

Vickers®

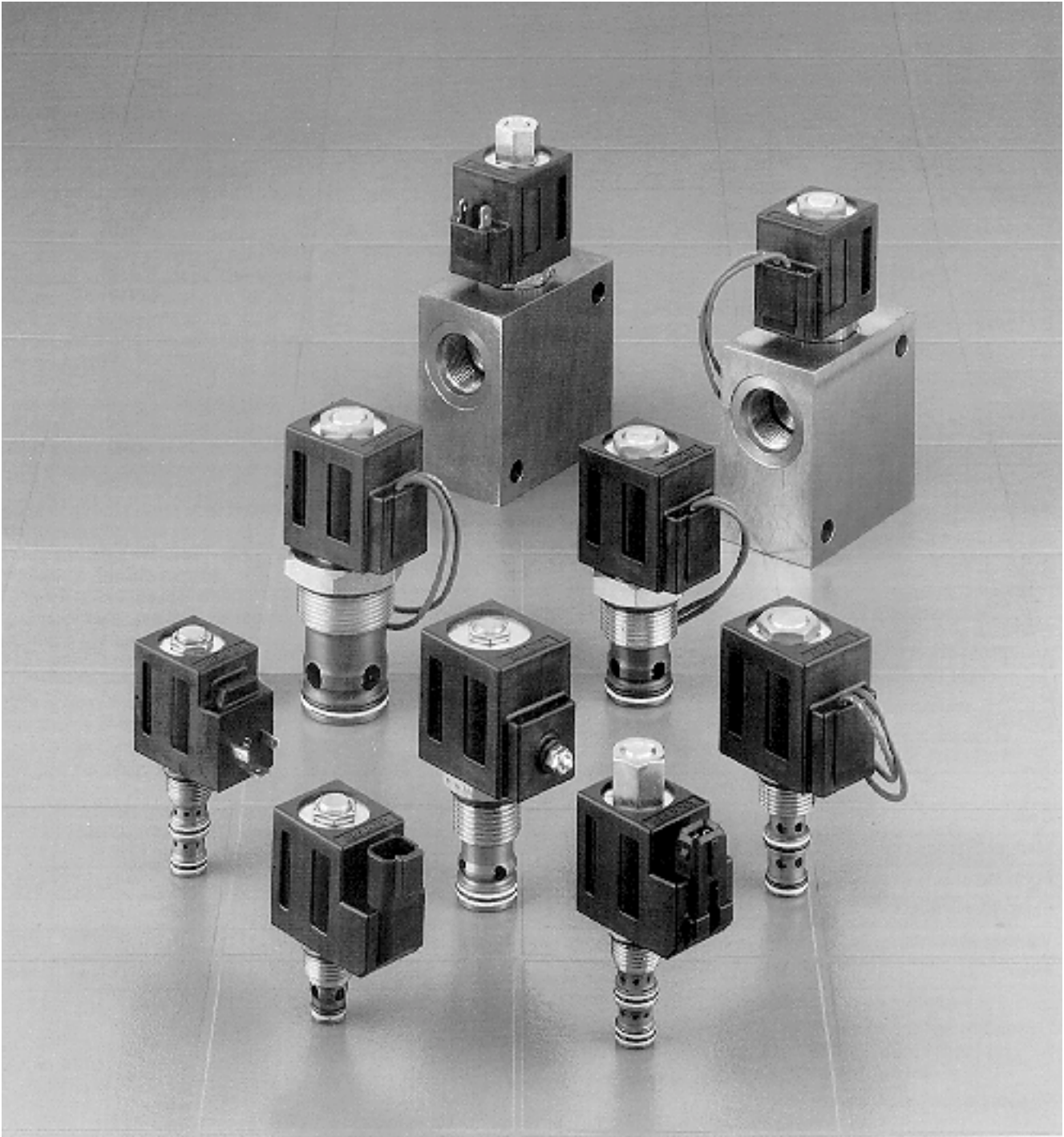
Cartridge Valves



Solenoid Valves

Screw-in Cartridge Valves

350 bar (5000 psi) Maximum Pressure – 227 l/min (60 USgpm) Maximum Flow



VICKERS

Revised 4/99

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Introduction

For over seventy years, Vickers has provided its customers with quality products and innovative solutions for all their power and motion control needs.

The 350 bar (5000 psi) rated solenoid valve products featured in this catalog represent the very best in screw-in cartridge solenoid valve technology.

Products in this catalog have been fatigue tested for one million cycles at 132% or 10 million cycles at 115% of rated pressure.

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. For these solenoid valves, this level is 310 bar (4500 psi).

We are committed to maintaining this position by offering the most comprehensive range of cartridge valves for industrial and mobile equipment.

This catalog gives basic specifications for the Vickers 350 bar (5000 psi) 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.

Vickers solenoid valves are offered with a wide 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

Valve Features and Benefits

- Rated flows up to 227 l/min (60 USgpm)
- Poppet and spool designs
- Standard cartridge cavities
- One piece, fully molded, weather-proof coils
- 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
- All exposed surfaces are zinc dichromate plated to resist corrosion
- Reliable, economical and compact
- A manual override option is available on all models.

Coil Features and Benefits

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

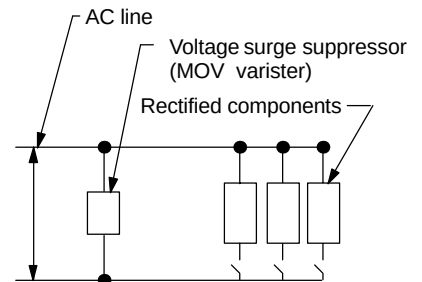
Standard AC coils are internally rectified to supply them with DC current, therefore they have no “inrush” current value.

- Coils are rated for continuous duty
- Coils are interchangeable for serviceability
- Variety of voltages and terminations
- Coils offer a one-piece weather-proof encapsulated design, eliminating the need for extra seals.
- AC voltage coils are internally full-wave rectified for 50 or 60 cycle (Hz) applications.
- An arc suppression diode molded into the coil is available as a standard option on DC coils.

Protection of Internally Rectified Coils

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

Protection is simple and inexpensive. It consists of installing a commercially available voltage surge suppressor like the General Electric MOV varister V130LA20A for 120 volts AC, or the V250LA20A for 240 volts AC, across the AC line supplying the rectified components. A single suppressor will normally protect all of the rectified components in the circuit, as shown in the surge suppressor circuit diagram below.



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

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

No inductive or capacitive loads can be installed between the surge suppressor and rectified valves



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



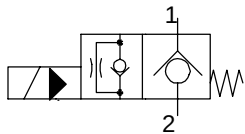
Maintain 5-8 Nm (4-6 lbf ft) maximum torque on valve tube nut.

Overtightening may cause valve failure.

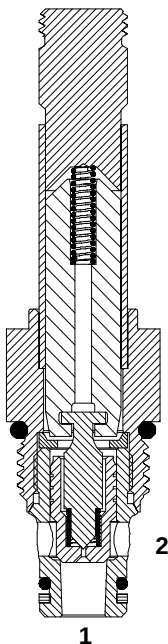
SV15-8-C/CM

Poppet type, normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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

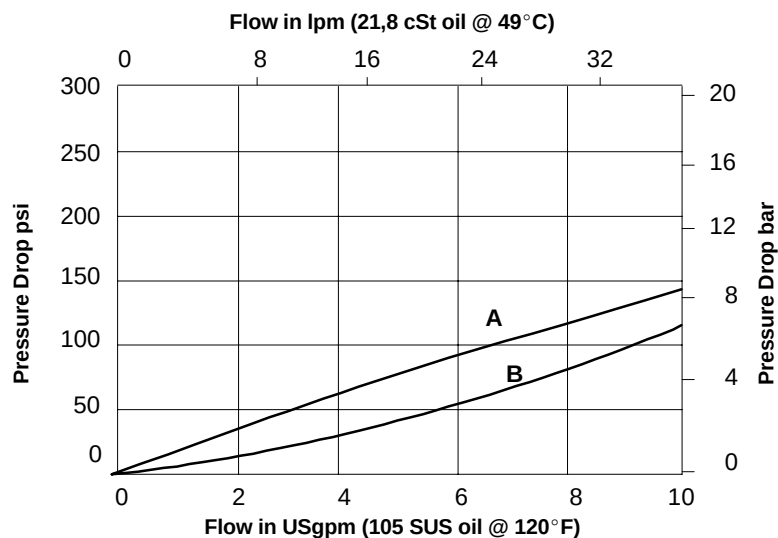
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	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 (See page 48)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing material	Steel
Weight cartridge only	0,11 kg (0.25 lb.)
Seal kit	02-165875 Buna-N 02-165877 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only



A – Port 1 to 2
B – Port 2 to 1

SV15 – 8 (V) – C (M) – (S) ** – ** * P**

12345678910

1 Function

SV15 – Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

10 Coil type

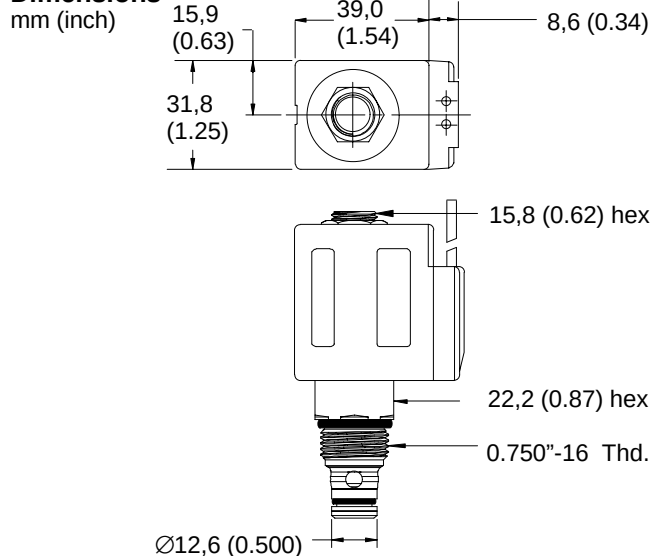
P – 20 W coil

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*
*optional arc suppression diode

See dimensions of connectors on page 54.

Dimensions



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

Note

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



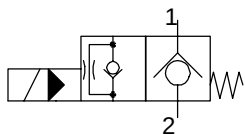
WARNING

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

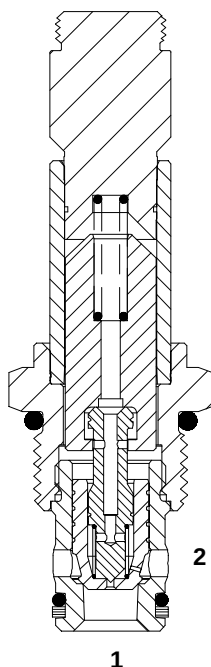
SV11-10-C/CM

Poppet type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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) 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. maximum
@ 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

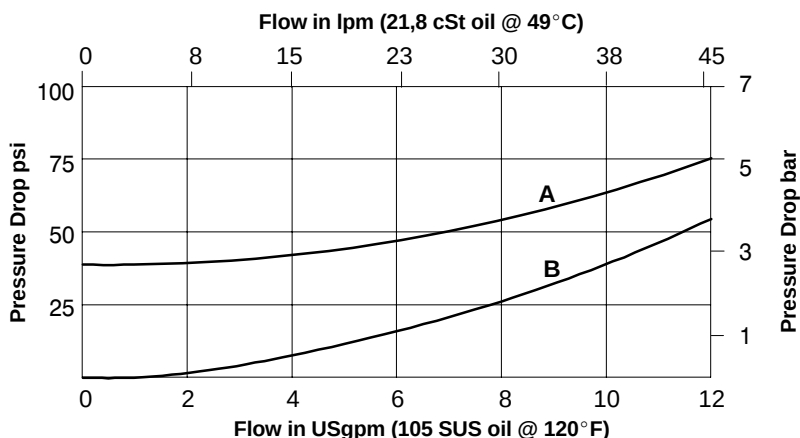
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565803 Buna-N
566086 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

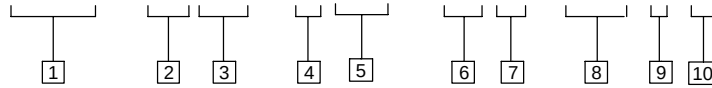
Cartridge only



A – Port 1 to 2 de-energized

B – Port 2 to 1 energized

SV11 - 10 (V) - C (M) - (S) ** - **** * H



1 Function

SV11 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

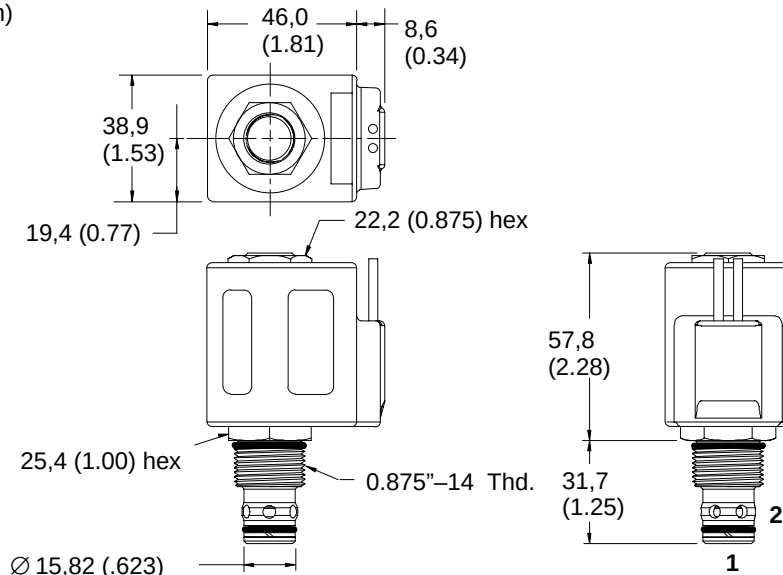
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

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



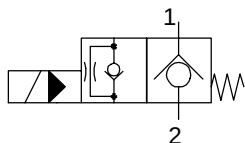
WARNING

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

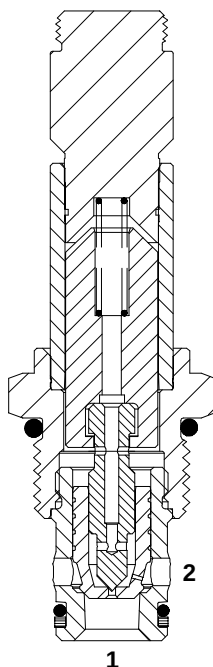
SV12-10-C/CM

Poppet type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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) 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) 5 drops/min. maximum
@ 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

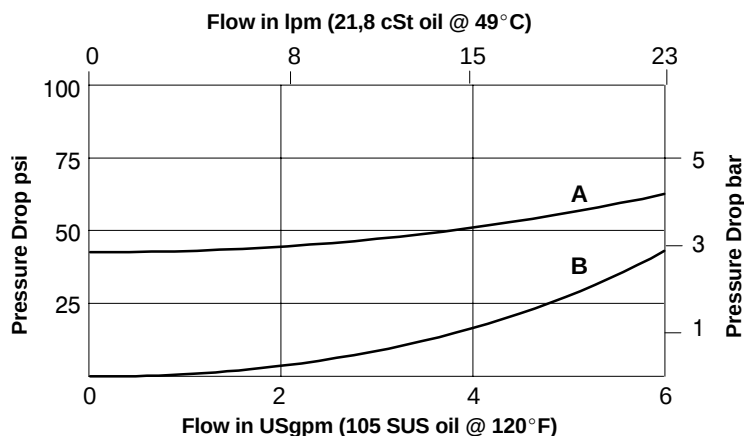
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565803 Buna-N
566086 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

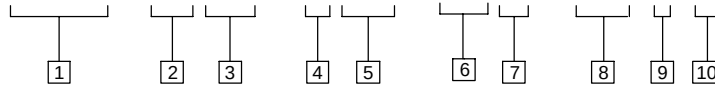
Cartridge only



A- Port 1 to 2 de-energized

B- Port 2 to 1 energized

SV12 – 10 (V) – C (M) – (S) ** – **** * H



1 Function

SV12 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

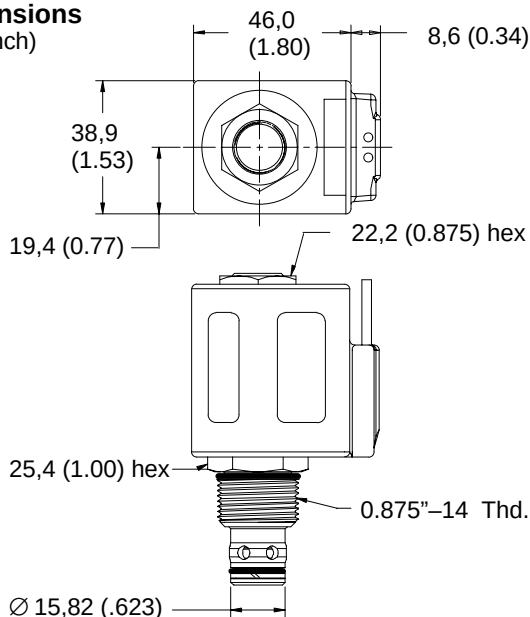
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

