F·T•**N** Vickers

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

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Section Overview

Quality Products and Innovative solutions

This catalog gives basic specifications for the full line of Vickers screw-in cartridge solenoid valves. Its purpose is to provide a quick, convenient reference tool when choosing Vickers 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. Vickers 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 electri- cal connections. For other coil ratings and connec- tions, consult your Eaton representative. Standard AC coils are inter- nally 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 or 60 cycle (Hz) applications 	An arc suppression diode molded into the coil is avail able 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 con- taining 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 sup- pressor 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 com- ponents. A single suppres- sor will normally protect all of the rectified components in the circuit, as shown in the surge suppressor circuit diagram below.		
Note Solenoid valve coil details are shown in section C.	Surge suppressor circuit diagram	AC line Voltage surge suppress (MOV varistor) Rectified components	or		
WARNING Application of these products beyond published perform- ance specifications may cause valve malfunction which may result in per- sonal injury and/or dam- age to the machine.		surge coils must be co producing side of the surge components must be No inductive or	capacitive loads between the surge rectified valves		
WARNING Maintain 5-8 Nm (4-6 ft. lbs) maxi- mum torque on valve tube nut. Over tightening may cause valve or coil failure.	CAUTION Coils may be hot to touch if used in continuous applications.				

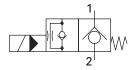
SV5-8-C/CM

Poppet type, normally closed solenoid valve, 210 bar

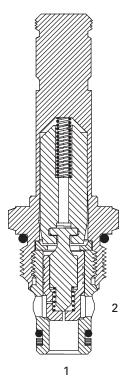
Description

The SV5-8-C 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 single acting cylinder applications.

Functional Symbol



Sectional View

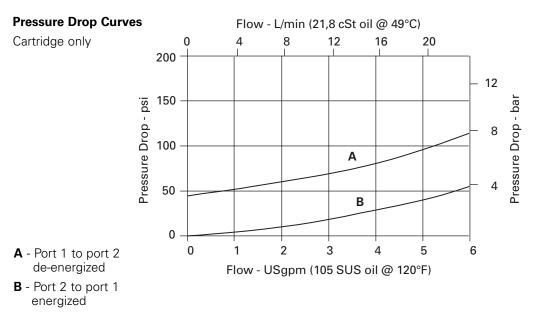


Operation

In the de-energized position, the SV5-8-C blocks flow from port 2 to port 1, and free flow is allowed from port 1 to port 2. In the energized position, flow from port 1 to port 2 is restricted and free flow is allowed from port 2 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)					
210 bar (3000 psi)					
210 bar (3000 psi)					
23 L/min (6 USgpm)					
less than 5 drops/min. max @ 210 bar (3000 psi)					
Continuous from 85% to 110% of nominal voltage					
Energize:18 ms De-Energize: 46 ms					
-40° to 120°C (-40° to 248°F)					
C-8-2					
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.					
Cleanliness code 18/16/13					
Aluminum					
0,28 kg (0.62 lbs)					
02-165875 (Buna-N), 02-165877 (Viton [®]) Viton is a registered trademark of E.I. DuPont					



EATON Vickers Screw-in Cartridge Valves V-VLOV-MC001-E1 June 2003

SV5	_	. 8	3 (\	/)	_	С	(Ⅳ	1)	(F) –	(A) **	-	***	*	S	; _	00)
1	1	1	11		1	1	1	1	1	1	1	11	1	1	11	11	1	1	1

6

7 8

1 Function

SV5 - Solenoid valve

2 Size

size

3	Seal material
Bla	nk - Buna-N

	ann	Duna
V	- Vito	n®

- -

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-135.

6 Filter option

Blank - None **F** - Filter screen

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 on page C-3.

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.

7 Valve housing material

4 5

Omit for cartridge only - Aluminum

2 3

8 Port Size

1

Α

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.

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*
*Optional arc suppression diode.

W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only) 11 Coil series S - 8 series, 16 W

9

10 11

12

For coil part numbers and dimensions see page C-3.

12 Special features 00 - None

10 Connector types

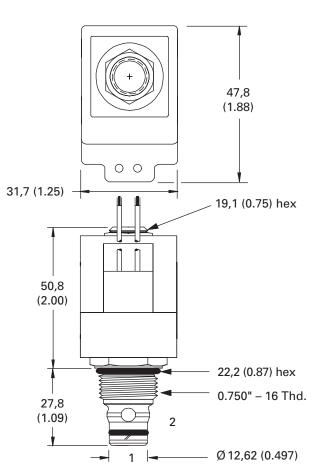
w/leadwire **Q** Spade terminals

G - SO 4400 DIN 43650

P - 1/2" NPT conduit port

Blank - No coil

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



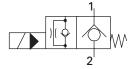
SV15-8-C/CM

Poppet type, normally closed solenoid valve, 350 bar

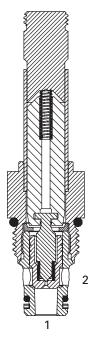
Description

The SV15-8-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbols



Sectional View



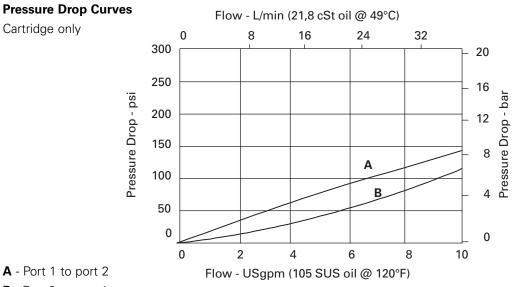
Operation

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

In the energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	37 L/min (10 USgpm)
Internal leakage, port 2 to port 1	5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®) Viton is a registered trademark of E.I. DuPont



B - Port 2 to port 1

SV15	– 8 (V) -	- C (M) -	- (S) ** -	· **** * P – 00
		4 5		

SV15 - Solenoid valve

2	Size
---	------

8 - 8 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

C - Normally closed

5 Manual override option Blank - No manual override M - Manual override

For valve dimensions with manual override option installed see page A-135.

6 Valve housing material

Blank - Cartridge only S - Steel

Dimensions

mm (inch)

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.



WARNING

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

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
6Т	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

7 Port Size

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types Blank - No coil

G - ISO 4400 DIN 43650

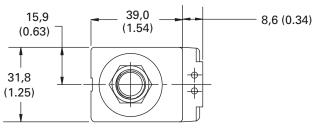
- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

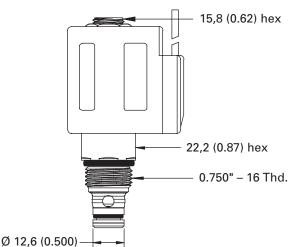
10 Coil series

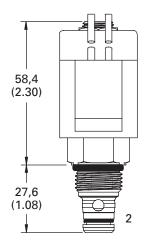
P - 8 series, 20 W For coil part numbers and dimensions see page C-4.

11 Special features

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





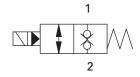


Bi-directional, normally closed solenoid valve

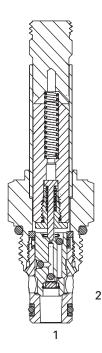
Description

The SBV11-8-C is a 2-way, 2-position, bi-directional, normally closed, poppet type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

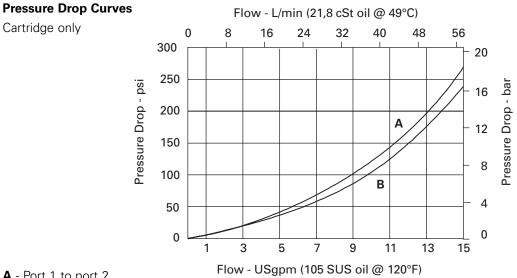


Operation

In the de-energized position, flow is blocked in both directions. In the energizedposition, flow is allowed in both directions.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	05 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	60 L/min (15 USgpm)
Internal leakage, port 1 to port 2 & port 2 to port 1	5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,12 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont



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

	: 	SBV11 – 8	(V) – C – (*) 3 4 5) ** - **** * 	
Function SBV11 - Solenoid	6 Po CODE	rt Size PORT SIZE	HOUSING N	JMBER	Blank - No coil
bi-directional valve			Aluminum	Steel	G - ISO 4400 DIN 4365 P - 1/2" NPT conduit p
2 Size	0	Cartridge only			
8 - 8 size	2G	1/4" BSPP	02-160727	02-160733	Q - Spade terminals
	— 3G	3/8" BSPP	02-160728	02-160734	W - Leadwire
3 Seal material	4T	SAE 4	02-160730	02-160736	 N - Deutsch (DC only) Y - Amp JR (DC only)
Blank - Buna-N	6Т	SAE 6	02-160731	02-160737	
V - Viton®	8T	SAE 8	02-160732	02-160738	9 Coil series
4 Style	See secti	on J for housing detail	S.		P - 8 series, 20 W
C - Normally closed			044	0.41/10.0	For coil part numbers and dimensions are page C-4

	5	Valve housing material
I	Bla	nk - Cartridge only
	Λ.	Aluminum

S - Steel

5	Va	lve	housi	ng	ma	ter
Bla	nk ·	- Ca	rtridg	e o	nly	

- Aluminum

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

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

- 650
- port

sions see page C-4.

10 Special features

00 - None

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

Dimensions

mm (inch)

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.



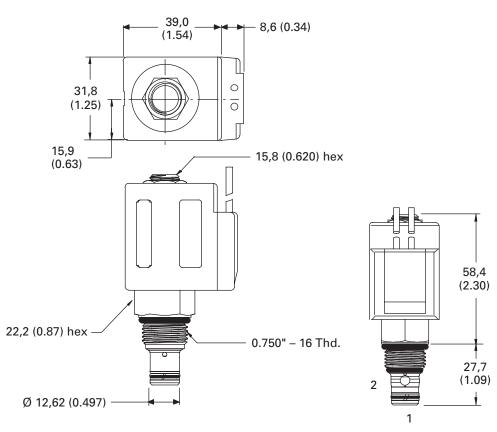
WARNING Maintain 5-8 Nm

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



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).



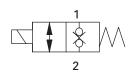
SBV12-8-C

Bi-directional, normally closed solenoid valve (low flow version)

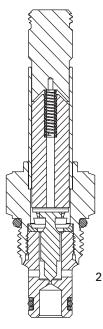
Description

The SBV12-8-C is a 2-way, 2-position, bi-directional, direct acting, normally closed, poppet type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



1

Operation

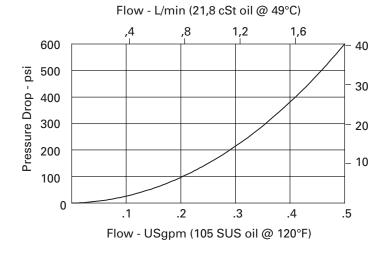
In the de-energized position, flow is blocked in both directions. In the energizedposition, flow is allowed in both directions.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105	5 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	1 L/min (0.25 USgpm)
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,120 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve

Cartridge only



SBV12 - 3	8 (V) –	- C –	(*) ** –	**** * P -	- 00
				7 89	

SBV12 - Solenoid bi-directional valve

2 Size

8 - 8 size

3 Seal material

Blank - Buna-N

V - Viton®

4 Style

 $\boldsymbol{\mathsf{C}}$ - Normally closed

5 Valve housing material

Blank - Cartridge only A - Aluminum S - Steel

Dimensions

mm (inch)

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.

WARNING

Maintain 5-8 Nm (4-6 ft. lbs) maxi-

mum 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).

CODE	PORT SIZE	HOUSING NU	JMBER		
		Aluminum	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

7 Port Size

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port

- w/leadwire
- **Q** Spade terminals
- W Leadwire
- **N** Deutsch (DC only) **Y** - Amp JR (DC only)

9 Coil series

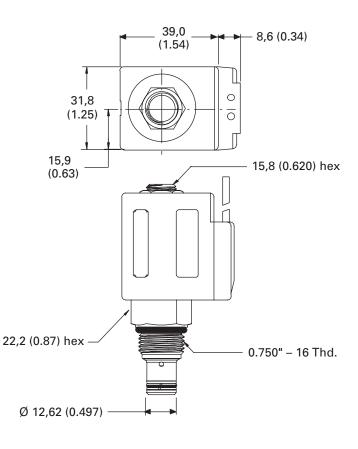
P - 8 series, 20 W For coil part numbers and dimensions

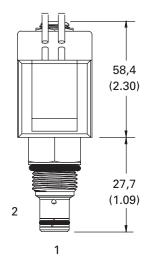
see page C-4.

10 Special features

00 - None (Only required if valve has special features,

omitted if "00."





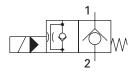
SV1-10-C/CM/CR

Poppet type, normally closed solenoid valve

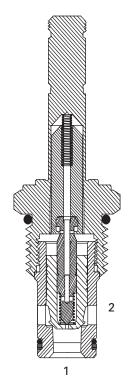
Description

The SV1-10-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

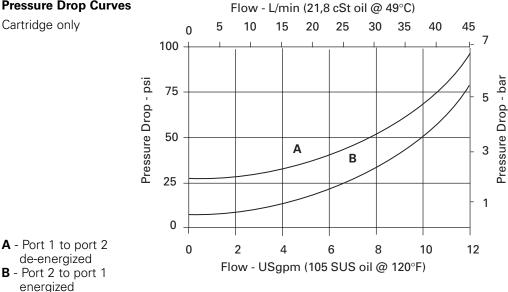
In the de-energized position, this valve blocks flow from port 2 to port 1 and free flow is allowed from port 1 to port 2.

In the energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	less than 5 drops/min. max @ 210 bar (3000 psi)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	Energize:18 ms De-Energize: 46 ms
Temperature range	-40° to 120°C (-40° to 248°F)
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves



Cartridge only

SV1 –	10 (V) -	– C (*) (F) –	- **	**** * - 00
	23	4 5 6	7	

SV1 - Solenoid valve

2 Size

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

C - Normally closed

5 Valve housing material

Blank - No manual override M - Knob type R - Cable type For valve dimensions with manual override option installed see page A-135.

6 Filter option

Blank - None F - Filter screen

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.

	WA
//!\\	Mai
	(4-6

RNING intain 5-8 Nm

ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.

7 Por	t 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

See section J for housing details.

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC 8 Voltage rating 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

9 Connector types

Blank - No coil

- G ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

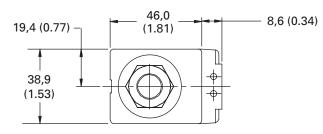
For coil part numbers and dimensions see page C-5.

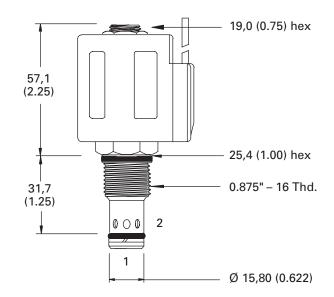
10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.





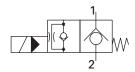
SV11-10-C/CM

Poppet type, normally closed solenoid valve, 350 bar

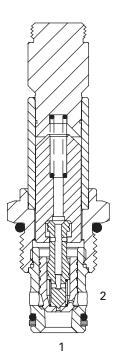
Description

The SV11-10-C is a 2-way, 2position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



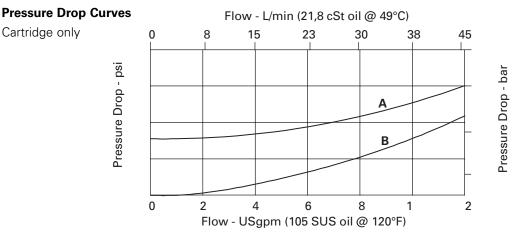
Operation

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

In the energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1.

RATINGS AND SPECIFICATIONS

5 SUS) and 49°C (120°F) 350 bar (5000 psi) 310 bar (4500 psi) 45 L(min (12 L)Sapm)
310 bar (4500 psi)
AE L/min (10 LICanm)
45 L/min (12 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 hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/16/13
Steel
0,18 kg (0.39 lbs)
565803 (Buna-N), 566086 (Viton [®]) Viton is a registered trademark of E.I. DuPont



A - Port 1 to port 2 de-energized

B - Port 2 to port 1 energized

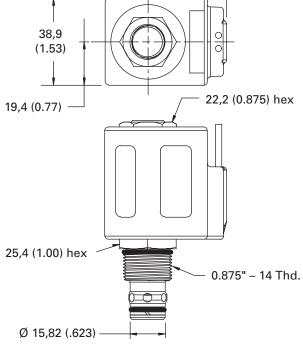
Cartridge only

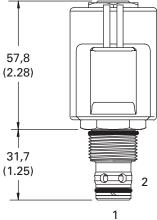
	SV		- C (M) - (S) ** - **** * H	
1 Function SV11 - Solenoid valve		lve housing ma - Cartridge only		9 Connector types Blank - No coil
2 Size 10 - 10 size		rt Size		 G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire Q - Spade terminals
3 Seal material Blank - Buna-N V - Viton [®]	CODE 0 2G 3G	PORT SIZE Cartridge only 1/4" BSPP 3/8" BSPP	HOUSING NUMBER 02-175102 02-175103	 W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only)
4 StyleC - Normally closed	6T 8T	SAE 6 SAE 8	02-160100 02-160101	 10 Coil series H - 10 series, 26 W For coil part numbers and dimensions
5 Manual override option Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135.		12VDC 24VDC	s. 24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	see page C-6. 111 Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions mm (inch) Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)		38,9 (1.53)	46,0 (1.81) (0.34)	
Note When solenoid valve is	19,4	4 (0.77) —	22,2 (0.875) hex	

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.



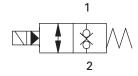


Bi-directional, normally closed solenoid valve

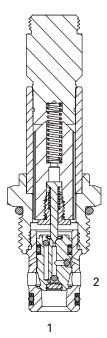
Description

The SBV11-10-C is a 2-way, 2-position, bi-directional, normally closed, poppet type, screw-in cartridge, solenoid valve.

Functional Symbol



Sectional View



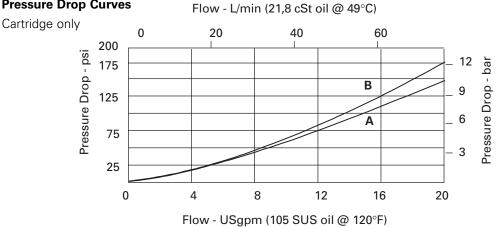
Operation

In the de-energized position, flow is blocked in both directions. In the energized position, flow is allowed in both directions.

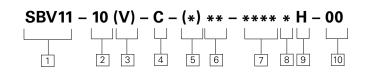
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	T (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	76 L/min (20 USgpm)
Internal leakage	5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 566927 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves



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



SBV11 - Solenoid bi-directional valve

² Size

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

C - Normally closed

5 Valve housing material

Blank - Cartridge only **A** - Aluminum

S - Steel

Dimensions

mm (inch)

Torque cartridge in housing

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

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

Note

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

WARNING Maintain 5-8

Maintain 5-8 Nm (4-6 ft. lbs) maxi-

mum 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).

6 Po	rt Size		
CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum	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 sectio	n J for housing details.		

bee section o for housing det

7 Voltage rating
00 - No coil
12D - 12VDC
24D - 24VDC
36D - 36VDC

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

8 Connector types

Blank - No coil

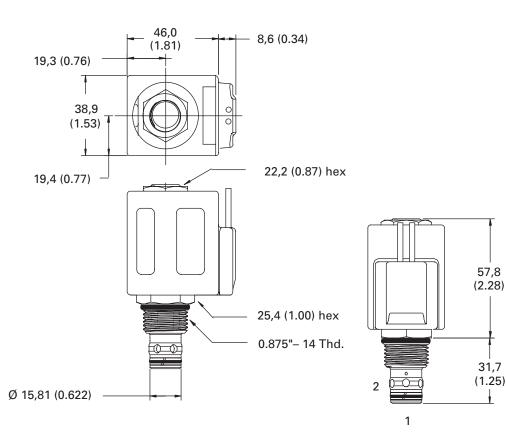
- G ISO 4400 DIN 43650
- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

9 Coil series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

10 Special features

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



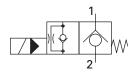
SV2-10-C/CM/CR

2-way, poppet type, normally closed solenoid valve

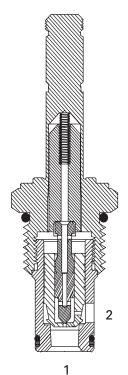
Description

The SV2-10-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

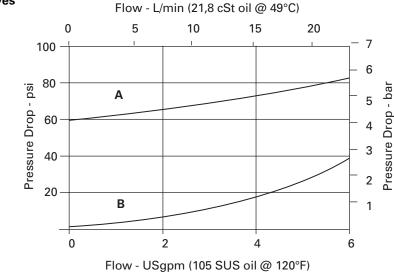
In the de-energized position, this valve blocks flow from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	95 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	5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight cartridge only	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont

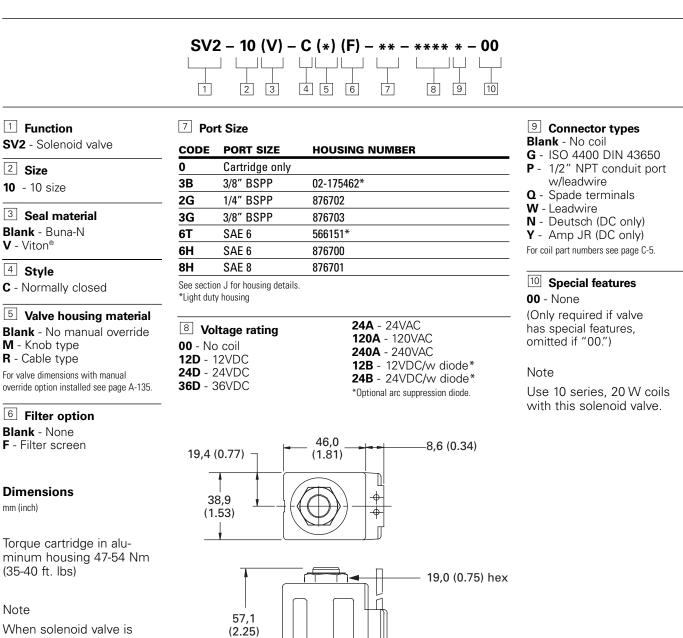
Pressure Drop Curves

Cartridge only



A - Port 1 to port 2 de-energized

B - Port 2 to port 1 energized



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



31,7

(1.25)

 $0 \circ 0$

1

2

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

Ø 15,80 (0.622)

25,4 (1.00) hex

0.875" - Thd.

