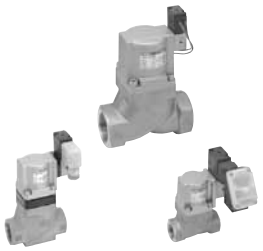
Series variation

Air operated 2-port valve (cylinder valve)

● Cylinder valve

Classification		Model	No. of ports	Actuation			Orifice size			
				NC	NO	Double acting	Rc1/4	Rc3/8	Rc1/2	
Cylinder valve	Air operated 	For water/liquids **SAB*W**	2-port	●	●	●	●	●	●	
		For air/gas **SAB*A**		●	●	●	●	●	●	
		For low vacuum **SAB*V**		●	●	●	●	●	●	
		For steam/water/air **SAB*S**		●	●	●	●	●	●	
	With solenoid valve 	For water/liquids **SVB*W**		●	●		●	●	●	
		For air/gas **SVB*A**		●	●		●	●	●	
		For low vacuum **SVB*V**		●	●		●	●	●	
		For steam/water/air **SVB*S**		●	●		●	●	●	
Compact cylinder valve	Air operated 	General purpose **NAB***		●	●	●	●	●		
		For low vacuum **NAB*V**		●	●	●	●	●		
	Air operated manifold 	General purpose **GNAB***		●	●	●	A port ●	C port ●		
		For low vacuum **GNAB*V**		●	●	●	A port ●	C port ●		

● Diaphragm cylinder valve

Series	Model No.	Working pressure		Actuation			Orifice size			
		Low vacuum	Positive pressure	NC	NO	Double acting	φ7	φ8	φ12	φ20
Diaphragm 	**LAD*-10A**		●	●	●	●		●		
	LAD*-15A		●	●	●	●			●	
	LAD*-20A		●	●	●	●				●
	LAD*-25A		●	●	●	●				●
Diaphragm single unit 	**NAD*-10**		●	●	●	●	●			
	NAD*V-10	●	●	●	●	●	●			
Diaphragm manifold 	**GNAD*-10**		●	●	●	●	●			
	GNAD*V-10	●	●	●	●	●	●			

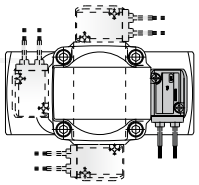
* Female thread is available in G thread and NPT thread. Note that compact cylinder valves are custom order products.

	Port size										Page
	Rc3/4	Rc1	Rc1 1/4	32 Flange	Rc1 1/2	40 Flange	Rc2	50 Flange	65 Flange	80 Flange	
	●	●	●	●	●	●	●	●	●	●	506
	●	●	●	●	●	●	●	●	●	●	510
	●	●	●	●	●	●	●	●			514
	●	●	●	●	●	●	●	●			518
	●	●	●	●	●	●	●	●	●	●	522
	●	●	●	●	●	●	●	●	●	●	530
	●	●	●	●	●	●	●	●			534
	●	●	●	●	●	●	●	●			538
											544
											544
											548
											548

	Port size					Diaphragm material		Body material				Sub-plate		Page
	Rc1/4	Rc3/8	Rc1/2	Rc3/4	Rc1	EPDM	PTFE	PPS	SCS13	SUS303	PP	SUS303	A6063	
		●				●	●	●	●					556
			●			●	●	●	●					
				●		●	●	●	●					
					●	●	●	●	●					
		●				●			●					560
		●				●			●					
	A port ●	C port ●				●				●	●	●	●	562
	A port ●	C port ●				●				●	●	●	●	

Note: G thread and NPT thread are custom order products. Contact CKD for details.

Allows flexible installation of actuator



Can be rearranged in 4 directions.

Safe and reliable operation

External pilot air operated cylinder actuation.
Accurate and resistant against foreign matter, it is a highly reliable product.
Can be used safely and securely.

Suitable for explosive atmosphere

With its completely air operated structure, SAB can be used even in a flammable atmosphere.

