
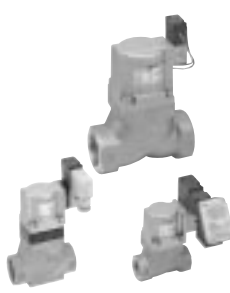


# Air operated 2 port valve (cylinder valve) **SAB/SVB Series**

## 2 PORT AIR OPERATED VALVE





Category	Model name	No. of port	Actuation			Port size														Page	
			NC	NO	Double acting operation	Rc1/4	Rc3/8	Rc1/2		Rc3/4	Rc1	Rc1 1/4	32 Flange	Rc1 1/2	40 Flange	Rc2	50 Flange	65 Flange	80 Flange		
Air operated type 	Water, liquid SAB*W	2 port	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	1	
	Air/gas SAB*A		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	5
	Low vacuum SAB*V		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●			9
	Steam, water, air SAB*S		●	●	●	●	●	●		●	●	●	●	●	●	●	●	●			13
With solenoid valve 	Water, liquid SVB*W		●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	17
	Air/gas SVB*A		●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	25
	Low vacuum SVB*V		●	●		●	●	●		●	●	●	●	●	●	●	●				29
	Steam, water, air SVB*S		●	●		●	●	●		●	●	●	●	●	●	●	●				33

# Flow characteristics

## 1. Flow characteristics indication

The catalog specifications indicate the flow as followings.

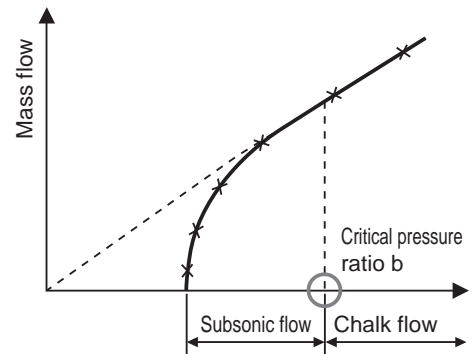
Components	Indication	Unit	Standards
Pneumatic components	New JIS compliant indication	C and b	ISO 6358: 1989 Pneumatic fluid power - Components using compressible fluids - Determination of flow-rate characteristics JIS B8390: 2000 (ISO 6358 translation)
	Conventional indication	S	JIS B8373: 1993 " pneumatic 2 port solenoid valve " JIS B8374: 1993 " pneumatic 3 port solenoid valve " JIS B8375: 1993 " pneumatic 4/5 port solenoid valve " JIS B8379: 1995 " pneumatics noise reduction device "
		Cv	ANSI (NFPA) T3.21.3: 1990
General purpose valves	New JIS compliant indication	Cv	IEC 60534-2-3: 1997 Industrial-process control valves - Part 2-3: Flow capacity - Test procedures JIS B2005-2-3: 2004 (IEC 60534-2-3 translation) JIS B8471: 2004 " solenoid valve for water " JIS B8472: 1994 " solenoid valve for steam " JIS B8473: 1994 " solenoid valve for fuel "
	Conventional indication		

## 2. Explanation of pneumatic components

The flow characteristics of pneumatic components were conventionally indicated with effective sectional area S and capacity coefficient Cv. JIS was revised (JIS B 8390: 2000), and these are now indicated with sonic conductance C and critical pressure ratio b.

- The sonic conductance C: Value obtained by dividing the passage mass flow of the component in the choke flow by the sum of the upstream absolute pressure and standard state density. (sonic conductance)  
 $S \cong 5.0C$  (C can be sized in the conventional method.)
- Critical pressure ratio b: Pressure rate at which choke flow results if smaller than this value. (downstream pressure/upstream pressure) (critical pressure ratio)
- Effective sectional area S (mm<sup>2</sup>): Value calculated from changes in pneumatic tank pressure indicating the ideal restriction effective sectional area at which friction or restricted flow does not occur when flowing in the choke flow from the component on the pneumatic tank.

\* Choke flow: Flow at which upstream pressure is higher than downstream pressure, and speed at certain sections of components reaches sonic levels. The fluid's mass flow is proportional to the upstream pressure, and does not rely on downstream pressure. (Choked flow)



Drawing 1 Mass flow characteristics for primary side pressure.

## Flow formula

Shown as followings depending on the practical unit

$$\frac{P_2 + 0.1}{P_1 + 0.1} \text{ Choke flow when } \leq b$$

$$Q = 600 \times C (P_1 + 0.1) \sqrt{\frac{293}{273 + t}} : (1)$$

$$\frac{P_2 + 0.1}{P_1 + 0.1} \text{ Subsonic flow when } > b$$

$$Q = 600 \times C (P_1 + 0.1) \sqrt{1 - \left[ \frac{\frac{P_2 + 0.1}{P_1 + 0.1} - b}{1 - b} \right]^2} \sqrt{\frac{293}{273 + t}} : (2)$$

Q : Flow rate [dm<sup>3</sup>/min(ANR)], SI unit  
 dm<sup>3</sup> (cubic decimeter) is  
 expressed as ℓ (liter). 1dm<sup>3</sup> = 1 ℓ  
 C : Sonic conductance (dm<sup>3</sup>/ (s/bar))  
 b : Critical pressure ratio (-)  
 P<sub>1</sub> : Primary side pressure (MPa)  
 P<sub>2</sub> : Secondary side pressure (MPa)  
 t : Temperature (°C)

To calculate effective sectional area S, substitute value C obtained with C=S/5 in the above formula.  
 For subsonic flow, substitute b = 0.5 in formula (2).

### 3. Explanation of general purpose valves

The general purpose valve flow characters are indicated with capacity coefficient Cv. To comply with old IEC Standards, attempts were made to indicate features with capacity coefficient Av to unify indications with SI units. The Av value was eliminated from the control valve capacity coefficient with JIS B 2005-2-3: 2004 revisions, and only Kv and Cv types are used. The Cv indication is still used to indicate flow features of the general purpose valves. For Av values, conversion values are listed for reference as needed.

- Capacity : The non-SI adjustment valve capacity coefficient is used commonly worldwide. U.S. gal value indicating the flow coefficient Cv of 40 to 100°F city water for one minute through the valve (test part) when the differential pressure is 1 psi.

$$C_v = Q \sqrt{\frac{\rho}{\rho_w} \frac{1}{\Delta P}} : (3)$$

Cv : Capacity coefficient

Q : Flow (U.S.gal/min) (1U.S.gal/min. = 6,309 x 10<sup>-6</sup>m<sup>3</sup>/s)

ρ : Fluid density (1b/ft<sup>3</sup>) (1b/ft<sup>3</sup> = 16,018kg/m<sup>3</sup>)

ρ<sub>w</sub> : 40°F to 100°F (4 °C to 38 °C) water density (1b/ft<sup>3</sup>)

ΔP: differential pressure (psi) (1psi = 6.8948kPa)

- Capacity : Value indicating city water flow rate passing through valve (test part) as m<sup>3</sup>/s unit at pressure difference 1 Pa. coefficient Av The value is calculated based on the following formula.

$$A_v = Q \sqrt{\frac{\rho}{\Delta P}} : (4)$$

Av : Capacity coefficient (m<sup>2</sup>)

Q : Flow (m<sup>3</sup>/s)

ρ : Fluid density (kg/m<sup>3</sup>)

ΔP: Differential pressure (Pa)

### Flow formula

Shown as followings depending on the practical unit

- Capacity coefficient Cv

For liquid:

$$Q = 45.16 C_v \sqrt{\frac{\Delta P}{G}} : (5)$$

Cv : Flow factor

Q : Flow (ℓ/min)

ΔP: Differential pressure (MPa)

G : Specific gravity (water G = 1)

For steam:

$$\text{For } P_2 \leq \frac{P_1}{2} \quad W = \frac{97 C_v P_1}{K} : (6)$$

$$\text{For } P_2 > \frac{P_1}{2} \quad W = \frac{194 C_v \sqrt{(P_1 - P_2) P_2}}{K} : (7)$$

Cv : Flow factor

W : Flow (kg/h)

P<sub>1</sub> : Primary absolute pressure (MPa)

P<sub>2</sub> : Secondary absolute pressure (MPa)

K : (1 + 0.0013ts) ts: Degree of superheat  
(Saturated vapor K = 1)

## Flow formula

Shown as followings depending on the practical unit

### ● Capacity coefficient $A_v$

For liquid:

$$Q = 1.9 \times 10^6 A_v \sqrt{\frac{\Delta P}{G}} \quad : (8)$$

$Q$  : Flow (ℓ/min)

$A_v$  : Capacity coefficient (m<sup>2</sup>)

$\Delta P$ : Differential pressure (MPa)

$G$  : Specific gravity (water = 1)

For steam:

$$Q = 8.1 \times 10^6 A_v \sqrt{\Delta P (P_2 + 0.1)} \quad : (9)$$

$Q$  : Flow (kg/h)

$A_v$  : Capacity coefficient (m<sup>2</sup>)

$\Delta P$ : Differential pressure (MPa)

$P_1$  : Primary side pressure (MPa)

:  $\Delta P = P_1 - P_2$

$P_2$  : Secondary side pressure (MPa)

Conversion of capacity coefficient

$$A_v = 28 \times 10^{-6} K_v = 24 \times 10^{-6} C_v \quad : (10)$$

$K_v$  : Value indicating the flow of 5 to 40°C city water as m<sup>3</sup>/h passing through the valve when the differential pressure is 1 bar.

$C_v$  : Value indicating 60°F city water flow rate passing through valve as US gal/min unit at pressure difference 1 lbf/in<sup>2</sup> (psi).

Values do not match because test methods for  $K_v$  and  $C_v$  for pneumatic use differ.

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MEMO

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Fluid control components

# Safety precautions

Always read this section before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanical mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.

It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.

Observe warnings and precautions to ensure device safety.

Check that device safety is ensured, and manufacture a safe device.

## WARNING

**1** This product is designed and manufactured as a general industrial machine part. It must be handled by an operator having sufficient knowledge and experience in handling.

**2** Use this product in accordance of specifications.

Contact CKD when using the product outside the unique specifications range, when using it outdoors, and when using it under the conditions and environment below. Do not attempt to modify or additionally machine the product.

- ① Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment, or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
- ② Use for applications where life or assets could be adversely affected, and special safety measures are required.

**3** Observe corporate standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B8370 (pneumatic system rules)


Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.


**4** Do not handle, pipe, or remove devices before confirming safety.


- ① Inspect and service the machine and devices after confirming safety of the entire system related to this product.
- ② Note that there may be hot or charged sections even after operation is stopped.
- ③ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
- ④ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

**5** Observe warnings and cautions on the pages below to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

 **DANGER** :When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

 **WARNING**: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

 **CAUTION** :When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation. In any case, important information that must be observed is explained.





## Safety precautions

# Fluid control components warning and cautions

Always read this section before starting use.

## Design & Selection

### 1. Safety designing

#### ⚠ WARNING

- This product can not be used as an emergency shut off valve.

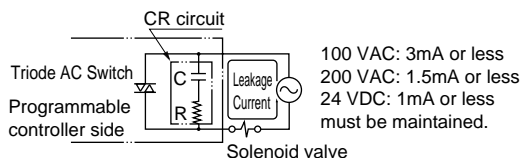
Valves in this catalog are not designed to ensure safety such as emergency shutoff. When using in this system, take separate measures that will ensure safety.

- Take measures to prevent harm to operators or objects if this product fails

#### ⚠ CAUTION

- Leakage current from other fluid control components

When operating the solenoid valve with a programmable controller, etc., check that leakage current from the programmable controller's output is within the specifications below. Failure to observe this could lead to malfunctions.



- Liquid ring

In fluid flow, if a liquid ring circuit is created, pressure could rise when temperature fluctuates and prevent operation. Provide a relief valve so that a liquid ring circuit is not created.

- Vibration

Mount and use in a place with no vibration.

### 2. Working fluid

#### ⚠ WARNING

- Working fluid

- (1) Do not use this product for fluids other than applicable fluids in catalog specifications.
- (2) Before starting use, confirm compatibility of the product and applicable fluid with the Control Fluid Checklist (Introduction, page 14).
- (3) Depending on the model, wear powder could be generated when internal parts are worn through valve operation. This could flow to the secondary side of the valve.
- (4) The durability of the rod packing (MY packing) drops if working fluid quality is poor and contains powder, sludge, or foreign matter.  
If rod packing sealing is poor, working fluid could leak into the cylinder and flow back into pilot air piping, damaging to devices in the air circuit.  
Conduct regular maintenance or take appropriate measures.

- Special purpose grease

For cylinder valve, grease applies to the piston rod sealing sections. When using special fluids, indicate the type of grease.

<Example> Oxygen: Fluorine grease  
Medium vacuum: Silicone grease  
Fluids for foods: Vaseline  
Dry air for painting: Vaseline

- Fluid temperature

Use within the working fluid temperature range.

#### ⚠ CAUTION

- External pilot air

- (1) Drainage measures: Compressed air contains high levels of drainage (water, oxidized oil, tar, foreign matter) that may reduce pneumatic component reliability. Improve air quality by dehumidifying with an after cooler or dryer, removing foreign matter with a filter, and removing tar with a tar removal filter, etc.
- (2) Pre-lubrication: This series is used with pre-lubrication specifications, so a lubricator is not required. When lubricating, continuously lubricate so that the component does not run out of lubrication. Use the turbine oil Class 1/ISOVG32 (#90) or equivalent.
- (3) Filter: Install a filter with a 5  $\mu$  m or less filter element.

### 3. Working environment

#### ⚠ WARNING

- SVB series can not be used in the flammable environment. When using in a flammable environment, change the model to the SAB Series and provide a separate explosion-proof solenoid valve in the pilot air circuit.

- Do not use this product in an environment in which corrosive gases could impregnate configuration materials.

- Do not use this product near heat-generating elements or where it may be subject to radiated heat.

- Use the product within the ambient temperature range.

- Take the appropriate freezing prevention such as the countermeasures for cold district use.  
When insulating the solenoid valve, etc., do not treat the coil.

- Take appropriate safeguards for protective structures listed in catalog specifications. Consult with CKD when using outdoors.

- Take appropriate safeguards when using this product in places where oil or spatter from welding, etc., contact could occur.

- If levels of dust are high in the area, provide a silencer on the exhaust port or face the elbow joint downward so that dust does not get inside.

- Take appropriate safeguards when using this product in places where water contact could occur.

### 4. How to use

#### ⚠ WARNING

- Do not touch coils or actuators with hands or otherwise while power is on or immediately after turning power on.

The solenoid valve's coil and actuator will heat up when electricity is passed through them. Depending on the product, directly touching these sections could cause burns.

- Do not touch electric wiring connections with hands or otherwise (bare charged sections) while power is on. An electric shock could occur. Touching electric wire connections while power is on could lead to electrical shock.

- Use within the maximum service pressure and maximum working pressure difference range.

## ⚠ CAUTION

- Do not step the valve, nor put the heavy things on it.

- When using the product with continuous energizing and low frequency, consult with CKD.

- If the product has not been used for more than a month, carry out trial operation.

- When not using the product for one or more months after using water or hot water, remove any water or hot water left in the product. Water or hot water residue will cause rusting and may lead to operation faults or leaks.

If residual water cannot be removed, operate the valve several times a day to ensure correct use.

## 5. Securing of space

## ⚠ CAUTION

- Secure sufficient space for maintenance and inspection.

# Installation & Adjustment

## 1. Installation

## ⚠ CAUTION

- Always thoroughly read the Instruction Manual before installing this product.

- Do not apply external force to the coil section when a solenoid valve is installed.

- After installing, check for leaks from pipes and for wire connections, and check that the product is correctly installed.

## 2. Piping

## ⚠ CAUTION

- Observe the valid thread length for piping. Chamfer the end of the screw a half-pitch.

- Before piping, flush the inside of the pipe with 0.3 MPa of air, and remove foreign matter such as dirt, metal chips, rust, and sealing tape.

- If excessive sealant (tape, gel) is applied when piping, it could enter the product and cause operation faults.

- When applying or wrapping sealant on piping material, apply it or wind it from the pipe end along the screw and leave 1.5 to 2 threads uncovered.

- Dirt or foreign matter in fluid may prevent the product from functioning correctly. Install an 80 mesh or higher filter for water flow, and a 5 μm or less filter for air flow.

- Do not mistake the supply port when piping to the product.

- Do not pipe with using a solenoid valve section. Failure to observe this, the product could be damaged. (For solenoid valve)

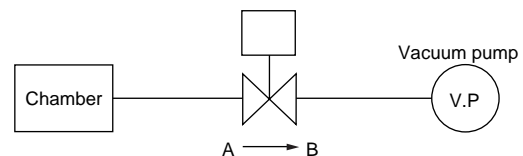
- Install the by-pass circuit, and use the elbow union when piping to simplify the maintenance or repair work.

- When controlling fluid in a tank, pipe at a level slightly above the bottom of the tank.

- When piping the SAB or SVB Series, pay attention to the supply port on the unit and pilot operation side.

Model no.	Body side supply port	Pilot operation side supply port
SAB1W	A	X
SAB2W	A	Y
SAB3W	A	X and Y
SAB1A	B	X
SAB2A	A	Y
SAB3A	A or B	X and Y
SAB1V	A	X
SAB2V	A	Y
SAB3V	A	X and Y
SAB1S	B	X
SAB2S	A	Y
SAB3S	A or B	X and Y
SVB1W	A	P
SVB2W	A	P
SVB1A	B	P
SVB2A	A	P
SVB1V	A	P
SVB2V	A	P
SVB1S	B	P
SVB2S	A	P

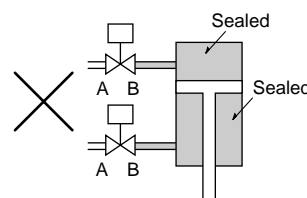
Note 1) With the SAB<sub>3</sub>V or SVB<sub>2</sub>V side port, connect the chamber (vacuum holding side) to port A.



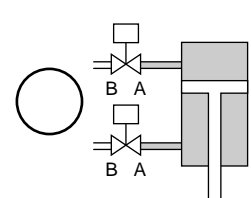
Note that when using for vacuum break, etc., set the pressurized port to port A.

- When operating a hydraulic cylinder with a cylinder valve for water, if the valve's B port is piped to the cylinder, pressure in the valve's B port and piping rises and apply excessive pressure on the valve body, leading to damage. In this case, pipe the valve's A port to the cylinder side.

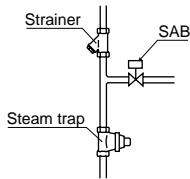
Example of improper use)



Example of proper use)



- When using the valve for steam, external leaks could occur depending on fluid properties. Install a steam trap by inclining piping, etc., and remove drainage to prevent the inside of the pipe from rusting.



- Refer to the table below for tightening torque when piping.

<Product/body section piping>

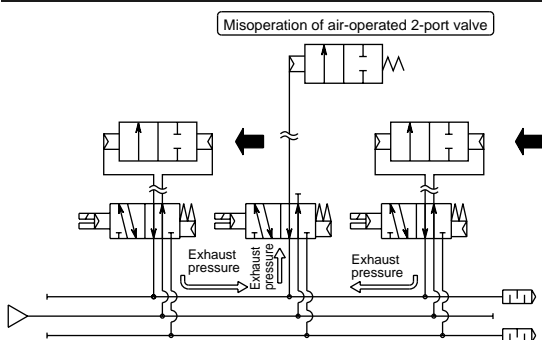
Nominal piping diameter	Recommended piping tightening torque (N·m)
Rc1/4	23 to 25
Rc3/8	31 to 33
Rc1/2	41 to 43
Rc3/4	62 to 65
Rc1	83 to 86
Rc1 1/4	97 to 100
Rc1 1/2	104 to 108
Rc2	132 to 136

- Refer to the table below for tightening torque of the pilot air when piping.

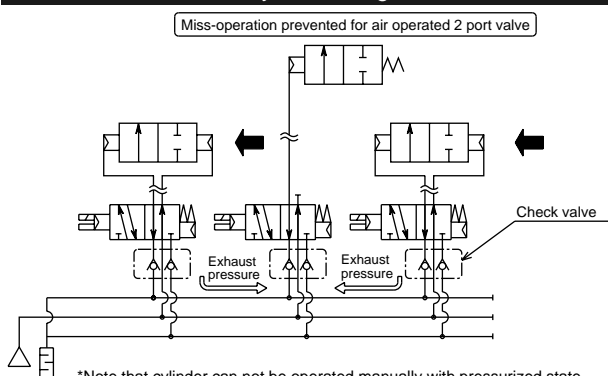
Nominal piping diameter	Recommended piping tightening torque (N·m)
Rc1/8	7 to 9

- If a manifold is used on the SAB Series operation valve, exhaust pressure from other valves could be led in and cause malfunctions such as momentary opening of the SAB. When using a manifold, use a valve with a built-in "check valve". Similar problems could occur if exhaust is led in from the SVB Series exhaust (R) port, so when piping the exhaust (R) port, do not connect with other exhaust circuits. A check valve is built into CKD pilot 3 or 5 port valve 4G Series.

### Example of pneumatic pressure that could misoperate



### Pneumatics system using 4G series



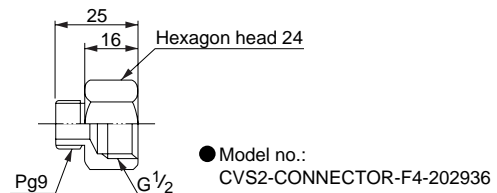
\*Note that cylinder can not be operated manually with pressurized state.

## 3. Wiring

### CAUTION

- Use the product within the allowable voltage range. Use outside of the allowable voltage range may lead to operation faults or coil damage.
- Use a breaker such as the fuse, etc., on the control circuit for maintenance of electric equipment.
- If the electrical circuit is susceptible to solenoid surge, use a solenoid with a surge suppressor (option), or insert a surge absorber, etc., parallel to the solenoid.
- Use a wire with nominal section area 0.5mm<sup>2</sup> and over as the reference. Check that no excessive force is applied to leads.
- When using an explosion-proof solenoid valve, follow explosion-proof policy when wiring.
- Use of a switching circuit that does not cause contact chatter will lengthen the life of the solenoid valve and motorized valve.
- Wiring when solenoid valve is installed.

- Refer to connections on page 13 in the introduction when wiring to a DIN terminal box or T-type terminal box.
- The size of the screw for the DIN terminal box's junction box outlets can be changed from Pg9 to G1/2 using the optional connector below.



- Coil orientation is changed by 180°. Turn the coil only when reversing the electric wire connection method. Do not lose internal parts when removing the coil.

## During Use & Maintenance

### 1. Maintenance & Inspection

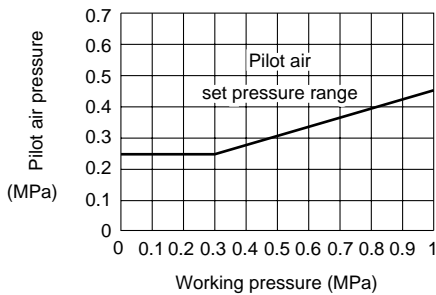
#### ⚠ WARNING

- To ensure that the product is used optimally, regularly inspect the product every six months. This frequency varies with the frequency of use.

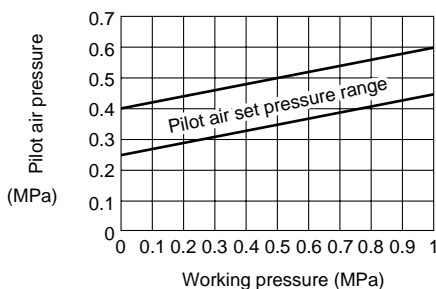
#### ⚠ CAUTION

- Read the instruction manual thoroughly before starting maintenance to ensure correct operation.
- Turn power off and release fluids or pressure before starting maintenance.
- Care must be taken not to clog the strainer-filter.
- Pilot air pressure  
Use pilot air pressure in accordance with specifications. Set the pilot pressure for the SAB and SVB Series NO type and double-acting type as shown in the graph below. A sealing fault could occur if pressure is set less than the range shown in the graph below. The NC model type should be selected when the pilot air cannot be controlled.

#### ● SAB<sub>3</sub><sup>2W</sup>/SVB2<sup>W</sup> Series



#### ● SAB<sub>3</sub><sup>2S</sup>/SVB2<sup>S</sup> Series



### 2. Assembling & Disassembling

#### ⚠ WARNING

- A spring is used in the cylinder cover. When disassembling this type, the spring could pop out and cause injuries, so take care. The NC (normally closed) has a snap ring to prevent the spring from popping out. Do not remove the snap ring.

#### ⚠ CAUTION

- When cleaning the product, use a low-polluting cleaning agent such as a neutral detergent. (Note that rubber parts must be replaced if they expand.)
- Consult with CKD on questions about consumables, etc.

## CAUTION

- Assembling pilot solenoid valve (for solenoid valve)  
If the pilot solenoid valve has been disassembled, assemble it as follows.