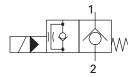
SV12-10-C/CM

Poppet type, normally closed solenoid valve, 350 bar

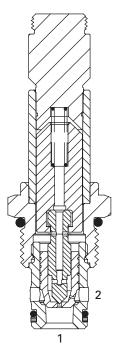
Description

The SV12-10-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

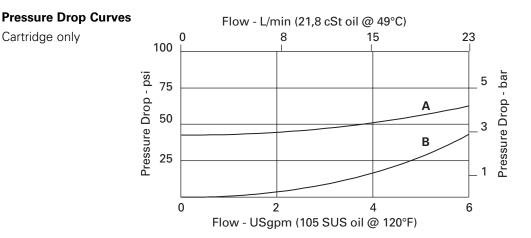


Operation

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

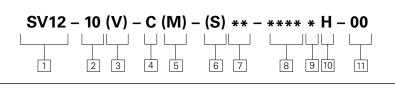
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	5 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage	5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	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



A - Port 1 to port 2 de-energized

B - Port 2 to port 1 energized



SV12 - 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-135.

⁶ Valve housing material Blank - Cartridge only

S - Steel

Dimensions

mm (inch)

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

Note

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



WARNING Maintain 5-8 Nm

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

7 Port Size CODE PORT SIZE HOUSING NUMBER Cartridge only 2G 1/4" BSPP 02-175102 3/8" BSPP 3G 02-175103 6T SAE 6 02-160100

02-160101

SAE 8 See section J for housing details.

8 Voltage rating
00 - No coil 12D - 12VDC 24D - 24VDC 36D - 36VDC

0

8T

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire

- Q Spade terminals
- W Leadwire

N - Deutsch (DC only)

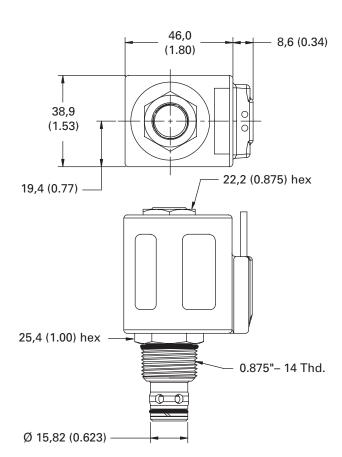
Y - Amp JR (DC only)

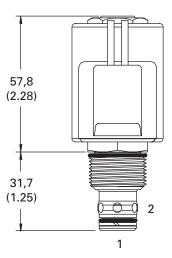
10 Coil series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

11 Special features

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





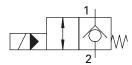
SV3-10-C/CM/CR

Poppet type, normally closed solenoid valve (free reverse flow)

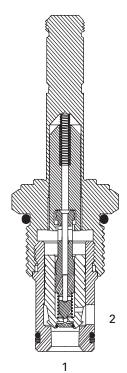
Description

The SV3-10-C is a 2-way, 2-position, poppet-type, normally closed screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



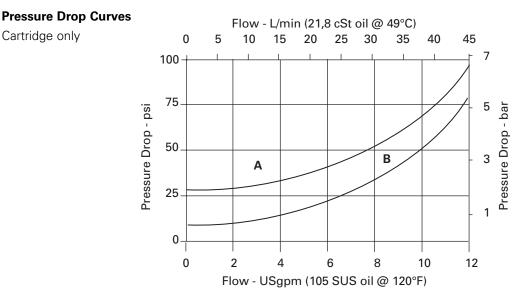
Operation

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

In the energized position, the poppet lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST	(105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight cartridge only	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont



A - Port 1 to port 2 de-energized

B - Port 2 to port 1 energized

Cartridge only

SV3 –	10 (V) -	- C (*) (F) -	- ** -	**** * - 00
	2 3		7	8 9 10

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-135.

6 Filter option

Blank - None F - Filter screen

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.

	WARNING
\mathbb{N}	WARNING Maintain 5-8 Nm

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

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	
6Т	SAE 6	566151*	
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 **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types

Blank - No coil

- **G** ISO 4400 DIN 43650
- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- $\boldsymbol{\mathsf{N}}$ Deutsch (DC only)

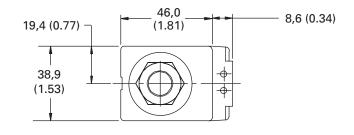
Y - Amp JR (DC only) For coil part numbers and dimensions see page C-5.

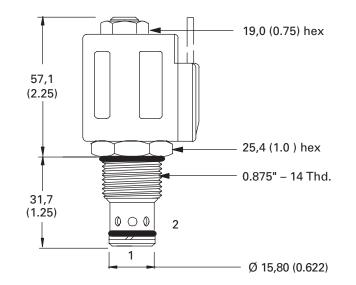
10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.





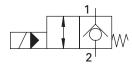
SV13-10-C/CM

Poppet type, normally closed solenoid valve, 350 bar (free release flow)

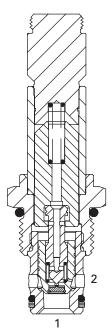
Description

The SV13-10-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



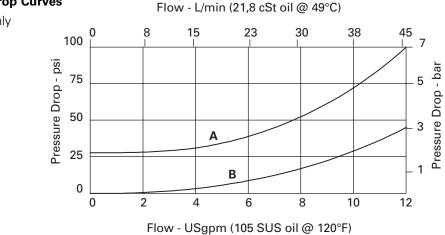
Operation

In the de-energized position, this valve blocks flow from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, bi-directional flow is allowed between port 1 and port 2.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	05 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont





A - Port 1 to port 2

B - Port 2 to port 1 energized

SV13 -	- 10 (V) -	– C (M) -	- (S) ** –	**** * H – 00	
	23	4 5	6 7		

SV13 - Solenoid valve

2	Size
---	------

10 - 10 size

3 Seal material

Blank - Buna-N **V** - Viton[®]

4 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-135.

6 Valve housing material

Blank - Cartridge only S - Steel

Dimensions

mm (inch)

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

Note

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



WARNING

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

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
Coo opotio	n I for housing dotails	

See section J for housing details.

8 Voltage rating
00 - No coil
12D - 12VDC
24D - 24VDC
36D - 36VDC

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

9 Connector types

Blank - No coil

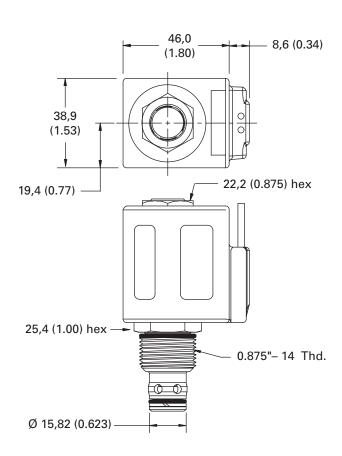
- G ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

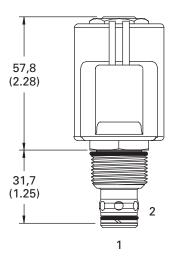
10 Coil series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

11 Special features

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





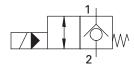
SV3-12-C/CM/CR

Poppet type, normally closed solenoid valve (free reverse flow)

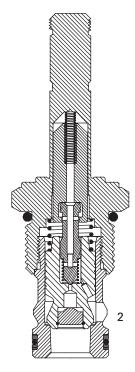
Description

The SV3-12-C is a 2-way, 2-position, poppet-type, pilot-operated, normally closed solenoid cartridge valve.

Functional Symbol



Sectional View



1

Operation

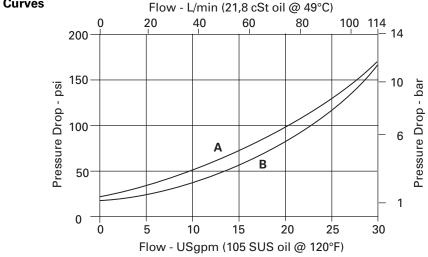
In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)				
Typical application pressure (all ports)	210 bar (3000 psi)			
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)			
Rated flow	114 L/min (30 USgpm)			
Internal leakage (port 2 to port 1)	less than 5 drops/min. max @ 210 bar (3000 psi)			
Temperature range	-40° to 120°C (-40° to 248°F)			
Coil duty	Continuous from 85% to 110% of nominal voltage			
Response times (100% rated voltage and flow)	Energize:75 ms De-Energize: 150 ms			
	C-12-2 or C-12-2U per if undercut is required. If undercut is not specified, USgpm and 20 psi @ 30 USgpm higher pressure drop.			
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.			
Filtration	Cleanliness code 18/16/13			
Housing material (standard)	Aluminum			
Weight including coil	0,336 kg (0.74 lbs)			
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®) Viton is a registered trademark of E.I. DuPont			

Pressure Drop Curves

Cartridge only



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

SV3 -	- 12 (V)	– C (*) -	- (A) -	- *** -	· * * * * ·	- 00
	23	4 5		7	89	10

SV3 - Solenoid valve

² Size

12 - 12 size

3 Seal material

Blank - Buna-N V - Viton®

V - VILON-

4 Style

 \boldsymbol{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-135.

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.



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

CODE	PORT SIZE	HOUSING NUMBER	
		Aluminum	Steel
0	Cartridge only		
4G	1/2" BSPP	02-161118	02-172062
4GU	1/2" BSPP	02-161116	02-172512
6G	3/4" BSPP	02-161117	02-169665
6GU	3/4" BSPP	02-161115	02-162922
10T	SAE 10	02-160640	02-169744
10TU	SAE 10	02-160641	02-169817
12T	SAE 12	02-160644	02-169782
12TU	SAE 12	02-160645	02-169790

See section J for housing details.

8 Voltage rating
00 - No coil
12D - 12VDC
24D - 24VDC
36D - 36VDC

7 Port Size

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types

Blank - No coil

- G ISO 4400 DIN 43650P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire

N - Deutsch (DC only)

Y - Amp JR (DC only)

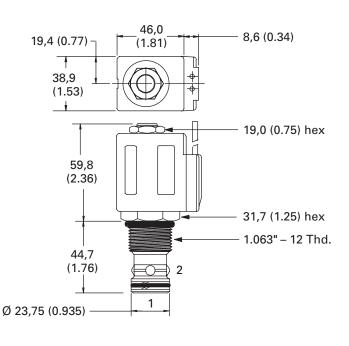
For coil part numbers and dimensions see page C-5.

10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



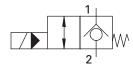
SV13-12-C/CM

Poppet type, normally closed solenoid valve, 350 bar (free reverse flow)

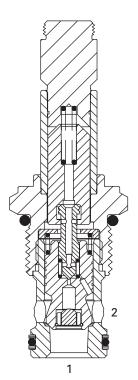
Description

The SV13-12-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in solenoid cartridge valve.

Functional Symbol



Sectional View

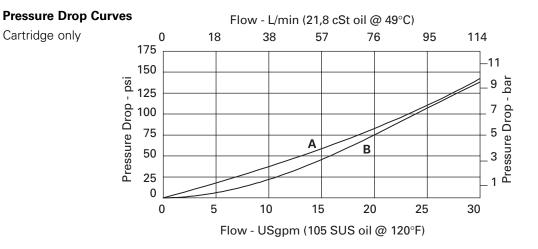


Operation

In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

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



A - Port 1 to port 2

B - Port 2 to port 1 energized

SV13 -	- 12 (V) -	– C (M) -	- (S) ** –	**** H -	- 00
		4 5			

SV13 - Solenoid valv	е
----------------------	---

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-135.

6 Valve housing material

Blank - Cartridge only

S - Steel (standard)

A - Aluminum

Dimensions

mm (inch)

Torque cartridge in housing

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

Note

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

CODE	PORT SIZE	HOUSING NUMBER		
		Aluminum	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.

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

7 Port Size

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port

- w/leadwire
- ${\boldsymbol Q}$ Spade terminals
- W Leadwire

N - Deutsch (DC only)

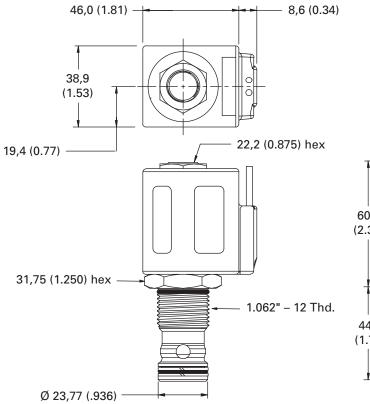
Y - Amp JR (DC only)

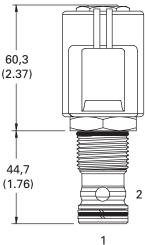
10 Coil Series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

11 Special features

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





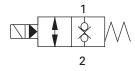
WARNING

Maintain 5-8 Nm (4-6 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure. Bi-directional, normally closed solenoid valve

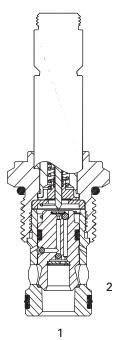
Description

The SBV11-12-C is a 2-way, 2-position, bi-directional, normally closed, poppet type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

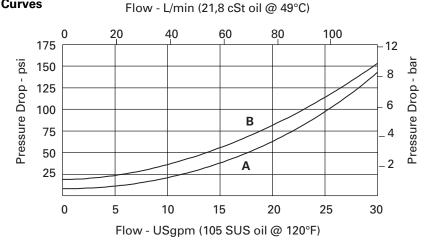
In the de-energized position, flow is blocked in both directions. In the energizedposition, flow is allowed in both directions.

RATINGS AND SPECIFICATIONS

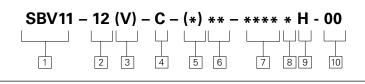
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)			
Typical application pressure (all ports)	350 bar (5000 psi)		
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)		
Rated flow	114 L/min (30 USgpm)		
Internal leakage, port 1 to port 2 and port 2 to port 1	5 drops/min. max @ 350 bar (3000 psi)		
Temperature range	-40° to 100°C (-40° to 212°F)		
Coil duty	Continuous from 85% to 110% of nominal voltage		
	C-12-2 or C-12-2U r if undercut is required. If undercut is not specified, Sgpm and 20 psi @ 30 USgpm higher pressure drop.		
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.		
Filtration	Cleanliness code 18/16/13		
Housing material (standard)	Aluminum or steel		
Weight cartridge only	0,27 kg (0.59 lbs)		
Seal kit	02-165889 (Buna-N), 02-165888 (Viton [®]) Viton is a registered trademark of E.I. DuPont		

Pressure Drop Curves

Cartridge only



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



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 Po i	6 Port Size				
CODE	PORT SIZE	HOUSING NUMBER			
		Aluminum	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.

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

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.

8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port

- Y 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire

N - Deutsch (DC only)

Y - Amp JR (DC only)

9 Coil series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

10 Special features

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

Dimensions

mm (inch)

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

Note

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



ך warning

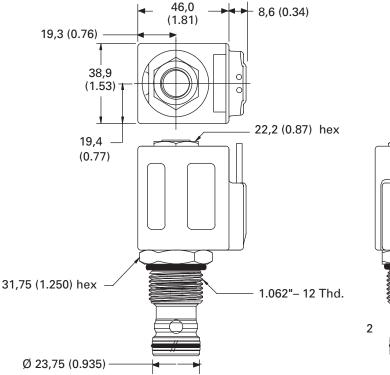
Maintain 5-8 Nm (4-6 ft. lbs) maxi-

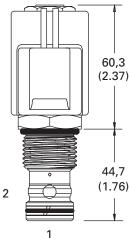
mum torque on valve tube nut. Over tightening may cause valve failure.



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).





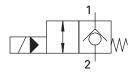
SV1-16-C/CM/CR

Poppet type, normally closed solenoid valve (free reverse flow)

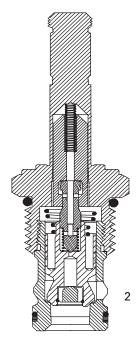
Description

The SV1-16-C is a 2-way, 2-position, poppet type, pilot operated, normally closed screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



1

Operation

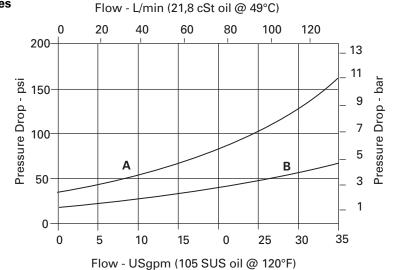
In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, bi-directional flow is allowed between port 1 and port 2.

RATINGS AND SPECIFICATIONS

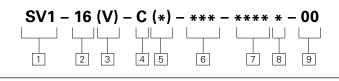
Performance data is typical with fluid at 21,8 cS	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	1,15 kg (2.53 lbs)
Seal kit	565810 (Buna-N), 02-889609 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



^{A - Port 2 to port 1} energized
B - Port 1 to port 2 de-energized



SV1 - Solenoid valve

6 Port Size

Ø 28,55 (1.124) -

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-135.

Dimensions

mm (inch)

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

Note

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



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

PORT SIZE	HOUSING NUMBER	Blank - N G - ISO 4
Cartridge only		P - 1/2"
3/4" BSPP	02-175463*	, w/lea
SAE 12	566149*	Q - Spad
3/4"BSPP	876717	W - Leady
SAE 10	876717	N - Deuts Y - Amp
SAE 12	566113	For coil part n
y housing on J for housing details.		page C-5.
Itage rating o coil 12VDC 24VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*	 Speci O0 - None (Only requestion on the specion of the specien of the sp
JOVDC	*Optional arc suppression diode.	
		Note
19,4 (0.77) – 38,9 (1.53)	46,0 (1.81) 8,6 (0.34)	Use 10 s with this
63,5 (2.50)		.75) hex
Ļ	38.1	(1.50) hex
<u> </u>		1.100/110/
44,4	1.31	2" – 12 Thd.
	3/4" BSPP SAE 12 3/4"BSPP SAE 10 SAE 12 y housing on J for housing details. Itage rating to coil 12VDC 24VDC 24VDC 36VDC 19,4 (0.77)	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

8 Connector types

k - No coil

- SO 4400 DIN 43650 /2" NPT conduit port v/leadwire
- pade terminals
- eadwire

Deutsch (DC only)

mp JR (DC only)

part numbers and dimensions 5.

pecial features

None required if valve pecial features, ed if "00.")

10 series, 20 W coils this solenoid valve.

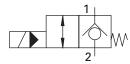
SV13-16-C/CM

Poppet type, normally closed solenoid valve, 350 bar (free reverse flow)

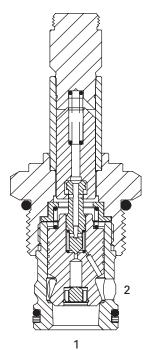
Description

The SV13-16-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

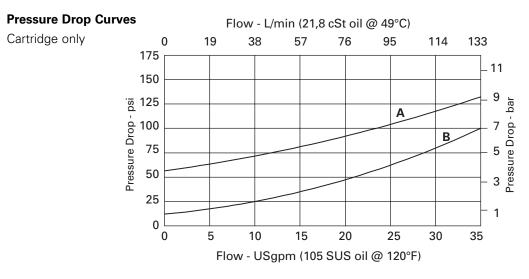


Operation

In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage	less than 5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®) Viton is a registered trademark of E.I. DuPont



A - Port 2 to port 1 energized

	SV1	3 – 16 (V)	– C (M) – (S) ** – **** * I	H – 00
	1	2 3		10 11
1 Function	7 Po	rt Size		9 Connector types
SV13 - Solenoid valve	CODE	PORT SIZE	HOUSING NUMBER	Blank - No coil
2 Size	0	Cartridge only		G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port
16 - 16 size	4G	1/2″ BSPP	02-175062	r - 1/2 Nr r conduit port w/leadwire
	6G	3/4" BSPP	02-169665	Q - Spade terminals
3 Seal material	<u>10T</u>	SAE 10	02-169744	W - Leadwire N - Deutsch (DC only)
3lank - Buna-N / - Viton®	12T	SAE 12	02-169782	- Y - Amp JR (DC only)
	See secti	on J for housing deta	ils.	
4 Style		1	24A - 24VAC	
C - Normally closed	00 - N	ltage rating	120A - 120VAC	H - 10 series, 26 W For coil part numbers and dimensions
5 Manual override option		12VDC	240A - 240VAC 12B - 12VDC/w diode*	see page C-6.
Blank - No manual override	24D -	24VDC	24B - 24VDC/w diode*	
M - Manual override	36D -	36VDC	*Optional arc suppression diode.	11 Special features
For valve dimensions with manual poverride option installed see page A-135.				00 - None
				(Only required if valve has special features,
⁶ Valve housing material				omitted if "00.")
Blank - Cartridge only S - Steel				
		46,0 (1.80	8,6 (0.34	4)
Dimensions				
mm (inch)		1		
		38,9		
Torque cartridge in steel		(1.53)		
nousing 136-149 Nm				
100-110 ft. lbs)		* *		
	19,4 ((0.77)	22,2 (0.875) he	x
Note				
When solenoid valve				
is ordered as cartridge only, coil nut is included.				
con nut is included.				64,1
				(2.52)
		(4 50) 1		
	38,1	(1.50) hex —		
			1.312"– 12 The	d.
Maintain 5-8 Nm				44,6
(4-6 ft. lbs) maxi-				(1.76)
mum torque on valve tube				
nut. Over tightening may cause valve failure.	Ø 28	8,54 (1.124) —		
				1

A-37

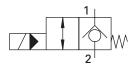
SV2-20-C/CM/CR

Poppet type, normally closed solenoid valve (free reverse flow)

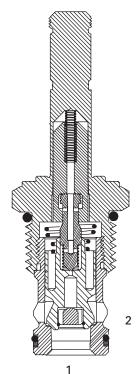
Description

The SV2-20-C is a 2-way, 2-position, poppet type, pilot operated, normally closed screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



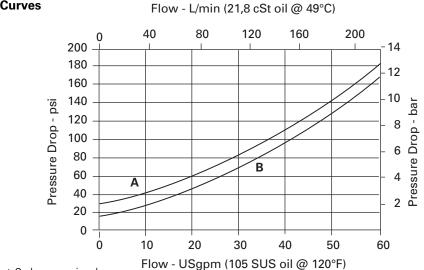
Operation

In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, bi-directional flow is allowed between port 1 and port 2.

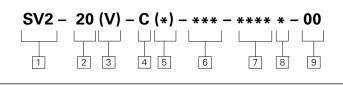
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cs	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	1,2 kg (2.70 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves



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



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-135.

Dimensions

mm (inch)

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.

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

6 Port Size

*Light duty housing

12D - 12VDC

24D - 24VDC

36D - 36VDC

See section J for housing details.	
7 Voltage rating	24A - 24VAC 120A - 120VA
00 - No coil 12D - 12VDC	240A - 240VA

OVAC 0VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

8 Connector types Blank - No coil

G - ISO 4400 DIN 43650

- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire

N - Deutsch (DC only)

Y - Amp JR (DC only)

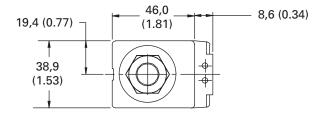
For coil part numbers and dimensions see page C-5.

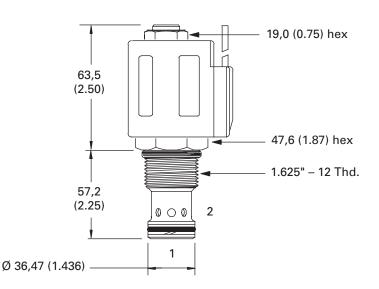
9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.





