

SA Series (Wiring System: DIN Connector Type) Wet Type Solenoid Valve 26.4 to 42 gpm
 5075 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.

Shockless
 A switching speed adjustment mechanism enables direct, shockless operation (Option F).

No surge voltage
 Sparking and surge voltage during solenoid switching is canceled for stable switching (Option G).

Easy coil replacement
 A DIN connector 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 (G01 size)
 Meets overseas safety standards (CE, UL, and CSA). It can be safely used anywhere in the world. Contact your agent for certified products.

Specifications

| Model No. | | SA-G01 (D03) | | | | SA-G03 (D05) | | | | | |
|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|------------------------------|-----------------------|------------------------------|--|------------------------------|----------------|------|
| | | Standard Type | | Shockless Type | | Standard Type | | | | Shockless Type | |
| | | Maximum Flow Rate gpm | Maximum Working Pressure psi | Maximum Flow Rate gpm | Maximum Working Pressure psi | AC Solenoid Type | | DC Solenoid Type (With built-in rectifier) | | | |
| Maximum Flow Rate gpm | Maximum Working Pressure psi | | | | | Maximum Flow Rate gpm | Maximum Working Pressure psi | Maximum Flow Rate gpm | Maximum Working Pressure psi | | |
| | -A2X | 7.9 | 5075 | 7.9 | 3625 | 10.5 | 5075 | 22.4 | 5075 | 22.4 | 3625 |
| | -H2X | | | | | | | | | | |
| | -E2X | | | | | | | | | | |
| | -A3X | 21.1 | 5075 | 21.1 | 3625 | 22.4 | 5075 | 42.2 | 5075 | 34.3 | 3625 |
| | -H3X | | | | | | | | | | |
| | -E3X | | | | | | | | | | |
| | -A3Z | 17.1 | 5075 | 17.1 | 3625 | 34.3 | 5075 | 42.2 | 5075 | 34.3 | 3625 |
| | -H3Z | | | | | | | | | | |
| | -E3Z | | | | | | | | | | |
| | -A4 | 13.2 | 5075 | 13.2 | 3625 | 34.3 | 5075 | 42.2 | 5075 | 34.3 | 3625 |
| | -H4 | | | | | | | | | | |
| | -A5 | | | | | | | | | | |
| | -H5 | 26.4 | 5075 | 26.4 | 3625 | 34.3 | 5075 | 42.2 | 5075 | 34.3 | 3625 |
| | -C2 | | | | | | | | | | |
| | -C5 | | | | | | | | | | |
| | -C9 | | | | | | | | | | |
| | -C1S | | | | | | | | | | |
| | -C6S | | | | | | | | | | |
| | -C1 | | | | | | | | | | |
| | -C6 | | | | | | | | | | |
| | -C4 | 13.2 | 5075 | 13.2 | 3625 | 18.4 | 3625 | 26.4 | 3625 | 22.4 | 3625 |
| | -C7Y | | | | | | | | | | |
| | -C8 | | | | | | | | | | |

D Solenoid Valves

| | | SA-G01 | | | SA-G03 | | |
|-------------------------------------|---------------------------------------|--|--------------------|-----|-------------------|--------------------|-----|
| | | AC Solenoid | DC Solenoid | | AC Solenoid | DC Solenoid | |
| | | | Built-in Rectifier | | | Built-in Rectifier | |
| | | C* | E* | D* | C* | E* | D* |
| Maximum Working Pressure | P, A, B ports | 5075 psi (Note 1) | | | | | |
| Maximum Allowable Backpressure | T port | 3045 psi | | | 2320 psi | | |
| Switching frequency (cycles/minute) | Standard Type | 300 | 120 | 300 | 300 | 120 | 240 |
| | Shockless Type | -- | | 120 | -- | | 120 |
| Option | Indicator light | R | | | R | | |
| | Shockless | -- | F | | -- | F | |
| | Surgeless | G | -- | G | G | -- | G |
| | G Screw Connector | J | -- | J | J | -- | J |
| | With manual push-button | N | | | N | | |
| | Quick Return | -- | Q | -- | -- | Q | -- |
| Weight (kg) | Double Solenoid | 1.8 | 2.0 | | 4.2 | 5.5 | |
| | Single Solenoid | 1.4 | 1.5 | | 3.5 | 4.1 | |
| Operating Environment | Dust Resistance/Water Resistance Rank | IP65 (Dust-tight, Waterjet-proof) (Note 2) | | | | | |
| | Ambient Temperature | -4 to 122°F | | | | | |
| | Operating Fluid Temperature Range | -4 to 158°F | | | | | |
| | Operating Fluid Viscosity Range | 15 to 300 centistokes | | | | | |
| | Filtration | 10 microns or less | | | | | |
| Mounting bolt | Size × Length | 10-24 x 1 3/4 LG (not included) | | | 1/4-20 x 2 3/4 | | |
| | Tightening Torque | 3.6 to 5 ft lbs | | | 7.3 to 9.5 ft lbs | | |

- Note: 1. Maximum operating pressure depends on the valve type. For details, see page D-16.
 2. The power supply type for E* is IP64 (dust-tight, splash-proof).
 3. For mounting bolts, use grade 8 or equivalent.
 4. Mounting bolts are not included with the O1 size. Bolts are included with the O3 size.

• Handling

- 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.
- Ensure that surge pressure in excess of the maximum allowable back pressure does not reach the T port.
- 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.
- Always keep the operating fluid clean. Allowable contamination is class NAS12 or less.
- When using petroleum type operating fluid, use ISO VG 32, 46.
- For details about using fire-resistant hydraulic fluid, contact your agent.
- Use this valve only within the allowable voltage range.
- Do not allow the AC solenoid to become charged until you install the coil into the valve.
- In the case of operation symbols A2X, H2X, and E2X, run drain piping from the valve T port.
- 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.

11 When using a detent type (E2X, 3X, E3Z), use constant energization in order to securely maintain the switching position.

| | |
|---|-------------------|
| RSA-***-AR*(H)-** ¹⁵ / ₂₃ | SA-G01-AR-**-31 |
| RSA-***-AQ*(H)-** ¹⁵ / ₂₃ | SA-G01-A3X-**-31 |
| RSA-***-F(H)-** ¹⁵ / ₂₃ | SA-G01-A8X0-**-31 |

14 The coil surface temperature increases if this valve is kept continuously energized. Install the valve so there is no chance of it being touched directly by hand.