Note

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



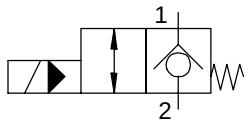
WARNING

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

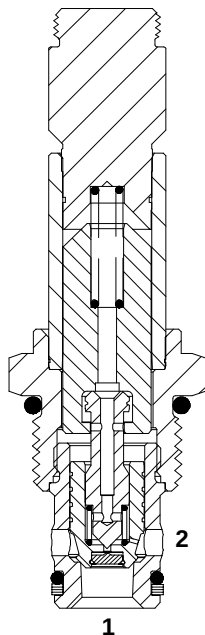
SV13-10-C/CM

Poppet type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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 (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 45 l/min (12 USgpm)

Internal leakage (port 2 to port 1) 5 drops/min. maximum
@ 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

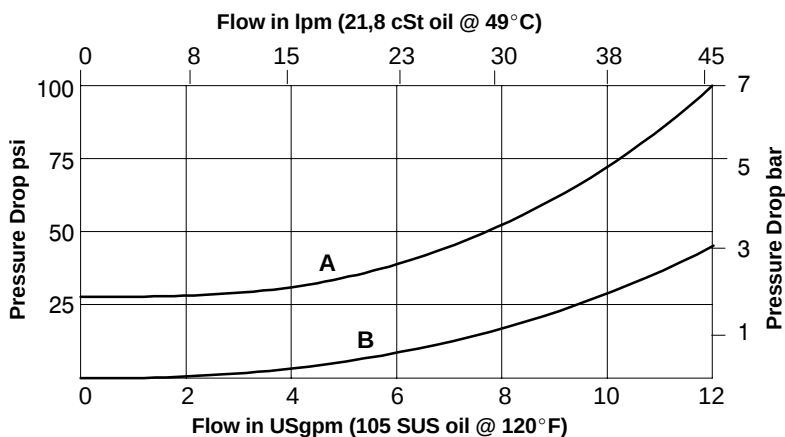
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565803 Buna-N
566086 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

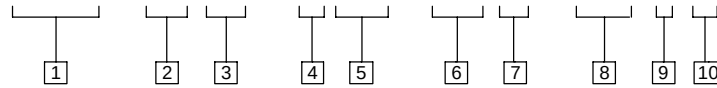
Cartridge only



A – Port 1 to 2

B – Port 2 to 1 energized

SV13 – 10 (V) – C (M) – (S) ** – **** * H



1 Function

SV13 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override

M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC

24D – 24 VDC

36D – 36 VDC

24A – 24 VAC

120A – 120 VAC

240A – 240 VAC

12B – 12 VDC/w diode*

24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

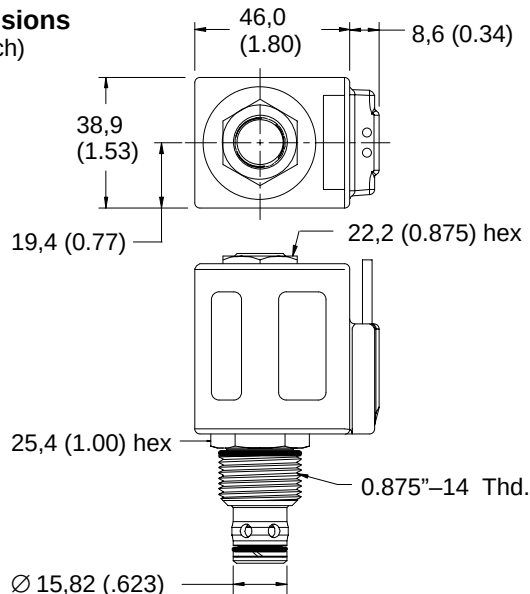
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions mm (inch)



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

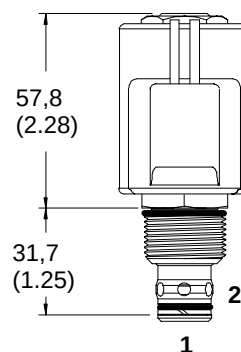
Note

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



WARNING

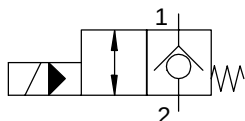
Maintain 5-8 Nm (4-6 lbf ft)
maximum torque on valve
tube nut. Overtightening may
cause valve failure.



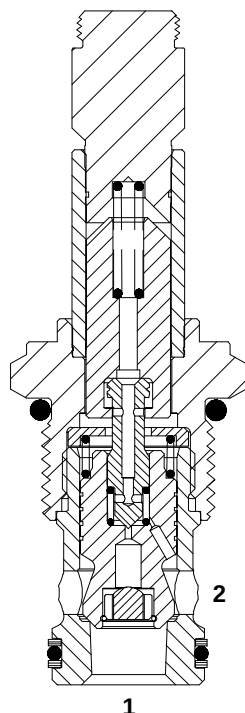
SV13-12-C/CM

Poppet type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 114 l/min (30 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-12-2 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

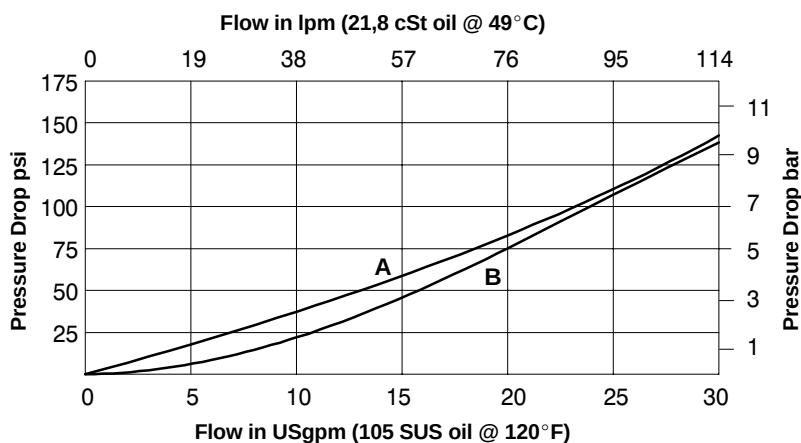
Weight cartridge only 0,27 kg (0.59 lb.)

Seal kit 02-165889 Buna-N
02-165888 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

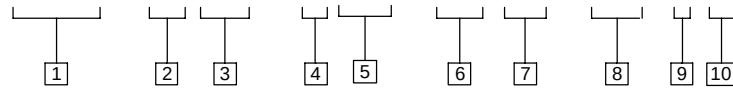
Cartridge only



A – Port 1 to 2

B – Port 2 to 1 energized

SV13 - 12 (V) - C (M) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

12 – 12 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

Code	Port size	Housing
4G –	1/2" BSPP	02-172062
6G –	3/4" BSPP	02-169665
10T –	SAE 10	02-169744
12T –	SAE 12	02-169782

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

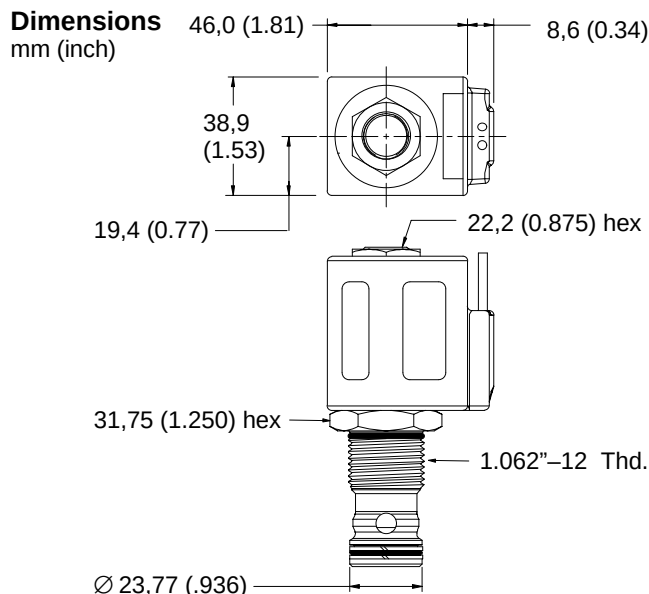
H – 26 W coil

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

See dimensions of connectors on page 55.



*Torque cartridge in housing
102–115 Nm (75–85 lbf ft)*

Note

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



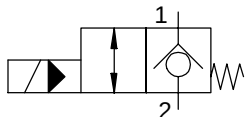
WARNING

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

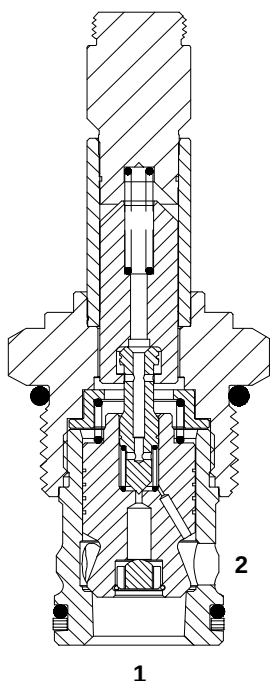
SV13-16-C/CM

Poppet type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 132 l/min (35 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-16-2 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

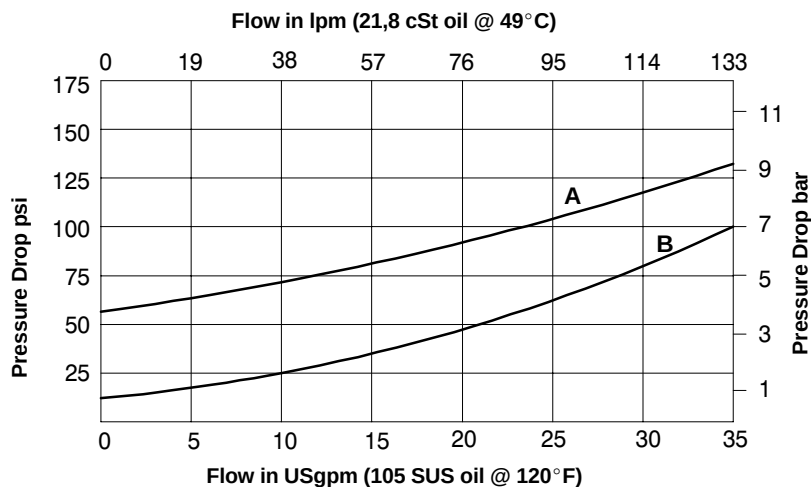
Weight cartridge only 0,39 kg (0.85 lb.)

Seal kit 565810 Buna-N
889609 Viton®

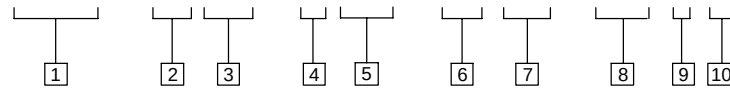
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only



SV13 - 16 (V) - C (M) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

16 – 16 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

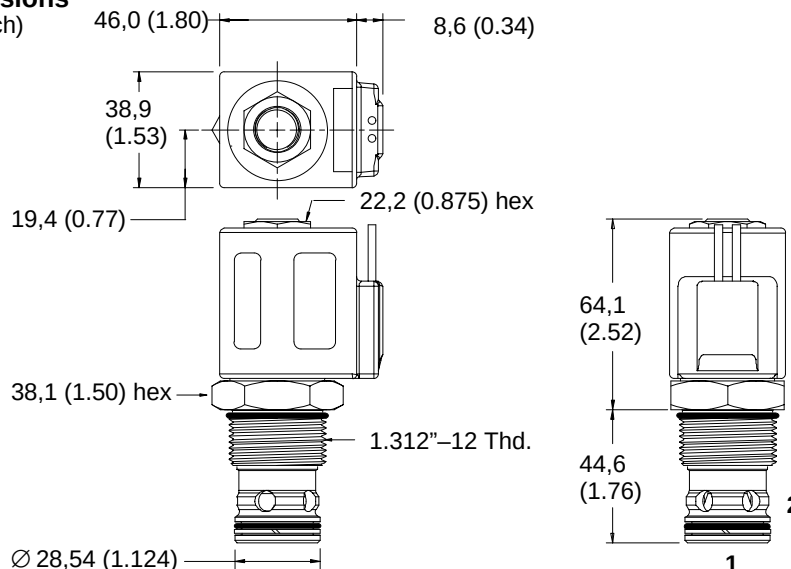
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



*Torque cartridge in housing
136–149 Nm (100–110 lbf ft)*

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



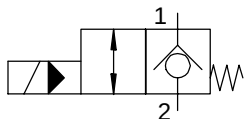
WARNING

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

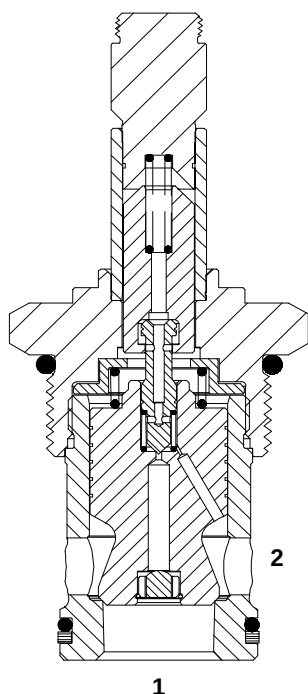
SV13-20-C/CM

Poppet type pilot operated solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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) 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

Weight cartridge only 0,62 kg (1.37 lb.)

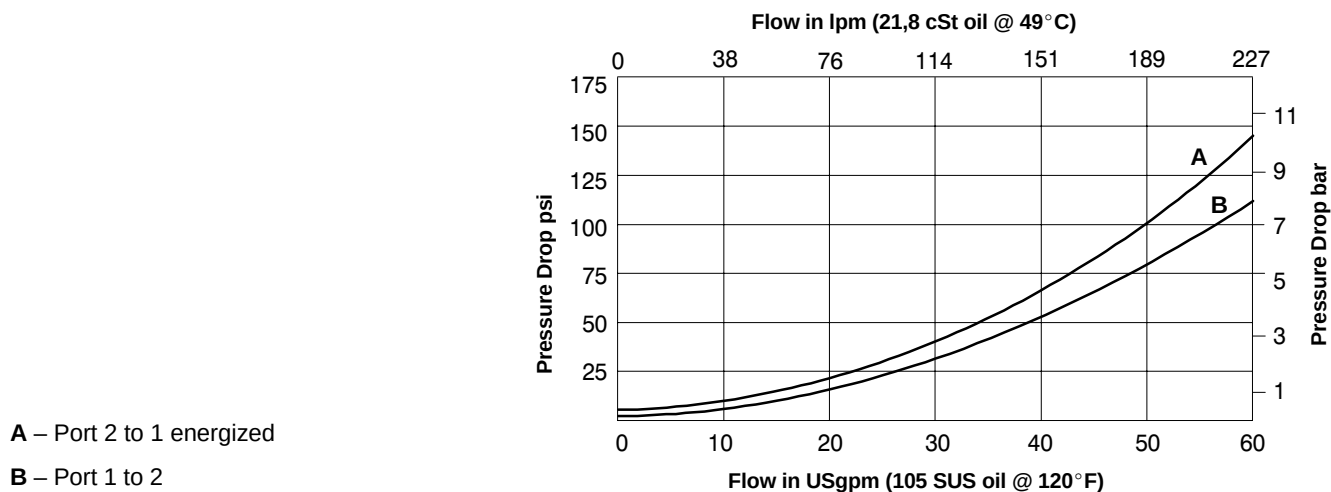
Seal kit 889615 Buna-N
889619 Viton®

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

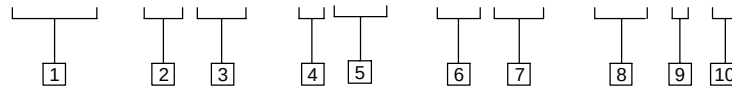
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only



SV13 - 20 (V) - C (M) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

20 – 20 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

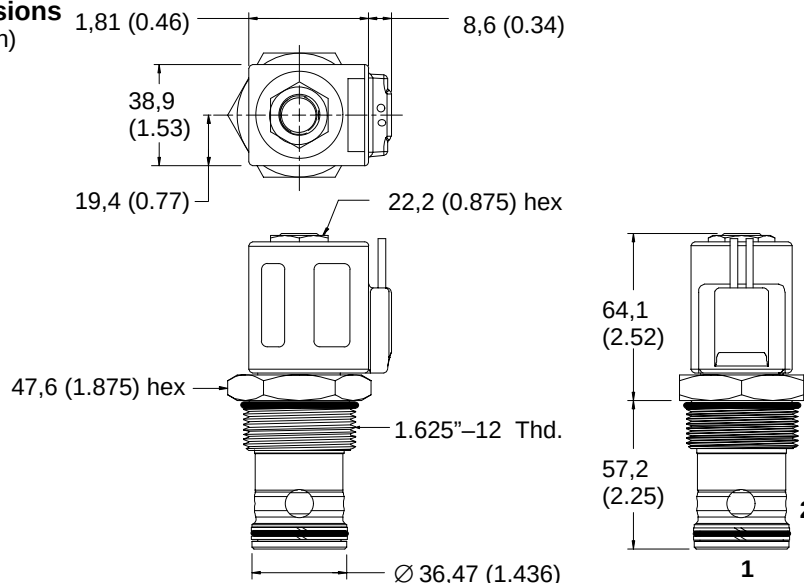
*optional arc suppression diode

10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions



*Torque cartridge in housing
163–183 Nm (120–135 lbf ft)*

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



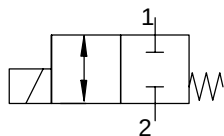
WARNING

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

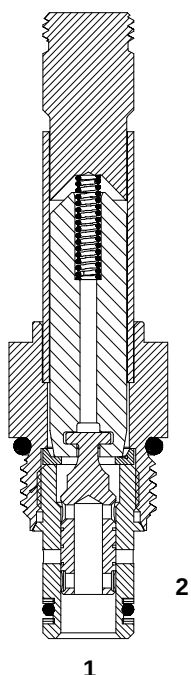
SV14-8-C/CM

Spool type, normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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 11 l/min (3 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

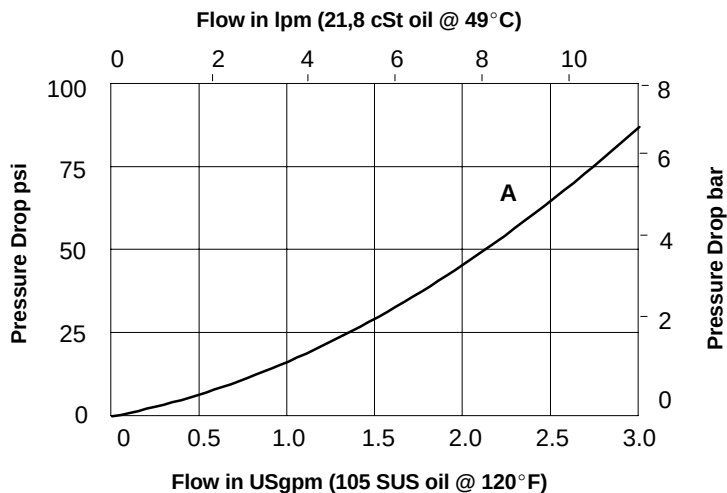
Weight cartridge only 0,11 kg (0.25 lb.)