WARNING

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

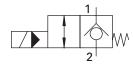
SV13-20-C/CM

Poppet type pilot operated solenoid valve, 350 bar

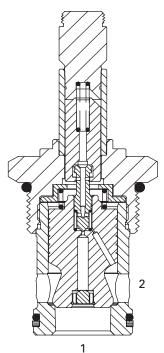
Description

The SV13-20-C is a 2-way, 2-position, pilot operated, poppet type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

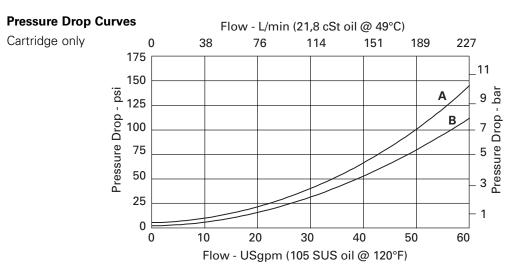


Operation

In the de-energized position, flow is blocked from port 2 to port 1 and free flow is allowed from port 1 to port 2. In the energized position, the poppet lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 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 @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®) Viton is a registered trademark of E.I. DuPont



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

SV13 -	– 20 (V)	– C (M)	– (S) ** –	**** * H – 00
	23		6 7	

HOUSING NUMBER

1 Function

SV13 - Solenoid valve

² Size

20 - 20 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style C - Normally closed

5 Manual override option Blank - No manual override M - Manual override

For valve dimensions with manual

override option installed see page A-135.

⁶ Valve housing material

Blank - Cartridge only S - Steel

Dimensions

mm (inch)

Torque cartridge in steel housing163-183 Nm (120-135 ft. lbs)

Note

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

WARNING

mum torque on valve tube nut. Over tightening may

cause valve failure.

Maintain 5-8 Nm

(4-6 ft. lbs) maxi-



PORT SIZE

Cartridge only

8 Voltage rating
00 - No coil
12D - 12VDC
24D - 24VDC
36D - 36VDC

7 Port Size

CODE

0

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

9 Connector types

Blank - No coil

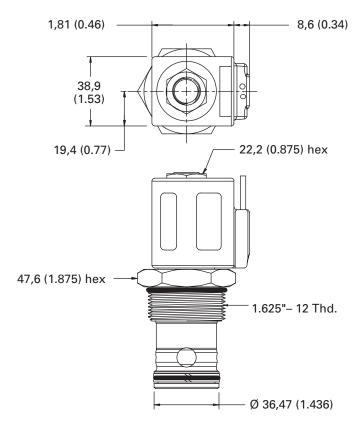
- **G** ISO 4400 DIN 43650
- **P** 1/2" NPT conduit port
- w/leadwire
- **Q** Spade terminals
- W Leadwire
- **N** Deutsch (DC only) **Y** - Amp JR (DC only)
- Amp JN (DC 0

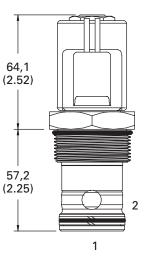
10 Coil Series

H - 10 series, 26 W For coil part numbers and dimensions see page C-6.

11 Special features

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



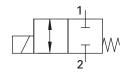


Spool type, normally closed solenoid valve

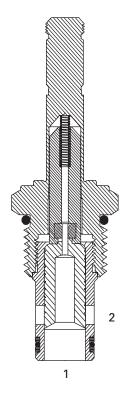
Description

The SV4-8-C is a two-way, two-position, spool type, direct acting, normally closed solenoid valve.

Functional Symbol



Sectional View



Operation

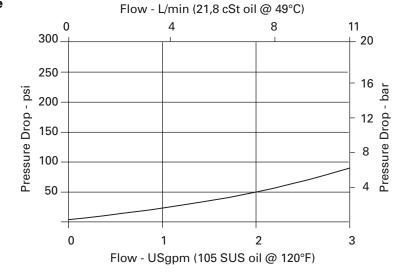
In the de-energized position, the SV4-8-C blocks flow in both directions. In the energized position, the spool lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3USgpm)
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: 27 ms De-Energize: 24 ms
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve

Cartridge only



Port 1 to port 2 or Port 2 to port 1 (energized)

SV4 – 8 (V) – C (M) (F) – (A) ** – **** * S – 00

7 8

6

10 11

12

10 Connector types

w/leadwire **Q** - Spade terminals **W** - Leadwire

N - Deutsch (DC only)

Y - Amp JR (DC only)

For coil part numbers and dimensions

11 Coil series

see page C-3.

S - 8 series, 16 W

G - ISO 4400 DIN 43650

P - 1/2" NPT conduit port

Blank - No coil

9

1 Function

SV4 - Solenoid valve

2 Size

~		\sim		
х	-	Я	SIZE	2

3 Seal material

Blank - Buna-N **V** - Viton[®]

4 Style

O - Normally closed

5 Manual override option

Blank - No manual override **M** - Knob type For valve dimensions with manual

override option installed see page A-135.

6 Filter option

Blank - None

F - Filter screen

7 Valve housing material

4 5

2 3

Omit for cartridge only - Aluminum

8 Port Size

1

Α

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
6Т	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 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	12 Special features 00 - None (Only required if valve has special features, omitted if "00.")
---	---	---

Dimensions

mm (inch)

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

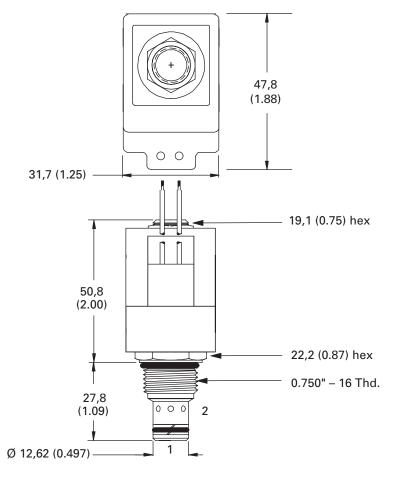
Note

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



WARNING

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



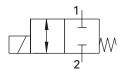
SV14-8-C/CM

Spool type, normally closed solenoid valve, 350 bar

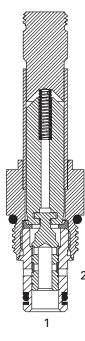
Description

The SV14-8-C is a 2-way, 2-position, spool type, normally closed, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



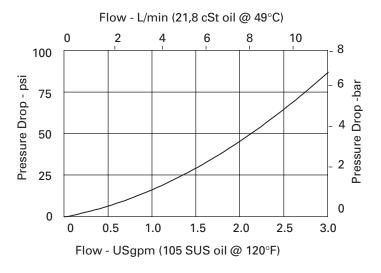
Operation

In the de-energized position, flow is blocked in both directions. In the energized position, the spool lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (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 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve



Port 2 to port 1 or port 1 to 2 (energized)

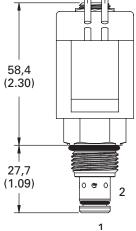
	SV14 – 8 (V) – C (M) – (S) ** – **** * P – 00 1 2 3 4 5 6 7 8 910 11	_
 Function SV14 - Solenoid valve Size 8 - 8 size 	 6 Valve housing material Blank - Cartridge only S - Steel 7 Port Size 	 9 Connector types Blank - No coil G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire Q - Spade terminals
3 Seal material	CODE PORT SIZE HOUSING NUMBER	W - Leadwire
Blank - Buna-N	0 Cartridge only 2G 1/4" BSPP 02-160733	N - Deutsch (DC only) Y - Amp JR (DC only)
V - Viton [®]	3G 3/8" BSPP 02-160733	
4 Style	4T SAE 4 02-160736	10 Coil Series
C - Normally closed	6T SAE 6 02-160737	- P - 8 series, 20 W
	8T SAE 8 02-160738	 For coil part numbers and dimensions see page C-4.
 Manual override option Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135. 	See section J for housing details.Image: See section J for housin	 11 Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions mm (inch)	15,9 (0.63) 39,0 (1.54) 8,6 (0.34)	
Torque cartridge in steel housing 34-41 Nm (25-30 ft. lbs)	31,8 (1.25)	
Note		н н
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.

– 22,2 (0.87) hex 0.750" – 16 Thd. 0 🗢 0 Ø 12,6 (0.500) -



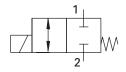
SV4-10-C/CM/CR

Spool type, normally closed solenoid valve

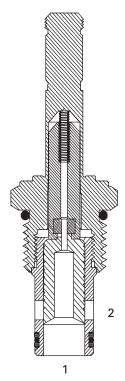
Description

The SV4-10-C is a 2-way, 2-position, direct acting, spool-type, normally closed screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

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

In the energized position, the spool lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

05 SUS) and 49°C (120°F)
210 bar (3000 psi)
210 bar (3000 psi)
23 L/min (6 USgpm)
82 cm³/min (5 in³/min) max. @ 210 bar (3000 psi)
-40° to 120°C (-40° to 248°F)
Continuous from 85% to 110% of nominal voltage
C-10-2
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/16/13
Aluminum
0,4 kg (0.87 lbs)
565806 (Buna-N), 889627 (Viton®) Viton is a registered trademark of E.I. DuPont

20

7

5

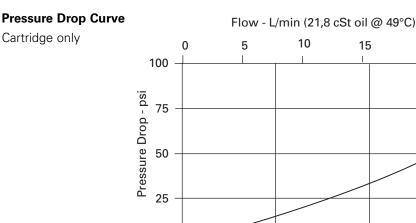
3

1

6

4

Pressure Drop -bar



2

Flow - USgpm (105 SUS oil @ 120°F)

0

0

Port 1 to port 2 or

port 2 to port 1 (energized)

SV4	– 10 (V) -	- C (*) (F) -	- ** -	**** * -	- 00
	23	4 5 6	7	89	10

1 Function

SV4 - Solenoid valve

2 Size

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

C - Normally closed

5 Manual override option

Blank - No manual override **M** - Knob type **R** - Cable type For valve dimensions with manual override option installed see page A-135.

6 Filter option

Blank - None F - Filter screen

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.

WARN
Mainta

WARNING Maintain 5-8 Nm

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

7 Por	7 Port Size		
CODE	PORT SIZE	HOUSING NUMBER	
0	Cartridge only		
3B	3/8" BSPP	02-175462	
6T	SAE 6	566151	
2G	1/4"BSPP	876702	
3G	3/8"BSPP	876703	
6H	SAE 6	876700	
8H	SAE 8	876701	
See sertin	n I for housing details		

See section J for housing details.

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

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types

Blank - No coil

- **G** ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port
- w/leadwire
- ${\boldsymbol 0}$ Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

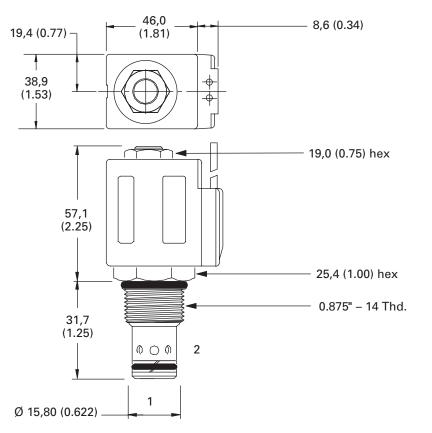
For coil part numbers and dimensions see page C-5.

10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



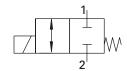
SV14-10-C/CM

Spool type, normally closed solenoid valve, 350 bar

Description

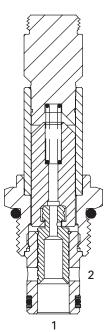
The SV14-10-C is a 2-way, 2-position, spool type, normally closed screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

A-48

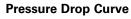


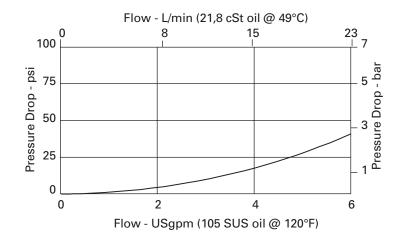
Operation

In the de-energized position, flow is blocked in both directions. In the energized position, the spool lifts to allow flow in either direction.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8	cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage (port 2 to port 1)	140 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 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565806 (Buna-N), 889627 (Viton®) Viton is a registered trademark of E.I. DuPont





Port 1 to port 2 or port 2 to port 1 (energized)

	SV14	– 10 (V) -	- C (M) -	- (S) ** -	- **** * H –	00
			4 5	6 7		11
1 Function	7 Por	t Size				[
SV14 - Solenoid valve	CODE	PORT SIZE	HOUS	NG NUMBE	R	E
² Size	0	Cartridge only	ý			— (F
	2G	1/4" BSPP	02-1751	02		- •
10 - 10 size	3G	3/8" BSPP	02-1751	03		_ (
3 Seal material	6T	SAE 6	02-1751	100		<u> </u>
Blank - Buna-N	8T	SAE 8	02-1751	100		- r
V - Viton®	See section	on J for housing deta	ails.			
 4 Style C - Normally closed 5 Manual override option Blank - No manual override M - Manual override 	00 - No	12VDC 24VDC		24B - 24V	VAC VAC DC/w diode* DC/w diode*	— [F s _
For valve dimensions with manual				optional arc si	uppression diode.	(

46,0

(1.80)

9 Connector types

Blank - No coil

G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire

- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

10 Coil series

For coil part numbers and dimensions

11 Special features

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

Blank - Cartridge only S - Steel

override option installed see page A-135.

6 Valve housing material

Dimensions

mm (inch)

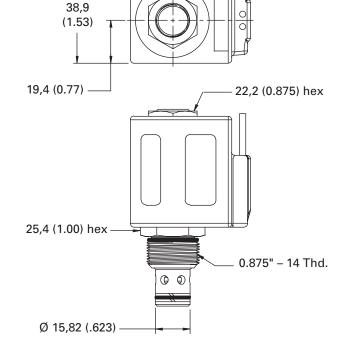
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

Note

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

WARNING Maintain 5-8 Nm

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



57,8 2.28) 31,7 1.25) ٢ 2 1

8,6 (0.34)

H - 10 series, 26 W

see page C-6.

EATON Vickers Screw-in Cartridge Valves V-VLOV-MC001-E1 June 2003

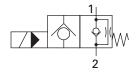
SV5-8-O/OP/OS

Poppet type, normally open solenoid valve

Description

The SV5-8-O 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 single acting cylinder applications.

Functional Symbol



Sectional View

2 1

Operation

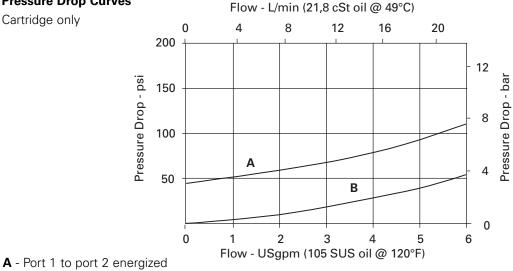
In the de-energized position, the SV5-8-O allows free flow from port 2 to port 1, and restricted flow from port 1 to port 2.

In the energized position, flow is blocked from port 2 to port 1, and free flow is allowed from port 1 to port 2.

RATINGS AND SPECIFICATIONS

	U III	
Performance data is typical with f	luid 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	e 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 volta)	ge 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

Pressure Drop Curves



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

SV5 - 8 (V) - O (*) (F) - (A) ** - **** * S - 00

1 Function

SV5 - Solenoid valve

2 Size

size

3	Seal material
Bla	nk - 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-134.

6 Filter option

Blank - None F - Filter screen

Dimensions

mm (inch)

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.



WARNING

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

Valve housing material

Omit for cartridge only - Aluminum

8 Port Size

Α

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.

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

10 Connector types Blank - No coil

G - ISO 4400 DIN 43650

- **P** 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire

12

- N Deutsch (DC only)
- Y Amp JR (DC only)

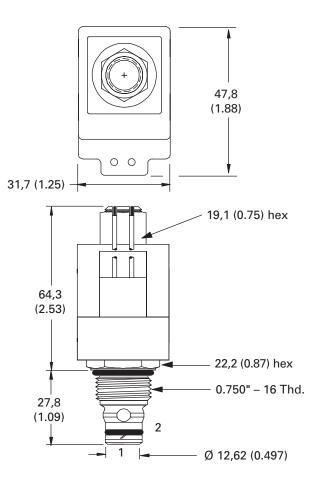
11 Series Coil

S - 8 series, 16 W

For coil dimensions see page C-3.

12 Special features

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



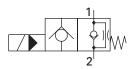
SV15-8-0/0P/0S

Poppet type, normally open solenoid valve, 350 bar

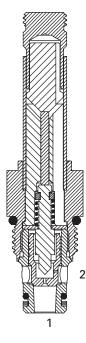
Description

The SV15-8-O is a 2-way, 2-position, pilot operated, poppet type, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

In the de-energized position, flow from port 1 to port 2 is restricted, while free flow is allowed from port 2 to port 1.

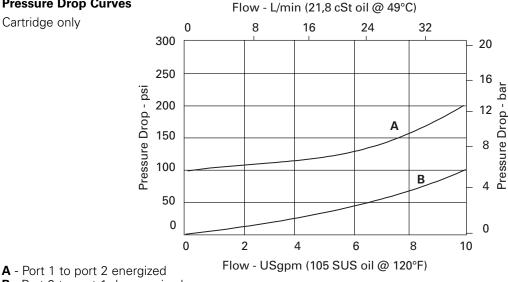
In the energized position, flow is blocked from port 2 to port 1, and flow is allowed from port 1 to port 2, when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	37 L/min (10 USgpm)
Internal leakage, port 2 to port 1	5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



B - Port 2 to port 1 de-energized

	SV1		O (*) – (S) ** – **** * P – 00	
Image: Sv15 - Solenoid valve Image: Size	Valve housing material Blank - Cartridge only S - Steel Port Size			 Gonnector types/coil Blank - No coil G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire Q - Spade terminals
8 - 8 size				
Image: Seal material Blank - Buna-N V - Viton®	0 2G 3G 4T	Cartridge only 1/4" BSPP 3/8" BSPP SAE 4	02-160733 02-160734 02-160736	 W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only) 10 Coil series
4 Style O - Normally open	6T 8T	SAE 6 SAE 8	02-160737	P - 8 series, 20 W For coil dimensions see page C-4.
 Manual override option Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134. 			120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.	11 Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions				

Dimensions

mm (inch)

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

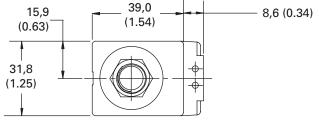
Note

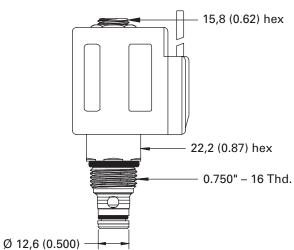
When solenoid valve is ordered as cartridge only, nut is included.

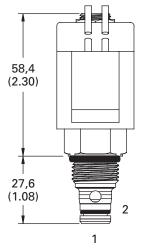


WARNING

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





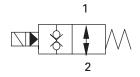


Bi-directional, normally open solenoid valve

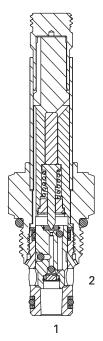
Description

The SBV11-8-O is a 2-way, 2-position, bi-directional, normally open, poppet type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



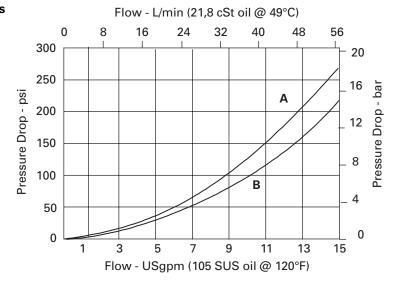
Operation

In the de-energized position, flow is allowed in both directions. In the energizedposition, flow is blocked in both directions.

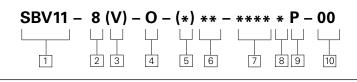
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	05 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	60 L/min (15 USgpm)
Internal leakage, port 1 to port 2 & port 2 to port 1	5 drops/min. max @ 350 bar (5000 psi) when energized
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-8-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,12 kg (0.26 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves



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



1 Function

SBV11 - Solenoid bi-directional valve

2 Size

8 - 8 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

O - Normally open

5 Valve housing material Blank - Cartridge only

A - Aluminum S - Steel

Dimensions

mm (inch)

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

Note

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

WARNING

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

nut. Over tightening may cause valve failure.



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).

CODE	PORT SIZE	HOUSING NU	JMBER
		Aluminum	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
6Т	SAE 6	02-160731	02-160737
8T	SAE 8	02-160732	02-160738

See section J for housings.

6 Port Size

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

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

8 Connector types Blank - No coil

- **G** ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

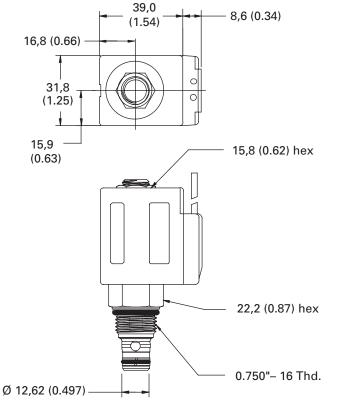
9 Coil series

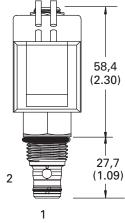
P - 8 series, 20 W

For coil dimensions see page C-4.

10 Special features **00** - None

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





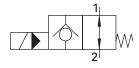
SV3-10-0/0P/0S

Poppet type, normally open solenoid valve (free reverse flow)

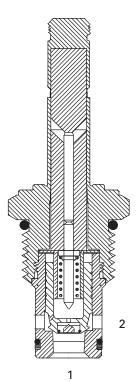
Description

The SV3-10-O is a 2-way, 2-position, poppet type, pilot operated, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



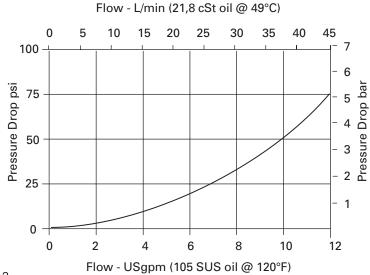
Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2 when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve



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

	SV:	3 – 10 (V) -	• O (*) (F) – ** – 	**** * - 00]
1 Function	7 Po	rt Size			9 Connector t
SV3 - Solenoid valve	CODE	PORT SIZE	HOUSING NUMBEI	R	Blank - No coil G - ISO 4400 DI
2 Size	0	Cartridge only			P - 1/2" NPT co
10 - 10 size	3B	3/8" BSPP	02-175462*		w/leadwire
	6T	SAE 6	566151*		Q - Spade termi
3 Seal material	2G	1/4" BSPP	876702		 W - Leadwire N - Deutsch (DC)
Blank - Buna-N	3G	3/8" BSPP	876703		- Y - Amp JR (DC
V - Viton®	6H	SAE 6	876700		For coil dimensions see
4 Style	8H	SAE 8	876701		
O - Normally open			00 - None		
5 Manual Override Option	366 36610	on o for nousings.			_ (Only required if
Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134.	00 - No 12D - 24D - 2	o coil 12VDC 24VDC 36VDC	24B - 24VD	VAC VAC DC/w diode* DC/w diode*	has special featu omitted if "00.") Note
6 Filter option	000		*Optional arc su	ppression diode.	Use 10 series, 2 with this solend
Blank - None F - Filter screen		19,4 (0.77) –	46,0 (1.81)	8,6	(0.34)

Dimensions

mm (inch)

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

Note

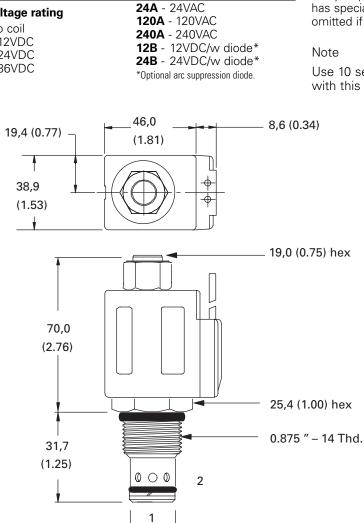
When solenoid valve is ordered as cartridge only, coil nut is included.