12 Note that manual pin operating pressure changes in accordance with tank line back pressure.

13 The series described in the table below are available for use as RSS and RIS Series solenoid control relief valves.

15 Use the following table for specification when a sub plate is required.

| Model No. | Pipe Diameter | Maximum Working Pressure psi | Recommended Flow Rate gpm | Weight lbs | Applicable Valve Type |
|-------------|---------------|------------------------------|---------------------------|------------|-----------------------|
| MSA-01X-E10 | 1/4 | 3625 | 5.2 | 2.6 | SA-G01-***-**-E31 |
| MSA-01Y-E10 | 3/8 | | 7.9 | | |
| MSA-03-E10 | 3/8 | | 11.8 | 5.0 | SA-G03-***-**-E21 |
| MSA-03X-E10 | 1/2 | | 21.1 | | |

Solenoid Assembly Specifications

| Solenoid Type | Power Supply Type | Voltage (V) | Frequency (Hz) | For SA-G01 | | | | For SA-G03 | | | | | |
|----------------------------|-------------------|-------------|----------------|--------------------|-------------------|---------------------|-------------------|-----------------------------|--------------------|-------------------|---------------------|-------------------|-----------------------------|
| | | | | Solenoid Coil Type | Drive Current (A) | Holding Current (A) | Holding Power (W) | Allowable Voltage Range (V) | Solenoid Coil Type | Drive Current (A) | Holding Current (A) | Holding Power (W) | Allowable Voltage Range (V) |
| AC | C1 | AC100 | 50 | EAC64-C1 | 2.2 | 0.52 | 25 | 80 to 110 | EBB64-C1 | 5.4 | 0.92 | 36.0 | 80 to 110 |
| | | | 60 | | 2.0 | 0.38 | 22 | | | 90 to 120 | 4.6 | 0.62 | |
| | | AC110 | 60 | | 2.2 | 0.46 | 28 | 5.0 | | | 0.78 | 42.0 | 90 to 120 |
| | C115 | AC110 | 50 | EAC64-C115 | 2.0 | 0.47 | 25 | 90 to 120 | EBB64-C115 | 5.0 | 0.85 | 36.0 | 90 to 120 |
| | | | 60 | | 1.8 | 0.35 | 22 | | | 100 to 130 | 4.2 | 0.57 | |
| | | AC115 | 60 | | 2.0 | 0.42 | 28 | 4.6 | | | 0.72 | 42.0 | 100 to 130 |
| | C2 | AC200 | 50 | EAC64-C2 | 1.1 | 0.26 | 25 | 160 to 220 | EBB64-C2 | 2.7 | 0.46 | 36.0 | 160 to 220 |
| | | | 60 | | 1.0 | 0.19 | 22 | | | 180 to 240 | 2.3 | 0.31 | |
| | | AC220 | 60 | | 1.1 | 0.23 | 28 | 2.5 | | | 0.39 | 42.0 | 180 to 240 |
| | C230 | AC220 | 50 | EAC64-C230 | 1.0 | 0.24 | 25 | 180 to 240 | EBB64-C230 | 2.5 | 0.42 | 36.0 | 180 to 240 |
| | | | 60 | | 0.91 | 0.17 | 22 | | | 200 to 260 | 2.1 | 0.29 | |
| | | AC230 | 60 | | 1.0 | 0.21 | 28 | 2.3 | | | 0.36 | 42.0 | 200 to 260 |
| DC with Built-in Rectifier | E1 | AC100 | 50/60 | EAC64-E1-1A | 0.31 | | 27 | 90 to 110 | EBB64-E1 | 0.40 | | 34.0 | 90 to 110 |
| | | | AC110 | EAC64-E115-1A | 0.26 | | 25 | | | 100 to 125 | 0.33 | | |
| | E115 | 50/60 | EAC64-E115-1A | 0.27 | | 27 | EBB64-E115 | 0.34 | | | 34.0 | 100 to 125 | |
| | E2 | AC200 | 50/60 | EAC64-E2-1A | 0.15 | | 26 | 180 to 220 | EBB64-E2 | 0.22 | | 37.0 | 180 to 220 |
| | | | AC220 | EAC64-E230-1A | 0.12 | | 24 | | | 200 to 250 | 0.16 | | |
| | E230 | 50/60 | EAC64-E230-1A | 0.13 | | 27 | EBB64-E230 | 0.17 | | | 33.0 | 200 to 250 | |
| DC | D1 | DC12 | ☒ | EAC64-D1-1A | 2.2 | | 26 | 10.8 to 13.2 | EBB64-D1 | 2.6 | | 31.0 | 10.8 to 13.2 |
| | D2 | DC24 | ☒ | EAC64-D2-1A | 1.1 | | 26 | 21.6 to 26.4 | EBB64-D2 | 1.5 | | 36.0 | 21.6 to 26.4 |

Understanding Model Numbers

SA - G 01 - A 3 X - * * - C2 - 31

Design number
E31: 01 size; 10 - 24 mounting bolt
E21: 03 size; 1/4 - 20 mounting bolt

Power supply
C: AC (50/60Hz) C1=AC100V C115=AC110V C2=AC200V C230=AC220V
D: DC D1=DC12V D2=DC24V
E: AC (Built-in rectifier; 50/60Hz) E1=AC100V E115=AC115V E2=AC200V E230=AC230V

With indicator light

Auxiliary symbol (Can be combined in alphabetic sequence.)
F: Shockless type (Available with power supply D*, E)
G: Surgeless type (Available with power supply C*, D*)
N: With manual push-button
Q: Quick return type (Available with power supply E*)

Transition Flow Path (Specify for A2X, H2X, E2X, A3X, H3X, E3X, A3Z, H3Z, E3Z, C7Y only.)

| X | Y | Z |
|--------|-----------|------|
| Closed | Semi-open | Open |
| | | |

Center position

| | | | | | |
|---|---|---|---|----|----|
| 0 | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 1S | 6S |

Note 1: P=Pressure port; A and B=Connection port to cylinder, etc.; T=Connection port to tank