Seal kit 02-165875 Buna-N
02-165877 Viton®

Viton is a registered trademark of E.I. DuPont Co.

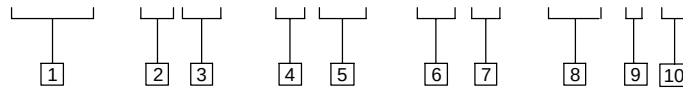
Pressure Drop Curves

Cartridge only



A – Port 2 to 1, Port 1 to 2

SV14 – 8 (V) – C (M) – (S) ** – **** * P



1 Function

SV14 – Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N

V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override

M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only

S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC

24D – 24 VDC

36D – 36 VDC

24A – 24 VAC

120A – 120 VAC

240A – 240 VAC

12B – 12 VDC/w diode*

24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

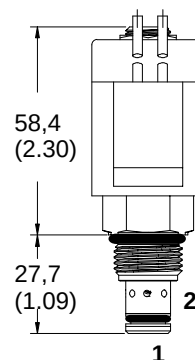
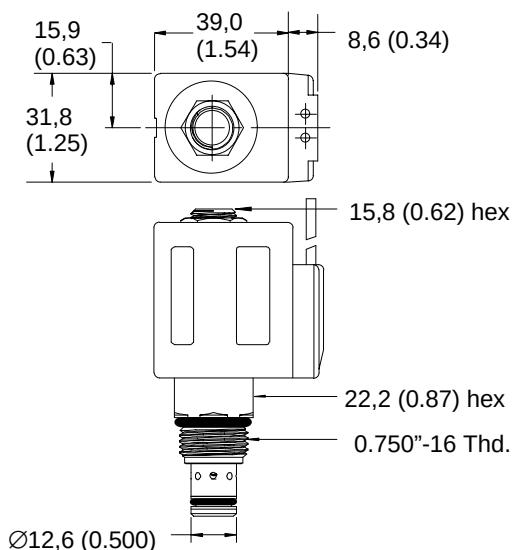
10 Coil type

See dimensions of connectors on page 54.

P – 20 W coil

Dimensions

mm (inch)



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

Note

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



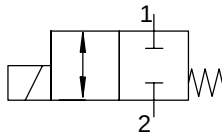
WARNING

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

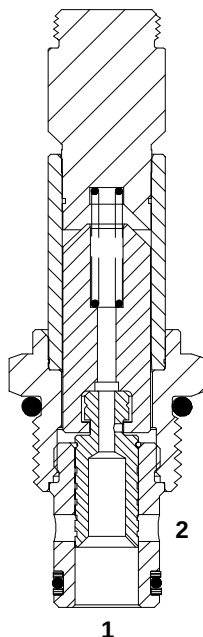
SV14-10-C/CM

Spool type normally closed solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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/minute (8.5 in³/min.) maximum
@ 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

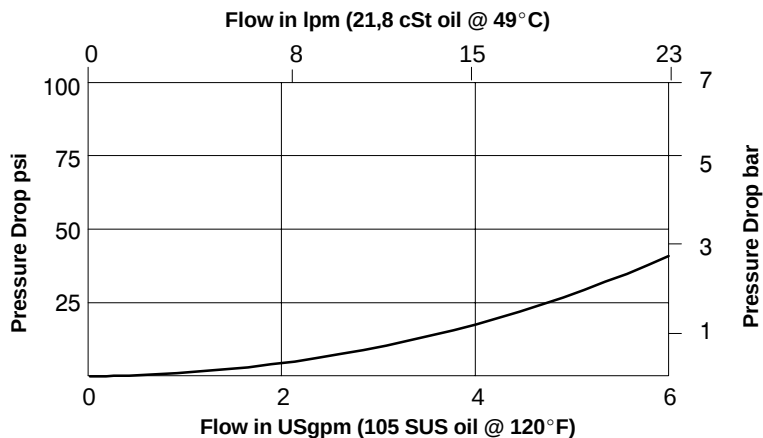
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565806 Buna-N
889627 Viton®

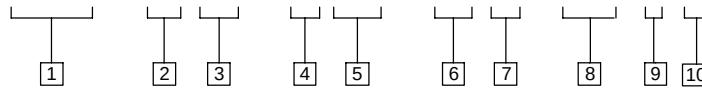
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only



SV14 – 10 (V) – C (M) – (S) ** – **** * H



1 Function

SV14 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

C – Normally closed

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

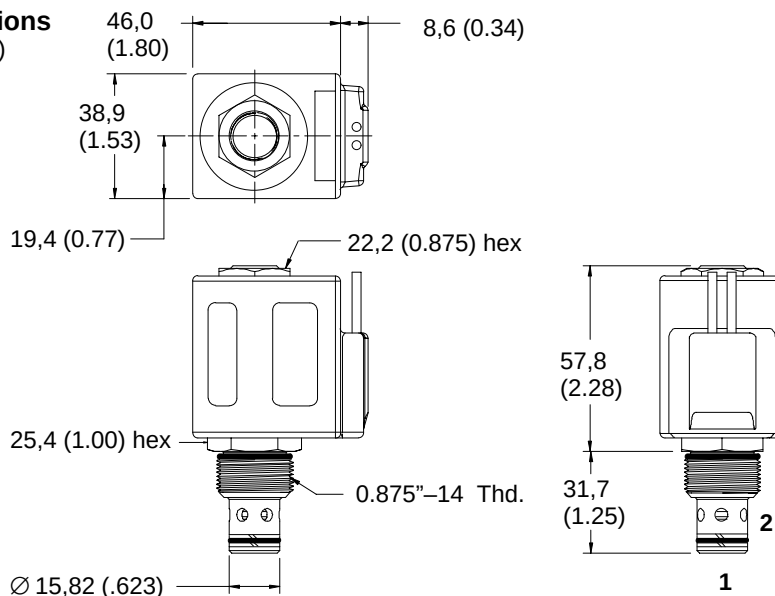
**optional arc suppression diode*

10 Coil type

See dimensions of connectors on page 55.

H – 26 W coil

Dimensions



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

Note

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



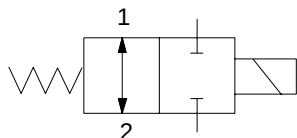
WARNING

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

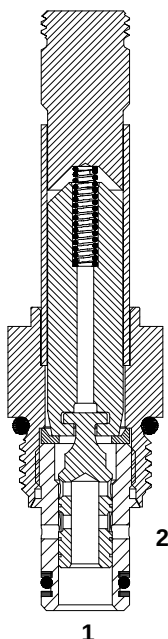
SV14-8-O/OM

Spool type, normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

Operation

In the de-energized position, this valve allows bi-directional 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 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

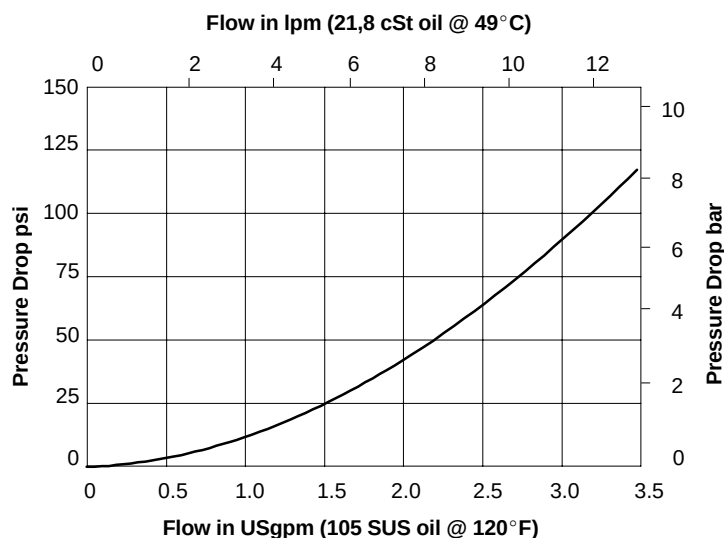
Weight cartridge only 0,11 kg (0.25 lb.)

Seal kit 02-165875 Buna-N
02-165877 Viton®

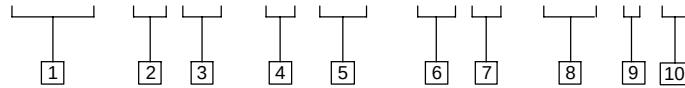
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only



SV14 - 8 (V) - O (M) - (S) ** - **** * P



1 Function

SV14—Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank—Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank—without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

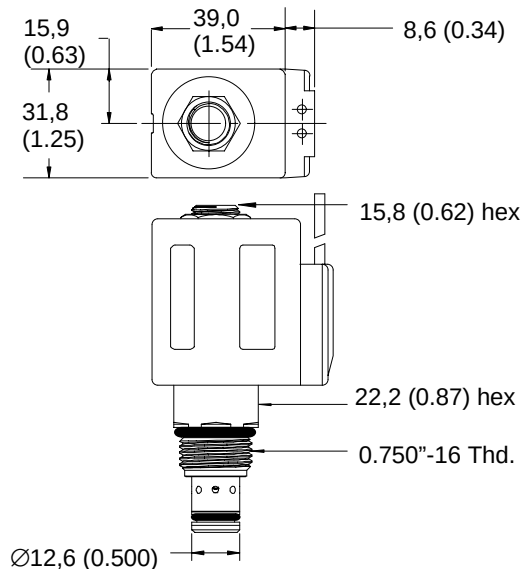
*optional arc suppression diode

10 Coil type

P – 20 W coil

See dimensions of connectors on page 54.

Dimensions mm (inch)



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

Note

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



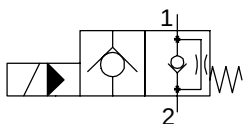
WARNING

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

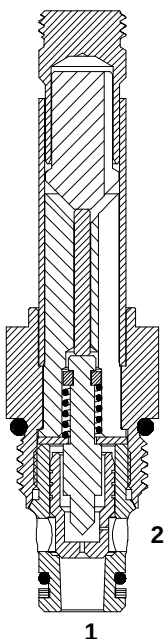
SV15-8-O/OP/OS

Poppet type, normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 37 l/min (10 USgpm)

Internal leakage (port 2 to port 1) 5 drops/min. max.
@ 210 bar (3000 psi)

Temperature range -40 to 100°C (-40° to 212°F)

Coil duty Continuous from 85% to 110% of nominal voltage

Cavity C-8-2 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

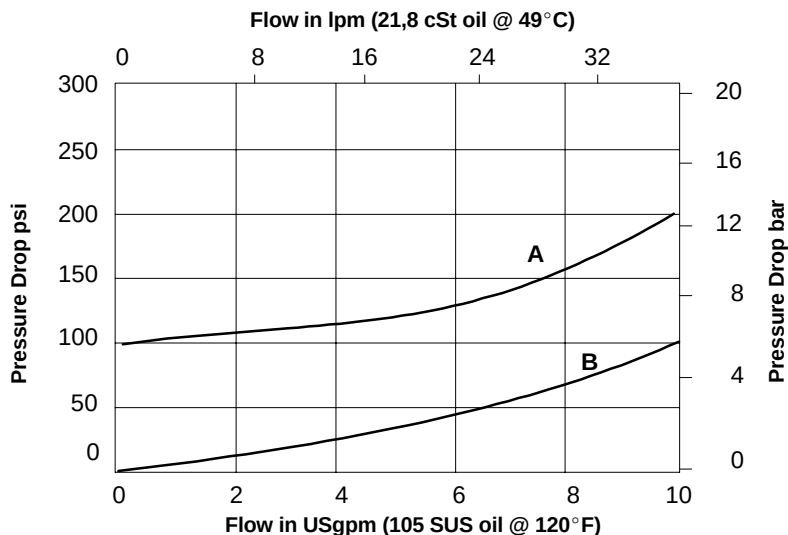
Standard housing material Steel

Weight cartridge only 0,11 kg (0.25 lb.)

Seal kit 02-165875 Buna-N
02-165877 Viton®

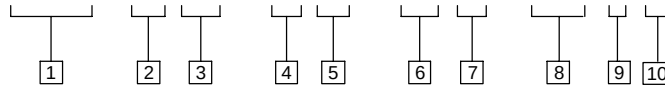
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves



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

SV15 – 8 (V) – O (*) – (S) ** – **** * P



1 Function

SV15 – Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

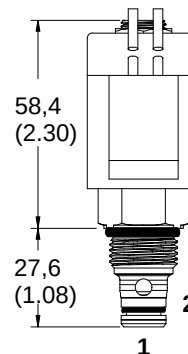
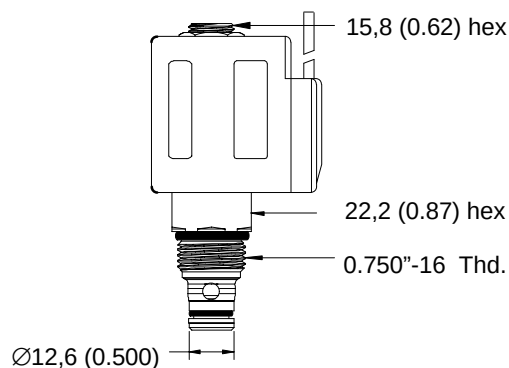
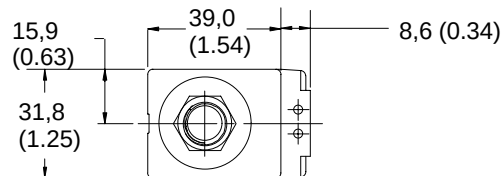
10 Coil type

See dimensions of connectors on page 54.

P – 20 W coil

Dimensions

mm (inch)



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

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



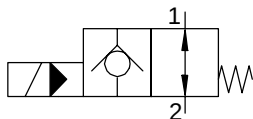
WARNING

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

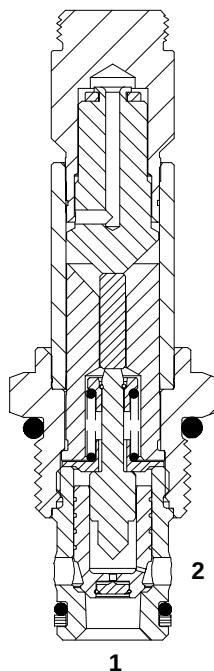
SV13-10-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

Operation

In the de-energized position, this valve allows bi-directional 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 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 45 l/min (12 USgpm)

Internal leakage (port 2 to port 1) 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

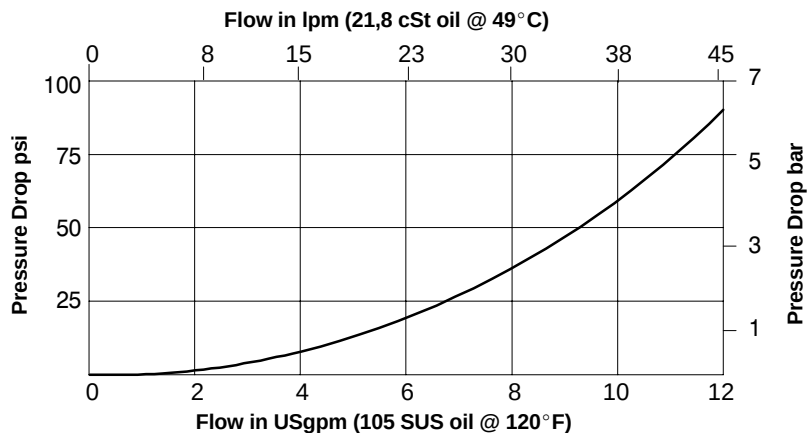
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565803 Buna-N
566086 Viton®

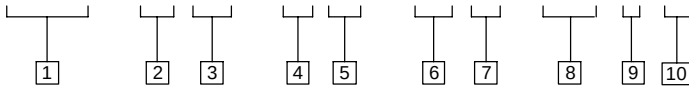
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curve

Cartridge only



SV13 - 10 (V) - O (*) - (S) ** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

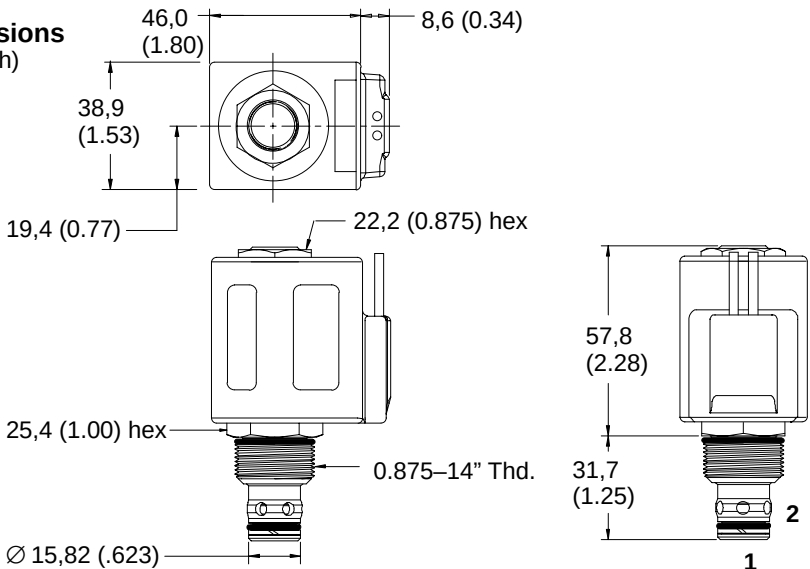
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

See dimensions of connectors on page 55.

