



SL Series (Wiring System: Central Terminal Box) Lower Power Solenoid Valve

7.9 gpm
1015 psi

Features

Very long life

The movable iron core of the wet type solenoid is immersed in oil, which keeps it lubricated and cushions it from impact and vibration, ensuring very long life.

Low switching noise

The wet-type solenoid valve provides very low core switching noise, for quiet operation.

Low power consumption type.

The low power for the AC solenoid 9.6 W (60 Hz), DC solenoid 10 W contribute to energy conservation.

Easy connections

A special wiring box provides a COM port and indicator light as standard for simple wiring and maintenance.

Easy coil replacement

A plug-in type coil enables one-touch coil replacement.

Wide-ranging backward compatibility

makes it simple to replace previous valve models with this one. Combining this valve with a modular valve contributes to the compact configuration of the overall device.

Global support

Meets overseas safety standards (CE, UL, and CSA). It can be safely used anywhere in the world. Contact your agent for certified products.

Specifications

JIS Symbol	Operation symbol	Maximum flow rate gpm
	-A5-	7.9
	-H5-	
	-A3X-	
	-H3X-	
	-E3X-	
	-C1-	
	-C2-	

JIS Symbol	Operation symbol	Maximum flow rate gpm
	-C4-	7.9
	-C5-	
	-C6-	
	-C9-	
	-C6S-	
	-C7Y-	3.9

Solenoid Type		AC Solenoid		DC Solenoid	
		C1	C2	Built-in Rectifier E1	D2
Maximum Working Pressure	P.A.B. Ports	1015 psi			
Maximum Allowable Backpressure	T Port	1015 psi			
Changeover Frequency (per minute)		240		120	240
Standard	Indicator light	R			
Options	Surgeless	G		-	G
	With manual push-button	N			
	Quick Return	-		Q	-
Mass lbs	Double Solenoid	3.3		4.4	
	Single Solenoid	2.6		3.3	
Recommended	Ambient Temperature	-4 to 158° F			
	Viscosity Range	15 to 300 centistokes			
	Viscosity Index	90 or greater			
	Filtration	10 microns or less			
Mounting bolt		Allen head - 10-24 x 1 3/4 LG			
Tightening Torque		3.6 to 5 ft lbs			

Note: Mounting bolts are not included.

• Handling

- 1 In order to realize the full benefits of the wet type solenoid valve, configure piping so oil is constantly supplied to the T port. Never use a stopper plug in the T port.
- 2 Ensure that surge pressure in excess of the maximum allowable back pressure does not reach the T port.
- 3 Note that the maximum flow rate is limited when used as a four-way valve, or by blocking ports for use as a two-way valve or one-way valve.
- 4 Always keep the operating fluid clean. (contamination level: 12 or lower)

- 5 When using petroleum type operating fluid, use ISO VG 32, 46.
- 6 Use the SS series solenoid valve when using fire resistant hydraulic operating fluid.
- 7 Use this valve only within the allowable voltage range.
- 8 Do not allow the AC solenoid to become charged until you install the coil into the valve.
- 9 Maintaining a switching position under high pressure for a long period can cause abnormal operation due to hydraulic lockup. Contact your agent when you need to maintain a switching position for a long period.

- 10 When using a detent type (3X), use constant energization in order to securely maintain the switching position.
- 11 Note that manual pin operating pressure changes in accordance with tank line back pressure.
- 12 Use the following table for specification when a sub plate is required.

Model No.	Pipe Diameter	Maximum flow rate gpm	Weight lbs
MSA-01X-E10	1/4	5.2	2.6
MSA-01Y-E10	3/8	10.5	