### (1) Coil side

- Disassembling  
Loosen the cross headed pan head machine screw, and lift up the coil assembly.  
The outer spring, plunger assembly, and O ring are removed.
- Reassembling  
Set parts in the sequence of the O ring, plunger assembly, outer spring, and coil assembly. Tighten cross headed pan head machine screw with 0.7 to 1.1N · m.

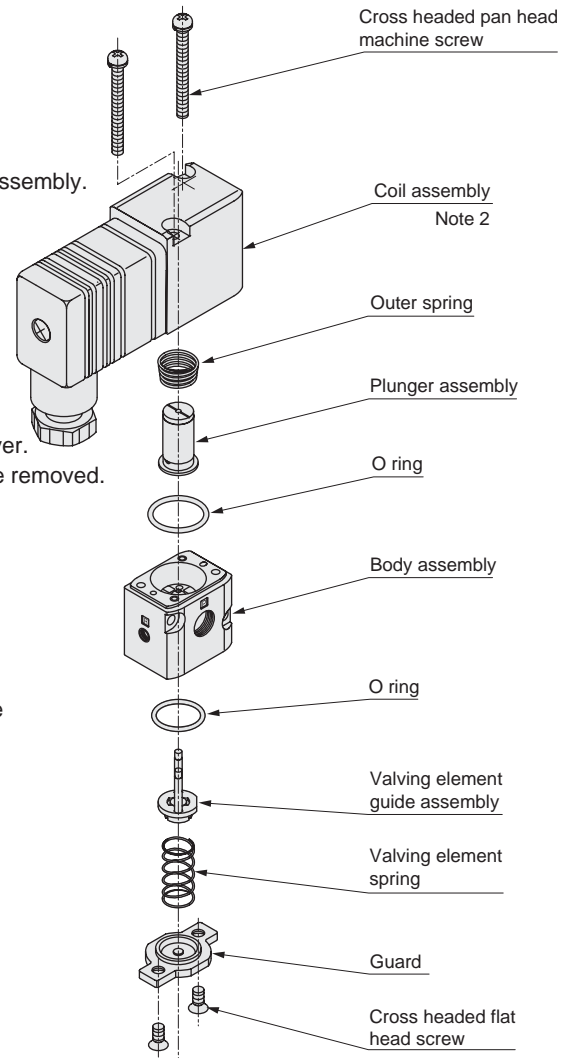
### (2) Guard side

- Disassembling  
Loosen the cross headed pan head machine screw, and remove the cover.  
The valve element spring, valve element guide assembly, and O ring are removed.
- Reassembling  
Set parts in the sequence of the O ring, valve element guide assembly, valve element spring, and cover.  
Tighten cross headed pan head machine screw with 0.7 to 1.1 N · m.

Note 1: Do not lose the components such as springs during disassembly.

Note 2: The coil assembly direction is changed 180°. Loosen and change the cross-headed pan head machine screw.

Note 3: Turbine oil is applied to the plunger as a lubricant.



### SVB\*W/SVB\*A/SVB\*V

Pilot solenoid valve (actuator assembly kit) model no.

CVSE2-ACTUATOR-0 \*1 - **Rated voltage**

Indicate the coil option symbol in field \*1.

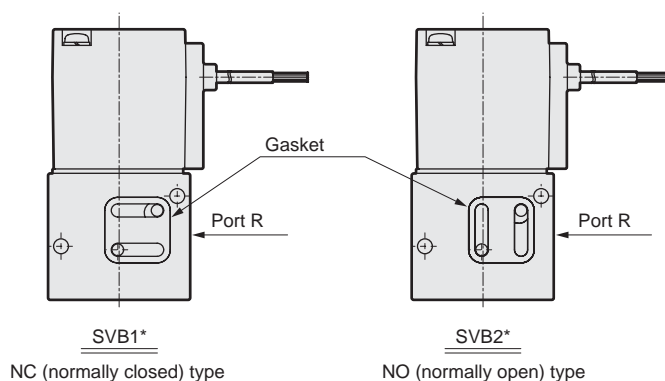
### Pilot solenoid valve (actuator assembly kit) model no. for SVB\*S

SVB-ACTUATOR-C \*1 - **Rated voltage**

Indicate the coil option symbol in field \*1.

### Gasket direction (for solenoid valve)

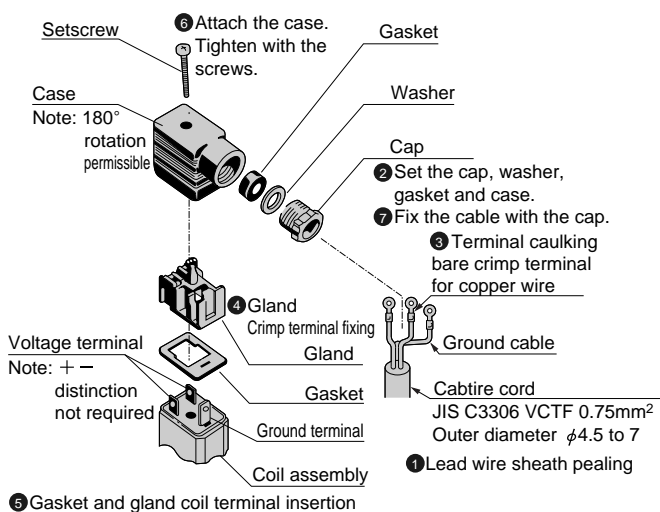
A gasket has principles. Check the principles to assemble if disassembling was made.



## ⚠ How to wire terminal box

### ■ DIN terminal box (Pg9) and DIN terminal box (Pg9) with indicator light

- (1) Use the following cabtire cable.
  - Code outer diameter:  $\phi$  4.5 to  $\phi$  7, nominal section area:  $0.75\text{mm}^2$
- (2) Insert the crimp terminal for copper wires into the cabtire cable's lead wire, and crimp the terminal with the designated tool. M3 terminal screws are used with the terminal box.
- (3) Tighten screws with the following tightening torque.
  - Setscrew tightening torque:  $0.5\text{ N}\cdot\text{m}$
  - Terminal screw tightening torque:  $0.5\text{ N}\cdot\text{m}$

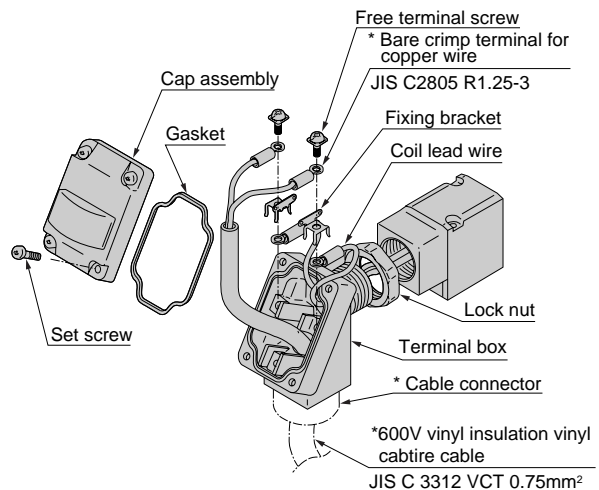


Make wiring by ① to ⑦ work procedures.

\* The orientation of the cable lead out port is changed by removing the terminal box from the case, rotating it by  $180^\circ$ , then replacing the terminal box into the case.

### ■ T terminal box (G1/2), T types terminal box with indicator light (G1/2)

- (1) Use the following cabtire cable.
  - Nominal section area:  $0.75\text{mm}^2$
- (2) Insert the crimp terminal for copper wires into the cabtire cable's lead wire, and crimp the terminal with the designated tool. M3 terminal screws are used with the terminal box.
- (3) Tighten screws with the following tightening torque.
  - Set screw tightening torque:  $0.5\text{ N}\cdot\text{m}$
  - Terminal screw tightening torque:  $0.5\text{ N}\cdot\text{m}$



Parts marked with an asterisk (\*) are not included.

#### \*Changing direction of T type terminal box

Change the orientation of the T-type terminal block from the default state as follows.

- (1) Hold the width across flats (25 width) of the T-type terminal box with a tool (monkey wrench, spanner, etc.), and loosen it by turning counterclockwise.
- (2) Loosen the lock nut.
- (3) Rotate the T-type terminal box clockwise to  $15^\circ$  before the required position.
- (4) Tighten the lock nut to the coil by hand until it is moderately tight.
- (5) Hold the width across flats of the T-type terminal box with a tool, and rotate it (approx.  $15^\circ$ ) to tighten it to the required position.

Note: When further tightening the terminal box to change the orientation from the default, rotate it within 1/2-turn.

## Working fluid check list

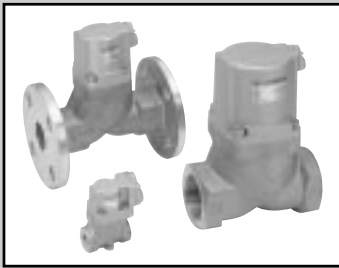
●: Available ▲: Limited, x: Not available —: No applications

\*1: As a limitation, use is possible if conditions given in ( ) after the fluid name are met.

Material combination		Body material	Bronze				Stainless steel			
			Sealant	NBR	FKM	EPDM	PTFE	NBR	FKM	EPDM
a	Acetylene		▲	▲	×	▲	●	●	×	●
	Linseed oil		●	●	—	●	●	●	×	●
	Argon		●	●	—	●	●	●	—	●
d	Ethylene glycol		●	●	●	●	●	●	●	●
	The AE agent		▲	▲	×	▲	●	●	×	●
e	Ozone (concentration must be low. A few ppm or less)		×	×	×	×	×	▲	▲	●
f	Gasoline (must be pure gasoline.)		×	▲	×	●	×	▲	×	●
h	Glycerin		—	—	—	—	●	●	●	●
	Cresol		—	—	—	—	×	●	×	●
i	Light oil		●	●	×	●	●	●	×	●
	Sodium silicate aqueous solution		●	●	●	●	●	●	●	●
l	Heavy oil A (FKM recommended if additive is entered.)		▲	●	×	●	▲	●	×	●
	Heavy oil B		●	●	×	●	●	●	×	●
	Heavy oil C		×	●	×	●	×	●	×	●
	Deionized water		—	—	—	—	×	●	—	●
	Silicone oil		×	●	—	●	×	●	—	●
m	Sodium hydroxide		×	×	×	×	▲	×	●	●
	Hydrogen gas (High temperature not available. Use the air-operated type when explosion-proof measures are required.)		●	●	●	●	●	●	●	●
n	Liquid soap		—	—	—	—	●	●	●	●
p	Carbon oxide		●	●	●	●	●	●	●	●
	Carbonated water		—	—	—	—	▲	▲	●	▲
q	Nitrogen gas		●	●	●	●	●	●	●	●
s	Natural gas		●	●	—	●	●	●	—	●
t	Kerosene		●	●	×	●	●	●	×	●
P	Propane gas		●	●	×	●	●	●	×	●
Options per series option		SAB1/2/3, SVB1/2	☆	○	○	—	○	○	○	—
☆: Standard products										
○: Option available		SAB1S/2S/3S, SVB1S/2S	—	—	—	☆	—	—	—	☆

### ⚠ CAUTION

This checklist was prepared using CKD results. These values are for reference only, and are not guaranteed under all conditions. Test and confirm adequacy before starting use.



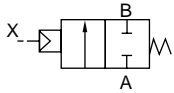
Air operated 2 port valve  
(Cylinder valve)

# SAB\*W Series

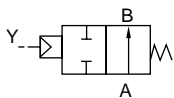
- NC (normally closed) type, NO (normally open) type, double acting type
- Port size: Rc1/4 to Rc2, 32 to 80 flange
- Working fluid: Water or non-corrosive liquid

## JIS symbol

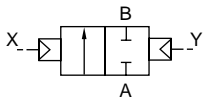
- NC (normally closed) type



- NO (normally open) type



- Double acting type



## Common specifications

Descriptions	SAB1W	SAB2W	SAB3W
Actuation	NC (normally closed) type	NO (normally open) type	Double acting type
Working fluid	Water, non-corrosive fluid (*1)		
Fluid viscosity mm <sup>2</sup> /s	500 or less		
Working pressure range MPa	0 to 0.7 (*2)	0 to 1	
Withstanding pressure (water) MPa	2.0		
Fluid temperature °C	-10 to 60 (no freezing) (*3)		
Ambient temperature °C	-10 to 60		
Valve seat leakage cm <sup>3</sup> /min	0 (with water pressure)		
Mounting attitude	Free		
Water hammer MPa	1 or less (caused by water supply law)		

\*1: Refer to working fluid check list on Intro 14.

\*2: Note that this differs with the type, so refer to the working pressure range in each model's specifications.

\*3: Sealant fluoro rubber (FKM) is for -10 to 90°C.

## Individual specifications

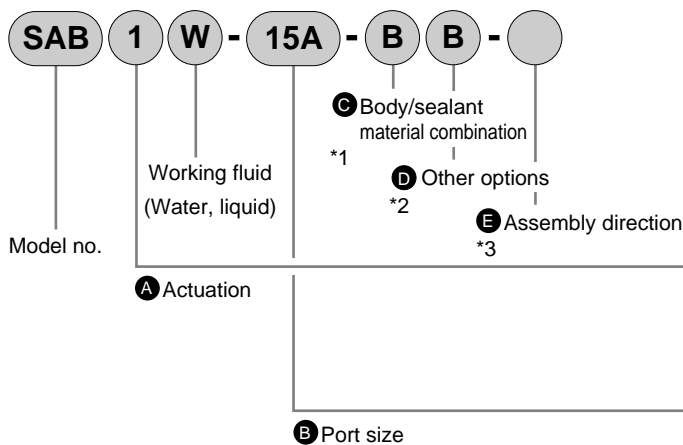
Descriptions Model no.	Port size	Orifice (mm)	Cv flow factor	Working pressure range (MPa)			Pilot air pressure (MPa)			Pilot Port size	Weight (kg)		
				NC type	NO type	Double act.	NC type	NO type	Double act.		NC type	NO type	Double act.
SAB*W-8A	Rc1/4	10	2.3	0 to 0.7	0 to 1	0.35 to 0.7	(*1)	Rc1/8	0.3				
SAB*W-10A	Rc3/8	10	2.6						0.3				
SAB*W-15A	Rc1/2	15	5.6						0.6				
SAB*W-20A	Rc3/4	16	8						0.8				
SAB*W-25A	Rc1	20	12						1.1				
SAB*W-32A	Rc1 1/4	26	20	0 to 0.5	0 to 1	0.25 to 0.7	(*1)	2.3 2.2 2.2					
SAB*W-32F	32 flange	26	20					5.3 5.2 5.2					
SAB*W-40A	Rc1 1/2	32	32					3.4 3.2 3.2					
SAB*W-40F	40 flange	32	32					6.5 6.3 6.3					
SAB*W-50A	Rc2	42	50					5.5 5.2 5					
SAB*W-50F	50 flange	42	50					9.4 9.1 8.9					
SAB*W-65F (*2)	65 flange	65	70					20.5 19 18					
SAB*W-80F (*2)	80 flange	79	100					25 23 22					

\*1: Refer to page 11 in the introduction for details on the pilot air pressure for NO and double-acting types.

\*2: Port size 65 and 80 flanges are custom order.



### How to order



Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type
3	Double acting type

Symbol	Descriptions
<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange
65F	65 flange (custom order)
80F	80 flange (custom order)

<b>C Body/sealant combination</b>		Body	Sealant
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene diene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene diene rubber

<b>D Other options</b>	
Blank	No option
B	Mounting plate

<b>E Assembly direction</b>	
Blank	No option
R	Mounting plate assembly position reverse rotation

Refer to the following diagram for the layout drawing.

### E Assembly direction

SAB (air operated type) *2/4		
Symbol	B (mounting plate)	B-R *3
Direction	Without rotation	Mounting plate reverse rotation
Arrangement		

← indicates pilot port IN.

### Note on model no. selection

- \*1: Body/sealant combination symbol is O or B for port size 65F or 80F. Note that the body is made from cast iron.
- \*2: Mounting plate (B in **D**) can be installed for port size 8A to 32A.
- \*3: Mounting plate assembly position reverse rotation (B-R in **E**) is for port size 15A to 32A.
- \*4: Clockwise viewed from above with port A facing right.

<Example of model number>

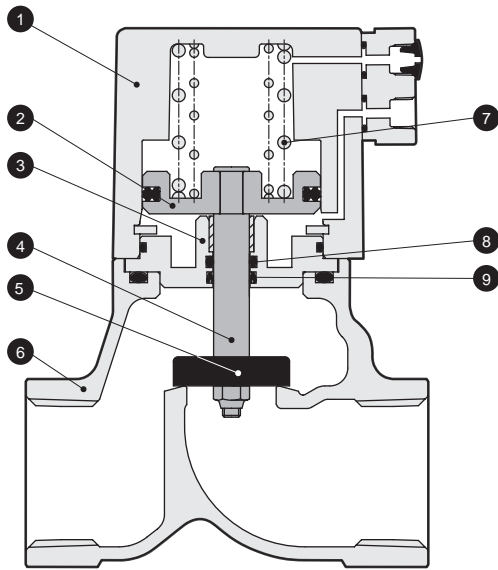
### SAB1W-15A-BB

Model: SAB

- A** Actuation : NC (normally closed) type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body-bronze and sealant-fluoro rubber
- D** Other options : Mounting plate
- E** Assembly direction : No option

## Internal structure and parts list

### ● SAB1W



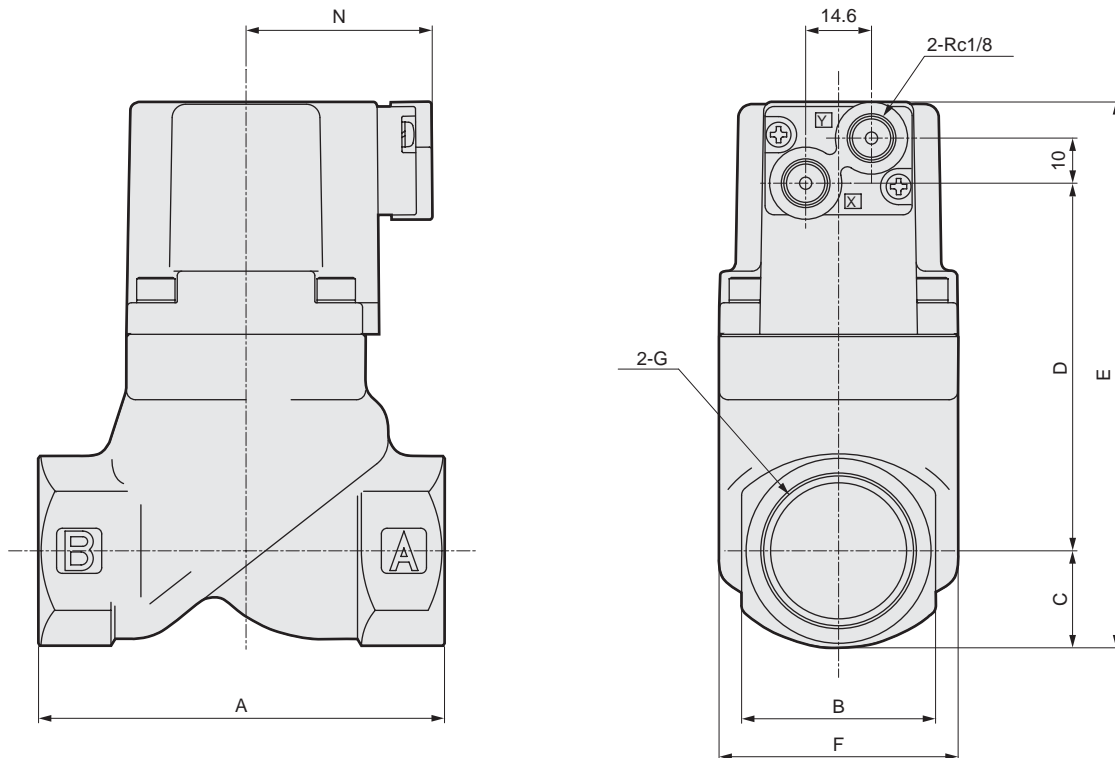
No.	Parts name	Material	
1	Cylinder guard	ADC12	Aluminum alloy die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604 (SUS304)	Brass (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR (FKM and EPDM) SUS304	Nitrile rubber (fluoro, ethylene propylene diene) Stainless steel
6	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O ring	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)
9	MY packing seal	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)

\*1: The value in parentheses is for an option.

\*2: For 65F and 80F, the body is made from FC250 (cast iron), while main valving element is made from FKM.

## Dimensions

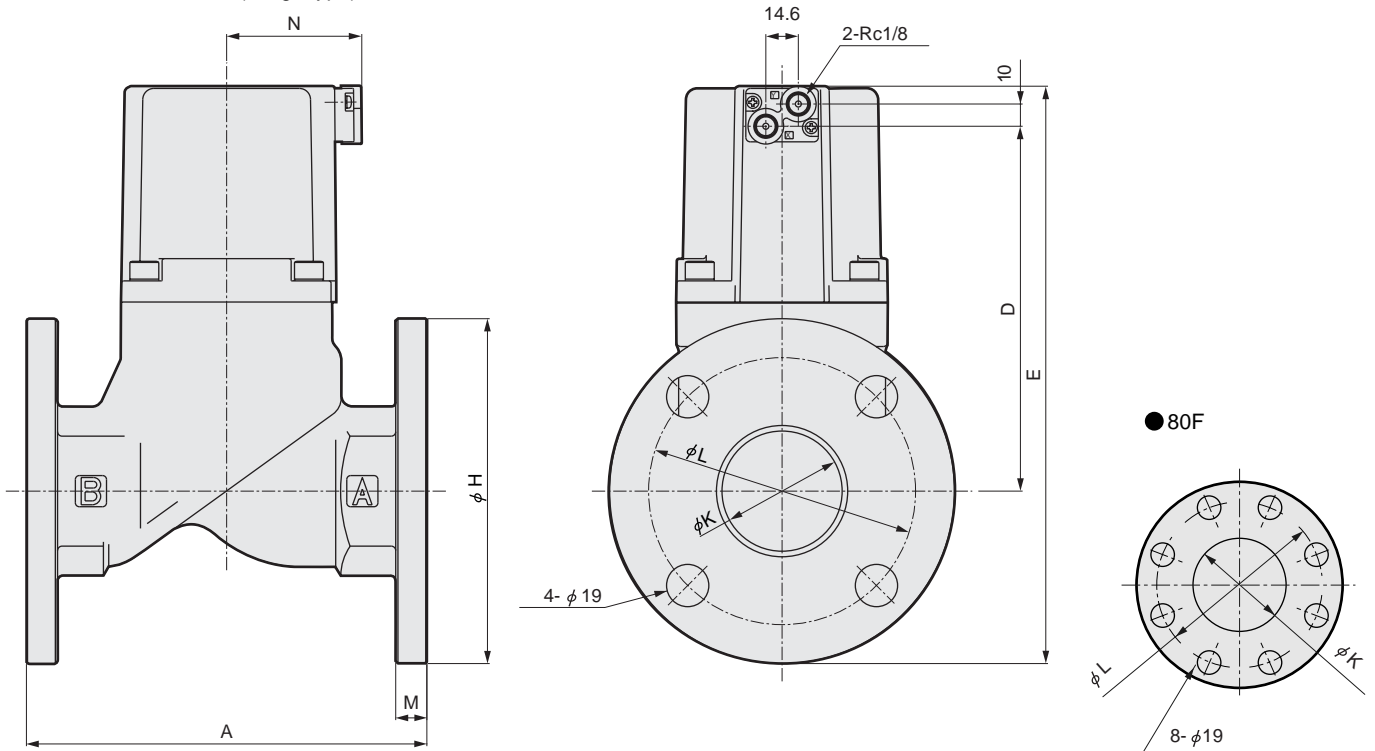
### ● SAB\*W-8A to 50A (Rc screw-in type)



Model no.	A	B	C	D	E	F	G	N
SAB*W-8A	50	24	12	41.5	71.5	32	Rc1/4	37
SAB*W-10A							Rc3/8	
SAB*W-15A	71	28	14.5	61.5	94	43	Rc1/2	38
SAB*W-20A	80	35	17.5	71	106.5	43	Rc3/4	38
SAB*W-25A	90	43	21	81.5	120.5	53	Rc1	41.5
SAB*W-32A	125	55	27.5	109.5	155	63	Rc1 1/4	46
SAB*W-40A	140	61	30.5	130.5	179	77	Rc1 1/2	53
SAB*W-50A	160	76	38	164	220	95	Rc2	61

### Dimensions

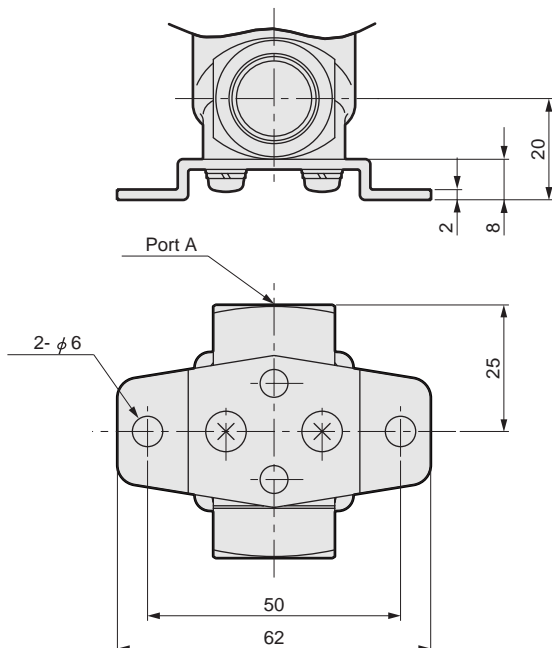
● SAB\*W-32F to 80F (flange type)



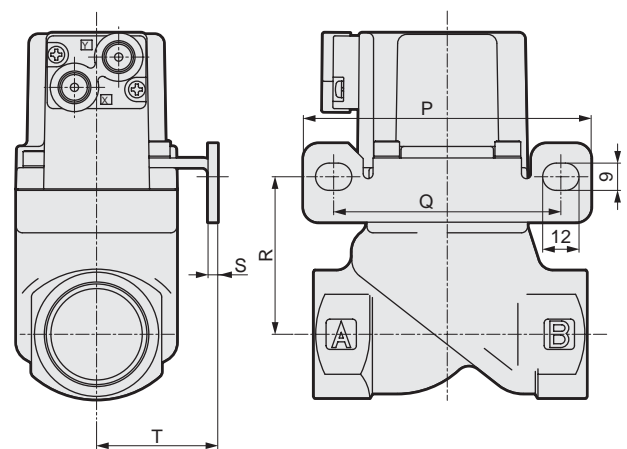
Model no.	A	D	E	H	K	L	M	N
SAB*W-32F	170	109.5	195	135	36	100	12	46
SAB*W-40F	180	130.5	218.5	140	42	105	12	53
SAB*W-50F	180	164	259.5	155	54	120	14	61
SAB*W-65F	210	199	347.5	175	68	140	16	101
SAB*W-80F	240	214	367.5	185	82	150	16	111

### Optional dimensions

● Mounting plate  
SAB\*W-8A/10A-\* [B]



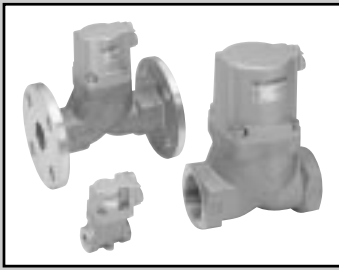
● Mounting plate  
SAB\*W-15A to 32A-\* [B] / [B-R]



\*Drawing indicates [B].