WARNING

Ø15,80 (0.622)

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



types

DIN 43650

- onduit port
- inals
- C only)
- C only)

e page C-5.

tures

if valve tures,)

20 W coils noid valve.

Α

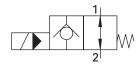
SV13-10-0/0P/0S

Poppet type, normally open solenoid valve, 350 bar (free reverse flow)

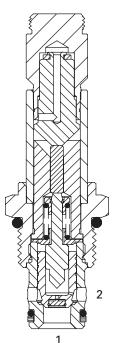
Description

The SV13-10-O is a 2-way, 2-position, pilot operated, poppet type, normally open screw-in solenoid cartridge valve.

Functional Symbol



Sectional View

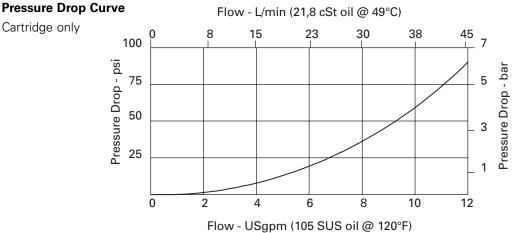


Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1, and is allowed from port 1 to port 2, when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (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 hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont



Application Note

This valve is pilot operated and requires a minimum flow of 1-2 L/min (0.3- .5 USgpm) in order to shift. For operation at very low flow conditions contact your Eaton representative. Port 1 to port 2 and port 2 to port 1 de-energized

	SV13		O (*) – (S) ** – **** * H – O ,		
Function SV13 - Solenoid valve		lve housing ma - Cartridge only el		 Connector types Blank - No coil G - ISO 4400 DIN 43650 	
2 Size 10 - 10 size	7 Port Size CODE PORT SIZE HOUSING NUMBER			 P - 1/2" NPT conduit port w/leadwire Q - Spade terminals 	
3 Seal material Blank - Buna-N V - Viton [®]	0 2G 3G	Cartridge only 1/4" BSPP 3/8" BSPP	HOUSING NUMBER 02-175102 02-175103	 W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only) 	
4 StyleO - Normally open	6Т 8Т	SAE 6 SAE 8 on J for housings.	02-175100 02-175101	10 Coil series H - 10 series, 26 W For dimensions see page C-6.	
 Manual override option Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134. 	00 - 12D - 24D - 2	Itage rating No coil 12VDC 24VDC 36VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*	11 Special features 00 - None (Only required if valve has special features, omitted if "00.")	

*Optional arc suppression diode.

8,6 (0.34)

Dimensions

mm (inch)

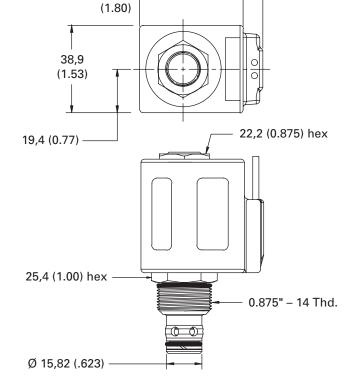
Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)

Note

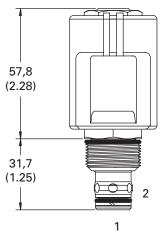
When solenoid valve is ordered as cartridge only, nut is included.

WARNING Maintain 5-8 Nm

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



46,0 ·



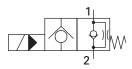
SV5-10-0/0P/0S

Poppet type, normally open solenoid valve

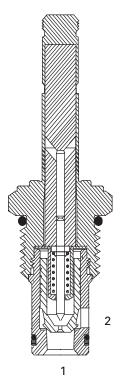
Description

The SV5-10-O is a 2-way, 2-position, poppet type, pilot operated, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



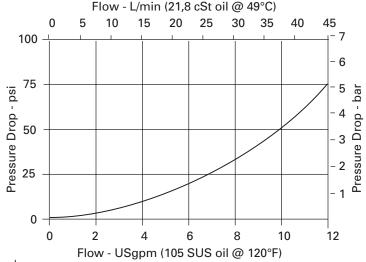
Operation

In the de-energized position, flow from port 1 to port 2 is restricted while free flow is allowed from port 2 to port 1. In the energized position, flow is blocked from port 2 to port 1, and flow is allowed from port 1 to port 2 when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	45 L/min (12 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-10-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,4 kg (0.87 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton [®]) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve



Port 2 to port 1 de-energized

SV5 -	- 10 (V) -	- O (*) (F) -	- **	**** * -	00
	23		7	89	10

1 Function

SV5 - Solenoid valve

2	Size
---	------

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

O - Normally open

5 Manual Override Option

Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134.

6 Filter option

Blank - None F - Filter screen

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.

WARNING
Maintain 5-8 Nm
 (4-6 ft. lbs) maxi-

maximum torque on valve tube nut. Over tightening may cause valve failure.

7 Port Size				
CODE	PORT SIZE	HOUSING NUMBER		
0	Cartridge only			
3B	3/8" BSPP	02-175462*		
6T	SAE 6	566151*		
2G	1/4" BSPP	876702		
3G	3/8" BSPP	876703		
6H	SAE 6	876700		
8H	SAE 8	876701		

*Light duty housing. See section J for housings.

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

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

9 Connector types

Blank - No coil

- **G** ISO 4400 DIN 43650 P - 1/2" NPT conduit port
- w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

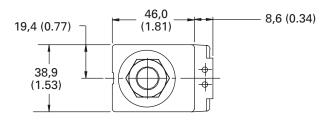
For coil dimensions see page C-5.

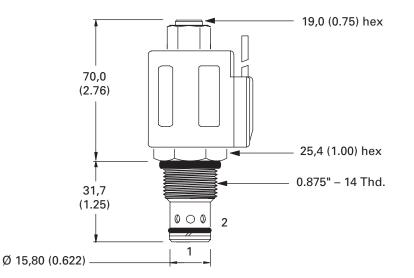
10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.





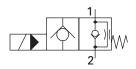
SV15-10-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

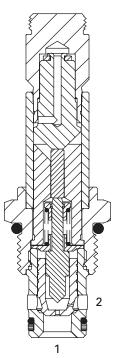
Description

The SV15-10-O is a 2-way, 2-position, pilot operated, poppet type, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



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.

Operation

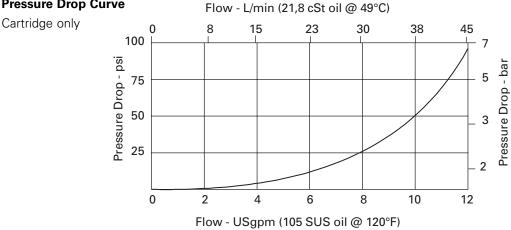
In the de-energized position, flow from port 1 to port 2 is restricted, while free flow is allowed from port 2 to port 1.

In the energized position, flow is blocked from port 2 to port 1, and flow is allowed from port 1 to port 2, when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	ST (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 hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,18 kg (0.39 lbs)
Seal kit	565803 (Buna-N), 566086 (Viton®) Viton is a registered trademark of E.I. DuPont

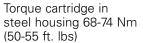
Pressure Drop Curve



Port 2 to port 1 de-energized

SV15				
Blank	- Cartridge only		 Gonnector types Blank - No coil G - ISO 4400 DIN 43650 D - 1/0" NDT conduit port 	
7 Po	rt Size		 P - 1/2" NPT conduit port w/leadwire 	
CODE	PORT SIZE	HOUSING NUMBER	Q - Spade terminals	
0 2G 3G	Cartridge only 1/4" BSPP	02-175102	 W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only) 	
6T 8T	SAE 6 SAE 8	02-175100 02-175101 02-175101	10 Coil series H - 10 series, 26 W	
Nual override optionSee section J for housings.No manual override type8Voltage ratingw type00 - No coil12D - 12VDCmensions with manual tion installed see page A-134.24U - 24VDC36D - 36VDC36VDC		24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	For coil dimensions see page C-6. 11 Special features 00 - None (Only required if valve has special features, omitted if "00.")	
	1 6 Va Blank S - Ste 7 Po CODE 0 2G 3G 6T 8T See section 8 Vot 00 - Not 12D - 24D -	6 Valve housing mages Blank - Cartridge only S - Steel 7 Port Size CODE PORT SIZE 0 Cartridge only 2G 1/4" BSPP 3G 3/8" BSPP 6T SAE 6 8T SAE 8 See section J for housings. 8 Voltage rating 00 - No coil 12D - 12VDC 24D - 24VDC	6 Valve housing material Blank - Cartridge only S - Steel 7 Port Size CODE PORT SIZE HOUSING NUMBER 0 Cartridge only 2G 1/4" BSPP 0 Cartridge only 2G 1/4" BSPP 02-175102 3G 3/8" BSPP 02-175100 8T SAE 6 02-175101 See section J for housings. 8 Voltage rating 12D - 12VDC 240A - 240VAC 12D - 12VDC 12B - 12VDC/w diode* 24D - 24VDC 24B - 24VDC/w diode*	

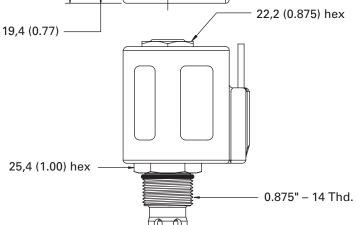
mm (inch)





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

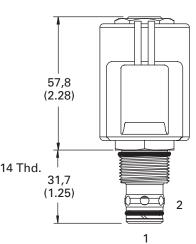




38,9

(1.53)

Ø 15,82 (0.623) -



WARNING Maintain 5-8 Nm

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

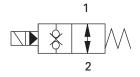
EATON Vickers Screw-in Cartridge Valves V-VLOV-MC001-E1 June 2003

Bi-directional, normally open solenoid valve

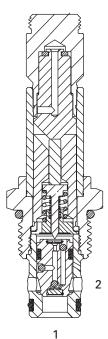
Description

The SBV11-10-O is a bi-directional, 2-way, 2-position, normally open, poppet type, screw-in cartridge, solenoid valve.

Functional Symbol



Sectional View

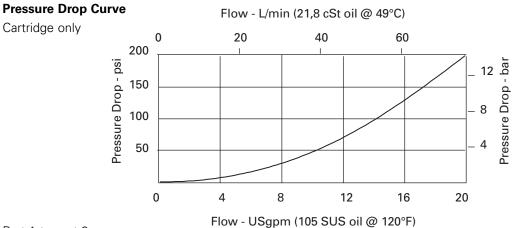


Operation

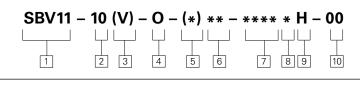
In the de-energized position, flow is allowed in both directions. In the energizedposition, flow is blocked in both directions.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)			
Typical application pressure (all ports)	350 bar (5000 psi)		
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)		
Rated flow	76 L/min (20 USgpm)		
Internal leakage, port 1 to port 2 or port 2 to port 1	5 drops/min. max @ 350 bar (5000 psi)		
Temperature range	-40° to 100°C (-40° to 212°F)		
Coil duty	Continuous from 85% to 110% of nominal voltage		
Cavity	C-10-2		
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.		
Filtration	Cleanliness code 18/16/13		
Housing material (standard)	Aluminum or steel		
Weight cartridge only	0,18 kg (0.39 lbs)		
Seal kit	565806 (Buna-N), 889627 (Viton [®]) Viton is a registered trademark of E.I. DuPont		



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



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)

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

Note

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

WARNING

Maintain 5-8 Nm (4-6 ft. lbs) maxi-

mum 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).

6 Po	6 Port size				
CODE	PORT SIZE	HOUSING NU	MBER		
		Aluminum	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 dut	v housings				

*Light duty housings. See section J for housings.

7	Voltage rating
00 -	No coil
12D	- 12VDC
24D	- 24VDC
36D	- 36VDC

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.

8 Connector types

Blank - No coil

G - ISO 4400 DIN 43650
 P - 1/2" NPT conduit port w/leadwire

- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

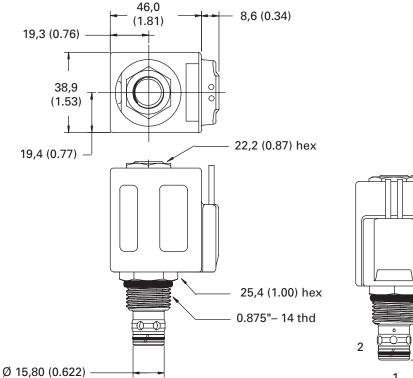
9 Coil series

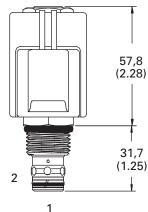
H - 10 series, 26 W

For coil dimensions see page C-6.

¹⁰ Special features

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





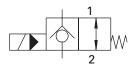
SV3-12-0/0P/0S

Poppet type, normally open solenoid valve

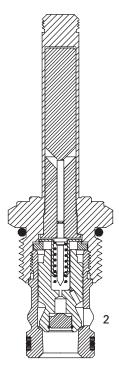
Description

The SV3-12-O is a 2-way, 2position, poppet-type, pilotoperated, normally open solenoid cartridge valve.

Functional Symbol



Sectional View



1

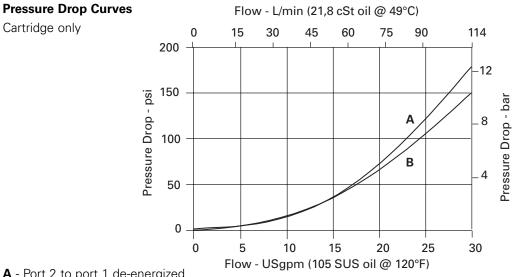
Operation

In the de-energized position, flow can pass through the valve from port 1 to port 2, or from port 2 to port 1.

In the energized position, flow is blocked from port 2 to port 1, and allowed from port 1 to port 2 when the coil force is overcome.

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	e 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
		C-12-2 or C-12-2U if undercut is required. If undercut is not specified, Sgpm 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 17/15/12
Housing material (standard)		Aluminum
Weight including coil		0,336 kg (0.74 lbs)
Seal kit		02-165889 (Buna-N), 02-165888 (Viton®) Viton is a registered trademark of E.I. DuPont



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

S			*) – (A) *** (U) 5 6 7	- **** * - 00	
Function SV3 - Solenoid valve	7 Po CODE	rt Size PORT SIZE	HOUSING NUMBE	R CAVITY	Image: Second state Image: Second state Image: Second state Image: Second state
2 Size	0	Cartridge only			G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port
12 - 12 size	4G	1/2" BSPP	02-161118	C-12-2	w/leadwire
	6G	3/4" BSPP	02-161117	C-12-2	Q - Spade terminals
3 Seal material	10T	SAE 10	02-160640	C-12-2	₩ - Leadwire N - Deutsch (DC only)
Blank - Buna-N V - Viton®	12T	SAE 12	02-160644	C-12-2	Y - Amp JR (DC only)
	4GU	1/2" BSPP	02-161116	C-12-2U	For coil dimensions see page C-5.
4 Style	6GU	3/4" BSPP	02-161115	C-12-2U	
O - Normally open	<u>10TU</u>	SAE 10	02-160641	C-12-2U	10 Special features
5 Manual Override Option	12TU	SAE 12	02-160645	C-12-2U	00 - None (Only required if valve
 P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134. Control Valve housing material Omit for cartridge only A - Aluminum 	 8 Voltage rating 00 - No coil 12D - 12VDC 24D - 24VDC 36D - 36VDC 		24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.		omitted if "00.") Note Use 10 series, 20 W coils with this solenoid valve.
Dimensions mm (inch) Torque cartridge in aluminum housing 81-95 Nm (60-70 ft. lbs)	19	9,4 (0.77) 38,9 (1.53)	46,0 (1.81)		0.34)
Note When solenoid valve is ordered as cartridge only, coil nut is included.		72,9 (2.88)			(0.75) hex (1.25) hex

44,7

(1.76)

Ø23,75 (0.935) -

WARNING

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

∌ 2

1

1.062" – 12 Thd.

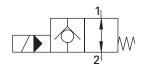
SV13-12-0/0P/0S

Poppet type normally open solenoid valve, 350 bar

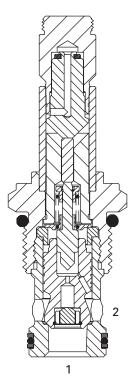
Description

The SV13-12-O is a 2-way, 2-position, pilot operated, poppet type, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



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.

Operation

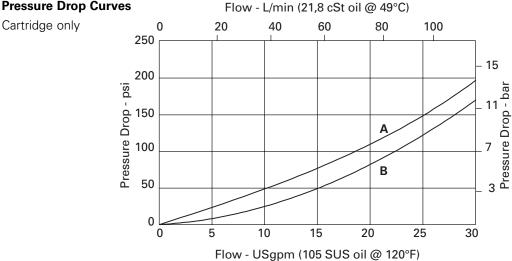
In the de-energized position, flow can pass through the valve from port 1 to port 2, or from port 2 to port 1.

In the energized position, flow is blocked from port 2 to port 1, and allowed from port 1 to port 2 when the coil force is overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)			
(all ports) 350 bar (5000 psi)			
finite life) 310 bar (4500 psi)			
114 L/min (30 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-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.			
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.			
Cleanliness code 18/16/13			
Steel			
0,27 kg (0.59 lbs)			
02-165889 (Buna-N), 02-165888 (Viton®) Viton is a registered trademark of E.I. DuPont			

Pressure Drop Curves



A - Port 1 to port 2 de-energized

B - Port 2 to port 1 de-energized

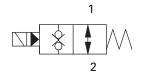
	SV13 – 12 (V) – O (*) – (S) ** – **** * H – 1 2 3 4 5 6 7 8 9 10	
Function SV13 - Solenoid valve	6 Valve housing material Blank - Cartridge only S - Steel	 Gonnector types Blank - No coil G - ISO 4400 DIN 43650
2 Size		P - 1/2" NPT conduit port
12 - 12 size	7 Port Size	w/leadwire
	CODE PORT SIZE HOUSING NUMBER	 Q - Spade terminals W - Leadwire
3 Seal material	0 Cartridge only	N - Deutsch (DC only)
Blank - Buna-N V - Viton®	4G 1/2" BSPP 02-175062 4GU 1/2" BSPP 02-172512	— Y - Amp JR (DC only)
	6G 3/4" BSPP 02-169665	
4 Style	6GU 3/4" BSPP 02-162922	10 Coil series H - 10 series, 26 W
O - Normally open	10T SAE 10 02-169744	For coil dimensions see page C-6.
5 Manual override option	10TU SAE 10 02-169817	
Blank - No manual override	12T SAE 12 02-169782	11 Special features
P - Push type S - Screw type	12TU SAE 12 02-169790	00 - None
For valve dimensions with manual	See section J for housings.	Only required if valve has special features,
override option installed see page A-134.	8 Voltage rating 24A - 24VAC 00 - No coil 120A - 120VAC 12D - 12VDC 240A - 240VAC 24D - 24VDC 12B - 12VDC/w diode* 36D - 36VDC 24B - 24VDC/w diode*	omitted if "00.")
Dimensions	*Optional arc suppression diode.	
mm (inch) Torque cartridge in steel housing 102-115 Nm (75-85 ft. lbs) Note When solenoid valve is ordered as cartridge only, nut is included.	46,0 (1.81) 38,9 (1.53) 19,4 (0.77) 46,0 (1.81) 8,6 (0.34) 22,2 (0.875) hex	
WARNING Maintain 5-8 Nm (4-6 ft. lbs) maxi- mum torque on valve tube nut. Over tightening may cause valve failure.	31,75 (1.250) hex 0 23,77 (.936)	d. $44,7$ (1.76) 2

Bi-directional, normally open solenoid valve

Description

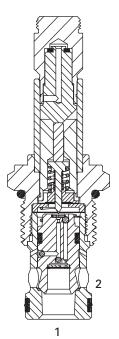
The SBV11-12-O is a bi-directional, 2-way, 2-position, normally open, poppet type, screw-in cartridge, solenoid valve.

Functional Symbol



Sectional View

A-70



Operation

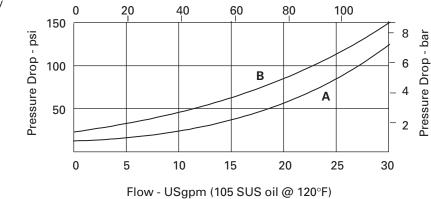
In the de-energized position, flow is allowed in both directions. In the energized position, flow is blocked in both directions.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 2	21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	114 L/min (30 USgpm)
Internal leakage, port 1 to port 2 & 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
	C-12-2 or C-12-2U fter number if undercut is required. If undercut is not specified, 0 psi@15 USgpm and 20 psi @ 30 USgpm higher pressure drop.
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum or steel
Weight cartridge only	0,27 kg (0.59 lbs)
Seal kit	02-165889 (Buna-N), 02-165888 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



Flow - L/min (21,8 cSt oil @ 49°C)

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

SBV11 -	12 (V) -	- O – (*) ** –	**** * H

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

6 Port Size				
CODE	PORT SIZE	ALUMINUM	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 **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

8 Connector types

Blank - No coil

- G ISO 4400 DIN 43650
 P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

9 Coil series

H - 10 series, 26 W

For coil dimensions see page C-6.

10 Special features

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

Dimensions mm (inch)

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, nut is included.

WARNING

Maintain 5-8 Nm

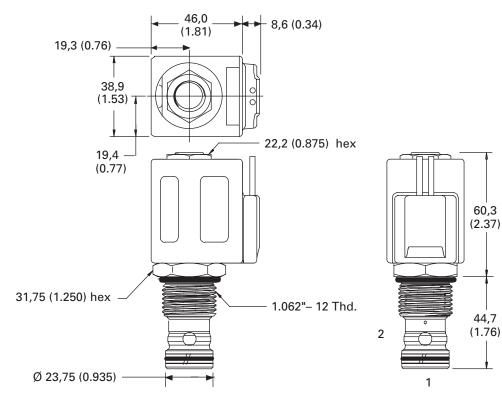
(4-6 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure.