A variety of choices

Available in 2 types of body material (copper alloy/ stainless steel) and 4 types of sealing material (nitrile rubber/fluoro rubber/ethylene propylene rubber/ tetrafluoroethylene resin), according to the working fluid. Furthermore, the series offers 13 types of bore size and 3 types of actuation, as well as with solenoid valve for cylinder drive. The ideal model can be selected from the extensive lineup.

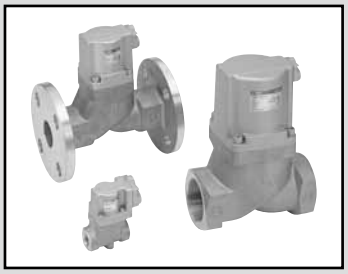
Steam valves with solenoid valves are available

New series of air operated for steam and solenoid valve mounted have been introduced. In particular, advanced technology has enabled commercialization of the first solenoid valve mounted by adopting heat-resistant and insulating materials.

SAB/SVB Series variation

Model	Applicable fluid	Port size									
		8A	10A	15A	20A	25A	32A/F	40A/F	50A/F	65F	80F
2-port valve											
SAB/SVB*W	For water/ liquids	●	●	●	●	●	●	●	●	●	●
SAB/SVB*A	For air/ gas	●	●	●	●	●	●	●	●	●	●
SAB/SVB*V	For low vacuum	●	●	●	●	●	●	●	●		
SAB/SVB*S	For steam	●	●	●	●	●	●	●	●		

* Female thread is available in G thread and NPT thread.



Air operated 2-port valve
(cylinder valve)

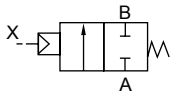
SAB*W Series

- NC, NO, double acting
- Port size: Rc1/4 to Rc2, 32 to 80 flange
- Working fluids: Water, non-corrosive liquid

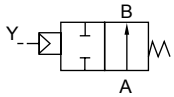
RoHS CAD

JIS symbol

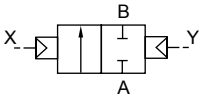
● NC



● NO



● Double acting



Common specifications

1 MPa = 10 bar

Descriptions	SAB1W	SAB2W	SAB3W
Actuation	NC	NO	Double acting
Working fluid	Water/non-corrosive liquid (*1)		
Fluid viscosity mm²/s	500 or less		
Working pressure MPa	0 (≈0 psi) to 0.7 (≈100 psi)(*2)	0 (≈0 psi, 0 bar) to 1 (≈150 psi, 10 bar)	
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)		
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing) (*3)		
Ambient temperature °C	-10 (14°F) to 60 (140°F)		
Valve seat leakage cm³/min	0 (water pressure)		
Mounting orientation	Unrestricted		
Pilot fluid	Air		
Water hammer value MPa	1 (≈150 psi, 10 bar) or less (according to the Water Supply Act)		

*1 : Refer to the working fluid check list on Intro Page 39.
*2 : Note that this differs with the type, so refer to the working pressure in the individual specifications.
*3 : -10 to 90°C for fluoro rubber seal (FKM).