Model no.	P	Q	R	S	T
SAB*W-15A	90	70	39	2.3	30
SAB*W-20A	90	70	48.5	2.3	30
SAB*W-25A	95	75	52	3.2	40
SAB*W-32A	105	85	66.5	3.2	45

\*Use the body installation setscrews if fixed without mounting plate.  
(Thread size: M4 depth 8 pitch 19)



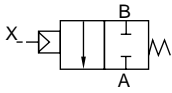
Air operated 2 port valve  
(Cylinder valve)

# SAB\*A Series

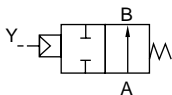
- NC (normally closed) type, NO (normally open) type, double acting type
- Port size: Rc1/4 to Rc2, 32 to 80 flange
- Working fluid: Air, gas

## JIS symbol

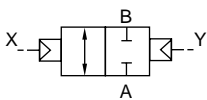
- NC (normally closed) type



- NO (normally open) type



- Double acting type



## Common specifications

Descriptions	SAB1A	SAB2A	SAB3A
Actuation	NC (normally closed) type	NO (normally open) type	Double acting type
Working fluid	Air/gas (*1)		
Working pressure range MPa	0 to 0.9	0 to 1	
Withstanding pressure (water) MPa	2.0		
Pilot air pressure MPa	0.35 to 0.7	Refer to Intro 11.	
Fluid temperature °C	-10 to 60 (no freezing) (*2)		
Ambient temperature °C	-10 to 60		
Valve seat leakage cm <sup>3</sup> /min	0.12 or less (with pneumatics)		
Mounting attitude	Free		

\*1: Refer to working fluid check list on Intro 14.

\*2: Sealant fluoro rubber (FKM) is -10 to 90°C.

## Individual specifications

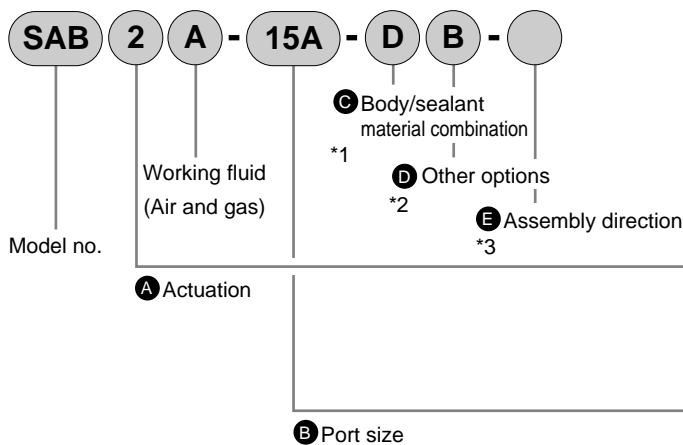
Descriptions Model no.	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s · bar)]	b	S (mm <sup>2</sup> )	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
<b>NC (normally closed) type</b>								
SAB1A-8A	Rc1/4	10	8.3	0.4	-	0.5	Rc1/8	0.3
SAB1A-10A	Rc3/8	10	11	0.4	-			0.3
SAB1A-15A	Rc1/2	15	-	-	120	0.1		0.6
SAB1A-20A	Rc3/4	16	-	-	150			0.8
SAB1A-25A	Rc1	20	-	-	240			1.1
SAB1A-32A	Rc1 1/4	26	-	-	390			2.2
SAB1A-32F	32 flange	26	-	-	390			5.2
SAB1A-40A	Rc1 1/2	32	-	-	610			3.2
SAB1A-40F	40 flange	32	-	-	610			6.3
SAB1A-50A	Rc2	42	-	-	920			5.2
SAB1A-50F	50 flange	42	-	-	920		9.1	
SAB1A-65F (*2)	65 flange	65	-	-	1290		19.5	
SAB1A-80F (*2)	80 flange	79	-	-	1840	23.5		
<b>NO (normally open) type</b>								
SAB2A-8A	Rc1/4	10	8.9	0.4	-	0.1	Rc1/8	0.3
SAB2A-10A	Rc3/8	10	12	0.3	-			0.3
SAB2A-15A	Rc1/2	15	-	-	140	0.05		0.6
SAB2A-20A	Rc3/4	16	-	-	180			0.8
SAB2A-25A	Rc1	20	-	-	280			1.1
SAB2A-32A	Rc1 1/4	26	-	-	450			2.2
SAB2A-32F	32 flange	26	-	-	450			5.2
SAB2A-40A	Rc1 1/2	32	-	-	680			3.2
SAB2A-40F	40 flange	32	-	-	680			6.3
SAB2A-50A	Rc2	42	-	-	1020			5.2
SAB2A-50F	50 flange	42	-	-	1020		9.1	
SAB2A-65F (*2)	65 flange	65	-	-	1290		19	
SAB2A-80F (*2)	80 flange	79	-	-	1840	23		
<b>Double acting type (*1)</b>								
SAB3A-8A	Rc1/4	10	8.3 (8.9)	0.4	-	1	Rc1/8	0.3
SAB3A-10A	Rc3/8	10	11 (12)	0.4 (0.3)	-			0.3
SAB3A-15A	Rc1/2	15	-	-	120 (140)			0.6
SAB3A-20A	Rc3/4	16	-	-	150 (180)			0.8
SAB3A-25A	Rc1	20	-	-	240 (280)			1.1
SAB3A-32A	Rc1 1/4	26	-	-	390 (450)			2.2
SAB3A-32F	32 flange	26	-	-	390 (450)			5.2
SAB3A-40A	Rc1 1/2	32	-	-	610 (680)			3.2
SAB3A-40F	40 flange	32	-	-	610 (680)			6.3
SAB3A-50A	Rc2	42	-	-	920 (1020)			5.2
SAB3A-50F	50 flange	42	-	-	920 (1020)	9.1		
SAB3A-65F (*2)	65 flange	65	-	-	1290	18		
SAB3A-80F (*2)	80 flange	79	-	-	1840	22		

\*1: Values given in parentheses ( ) for the double-acting type's C, b, and S values are the flow rate when port A is pressurized.

\*2: Port size 65 and 80 flanges are custom order.

\*3: Effective sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

### How to order



Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type
3	Double acting type

<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange
65F	65 flange (custom order)
80F	80 flange (custom order)

<b>C Body/sealant combination</b>			
		Body	Sealant
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene diene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene diene rubber

<b>D Other options</b>	
Blank	No option
B	Mounting plate

<b>E Assembly direction</b>	
Blank	No option
R	Mounting plate assembly position reverse rotation

Refer to the following diagram for the layout drawing.

### E Assembly direction

SAB (air operated type) *2/4		
Symbol	B (mounting plate)	B-R*3
Direction	Without rotation	Mounting plate reverse rotation
Arrangement		

← indicates pilot port IN.

### Note on model no. selection

- \*1: Body/sealant combination symbol is O or B for port size 65F or 80F. Note that the body is made from cast iron.
- \*2: Mounting plate (B in **D**) can be installed for port size 8A to 32A.
- \*3: Mounting plate assembly position reverse rotation (B-R in **D**) is for port size 15A to 32A.
- \*4: Clockwise viewed from above with port A facing right.

<Example of model number>

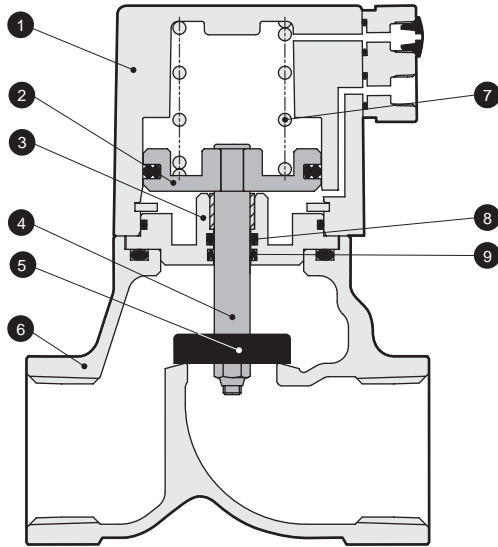
### SAB2A-15A-DB

Model: SAB

- A** Actuation : NO (normally open) type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body - stainless steel, sealant - nitrile rubber
- D** Other options : Mounting plate
- E** Assembly direction : No option

## Internal structure and parts list

### ● SAB1A



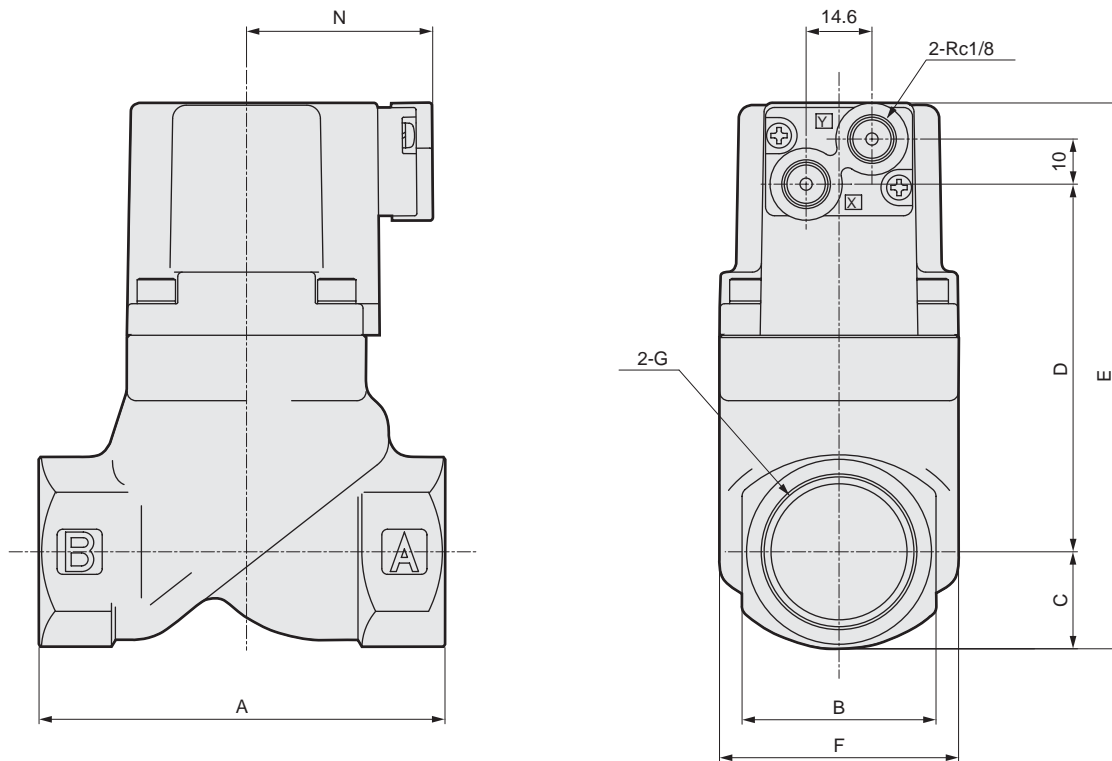
No.	Parts name	Material	
1	Cylinder guard	ADC12	Aluminum alloy die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604 (SUS304)	Brass (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR (FKM and EPDM) SUS304	Nitrile rubber (fluoro, ethylene propylene diene) Stainless steel
6	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O ring	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)
9	MY packing seal	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)

\*1: The value in parentheses is for an option.

\*2: For 65F and 80F, the body is made from FC250 (cast iron), while main valving element is made from FKM.

## Dimensions

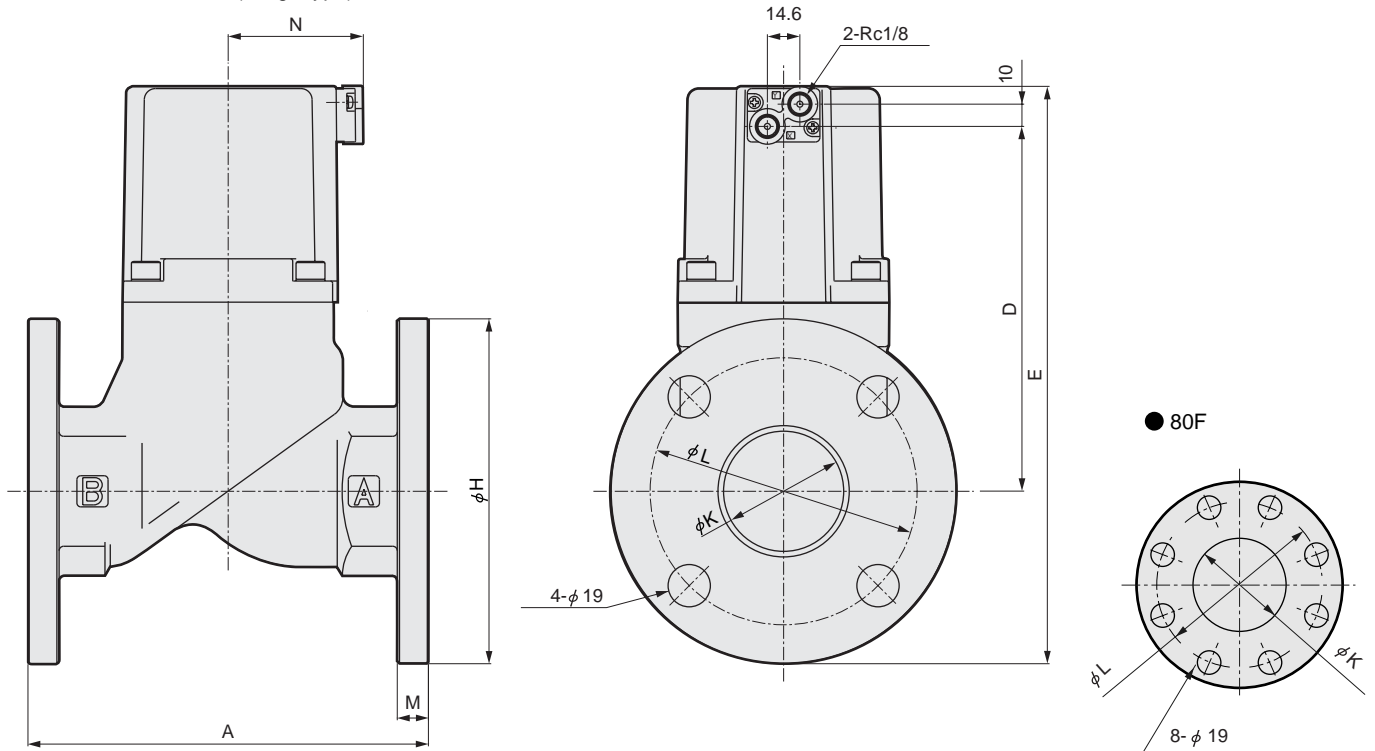
### ● SAB\*A-8A to 50A (Rc screw-in type)



Model no.	A	B	C	D	E	F	G	N
SAB*A-8A	50	24	12	41.5	71.5	32	Rc1/4	37
SAB*A-10A							Rc3/8	
SAB*A-15A	71	28	14.5	61.5	94	43	Rc1/2	38
SAB*A-20A	80	35	17.5	71	106.5	43	Rc3/4	38
SAB*A-25A	90	43	21	81.5	120.5	53	Rc1	41.5
SAB*A-32A	125	55	27.5	109.5	155	63	Rc1 1/4	46
SAB*A-40A	140	61	30.5	130.5	179	77	Rc1 1/2	53
SAB*A-50A	160	76	38	164	220	95	Rc2	61

## Dimensions

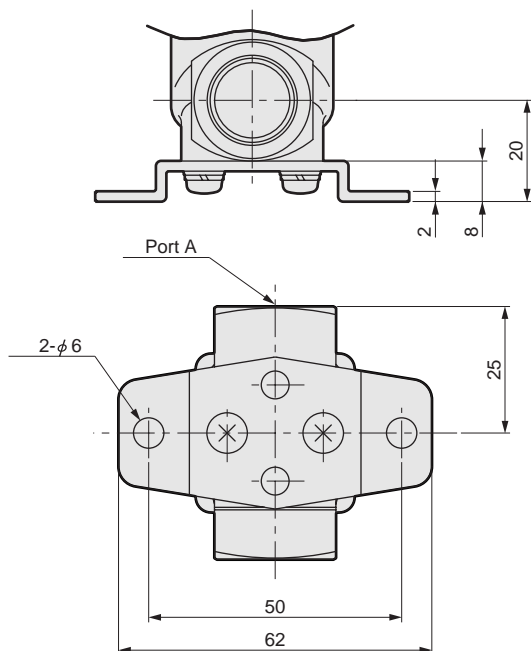
- SAB\*A-32F to 80F (flange type)



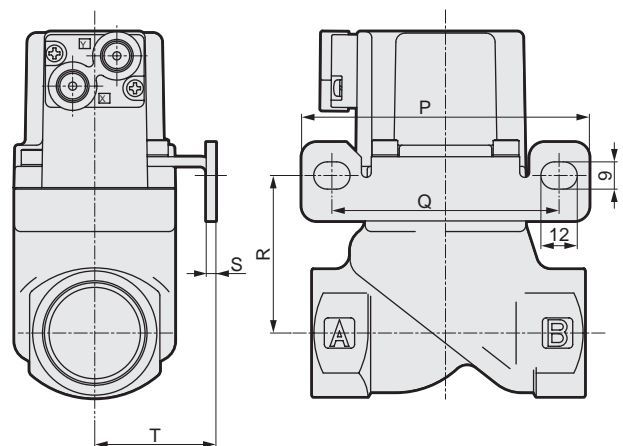
Model no.	A	D	E	H	K	L	M	N
SAB*A-32F	170	109.5	195	135	36	100	12	46
SAB*A-40F	180	130.5	218.5	140	42	105	12	53
SAB*A-50F	180	164	259.5	155	54	120	14	61
SAB*A-65F	210	199	347.5	175	68	140	16	101
SAB*A-80F	240	214	367.5	185	82	150	16	111

## Optional dimensions

- Mounting plate  
SAB\*A-8A/10A-\* [B]



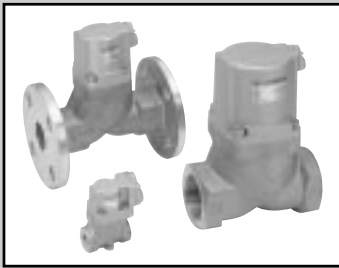
- Mounting plate  
SAB\*A-15A to 32A-\* [B] / [B-R]



\*Drawing indicates [B].

Model no.	P	Q	R	S	T
SAB*A-15A	90	70	39	2.3	30
SAB*A-20A	90	70	48.5	2.3	30
SAB*A-25A	95	75	52	3.2	40
SAB*A-32A	105	85	66.5	3.2	45

\*Use the body installation setscrews if fixed without mounting plate.  
(Thread size: M4 depth 8 pitch 19)



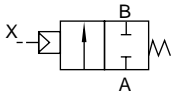
Air operated 2 port valve  
(Cylinder valve)

# SAB\*V Series

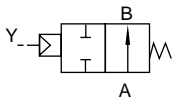
- NC (normally closed) type, NO (normally open) type, double acting type
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Low vacuum

## JIS symbol

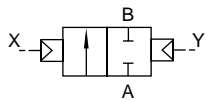
- NC (normally closed) type



- NO (normally open) type



- Double acting type



## Common specifications

Descriptions	SAB1V	SAB2V	SAB3V
Actuation	NC (normally closed) type	NO (normally open) type	Double acting type
Working fluid	Low vacuum (air, water) (*1)		
Fluid viscosity mm <sup>2</sup> /s	500 or less		
Working pressure range Pa (abs)	1.3 x 10 <sup>2</sup> to 7 x 10 <sup>5</sup> . (Note that this differs with the type, so refer to the working pressure range in each model's specifications.)		
Withstanding pressure (water) MPa	2.0		
Fluid temperature °C	-10 to 60 (no freezing) (*2)		
Ambient temperature °C	-10 to 60		
Valve seat leakage Pa·m <sup>3</sup> /s He	1.33 x 10 <sup>-3</sup> or less		
Mounting attitude	Free		

\*1: Refer to working fluid check list on Intro 14.

\*2: Sealant fluoro rubber (FKM) is -10 to 90°C.

## Individual specifications

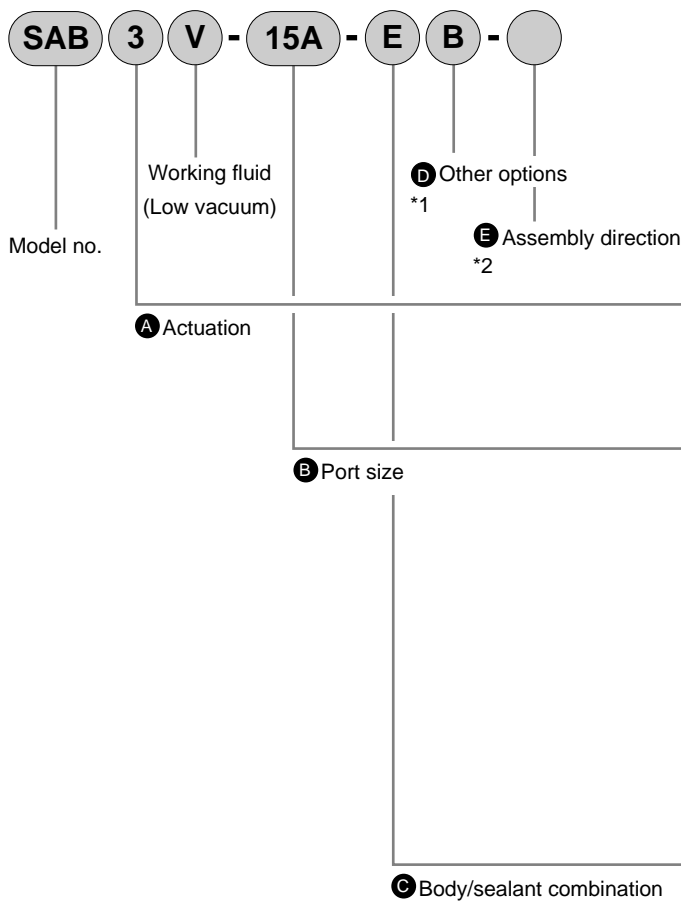
Descriptions Model no.	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s·bar)]	b	S (mm <sup>2</sup> )	Working pressure range Pa (abs)			Pilot air pressure (MPa)			Pilot port size	Weight (kg)		
						NC type	NO type	Double act	NC type	NO type	Double act		NC type	NO type	Double act
SAB*V-8A	Rc1/4	10	8.9	0.4	-	1.3 x 10 <sup>2</sup> to 7 x 10 <sup>5</sup>	1.3 x 10 <sup>2</sup> to 1 x 10 <sup>6</sup>	0.35 to 0.7	(*1)	Rc1/8	0.3				
SAB*V-10A	Rc3/8	10	12	0.3	0.3										
SAB*V-15A	Rc1/2	15	-	-	0.6										
SAB*V-20A	Rc3/4	16	-	-	0.8										
SAB*V-25A	Rc1	20	-	-	1.1										
SAB*V-32A	Rc1 1/4	26	-	-	450	1.3 x 10 <sup>2</sup> to 5 x 10 <sup>5</sup>	1.3 x 10 <sup>2</sup> to 1 x 10 <sup>6</sup>	0.25 to 0.7	(*1)	Rc1/8	2.3	2.2	2.2		
SAB*V-32F	32 flange	26	-	-	450						5.3	5.2	5.2		
SAB*V-40A	Rc1 1/2	32	-	-	680						3.4	3.2	3.2		
SAB*V-40F	40 flange	32	-	-	680						6.5	6.3	6.3		
SAB*V-50A	Rc2	42	-	-	1020						5.5	5.2	5		
SAB*V-50F	50 flange	42	-	-	1020	9.4	9.1	8.9							

\*1: Refer to Intro 11 for the pilot air pressure of the NO type or double acting type.