Operation Method

| A | H | C | E |
|---------------|---------------|--------|---|
| Spring Offset | Spring Center | Detent | |
| | | | |

Nominal diameter
01 size (D03)
03 size (D05)

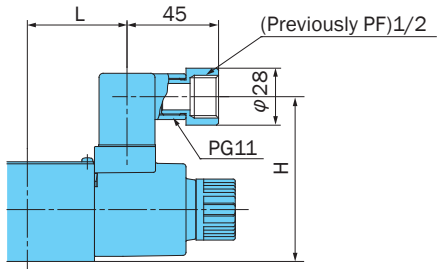
Mounting method
G: Cascade mounting

Wet type solenoid operated directional control valve

Options

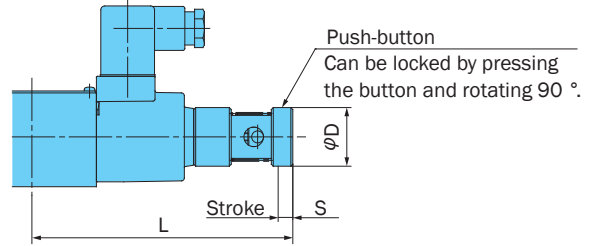
(Auxiliary Symbol Explanations)

G Screw Adapter (Auxiliary Symbol: J)



| Model No. | L | H |
|-----------|------|-------|
| SA-G01 | 49 | 81 |
| SA-G03 | 60.5 | 100.5 |

With manual push-button (Auxiliary Symbol: N)



| Part No. | | L | S | D |
|------------|-------------|-------|-----|----|
| EDB14-D-1A | AC Solenoid | 133.5 | 7.5 | 30 |
| | DC Solenoid | 140.5 | | |
| ECB14-A | AC Solenoid | 155.5 | 9.5 | 35 |
| | DC Solenoid | 173.5 | | |

Other Options

Note: For information about the shockless and surgeless options, see page D-7.

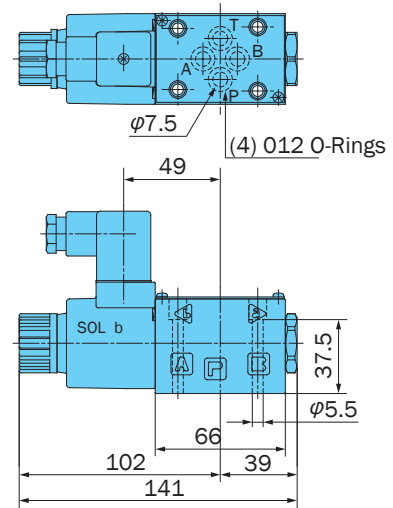
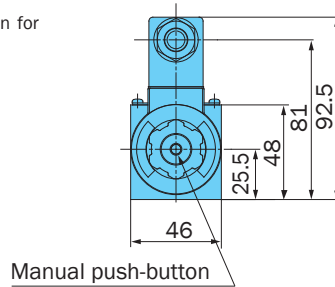
Installation Dimension Drawings

AC Solenoid

SA-G01-A**-*-C*-E31

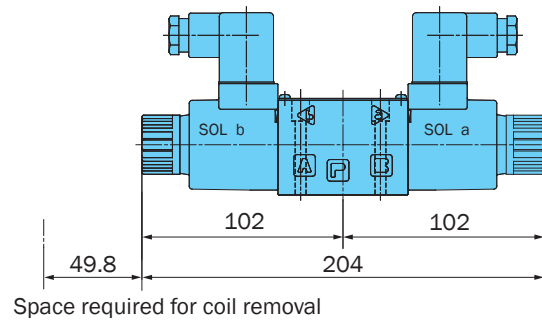
SA-G01-H**-*-C*-E31

Note: SA-G01-H**-R**-E31
The solenoid is on the opposite side of that shown for SOLa in the illustrations shown here.



SA-G01-C**-R-C*-E31

SA-G01-E**-R-C*-E31



DC Solenoid and Rectifier

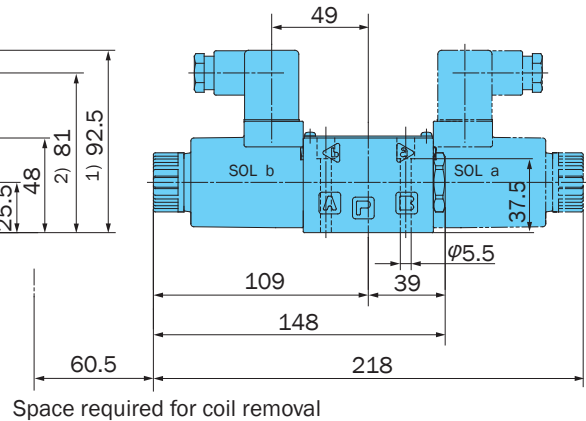
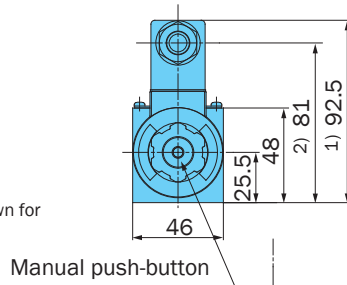
SA-G01-A**-D*/E*-E31

SA-G01-H**-D*/E*-E31

SA-G01-C**-D*/E*-E31

SA-G01-E**-D*/E*-E31

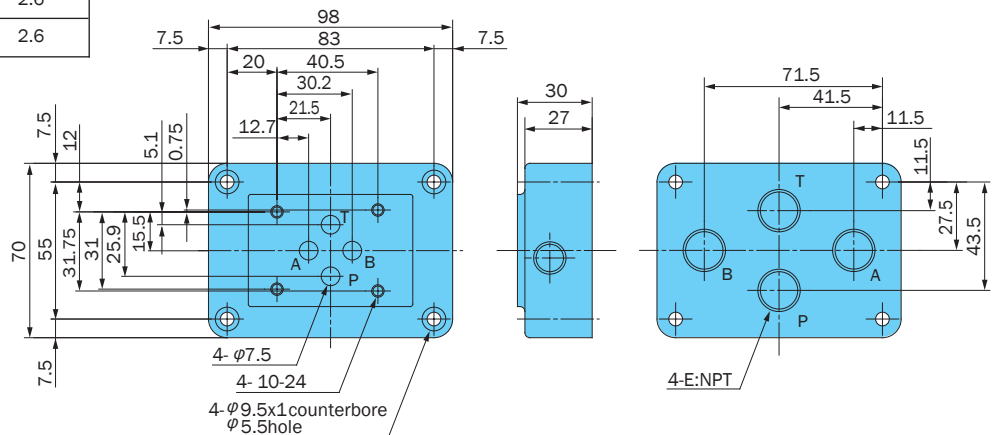
Note: 1.SA-G01-H**-D*/E*-E31
The solenoid is on the opposite side of that shown for SOLa in the illustrations shown here.
2.SA-G01-**-E*-E31
Dimension 1 is 96.
Dimension 2 is 73.