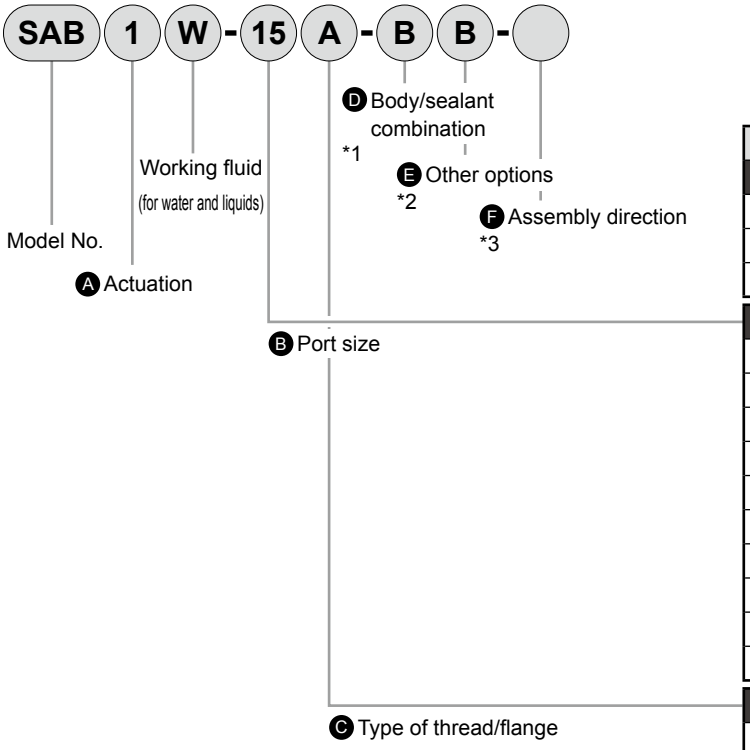
Individual specifications

1 MPa = 10 bar

Descriptions / Model No.	Port size	Orifice size (mm)	Cv	Working pressure (MPa)			Pilot pressure (MPa)			Pilot port size	Weight (kg)		
				NC	NO	Double acting	NC	NO	Double acting		NC	NO	Double acting
SAB*W-8A	Rc 1/4	10	2.3	0 (≈0 psi) to 0.7 (≈100 psi)	0 (≈0 psi) to 1 (≈150 psi)		0.35 (≈51 psi) to 0.7 (≈100 psi)		(*1)	Rc1/8	0.3		
SAB*W-10A	Rc 3/8	10	2.6								0.3		
SAB*W-15A	Rc 1/2	15	5.6								0.6		
SAB*W-20A	Rc 3/4	16	8								0.8		
SAB*W-25A	Rc 1	20	12								1.1		
SAB*W-32A	Rc 1¼	26	20	0 (≈0 psi) to 0.5 (≈73 psi)	0 (≈0 psi) to 1 (≈150 psi)		0.25 (≈36 psi) to 0.7 (≈100 psi)		(*1)		2.3	2.2	2.2
SAB*W-32F	32 flange	26	20								5.3	5.2	5.2
SAB*W-40A	Rc 1½	32	32								3.4	3.2	3.2
SAB*W-40F	40 flange	32	32								6.5	6.3	6.3
SAB*W-50A	Rc 2	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 568 for the pilot air pressure for the NO and double acting.
*2 : Port sizes 65 flange/80 flange are custom order products.
*3 : Female thread is available in G thread and NPT thread.

How to order



Code	Content
Ⓐ Actuation	
1	NC
2	NO
3	Double acting
Ⓑ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
65	65 (Flange) (custom order product)
80	80 (Flange) (custom order product)
Ⓒ Type of thread/flange	
A	Rc(8A to 50A)
F	Flange (32F to 80F)
G	G(8G to 50G)
N	NPT(8N to 50N)

Ⓓ Body/sealant combination

		Body	Seal
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene rubber

Ⓔ Other options	
Blank	No option
B	Mounting plate *2
Ⓕ Assembly direction	
Blank	No option
R	Mounting plate assembly position reversed

Refer to the figure below for the layout drawing.

⚠ Precautions for model No. selection

*1 : The body/sealant combination code is O or B for port size 65F and 80F. Note that the body is made of cast iron.
*2 : The mounting plate (Item Ⓔ B) is available only for port size 8 to 32.
*3 : Reversed mounting plate (Item Ⓕ B-R) is available for port size 15 to 32.
*4 : Clockwise when viewed from above with the port A on the right.

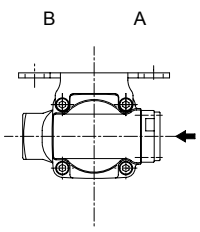
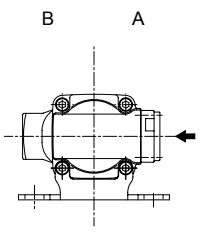
[Example of model No.]