10 Coil type

H – 26 W coil

Dimensions
mm (inch)



Torque cartridge in housing
68–75 Nm (50–55 lbf ft)

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



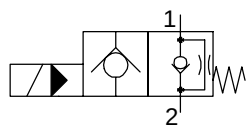
WARNING

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

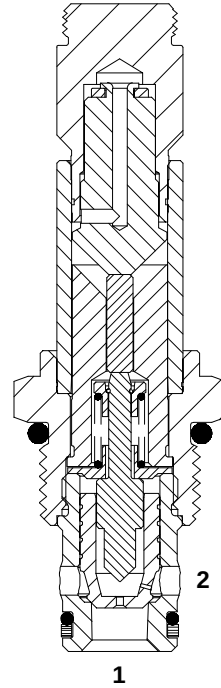
SV15-10-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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

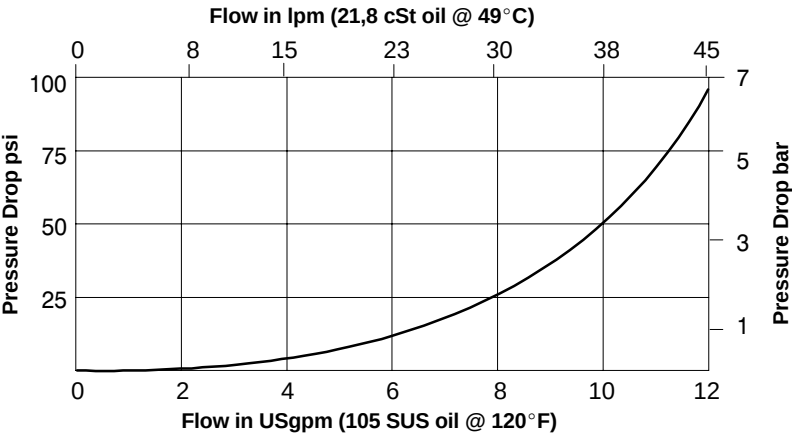
Performance data is typical with fluid at 21,8 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports)	350 bar (5000 psi)
Cartridge fatigue pressure (infinite life)	310 bar (4500 psi)
Rated flow	45 l/min (12 USgpm)
Internal leakage (port 2 to port 1)	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 (See page 48)
Fluids	All general purpose hydraulic fluids such as: MIL-H-5606, SAE 10, SAE 20, etc.
Filtration	Cleanliness code 18/16/13
Standard housing material	Steel
Weight cartridge only	0,18 kg (0.39 lb.)
Seal kit	565803 Buna-N 566086 Viton®

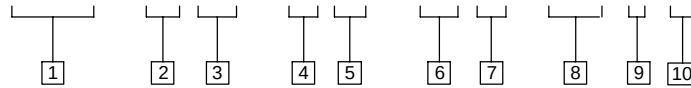
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curve

Cartridge only



SV15 - 10 (V) - O (*) - (S) ** - ***** * H



1 Function

SV15 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC

24D – 24 VDC

36D – 36 VDC

24A – 24 VAC

120A – 120 VAC

240A – 240 VAC

12B – 12 VDC/w diode*

24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

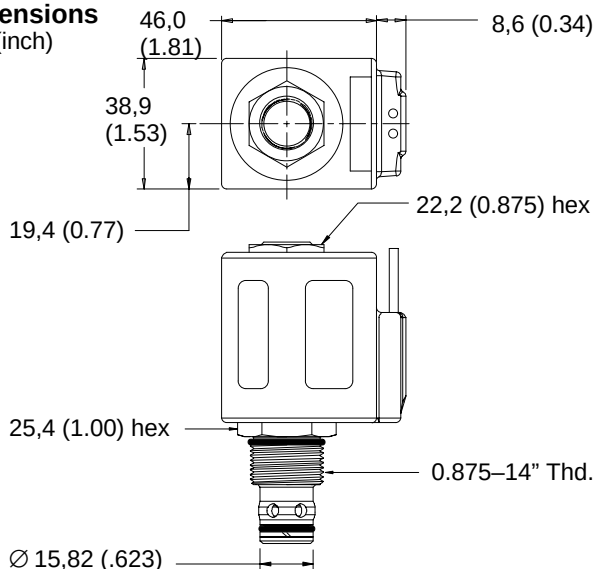
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



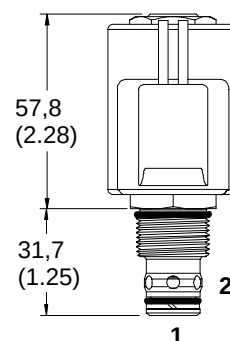
*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

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



WARNING

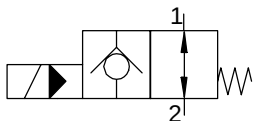
Maintain 5-8 Nm (4-6 lbf ft)
maximum torque on valve
tube nut. Overtightening may
cause valve failure.



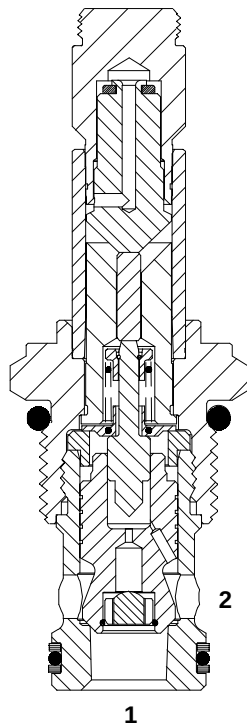
SV13-12-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

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)

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 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-12-2 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

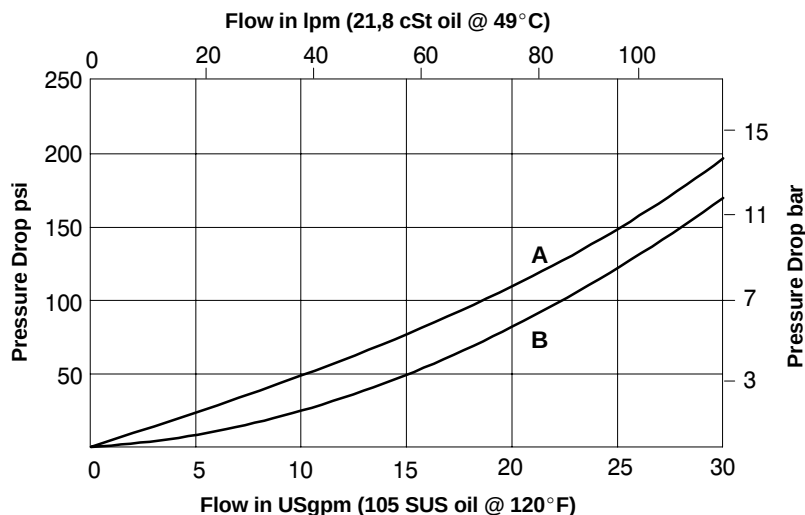
Weight cartridge only 0,27 kg (0.59 lb.)

Seal kit 02-165889 Buna-N
02-165888 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

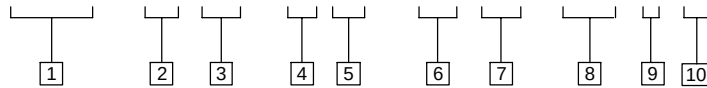
Cartridge only



A – Port 1 to 2

B – Port 2 to 1 de-energized

SV13 - 12 (V) - O (*) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

12 – 12 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

Code	Port size	Housing
4G –	1/2 " BSPP	02-172062
6G –	3/4" BSPP	02-169665
10T –	SAE 10	02-169744
12T –	SAE 12	02-169782

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

**optional arc suppression diode*

9 Connector type/coil part number

Blank – No coil

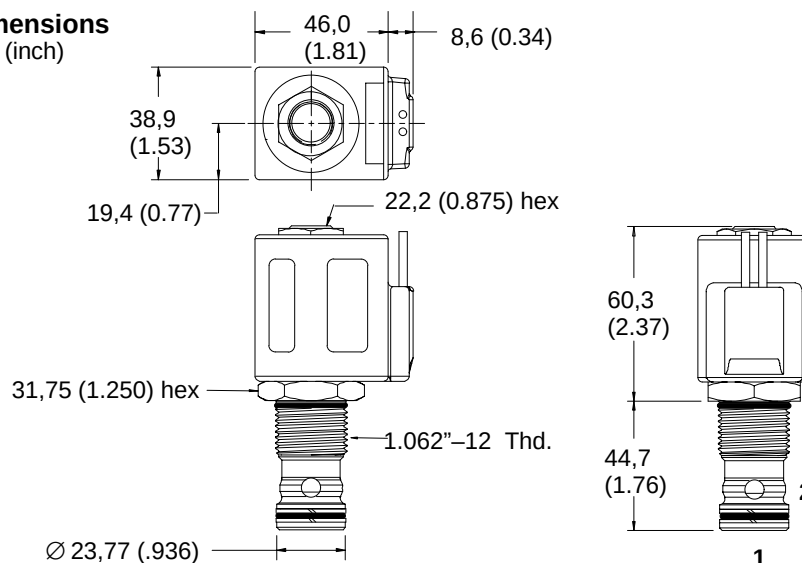
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions mm (inch)



*Torque cartridge in housing
102–115 Nm (75–85 lbf ft)*

Note

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



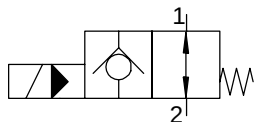
WARNING

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

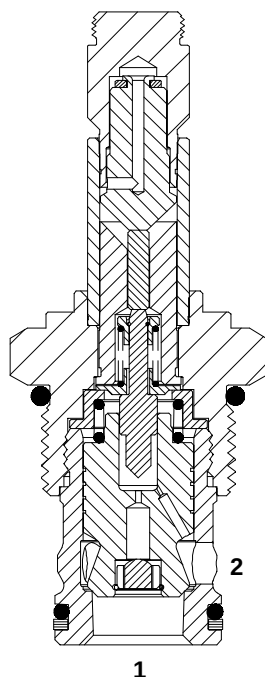
SV13-16-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

Operation

In the de-energized position, this valve allows bi-directional 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 (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 (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-16-2 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

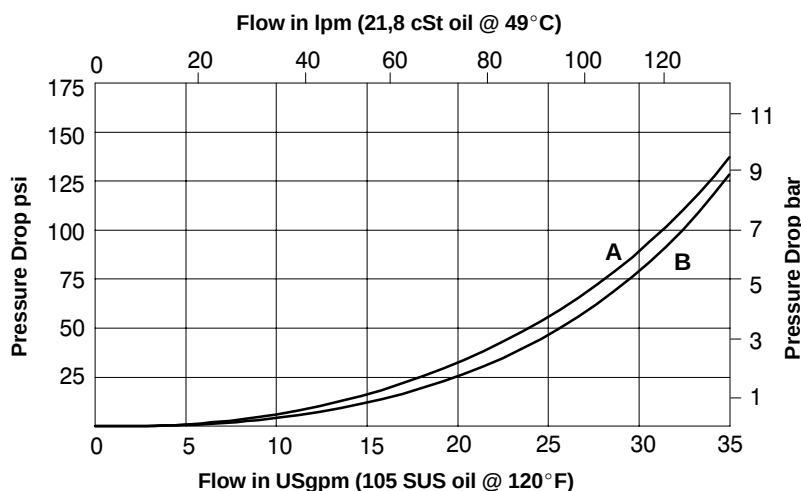
Weight cartridge only 0,39 kg (0.85 lb.)

Seal kit 565810 Buna-N
889609 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

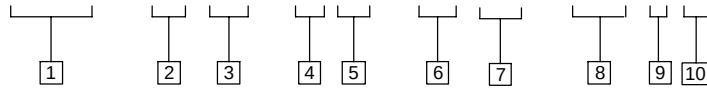
Cartridge only



A – Port 2 to 1 de-energized

B – Port 1 to 2

SV13 - 16 (V) - O (*) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

16 – 16 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

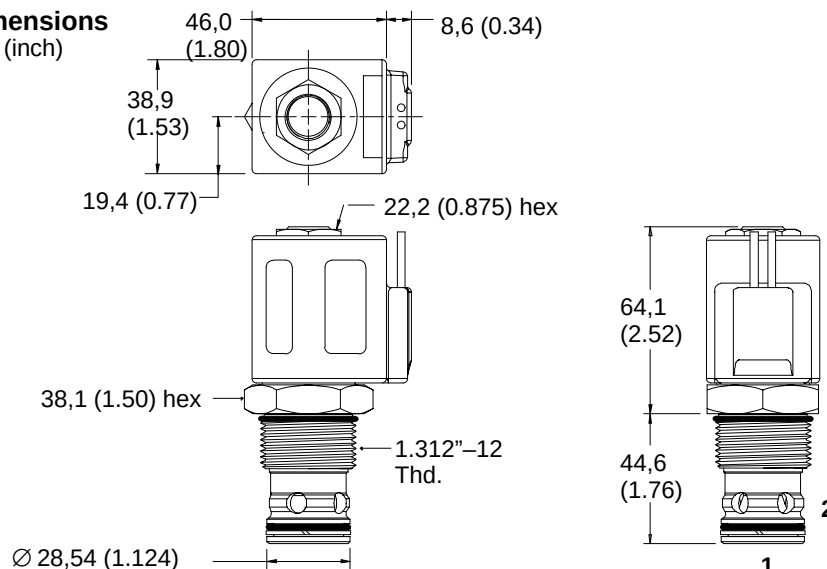
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions



*Torque cartridge in housing
136–149 Nm (100–110 lbf ft)*

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



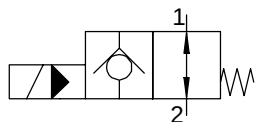
WARNING

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

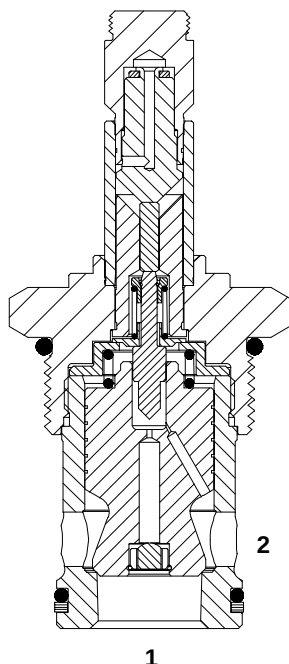
SV13-20-O/OP/OS

Poppet type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

Operation

In the de-energized position, this valve allows bi-directional 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 (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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

Weight cartridge only 0,62 kg (1.37 lb.)