\*2: Effective sectional area S and sonic conductance C are converted as  $S \cong 5.0 \times C$ .



### How to order



Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type
3	Double acting type

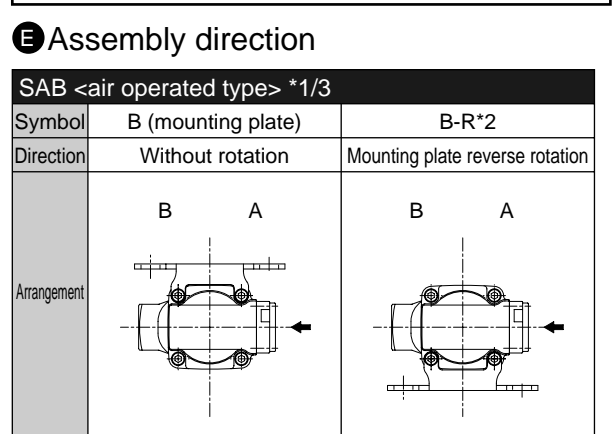
<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange

<b>C Body/sealant combination</b>			
		Body	Sealant
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene diene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene diene rubber

<b>D Other options</b>	
Blank	No option
B	Mounting plate

<b>E Assembly direction</b>	
Blank	No option
R	Mounting plate assembly position reverse rotation

Refer to the following diagram for the layout drawing.



← indicates pilot port IN.

### ⚠ Note on model no. selection

\*1: Mounting plate (B in **D**) can be installed for port size 8A to 32A.

\*2: Mounting plate assembly position reverse rotation (B-R in **D**) is for port size 15A to 32A.

\*3: Clockwise viewed from above with port A facing right.

<Example of model number>

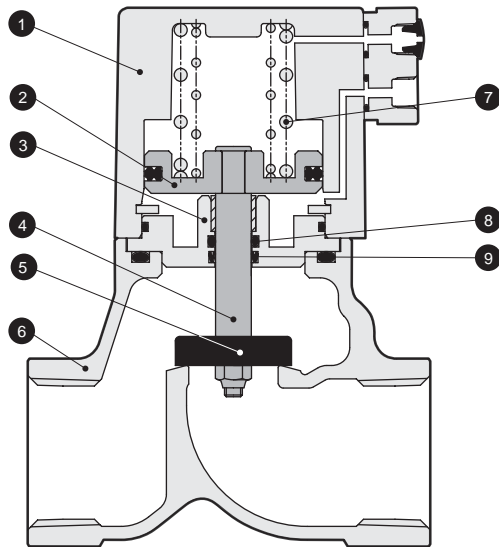
### SAB3V-15A-EB

Model: SAB

- A** Actuation : Double acting type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body-stainless steel and sealant-fluoro rubber
- D** Other options : Mounting plate
- E** Assembly direction : No option

## Internal structure and parts list

● SAB1 V

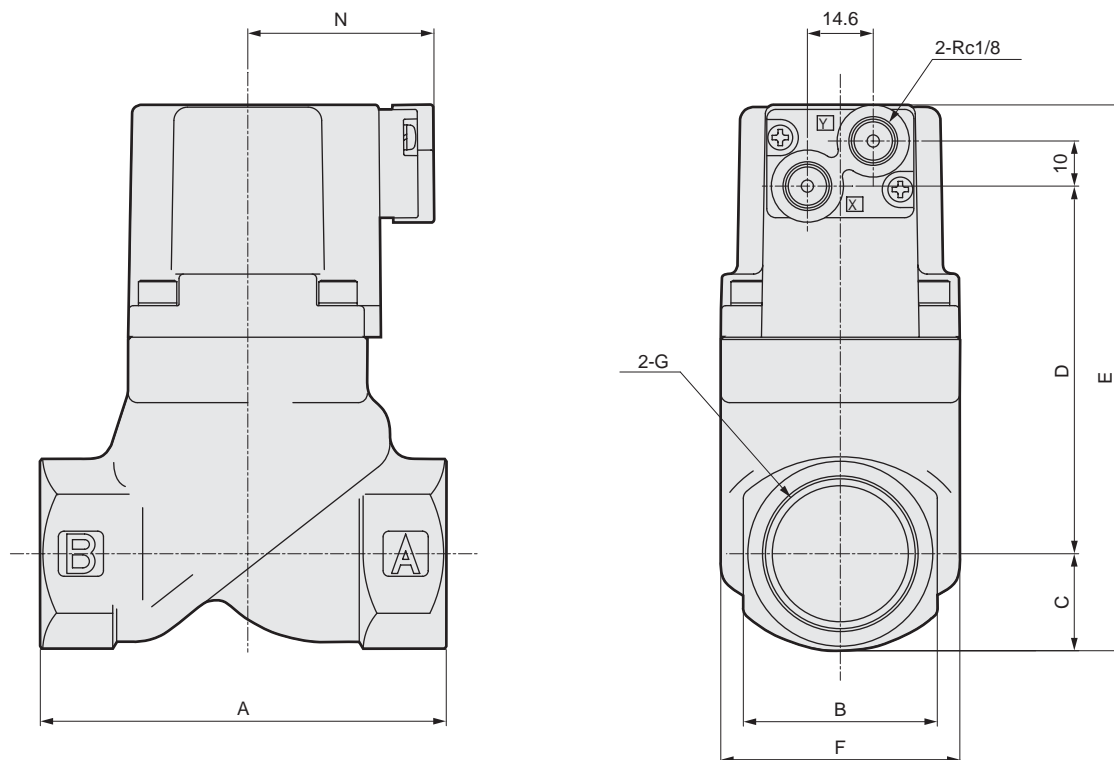


No.	Parts name	Material	
1	Cylinder guard	ADC12	Aluminum alloy die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604 (SUS304)	Brass (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR (FKM and EPDM) SUS304	Nitrile rubber (fluoro, ethylene propylene diene) Stainless steel
6	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O ring	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)
9	MY packing seal	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)

The value in parentheses is for an option.

## Dimensions

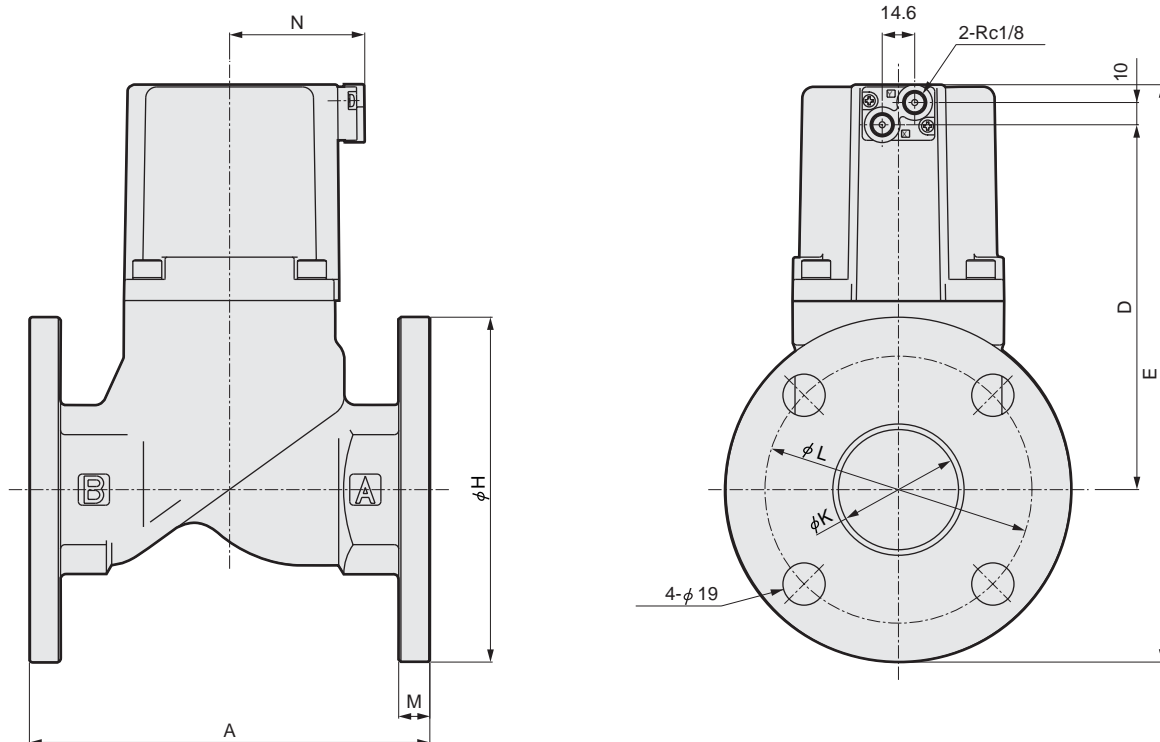
● SAB\*V-8A to 50A (Rc screw in type)



Model no.	A	B	C	D	E	F	G	N
SAB*V-8A	50	24	12	41.5	71.5	32	Rc1/4	37
SAB*V-10A							Rc3/8	
SAB*V-15A	71	28	14.5	61.5	94	43	Rc1/2	38
SAB*V-20A	80	35	17.5	71	106.5	43	Rc3/4	38
SAB*V-25A	90	43	21	81.5	120.5	53	Rc1	41.5
SAB*V-32A	125	55	27.5	109.5	155	63	Rc1 1/4	46
SAB*V-40A	140	61	30.5	130.5	179	77	Rc1 1/2	53
SAB*V-50A	160	76	38	164	220	95	Rc2	61

### Dimensions

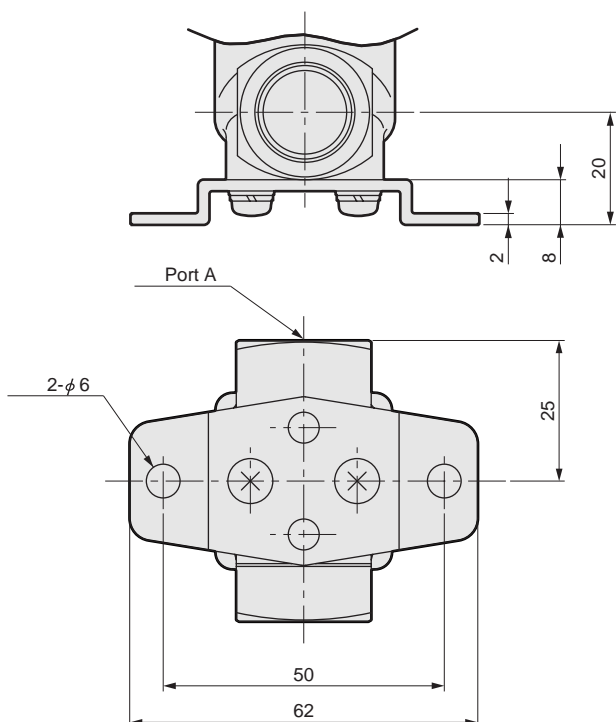
- SAB\*V-32F to 50F (flange type)



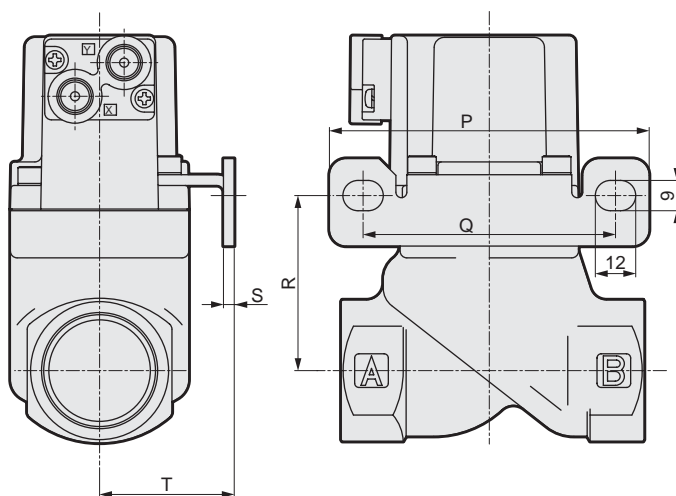
Model no.	A	D	E	H	K	L	M	N
SAB*V-32F	170	109.5	195	135	36	100	12	46
SAB*V-40F	180	130.5	218.5	140	42	105	12	53
SAB*V-50F	180	164	259.5	155	54	120	14	61

### Optional dimensions

- Mounting plate  
SAB\*V-8A/10A-\* [B]



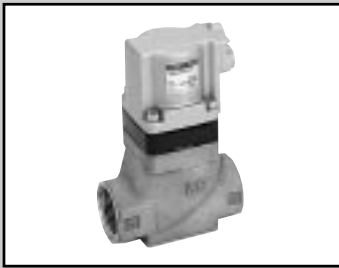
- Mounting plate  
SAB\*V-15A to 32A-\* [B] / [B-R]



\*Drawing indicates [B].

Model no.	P	Q	R	S	T
SAB*V-15A	90	70	39	2.3	30
SAB*V-20A	90	70	48.5	2.3	30
SAB*V-25A	95	75	52	3.2	40
SAB*V-32A	105	85	66.5	3.2	45

\*Use the body installation setscrews if fixed without mounting plate.  
(Thread size: M4 depth 8 pitch 19)



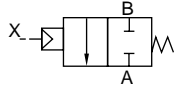
Air operated 2 port valve  
(Cylinder valve)

# SAB\*S Series

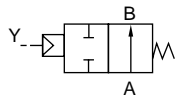
- NC (normally closed) type, NO (normally open) type, double acting type
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Steam, water, air

## JIS symbol

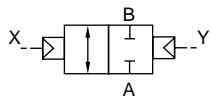
- NC (normally closed) type



- NO (normally open) type



- Double acting type



## Common specifications

Descriptions	SAB1S	SAB2S	SAB3S
Actuation	NC (normally closed) type	NO (normally open) type	Double acting type
Working fluid	Steam, water, air, non-corrosive fluids (*1)		
Liquid viscosity mm <sup>2</sup> /S	500 or less		
Working pressure range MPa	0 to 1		
Withstanding pressure (with water pressure) MPa	2.0		
Pilot air pressure MPa	0.35 to 0.7	Refer to Intro 11.	
Fluid temperature °C	-10 to 184 (no freezing)		
Ambient temperature °C	-10 to 90		
Valve seat leakage cm <sup>3</sup> /min	300 or less (with pneumatics 0.02 to 1MPa)		
Mounting attitude	Free		

\*1: Refer to working fluid check list on Intro 14.

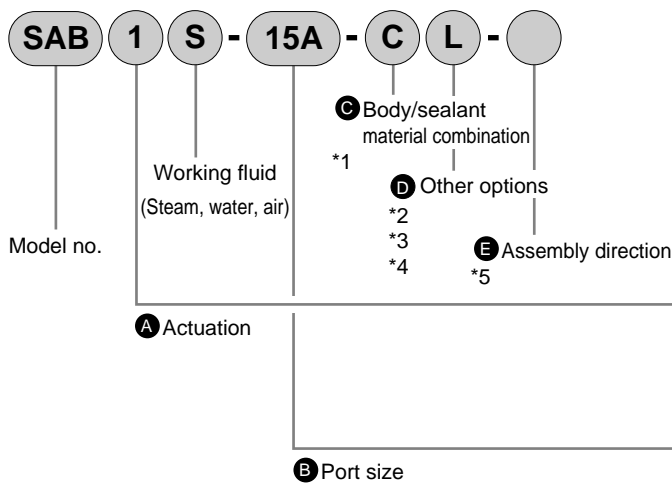
## Individual specifications

Descriptions	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s·bar)]	b	S (mm <sup>2</sup> )	Cv flow factor	Pilot port size	Weight (kg)
NC type: normally closed								
SAB1S-8A	Rc1/4	10	8.3	0.4	-	2.1	Rc1/8	0.3
SAB1S-10A	Rc3/8	10	11	0.4	-	2.5		0.3
SAB1S-15A	Rc1/2	15	-	-	120	5.5		0.6
SAB1S-20A	Rc3/4	16	-	-	150	7		0.8
SAB1S-25A	Rc1	20	-	-	240	11		1.1
SAB1S-32A	Rc1 1/4	26	-	-	390	18.5		2.2
SAB1S-32F	32 flange	26	-	-	390	18.5		5.2
SAB1S-40A	Rc1 1/2	32	-	-	610	29		3.2
SAB1S-40F	40 flange	32	-	-	610	29		6.3
SAB1S-50A	Rc2	42	-	-	920	43		5.2
SAB1S-50F	50 flange	42	-	-	920	43	9.1	
NO type: normally open								
SAB2S-8A	Rc1/4	10	8.9	0.4	-	2.3	Rc1/8	0.3
SAB2S-10A	Rc3/8	10	12	0.3	-	2.6		0.3
SAB2S-15A	Rc1/2	15	-	-	140	5.6		0.6
SAB2S-20A	Rc3/4	16	-	-	180	8		0.8
SAB2S-25A	Rc1	20	-	-	280	12		1.1
SAB2S-32A	Rc1 1/4	26	-	-	450	20		2.2
SAB2S-32F	32 flange	26	-	-	450	20		5.2
SAB2S-40A	Rc1 1/2	32	-	-	680	32		3.2
SAB2S-40F	40 flange	32	-	-	680	32		6.3
SAB2S-50A	Rc2	42	-	-	1020	50		5.2
SAB2S-50F	50 flange	42	-	-	1020	50	9.1	
Double acting type (*1)								
SAB3S-8A	Rc1/4	10	8.3 (8.9)	0.4	-	2.1 (2.3)	Rc1/8	0.3
SAB3S-10A	Rc3/8	10	11 (12)	0.4 (0.3)	-	2.5 (2.6)		0.3
SAB3S-15A	Rc1/2	15	-	-	120 (140)	5.5 (5.6)		0.6
SAB3S-20A	Rc3/4	16	-	-	150 (180)	7 (8)		0.8
SAB3S-25A	Rc1	20	-	-	240 (280)	11 (12)		1.1
SAB3S-32A	Rc1 1/4	26	-	-	390 (450)	18.5 (20)		2.2
SAB3S-32F	32 flange	26	-	-	390 (450)	18.5 (20)		5.2
SAB3S-40A	Rc1 1/2	32	-	-	610 (680)	29 (32)		3.2
SAB3S-40F	40 flange	32	-	-	610 (680)	29 (32)		6.3
SAB3S-50A	Rc2	42	-	-	920 (1020)	43 (50)		5.2
SAB3S-50F	50 flange	42	-	-	920 (1020)	43 (50)	9.1	

\*1: Values given in parentheses ( ) for the double-acting type's C, b, and S values are the flow rate when port A is pressurized.

\*2: Effective sectional area S and sonic conductance C are converted as  $S \cong 5.0 \times C$ .

### How to order



Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type
3	Double acting type

<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange

<b>C Body/sealant combination</b>				
	Body	Sealant	O ring	Remarks
C	Bronze	Tetrafluoroethylene resin	Fluoro rubber	Steam/air/ water
E	Stainless steel	Tetrafluoroethylene resin	Fluoro rubber	
F	Stainless steel	Tetrafluoroethylene resin	Tetrafluoroethylene resin	Solvent

<b>D Other options</b>	
Blank	No option
B	Mounting plate
L	With indicator

<b>E Assembly direction</b>	
Blank	No option
R	Mounting plate assembly position reverse rotation

Refer to the following diagram for the layout drawing.

### ⚠ Note on model no. selection

- \*1: Select C or E for steam.
- \*2: Mounting plate (B in **D**) can be installed for port size 8A to 32A.
- \*3: Indicator (L in **D**) is installed for only actuation 1: NC type.
- \*4: Indicate BL in **D** if both mounting plate and indicator are selected.
- \*5: Mounting plate assembly position reverse rotation (B-R in **E**) applies to port size 15A to 32A.
- \*6: Clockwise viewed from above with port A facing right.

<Example of model number>

### SAB1S-15A-CL

Model: SAB

- A** Actuation : NC (normally closed) type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body - bronze, sealant - tetrafluoroethylene resin
- D** Other options : With indicator
- E** Assembly direction : No option

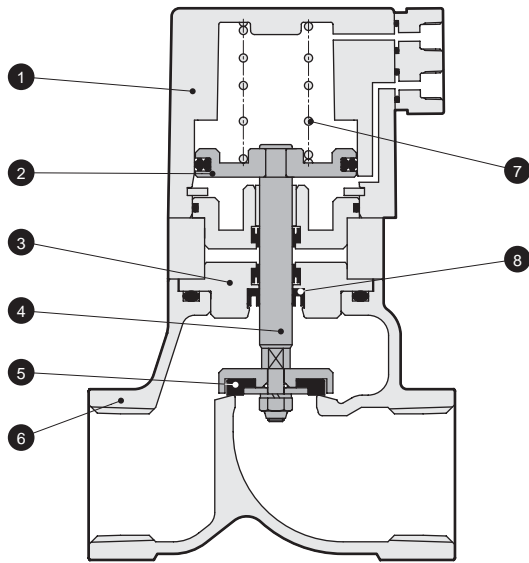
### **E** Assembly direction

SAB <air operated type> *2 · 6		
Symbol	B (mounting plate)	B-R *5
Direction	Without rotation	Mounting plate reverse rotation
Arrangement		

← indicates pilot port IN.

## Internal structure and parts list

● SAB1S

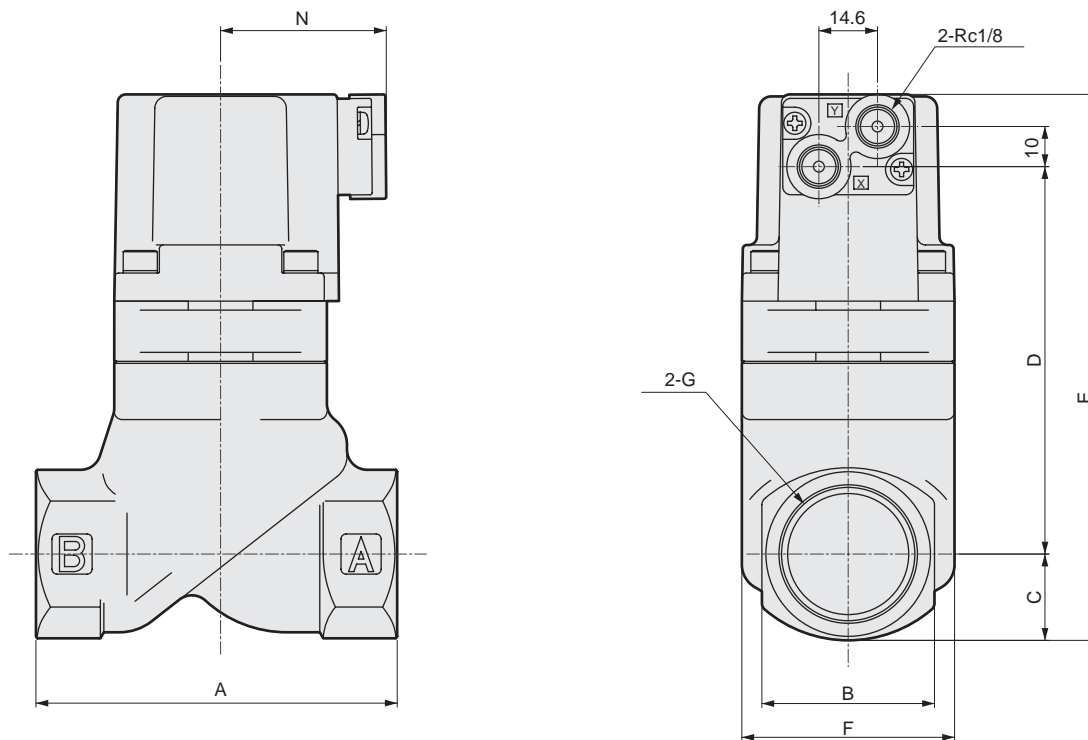


No.	Parts name	Material	
1	Cylinder guard	ADC12	Aluminum alloy die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604 (SUS304)	Brass (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	PTFE	Tetrafluoroethylene resin
6	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	Rod packing seal	PTFE	Tetrafluoroethylene resin

The value in parentheses is for an option.