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).



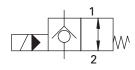
SV3-16-0/0P/0S

Poppet type, normally open solenoid valve

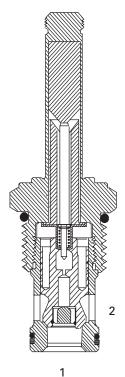
Description

The SV3-16-O is a 2-way, 2-position, poppet type, pilot operated, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

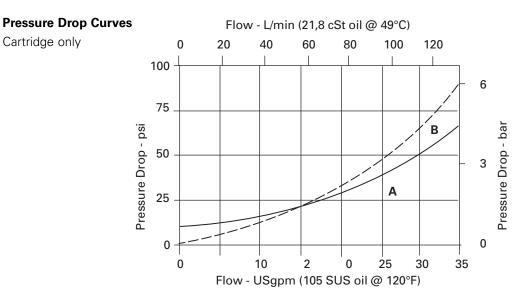


Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1 and allowed from port 1 to port 2 when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,9 kg (1.98 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®) Viton is a registered trademark of E.I. DuPont



A - Port 1 to port 2 energized

B - Port 2 to port 1 de-energized

	SV3 -	- 16 (V) – 0	(*) – (A) *** – **** * – 00 (*) – (A) *** – **** * – 00 (*) – (A) *** – **** * – 00 (*) – (A) *** – ****	
1 Function	7 Po	rt Size		9 Connector type
SV3 - Solenoid valve	CODE	PORT SIZE	HOUSING NUMBER	Blank - No coil G - ISO 4400 DIN
2 Size	0	Cartridge only		P - 1/2" NPT cond
16 - 16 size	6B	3/4" BSPP	02-175463*	w/leadwire
	12T	SAE 12	566149*	Q - Spade termina
3 Seal material	6G	3/4" BSPP	876718	 W - Leadwire N - Deutsch (DC o
Blank - Buna-N	10H	SAE 10	876717	- Y - Amp JR (DC of
V - Viton®	12H	SAE 12	566113	For coil dimensions see page
4 StyleO - Normally open	See section J for housings. *Light duty housing			10 Special feature
 Manual Override Option Blank - No manual override P - Push type S - Screw type 	00 - No 12D - 24D -	oltage rating o coil 12VDC 24VDC 36VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*	00 - None (Only required if va has special feature omitted if "00.")

For valve dimensions with manual override option installed see page A-134.

6 Valve housing material

Omit for cartridge only A - Aluminum

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.

WARNING

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

nut. Over tightening may cause valve failure.

*Optional arc suppression diode.

oes

- 43650 duit port
- als
- only)
- only)

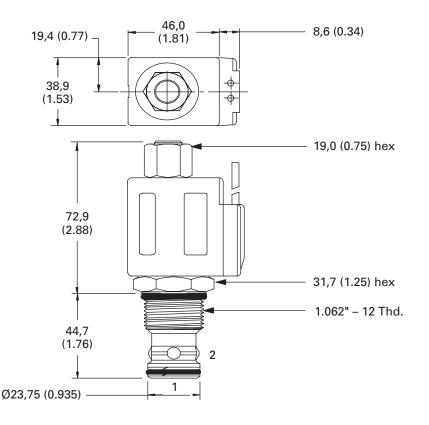
age C-S.

res

alve es,

Note

Use 10 series, 20 W coils with this solenoid valve.



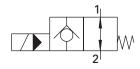
SV13-16-0/OP/OS

Poppet type normally open solenoid valve, 350 bar

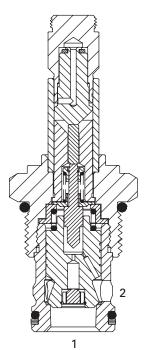
Description

The SV13-16-O is a 2-way, 2-position, pilot operated, poppet type, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Application Note

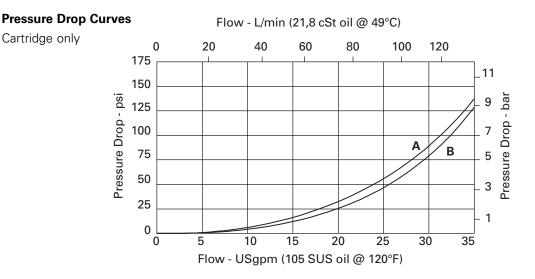
This valve is pilot operated and requires a minimum flow of 1-2 L/min (0.3 - .5 USgpm) in order to shift. For operation at very low flow conditions contact your Eaton representative.

Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1 and allowed from port 1 to port 2, when the coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	T (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	132 L/min (35 USgpm)
Internal leakage	less than 5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-16-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,39 kg (0.85 lbs)
Seal kit	565810 (Buna-N), 889609 (Viton®) Viton is a registered trademark of E.I. DuPont



A - Port 2 to port 1 de-energized

B - Port 1 to port 2

	SV13		O (*) – (S) ** – **** * H – C 4 5 6 7 8 910 [
1 Function SV13 - Solenoid valve		Ive housing ma - Cartridge only eel		 Connector types Blank - No coil G - ISO 4400 DIN 43650
2 Size				 P - 1/2" NPT conduit port w/leadwire
16 - 16 size	CODE	PORT SIZE	HOUSING NUMBER	Q - Spade terminals
3 Seal material	0	Cartridge only		 W - Leadwire N - Deutsch (DC only)
Blank - Buna-N	4G	1/2" BSPP	02-175106	Y - Amp JR (DC only)
V - Viton®	6G	3/4" BSPP	02-175107	
4 Style	10T	SAE 10	02-175104	10 Coil series
O - Normally open	12T	SAE 12	02-175105	— H - 10 series, 26 W
5 Manual override option	See secti	on J for housings.		For coil dimensions see page C-6.
Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-134.	00 - N 12D - 24D -	oltage rating lo coil 12VDC 24VDC 36VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*	 Special features 00 - None (Only required if valve has special features, omitted if "00.")

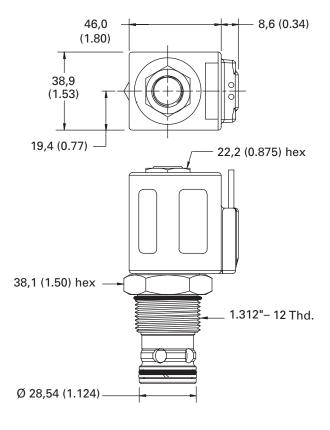
Dimensions

mm (inch)

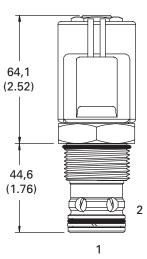
Torque cartridge in steel housing 136-149 Nm (100-110 ft. lbs)

Note

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



*Optional arc suppression diode.





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

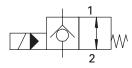
SV3-20-0/0P/0S

Poppet type, normally open solenoid valve

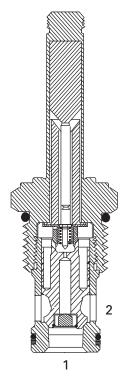
Description

The SV3-20-O is a 2-way, 2-position, poppet type, pilot operated, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

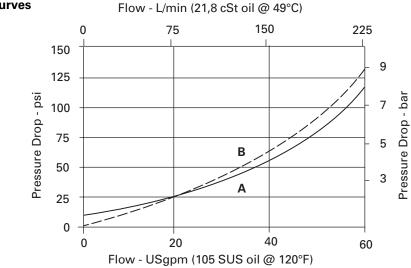
In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, flow is blocked from port 2 to port 1 and allowed from port 1 to port 2 when coil forces are overcome.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 210 bar (3000 psi)
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Response times (100% rated voltage and flow)	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

Pressure Drop Curves

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 (V) -	- O (*) -	- *** -	- **** * -	00
		4 5		└─── └─ │	9

1 Function

SV3 - Solenoid valve

2 Size

20 - 20 size

3 Seal material

Blank - Buna-N

V - Viton®

4 Style

C - 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-134.

Dimensions

mm (inch)

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.

	WARNING
	Maintain 5-8 Nm
\leftarrow	(16ft lbc) maxi

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

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 housings.

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

See pages J-3 and J-4 for housings.

Voltage rating

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

8 Connector types

Blank - No coil

- G ISO 4400 DIN 43650P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

For coil dimensions see page C-5.

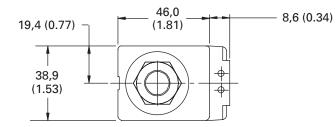
9 Special features

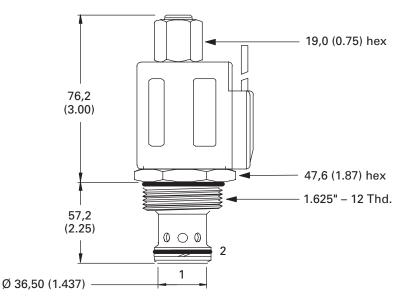
00 - None

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

Note

Use 10 series, 20 W coils with this solenoid valve.





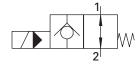
SV13-20-0/0P/0S

Poppet type, normally open solenoid valve

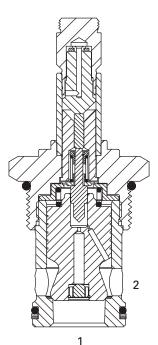
Description

The SV13-20-O is a 2-way, 2-position, pilot operated, poppet type, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Application Note

This valve is pilot operated and requires a minimum flow of 1-2 L/min (0.3 - .5 USgpm) in order to shift. For operation at very low flow conditions contact your Eaton representative.

Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position,

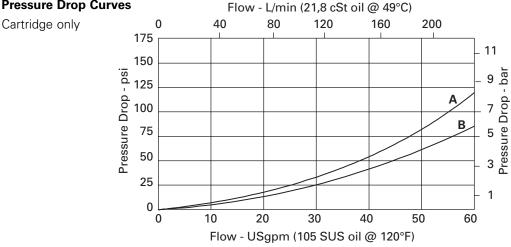
flow is blocked from port 2 to port 1 and allowed from port 1 to port 2, when the coil forces are overcome.

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)	350 bar (5000 psi)*
Cartridge fatigue pressure (infinite life)	210 bar (4500 psi)
Rated flow	227 L/min (60 USgpm)
Internal leakage, port 2 to port 1	less than 5 drops/min. max @ 350 bar (5000 psi)
Temperature range	-40° to 100°C (-40° to 212°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Cavity	C-20-2
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,62 kg (1.37 lbs)
Seal kit	889615 (Buna-N), 889619 (Viton®) Viton is a registered trademark of E.I. DuPont

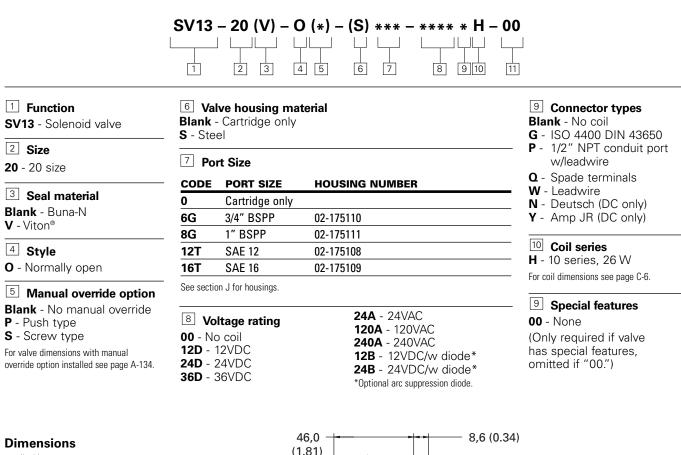
*For application pressure over 280 bar (4000 psi) consult factory

Pressure Drop Curves



A - Port 2 to port 1 de-energized

B - Port 1 to port 2

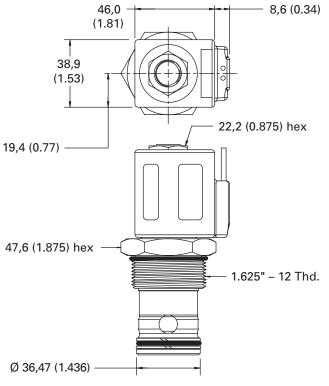


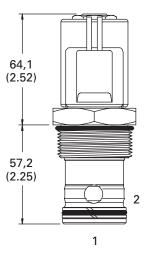
mm (inch)

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

Note

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





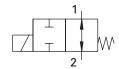
WARNING Maintain 5-8 Nm

(4-6 ft. lbs) maximum torque on valve tube nut. Over tightening may cause valve failure. Poppet type, normally open solenoid valve

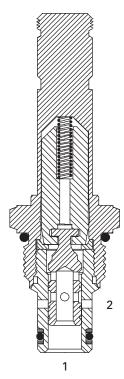
Description

The SV4-8-O is a 2-way, spool type, direct acting, normally open, solenoid valve.

Functional Symbol



Sectional View



Operation

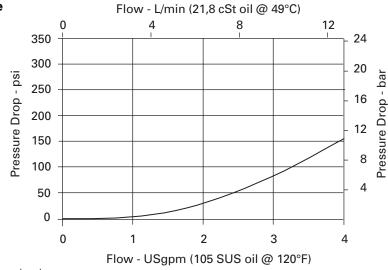
In the de-energized position, the SV4-8-O valve allows bi-directional flow between ports 1 and 2. In the energized position, both ports 1 and 2 are blocked.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,27 kg (0.60 lbs)
Seal kit	02-160777 (Buna-N), 02-160778 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve

Cartridge only



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

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

7 8

6

9

10 11

12

1 Function

SV4 - Solenoid valve

2 Size

8	-	8	size

3 Seal	material
--------	----------

Bla	ank -	Buna-N	
	N C .		

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-135.

6 Filter option Blank - None

F - Filter screen

7 Valve housing material

4 5

Omit for cartridge only - Aluminum

8 Port Size

Α

2 3

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
6Т	SAE 6	02-160731
8T	SAE 8	02-160732

See section J for housings.

 9 Voltage rating 00 - No coil 12D - 12VDC 24D - 24VDC 26D - 26VDC 	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode*
36D - 36VDC	24B - 24VDC/w diode* *Optional arc suppression diode.

10 Connector types Blank - No coil

G - ISO 4400 DIN 43650

- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

11 Coil series

S - 8 series, 16 W

For coil part numbers see page C-3.

12 Special features

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

Dimensions

mm (inch)

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

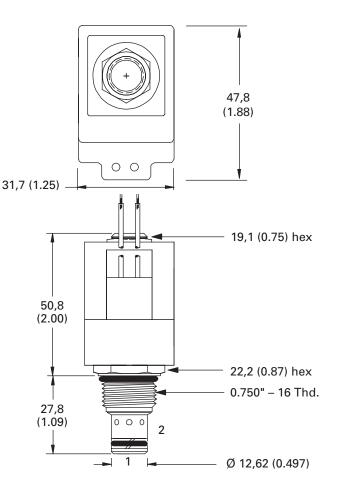
Note

When solenoid valve is ordered as cartridge only, 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.



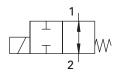
SV14-8-0/0M

Spool type, normally open solenoid valve, 350 bar

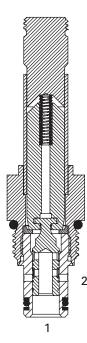
Description

The SV14-8-O is a 2-way, 2position, spool type, direct acting, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

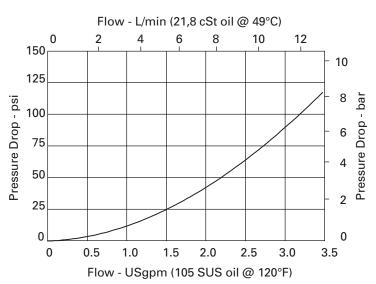


Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position, both ports are closed.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 d	cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	13 L/min (3.5 USgpm)
Internal leakage, port 2 to port 1	140 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 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,11 kg (0.25 lbs)
Seal kit	02-165875 (Buna-N), 02-165877 (Viton®) Viton is a registered trademark of E.I. DuPont



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

Pressure Drop Curve

Cartridge only

 Function SV14 - Solenoid valve 	 6 Valve housing material Blank - Cartridge only S - Steel 		 Connector types Blank - No coil G - ISO 4400 DIN 43650 	
2 Size	7 Port Size			P - 1/2" NPT conduit por
8 - 8 size	CODE PORT S	SIZE HOUSING NUM	RER	w/leadwire Q - Spade terminals
3 Seal material	0 Cartridg		BEN	W - Leadwire
Blank - Buna-N	2G 1/4″ BSI	•		N - Deutsch (DC only) Y - Amp JR (DC only)
🗸 - Viton®	3G 3/8″ BSI			
4 Style	4T SAE 4	02-160736		10 Coil series
D - Normally open	6T SAE 6	02-160737		P - 8 series, 20 W
	8T SAE 8	02-160738		For coil dimensions see page C-4.
5 Manual override option Blank - No manual override	See section J for housi	ings.		II Special features
For valve dimensions with manual override aption installed see page A-135. Dimensions mm (inch) Torque cartridge in steel or aluminum housing	8 Voltage rat 00 - No coil 12D - 12VDC 24D - 24VDC 36D - 36VDC 15,9 (0.63) 31,8 (1.25)	120A - 1 240A - 2 12B - 12 24B - 24		(Only required if valve has special features, omitted if "00.")
Note When solenoid valve is ordered as cartridge only,			— 15,8 (0.62) hex	58,4

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

Ø 12,6 (0.500) -

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A-83

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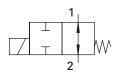
SV4-10-O/OM/OR

Spool type, normally closed solenoid valve

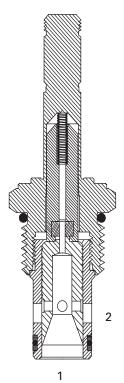
Description

The SV4-10-O is a 2-way, 2-position, spool type, direct acting, normally open, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

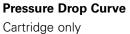


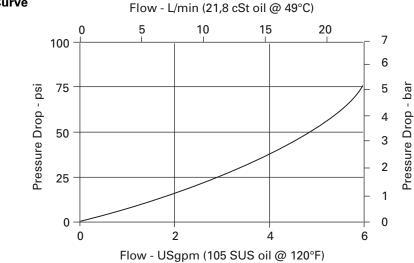
Operation

In the de-energized position, this valve allows bidirectional flow between port 1 and port 2. In the energized position both ports are closed.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)	
Typical application pressure (all ports) 210 bar (
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 18/16/13	
Housing material (standard)	Aluminum	
Weight including cartridge	0,4 kg (0.87 lbs)	
Seal kit	565806 (Buna-N), 889627 (Viton [®]) Viton is a registered trademark of E.I. DuPont	





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

SV4 -	- 10 (V) -	- O (*) (F) -	- **	**** * - 00

1 Function

SV4 - Solenoid valve

2 Size

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

O - Normally open

5 Manual override option

Blank - No manual override **M** - Knob type **R** - Cable type For valve dimensions with manual override option installed see page A-135.

6 Filter option

Blank - None **F** - Filter screen

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.

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- (,	4 14

WARNING

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

7 Port Size			
CODE	PORT SIZE	HOUSING NUMBER	
0	Cartridge only		
3B	3/8" BSPP	02-175462*	
6T	SAE6	566151*	
2G	1/4" BSPP	876702	
3G	3/8" BSPP	876703	
6H	SAE 6	876700	
8H	SAE 8	876701	

24A - 24VAC

*Light duty housing. See section J for housings.

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

120A - 120VAC
 240A - 240VAC
 12B - 12VDC/w diode*
 24B - 24VDC/w diode*
 * 0ptional arc suppression diode.

Connector types Blank - No coil G - ISO 4400 DIN 43650

P - 1/2" NPT conduit port w/leadwire

- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

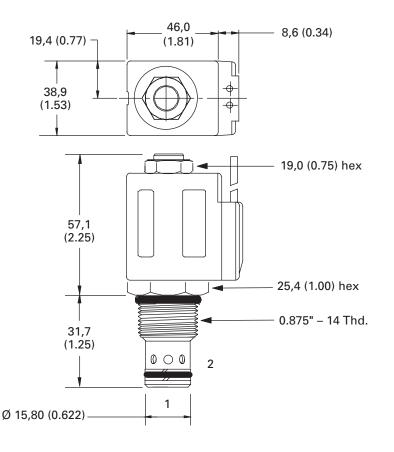
For coil dimensions see page C-5.

10 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



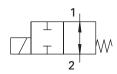
SV14-10-0/0M

Spool type, normally open solenoid valve, 350 bar

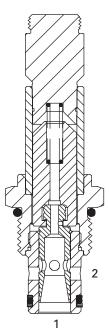
Description

The SV14-10-O is a 2-way, 2-position, spool type, direct acting, normally open screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

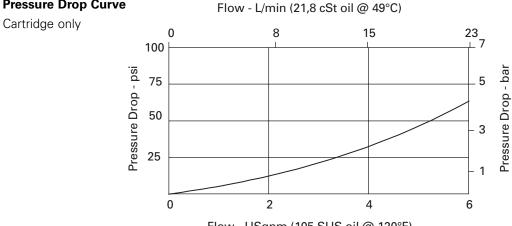
In the de-energized position, this valve allows bidirectional flow between port 1 and port 2.

In the energized position, both ports are closed.

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 ps		
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 18/16/13	
Housing material (standard)	Steel	
Weight cartridge only	0,18 kg (0.39 lbs)	
Seal kit	566806 (Buna-N), 889627 (Viton [®]) Viton is a registered trademark of E.I. DuPont	

Pressure Drop Curve



Flow - USgpm (105 SUS oil @ 120°F)

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

	SV14 – 10 (V) – O (M) – (S) ** – **** * H – 0	0
		1
Function SV14 - Solenoid valve	6 Valve housing material Blank - Cartridge only S - Steel	 Gonnector types Blank - No coil G - ISO 4400 DIN 43650
2 Size 10 - 10 size	Image: Port Size	 P - 1/2" NPT conduit port w/leadwire
	CODE PORT SIZE HOUSING NUMBER	 Q - Spade terminals W - Leadwire
3 Seal material Blank - Buna-N	0 Cartridge only	 – N - Deutsch (DC only)
V - Viton [®]	2G 1/4" BSPP 02-175102	_ Y - Amp JR (DC only)
	3G 3/8" BSPP 02-175103 6T SAE 6 02-175100	Coil series
4 Style	8T SAE 8 02-175100 8T SAE 8 02-175101	_ H - 10 series, 26 W
O - Normally open		For coil dimensions see page C-6.
5 Manual override option Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135.	See section J for housings.Image: Se	 11 Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions mm (inch) Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)	46,0 (1.80) 38,9 (1.53) (1.	.)
Note	19,4 (0.77) 22,2 (0.875) hex	
When solenoid valve is ordered as cartridge only, nut is included.		57,8 (2.28)
WARNING Maintain 5-8 Nm (4-6 ft. lbs) maxi- mum torque on valve tube nut. Over tightening may cause valve failure.	25,4 (1.00) hex 0.875" - 14 The	d. 31,7 (1.25) 1

A-87

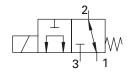
3-way, 2-position spool type solenoid valve,

Description

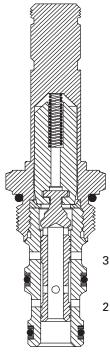
The SV1-8-3 is a 3-way, 2-position, direct acting, spool type solenoid valve.