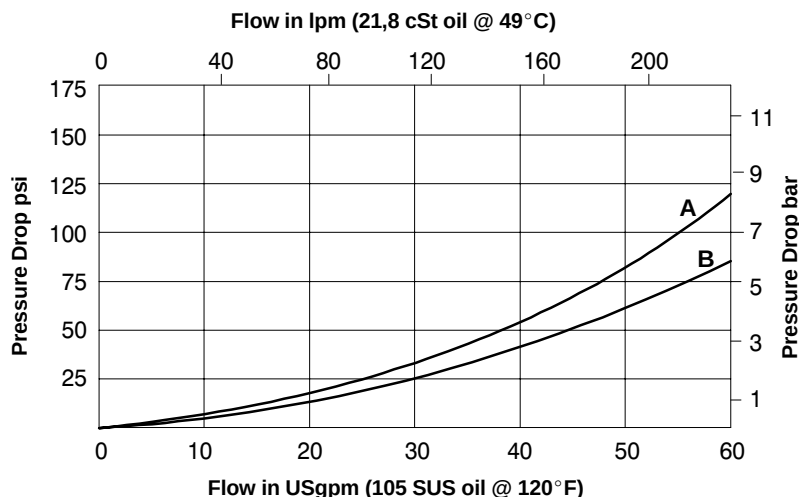
Seal kit 889615 Buna-N
889619 Viton®

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

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

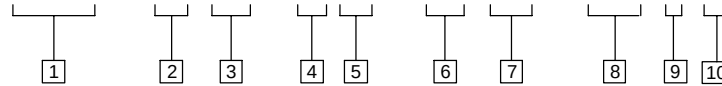
Cartridge only



A – Port 2 to 1 de-energized

B – Port 1 to 2

SV13 - 20 (V) - O (*) - (S) *** - **** * H



1 Function

SV13 – Solenoid valve

2 Size

20 – 20 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
P – push type manual override
S – screw type manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

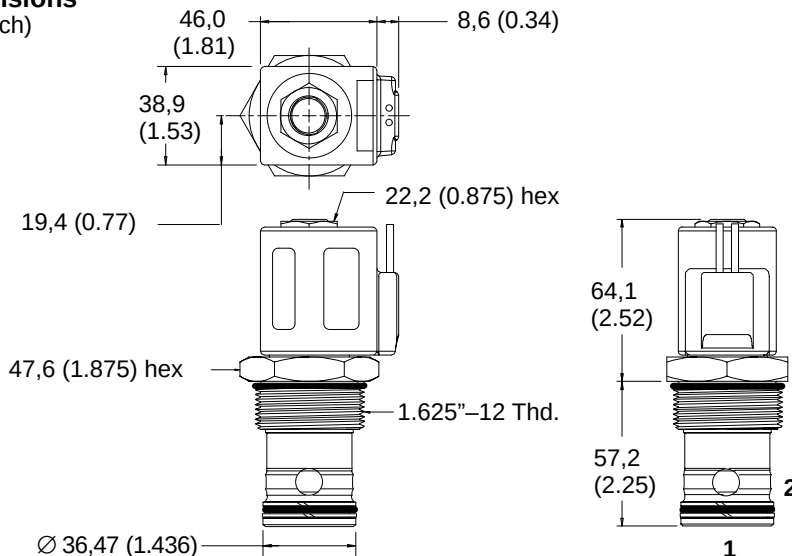
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



*Torque cartridge in housing
163–183 lbf ft (120–135 Nm)*

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



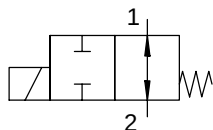
WARNING

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

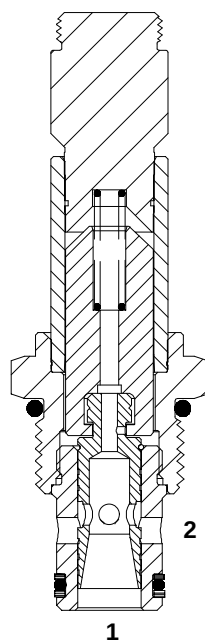
SV14-10-O/OM

Spool type normally open solenoid valve, 350 bar

Functional symbol



Sectional view



Description

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

Operation

In the de-energized position, this valve allows bi-directional 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 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 (See page 48)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

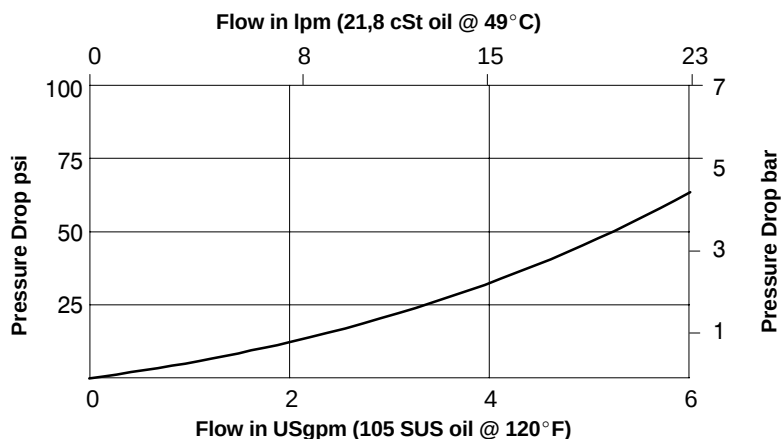
Weight cartridge only 0,18 kg (0.39 lb.)

Seal kit 565806 Buna-N
889627 Viton®

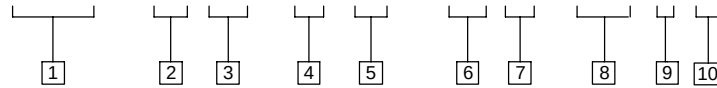
Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curve

Cartridge only



SV14 - 10 (V) - O (M) - (S) ** - **** * H



1 Function

SV14 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

O – Normally open

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 51 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

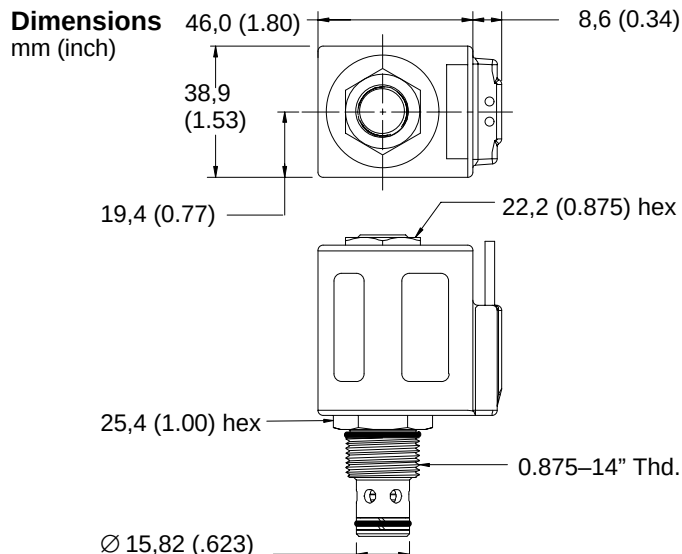
Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

See dimensions of connectors on page 55.

H – 26 W coil



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

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



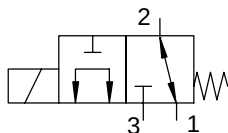
WARNING

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

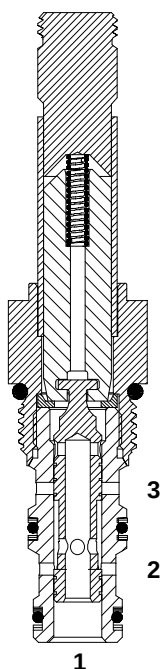
SV11-8-3/3M

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

Functional symbol



Sectional view



Description

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

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 & 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 (See page 49)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

Weight cartridge only 0,13 kg (0.28 lb.)

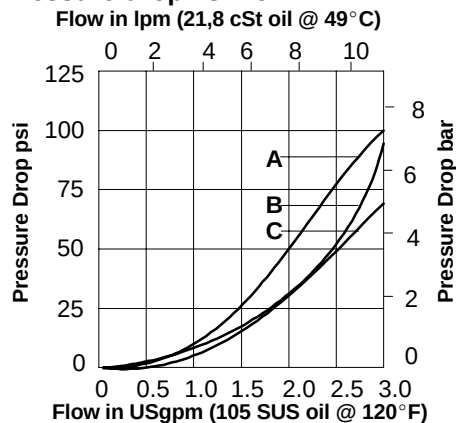
Seal kit 02-160755 Buna-N
02-160756 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Performance characteristics

Cartridge only

Pressure drop vs. flow

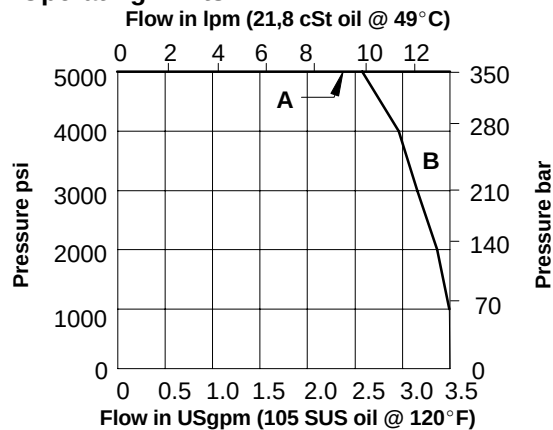


A – Port 1 to 2 and 1 to 3

B – Port 3 to 1

C – Port 2 to 1

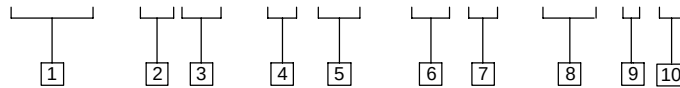
Operating limits



A – Normally open & closed

B – Selector 1 to 2 and 1 to 3

SV11 – 8 (V) – 3 (M) – (S) ** – **** * P



1 Function

SV11– Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

3 – 3-way, 2 position

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

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

See page 52 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

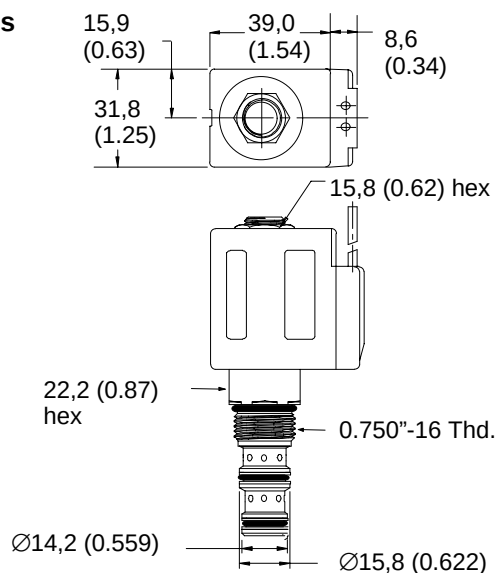
10 Coil type

P – 20 W coil

See dimensions of connectors on page 54.

Dimensions

mm (inch)



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

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



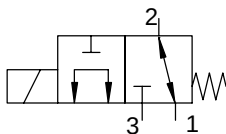
WARNING

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

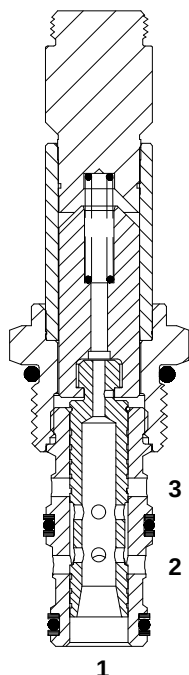
SV11-10-3/3M

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

Functional symbol



Sectional view



Description

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

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 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 (See page 49)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

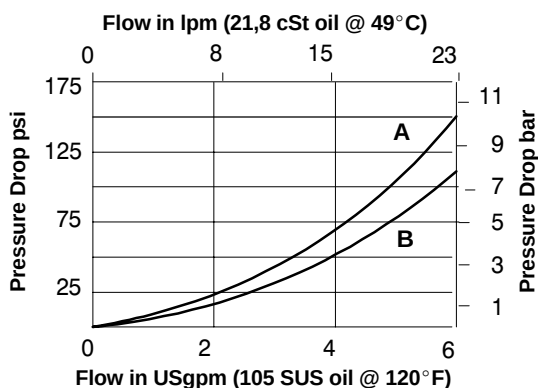
Weight cartridge only 0,19 kg (0.42 lb.)

Seal kit 565804 Buna-N
889599 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

Cartridge only

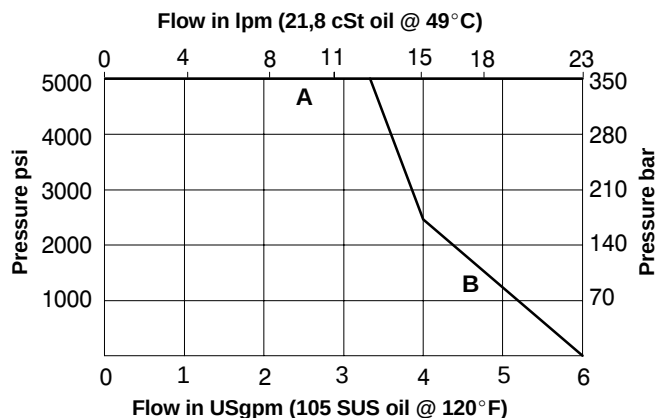


A Port 3 to 1

B Port 1 to 2

Operating Limits

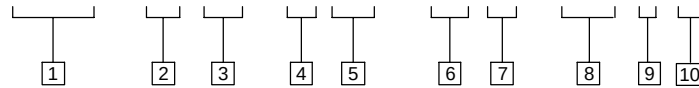
Cartridge only



A Normally open, normally closed – selector 1 to 2

B Selector 1 to 2

SV11 – 10 (V) – 3 (M) – (S) ** – **** * H



1 Function

SV11 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

3 – 3-way, 2-position

5 Manual override option

Blank – without manual override

M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

Code	Port size	Housing
2G –	1/4 " BSPP	02-175127
3G –	3/8" BSPP	02-175128
6T –	SAE 6	02-175124
8T –	SAE 8	02-175125

See page 52 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC

24D – 24 VDC

36D – 36 VDC

24A – 24 VAC

120A – 120 VAC

240A – 240 VAC

12B – 12 VDC/w diode*

24B – 24 VDC/w diode*

**optional arc suppression diode*

9 Connector type/coil part number

Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

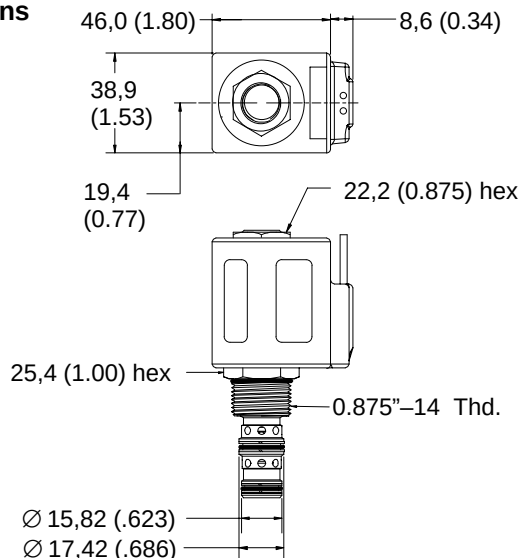
10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions

mm (inch)



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

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



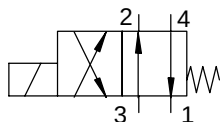
WARNING

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

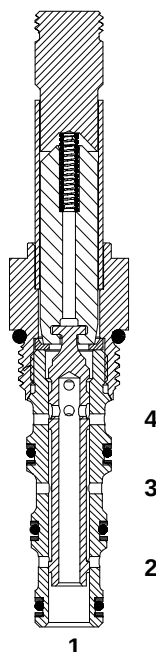
SV11-8-4/4M

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

Functional symbol



Sectional view



Description

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

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 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 & 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 (See page 49)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

Weight cartridge only 0,14 kg (0.30 lb.)

Seal kit 02-160757 Buna-N
02-160758 Viton®

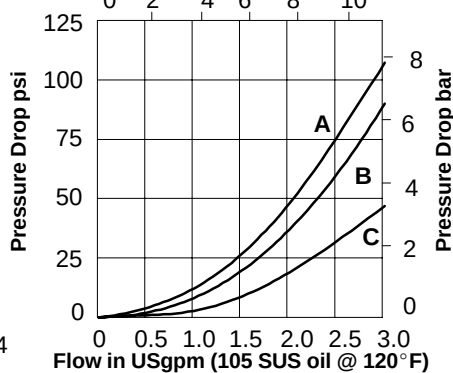
Viton is a registered trademark of E.I. DuPont Co.

Performance characteristics

Cartridge only

Pressure drop vs. flow

Flow in lpm (21,8 cSt oil @ 49°C)



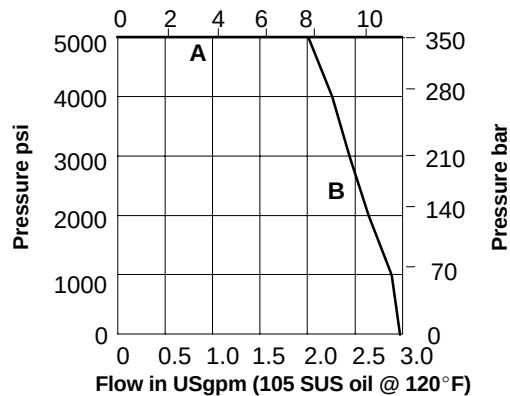
A – Port 3 to 4
and 3 to 2

B – Port 4 to 1

C – Port 2 to 1

Operating limits

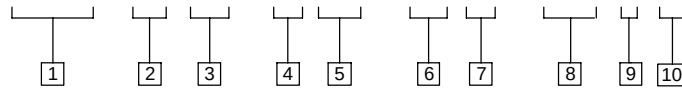
Flow in lpm (21,8 cSt oil @ 49°C)



A – Port 2 to 1, 4 to 1 and 3 to 2

B – Port 3 to 4

SV11 - 8 (V) - 4 (M) - (S) ** - **** * P



1 Function

SV11 – Solenoid valve

2 Size

8 – 8 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

4 – 4-way, 2 position

5 Manual override option

Blank – without manual override
M – manual override

For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

Code	Port size	Housing
2G –	1/4" BSPP	02-160753
3G –	3/8" BSPP	02-160754
4T –	SAE 4	02-160751
6T –	SAE 6	02-160752

See page 53 for housings

8 Voltage Rating

00 – No coil

12D – 12 VDC

24D – 24 VDC

36D – 36 VDC

24A – 24 VAC

120A – 120 VAC

240A – 240 VAC

12B – 12 VDC/w diode*

24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

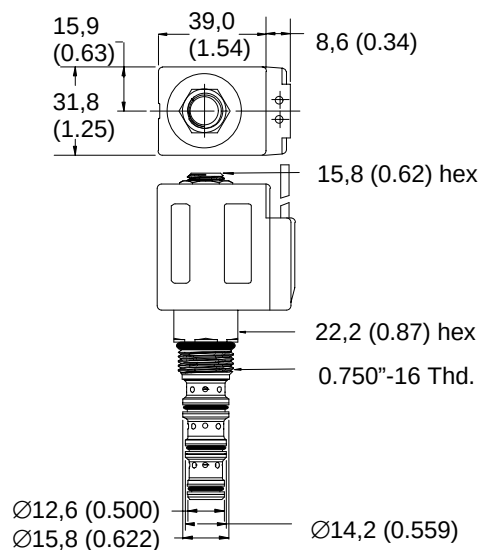
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-17870
24D	02-178144	02-178147	02-178138	02-178135	02-178132	4
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-17870
24A	02-178160	–	02-178157	02-178156	02-178155	5 –
120A	02-178161	–	02-178158	–	–	02-17870
240A	02-178162	–	02-178159	–	–	6 –
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

10 Coil type

P – 20 W coil

See dimensions of connectors on page 54.