SAB1W-15A-BB

Model: SAB

Ⓐ Actuation : NC
Ⓑ Port size : 1/2
Ⓒ Type of thread/flange : Rc
Ⓓ Body/sealant combination : Body - bronze, sealant - fluoro rubber
Ⓔ Other options : With mounting plate
Ⓕ Assembly direction : No option

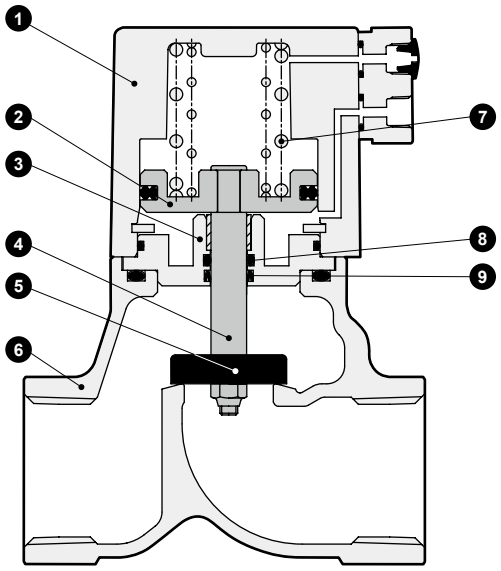
Item Ⓕ Assembly direction

SAB [Air operated] *2/4		
Code	B (with mounting plate)	B-R *3
Direction	No rotation	Mounting plate reversed
Layout		

⬅ shows pilot port IN.

Internal structure and parts list

● SAB1W



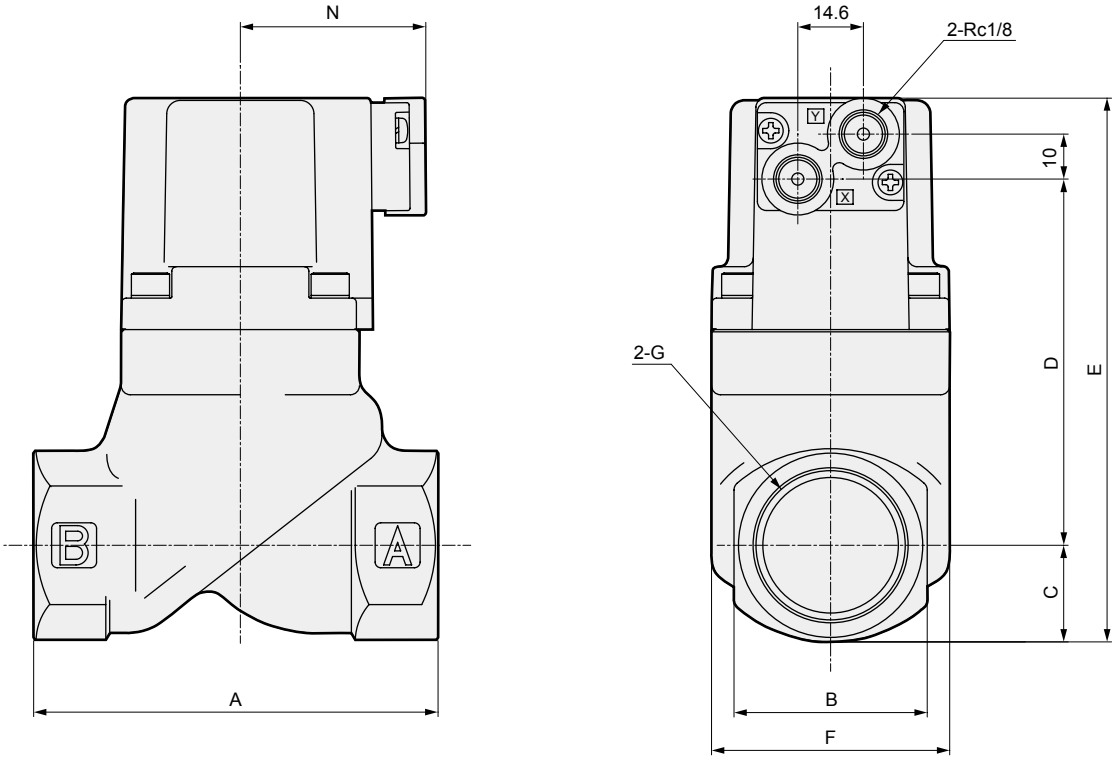
No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604(SUS304)	Copper alloy (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR(FKM, EPDM) SUS304	Nitrile rubber (fluoro rubber, ethylene propylene rubber) stainless steel
6	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O-ring	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)
9	MY packing	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)

*1 : ( ) shows options.
*2 : For 65F and 80F, the body is FC250 (cast iron), and the main valving element material is FKM.