For sub plate SA-G01

| Model No. | E | Weight lbs |
|-------------|-----|------------|
| 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)



Installation Dimension Drawings

AC Solenoid

SA-G03-A***-C*-E21

SA-G03-H***-C*-E21

Note: SA-G03-H***-C*-E21

The solenoid is on the opposite side of that shown for SOLa in the illustrations shown here.

| | SA-G03-***-C*-E21 | SA-G03-***-H*-E21 |
|----------|-------------------|-------------------|
| ϕD | $\phi 6.8$ | $\phi 8.5$ |
| L | 60.5 | 58 |

SA-G03-C***-C*-E21

SA-G03-E***-C*-E21

DC Solenoid and Rectifier

SA-G03-A***-D*/E*-E21

SA-G03-H***-D*/E*-E21

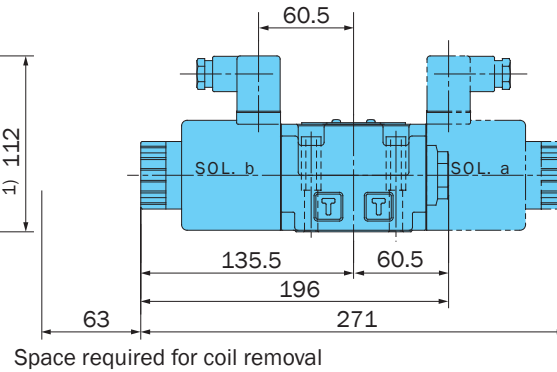
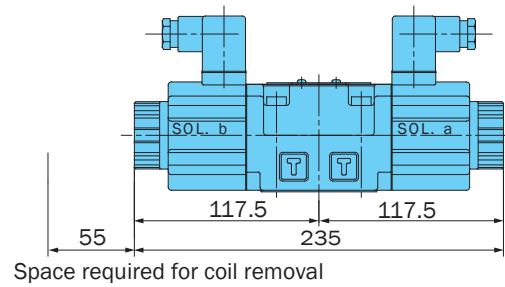
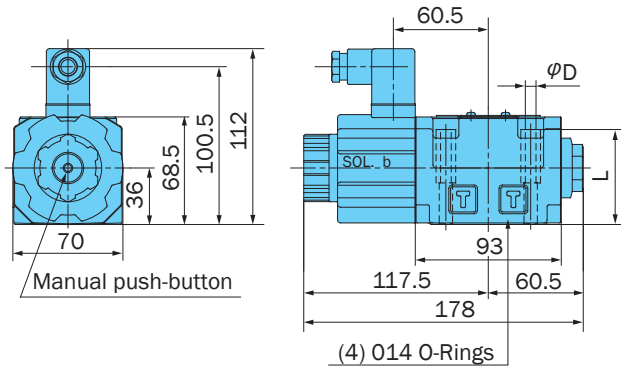
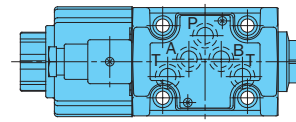
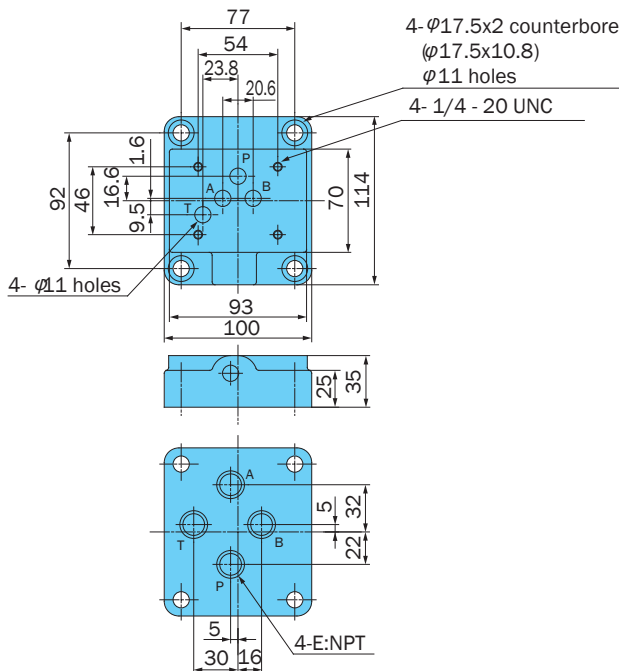
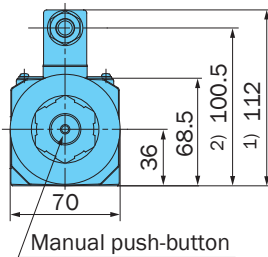
SA-G03-C***-D*/E*-E21

SA-G03-E***-D*/E*-E21

Note: 1.SA-G03-H***-D*/E21

The solenoid is on the opposite side of that shown for SOLa in the illustrations shown here.

- SA-G03-***-E*-E21
Dimension 1 is 115.5.
Dimension 2 is 92.5.