Dimensions mm (inch)



*Torque cartridge in housing
34–41 Nm (25–30 lbf ft)*

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



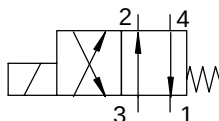
WARNING

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

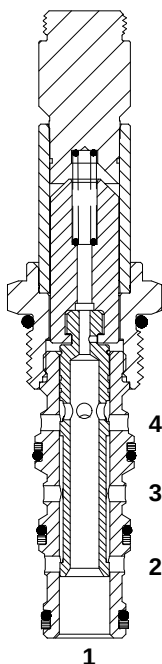
SV11-10-4/4M

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

Functional symbol



Sectional view



Description

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

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 cSt (105 SUS) and 49°C (120°F)

Typical application pressure (all ports) 350 bar (5000 psi)

Cartridge fatigue pressure (infinite life) 310 bar (4500 psi)

Rated flow 23 l/min (6 USgpm)

Internal leakage (port 2 to port 1) .. 82 cm³/min. (5 in³/min.) maximum @ 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 (See page 50)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

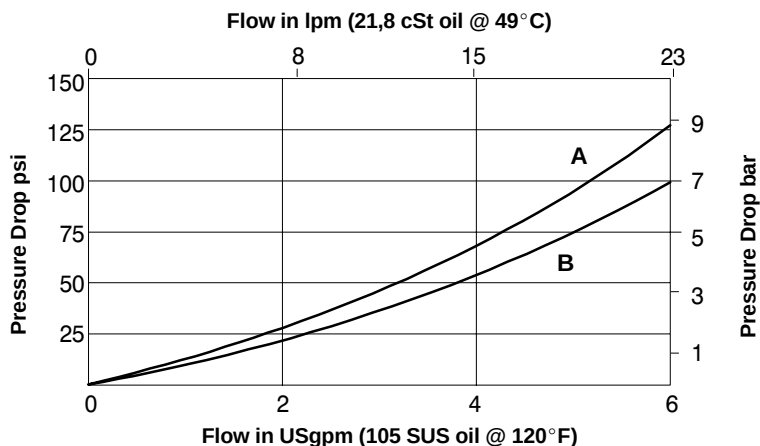
Weight cartridge only 0,21 kg (0.46 lb.)

Seal kit 565805 Buna-N
889600 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Pressure Drop Curves

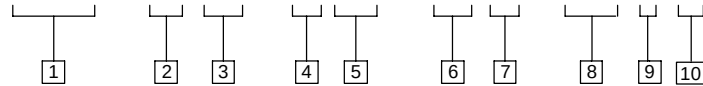
Cartridge only



A – Port 3 to 2

B – Port 4 to 1

SV11 - 10 (V) - 4 (M) - (S) ** - **** * H



1 Function

SV11 – Solenoid valve

2 Size

10 – 10 Size

3 Seals

Blank – Buna-N
V – Viton

4 Style

4 – 4-way, 2-position

5 Manual override option

Blank – without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material

Blank – Cartridge only
S – Steel

7 Port size/housing part number

0 – Cartridge only

Code	Port size	Housing
2G –	1/4" BSPP	02-175139
3G –	3/8" BSPP	02-175140
6T –	SAE 6	02-175137
8T –	SAE 8	02-175138

See page 53 for housings

8 Voltage Rating

00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*

*optional arc suppression diode

9 Connector type/coil part number

Blank – No coil

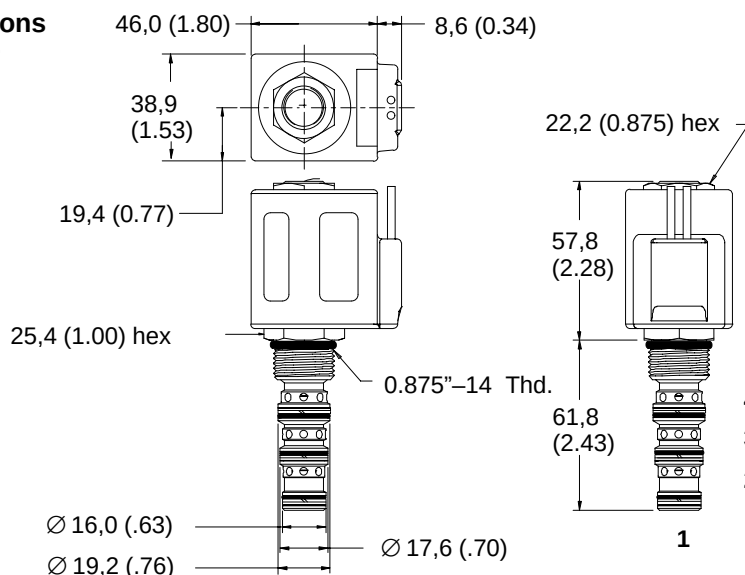
Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24D	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36D	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24A	02-178047	–	02-178044	02-178043	02-178042	–
120A	02-178048	–	02-178045	–	–	–
240A	02-178049	–	02-178046	–	–	–
12B	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24B	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

10 Coil type

H – 26 W coil

See dimensions of connectors on page 55.

Dimensions



*Torque cartridge in housing
68–75 Nm (50–55 lbf ft)*

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



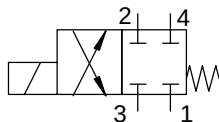
WARNING

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

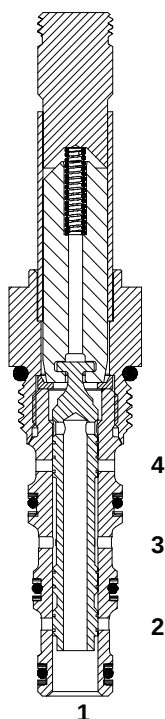
SV12-8-4/4M

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

Functional symbol



Sectional view



Description

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

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 (See page 50)

Fluids All general purpose hydraulic fluids such as:
MIL-H-5606, SAE 10, SAE 20, etc.

Filtration Cleanliness code 18/16/13

Standard housing material Steel

Weight cartridge only 0,14 kg (0.30 lb.)

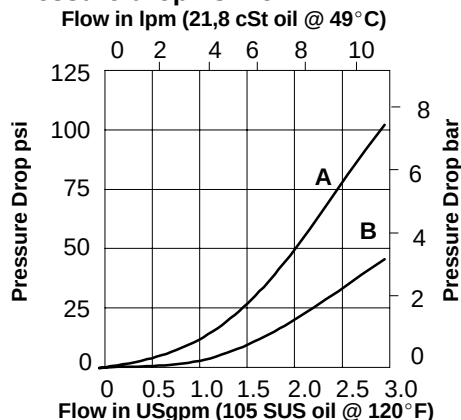
Seal kit 02-160757 Buna-N
02-160758 Viton®

Viton is a registered trademark of E.I. DuPont Co.

Performance characteristics

Cartridge only

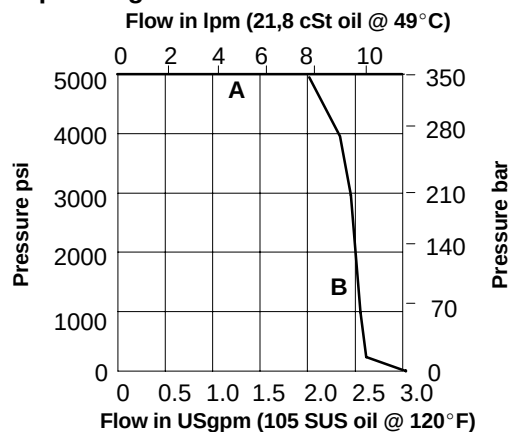
Pressure drop vs. flow



A – Port 3 to 4

B – Port 2 to 1

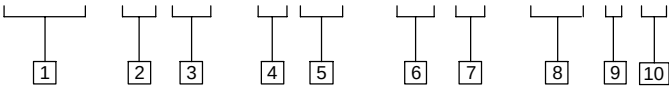
Operating limits



A – Port 2 to 1

B – Port 3 to 4

SV12 – 8 (V) – 4 (M) – (S) ** – **** * P



1 Function
SV12 – Solenoid valve

2 Size
8 – 8 Size

3 Seals
Blank – Buna-N
V – Viton

4 Style
4 – 4-way, 2 position

5 Manual override option
Blank – without manual override
M – manual override
For valve dimensions with manual override option installed see page 56.

6 Housing material
Blank – Cartridge only
S – Steel

7 Port size/housing part number
0 – Cartridge only

Code	Port size	Housing
2G –	1/4 " BSPP	02-160753
3G –	3/8" BSPP	02-160754
4T –	SAE 4	02-160751
6T –	SAE 6	02-160752

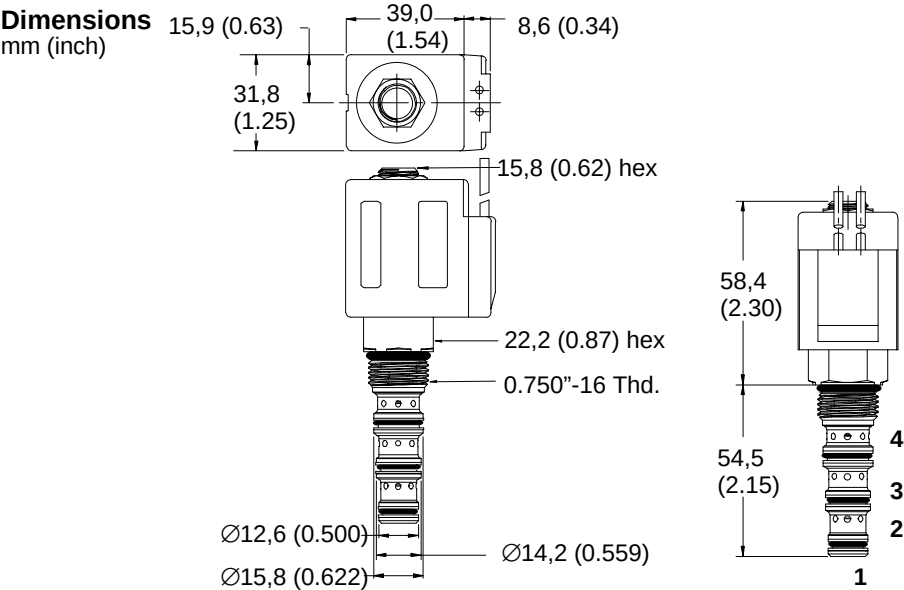
See page 53 for housings

8 Voltage Rating
00 – No coil
12D – 12 VDC
24D – 24 VDC
36D – 36 VDC
24A – 24 VAC
120A – 120 VAC
240A – 240 VAC
12B – 12 VDC/w diode*
24B – 24 VDC/w diode*
*optional arc suppression diode

9 Connector type/coil part number
Blank – No coil

Coil Voltage	G ISO 4400 DIN 43650	N Deutsch	P 1/2" NPT conduit port w/ leadwire	Q Spade terminals	W Leadwire	Y Amp junior
12D	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24D	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36D	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24A	02-178160	–	02-178157	02-178156	02-178155	–
120A	02-178161	–	02-178158	–	–	–
240A	02-178162	–	02-178159	–	–	–
12B	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24B	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

10 Coil type
P – 20 W coil
See dimensions of connectors on page 54.



Torque cartridge in housing
34–41 Nm (25–30 lbf ft)

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

WARNING
Maintain 5-8 Nm (4-6 lbf ft)
maximum torque on valve
tube nut. Overtightening may
cause valve failure.

C-**-2 Cavity Dimensions

Dimensions

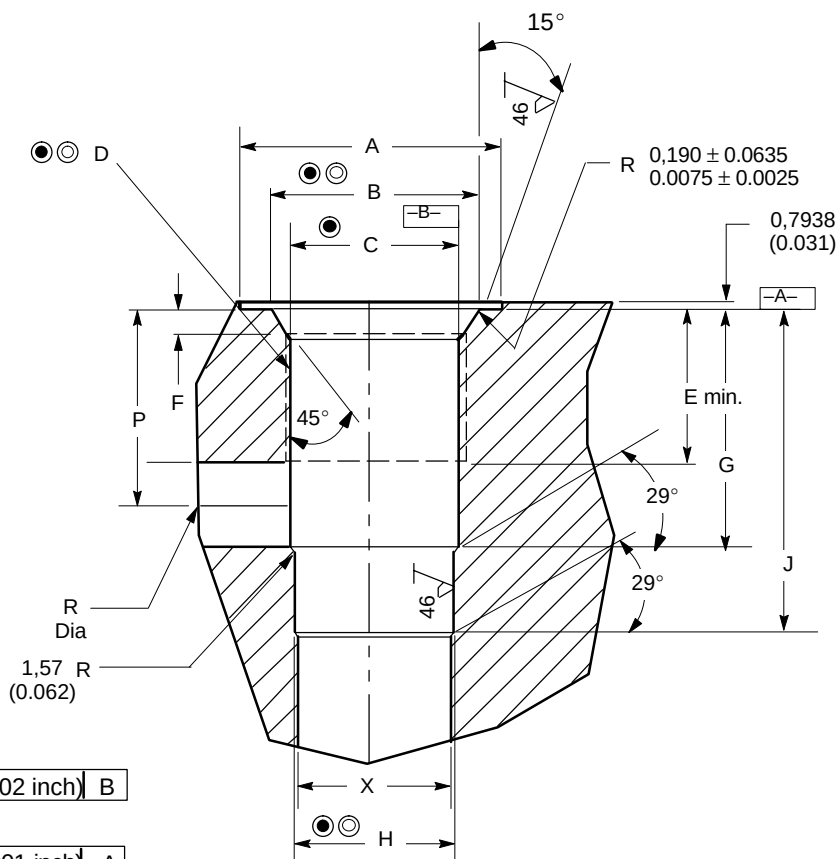
mm (inch)

Cavity bores can be machined accurately in aluminum or steel. The necessary UNF, or UN threads may be machined using standard small tools, possibly already in your machine shop or from a local tool supplier. For in depth advice on the machining of cavities, consult your Vickers sales specialist.

Either you, our customer, or Vickers can design and manufacture customized manifolds or housings dedicated to individual applications. We call the resulting valve packages Modular Circuit Designs (MCDs). Cartridges selected for your application can be accommodated in one or more MCDs, according to your requirements.

● These diameters $\begin{array}{|c|} \hline \nearrow 0,051 \text{ mm } (.002 \text{ inch}) \\ \hline \end{array}$ B unless otherwise specified.

○ These diameters $\begin{array}{|c|} \hline \perp 0,025 \text{ mm } (.001 \text{ inch}) \\ \hline \end{array}$ A unless otherwise specified.