This valve can be used in applications requiring separate pressure and tank

Functional Symbol



Sectional View



1

lines, such as a single acting cylinder, or any other application where a threeway, two-position solenoid valve is needed.

Operation

In the de-energized position, the SV1-8-3 allows flow from port 2 to port 1, while port 3 is blocked. In the energized position, flow is allowed from port 1 to port 3, while port 2 is blocked.

RATINGS AND SPECIFICATIONS

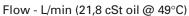
Performance data is typical with fluid at 21,8 c.	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage (per land)	82 cm³/min (5 in³/min) max. @ 210 bar (3000 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®) Viton is a registered trademark of E.I. DuPont

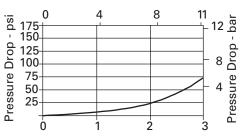
Pressure Drop Curves

Cartridge only

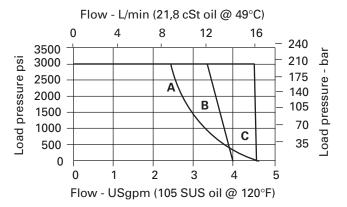
Operating Limits

- A Selector 1 to 3
- **B** Normally Open **C** - Normally closed and
 - Selector 1 to 2





Flow - USgpm (105 SUS oil @ 120°F)



SV1 ·	– 8 (V) ·	– 3 (M) -	- (A) ** -	**** * S – 00	
		4 5		8 9 10 11	

1 Function

SV1 - Solenoid valve

2 Size 8 - 8 size

3	Seal material
Bla	nk - Buna-N

V - Viton®

4 Style

3 - 3-way, 2 position

5 Manual override option

Blank - No manual override M - Knob type

For valve dimensions with manual override option installed see page A-135.

6 Valve housing material Omit for cartridge only

A - Aluminum

7 Port Size

O Cartridge only 2G 1/4" BSPP 02-160739 3G 3/8" BSPP 02-160740	
3G 3/8" BSPP 02-160740	
4T SAE 4 02-160741	
6T SAE 6 02-160742	

See section J for housings.

8 Voltage rating
Blank - No coil
12D - 12VDC
24D - 24VDC
36D - 36VDC

24A - 24VAC
120A - 120VAC
240A - 240VAC
12B - 12VDC/w diode*
24B - 24VDC/w diode*
*Optional arc suppression diode.

9 Connector types

Blank - No coil

- G ISO 4400 DIN 43650
- \mathbf{P} 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

10 Coil series

S - 8 series, 16 W

11 Special features

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

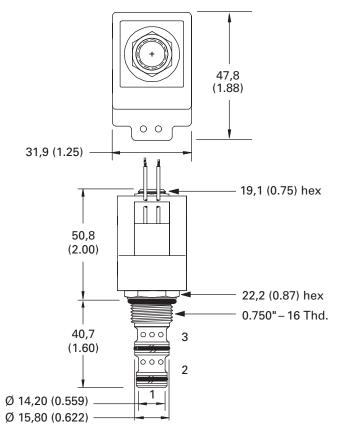
Dimensions

mm (inch)

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

Note

When solenoid valve is ordered as cartridge only, 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.

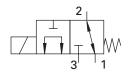
SV11-8-3/3M

3-way, 2-position spool type solenoid valve, 350 bar

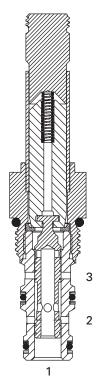
Description

The SV11-8-3 is a 3-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

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

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)				
Typical application pressure (all ports)	350 bar (5000 psi)			
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)			
Rated flow	11 L/min (3 USgpm)			
Internal leakage, combined port 2 and port 1	140 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 18/16/13			
Housing material (standard)	Steel			
Weight cartridge only	0,13 kg (0.28 lbs)			
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®) Viton is a registered trademark of E.I. DuPont			

Performance characteristics

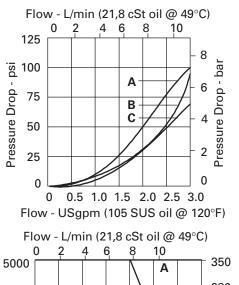
Cartridge only

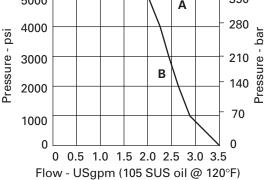
Pressure drop vs. flow

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

Operating Limits

- A Normally open & closed
- B Selector 1 to 2 and 1 to 3





	SV11	I – 8 (V) – 3 ↓ ↓ ↓ ↓ 2 3 4	B (M) – (S) ** – **** * P – 00 · · · · · · · · · ·)	
Function SV11 - Solenoid valve Size		lve housing ma - Cartridge only el	terial	 Gonnector types Blank - No coil G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port 	
8 - 8 size	7 Port Size			w/leadwire	
	CODE	PORT SIZE	HOUSING NUMBER	Q - Spade terminals	
3 Seal material	0	Cartridge only		 W - Leadwire N - Deutsch (DC only) 	
Blank - Buna-N	2G	1/4" BSPP	02-160743	$_{-}$ Y - Amp JR (DC only)	
V - Viton [®]	3G	3/8" BSPP	02-160746		
4 Style	4T	SAE 4	02-160745	10 Coil series	
3 - 3-way, 2 position	6T	SAE 6	02-160744	P - 8 series, 20 W	
5 Manual override option	See section	on J for housings.		For coil dimensions see page C-4.	
Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135.	8 Vol 00 - No 12D - 2 24D - 2 36D - 3	12VDC 24VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	 III Special features O0 - None (Only required if valve has special features, omitted if "00.") 	

Dimensions

mm (inch)

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

Note

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

WARNING

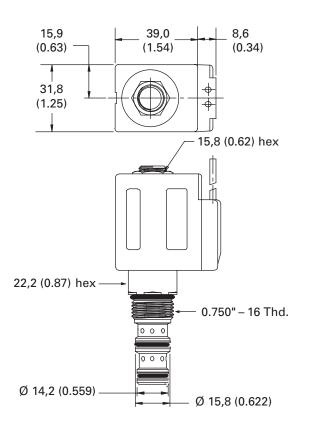
mum torque on valve tube

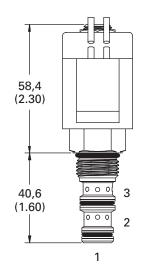
nut. Over tightening may

cause valve failure.

Maintain 5-8 Nm

(4-6 ft. lbs) maxi-



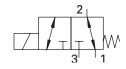


3-way, 2-position, spool type solenoid valve

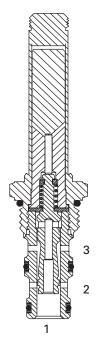
Description

The SV4-8-3 is a 3-way, 2-position, direct acting, spool type solenoid valve.

Functional Symbol



Sectional View



Operation

In the de-energized position, the SV4-8-3 allows flow from port 2 to port 1, while port 3 is blocked. In the energized position, flow is allowed from port 2 to port 3, while blocking port 1. Pressure on port 1 should not exceed 20 bar (300 psi).

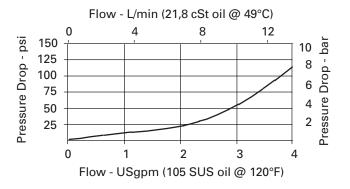
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,29 kg (0.64 lbs)
Seal kit	02-160755 (Buna-N), 02-160756 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curve

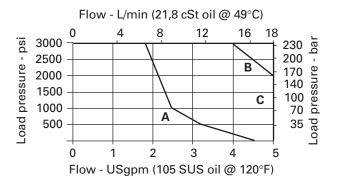
Cartridge only

Port 2 to port 1 and port 2 to port 3



Operating Limits

- A Normally open port 1 to port 2
- **B** Normally closed port 3 to port 1
- C Selector 2 to 1 and 2 to 3



		S (M) – (A) ** – **** * S – 0 	_]
On	nit for cartridge		 9 Connector types Blank - No coil G - ISO 4400 DIN 43 P - 1/2" NPT conduit
7 Port Size			w/leadwire
- CODE	PORT SIZE	HOUSING NUMBER	Q - Spade terminals
0	Cartridge only		 W - Leadwire N - Deutsch (DC only
2G	1/4" BSPP	02-160739	Y - Amp JR (DC only
3G	3/8" BSPP	02-160740	
4T	SAE 4	02-160741	Coil series
6Т	SAE 6	02-160742	 S - 8 series, 16 W For coil dimensions see page C
8 Vo 00 - No 12D -	Itage rating o coil 12VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24 B - 24/DC/w diode*	 <u>11</u> Special features 00 - None (Only required if valve has special features, omitted if "00.")
	 6 Va Or A - Alu 7 Po 2G 2G 3G 4T 6T See section 8 Va 00 - Na 12D - 24D - 5 	 6 Valve housing ma Omit for cartridge A - Aluminum 7 Port Size CODE PORT SIZE 0 Cartridge only 2G 1/4" BSPP 3G 3/8" BSPP 4T SAE 4 6T SAE 6 See section J for housings. 	Image: Second StructureImage: Second Struct

Dimensions

mm (inch)

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

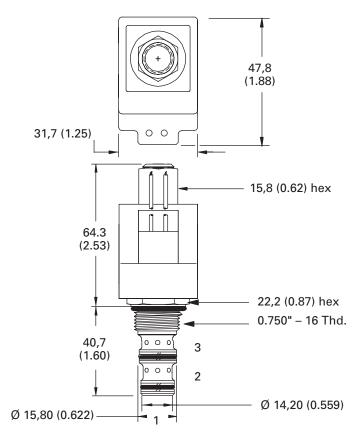
Note

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



WARNING

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



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- 13650 uit port
- 3
- ıly)
- ly)

C-3.

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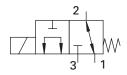
SV1-10-3/3M/3R

3-way, 2-position, spool type solenoid valve

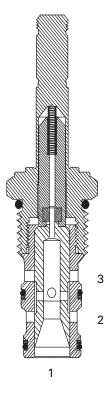
Description

The SV1-10-3 is a 3-way, 2-position, direct acting, spool type screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

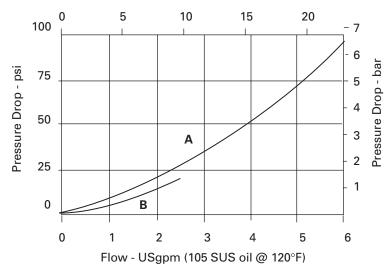
In the de-energized position, this valve allows flow from port 2 to port 1 while port 3 is blocked. In the energized position, flow is allowed from port 1 to port 3 while port 2 is blocked.

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) Max. flow port 1 to 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	565804 (Buna-N), 889599 (Viton®) Viton is a registered trademark of E.I. DuPont			

Pressure Drop Curves

Cartridge only



Flow - L/min (21,8 cSt oil @ 49°C)

A - Port 3 to port 1 energized

B - Port 1 to port 2 de-energized

8 Connector types Blank - No coil

Q - Spade terminals **W** - Leadwire

G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire

SV1 -	- 10 (V)	– 3 (*) -	- ** -	**** * -	00
		4 5			9

1 Function

SV1 - So	olenoid	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-135.

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.



WARNING Maintain 5-8 Nm (4-6 ft. lbs) maxi-

mum torque on valve tube nut. Over tightening may cause valve failure.

6 Port Size			
CODE	PORT SIZE	HOUSING NUMBER	
0	Cartridge only		
3B	3/8" BSPP	02-173358*	
6T	SAE6	566162*	
2G	1/4" BSPP	876705	
3G	3/8" BSPP	876714	
6H	SAE 6	876704	
8H	SAE 8	876711	

*Light duty housing. See section J for housings.

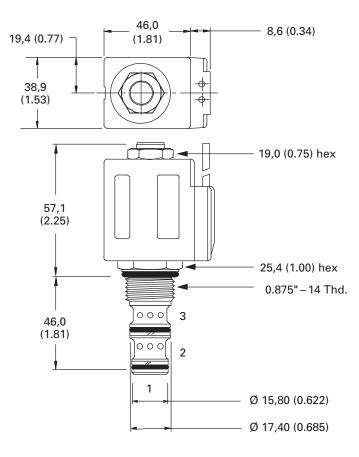
7 Voltage rating 00 - No coil 12D 12D - 12VDC 24D 24D - 24VDC 36D - 36VDC

N - Deutsch (DC only) Y - Amp JR (DC only) For coil dimensions see page C-5. 9 Special features 00 - None (Only required if valve has special features, omitted if "00.") 240A - 240VAC

240A - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode*

24B - 24VDC/w diode*Use 10 series, 20 W coils*Optional arc suppression diode.with this solenoid valve.

Note



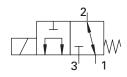
SV11-10-3/3M

3-way, 2-position, spool type solenoid valve, 350 bar

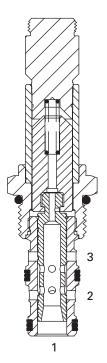
Description

The SV11-10-3 is a 3-way, 2position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

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

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	E SUS and 40°C (120°E)
	13 303/ aliu 43 6 (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	164 cm³/min. (10 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-10-3
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,19 kg (0.42 lbs)
Seal kit	565804 (Buna-N), 889599 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only

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

Operating Limits

A - Normally open, normally closed selector 1 to 2

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B - Selector 1 to 2
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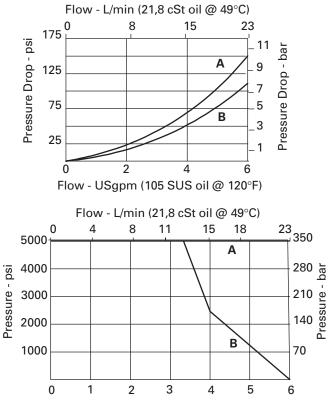
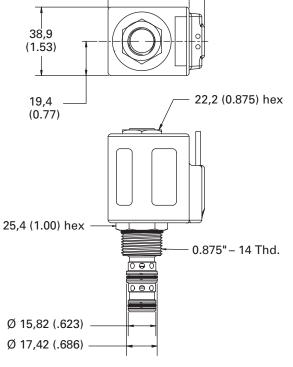
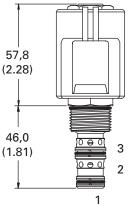


Image: Function SV11 - Solenoid valve		l ve housing ma - Cartridge only el	terial	Image: Second system Image: Second system Second system
2 Size	7 Po	rt Size		P - 1/2" NPT conduit port w/leadwire
10 - 10 size		PORT SIZE	HOUSING NUMBER	Q - Spade terminals
3 Seal material	0	Cartridge only	noosing nomber	- W - Leadwire
Blank - Buna-N	2G	1/4" BSPP	02-175127	N - Deutsch (DC only) Y - Amp JR (DC only)
V - Viton®	3G	3/8" BSPP	02-175128	
4 Style	6Т	SAE 6	02-175124	10 Coil series
3 - 3-way, 2 position	8T	SAE 8	02-175125	 H - 10 series, 26 W For coil dimensions see page C-6.
5 Manual override option Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135.		12VDC 24VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	11 Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions mm (inch) Torque cartridge in steel housing 68-75 Nm (50-55 ft. lbs)		46,0 (1.80) - 38,9 (1.53)	8,6 (0.34)	
Note When solenoid valve is		19,4 (0.77)	22,2 (0.875) hex	





WARNING Maintain 5-8 Nm

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

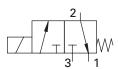
SV4-10-3/3P/3S

3-way, 2-position, spool type solenoid valve

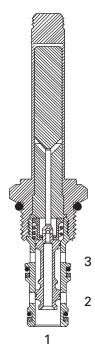
Description

The SV4-10-3 is a 3-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

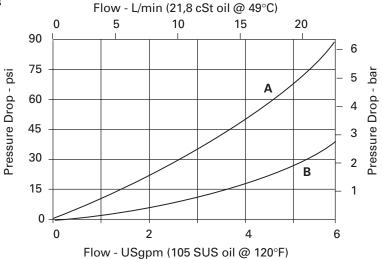
In the de-energized position, this valve allows flow from port 2 to port 1 while port 3 is blocked. In the energized position, flow is allowed from port 2 to port 3 while port 1 is blocked.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST	(105 SUS) and 49°C (120°F)
Typical application pressure * Port 1 pressure not to exceed 13.7 bar (200 psi)	210 bar (3000 psi)*
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	565804 (Buna-N), 889599 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves





A - Port 3 to port 2 energized

B - Port 2 to port 1 de-energized

SV4 -	- 10 (V) -	- 3 (*) -	- **	**** * - 00
		4 5		

1 Function

SV4 - Solenoid valve

2	Size
---	------

10 - 10 size

3 Seal material

Blank - Buna-N

V - Viton®

4 Style

3 - 3-way, 2 position

5 Manual override option

Blank - No manual override P - Push type S - Screw type For valve dimensions with manual override option installed see page A-135.

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.



WARNING Port 1 must be

vented to tank. Tank pressure not to exceed 13.7 bar (200 psi).



WARNING

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

6 Port Size			
CODE	PORT SIZE	HOUSING NUMBER	
0	Cartridge only		
3B	3/8" BSPP	02-173358*	
6T	SAE6	566162*	
2G	1/4" BSPP	876705	
3G	3/8" BSPP	876714	
6H	SAE 6	876704	
8H	SAE 8	876711	

Califinge only	
3/8" BSPP	02-173358*
SAE6	566162*
1/4" BSPP	876705
3/8" BSPP	876714
SAE 6	876704
SAE 8	876711
housing.	

See section J or housings

*Light duty

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

24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *Optional arc suppression diode.

8 Connector types Blank - No coil

G - ISO 4400 DIN 43650

- P 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)

Y - Amp JR (DC only)

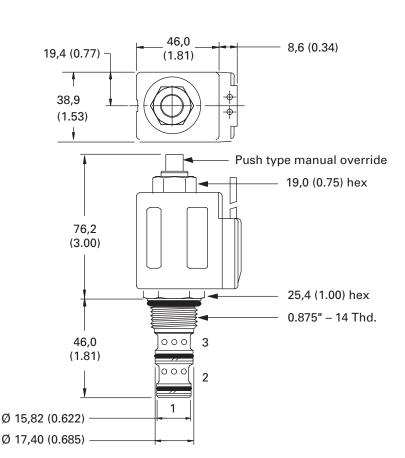
For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



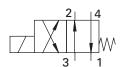
SV1-8-4/4M

4-way, 2-position, spool type

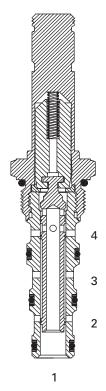
Description

The SV1-8-4 is a 4-way, 2-position, direct acting, spool type solenoid valve.

Functional Symbol



Sectional View

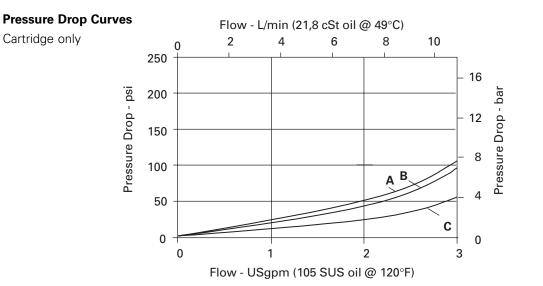


Operation

In the de-energized position, the SV1-8-4 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.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST ((105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage (per land)	82 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



A - Port 3 to port 4 or port 3 to port 2

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

SV1 - 8 (V) - 4 (M) - (A) ** - **** * S - 00

6 7

8

9 10



SV1 - Solenoid valve

² Size)
-------------------	---

8 - 8	3 size
--------------	--------

3	Seal material
Bla	1k - Buna-N
V - \	/iton [®]

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-135.

Dimensions

mm (inch)

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

Note

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

6 Valve housing material

4 5

Omit for cartridge only - Aluminum

2 3

1

Α

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 housings.

8 Voltage rating
00 - No coil
12D - 12VDC 24D - 24VDC
36D - 36VDC

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

9 Connector types Blank - No coil

G - ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port

- w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

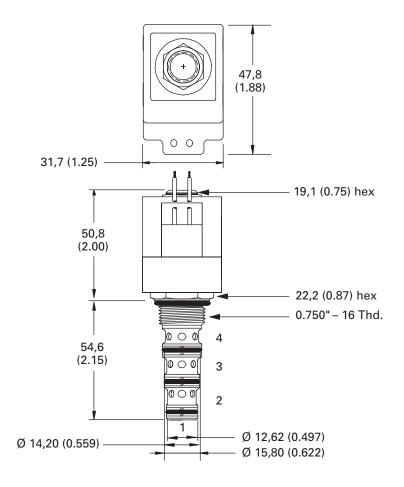
10 Coil series

S - 8 series, 16 W

For coil dimensions see page C-3.

11 **00** - None

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





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

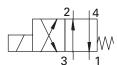
SV11-8-4/4M

4-way, 2-position spool type solenoid valve, 350 bar

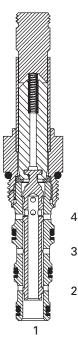
Description

The SV11-8-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



A-102

Operation

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

RATINGS AND SPECIFICATIONS

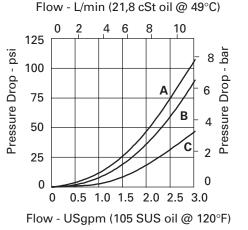
Performance data is typical with fluid at 21,8 cS	T (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	11 L/min (3 USgpm)
Internal leakage, combined port 2 and port 1	270 cm³/min. (16.5 in³/min.) 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 cartridge only	0,14 kg (0.30 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) Viton is a registered trademark of E.I. DuPont

Performance Characteristics

Cartridge only

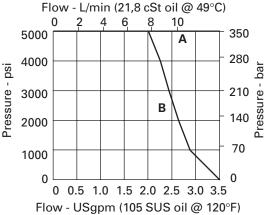
Pressure drop vs. flow

- A Port 3 to 4 and 3 to 2
- **B** Port 4 to 1
- **C** Port 2 to 1



Operating Limits

A - Port 2 to1, 4 to 1, and 3 to 2 **B** - Port 3 to 4



SV11 -	- 8 (V) -	- 4 (M) -	- (S) ** –	**** * P – 00
		4 5	6 7	

1 Function

SV11 - Solenoid valve

2 Size

8 - 8 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

4 - 4-way, 2 position

5 Manual override option

Blank - No manual override **M** - Manual override For valve dimensions with manual override option installed see page A-135.