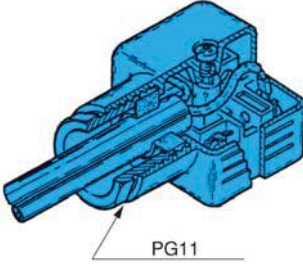
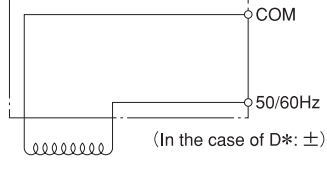
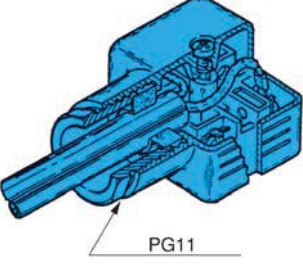
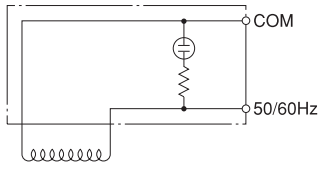
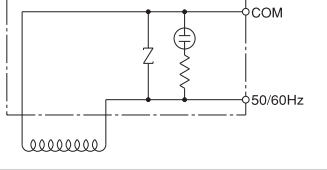
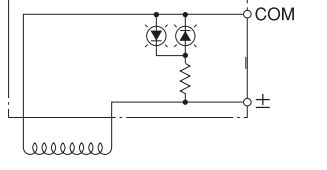
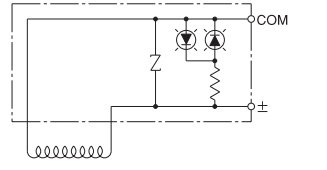
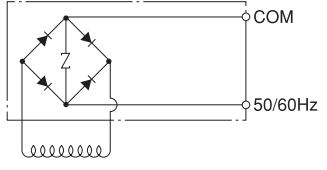
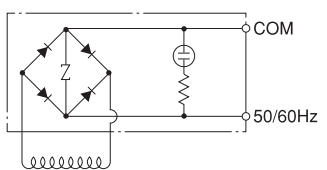


For sub plate SA-G03

| Mounting bolt | Model No. | E | Weight lbs |
|---------------------|-------------|-----|------------|
| 1/4 - 20 x 2 3/4 | MSA-03-E10 | 3/8 | 5.0 |
| | MSA-03X-E10 | 1/2 | |

Gasket surface dimensions
(ISO 4401-05-04-0-94
JIS B 8355 D-05-04-0-94)

• Connectors

| Model No. | Wiring | Electrical Circuit Diagram |
|--|---|--|
| SA- G01-***C* 31 G03-***D* E21 (EA41-1A) |  PG11 | Connect the power supply to terminals No.1 and No. 2. The ⊕ terminal is ground. Use this terminal as required.  (In the case of D*: ±) |
| SA- G01-***R-C* 31 G03 E21 (EA41-R*-1C) |  PG11 |  |
| SA- G01-***GR-C* 31 G03 E21 (EA41-GRC*-1C) | | Connect the power supply to terminals No.1 and No. 2. The ⊕ terminal is ground. Use this terminal as required.  |
| SA- G01-***R-D* 31 G03 E21 (EA41-DR*-1C) | |  |
| SA- G01-***GR-D* 31 G03 E21 (EA41-GRD*-1C) | |  |
| SA- G01-***E* 31 G03 E21 (EA42-1B) | | Connect the power supply to the terminals on the board. When ground connection is required, remove the board and use the ⊕ terminal. In this case, do not connect the power supply to the No. 1 and No. 2 terminals.  |
| SA- G01-***R-E* 31 G03 E21 (EA42-R*-1B) | |  |

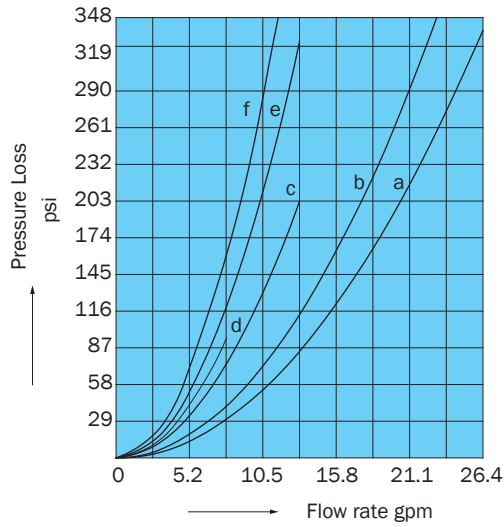
Symbols in parentheses indicate connector configuration.

- Note:
- 1.Asterisks in the connector configuration and power supply symbols are fillers for the voltage symbol (1 or 2).
 - 2.The connector cord diameter is $\varnothing 8$ to 10. Anything outside this range causes water tightness to be lost.
 - 3.The orientation of the connectors can be changed in 90° increments by changing the terminal block.
 - 4.The cover cannot be removed unless the installation screws are removed.
 - 5.When J is specified for the auxiliary symbol, a G screw conversion adapter is attached to the connector, and the wiring port is a G (previously PF) 1/2 screw (standard: PG11). EA42 and EA42-R* also have a G (previously PF) wiring port.
 - 6.Use M3 for round type and Y type solderless terminals.
 - 7.Tighten the M3 screws that secure connectors and terminals to a torque of 42 to 70 in lbs.
 - 8.An EA-41-1A or EA41-R*-1C connector is used in the case of power supply type E* with Quick Return type Q.

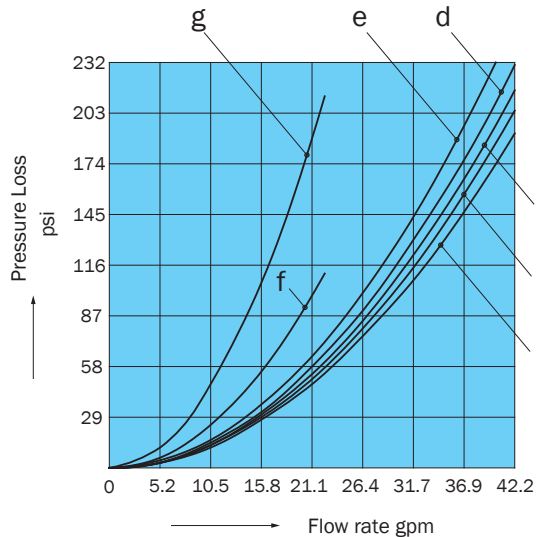
Performance Curves

Hydraulic Operating Fluid Viscosity 32 centistokes

Pressure Loss Characteristics



| Pump Type | Flow Path | P/ A | P/ B | A/ T | B/ T | P/ T |
|-----------|-----------------|------|------|------|------|------|
| SA-G01 | A2X, H2X, E2X | d | d | -- | -- | -- |
| | A3X, H3X | b | b | b | b | -- |
| | E3X | b | b | b | b | -- |
| | A3Z, H3Z, E3Z | a | a | a | a | -- |
| | A4, H4, C4 | a | a | a | a | a |
| | A5, H5, C5, C6S | b | b | b | b | -- |
| | C1, C1S | b | b | a | b | -- |
| | C2 | a | b | b | b | -- |
| | C6 | b | b | a | a | -- |
| | C7Y | f | f | e | e | c |
| | C8 | a | f | b | e | c |
| C9 | a | a | b | b | -- | |