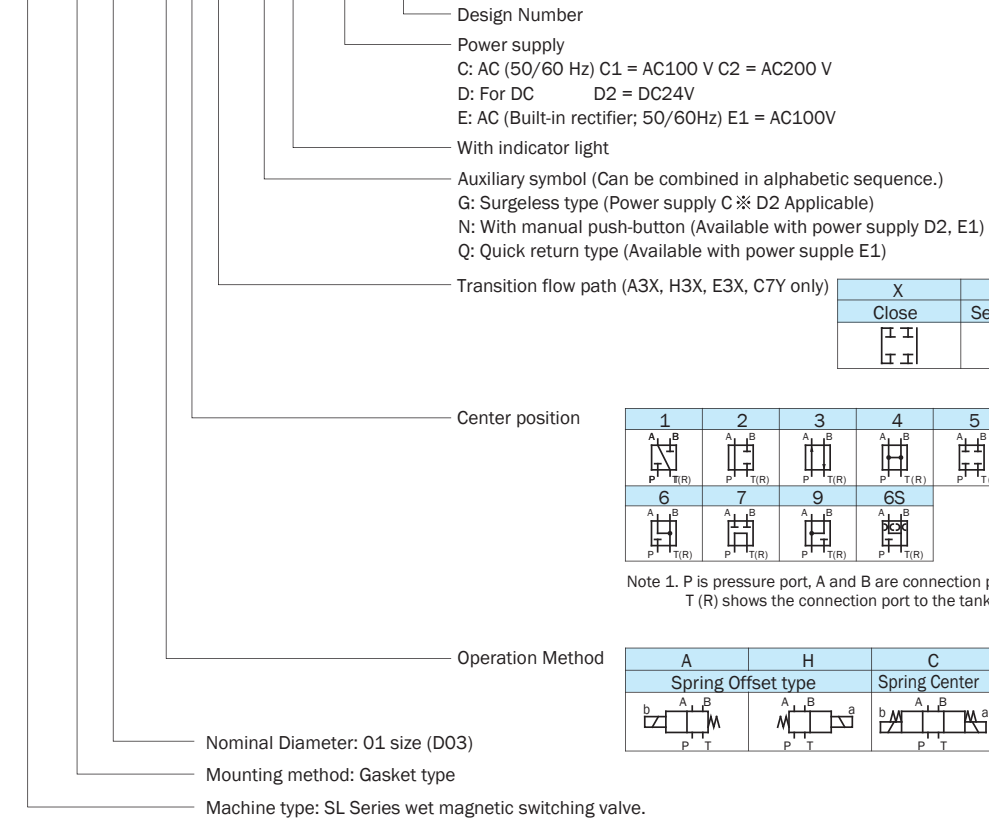
• Solenoid Assembly Specifications

Solenoid Type	AC Solenoid						DC Solenoid		
	C1			C2			Built-in Rectifier		
Power Supply Type	C1			C2			E1	D2	
Voltage (V)	AC100		AC110	AC200		AC220	AC100	DC24	
Cycles (Hz)	50	60	60	50	60	60	50/60	—	
For 01	Solenoid Coil Type	EL64-C1			EL64-C2			ELC64-E1-1A	ELC64-D2-1A
	Drive Current (A)	1.30	1.10	1.30	0.65	0.55	0.65	0.11	0.42
	Holding Current (A)	0.30	0.24	0.28	0.15	0.12	0.14		
	Holding Power (W)	12.0	9.6	12.2	12.0	9.6	12.2	10	10
	Allowable Voltage Range	80 to 110	90 to 120		160 to 220	180 to 240		90 to 110	21.6 to 26.4
Allowable Pressure psi	1000								
Insulator Resistance (M Ω)	100 or greater (500 V)								

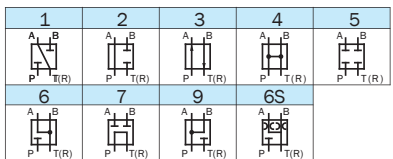
- Note: 1. A DC solenoid surge absorption circuit is effective in preventing misoperation in sensitive relays and IC circuits. (Applicable for power supply display D", option: G)
 2. A DC solenoid RAC type (power supply E1) greatly increases the life of the contacts by eliminating contact arc without changing circuit sequence on an AC line, 50/60Hz can be used.

Understanding Model Numbers

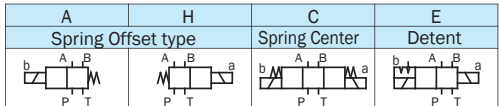
SL - G 01 - A 3 X - ※ R - C2 - 31



X	Y
Close	Semi-open



Note 1. P is pressure port, A and B are connection ports to cylinder. T (R) shows the connection port to the tank.