## Dimensions

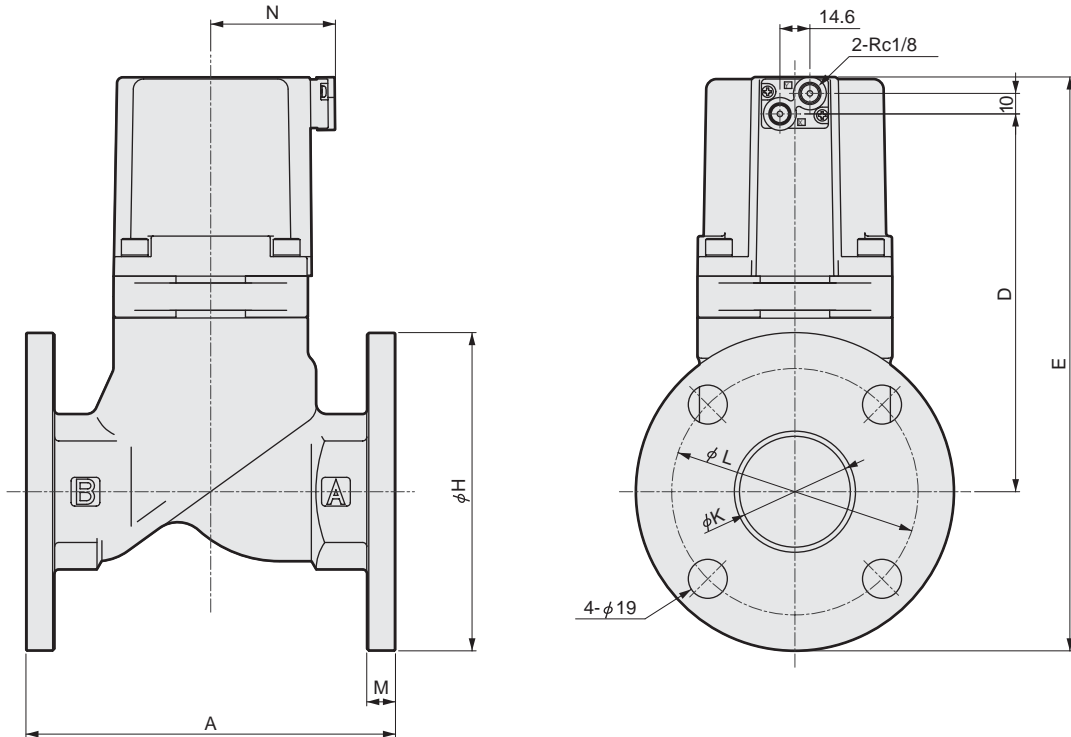
● SAB\*S-8A to 50A (Rc screw-in type)



Model no.	A	B	C	D	E	F	G	N
SAB*S-8A	50	24	12	52.5	82.5	32	Rc1/4	37
SAB*S-10A							Rc3/8	
SAB*S-15A	71	28	14.5	77.5	110	43	Rc1/2	38
SAB*S-20A	80	35	17.5	87	122.5	43	Rc3/4	38
SAB*S-25A	90	43	21	98	137	53	Rc1	41.5
SAB*S-32A	125	55	27.5	124.5	170	63	Rc1 1/4	46
SAB*S-40A	140	61	30.5	150.5	199	77	Rc1 1/2	53
SAB*S-50A	160	76	38	184	240	95	Rc2	61

### Dimensions

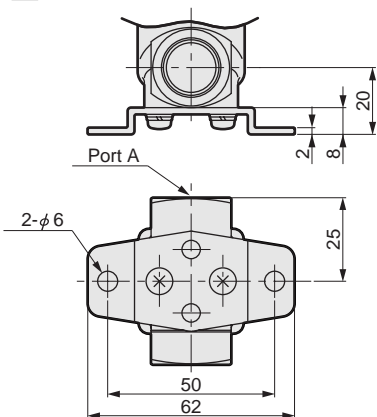
- SAB\*S-32F to 50F (flange type)



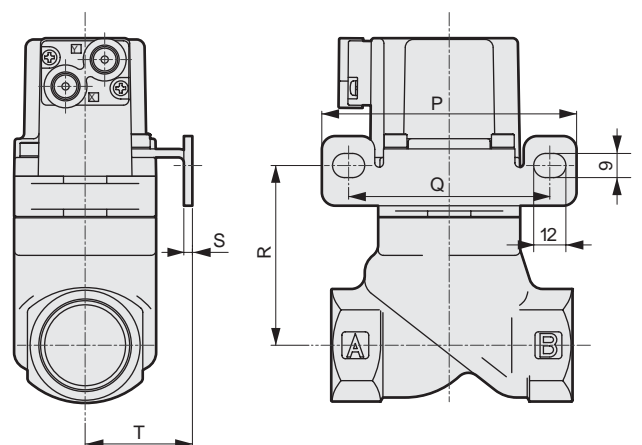
Model no.	A	D	E	H	K	L	M	N
SAB*S-32F	170	124.5	210	135	36	100	12	46
SAB*S-40F	180	150.5	238.5	140	42	105	12	53
SAB*S-50F	180	184	279.5	155	54	120	14	61

### Optional dimensions

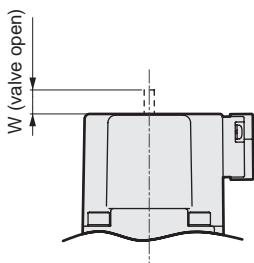
- Mounting plate  
SAB\*S-8A/10A-\* **B**



- Mounting plate  
SAB\*S-15A to 32A-\* **B** / **B-R**



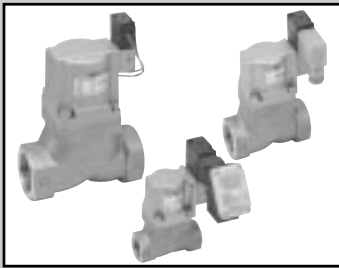
- Indicator  
SAB1S-8A to 50<sup>A</sup><sub>F</sub>-\* **L**



Model no.	W
SAB1S-8A	4
SAB1S-10A	4
SAB1S-15A	6.5
SAB1S-20A	6.5
SAB1S-25A	7
SAB1S-32A/F	8
SAB1S-40A/F	10.5
SAB1S-50A/F	13

- \*Drawing indicates **B**.

Model no.	P	Q	R	S	T
SAB*S-15A	90	70	55	2.3	30
SAB*S-20A	90	70	65	2.3	30
SAB*S-25A	95	75	68.5	3.2	40
SAB*S-32A	105	85	86.5	3.2	45



Air operated 2 port valve with solenoid valve  
(Cylinder valve)

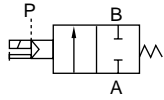
# SVB\*W Series

- NC (normally closed), NO (normally open) types
- Port size: Rc 1/4 to Rc2, 32 to 80 flange
- Working fluid: Water or non-corrosive liquid

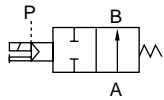


## JIS symbol

- NC (normally closed) type



- NO (normally open) type



## Common specifications

Descriptions	SVB1W	SVB2W
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Water, non-corrosive fluid (*1)	
Fluid viscosity mm <sup>2</sup> /s	500 or less	
Working pressure range MPa	0 to 0.7 (*2)	0 to 1
Withstanding pressure (with water pressure) MPa	2.0	
Fluid temperature °C	-10 to 60 (no freezing)	
Ambient temperature °C	-10 to 60	
Valve seat leakage cm <sup>3</sup> /min	0 (with water pressure)	
Mounting attitude	Free	
Water hammer (references) MPa	1 or less (caused by water supply law)	

\*1: Refer to working fluid check list on Intro 14.

\*2: Note that this differs with the type, so refer to the working pressure range in each model's specifications.

Electric specifications		
Rated voltage	100 VAC (50/60Hz)/110 VAC (60Hz), 200 VAC (50/60Hz)/220 VAC (60Hz), 24 VDC	
Apparent power (VA)	At holding	3.6 (50Hz), 2.8 (60Hz)
	At starting	11 (50Hz), 9 (60Hz)
Power consumption (W)	AC	1.9 (50Hz), 1.5 (60Hz)
	DC	2.0
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

Note 1: The allowable voltage range should be within  $\pm 10\%$  of rated voltage.



### Individual specifications

Descriptions Model no.	Port size	Orifice (mm)	Cv flow factor	Working pressure range (MPa)		Pilot air pressure (MPa)		Pilot Port size	Weight (kg)	
				NC type	NO type	NC type	NO type		NC type	NO type
SVB*W-8A	Rc1/4	10	2.3	0 to 0.7	0 to 1	0.35 to 0.7	(*1)	Rc1/8	0.5	
SVB*W-10A	Rc3/8	10	2.6						0.5	
SVB*W-15A	Rc1/2	15	5.6						0.8	
SVB*W-20A	Rc3/4	16	8						1	
SVB*W-25A	Rc1	20	12						1.3	
SVB*W-32A	Rc1 1/4	26	20	0 to 0.5	0 to 1	0.25 to 0.7	(*1)	Rc1/8	2.5	2.4
SVB*W-32F	32 flange	26	20						5.5	5.4
SVB*W-40A	Rc1 1/2	32	32						3.6	3.4
SVB*W-40F	40 flange	32	32						6.7	6.5
SVB*W-50A	Rc2	42	50						5.7	5.4
SVB*W-50F	50 flange	42	50						9.6	9.3
SVB*W-65F (*2)	65 flange	65	70						20.5	19
SVB*W-80F (*2)	80 flange	79	100						25	23

\*1: Refer to page 11 in the introduction for details on the pilot air pressure for NO type.

\*2: Port size 65 and 80 flanges are custom order.

## How to order

● With solenoid valve

**SVB** **1** **W** - **15A** - **B** **2G** **S** - **AC100V**

Working fluid (Water and liquid)

Model no. **A** Actuation

**B** Port size

**C** Body and sealant combination \*1

**D** Coil

**E** Other options \*2 \*3 \*4 \*5

**F** Assembly \*6 direction

Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type

<b>B Port size</b>	
8A	Rc 1/4
10A	Rc 3/8
15A	Rc 1/2
20A	Rc 3/4
25A	Rc 1
32A	Rc 1 1/4
32F	32 flange
40A	Rc 1 1/2
40F	40 flange
50A	Rc 2
50F	50 flange
65F	65 flange (custom order)
80F	80 flange (custom order)

<b>C Body and sealant combination</b>			
		Body	Sealant
<b>O</b>	Standard	Bronze	Nitrile rubber
<b>B</b>	Option	Bronze	Fluoro rubber
<b>P</b>		Bronze	Ethylene propylene diene rubber
<b>D</b>		Stainless steel	Nitrile rubber
<b>E</b>		Stainless steel	Fluoro rubber
<b>R</b>		Stainless steel	Ethylene propylene diene rubber

<b>D Coil</b>		
<b>2C</b>	Standard	Grommet lead wire
<b>2G</b>	Option	With DIN terminal box (Pg9)
<b>2H</b>		With DIN terminal box with indicator light (Pg9)
<b>3T</b>		T type terminal box (G1/2)
<b>3R</b>		With indicator light T type terminal box (G1/2)

<b>E Other options</b>	
<b>Blank</b>	No option
<b>S</b>	With surge suppressor
<b>B</b>	Mounting plate

<b>F Assembly direction</b>	
<b>Blank</b>	No option
<b>X</b>	Cylinder cover-90° rotation
<b>Y</b>	Cylinder cover-180° rotation
<b>Z</b>	Cylinder cover-270° rotation
<b>R</b>	Coil 180° reverse rotation <with solenoid valve> Mounting plate and coil 180° reverse rotation <with solenoid valve>

Refer to the following page for the layout drawing.

<b>G Voltage</b>	
<b>AC100V</b>	100 VAC 50/60Hz 110 VAC 60Hz
<b>AC200V</b>	200 VAC 50/60Hz 220 VAC 60Hz
<b>DC24V</b>	24 VDC

### Note on model no. selection

- \*1: Body/sealant combination symbol is O or B for port size 65F or 80F. Note that body is made from cast iron.
- \*2: Mounting plate (B in **E**) is installed for port size 8A to 32A.
- \*3: Indicate **E** as SB when both options, surge suppressor and mounting plate are selected.
- \*4: A surge suppressor is attached for the lead wire coil, while installed in the terminal box for the coil with terminal box
- \*5: A manual override (non-locking) is provided as standard specifications.
- \*6: Optional assembly directions are available for 8A to 50F.

<Example of model number>

**SVB1W-15A-B2GS-AC100V**

Model: SVB

- A** Actuation : NC (normally closed) type
- B** Port size : Rc1/2
- C** Body and sealant combination : Body-bronze and sealant-fluoro rubber
- D** Coil : With DIN terminal box (Pg9)
- E** Other options : With surge suppressor
- F** Assembly direction : No option
- G** Voltage : 100 VAC 50/60Hz and 110 VAC 60Hz

### F Assembly direction

SVB (with solenoid valve) *7					
Symbol	Blank (standard)	X *6	Y *6	Z *6	R *6
Direction	Without rotation	Cylinder cover-90° rotation	Cylinder cover-180° rotation	Cylinder cover-270° rotation	Coil reverse rotation
Arrangement					

SVB (with solenoid valve) *2, 7					
Symbol	B (mounting plate)	B-X *6	B-Y *6, 8	B-Z *6, 8	B-R *6, 9
Direction	Without rotation	Cylinder cover-90° rotation	Cylinder cover-180° rotation Mounting plate reverse rotation	Cylinder cover-270° rotation Mounting plate reverse rotation	Coil reverse rotation Mounting plate reverse rotation
Arrangement					

\*7: Facing A port to right and viewed from top, turning angle to clockwise is indicated.

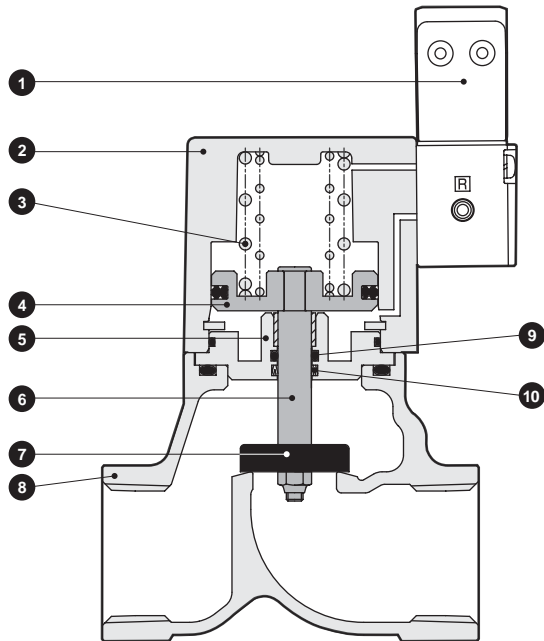
\*8: Mounting plate is assembled in the 180° opposite side.

\*9: Port size 10A installation plate is installed in the bottom, so the coil position is only reversed.

← indicates pilot port IN.

## Internal structure and parts list

● SVB1W



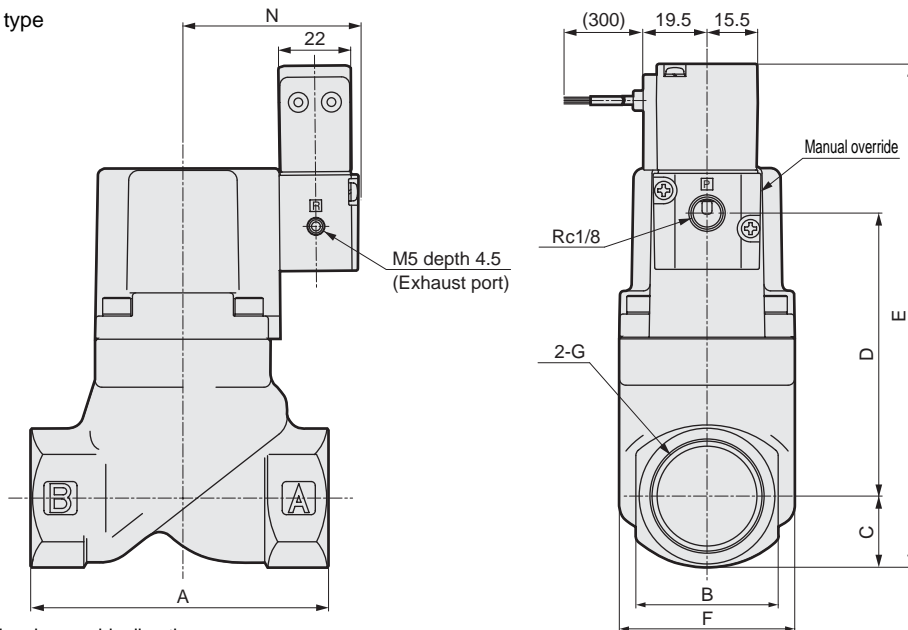
No.	Parts name	Material	
1	Pilot solenoid valve	-	-
2	Cylinder guard	ADC12	Aluminum alloy die-casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	C3604 (SUS304)	Brass (stainless steel)
6	Piston rod	SUS304	Stainless steel
7	Main valving element	NBR (FKM, EPDM) SUS304	Nitrile rubber (fluoro rubber and ethylene propylene diene rubber) Stainless steel
8	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
9	O ring	NBR (FKM, EPDM)	Nitrile rubber (fluoro and ethylene propylene diene)
10	MY packing seal	NBR (FKM, EPDM)	Nitrile rubber (fluoro and ethylene propylene diene)

\*1: The value in parentheses is for an option.

\*2: For 65F and 80F, the body is made from FC250 (cast iron), while the main valving element is made from FKM.

## Dimensions

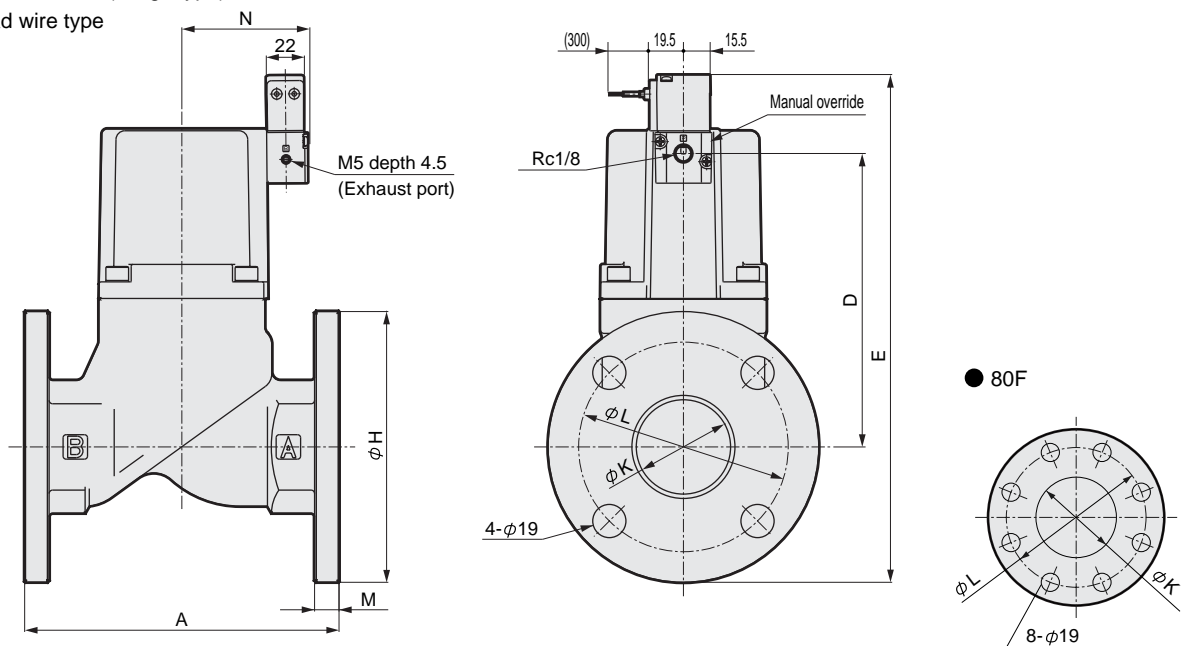
- SVB\*W-8A to 50A-\*2C (Rc screw in type)  
Grommet lead wire type



\*Drawing indicates no optional assembly directions.

Model no.	A	B	C	D	E	F	G	N
SVB*W-8A	50	24	12	45.5	102.5	32	Rc1/4	48.5
SVB*W-10A							Rc3/8	
SVB*W-15A	71	28	14.5	65.5	125	43	Rc1/2	49.5
SVB*W-20A	80	35	17.5	75	137.5	43	Rc3/4	49.5
SVB*W-25A	90	43	21	85.5	151.5	53	Rc1	53
SVB*W-32A	125	55	27.5	113.5	186	63	Rc1 1/4	57.5
SVB*W-40A	140	61	30.5	134.5	210	77	Rc1 1/2	64.5
SVB*W-50A	160	76	38	168	251	95	Rc2	72.5

- SVB\*W-32F to 80F-\*2C (flange type)  
Grommet lead wire type



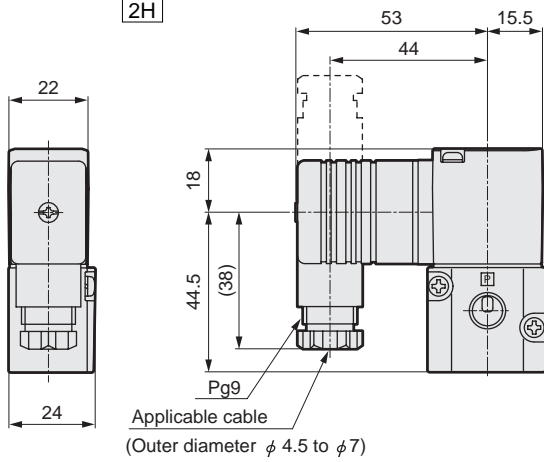
\*Drawing indicates no optional assembly directions.