Dimensions

CAD

● SAB*W-8* to 50* (female thread)

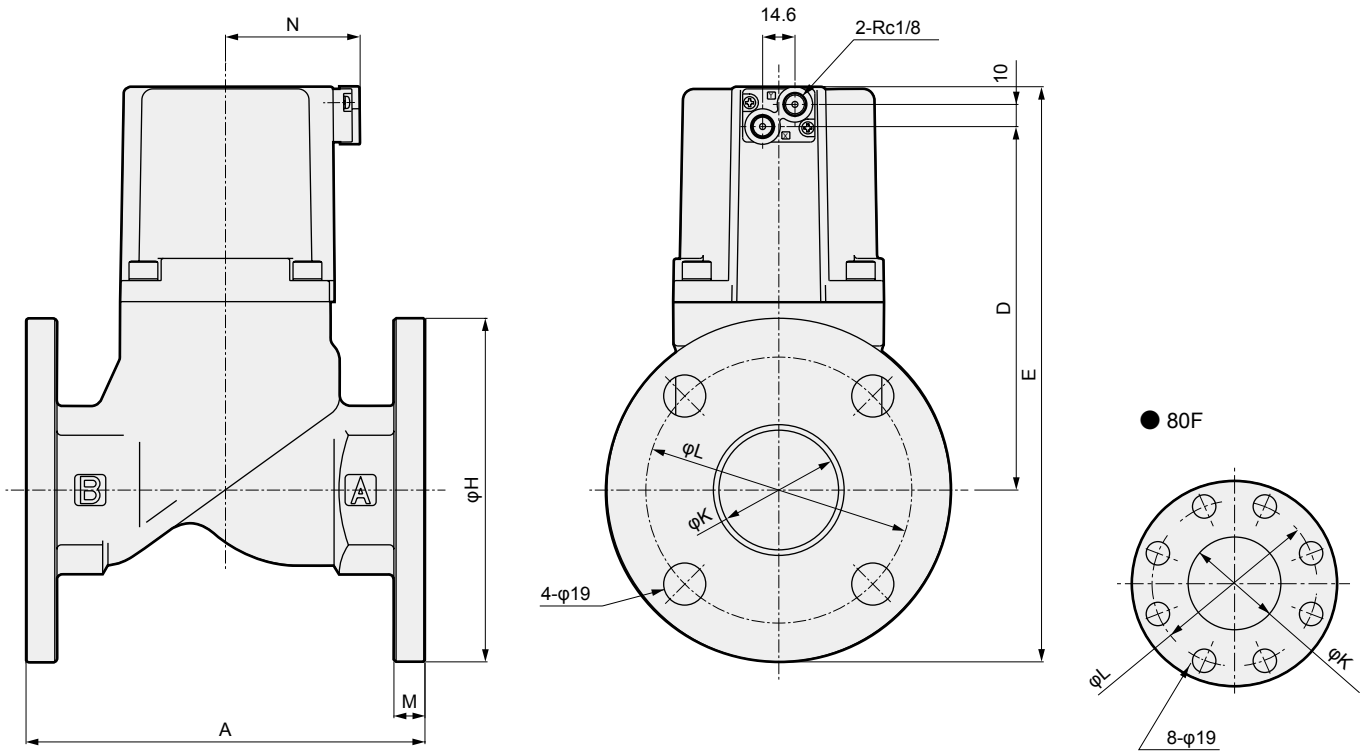


Model No.	A	B	C	D	E	F	G	N
SAB*W-8A/G/N	50	24	12	41.5	71.5	32	Rc1/4 / G1/4 / 1/4-18NPT	37(42)
SAB*W-10A/G/N							Rc3/8 / G3/8 / 3/8-18NPT	
SAB*W-15A/G/N	71	28	14.5	61.5	94	43	Rc1/2 / G1/2 / 1/2-14NPT	38(43)
SAB*W-20A/G/N	80	35	17.5	71	106.5	43	Rc3/4 / G3/4 / 3/4-14NPT	38(43)
SAB*W-25A/G/N	90	43	21	81.5	120.5	53	Rc1/G1/1-11.5NPT	41.5(46.5)
SAB*W-32A/G/N	125	55	27.5	109.5	155	63	Rc1 1/4 / G1 1/4 / 1 1/4-11.5 NPT	46(51)
SAB*W-40A/G/N	140	61	30.5	130.5	179	77	Rc1 1/2 / G1 1/2 / 1 1/2-11.5 NPT	53(58)
SAB*W-50A/G/N	160	76	38	164	220	95	Rc2/G2/2-11.5NPT	61(66)

*1: ( ) shows values for G thread.

