold.



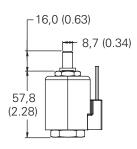
8-Series - 350 bar valves

#### 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

SV5-10-0S-0-00

SV5-8-0P-0-00

SV5-8-0S-0-00 SV7-10-4P-0-00 SV7-10-4S-0-00

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
SV13-12-0P/0S-0-00	SV3-12-0P-0-00	SV3-8-0P-0-00
SV13-16-0P/0S-0-00	SV3-12-0S-0-00	SV3-8-0S-0-00
SV13-20-0P/0S-0-00	SV3-16-0P-0-00	SV4-10-3P-0-00
SV15-10-0P/0S-0-00	SV3-16-0S-0-00	SV4-10-3S-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

#### **Marning**

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)

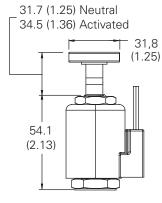
## Manual override "M" pull type

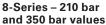
#### To override:

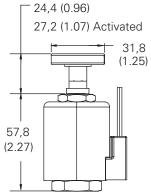
- Pull up knob until the override tooth is completely out of the detent base.
- 2. Turn the knob clockwise until the override tooth is resting securely on top of the detent base slot.

#### 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.

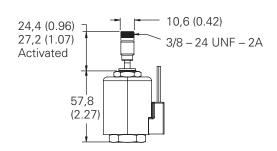






10, 12,16, 20-Series – 210 bar and 350 bar values

# Manual override "R" cable type (not available on size 8 models)



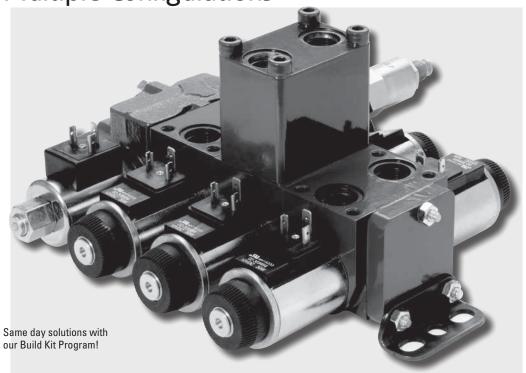
Manual override "M"
options are available on
the following models:

Manual override "R" 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	
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	

# Versatile, Proven, Best Value

Sectional Design for Multiple Configurations





#### MDG Mobile Valve

Eaton's MDG mobile directional control valve uses a modular, versatile design based on our proven Vickers® DG4V3 design.

Eaton® MDG valves, truly designed for mobile applications, offer the traditional benefits of a stackable mobile valve and provide further value as circuit options for mobile manifold systems. This same versatility and flexibility applies to system applications, making it your best value for customized, multi-functional circuits.

For more information, contact your local Eaton distributor, call us at 800-547-7805 or visit us on the web at: www.eaton.com/hydraulics.