Model no.	A	D	E	H	K	L	M	N
SVB*W-32F	170	113.5	226	135	36	100	12	57.5
SVB*W-40F	180	134.5	249.5	140	42	105	12	64.5
SVB*W-50F	180	168	291	155	54	120	14	72.5
SVB*W-65F	210	203	347.5	175	68	140	16	113
SVB*W-80F	240	218	367.5	185	82	150	16	123

## Optional dimensions

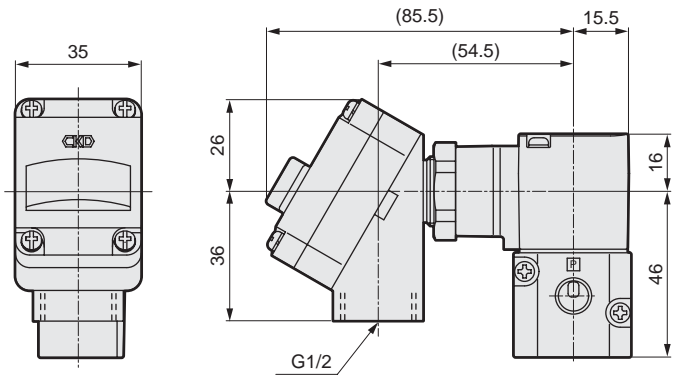
- With DIN terminal box (Pg9),  
with DIN terminal box with indicator light (Pg9)

SVB\*W-\*-\*  
2G  
2H



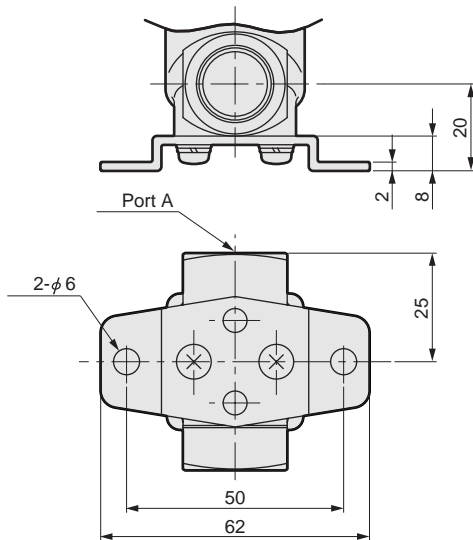
- With T type terminal box (G1/2),  
with T type terminal box with indicator light (G1/2)

SVB\*W-\*-\*  
3T  
3R



- Mounting plate

SVB\*W-8A/10A-\*-\*  
B

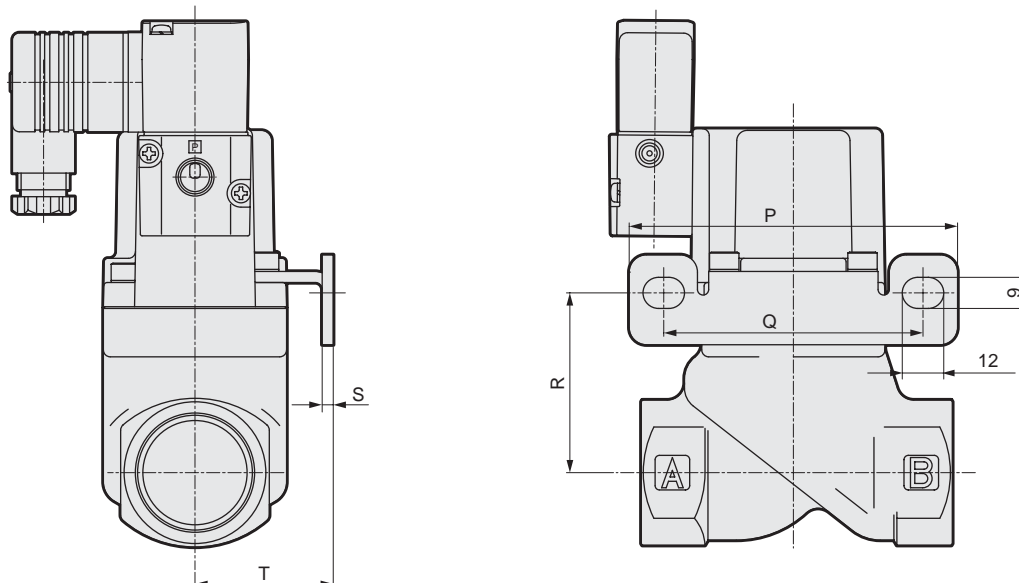


\*Use the body installation setscrews if fixed without mounting plate.  
 (Thread size: M4 depth 8 pitch 19)

## Optional dimensions

● Mounting plate

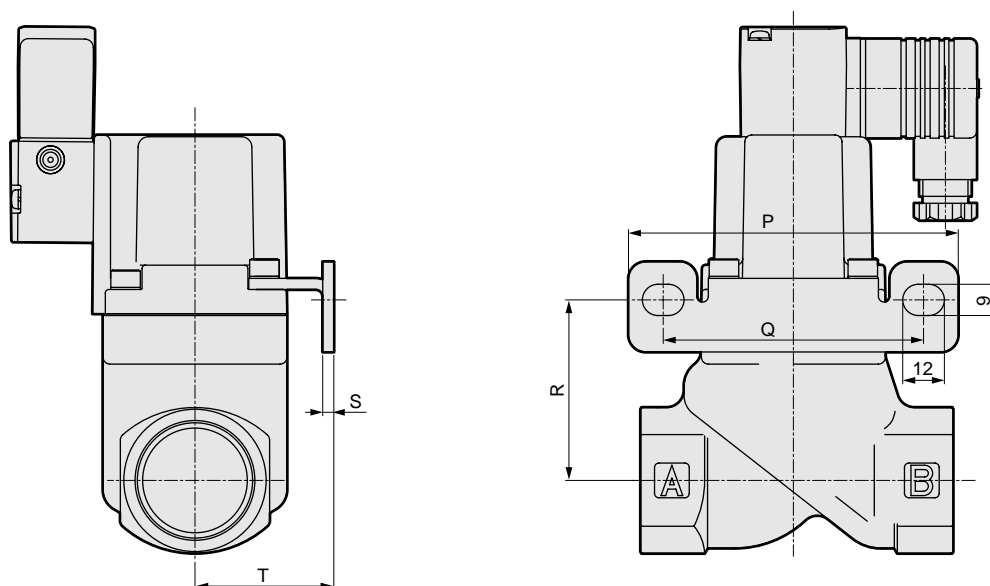
SVB\*W-15A to 32A-\*\* **B** / **B-R** / **B-Y**



\*Drawing indicates **B**.

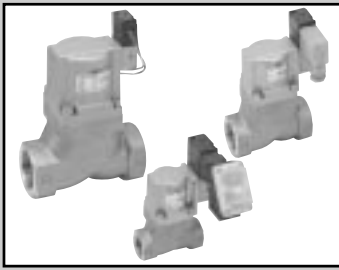
● Mounting plate

SVB\*W-15A to 32A-\*\* **B-X** / **B-Z**



\*Drawing indicates **B-X**.

Model no.	P	Q	R	S	T
SVB*W-15A	90	70	39	2.3	30
SVB*W-20A	90	70	48.5	2.3	30
SVB*W-25A	95	75	52	3.2	40
SVB*W-32A	105	85	66.5	3.2	45



Air operated 2 port valve with solenoid valve  
(Cylinder valve)

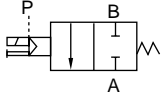
# SVB\* A Series

- NC (normally closed), NO (normally open) types
- Port size: Rc 1/4 to Rc2, 32 to 80 flange
- Working fluid: Air, inert gas

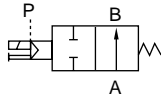


## JIS symbol

- NC (normally closed) type



- NO (normally open) type



## Common specifications

Descriptions	SVB1A	SVB2A
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Air/inert gas (*1)	
Working pressure range MPa	0 to 0.9	0 to 1
Withstanding pressure (water) MPa	2.0	
Pilot air pressure MPa	0.35 to 0.7	Refer to Intro 11.
Fluid temperature °C	-10 to 60 (no freezing)	
Ambient temperature °C	-10 to 60	
Valve seat leakage cm <sup>3</sup> /min.	0.12 or less (with pneumatics)	
Mounting attitude	Free	

\*1: Refer to working fluid check list on Intro 14.

Electric specifications		
Rated voltage	100 VAC (50/60Hz)/110 VAC (60Hz), 200 VAC (50/60Hz)/220 VAC (60Hz), 24 VDC	
Apparent power (VA)	At holding	3.6 (50Hz), 2.8 (60Hz)
	At starting	11 (50Hz), 9 (60Hz)
Power consumption (W)	AC	1.9 (50Hz), 1.5 (60Hz)
	DC	2.0
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

Note 1: The allowable voltage range should be within  $\pm 10\%$  of rated voltage.

## Individual specifications

Descriptions Model no.	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s·bar)]	b	S (mm <sup>2</sup> )	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
<b>NC (normally closed) type</b>								
SVB1A-8A	Rc1/4	10	8.3	0.4	-	0.5	Rc1/8	0.5
SVB1A-10A	Rc3/8	10	11	0.4	-			0.5
SVB1A-15A	Rc1/2	15	-	-	120	0.1		0.8
SVB1A-20A	Rc3/4	16	-	-	150			1
SVB1A-25A	Rc1	20	-	-	240			1.3
SVB1A-32A	Rc1 1/4	26	-	-	390			2.4
SVB1A-32F	32 flange	26	-	-	390			5.4
SVB1A-40A	Rc1 1/2	32	-	-	610			3.4
SVB1A-40F	40 flange	32	-	-	610			6.5
SVB1A-50A	Rc2	42	-	-	920			5.4
SVB1A-50F	50 flange	42	-	-	920			9.3
SVB1A-65F (*2)	65 flange	65	-	-	1290			19.5
SVB1A-80F (*2)	80 flange	79	-	-	1840	23.5		
<b>NO (normally open) type</b>								
SVB2A-8A	Rc1/4	10	8.9	0.4	-	0.1	Rc1/8	0.5
SVB2A-10A	Rc3/8	10	12	0.3	-			0.5
SVB2A-15A	Rc1/2	15	-	-	140	0.05		0.8
SVB2A-20A	Rc3/4	16	-	-	180			1
SVB2A-25A	Rc1	20	-	-	280			1.3
SVB2A-32A	Rc1 1/4	26	-	-	450			2.4
SVB2A-32F	32 flange	26	-	-	450			5.4
SVB2A-40A	Rc1 1/2	32	-	-	680			3.4
SVB2A-40F	40 flange	32	-	-	680			6.5
SVB2A-50A	Rc2	42	-	-	1020			5.4
SVB2A-50F	50 flange	42	-	-	1020			9.3
SVB2A-65F (*2)	65 flange	65	-	-	1290			19
SVB2A-80F (*2)	80 flange	79	-	-	1840	23		

\*1: Refer to page 11 in the introduction for details on the pilot air pressure for NO type.

\*2: Port size 65 and 80 flanges are custom order.

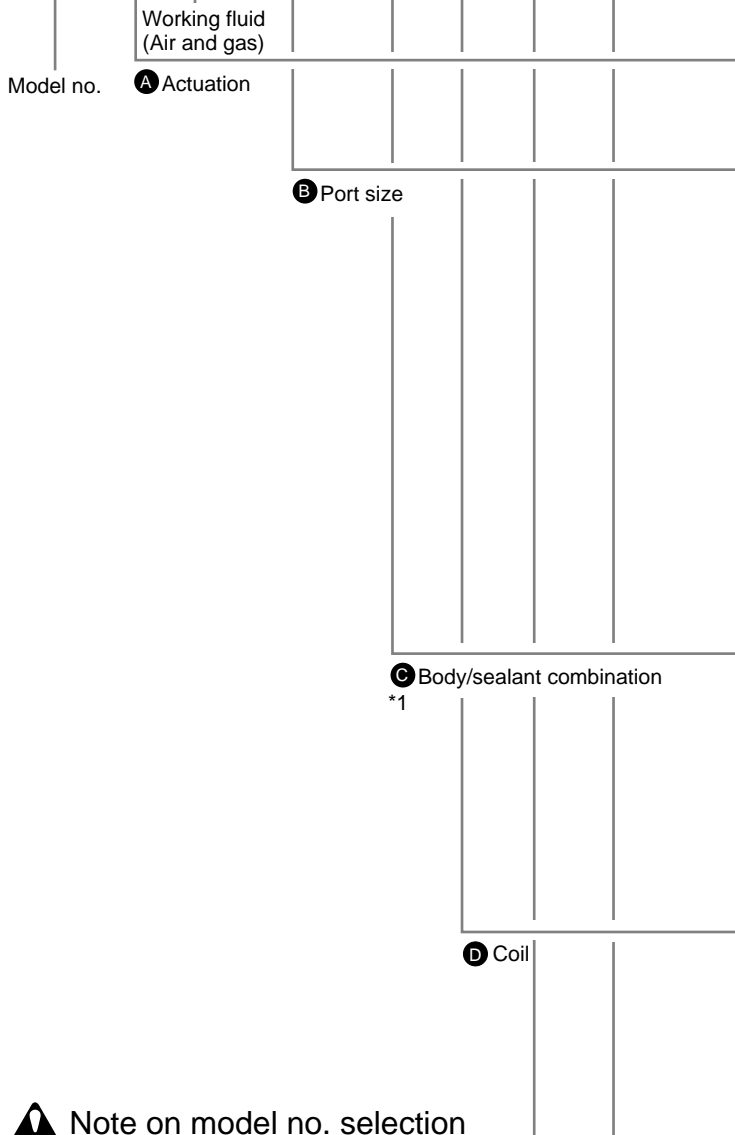
\*3: Effective sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .



### How to order

● With solenoid valve

**SVB** **1** **A** - **15A** - **B** **2G** **S** - **AC100V**



Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type

<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange
65F	65 flange (custom order)
80F	80 flange (custom order)

<b>C Body/sealant combination</b>			
		Body	Sealant
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene diene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene diene rubber

<b>D Coil</b>		
2C	Standard	Grommet lead wire
2G	Option	With DIN terminal box (Pg9)
2H		With DIN terminal box with indicator light (Pg9)
3T		T type terminal box (G1/2)
3R		With T type terminal box with indicator light (G1/2)

<b>E Other options</b>	
Blank	No option
S	With surge suppressor
B	Mounting plate

<b>F Assembly direction</b>	
Blank	No option
X	Cylinder guard 90° rotation
Y	Cylinder guard 180° rotation
Z	Cylinder guard 270° rotation
R	Coil 180° reverse rotation <with solenoid valve> Mounting plate/coil 180° reverse rotation <with solenoid valve>

Refer to Page 20 for the layout drawing.

<b>G Voltage</b>	
AC100V	100 VAC 50/60Hz 110 VAC 60Hz
AC200V	200 VAC 50/60Hz 220 VAC 60Hz
DC24V	24 VDC

### Note on model no. selection

- \*1: Body/sealant combination symbol is O or B for port size 65F or 80F. Note that the body is made from cast iron.
- \*2: Mounting plate (B in **E**) can be installed for port size 8A to 32A.
- \*3: Indicate SB in **E** if both surge suppressor and mounting plate are selected.
- \*4: A surge suppressor is attached for the lead wire coil, while assembled in the terminal box for the coil with terminal box.
- \*5: Manual override (non-locking) specifications are provided as standard.
- \*6: Optional assembly directions are available for 8A to 50F.

<Example of model number>

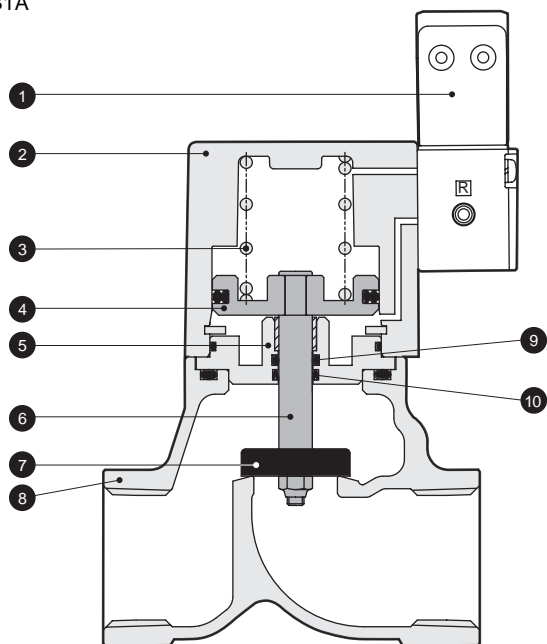
**SVB1A-15A-B2GS-AC100V**

Model: SVB

- A** Actuation : NC (normally closed) type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body-bronze and sealant-fluoro rubber
- D** With coil : DIN terminal box (Pg9)
- E** Other options : With surge suppressor
- F** Assembly direction : No option
- G** Voltage : 100 VAC 50/60Hz and 110 VAC 60Hz

## Internal structure and parts list

### ● SVB1A



No.	Parts name	Material	
1	Pilot solenoid valve	-	-
2	Cylinder guard	ADC12	Aluminum alloy die-casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	C3604 (SUS304)	Brass (stainless steel)
6	Piston rod	SUS304	Stainless steel
7	Main valving element	NBR (FKM and EPDM) SUS304	Nitrile rubber (fluoro, ethylene propylene diene) Stainless steel
8	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
9	O ring	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)
10	MY packing seal	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)

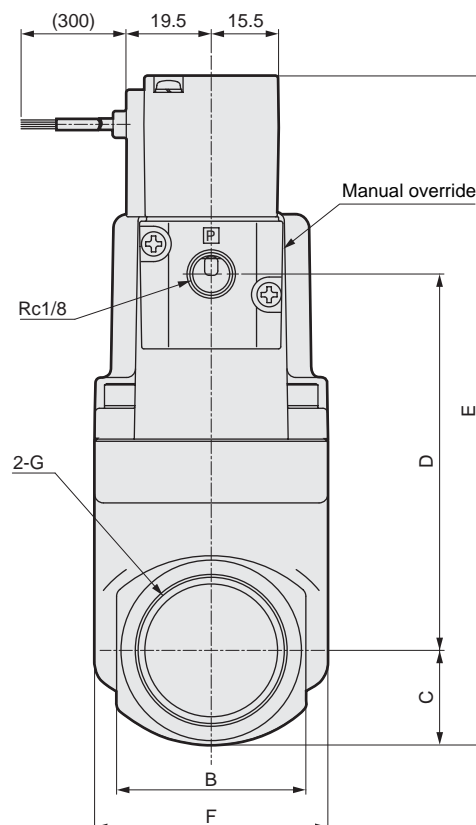
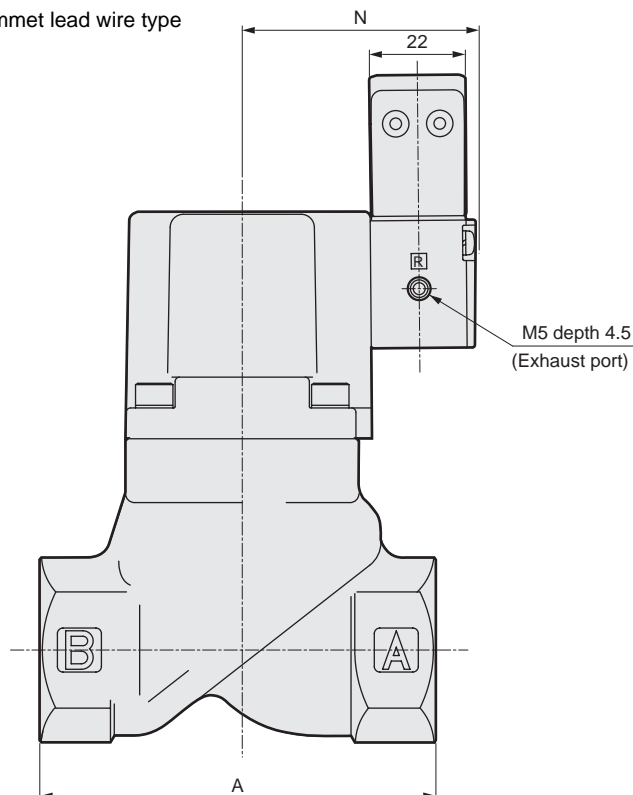
\*1: The value in parentheses is for an option.

\*2: For 65F and 80F, the body is made from FC250 (cast iron), while main valving element is made from FKM.

## Dimensions

### ● SVB\*A-8A to 50A\*2C (Rc screw-in type)

Grommet lead wire type

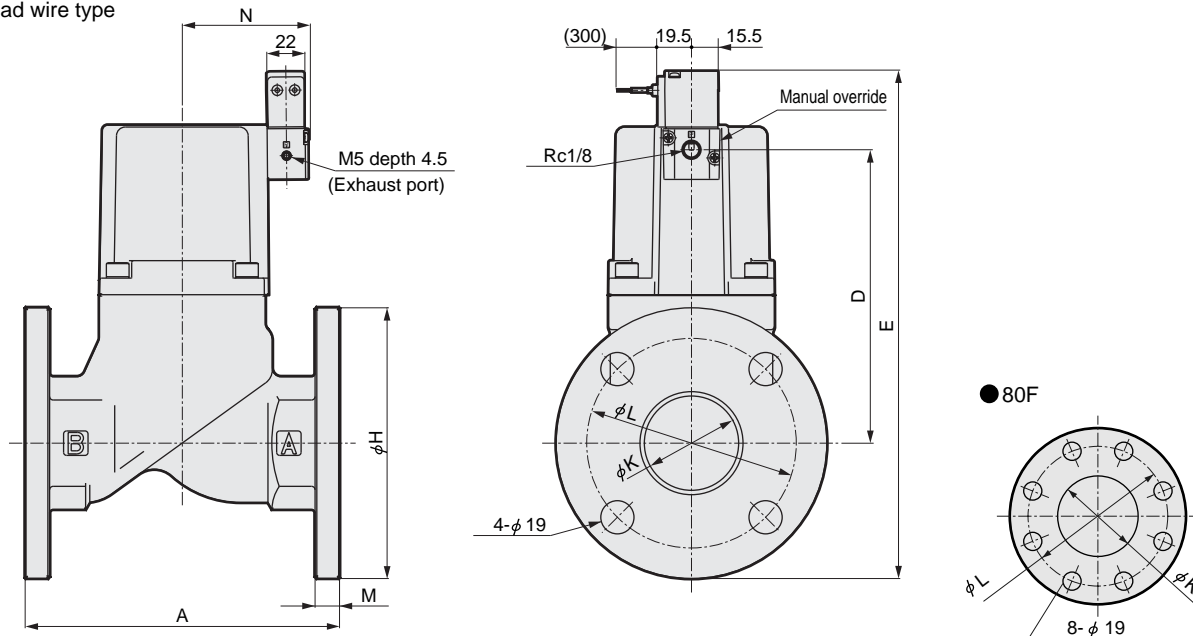


\*Drawing indicates no optional assembly direction.

Model no.	A	B	C	D	E	F	G	N
SVB*A-8A	50	24	12	45.5	102.5	32	Rc1/4	48.5
SVB*A-10A							Rc3/8	
SVB*A-15A	71	28	14.5	65.5	125	43	Rc1/2	49.5
SVB*A-20A	80	35	17.5	75	137.5	43	Rc3/4	49.5
SVB*A-25A	90	43	21	85.5	151.5	53	Rc1	53
SVB*A-32A	125	55	27.5	113.5	186	63	Rc1 1/4	57.5
SVB*A-40A	140	61	30.5	134.5	210	77	Rc1 1/2	64.5
SVB*A-50A	160	76	38	168	251	95	Rc2	72.5

### Dimensions

- SVB\*A-32F to 80F-\*2C (flange type)  
Grommet lead wire type

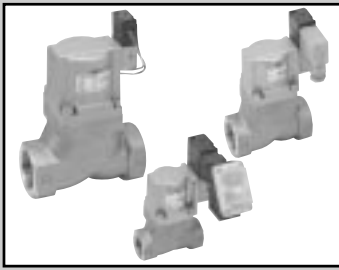


\*Drawing indicates no optional assembly direction.

Model no.	A	D	E	H	K	L	M	N
SVB*A-32F	170	113.5	226	135	36	100	12	57.5
SVB*A-40F	180	134.5	249.5	140	42	105	12	64.5
SVB*A-50F	180	168	291	155	54	120	14	72.5
SVB*A-65F	210	203	347.5	175	68	140	16	113
SVB*A-80F	240	218	367.5	185	82	150	16	123

### Optional dimensions

DIN terminal box, T type terminal box and mounting plate are same as SVB\*W Series. Refer to Page 23 and 24.



Air operated 2 port valve with solenoid valve  
(Cylinder valve)

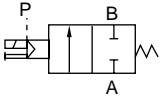
# SVB\*V Series

- NC (normally closed), NO (normally open) types
- Port size: Rc 1/4 to Rc2, 32 to 50 flange
- Working fluid: Low vacuum

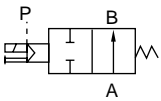


## JIS symbol

- NC (normally closed) type



- NO (normally open) type



## Common specifications

Descriptions	SVB1V	SVB2V
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Low vacuum (air, water) (*1)	
Fluid viscosity mm <sup>2</sup> /s	500 or less	
Working pressure range Pa (abs)	1.3 x 10 <sup>2</sup> to 7 x 10 <sup>5</sup> . (Note that this differs with the type, so refer to the working pressure range in each model's specifications.)	
Withstanding pressure (water) MPa	2.0	
Fluid temperature °C	-10 to 60 (no freezing)	
Ambient temperature °C	-10 to 60	
Valve seat leakage Pa·m <sup>3</sup> /s He	1.33 x 10 <sup>-3</sup> or less	
Mounting attitude	Free	

\*1: Refer to working fluid check list on Intro 14.

Electric specifications		
Rated voltage	100 VAC (50/60Hz)/110 VAC (60Hz), 200 VAC (50/60Hz)/220 VAC (60Hz), 24 VDC	
Apparent power (VA)	At holding	3.6 (50Hz), 2.8 (60Hz)
	At starting	11 (50Hz), 9 (60Hz)
Power consumption (W)	AC	1.9 (50Hz), 1.5 (60Hz)
	DC	2.0
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

Note 1: The allowable voltage range should be within ±10% of rated voltage.

## Individual specifications

Descriptions Model no.	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s·bar)]	b	S (mm <sup>2</sup> )	Working pressure range Pa (abs)		Pilot air pressure (MPa)		Pilot Port size	Weight (kg)		
						NC type	NO type	NC type	NO type		NC type	NO type	
SVB*V-8A	Rc1/4	10	8.3	0.4	-	1.3 x 10 <sup>2</sup> to 7 x 10 <sup>5</sup>	1.3 x 10 <sup>2</sup> to 1 x 10 <sup>6</sup>	0.35 to 0.7	(*1)	Rc1/8	0.5		
SVB*V-10A	Rc3/8	10	12	0.3	0.5								
SVB*V-15A	Rc1/2	15	-	-	140							0.8	
SVB*V-20A	Rc3/4	16	-	-	180							1	
SVB*V-25A	Rc1	20	-	-	280							1.3	
SVB*V-32A	Rc1 1/4	26	-	-	450	1.3 x 10 <sup>2</sup> to 5 x 10 <sup>5</sup>	1.3 x 10 <sup>2</sup> to 1 x 10 <sup>6</sup>	0.25 to 0.7	(*1)	Rc1/8	2.5	2.4	
SVB*V-32F	32 flange	26	-	-	450						5.5	5.4	
SVB*V-40A	Rc1 1/2	32	-	-	680						3.6	3.4	
SVB*V-40F	40 flange	32	-	-	680						6.7	6.5	
SVB*V-50A	Rc2	42	-	-	1020						5.7	5.4	
SVB*V-50F	50 flange	42	-	-	1020						9.6	9.3	

\*1: Refer to page 11 in the introduction for details on the pilot air pressure for NO type.