6 Valv	e housing	material
Blank -	Cartridge o	nly

Blank - Cartridge only S - Steel

7 Port Size

CODE	PORT SIZE	HOUSING NUMBER
0	Cartridge only	
2G	1/4" BSPP	02-160753
3G	3/8" BSPP	02-160754
4T	SAE 4	02-160751
6Т	SAE 6	02-160752

See section J for housings.

8 Voltage rating	24A - 24VAC	11
	120A - 120VAC	00
00 - No coil	240A - 240VAC	(0
12D - 12VDC	12B - 12VDC/w diode*	ha
24D - 24VDC	24B - 24VDC/w diode*	
36D - 36VDC	-,	on
	*Optional arc suppression diode.	

9 Connector types

Blank - No coil

- G ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- **W** Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

10 Coil series

P - 8 series, 20 W

For coil dimensions see page C-4.

Special featuresNone

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

Dimensions

mm (inch)

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

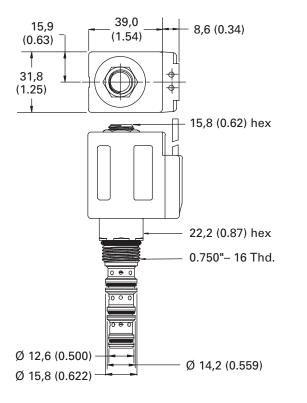
Note

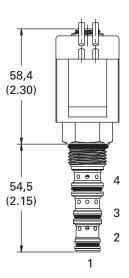
When solenoid valve is ordered as cartridge only, nut is included.



WARNING

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



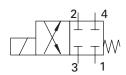


4-way, 2-position spool type solenoid valve

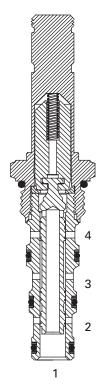
Description

The SV2-8-4 is a four-way, two-position, direct acting, spool-type solenoid valve.

Functional Symbol



Sectional View



Operation

The SV2-8-4 has all ports blocked in the de-energized position.

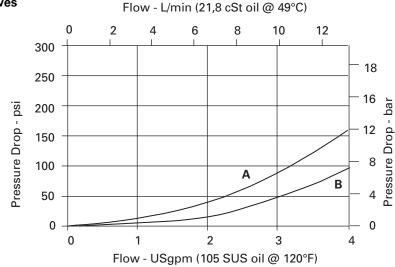
In the energized position, flow is allowed from port 2 to port 1, and from port 3 to port 4.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	13 L/min (4 USgpm)
Internal leakage	82 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: 42 ms
Cavity	C-8-4
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,30 kg (0.66 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



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

	SV2 –	8 (V) – 4 (N 1 – 1 – 1 2 3 4 5	I) – (A) ** – **** * S – 00 I III III 6 7 8 910 11	
Function SV2 - Solenoid valve Size	С	alve housing ma mit for cartridge uminum		 9 Connector types Blank - No coil G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port
2 Size 8 - 8 size	7 Port Size		w/leadwire	
	CODE	E PORT SIZE	HOUSING NUMBER	Q - Spade terminals
3 Seal material	0	Cartridge only		 W - Leadwire N - Deutsch (DC only)
Blank - Buna-N V - Viton®	2G	1/4" BSPP	02-160747	Y - Amp JR (DC only)
	3G	3/8" BSPP	02-160748	
4 Style	<u>4</u> T	SAE 4	02-160749	10 Series Coil
4 - 4-way, 2 position	6T	SAE 6	02-160750	 S - 8 series, 16 W For coil dimensions see page C-3.
5 Manual override option	See sec	tion J for housings.		
Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135.	00 - 1 12D - 24D -	foltage rating No coil - 12VDC - 24VDC - 36VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	 [1] Special features 00 - None (Only required if valve has special features, omitted if "00.")

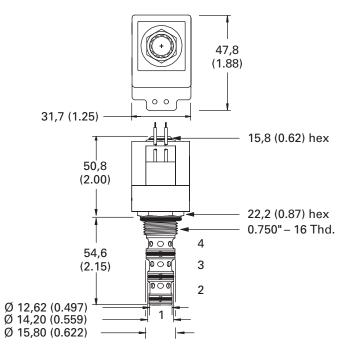
Dimensions

mm (inch)

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.



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

WARNING

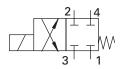
SV12-8-4/4M

4-way, 2-position spool type solenoid valve, 350 bar

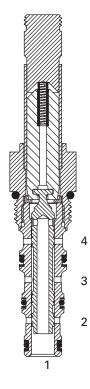
Description

The SV12-8-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



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.

RATINGS AND SPECIFICATIONS

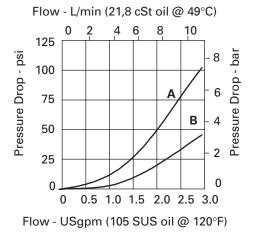
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)				
Typical application pressure (all ports)	350 bar (5000 psi)			
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)			
Rated flow	13 L/min (3.5 USgpm)			
Internal leakage, port 2 to port 1	82 cm³/min. (5 in³/min.) 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 cartridge only	0,14 kg (0.30 lbs)			
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) Viton is a registered trademark of E.I. DuPont			

Performance Characteristics

Cartridge only

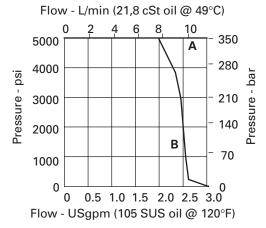
Pressure drop vs. flow

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



Operating Limits

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



:		8 (V) – 4 (M – – – – – – – – – – – – – – – – – – –) – (S) ** – **** * P – 00	
1 Function SV12 - Solenoid valve		Ive housing mat - Cartridge only el	erial	 Gonnector types Blank - No coil G - ISO 4400 DIN 436
² Size	7 Po	rt Size		P - 1/2" NPT conduit w/leadwire
8 - 8 size	CODE	PORT SIZE	HOUSING NUMBER	Q - Spade terminals
3 Seal material		Cartridge only	HOUSING NUMBER	W - Leadwire
Blank - Buna-N	2G	1/4" BSPP	02-160753	N - Deutsch (DC only)
V - Viton [®]	3G	3/8″ BSPP	02-160754	Y - Amp JR (DC only)
4 Style	4T	SAE 4	02-160751	10 Coil series
4 - 4-way, 2 position	6Т	SAE 6	02-160752	P - 8 series, 20 W
5 Manual override option	- See page	J-13 for housings.		For coil dimensions see page C-4
Blank - No manual override	8 Vo	Itage rating	24A - 24VAC	Il Special features

M - Manual override For valve dimensions with manual override option installed see page A-135.

Dimensions

mm (inch)

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

Note

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

39,0 15,9 (0.63) 8,6 (0.34) (1.54) 31,8 (1.25) Π ł 15,8 (0.62) hex п Π 58,4 (2.30)22,2 (0.87) hex 0.750" - 16 Thd. 54,5 (2.15)Ø 12,6 (0.500)

Ø 15,8 (0.622)

Ø 14,2 (0.559)

WARNING Maintain 5-8 Nm

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

120A - 120VAC **00** - No coil 240A - 240VAC 12D - 12VDC 12B - 12VDC/w diode* 24D - 24VDC 24B - 24VDC/w diode* 36D - 36VDC *Optional arc suppression diode.

DIN 43650 conduit port re

- rminals
- (DC only)
- (DC only)

eatures

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

4

3 2

1

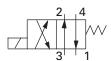
SV1-10-4/4M/4R

4-way, 2-position spool type solenoid valve

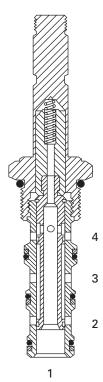
Description

The SV1-10-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



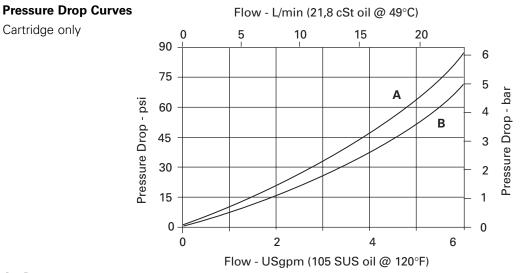
Operation

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

In the energized position, flow is allowed from port 3 to port 4 and from port 4 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	05 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont



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

Cartridge only

SV1 -	- 10 (V) -	- 4 (*) -	- **	**** * - 00
		4 5		

SV1 - Solenoid valve

2	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-135.

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.



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

6 Port Size				
CODE	PORT SIZE	HOUSING NUMBER		
0	Cartridge only			
3B	3/8" BSPP	02-179705*		
6T	SAE6	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 housings.

7 Voltage rating 00 - No coil 12D - 12VDC 24D - 24VDC 36D - 36VDC

Ø 18,97 (0,747)

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

46,0 8,6 19,4 (0.77) (1.81) (0.34) 4 38,9 ¢ (1.53)19,0 (0.75) hex Π 57,1 (2.25)25,4 (1.00) hex 0.875"-14 Thd. 4 000 62,0 (2.44)3 000 2 000 1 Ø 15,80 (0.622) Ø 17,40 (0.685)

8 Connector types

Blank - No coil

- G ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.

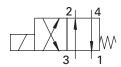
SV11-10-4/4M

4-way 2-position spool type solenoid valve, 350 bar

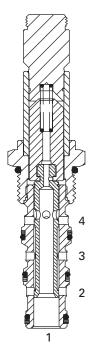
Description

The SV11-10-4 is a 4-way, 2position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



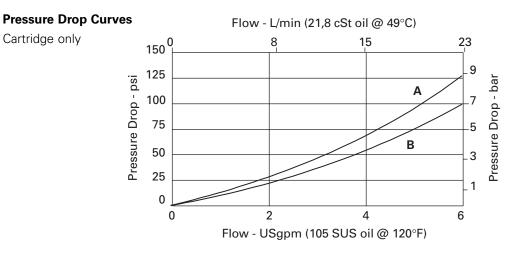
Operation

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

In the energized position, flow is allowed from port 3 to port 4 and from port 2 to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	T (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	23 L/min (6 USgpm)
Internal leakage, port 2 to port 1	82 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-10-4
Fluids	All general purpose hydraulic fluids such as MIL-H-5606, SAE 10, SAE 20 etc.
Filtration	Cleanliness code 18/16/13
Housing material (standard)	Steel
Weight cartridge only	0,21 kg (0.46 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont Co

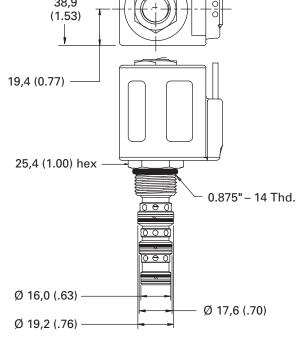


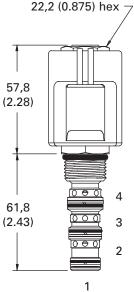
A - Port 3 to port 2 **B** - Port 4 to port 1

Function SV11 - Solenoid valve		2 3 4 Ive housing ma Omit for cartrid		 9 Connector types Blank - No coil G - ISO 4400 DIN 43650
2 Size 10 - 10 size	7 Po	rt Size		 G - 150 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire Q - Spade terminals
3 Seal material Blank - Buna-N V - Viton®	<u>CODE</u> 0 2G 3G	PORT SIZE Cartridge only 1/4" BSPP 3/8" BSPP	02-175139 02-175140	 W - Leadwire N - Deutsch (DC only) Y - Amp JR (DC only)
4 Style 4 - 4-way, 2-position	6Т 8Т	SAE 6 SAE 8 on J for housings.	02-175137 02-175138	10 Coil series H - 10 series, 26 W For coil dimensions see page C-6.
 Manual override option Blank - No manual override M - Manual override For valve dimensions with manual override option installed see page A-135. 		Itage rating o coil 12VDC 24VDC	24A - 24VAC 120A - 120VAC 240A - 240VAC 12B - 12VDC/w diode* 24B - 24VDC/w diode* *0ptional arc suppression diode.	 In Special features 00 - None (Only required if valve has special features, omitted if "00.")
Dimensions mm (inch) Torque cartridge in		46,0 (1.80)		
steel housing 68-75 Nm (50-55 ft. lbs)		(1.53)		22,2 (0.875) hex –

Note

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





WARNING Maintain 5-8 Nm

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

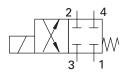
SV2-10-4/4M/4R

4-way, 2-position spool type solenoid valve

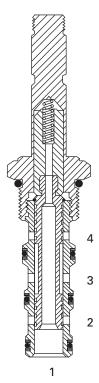
Description

The SV2-10-4 is a 4-way, 2-position, direct acting, spool type screw-in car-tridge solenoid valve.

Functional Symbol



Sectional View



Operation

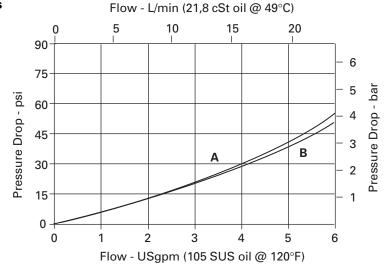
In the de-energized position, all ports are blocked. In the energized position, port 3 is open to port 4 and port 2 is open to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	ST (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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves

Cartridge only



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

SV2 -	· 10 (V) ·	- 4 (*) -	- **	**** *	00
				7 8	

SV2 - Solenoid valve

	2	Size
--	---	------

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

4 - 4-way, 2 position

5 Manual override option

Blank - No manual override M - Knob type R - Cable type For valve dimensions with manual override option installed see page A-135.

6 Port Size

See section J for housings.

7 Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

CODE	PORT S	SIZE	HOUSING NUMBER	
0	Cartridg	je only		
3B	3/8″ BS	PP	02-179705*	
6Т	SAE6		566161*	
2G	1/4" BS	PP	876709	
3G	3/8″ BS	PP	876715	
6H	SAE 6		876708	
8H	SAE 8	876713		
*Light duty housing.				

24A - 24VAC 120A - 120VAC 240A - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *Optional arc suppression diode.

8 Connector types

Blank - No coil

- G ISO 4400 DIN 43650 P - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.

Dimensions

mm (inch)

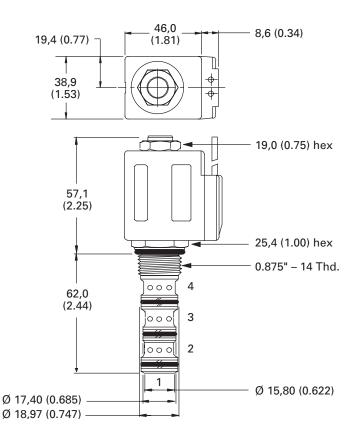
Torque cartridge in aluminum housing 47-54 Nm (35-40 ft. lbs)

Note

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



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



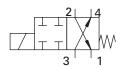
SV3-10-4/4M/4R

4-way, 2-position spool type solenoid valve

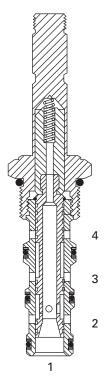
Description

The SV3-10-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



Operation

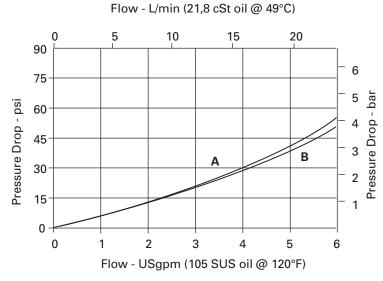
In the de-energized position, port 3 is open to port 4 and port 2 is open to port 1.

In the energized position all ports are blocked.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (10	05 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont

Pressure Drop Curves



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

SV3 -	- 10 (V) -	- 4 (*) -	- **	**** * - 00
	23	4 5	6	

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-135.

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.

WARNING		
WARNING Maintain 5-8 Nm		

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

6 Port Size		
CODE	PORT SIZE	HOUSING NUMBER
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713
*Light dut	y housing.	

See section J for housings.

Voltage rating

00 - No coil

12D - 12VDC

24D - 24VDC

36D - 36VDC

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *0ptional arc suppression diode.

8 Connector types

Blank - No coil

- **G** ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port
- w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)

Y - Amp JR (DC only)

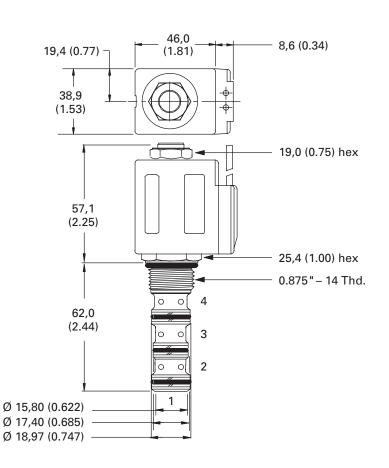
For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



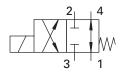
SV4-10-4/4M/4R

4-way, 2-position spool type solenoid valve

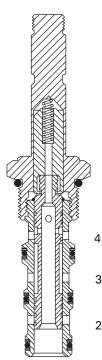
Description

The SV4-10-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View



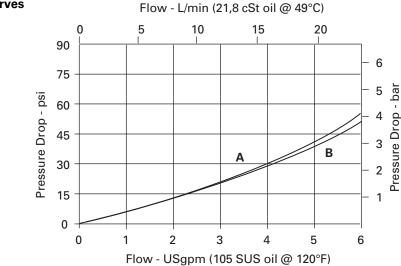
Operation

In the de-energized position, flow is allowed between port 1 and port 4 while port 2 and port 3 are blocked. In the energized position port 3 is open to port 4 and port 2 is open to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cs	ST (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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont





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

SV4 –	10 (V) -	- 4 (*) -	- ** -	**** * - 00	
	23	4 5	6		

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-135.	

Dimensions

mm (inch)

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

Note

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

WARNING

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

6 Port Size		
CODE	PORT SIZE	HOUSING NUMBER
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713
*L'ula dua	- La contra co	

*Light duty housing. See section J for housings.

7 Voltage rating	24A - 24VAC
	120A - 120VAC
00 - No coil	240A - 240VAC
12D - 12VDC	12B - 12VDC/w diode*
24D - 24VDC	24B - 24VDC/w diode*
36D - 36VDC	*Optional arc suppression diode.

8 Connector types

Blank - No coil

- **G** ISO 4400 DIN 43650 **P** - 1/2" NPT conduit port w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)
- Y Amp JR (DC only)

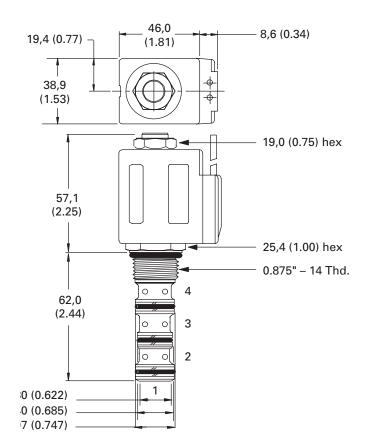
For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



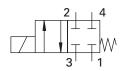
SV5-10-4/4M/4R

4-way, 2-position spool type solenoid valve

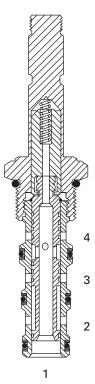
Description

The SV5-10-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

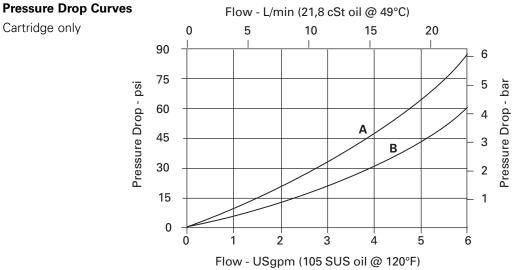


Operation

In the de-energized position, all ports are blocked. In the energized position port 2 is open to port 3 and port 1 is open to port 4.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cST (1	05 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton®) Viton is a registered trademark of E.I. DuPont



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

SV5 -	- 10 (V) ·	- 4 (*) -	- **	**** * - 00
	23	4 5	6	

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-135.

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.



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

6 Port Size

CODE	PORT SIZE	HOUSING NUMBER
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6Т	SAE6	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 housings.

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

24A - 24VAC 120A - 120VAC 240A - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *Optional arc suppression diode.

8 Connector types Blank - No coil

G - ISO 4400 DIN 43650 P - 1/2" NPT conduit port

- w/leadwire
- **Q** Spade terminals
- W Leadwire
- N Deutsch (DC only)

Y - Amp JR (DC only)

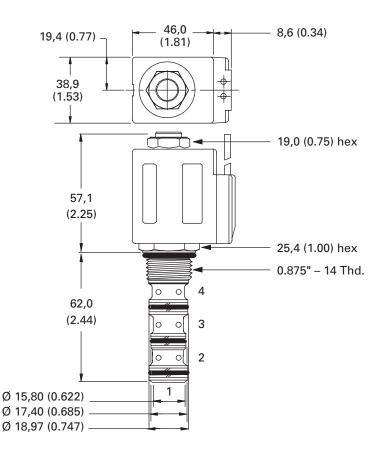
For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.



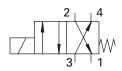
SV7-10-4/4P/4S

4-way, 2-position spool type solenoid valve

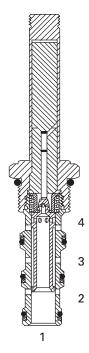
Description

The SV7-10-4 is a 4-way, 2-position, direct acting, spool type, screw-in cartridge solenoid valve.

Functional Symbol



Sectional View

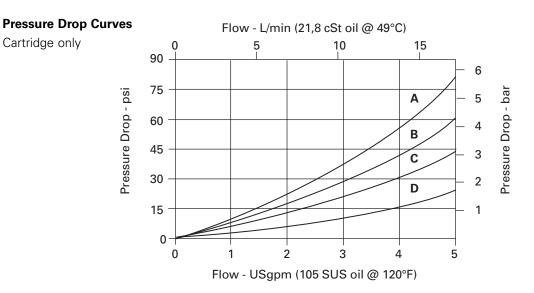


Operation

In the de-energized position, port 3 is open to port 4 and port 2 is open to port 1.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Rated flow	17 L/min (5 USgpm)
Internal leakage	164 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 18/16/13
Housing material (standard)	Aluminum
Weight including coil	0,44 kg (0.96 lbs)
Seal kit	565805 (Buna-N), 889600 (Viton [®]) Viton is a registered trademark of E.I. DuPont



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 (V) -	- 4 (*) -	- **	**** * -	00
		4 5	6	7 8	9

SV7 - Solenoid valve

² Size

10 - 10 size

3 Seal material

Blank - Buna-N V - Viton®

4 Style

4 - 4-way, 2 position

5 Manual override option

•	
Blank - No manual override	
P - Push type	
S - Screw type	
For valve dimensions with manual	
override option installed see page A-134.	

Dimensions

mm (inch)

Torque cartridge in 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
<u> </u>	(16 ft lbc) mavi

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

6 Port Size		
CODE	PORT SIZE	HOUSING NUMBER
0	Cartridge only	
3B	3/8" BSPP	02-179705*
6T	SAE6	566161*
2G	1/4" BSPP	876709
3G	3/8" BSPP	876715
6H	SAE 6	876708
8H	SAE 8	876713
*Light dut	v housing	

*Light duty housing. See section J for housings.