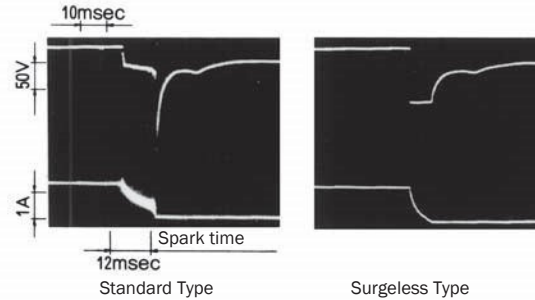
Options

(Auxiliary Symbol)

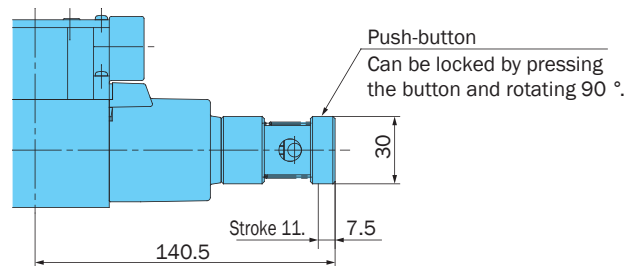
Surgeless Type (Auxiliary Symbol: G)

The surge pressure waveforms when the DC solenoid valve power supply is opened and closed by a relay are shown at the bottom of this block. A built-in surge absorber element eliminates sparking and surge pressure.

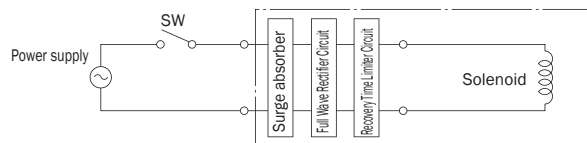
- Features
- ; Surge voltage is inhibited.
 - ; Sparking at relay contact points is eliminated.



Manual Push-button Type (Auxiliary symbol: N)



Quick Return Type (Auxiliary Symbol: Q)



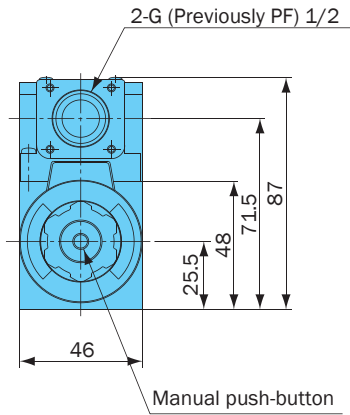
Handling

1. This type is used in the case of power supply type E1 (with built-in rectifier) to shorten the spring return time. This also applies to D2.
2. The quick return mechanism is built-in.

Installation Dimension Drawing

AC Solenoid
 SL-G01-A**-R-C*-31
 SL-G01-H**-R-C*-31

Note: The SL-G01-H**-R**-31 solenoid, is attached to the opposite side (SOL a) as shown in the diagram.