| Pump Type | Flow Path | P/ A | P/ B | A/ T | B/ T | P/ T |
|-----------|---------------|------|------|------|------|------|
| SA-G03 | A2X, H2X, E2X | e | e | -- | -- | -- |
| | A5 | -- | c | c | -- | -- |
| | H5 | c | -- | -- | c | -- |
| | A3X, H3X, E3X | c | c | d | d | -- |
| | A3Z, H3Z | a | a | d | d | -- |
| | E3Z | b | b | a | a | -- |
| | C1 | c | c | a | c | -- |
| | C2 | a | c | c | c | -- |
| | A4, H4, C4 | a | a | a | a | a |
| | C5, C1S, C6S | c | c | c | c | -- |
| | C6 | c | c | a | a | -- |
| | C7Y | g | g | g | g | f |
| | C8 | a | g | a | g | f |
| C9 | a | a | c | c | -- | |

Switching Response Time

| Model No. | Response Time (sec) | | Measurement Conditions |
|------------------------|---------------------|---------------|------------------------|
| | Solenoid ON | Spring Return | |
| SA-G01-**-*(GR)-C*-E31 | 0.02 to 0.03 | 0.02 to 0.03 | } 2030 psi 7.9 gpm |
| SA-G01-**-*(GR)-D*-E31 | 0.03 to 0.04 | 0.02 to 0.04 | |
| SA-G01-**-*(R)-E*-E31 | 0.03 to 0.04 | 0.07 to 0.10 | |
| SA-G01-**-*(GR)-D*-E31 | 0.07 to 0.10 | 0.04 to 0.07 | |
| SA-G01-**-*(R)-E*-E31 | 0.07 to 0.10 | 0.10 to 0.15 | |
| SA-G03-**-*(GR)-C*-E21 | 0.02 to 0.03 | 0.02 to 0.03 | } 2030 psi 18.4 gpm |
| SA-G03-**-*(GR)-D*-E21 | 0.06 to 0.09 | 0.03 to 0.05 | |
| SA-G03-**-*(R)-E*-E21 | 0.07 to 0.10 | 0.10 to 0.15 | |
| SA-G03-**-*(GR)-D*-E21 | 0.13 to 0.15 | 0.08 to 0.15 | |
| SA-G03-**-*(R)-E*-E21 | 0.10 to 0.15 | 0.15 to 0.20 | |

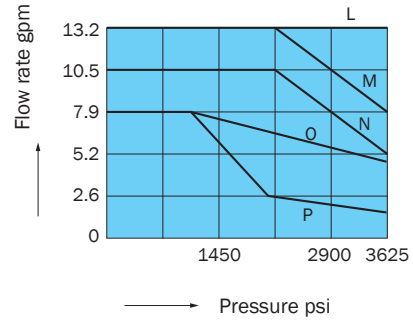
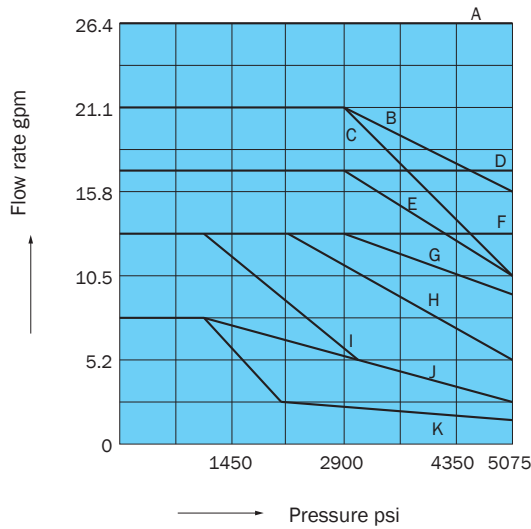
Note: 1. The switching response time changes slightly with operating conditions (pressure, flow rate, viscosity, etc.)

• Pressure - Flow Volume Allowable Value

| Size | Standard Form, with AC, DC solenoid | | |
|-------------------|-------------------------------------|---|---|
| | SA-G01-**-R-**-31 | | |
| Operation Example | | | |
| Operation Symbol | | | |
| A2X, H2X | - | K | K |
| E2X | - | J | J |
| A3X, H3X | B | K | K |
| E3X | A | J | J |
| A3Z, H3Z | D | D | D |
| E3Z | D | D | D |
| A5 | A | - | I |
| H5 | A | I | - |
| C1, C6 | Note1) C(E) | I | I |
| C1S, C5, C6S | A | I | I |
| C2, C9 | A | K | K |
| A4 | F | F | F |
| H4 | F | F | F |
| C4 | F | F | F |
| C7Y, C8 | Note2) G(H) | K | K |

| Size | Shockless Type, with DC solenoid | | |
|----------------------|----------------------------------|---|---|
| | SA-G01-**-FR-**-31 | | |
| Operation Example | | | |
| Operation Symbol | | | |
| A2X, H2X | - | P | - |
| E2X | - | O | P |
| A3X, H3X | L | P | P |
| E3X | L | O | L |
| A3Z, H3Z | L | L | L |
| E3Z | L | L | P |
| A5 | L | - | |
| H5 | L | P | |
| C1, C6 | M | P | |
| C1S, C2, C5, C6S, C9 | L | P | |
| A4, H4 | L | L | |
| C4 | L | L | |
| C7Y, C8 | N | P | |

Note: 1. Letter in parentheses is for AC solenoid.
 2. Letter in parentheses is for solenoid with built-in rectifier, but without Quick Return, and for DC solenoid with surge voltage absorbing diode on the electrical circuit.