### How to order

● With solenoid valve

**SVB** **1** **V** - **15A** - **B** **2G** **S** - **AC100V**

Model no. **A** Actuation  
Working fluid (Low vacuum)

**B** Port size

**C** Body/sealant combination

**D** Coil

**E** Other options

**F** Assembly direction

**G** Voltage

Symbol	Descriptions
<b>A Actuation</b>	
1	NC (normally closed) type
2	NO (normally open) type

<b>B Port size</b>	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange

<b>C Body/sealant combination</b>			
		Body	Sealant
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene diene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene diene rubber

<b>D Coil</b>		
2C	Standard	Grommet lead wire
2G	Option	With DIN terminal box (Pg9)
2H		With DIN terminal box with indicator light (Pg9)
3T		T type terminal box (G1/2)
3R		With T type terminal box with indicator light (G1/2)

<b>E Other options</b>	
Blank	No option
S	With surge suppressor
B	Mounting plate

<b>F Assembly direction</b>	
Blank	No option
X	Cylinder guard 90° rotation
Y	Cylinder guard 180° rotation
Z	Cylinder guard 270° rotation
R	Coil 180° reverse rotation <with solenoid valve> Mounting plate/coil 180° reverse rotation <with solenoid valve>

Refer to Page 20 for the layout drawing.

<b>G Voltage</b>	
AC100V	100 VAC 50/60Hz 110 VAC 60Hz
AC200V	200 VAC 50/60Hz 220 VAC 60Hz
DC24V	24 VDC

### Note on model no. selection

\*1: Mounting plate (B in **E**) can be installed for port size 8A to 32A.

\*2: Indicate SB in **E** if both surge suppressor and mounting plate are selected.

\*3: A surge suppressor is attached for the lead wire coil, while assembled in the terminal box for the coil with terminal box.

\*4: Manual override (non-locking) specifications are provided as standard.

<Example of model number>

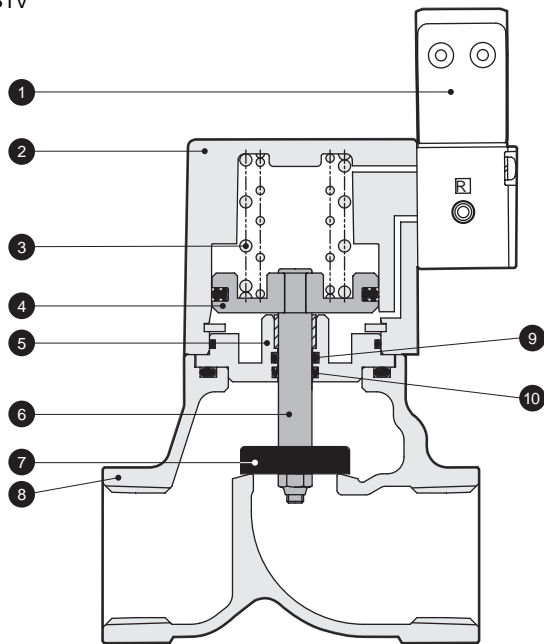
**SVB1V-15A-B2GS-AC100V**

Model: SVB

- A** Actuation : NC (normally closed) type
- B** Port size : Rc1/2
- C** Body/sealant combination : Body-bronze and sealant-fluoro rubber
- D** Coil : With DIN terminal box (Pg9)
- E** Other options : With surge suppressor
- F** Assembly direction : No option
- G** Voltage : 100 VAC 50/60Hz and 110 VAC 60Hz

## Internal structure and parts list

### ● SVB1V



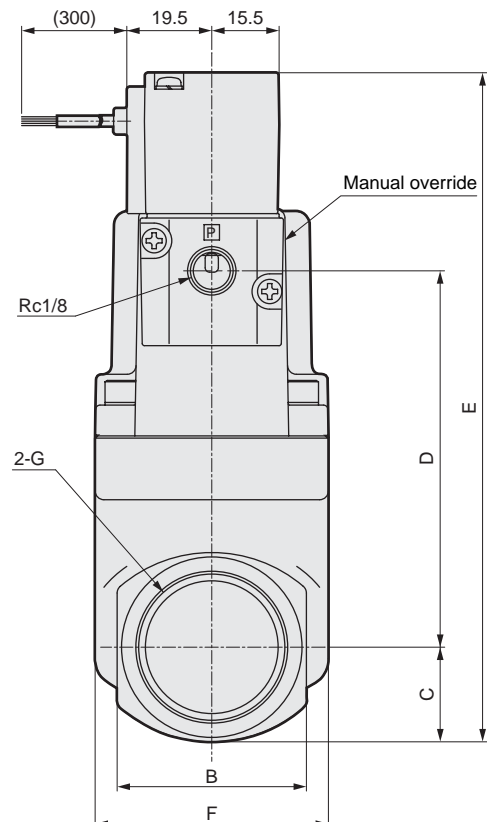
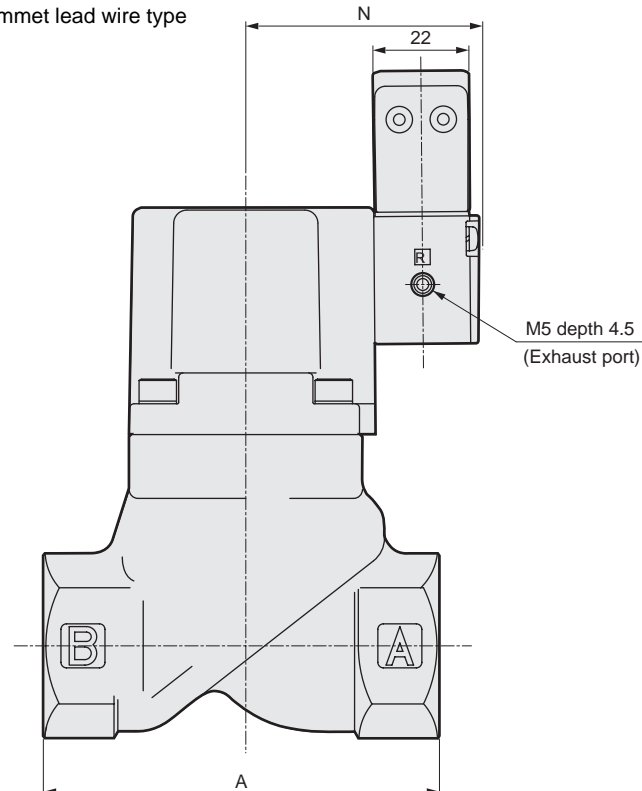
No.	Parts name	Material	
1	Pilot solenoid valve	-	-
2	Cylinder guard	ADC12	Aluminum alloy die-casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	C3604 (SUS304)	Brass (stainless steel)
6	Piston rod	SUS304	Stainless steel
7	Main valving element	NBR (FKM and EPDM) SUS304	Nitrile rubber (fluoro, ethylene propylene diene) Stainless steel
8	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
9	O ring	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)
10	MY packing seal	NBR (FKM and EPDM)	Nitrile rubber (fluoro, ethylene propylene diene)

The value in parentheses is for an option.

## Dimensions

### ● SVB\*V-8A to 50A\*2C (Rc screw-in type)

Grommet lead wire type

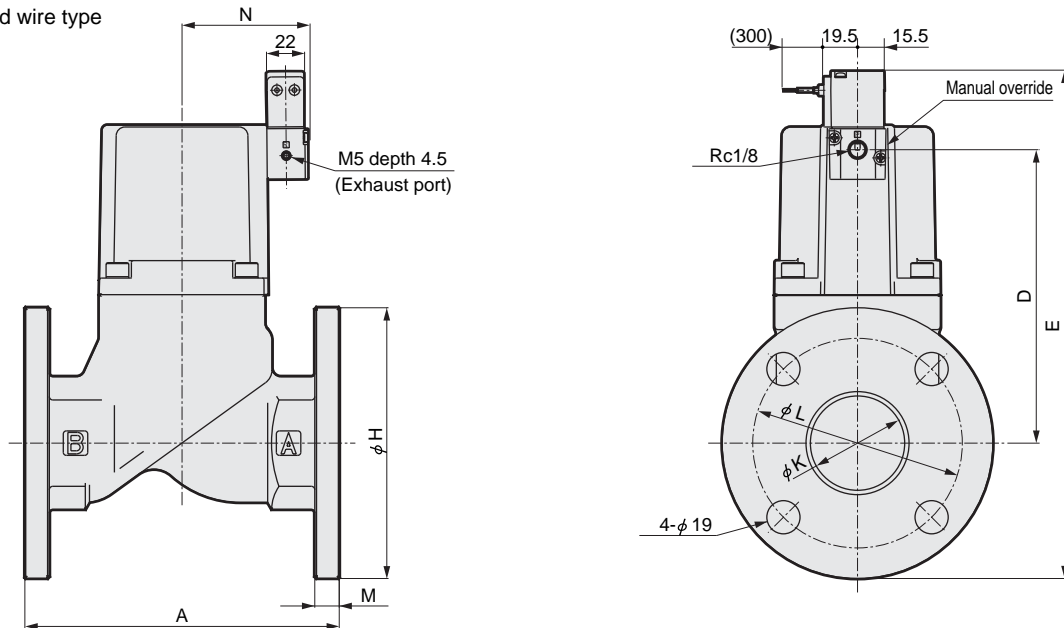


\*Drawing indicates no optional assembly direction.

Model no.	A	B	C	D	E	F	G	N
SVB*V-8A	50	24	12	45.5	102.5	32	Rc1/4	48.5
SVB*V-10A							Rc3/8	
SVB*V-15A	71	28	14.5	65.5	125	43	Rc1/2	49.5
SVB*V-20A	80	35	17.5	75	137.5	43	Rc3/4	49.5
SVB*V-25A	90	43	21	85.5	151.5	53	Rc1	53
SVB*V-32A	125	55	27.5	113.5	186	63	Rc1 1/4	57.5
SVB*V-40A	140	61	30.5	134.5	210	77	Rc1 1/2	64.5
SVB*V-50A	160	76	38	168	251	95	Rc2	72.5

### Dimensions

- SVB\*V-32F to 50F-\*2C (flange type)  
Grommet lead wire type

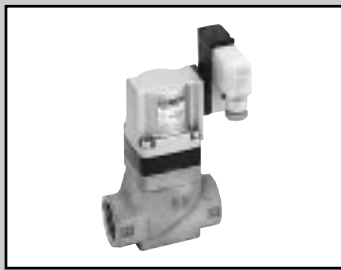


\*Drawing indicates no optional assembly direction.

Model no.	A	D	E	H	K	L	M	N
SVB*V-32F	170	113.5	226	135	36	100	12	57.5
SVB*V-40F	180	134.5	249.5	140	42	105	12	64.5
SVB*V-50F	180	168	291	155	54	120	14	72.5

### Optional dimensions

DIN terminal box, T type terminal box and mounting plate are same as SVB\*W Series. Refer to Page 23 and 24.



Air operated 2 port valve with solenoid valve  
(Cylinder valve)

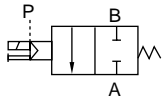
# SVB\*S Series

- NC (normally closed), NO (normally open) types
- Port size: Rc 1/4 to Rc2, 32 to 50 flange
- Working fluid: Steam, water, air

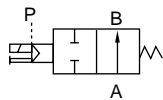


## JIS symbol

● NC (normally closed) type



● NO (normally open) type



## Common specifications

Descriptions	SVB1S	SVB2S
Actuation	NC (normally closed) type	NO (normally open) type
Working fluid	Steam, water, air, non-corrosive fluids (*1)	
Liquid viscosity mm <sup>2</sup> /S	500 or less	
Working pressure range MPa	0 to 1	
Withstanding pressure (water) MPa	2.0	
Pilot air pressure MPa	0.35 to 0.7	Refer to Intro 11.
Fluid temperature °C	-10 to 184 (no freezing)	
Ambient temperature °C	-10 to 60	
Valve seat leakage cm <sup>3</sup> /min.	300 or less (with pneumatics 0.02 to 1MPa)	
Mounting attitude	Free	

\*1: Refer to working fluid check list on Intro 14.

Electric specifications		
Rated voltage	100 VAC (50/60Hz)/110 VAC (60Hz), 200 VAC (50/60Hz)/220 VAC (60Hz), 24 VDC	
Apparent power (VA)	At holding	3.6 (50Hz), 2.8 (60Hz)
	At starting	11 (50Hz), 9 (60Hz)
Power consumption (W)	AC	1.9 (50Hz), 1.5 (60Hz)
	DC	2.0
Heat proof class	B	
Protective structure (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	T type terminal box (G1/2)	IPX5

Note 1: The allowable voltage range should be within ± 10% of rated voltage.

## Individual specifications

Descriptions	Port size	Orifice (mm)	C [dm <sup>3</sup> /(s·bar)]	b	S (mm <sup>2</sup> )	Cv flow factor	Pilot port size	Weight (kg)
NC type: normally closed								
SVB1S-8A	Rc1/4	10	8.3	0.4	-	2.1	Rc1/8	0.5
SVB1S-10A	Rc3/8	10	11	0.4	-	2.5		0.5
SVB1S-15A	Rc1/2	15	-	-	120	5.5		0.8
SVB1S-20A	Rc3/4	16	-	-	150	7		1
SVB1S-25A	Rc1	20	-	-	240	11		1.4
SVB1S-32A	Rc1 1/4	26	-	-	390	18.5		2.6
SVB1S-32F	32 flange	26	-	-	390	18.5		5.6
SVB1S-40A	Rc1 1/2	32	-	-	610	29		3.7
SVB1S-40F	40 flange	32	-	-	610	29		6.8
SVB1S-50A	Rc2	42	-	-	920	43		5.6
SVB1S-50F	50 flange	42	-	-	920	43	9.5	
NO type: normally open								
SVB2S-8A	Rc1/4	10	8.9	0.4	-	2.3	Rc1/8	0.5
SVB2S-10A	Rc3/8	10	12	0.3	-	2.6		0.5
SVB2S-15A	Rc1/2	15	-	-	140	5.6		0.8
SVB2S-20A	Rc3/4	16	-	-	180	8		1
SVB2S-25A	Rc1	20	-	-	280	12		1.4
SVB2S-32A	Rc1 1/4	26	-	-	450	20		2.6
SVB2S-32F	32 flange	26	-	-	450	20		5.6
SVB2S-40A	Rc1 1/2	32	-	-	680	32		3.7
SVB2S-40F	40 flange	32	-	-	680	32		6.8
SVB2S-50A	Rc2	42	-	-	1020	50		5.6
SVB2S-50F	50 flange	42	-	-	1020	50	9.5	

\*1: Refer to page 11 in the introduction for details on the pilot air pressure for NO type.



### How to order

● With solenoid valve

**SVB** **1** **S** - **15A** - **E** **2G** **L** - **AC100V**

Working fluid  
(Steam, water, air)

Model no.

**A** Actuation

**B** Port size

**C** Body/sealant combination

\*1

**D** Coil

**E** Other options

**F** Assembly direction

**G** Voltage

Symbol	Descriptions			
<b>A Actuation</b>				
1	NC (normally closed) type			
2	NO (normally open) type			
<b>B Port size</b>				
8A	Rc1/4			
10A	Rc3/8			
15A	Rc1/2			
20A	Rc3/4			
25A	Rc1			
32A	Rc1 1/4			
32F	32 flange			
40A	Rc1 1/2			
40F	40 flange			
50A	Rc2			
50F	50 flange			
<b>C Body/sealant combination</b>				
	Body	Sealant	O ring	Remarks
C	Bronze	Tetrafluoroethylene resin	Fluoro rubber	Steam/air/
E	Stainless steel	Tetrafluoroethylene resin	Fluoro rubber	water
F	Stainless steel	Tetrafluoroethylene resin	Tetrafluoroethylene resin	Solvent
<b>D Coil</b>				
2C	Standard	Grommet lead wire		
2G	Option	With DIN terminal box (Pg9)		
2H		With DIN terminal box with indicator light (Pg9)		
3T		T type terminal box (G1/2)		
3R		With T type terminal box with indicator light (G1/2)		
<b>E Other options</b>				
Blank	No option			
S	With surge suppressor			
B	Mounting plate			
L	With indicator			
<b>F Assembly direction</b>				
Blank	No option			
X	Cylinder guard 90° rotation			
Y	Cylinder guard 180° rotation			
Z	Cylinder guard 270° rotation			
R	Coil 180° reverse rotation <with solenoid valve> Mounting plate/coil 180° reverse rotation <with solenoid valve>			
Refer to Page 20 for the layout drawing.				
<b>G Voltage</b>				
AC100V	100 VAC 50/60Hz 110 VAC 60Hz			
AC200V	200 VAC 50/60Hz 220 VAC 60Hz			
DC24V	24 VDC			

### Note on model no. selection

\*1: Select C or E for steam.

\*2: Mounting plate (B in **E**) can be installed for port size 8A to 32A.

\*3: Indicator (L in **E**) is installed for only actuation 1: NC type.

\*4: Indicate as followings if options are selected **E**.

Surge suppressor + mounting plate → SB

Surge suppressor + indicator → SL

Mounting plate + indicator → BL

Surge suppressor + mounting plate + indicator → SBL

\*5: A surge suppressor is attached for the lead wire coil, while assembled in the terminal box for the coil with terminal box.

\*6: Manual override (non-locking) specifications are provided as standard.

<Example of model number>

**SVB1S-15A-E2GL-AC100V**

Model: SVB

**A** Actuation : NC (normally closed) type

**B** Port size : Rc1/2

**C** Body/sealant combination

: Body-stainless steel and sealant-tetrafluoroethylene resin

**D** With coil : DIN terminal box (Pg9)

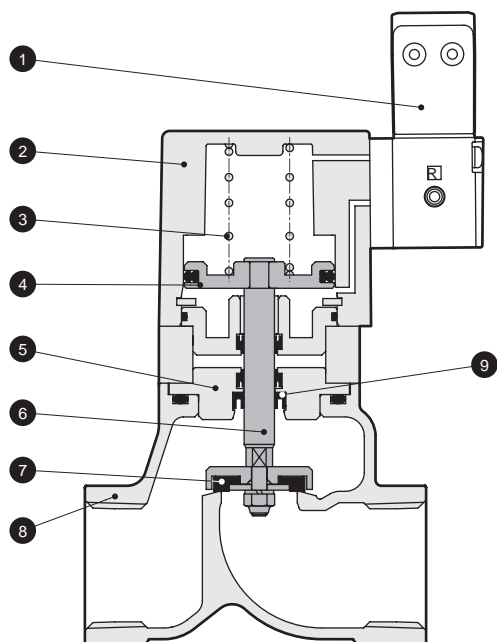
**E** Other options : With indicator

**F** Assembly direction : No option

**G** Voltage : 100 VAC 50/60Hz and 110 VAC 60Hz

## Internal structure and parts list

● SVB1S



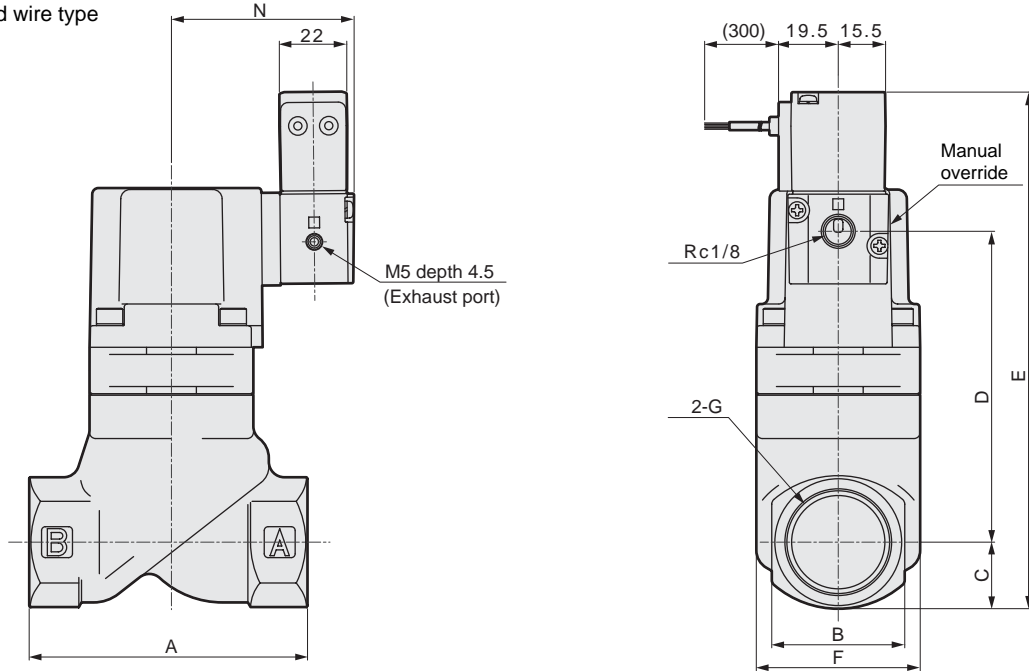
No.	Parts name	Material	
1	Pilot solenoid valve	-	-
2	Cylinder guard	ADC12	Aluminum alloy die-casting
3	Spring	SWP	Piano wire
4	Piston	A2017	Aluminum
5	Adaptor	C3604 (SUS304)	Brass (stainless steel)
6	Piston rod	SUS304	Stainless steel
7	Main valving element	PTFE	Tetrafluoroethylene resin
8	Body	CAC407 (SCS13)	Bronze casting (stainless steel casting)
9	Rod packing seal	PTFE	Tetrafluoroethylene resin

The value in parentheses is for an option.

### Dimensions

● SVB\*S-8A to 50A-\*2C (Rc screw-in type)

Grommet lead wire type

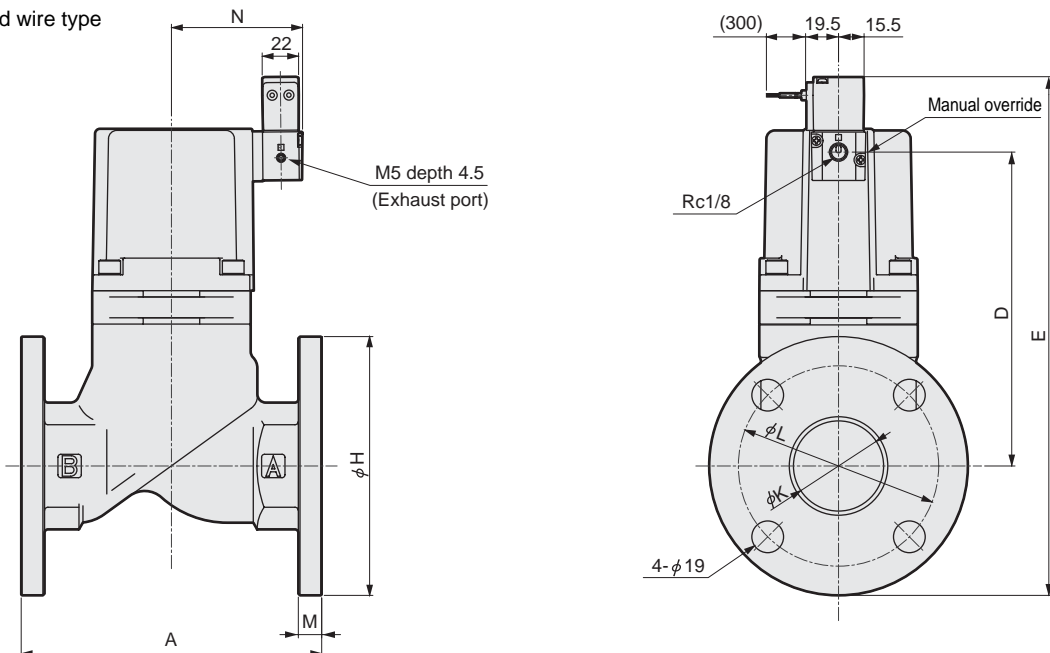


\*Drawing indicates no optional assembly direction.