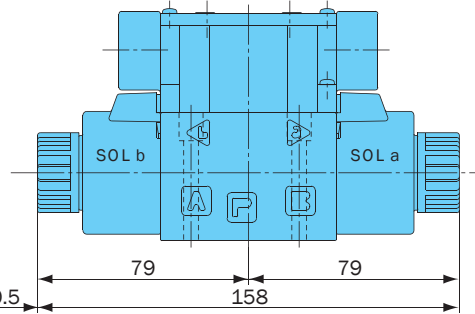
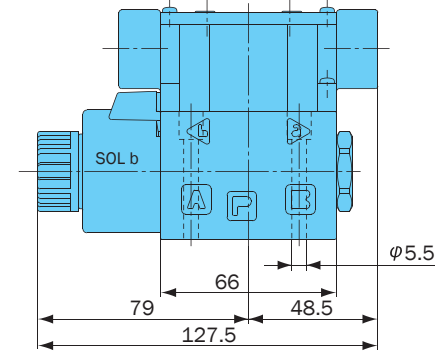
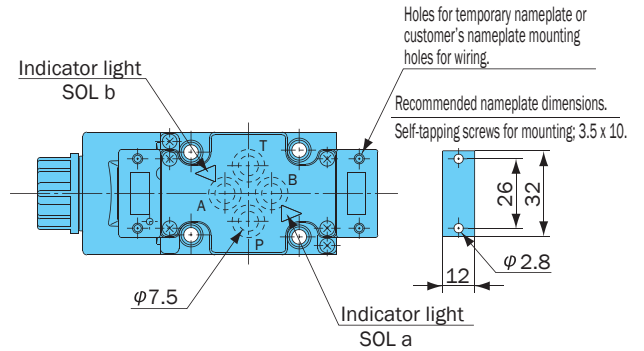
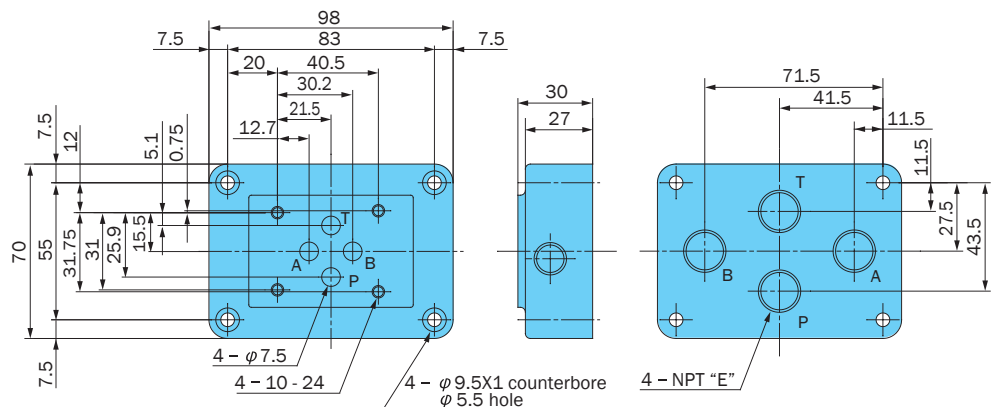
SL-G01-C**-R-C*-31
 SL-G01-E**-R-C*-31

DC Solenoid and Rectifier
 SL-G01-A**-R-D/E*-31
 SL-G01-H**-R-D/E*-31
 SL-G01-C**-R-D/E*-31
 SL-G01-E**-R-D/E*-31

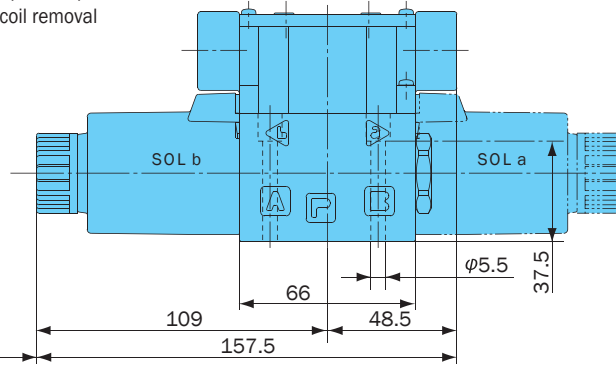
For sub plate SL-G01

Model No.	E	Mass
MSA-01X-E10	1/4	2.6
MSA-01Y-E10	3/8	2.6

Gasket Surface Dimensions
 (ISO 4401-03-02-0-94
 JIS B 8355 D-03-02-0-94)

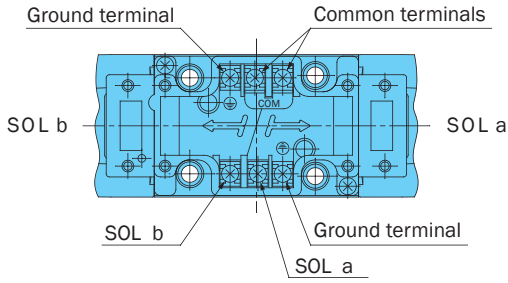


Space required for coil removal



Space required for coil removal

Wiring Diagram



- Note:
1. In the case of a double solenoid valve, a common terminal is provided to simplify wiring.
When the common terminal is not used, remove the terminal screws.
 2. Use the ground terminal when grounding is required.
 3. Use an M3 type as a solderless terminal.
 4. Tighten terminal screws to a torque of 4.4 to 6.1 in lbs