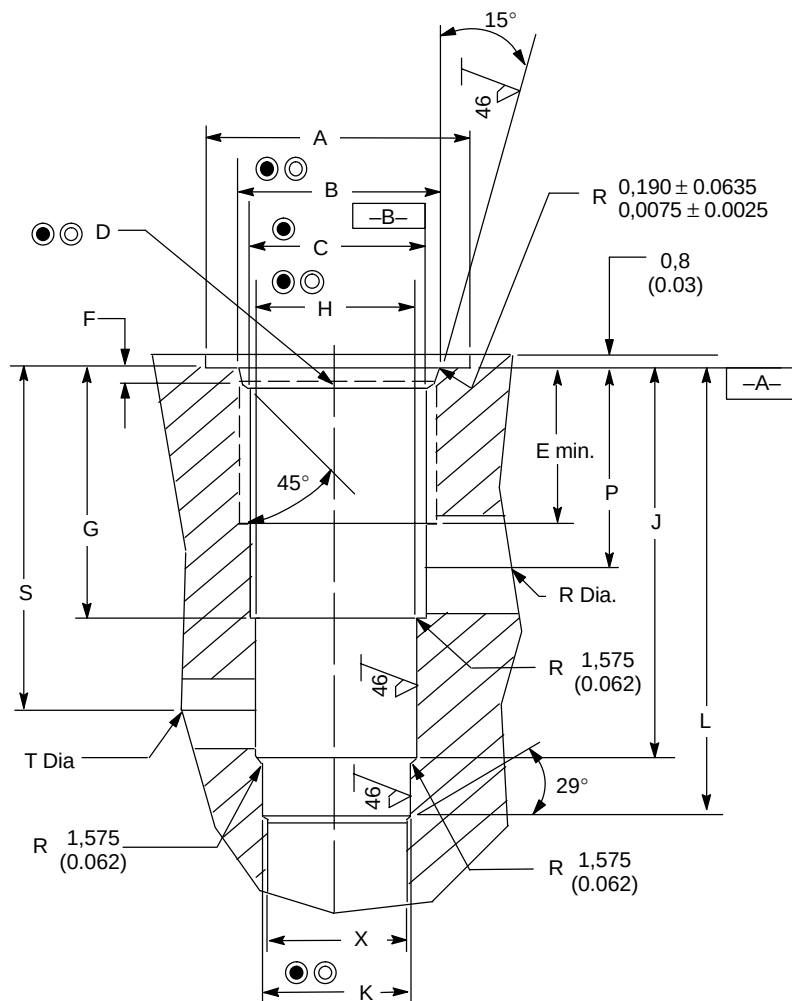
2-way cavity

Cavity mm (inch)	A Spotface	B +0,051 0 (+0.002 0)	C +0,051 0 (+0.002 0)	D Thread	E Full Thread	F	G	H ± 0,0254 (± 0.001)	J	P	R Max. Dia.	X Max. Dia.
C-8-2	30,16 (1.188)	20,65 (0.813)	17,47 (0.688)	.750"-16	12,70 (0.500)	2,54/2,92 (0.100/0.115)	19,05 (0.750)	12,72 (0.501)	30,17 (1.188)	14,68 (0.578)	8,74 (0.344)	11,11 (0.438)
C-10-2	30,16 (1.188)	24,00 (0.945)	20,62 (0.812)	.875"-14	15,88 (0.625)	2,54/2,92 (0.100/0.115)	23,81 (0.937)	15,90 (0.626)	33,32 (1.312)	18,23 (0.718)	11,11 (0.437)	14,29 (0.562)
C-12-2	38,10 (1.500)	29,15 (1.148)	24,76 (0.975)	1.062"-12	22,22 (0.875)	3,30/3,68 (0.130/0.145)	34,92 (1.375)	23,82 (0.938)	46,35 (1.825)	27,94 (1.100)	12,70 (0.500)	22,22 (0.875)
C-16-2	44,45 (1.750)	35,58 (1.401)	31,34 (1.234)	1.312"-12	22,22 (0.875)	3,30/3,68 (0.130/0.145)	34,14 (1.344)	28,62 (1.127)	46,84 (1.844)	24,60 (0.968)	19,05 (0.750)	19,05 (0.750)
C-20-2	57,66 (2.270)	43,59 (1.716)	39,12 (1.540)	1.625"-12	20,64 (0.812)	3,35/3,73 (0.132/0.147)	44,45 (1.750)	36,55 (1.439)	58,72 (2.312)	30,96 (1.218)	25,40 (1.000)	30,16 (1.188)

C-**-3 Cavity Dimensions

Dimensions

millimeter (inch)



- These diameters $\begin{array}{|c|} \hline 0,051 \text{ mm (.002 inch)} \\ \hline \end{array}$ B unless otherwise specified.
- These diameters $\begin{array}{|c|} \hline 0,025 \text{ mm (.001 inch)} \\ \hline \end{array}$ A unless otherwise specified.

3-way cavity

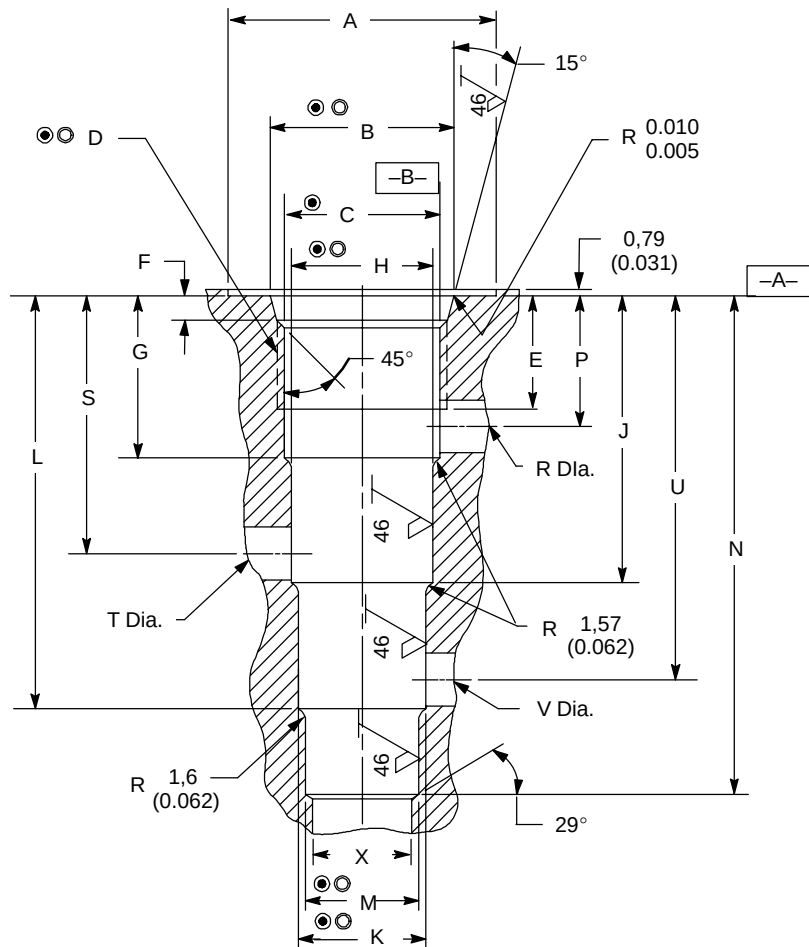
Cavity mm (inch)	A Spotface	B $\begin{array}{ c } \hline +0,051 \\ 0 \\ (+0,002 \\ 0) \end{array}$	C $\begin{array}{ c } \hline +0,051 \\ 0 \\ (+0,002 \\ 0) \end{array}$	D Thread	E Full Thread	F	G	H $\begin{array}{ c } \hline \pm 0,0254 \\ (\pm 0,001) \end{array}$	J	K $\begin{array}{ c } \hline \pm 0,0254 \\ (\pm 0,001) \end{array}$	L
C-8-3	30,16 (1.188)	20,65 (0.813)	17,47 (0.688)	0.750"-16	12,70 (0.500)	2,54/2,92 (0.100/0.115)	18,24 (0.718)	15,90 (0.626)	33,26 (1.270)	14,30 (0.563)	43,26 (1.703)
C-10-3	30,16 (1.188)	24,00 (0.945)	20,62 (0.812)	0.875"-14	15,88 (0.625)	2,54/2,92 (0.100/0.115)	21,59 (0.850)	17,50 (0.689)	38,10 (1.500)	15,90 (0.626)	47,62 (1.875)

Cavity mm (inch)	P	R Max. Dia.	S	T Max. Dia.	X Max. Dia.
C-8-3	14,68 (0.578)	5,94 (0.234)	28,98 (1.141)	5,94 (0.234)	12,70 (0.500)
C-10-3	18,26 (0.719)	6,35 (0.250)	34,13 (1.344)	6,35 (0.250)	14,29 (0.562)

C-**-4 Cavity Dimensions

Dimensions

millimeter (inch)



4-way cavity

These diameters $\begin{array}{|c|} \hline \text{0,051 mm (.002 inch)} \\ \hline \end{array}$ B unless otherwise specified.

These diameters $\begin{array}{|c|} \hline \text{0,025 mm (.001 inch)} \\ \hline \end{array}$ A unless otherwise specified.

Cavity mm (inch)	A Spotface	B $\begin{array}{ c } \hline \text{+0,051} \\ \hline \end{array}$ 0 (+0.002 0)	C $\begin{array}{ c } \hline \text{+0,051} \\ \hline \end{array}$ 0 (+0.002 0)	D Thread	E Full Thread	F	G	H $\pm 0,0254$ (± 0.001)	J	K $\pm 0,0254$ (± 0.001)
C-8-4	30,16 (1.188)	20,65 (0.813)	17,47 (0.688)	0.750"-16	12,70 (0.500)	2,54/2,92 (0.100/0.115)	18,24 (0.718)	15,90 (0.626)	32,26 (1.270)	14,30 (0.563)
C-10-4	30,16 (1.188)	24,00 (0.945)	20,62 (0.812)	0.875"-14	15,88 (0.625)	2,54/2,92 (0.100/0.115)	22,22 (0.875)	19,08 (0.751)	38,10 (1.500)	17,50 (0.689)

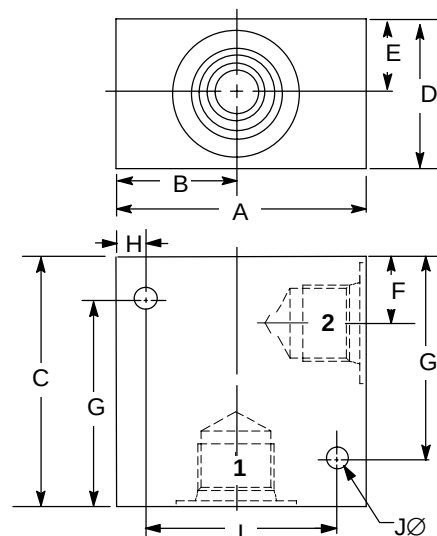
Cavity mm (inch)	L	M $\pm 0,0254$ (± 0.001)	N	P	R Max. Dia.	S	T Max. Dia.	U	V	X Max. Dia.
C-8-4	46,48 (1.830)	12,72 (0.501)	56,13 (2.210)	14,68 (0.578)	5,94 (0.234)	28,98 (1.141)	5,94 (0.234)	43,25 (1.703)	5,94 (0.234)	11,13 (0.438)
C-10-4	53,98 (2.125)	15,90 (0.626)	63,50 (2.500)	18,26 (0.718)	6,35 (0.250)	34,13 (1.343)	6,35 (0.250)	50,00 (1.968)	6,35 (0.250)	14,29 (0.562)

C-**-2 Steel Housings

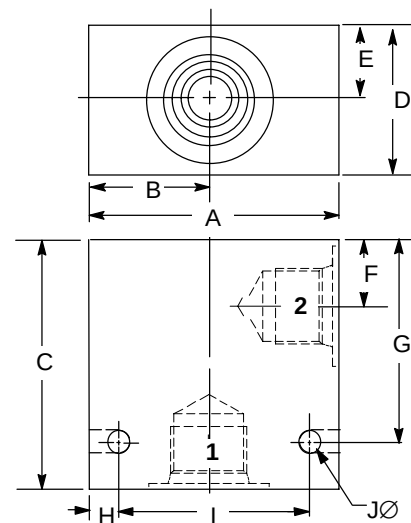
Housing	Ports 1 & 2	Part Number
C-8-2	1/4" BSPP	02-160733
	3/8" BSPP	02-160734
	SAE 4	02-160736
	SAE 6	02-160737
	SAE 8	02-160738
C-10-2	1/4" BSPP	02-175102
	3/8" BSPP	02-175103
	SAE 6	02-175100
	SAE 8	02-175101
C-12-2	1/2" BSPP	02-172062
	3/4" BSPP	02-169665
	SAE 10	02-169744
	SAE 12	02-169782
C-16-2	1/2" BSPP	02-175106
	3/4" BSPP	02-175107
	SAE 12	02-175105
C-20-2	3/4" BSPP	02-175110
	1" BSPP	02-175111
	SAE 12	02-175108
	SAE 16	02-175109

Note: BSPP porting is designated by "G" in the model code
SAE porting is designated by "T" in the model code

NOTE:
8 series utilizes slot in place of mounting hole



C-12-2 only



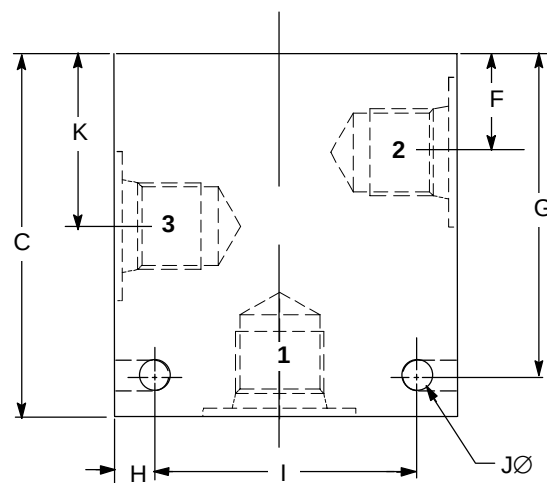
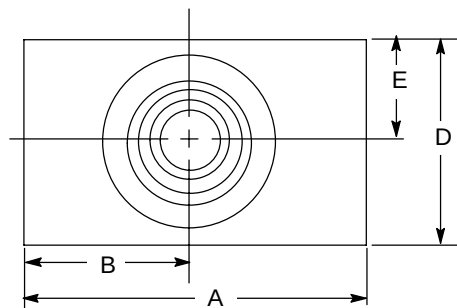
C-8-2, C-10-2, C-16-2 & C-20-2

Cavity mm (inch)	A	B	C	D	E	F	G	H	I	J	Mass kg (lb.)
C-8-2	50,8 (2.00)	19,0 (0.75)	50,8 (2.00)	38,1 (1.50)	19,0 (0.75)	15,5 (0.61)	38,1 (1.50)	3,3 (0.13)	43,9 (1.73)	7,1 (0.28)	0,5 (1.19)
C-10-2	63,5 (2.50)	25,4 (1.00)	63,5 (2.50)	44,4 (1.75)	22,2 (0.87)	19,0 (0.75)	50,8 (2.00)	9,5 (0.37)	44,4 (1.75)	7,1 (0.28)	0,3 (0.83)
C-12-2	88,9 (3.50)	28,5 (1.12)	88,9 (3.50)	50,8 (2.00)	25,4 (1.00)	28,7 (1.13)	76,2 (3.00)	12,7 (0.50)	63,5 (2.50)	10,3 (0.40)	1,9 (4.28)
C-16-2	88,9 (3.50)	38,1 (1.50)	76,2 (3.00)	50,8 (2.00)	25,4 (1.00)	25,4 (1.00)	63,5 (2.50)	12,7 (0.50)	63,5 (2.50)	10,3 (0.40)	2,2 (5.00)
C-20-2	101,6 (4.00)	41,2 (1.62)	88,9 (3.50)	63,5 (2.50)	31,7 (1.25)	31,7 (1.25)	76,2 (3.00)	12,7 (0.50)	76,2 (3.00)	10,3 (0.40)	3,6 (7.96)

C-**-3 Steel Housings

Housing	Ports 1, 2 & 3	Part Number
C-8-3	1/4" BSPP	02-160743
	3/8" BSPP	02-160746
	SAE 4	02-160745
	SAE 6	02-160744
C-10-3	1/4" BSPP	02-175127
	3/8" BSPP	02-175128
	SAE 6	02-175124
	SAE 8	02-175125

Note: BSPP porting is designated by "G" in the model code
 SAE porting is designated by "T" in the model code



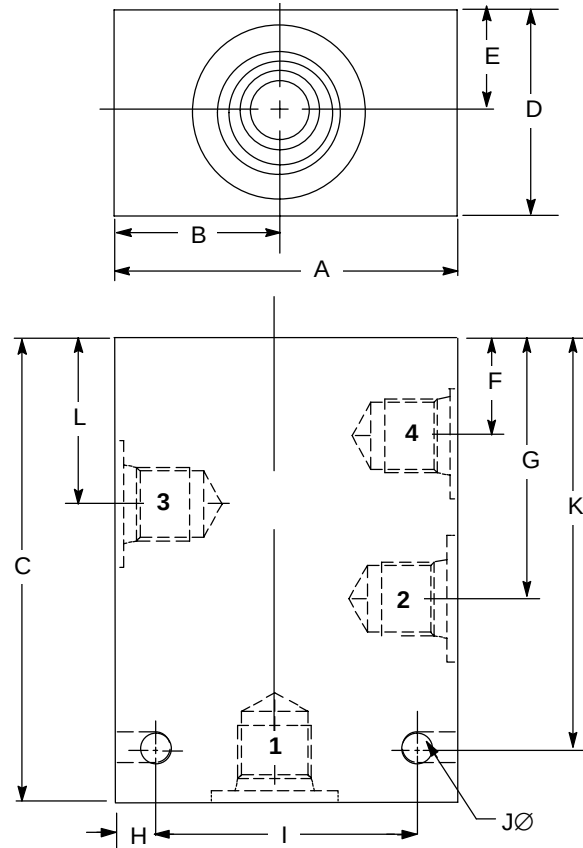
NOTE:
 8 series utilizes slot in place of mounting hole

Cavity mm (inch)	A	B	C	D	E	F	G	H	I	J	K	Mass kg (lb.)
C-8-3	63,5 (2.50)	31,8 (1.25)	66,0 (2.75)	38,1 (1.50)	19,0 (0.75)	15,5 (0.61)	53,0 (2.12)	3,3 (0.13)	56,6 (2.23)	7,1 (0.28)	29,8 (1.17)	0,9 (2.15)
C-10-3	76,2 (3.00)	38,1 (1.50)	76,2 (3.00)	44,4 (1.75)	22,2 (0.87)	19,0 (0.75)	63,5 (2.50)	9,5 (0.37)	57,1 (2.25)	7,1 (0.28)	34,9 (1.37)	1,7 (3.75)

C**-4 Steel Housings

Housing	Ports 1, 2, 3 & 4	Part Number
C-8-4	1/4" BSPP	02-160753
	3/8" BSPP	02-160754
	SAE 4	02-160751
	SAE 6	02-160752
C-10-4	1/4" BSPP	02-175139
	3/8" BSPP	02-175140
	SAE 6	02-175137
	SAE 8	02-175138

Note: BSPP is designated by "G" in model code
SAE is designated by "T" in model code