Model no.	A	B	C	D	E	F	G	N
SVB*S-8A	50	24	12	56.5	113.5	32	Rc1/4	54.5
SVB*S-10A							Rc3/8	
SVB*S-15A	71	28	14.5	81.5	141	43	Rc1/2	55.5
SVB*S-20A	80	35	17.5	91	153.5	43	Rc3/4	55.5
SVB*S-25A	90	43	21	102	168	53	Rc1	59
SVB*S-32A	125	55	27.5	128.5	201	63	Rc1 1/4	63.5
SVB*S-40A	140	61	30.5	154.5	230	77	Rc1 1/2	70.5
SVB*S-50A	160	76	38	188	271	95	Rc2	78.5

● SVB\*S-32F to 50F-\*2C (flange type)

Grommet lead wire type

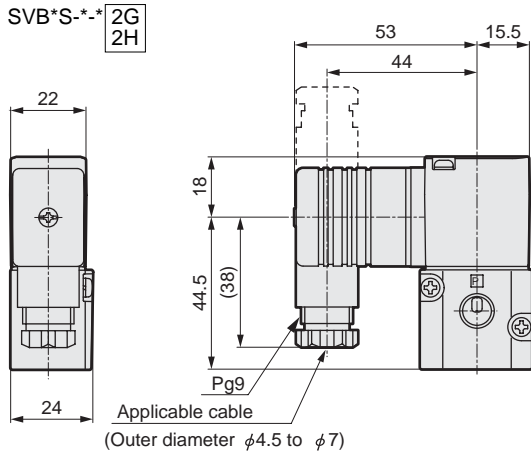


\*Drawing indicates no optional assembly direction.

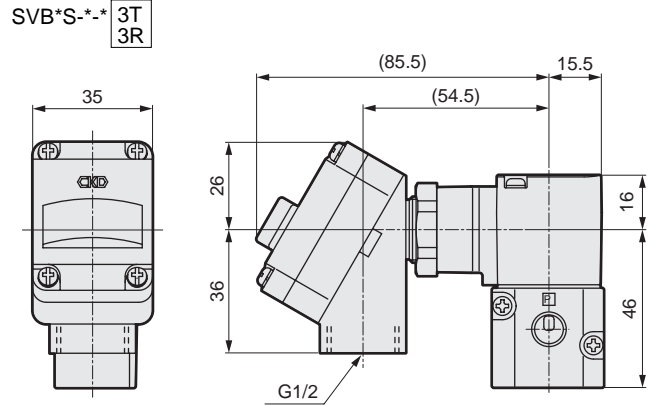
Model no.	A	D	E	H	K	L	M	N
SVB*S-32F	170	128.5	241	135	36	100	12	63.5
SVB*S-40F	180	154.5	269.5	140	42	105	12	70.5
SVB*S-50F	180	188	311	155	54	120	14	78.5

## Optional dimensions

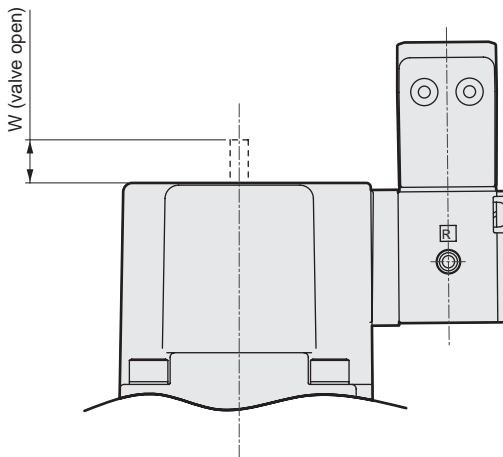
- With DIN terminal box (Pg9),  
with DIN terminal box with indicator light (Pg9)



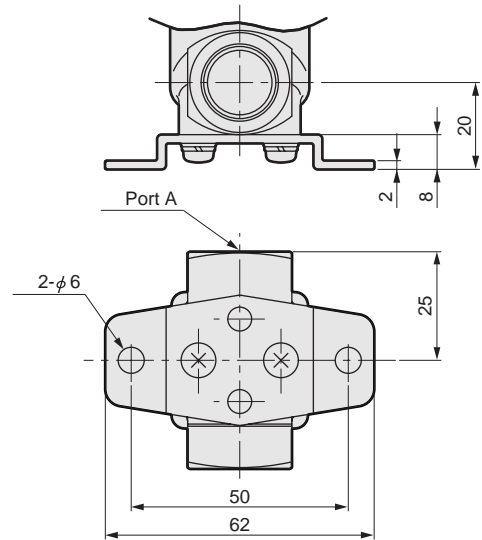
- With T type terminal box (G1/2),  
with T type terminal box with indicator light (G1/2)



- Indicator  
SVB1S-8A to 50 <sup>A</sup>F-\*\*-\*\* L



- Mounting plate  
SVB\*S-8A/10A-\*\*-\*\* B

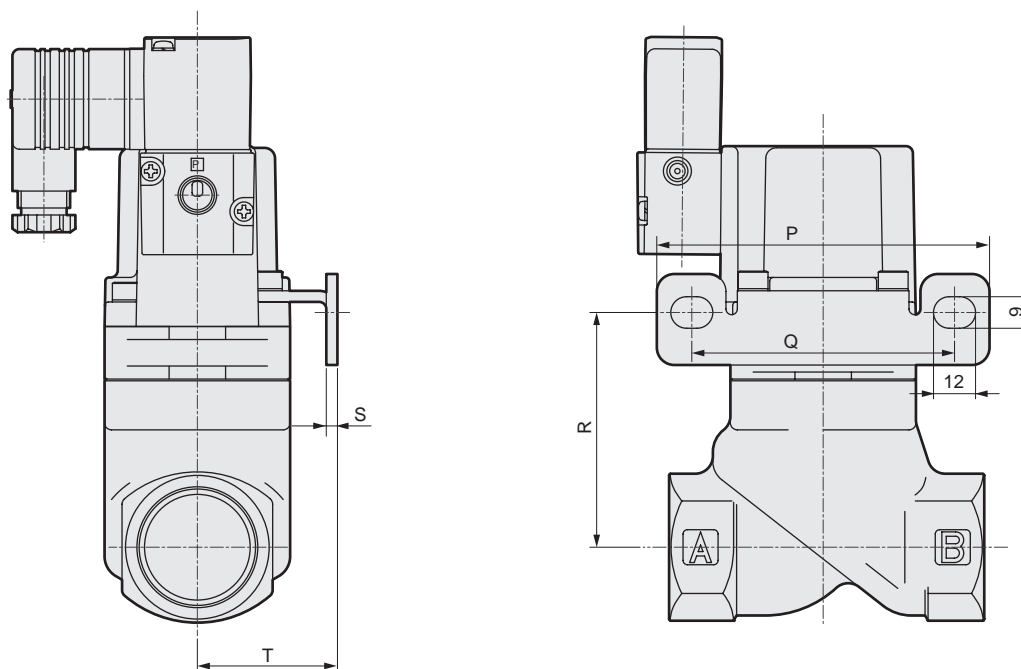


Model no.	W
SVB1S-8A	4
SVB1S-10A	4
SVB1S-15A	6.5
SVB1S-20A	6.5
SVB1S-25A	7
SVB1S-32A/F	8
SVB1S-40A/F	10.5
SVB1S-50A/F	13

## Dimensions

● Mounting plate

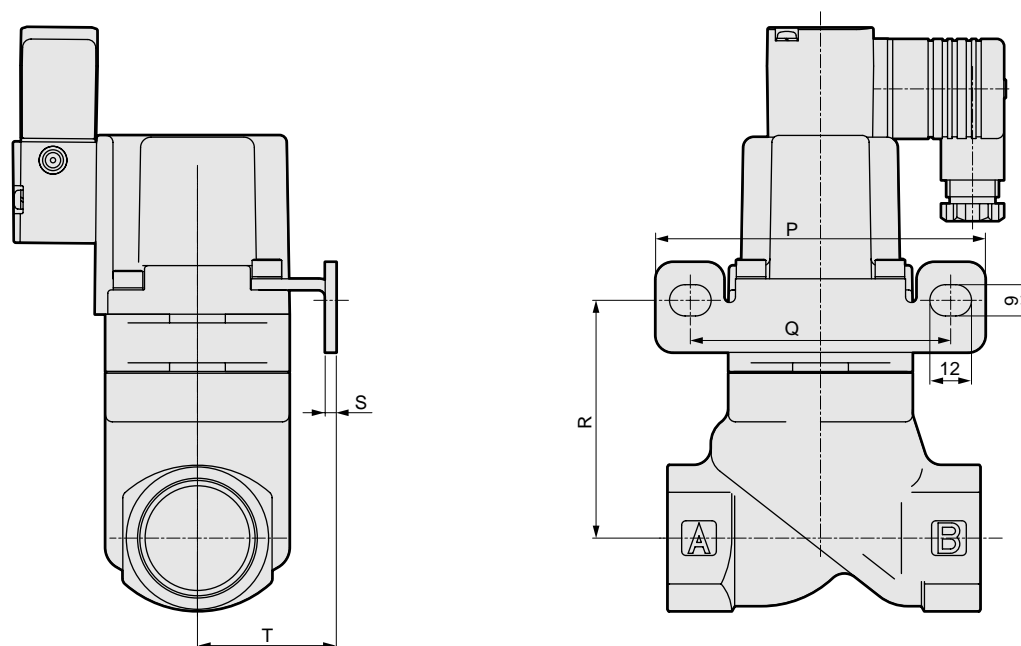
SVB\*S-15A to 32A-\*\* **B** / **B-R** / **B-Y**



\*Drawing indicates **B**.

● Mounting plate

SVB\*S-15A to 32A-\*\* **B-X** / **B-Z**



\*Drawing indicates **B-X**.

Model no.	P	Q	R	S	T
SVB*S-15A	90	70	55	2.3	30
SVB*S-20A	90	70	65	2.3	30
SVB*S-25A	95	75	68.5	3.2	40
SVB*S-32A	105	85	86.5	3.2	45

# SAB/SVB Series

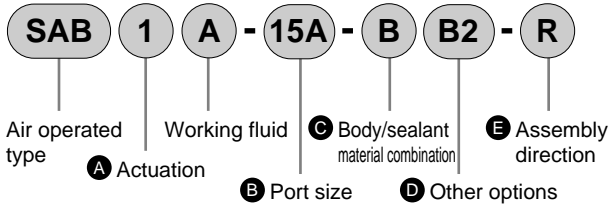
## Options for interchanging old/new models Old/new complete interchangeable mounting plate

Available in perfect compatible installation plate for old (NAB/NSB) installation plate type.

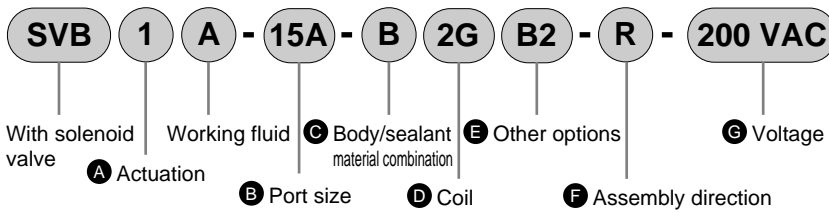
Series: SAB\*W/A/V/S Series  
SVB\*W/A/V/S Series

\* Refer to How to Order explanations on pages 2, 6, 10, and 14 for details on models for which the mounting plate option is selectable.

### How to order

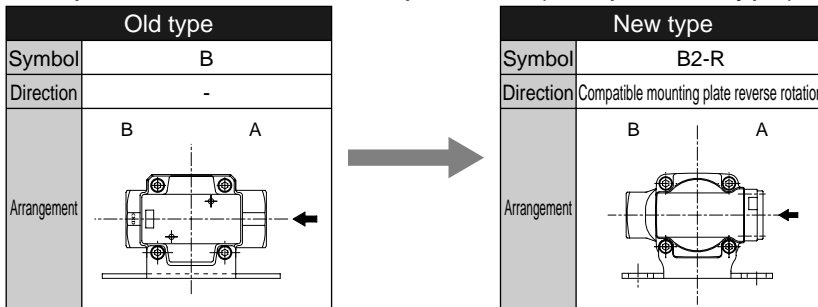


D Other options	
B	Mounting plate
B2	Compatible mounting plate

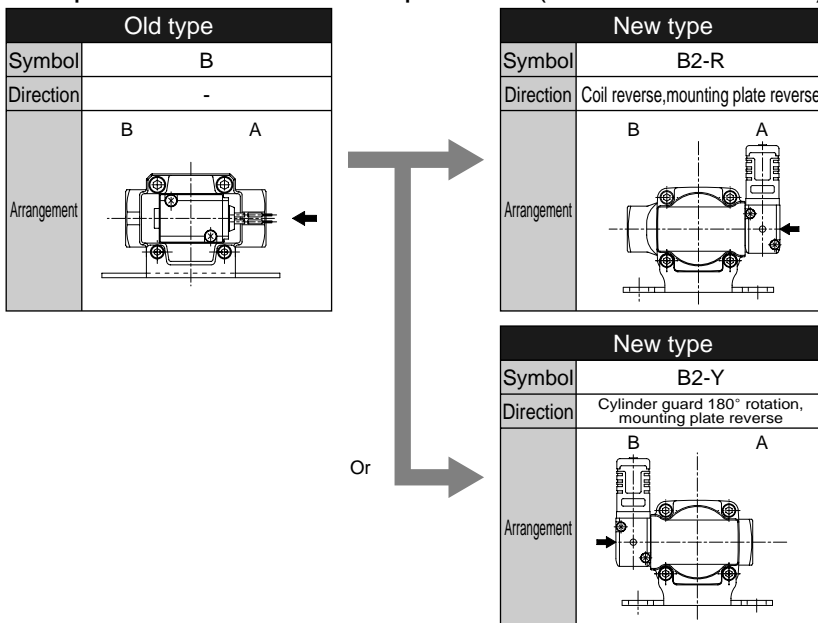


E Other options	
B	Mounting plate
B2	Compatible mounting plate

### Comparison of new and old products (air operated type)



### Comparison of new and old products (with solenoid valve)



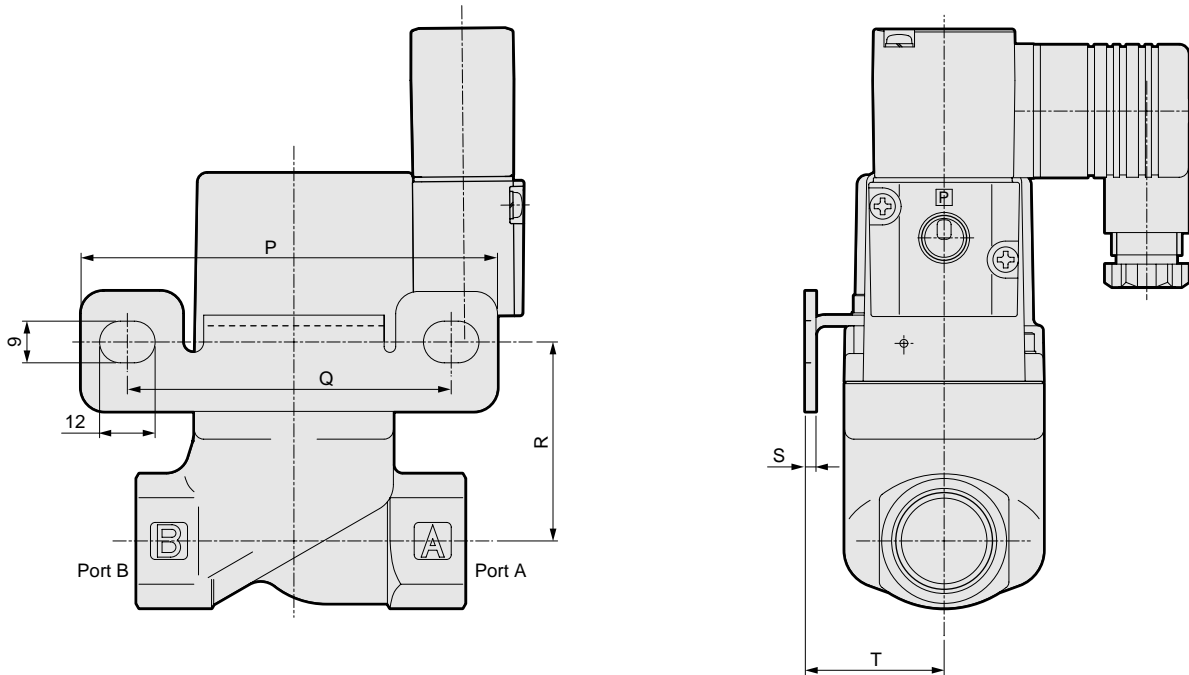
\*Mounting plate is assembled in the 180° opposite side, if "B2-R" is selected in the assembly directions.

\*Mounting plate is assembled in the 180° opposite side, if "B2-Y" is selected in an assembly direction.

← indicates pilot port IN.

## Dimensions

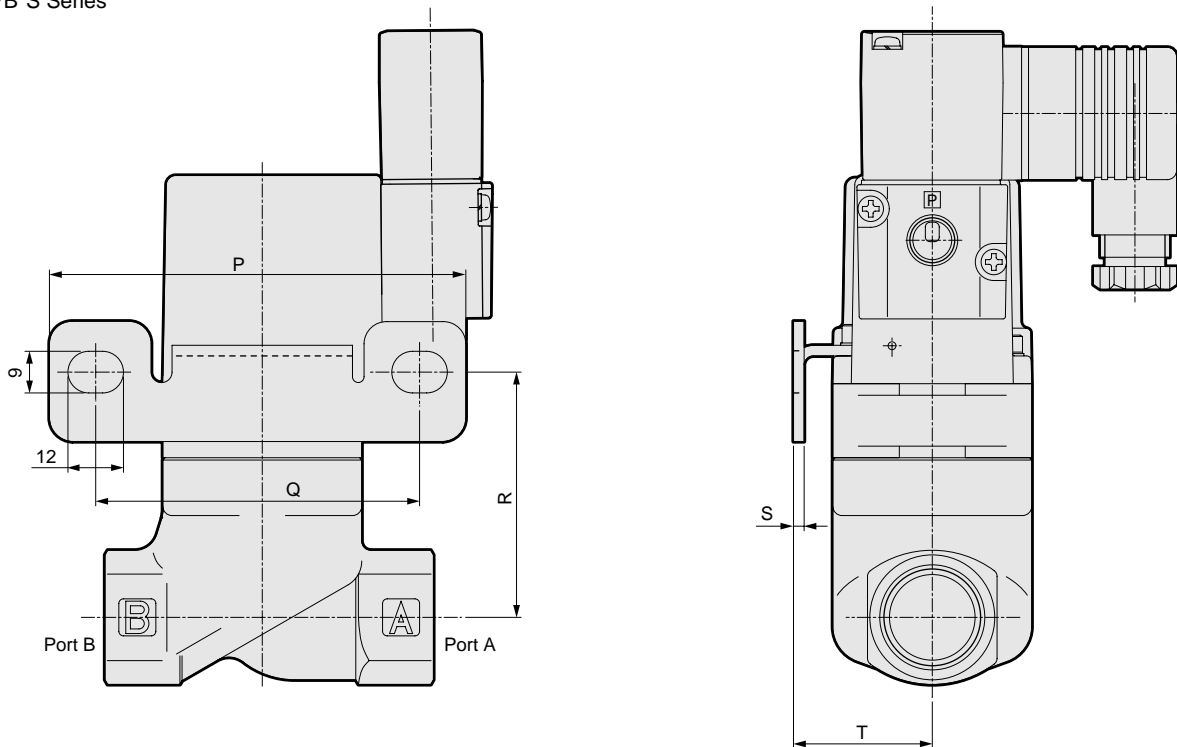
- SAB\*W/A/V Series
- SVB\*W/A/V Series



\*The drawing indicates example when solenoid valve is installed.

Model no.	P	Q	R	S	T
SAB/SVB*W/A/V-15A	90	70	43	2.3	30
SAB/SVB*W/A/V-20A	95	75	48	2.3	40
SAB/SVB*W/A/V-25A	105	85	53	3.2	45

- SAB\*S Series
- SVB\*S Series



\*The drawing indicates example when solenoid valve is installed.

Model no.	P	Q	R	S	T
SAB/SVB*S-15A	90	70	53	2.3	30
SAB/SVB*S-20A	95	75	58	2.3	40
SAB/SVB*S-25A	105	85	63	3.2	45

## Old/new replacement option Old/new pilot port size conversion connector

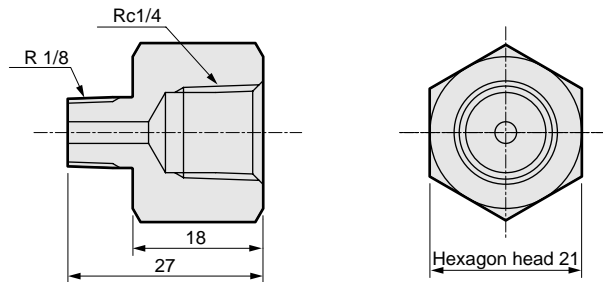
Conversion connectors are available to correspond with differences in the old and new pilot port sizes.

Series: SAB/SVB Series

### How to order

CVSE2-P-CONNECTOR-D4-162163

### Dimensions



Note: With the double-acting type, air port spacing is too narrow for two to be installed.

## Introducing custom order parts

■ A solenoid valve for pilot is incorporated at the valve top section.

Series: SVB\*A/V/W Series

Consult with CKD, your nearest sales office, for "How to order": model no.

■ Open and close detecting switch of valve mounted on the cylinder valve.

2 types are available in open and close signal detection switch, valve single/both sides installation.

Series: SAB\*A/V/W Series

SVB\*A/V/W Series

Consult with CKD, your nearest sales office, for "How to order": model no.

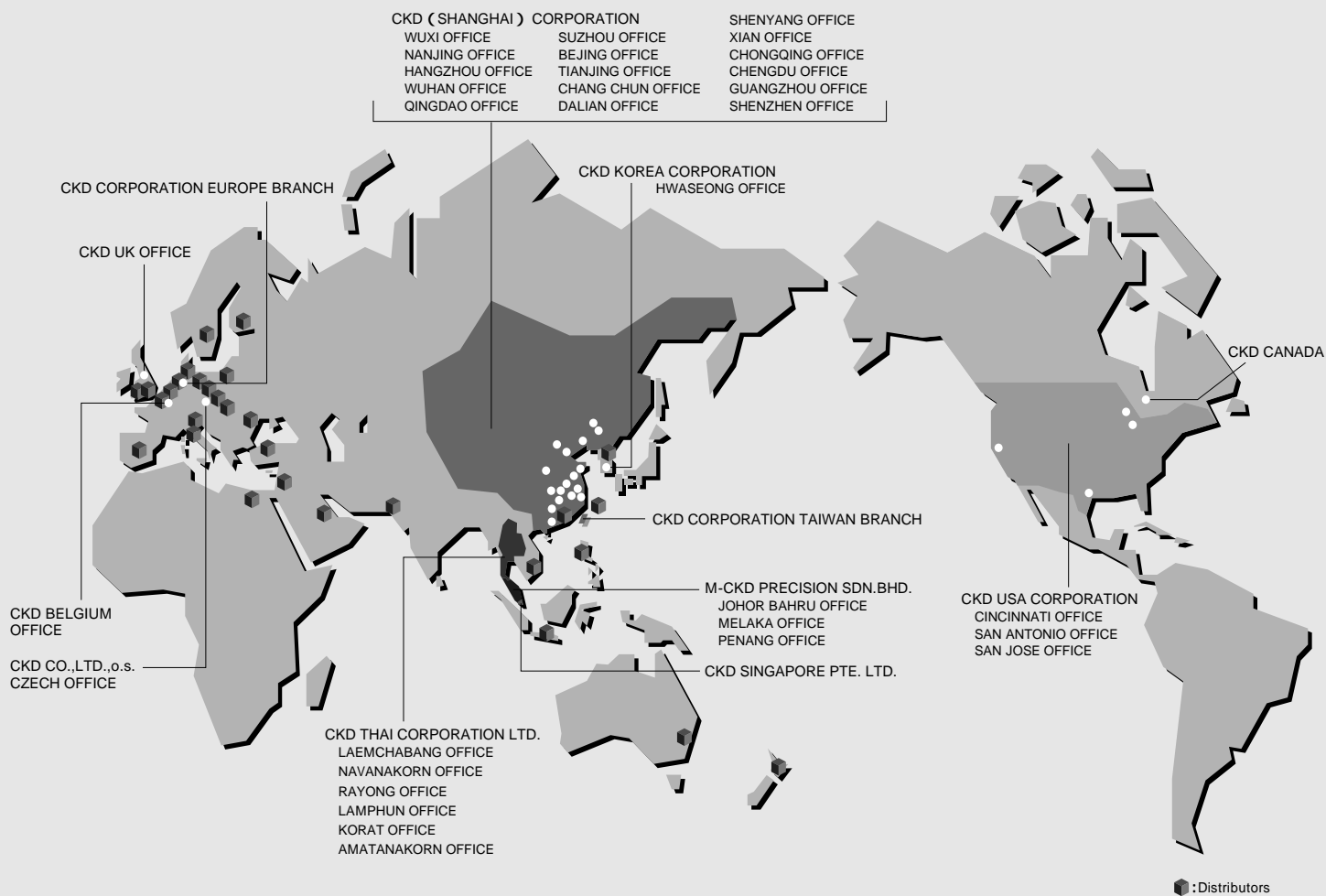


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MEMO

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