Dimensions

● SAB*W-32F to 80F (flange)

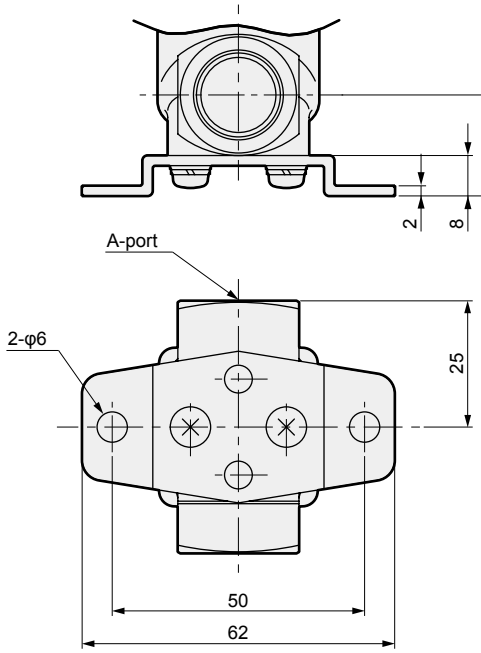


Model No.	A	D	E	H	K	L	M	N
SAB*W-32F	170	109.5	195	135	36	100	12	46
SAB*W-40F	180	130.5	218.5	140	42	105	12	53
SAB*W-50F	180	164	259.5	155	54	120	14	61
SAB*W-65F	210	199	347.5	175	68	140	16	101
SAB*W-80F	240	214	367.5	185	82	150	16	111

Optional dimensions

● Mounting plate
SAB*W-8*/10*-* B

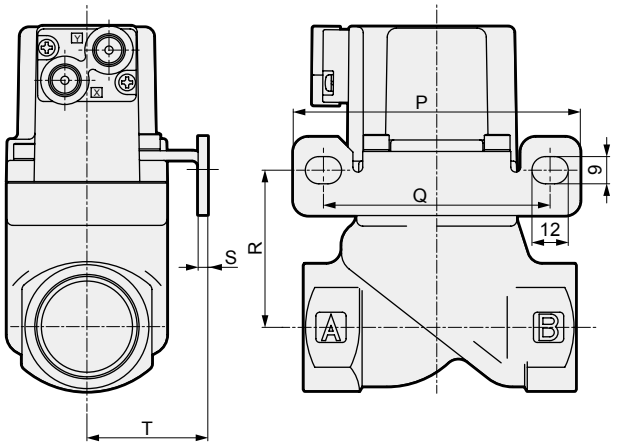
Material: Steel
Zinc plated



* Use the body mounting screws if fixing without a mounting plate.
(Thread size: M4 depth 8 pitch 19)

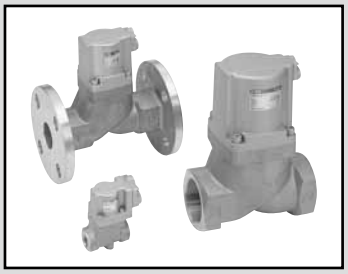
● Mounting plate
SAB*W-15* to 32*-* B / B-R

Material: Steel
Zinc plated



* The figure shows B.