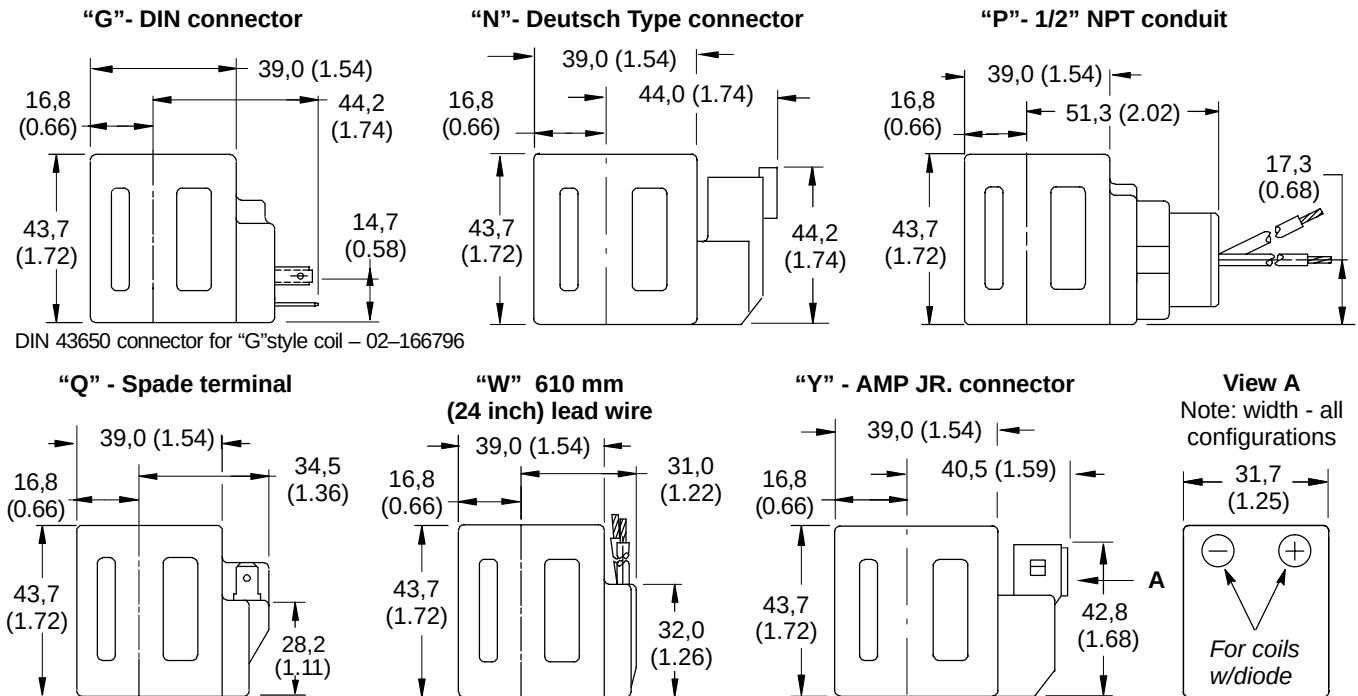
NOTE:
8 series utilizes slot in
place of mounting hole

Cavity mm (inch)	A	B	C	D	E	F	G	H	I	J	K	L	Mass kg (lb.)
C-8-4	63,5 (2.50)	31,8 (1.25)	82,6 (3.25)	38,1 (1.50)	19,0 (0.75)	15,5 (0.61)	44,1 (1.74)	3,3 (0.13)	57,1 (2.25)	7,1 (0.28)	73,0 (2.88)	29,8 (1.17)	1,2 (2.70)
C-10-4	76,2 (3.00)	38,1 (1.50)	88,9 (3.50)	44,4 (1.75)	22,2 (0.87)	19,0 (0.75)	50,8 (2.0)	9,5 (0.37)	57,1 (2.25)	7,1 (0.28)	76,2 (3.00)	34,9 (1.37)	1,9 (4.35)

8-Series Coils

Coil Dimensions

millimeter (inch)



Voltage w/o diode*	COIL PART NUMBERS					
	G Connector	N Connector	P Connector	Q Connector	W Connector	Y Connector
12 VDC	02-178143	02-178146	02-178137	02-178134	02-178131	02-178704
24 VDC	02-178144	02-178147	02-178138	02-178135	02-178132	02-178705
36 VDC	02-178145	02-178148	02-178139	02-178136	02-178133	02-178706
24 VAC	02-178160	N/A	02-178157	02-178156	02-178155	N/A
115 VAC	02-178161		02-178158	N/A	N/A	
240 VAC	02-178162		02-178159			
12 VDC*	02-178824	02-178826	02-178820	02-178818	02-178816	02-178830
24 VDC*	02-178825	02-178827	02-178821	02-178819	02-178817	02-178831

*optional arc suppression diode

Specifications

Standard Voltages	Amperes*	Lead Color
12 DC	1.67	red
24 DC	0.83	black
36 DC	0.56	blue
24 AC	0.97	orange
120 AC	0.19	yellow
240 AC	0.09	red/white

*Nominal voltage @ 25°C (77°F)

Duty Rating

Continuous from 85% to 110% of nominal voltage

Operating Temperature -100°C

(212°F)
continuous @ nominal voltage

Lead Wires - 18 gauge, 610 mm (24" long), UL style 3173 CSA CL 1251 (meets SAE J1128 XLPE style SXL)

Wattage -All coils are nominally 20 watts @ 25°C (77°F)

Encapsulant -P.E.T.

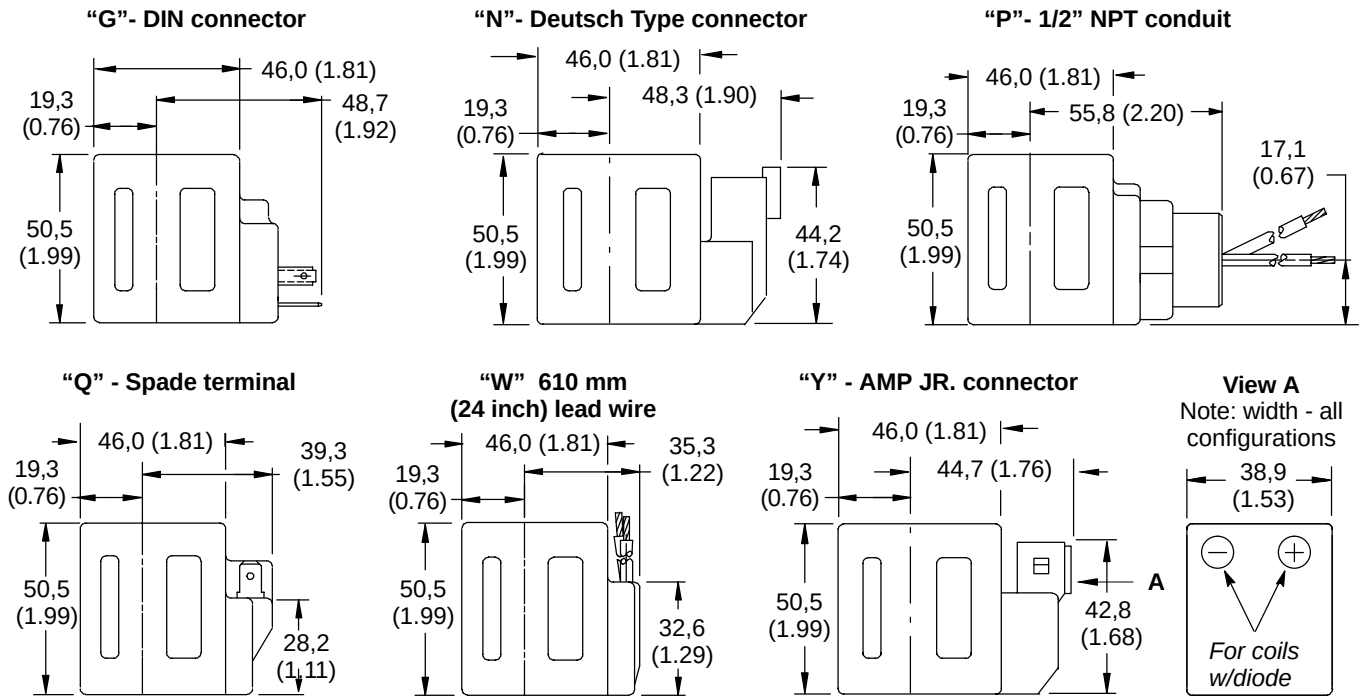
Magnet Wire -U.L. class N, 200°C (392°F) NEMA pub. no. MW 1000, section MW 35-C (single)

***Flyback diode** (arc suppressor)-Maximum recurrent peak reverse voltage - 800 V (optional)

For other voltages and connectors contact a Vickers representative.

10, 12, 16 & 20 Coils

Dimensions millimeter (inch)



Voltage w/o diode*	COIL PART NUMBERS					
	G Connector	N Connector	P Connector	Q Connector	W Connector	Y Connector
12 VDC	02-178027	02-178030	02-178021	02-178018	02-178015	02-178035
24 VDC	02-178028	02-178031	02-178022	02-178019	02-178016	02-178036
36 VDC	02-178029	02-178032	02-178023	02-178028	02-178017	02-178037
24 VAC	02-178047	N/A	02-178044	02-178043	02-178042	N/A
120 VAC	02-178048		02-178045	N/A	N/A	
240 VAC	02-178049		02-178046			
12 VDC*	02-178855	02-178857	02-178851	02-178849	02-178847	02-178861
24 VDC*	02-178856	02-178858	02-178852	02-178850	02-178848	02-178862

*optional arc suppression diode

Specifications

Standard Voltages	Amperes*	Lead Color
12 VDC	2.20	red
24 VDC	1.09	black
36 VDC	0.73	blue
24 VAC	1.26	orange
120 VAC	0.25	yellow
240 VAC	0.12	red/white

*Nominal voltage @ 25°C (77°F)

Duty Rating

Continuous from 85% to 110% of nominal voltage

Lead Wires –18 gauge, 610 mm (24") long, UL style 3173 CSA CL 1251 (meets SAE J1128 XLPE style SXL)

Wattage – All coils are nominally 26 watts @ 25°C (77°F)

Encapsulant – P.E.T.

Magnet Wire – U.L. class N, 200°C (392°F) NEMA pub. no. MW 1000, section MW 35–C (single)

***Flyback diode** (arc suppressor)–Maximum recurrent peak reverse voltage – 800 V (optional)

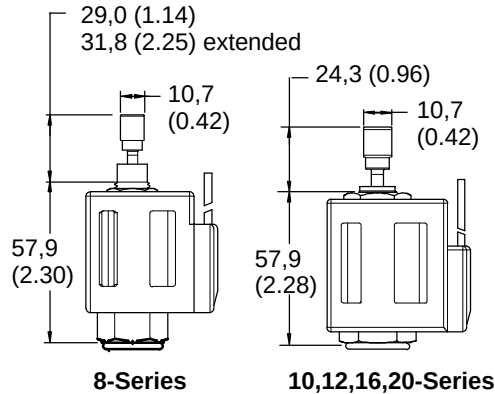
Operating Temperature – 100°C (212°F) continuous @ nominal voltage

Manual Override Options

Dimensions

millimeter (inch)

Manual override “S” for two position, screw type solenoid valves



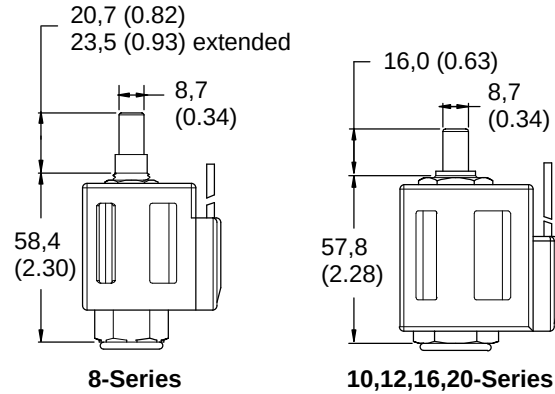
To override:

- 1 Turn the override button clockwise until it stops.
- 2 The override button will remain activated until the override button is turned counterclockwise.

To release:

- 1 Turn the override button counterclockwise until it stops.

Manual override “P” for two position, push type solenoid valves



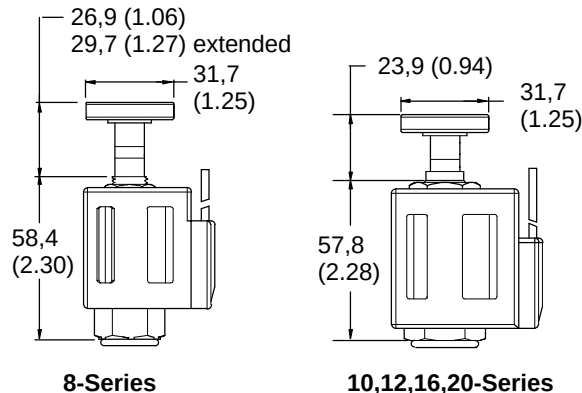
To override:

- 1 Push the override button to stop and hold

To release:

- 1 Remove pressure from the override button.

Manual override “M” for two position, pull type solenoid valves



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
- 3 Release knob.

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

SV15-8(V)-OP/OS-0-00	SV13-12(V)-OP/OS-0-00
SV13-10(V)-OP/OS-0-00	SV13-16(V)-OP/OS-0-00
SV15-10(V)-OP/OS-0-00	SV13-20(V)-OP/OS-0-00

Manual override “M” option is available on the following models:

SV15-8(V)-CM-0-00	SV13-10(V)-CM-0-00
SV14-8(V)-CM-0-00	SV14-10(V)-CM-0-00
SV14-8(V)-OM-0-00	SV14-10(V)-OM-0-00
SV11-8(V)-3M-0-00	SV11-10(V)-3M-0-00
SV11-8(V)-4M-0-00	SV11-10(V)-4M-0-00
SV12-8(V)-4M-0-00	SV13-12(V)-CM-0-00
SV11-10(V)-CM-0-00	SV13-16(V)-CM-0-00
SV12-10(V)-CM-0-00	SV13-20(V)-CM-0-00

Manual override is available on all 350 bar solenoid cartridge valves.



The manual override option is intended for emergency use, not for continuous duty operation.

Supporting Products

Roughing Tools

Roughers are basically step drills which leave 0,762 mm (.030") per cutting diameter and 0,381 mm (.015") above all radii for the finishing reamer, with an additional 0,381 mm (.015") depth in the cavity bottom as clearance.

The roughing tool is necessary to prepare the cavity for the finishing reamer, which has not been designed for the primary forming or bottom cutting.

We offer two types of roughers, one for aluminum and one for steel. The

aluminum rougher is manufactured with a 4-facet point and polished flutes. The steel rougher is supplied with a standard drill point. Both types will work in either material, however, longevity of an aluminum tool will be sacrificed when used continually in steel.

Cavity	Material	Model Code	Assembly Number
2-Way			
C-8-2	Aluminum / Steel	RT1-8-2-AS-8028	02-165580
C-10-2	Steel	RT-10-2-S-8035	889510
C-12-2	Aluminum / Steel	RT-12-2-AS-8213	02-160625
C-16-2	Steel	RT-16-2-S-8036	889516
C-20-2	Steel	RT-20-2-S-8037	889519
3-Way			
C-8-3	Aluminum / Steel	RT1-8-3-AS-8291	02-162384
C-10-3	Steel	RT-10-3-S-8043	889512
4-Way			
C-8-4	Aluminum / Steel	RT-8-4-AS-8292	02-172803
C-10-4	Steel	RT-10-4-S-8073	889514

Finishing Tools

These finishing tools have been designed as precision reamers for finishing operations only. They are not intended for primary forming or bottom

cutting operations. Vickers recommends that a finishing tool only be used in a properly roughed hole. Failure to

conform to this practice will produce unsatisfactory size and finishes and possibly break the tool.

Cavity	Material	Model Code	Assembly Number
2-Way			
C-8-2	Aluminum / Steel	FT1-8-2-AS-8070	02-112933
C-10-2	Aluminum / Steel	FT-10-2-AS-8048	566235
C-12-2	Aluminum / Steel	FT-12-2-AS-8214	02-162162
C-16-2	Aluminum / Steel	FT-16-2-AS-8078	565832
C-20-2	Aluminum / Steel	FT-20-2-AS-8079	565833
3-Way			
C-8-3	Aluminum / Steel	FT-8-3-AS-8295	02-171292
C-10-3	Aluminum / Steel	FT-10-3-AS-8050	565834
4-Way			
C-8-4	Aluminum / Steel	FT-8-4-AS-8296	02-171291
C-10-4	Aluminum / Steel	FT-10-4-AS-8052	565838

Fluid Cleanliness/Solenoid Valve Miscellaneous Parts

The fluid cleanliness code for valves in this catalog is 18/16/13.

Proper fluid condition is essential for long and satisfactory life of hydraulic components and systems. Hydraulic fluid must have the correct balance of

cleanliness, materials, and additives for protection against wear of components, elevated viscosity, and inclusion of air.

Essential information on the correct methods for treating hydraulic fluid is included in Vickers publication 561,

"Vickers Guide to Systemic Contamination Control", available from your local Vickers distributor or by contacting Vickers, Incorporated. Recommendations on filtration and the selection of products to control fluid condition are included in 561.

Solenoid valve miscellaneous parts

Normally closed nut	
8 Series	02-170821
10,12, 16, 20 Series	02-175698
Normally open nut	
8 Series	565559

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

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