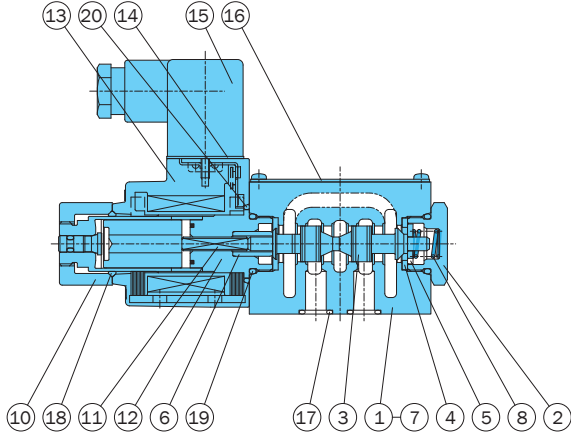
• Pressure - Flow Volume Allowable Value

| Model No. | Standard Form, with AC, DC solenoid | | | Standard Form, with DC solenoid | | |
|----------------------|-------------------------------------|------|------|---------------------------------|------|------|
| | SA-G03-**-C*-E21 | | | SA-G03-**-**-E21 | | |
| Operation Example | | | | | | |
| Operation Symbol | | | | | | |
| A2X | -- | F | E | -- | G | H |
| H2X | -- | E | F | -- | H | G |
| E2X | -- | C | C | -- | D | D |
| A3X | A | E | E | A | F | H |
| H3X | A | E | E | A | H | F |
| A3Z | A | A | C | A | D | D |
| H3Z | A | C | A | A | D | D |
| E3X, E3Z | A | C | C | A | D | D |
| A5 | A | -- | D | A | -- | G |
| H5 | A | D | -- | A | G | -- |
| C1S, C5, C6S | A | D | D | A | G | G |
| C1, C6 | A | D | D | B | G | G |
| C2 | A | G | D | A | I | G |
| A4, H4, C4 | A | A | A | A | A | A |
| C9 | A | G | G | A | I | I |
| C7Y, C8 | B | B | B | Note1) C(E) | C(E) | C(E) |
| | | | | | | |
| Model No. | Shockless Type, with DC solenoid | | | | | |
| | SA-G03-**-F**-E21 | | | | | |
| Operation Example | | | | | | |
| Operation Symbol | | | | | | |
| A2X | ☒ | E | F | | | |
| H2X | ☒ | F | E | | | |
| E2X | ☒ | C | C | | | |
| A3X | A | D | F | | | |
| H3X | A | F | D | | | |
| A3Z | A | C | C | | | |
| H3Z | A | C | C | | | |
| E3X, E3Z | A | C | C | | | |
| A5 | A | -- | E | | | |
| H5 | A | E | -- | | | |
| C1, C1S, C5, C6, C6S | A | E | E | | | |
| C2 | A | G | E | | | |
| A4, H4, C4 | A | A | A | | | |
| C9 | A | G | G | | | |
| C7Y, C8 | Note 1: B(H) | B(H) | B(H) | | | |

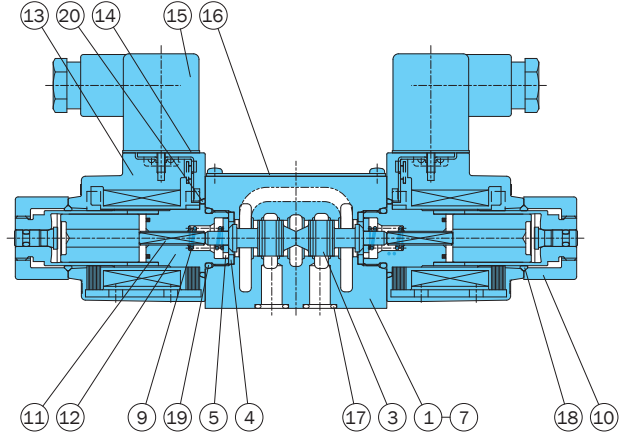
- Note: 1. Letter in parentheses is for solenoid with built-in rectifier (E*), but without Quick Return, and for DC solenoid (D*) with surge voltage absorbing diode on the electrical circuit.
 2. There is no shockless type for the AC solenoid (C*), so use a solenoid with built-in rectifier (E*) when shockless operation is required with an AC power supply.
 3. The maximum flow rate is the allowable value of each port.

Cross-sectional Drawing

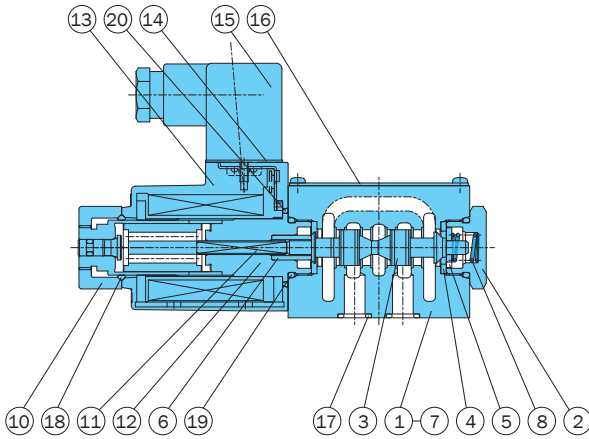
SA-G01-A**-C*-31



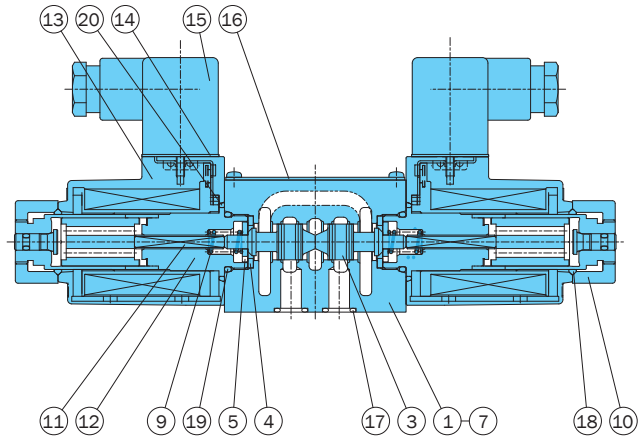
SA-G01-C**-C*-31



SA-G01-A**-D/E*-31



SA-G01-C**-D/E*-31



List of Sealing Parts

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

Note: 1A and 1B are JIS Standard B 2401, while AS568 is SAE standard.