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



Air operated 2-port valve
(cylinder valve)

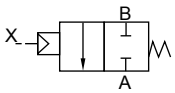
SAB*A Series

- NC, NO, double acting
- Port size: Rc1/4 to Rc2 32 to 80 flange
- Working fluid: Air, gas

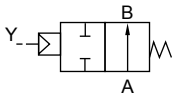
RoHS CAD

JIS symbol

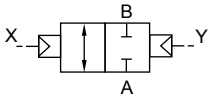
● NC



● NO



● Double acting



Common specifications

1 MPa = 10 bar

Descriptions	SAB1A	SAB2A	SAB3A
Actuation	NC	NO	Double acting
Working fluid	Air/gas (*1)		
Working pressure MPa	0 (≈0 psi) to 0.9 (≈130 psi)	0 (≈0 psi, 0 bar) to 1 (≈150 psi, 10 bar)	
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)		
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing) (*2)		
Ambient temperature °C	-10 (14°F) to 60 (140°F)		
Valve seat leakage cm^3/min	0.12 or less (pneumatic pressure)		
Mounting orientation	Unrestricted		
Pilot fluid	Air		
Pilot pressure MPa	0.35 (≈51 psi) to 0.7 (≈100 psi)	Refer to page 568.	

*1 : Refer to the working fluid check list on Intro Page 39.
*2 : -10 to 90°C for fluoro rubber seal (FKM).