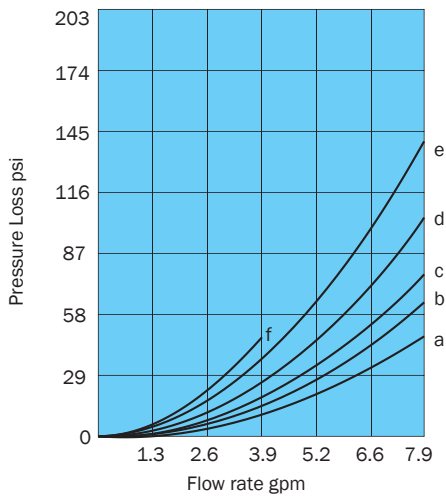
Electrical Circuit Diagram

Type	Model No.	Electrical Circuits
AC Solenoid	SL-G01-***-R-C*-31	
AC Solenoid Surgeless Type	SL-G01-***-GR-C*-31	
Built-in Rectifier	SL-G01-***-R-E*-31	
DC Solenoid	SL-G01-***-R-D*-31	
DC Solenoid Surgeless Type	SL-G01-***-GR-D*-31	
Built-in Rectifier Quick Return Type	SL-G01-***-QR-E*-31	See page D-7 for more information.

Performance Curves

Hydraulic Operating Fluid Viscosity 20 centistokes

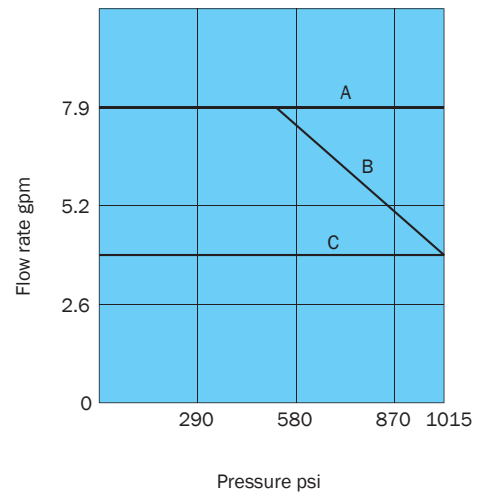
Pressure Loss Characteristics



Flow Path	P/ A	P/ B	A/ T	B/ T	P/ T
A5	—	c	c	—	—
H5	c	—	—	c	—
A3X, H3X, E3X	b	b	e	e	—
C1	c	c	a	c	—
C2	a	c	e	c	—
C4	a	a	c	c	d
C5, C6S	c	c	c	c	—
C6	c	c	a	a	—
C7Y	f	f	e	e	d
C9	a	a	e	e	—

Pressure – Flow Volume Allowable Value

Operation symbol	Operation Example	Diagram 1	Diagram 2	Diagram 3
A5	A	A	—	B
H5			B	—
A3X, H3X, E3X C1, C2, C4, C5 C6, C9, C6S			B	B
C7Y	C	C	C	C



Switching Response Time

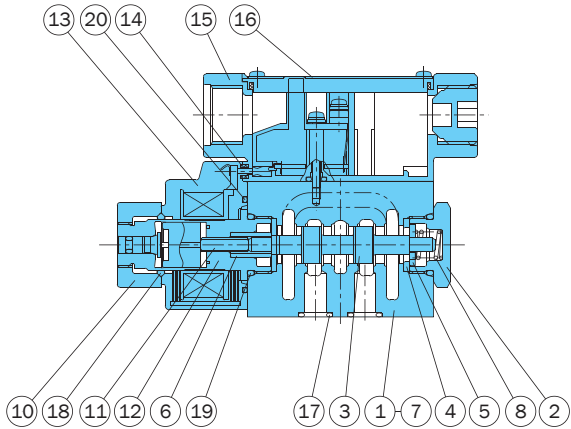
Model No.	Response Time (sec)		Measurement Conditions
	Solenoid ON	Spring Return	
SL-G01-**-R-C*-31	0.010 to 0.020	0.010 to 0.020	1015 psi
SL-G01-**-R-E1-31	0.055 to 0.080	0.150 to 0.185	5.2 gpm
SL-G01-**- (G)R-D2-31	0.055 to 0.080	0.025 to 0.035	40 centistokes

Note: 1. The switching response time changes slightly with operating conditions (pressure, flow rate, viscosity, etc.)