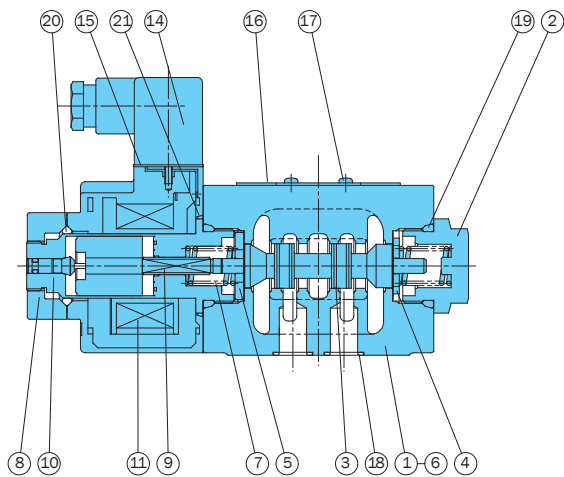
Seal Kit Number

| Single Solenoid | Double Solenoid |
|-----------------|-----------------|
| EDCS-A | EDCS-C |

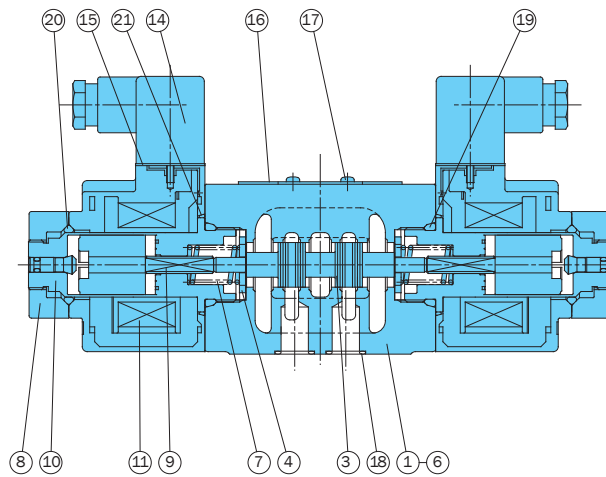
| Part No. | Part Name | Part No. | Part Name |
|----------|------------|----------|----------------|
| 1 | Body | 11 | Rod |
| 2 | Plug | 12 | Solenoid guide |
| 3 | Spool | 13 | Solenoid coil |
| 4 | Retainer A | 14 | Packing |
| 5 | Retainer B | 15 | Connector |
| 6 | Spring pin | 16 | Nameplate |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

Cross-sectional Drawing

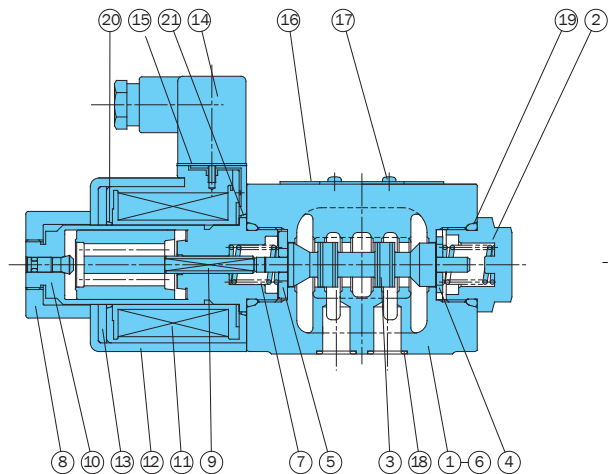
SA-G03-A**-C*-E21



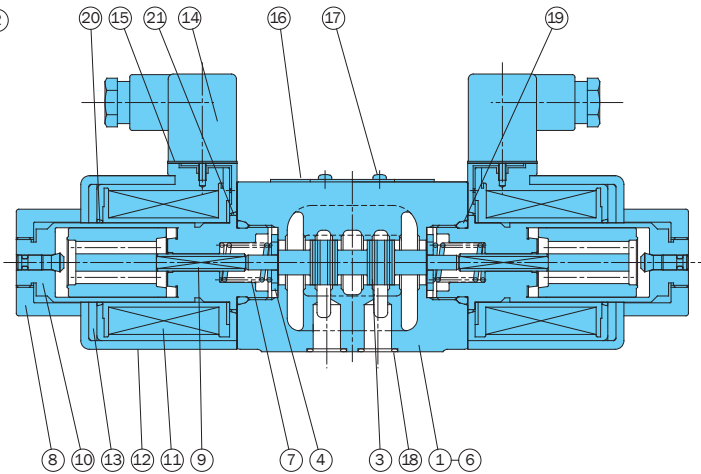
SA-G03-C**-C*-E21



SA-G03-A**-D/E*-E21



SA-G03-C**-D/E*-E21



List of Sealing Parts

| Part No. | Part Name | Type/Part Number | | Q'ty | |
|----------|-----------|------------------|-----------|-----------------|-----------------|
| | | AC SOL. | DC SOL. | Single Solenoid | Double Solenoid |
| 18 | O-ring | AS568-014(Hs90) | | 5 | 5 |
| 19 | O-ring | 1B-P28 | | 2 | 2 |
| 20 | O-ring | 1A-P26 | AS568-026 | 1 | 2 |
| 21 | O-ring | AS568-029 | | 1 | 2 |

Note: O-ring 1A/B-** refers to JIS B2401-1A/B.

| Part No. | Part Name | Part No. | Part Name |
|----------|----------------|----------|-------------------|
| 1 | Body | 11 | Solenoid coil |
| 2 | Plug | 12 | Coil case |
| 3 | Spool | 13 | Coil yoke |
| 4 | Retainer | 14 | Connector |
| 5 | Retainer B | 15 | Connector packing |
| 6 | Spacer | 16 | Nameplate |
| 7 | Spring | 17 | Screw |
| 8 | Nut | 18 | O-ring |
| 9 | Rod | 19 | O-ring |
| 10 | Solenoid guide | 20 | O-ring |
| | | 21 | O-ring |

Seal Kit Number

| AC SOL. | | DC SOL. | |
|-----------------|-----------------|-----------------|-----------------|
| Single Solenoid | Double Solenoid | Single Solenoid | Double Solenoid |
| ECBS-AA | ECBS-CA | ECBS-AD | ECBS-CD |