7 Voltage rating00 - No coil

12D - 12VDC 24D - 24VDC 36D - 36VDC

24A - 24VAC **120A** - 120VAC **240A** - 240VAC **12B** - 12VDC/w diode* **24B** - 24VDC/w diode* *Optional arc suppression diode.

Blank - No coil

G - ISO 4400 DIN 43650

- P 1/2" NPT conduit port w/leadwire
- ${\boldsymbol Q}$ Spade terminals
- W Leadwire
- N Deutsch (DC only)

Y - Amp JR (DC only)

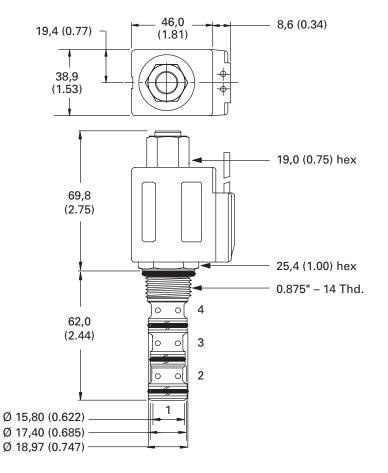
For coil dimensions see page C-5.

9 Special features

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

Note

Use 10 series, 20 W coils with this solenoid valve.

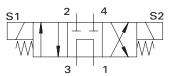


4-Way, 3-position, screw-in cartridge solenoid valve

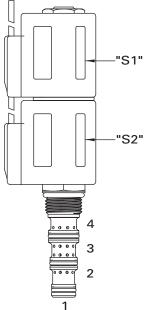
Description

The SV9-8-A is a 4-way, 3-position, direct acting, spool type directional control valve.

Functional Symbol



Profile View



Operation

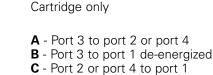
In the de-energized position, this valve allows flow from port 3 to port 1 and blocks ports 2 and 4. When solenoid 1 (S1) is energized, flow is directed from port 3 to port 2 and from port 4 to port 1. When solenoid 2 (S2) is energized, flow is directed from port 3 to port 4 and from port 2 to port 1.

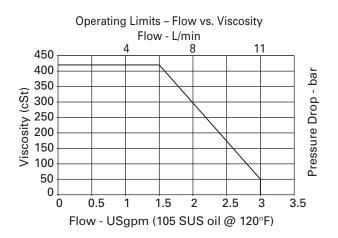
RATINGS AND SPECIFICATIONS

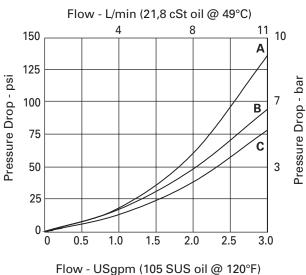
RATINGS AND SPECIFICATIONS	
Performance data is typical with fluid at 21,8 c	ST (105 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	11,000 psi per NFPA/T2-6-1 R2-2000
Max flow	See operating limits below
Temperature range	-40° to 120°C (-40° to 248°F)
Coil duty	Continuous from 85% to 110% of nominal voltage
Coil power	20W
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	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) Viton is a registered trademark of E.I. DuPont
Internal leakage	164 cm³/min (10 in³/min) max. @ 210 bar (3000 psi)

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

Performance Characteristics





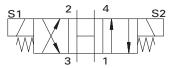


4-Way, 3-position, screw-in cartridge solenoid valve

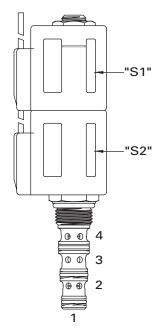
Description

The SV9-8-B is a 4-way, 3-position, direct acting, spool type directional valve.

Functional Symbol



Profile View



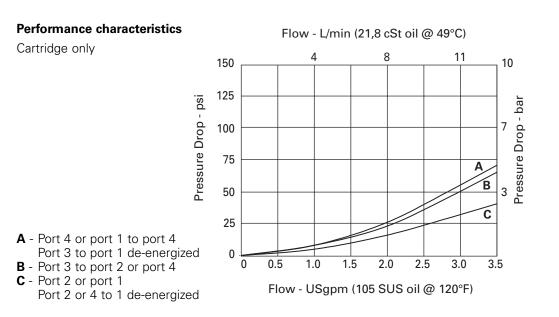
Operation

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.

RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 c	ST (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	20W
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	(1.2 lbs)
Seal kit	02-160757 Buna-N, 02-160758 (Viton®) Viton is a registered trademark of E.I. DuPont
Internal leakage	164 cm³/min (10 in³/min) max. @ 210 bar (3000 psi)
Endurance tested to 1 million cycles at full rate	ed flow and pressure

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

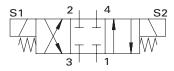


4-Way, 3-position, screw-in cartridge, solenoid valve

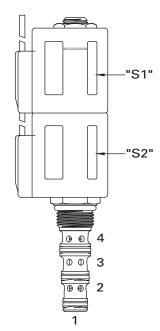
Description

The SV9-8-E is a 4-way, 3-position, direct acting, spool type directional valve.

Functional Symbol



Profile View



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.

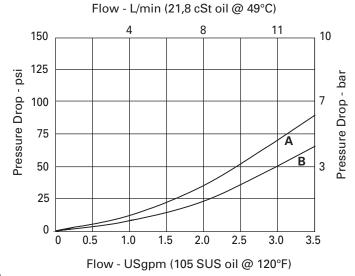
RATINGS AND SPECIFICATIONS

Performance data is typical with fluid at 21,8 cS	T (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	20W
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	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) ®Viton is a registered trademark of E.I. DuPont
Internal leakage	164 cm³/min (10 in³/min) max. @ 210 bar (3000 psi)

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

Pressure Drop Curves

Cartridge only



A - Port 3 to port 2 or port 4 **B** - Port 2 to port 4 or port 1 4-Way, 3-position, screw-in cartridge, solenoid valve

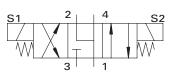
Description

The SV9-8-F is a 4-way, 3-position, direct acting, spool type directional valve.

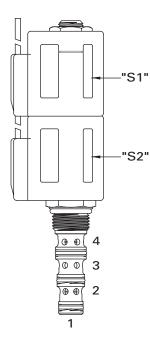
Operation

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.

Functional Symbol



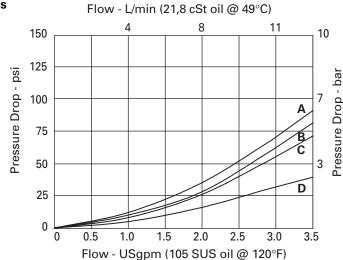
Profile View



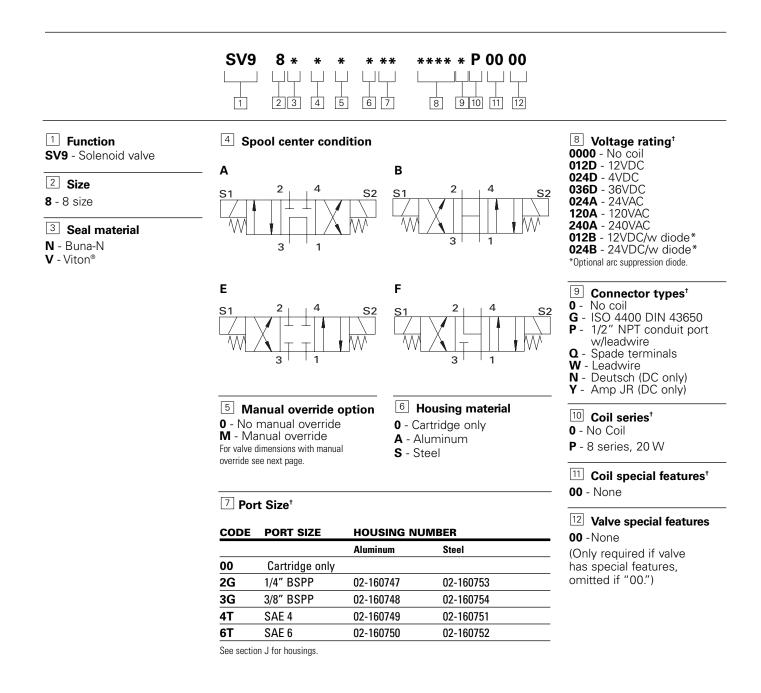
RATINGS AND SPECIFICATIONS	
Performance data is typical with fluid at 21,8 cST (10	5 SUS) and 49°C (120°F)
Typical application pressure (all ports)	210 bar (3000 psi)
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000
Rated burst pressure	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	20W
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	(1.2 lbs)
Seal kit	02-160757 (Buna-N), 02-160758 (Viton®) ®Viton is a registered trademark of E.I. DuPont
Internal leakage	164 cm³/min (10 in³/min) max. @ 210 bar (3000 psi)

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

Performance Characteristics



- 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



[†] 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 on page C-4.

Note

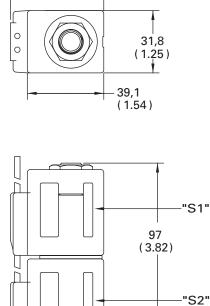
When solenoid valve is ordered as cartridge only, coil nut is included.

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 10 series, 20 W coil.

SPARE PARTS

Coil nut	565558
Coil spacer	02-186730



4

3

2

54,6

(2.15)

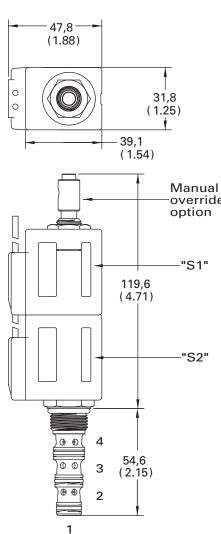
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1

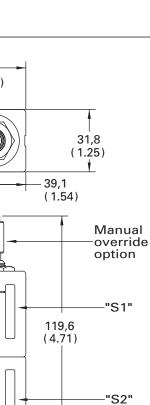
47,8-(1.88)





WARNING

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

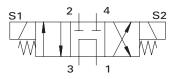


4-Way, 3-position, screw-in cartridge solenoid valve

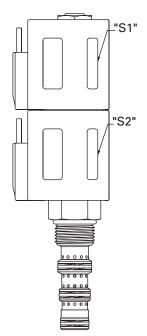
Description

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

Functional Symbol



Profile View



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.

RATINGS AND SPECIFICATIONS

ST (105 SUS) and 49°C (120°F)
210 bar (3000 psi)
210 bar (3000 psi)
3,000 psi per NFPA/T2-6-1 R2-2000
(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
5 USgpm
-40° to 120°C (-40° to 248°F)
Continuous from 85% to 110% of nominal voltage
20W
C-10-4
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/16/13
Aluminum
0.95Kg (2.1 lbs)
889625 (Buna-N), 566080 (Viton®) Viton is a registered trademark of E.I. DuPont
246 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)

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

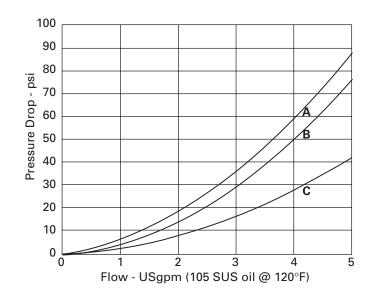
Performance Characteristics

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

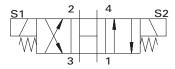


4-Way, 3-position, screw-in cartridge solenoid valve

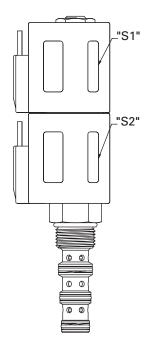
Description

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

Functional Symbol



Profile View



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.

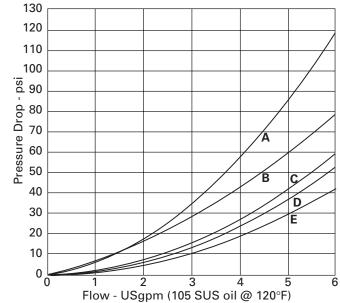
RATINGS AND SPECIFICATIONS

ST (105 SUS) and 49°C (120°F)
210 bar (3000 psi)
210 bar (3000 psi)
3,000 psi per NFPA/T2-6-1 R2-2000
(626 bar) 9090 psi per NFPA/T2-6-1 R2-2000
6 USgpm
-40° to 120°C (-40° to 248°F)
Continuous from 85% to 110% of nominal voltage
20W
C-10-4
All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20 etc.
Cleanliness code 18/16/13
Aluminum
0.95 Kg (2.1 lbs)
889625 Buna-N, 566080 (Viton®) Viton is a registered trademark of E.I. DuPont
246 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)

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

Performance characteristics

- 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
- \boldsymbol{D} Port 2 to port 1
- E Port 4 to port 1

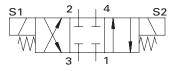


4-Way, 3-position, screw-in cartridge, solenoid valve

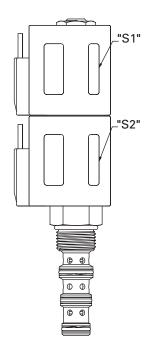
Description

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

Functional Symbol



Profile View



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.

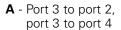
RATINGS AND SPECIFICATIONS

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)			
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 USsgpm			
Temperature range	-40° to 120°C (-40° to 248°F)			
Coil duty	Continuous from 85% to 110% of nominal voltage			
Coil power	20W			
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®) ®Viton is a registered trademark of E.I. DuPont			
Internal leakage	246 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)			

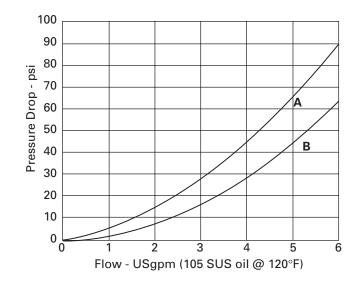
Endurance tested to 1 million cycles at full rated flow and pressure.

Pressure Drop Curves

Cartridge only



B - Port 2 to port 1, port 4 to port 1



4-Way, 3-position, screw-in cartridge, solenoid valve

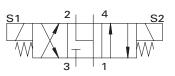
Description

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

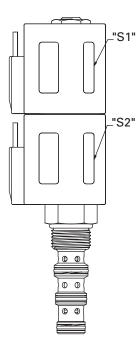
Operation

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.

Functional Symbol



Profile View

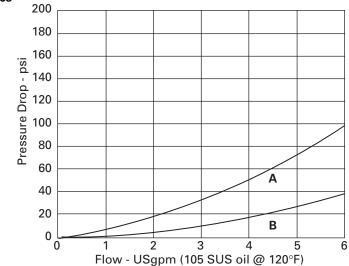


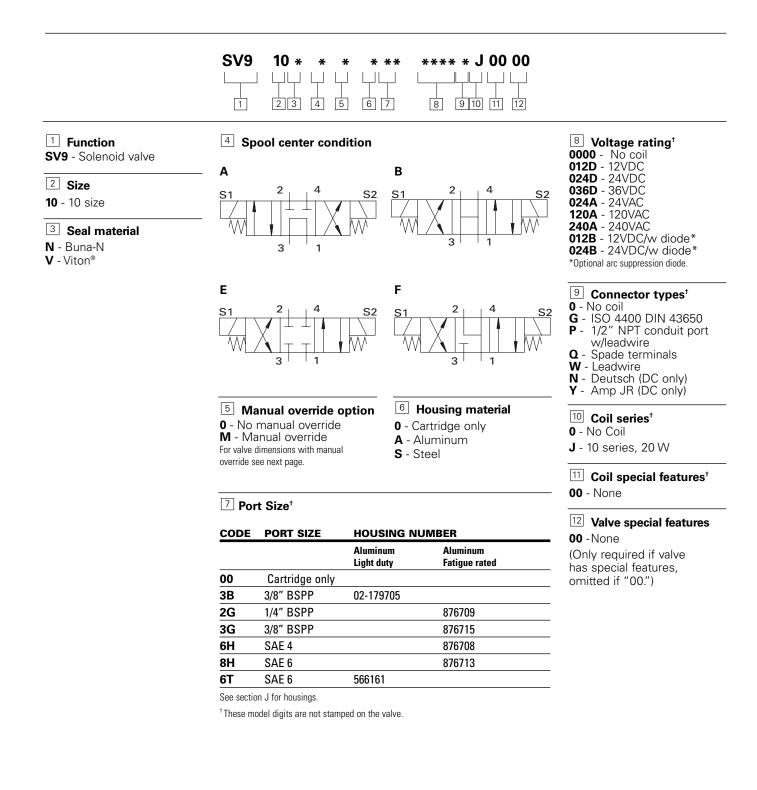
RATINGS AND SPECIFICATIONS					
Performance data is typical with fluid at 21,8 cST (105 SUS) and 49°C (120°F)					
Typical application pressure (all ports)	210 bar (3000 psi)				
Cartridge fatigue pressure (infinite life)	210 bar (3000 psi)				
Fatigue pressure	3,000 psi per NFPA/T2-6-1 R2-2000				
Rated 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	20W				
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®) ®Viton is a registered trademark of E.I. DuPont				
Internal leakage	246 cm³/min (15 in³/min) max. @ 210 bar (3000 psi)				

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

Performance Characteristics

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





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 on page C-4.

Note

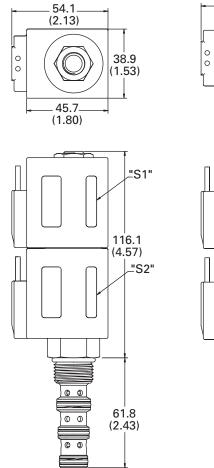
When solenoid valve is ordered as cartridge only, coil nut is included.

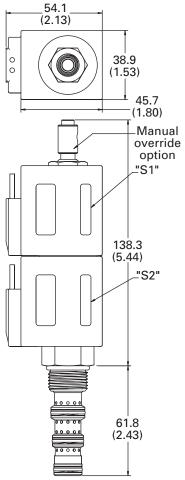
When solenoid valve is ordered without coils, it will be supplied with only the nut. The spacer must be ordered separately.

This valve uses the 10 series, 20 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.

Manual Override Options

Push type overrides (type P and S)

Note

Manual override is available on all solenoid cartridge valves, except SBV series valves.

WARNING

To release:

stops.

57.9

(2.28)

The manual override option is

intended for emergency use, not for continuous duty operation.

1. Turn the override button

24,3 (.096)

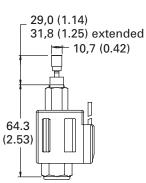
10, 12, 16, 20-Series -

350 bar valves

10,7 (0.42)

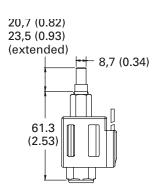
counterclockwise until it

Manual override "S" screw type



8-Series – 210 bar valves

Manual override "P" push type



8-Series – 210 bar bar valves



57,9

(2.30)

Ш

valves

To override:

20,7 (0.82)

23,5 (0.93) (extended)

58,4

(2.30)

valves

8-Series - 350 bar

8-Series - 350 bar

1. Push the override button

8,7 (0.34)

to stop and hold.

1. Turn the override button clockwise until it stops.

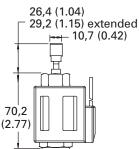
29,0 (1.14)

31,8 (1.25) extended

10,7 (0.42)

remain activated until the override button is turned counterclockwise.

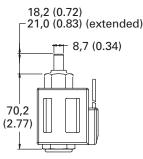
2. The override button will



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

To release:

1. Remove pressure from the override button.

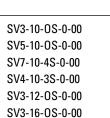


10, 12, 16, 20-Series – 210 bar valves

57,8 (2.28)

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

Manual override "P" & "S" options are available on the following models:



SV3-20-OS-0-00 SV5-8-OS-0-00 SV3-10-OP-0-00 SV5-10-OP-0-00 SV7-10-4P-0-00 SV4-10-3P-0-00 SV3-12-OP-0-00 SV3-16-OP-0-00 SV3-20-OP-0-00 SV5-8-OP-0-00 SV15-8-OP/0S-0-00 SV13-10-OP/0S-0-00 SV15-10-OP/OS-0-00 SV13-12-OP/OS-0-00 SV13-16-OP/OS-0-00 SV13-20-OP/OS-0-00

A-134

Manual Override Options

Pull type overrides (type M and R)

Note

Manual override is available on all solenoid cartridge valves, except SBV series valves.

WARNING

The manual over-

ride option is intended for emergency use, not for continuous duty operation.

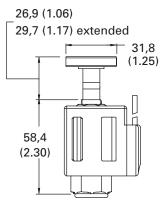
Manual override "M" pull type

To override:

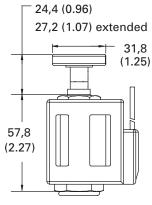
- **1.** Pull up knob until the override tooth is completely out of the detent base.
- 2. Turn the knob clockwise until the override tooth is resting securely on top of the detent base slot.

To release:

- 1. Pull up knob slightly from surface.
- 2. Turn the knob clockwise until the override tooth is securely engaged in slot of the detent base.

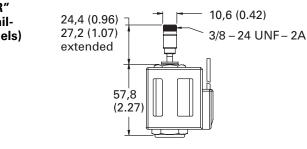


8-Series - 210 bar and 350 bar values



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

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



Manual override "M" options are available on the following models:	SV1-10-3M-0-00 SV1-10-4M-0-00 SV1-10-CM-0-00 SV2-10-4M-0-00 SV2-10-CM-0-00 SV3-10-4M-0-00 SV3-10-CM-0-00 SV4-10-4M-0-00	SV4-10-CM-0-00 SV4-10-0M-0-00 SV5-10-4M-0-00 SV5-8-CM-0-00 SV4-8-CM-0-00 SV3-12-CM-0-00 SV1-16-CM-0-00 SV2-20-CM-0-00	SV4-8-0M-0-00 SV1-8-3M-0-00 SV4-8-3M-0-00 SV1-8-4M-0-00 SV2-8-4M-0-00 SV15-8-CM-0-00 SV14-8-CM-0-00 SV14-8-0M-0-00	SV11-8-3M-0-00 SV11-8-4M-0-00 SV12-8-4M-0-00 SV11-10-CM-0-00 SV12-10-CM-0-00 SV13-10-CM-0-00 SV14-10-CM-0-00 SV14-10-0M-0-00	SV11-10-3M-0-00 SV11-10-4M-0-00 SV13-12-CM-0-00 SV13-16-CM-0-00 SV13-20-CM-0-00
Manual override "R" options are available on the following models:	SV1-10-3R-0-00 SV1-10-4R-0-00 SV1-10-CR-0-00	SV2-10-4R-0-00 SV2-10-CR-0-00 SV3-10-4R-0-00	SV3-10-CR-0-00 SV4-10-4R-0-00 SV4-10-CR-0-00	SV4-10-OR-0-00 SV5-10-4R-0-00 SV3-12-CR-0-00	SV1-16-CR-0-00 SV2-20-CR-0-00