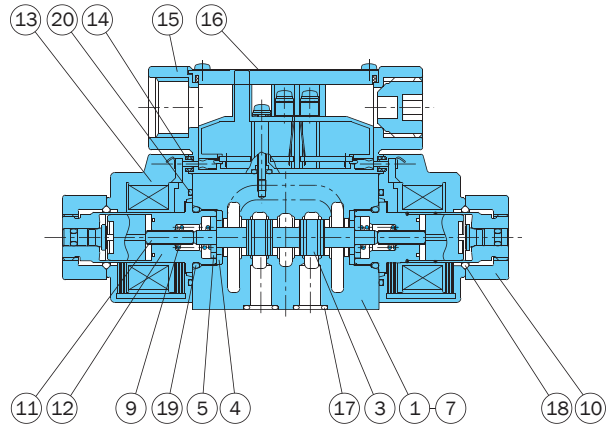
2. In the case of power supply type E1 (with built-in rectifier), the spring return time using Quick Return (option symbol: Q) is the same as D2.

Cross-sectional Drawing

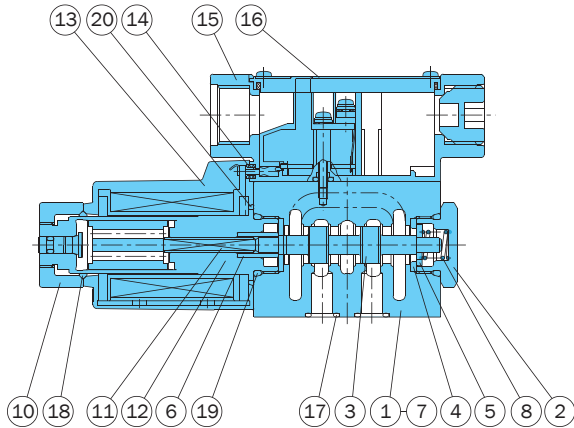
SL-G01-A**-R-C*-31



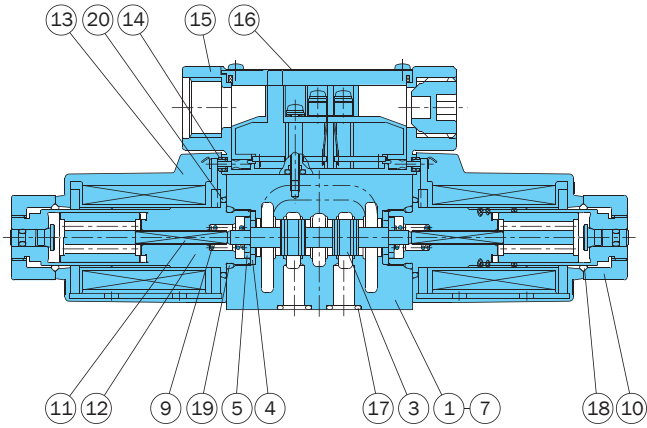
SL-G01-C**-R-C*-31



SL-G01-A**-R-D/E*-31



SL-G01-C**-R-D/E*-31



List of Sealing Parts

Part No.	Part Name	Type/ Part Number		Q'ty	
		DC SOL	AC SOL	Single Solenoid	Double Solenoid
17	O-ring	AS568-012(Hs90)		4	4
18	O-ring	1A-P20	1A-P18	1	2
19	O-ring	1B-P18		2	2
20	O-ring	S-25	AS568-025(Hs70)	1	2

Note: O-ring 1A/1B-** indicates JIS B2401-1A/1B**. AS568 is SAE standard.

Part No.	Part Name	Part No.	Part Name
1	Body	11	Rod
2	Plug	12	Solenoid guide
3	Spool	13	Solenoid coil
4	Retainer A	14	Packing
5	Retainer B	15	Terminal box kit
6	Retainer C	16	Nameplate
7	Spacer	17	O-ring
8	Spring A	18	O-ring
9	Spring C	19	O-ring
10	Nut	20	O-ring