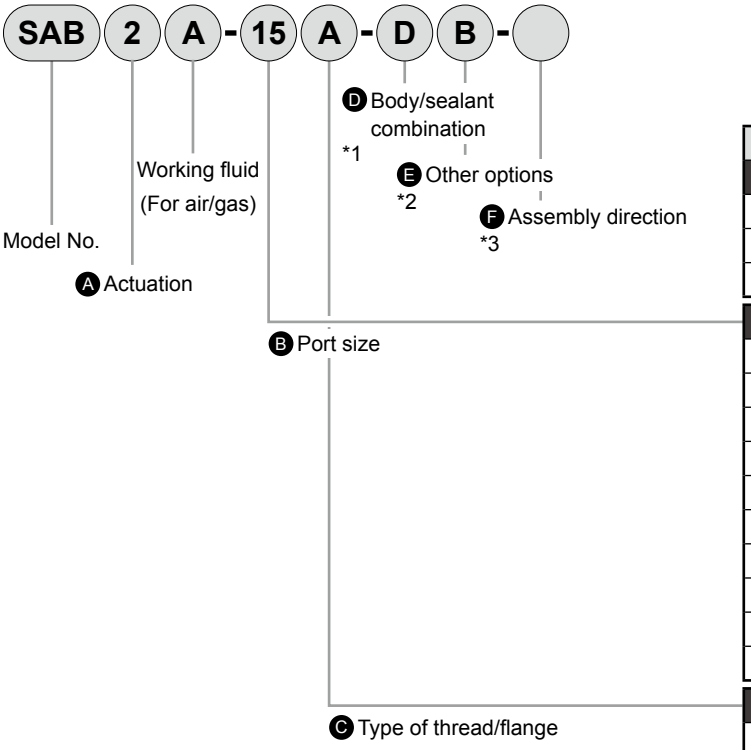
Individual specifications

1 MPa = 10 bar

Descriptions / Model No.	Port size	Orifice size (mm)	C [$dm^3/(s \cdot bar)$]	b	S (mm^2)	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
NC								
SAB1A-8A	Rc1/4	10	8.3	0.4	-	0.5 (≈73 psi)	Rc1/8	0.3
SAB1A-10A	Rc3/8	10	11	0.4	-			0.3
SAB1A-15A	Rc1/2	15	-	-	120	0.1 (≈15 psi, 1 bar)		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
NO								
SAB2A-8A	Rc1/4	10	8.9	0.4	-	0.1 (≈15 psi, 1 bar)	Rc1/8	0.3
SAB2A-10A	Rc3/8	10	12	0.3	-			0.3
SAB2A-15A	Rc1/2	15	-	-	140			0.6
SAB2A-20A	Rc3/4	16	-	-	180			0.8
SAB2A-25A	Rc1	20	-	-	280			1.1
SAB2A-32A	Rc1 1/4	26	-	-	450	0.05 (≈7.3 psi, 0.5 bar)		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
Double acting (*1)								
SAB3A-8A	Rc1/4	10	8.3(8.9)	0.4	-	1 (≈150 psi, 10 bar)	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 : ( ) of C, b and S columns of double acting shows the flow rates of when port A is pressurized.
*2 : Port sizes 65 flange/80 flange are custom order products.
*3 : Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*4 : Female thread is available in G thread and NPT thread.

How to order



Code	Content
Ⓐ Actuation	
1	NC
2	NO
3	Double acting
Ⓑ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
65	65 (Flange) (custom order product)
80	80 (Flange) (custom order product)
Ⓒ Type of thread/flange	
A	Rc(8A to 50A)
F	Flange (32F to 80F)
G	G(8G to 50G)
N	NPT(8N to 50N)

Ⓓ Body/sealant combination

		Body	Seal
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene rubber

Ⓔ Other options	
Blank	No option
B	Mounting plate *2
Ⓕ Assembly direction	
Blank	No option
R	Mounting plate assembly position reversed

Refer to the figure below for the layout drawing.

⚠ Precautions for model No. selection

*1 : The body/sealant combination code is O or B for port size 65F and 80F. Note that the body is made of cast iron.
*2 : The mounting plate (Item Ⓔ B) can be attached to only the female thread of port size 8 to 32.
*3 : Reversed mounting plate (Item Ⓕ B-R) is available for port size 15 to 32.
*4 : Clockwise when viewed from above with the port A on the right.

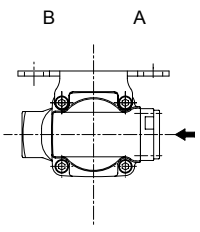
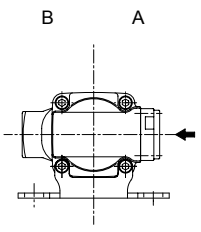
[Example of model No.]

SAB2A-15A-DB

Model: SAB

Ⓐ Actuation : NO
Ⓑ Port size : 1/2
Ⓒ Type of thread/flange : Rc
Ⓓ Body/sealant combination : Body - stainless steel, sealant - nitrile rubber
Ⓔ Other options : With mounting plate
Ⓕ Assembly direction : No option

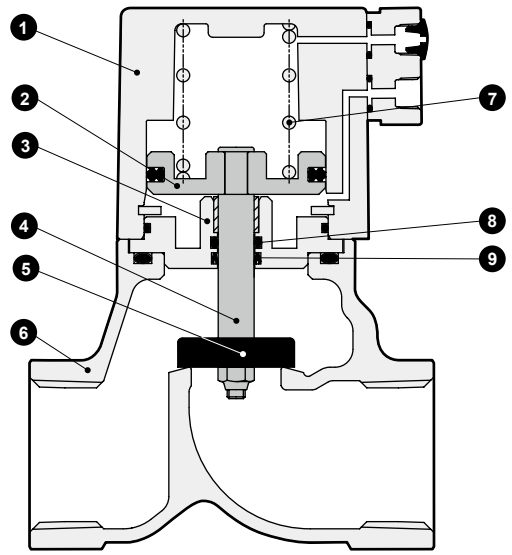
Item Ⓕ Assembly direction

SAB [Air operated] *2/4		
Code	B (with mounting plate)	B-R *3
Direction	No rotation	Mounting plate reversed
Layout		

⬅ shows pilot port IN.

Internal structure and parts list

● SAB1A

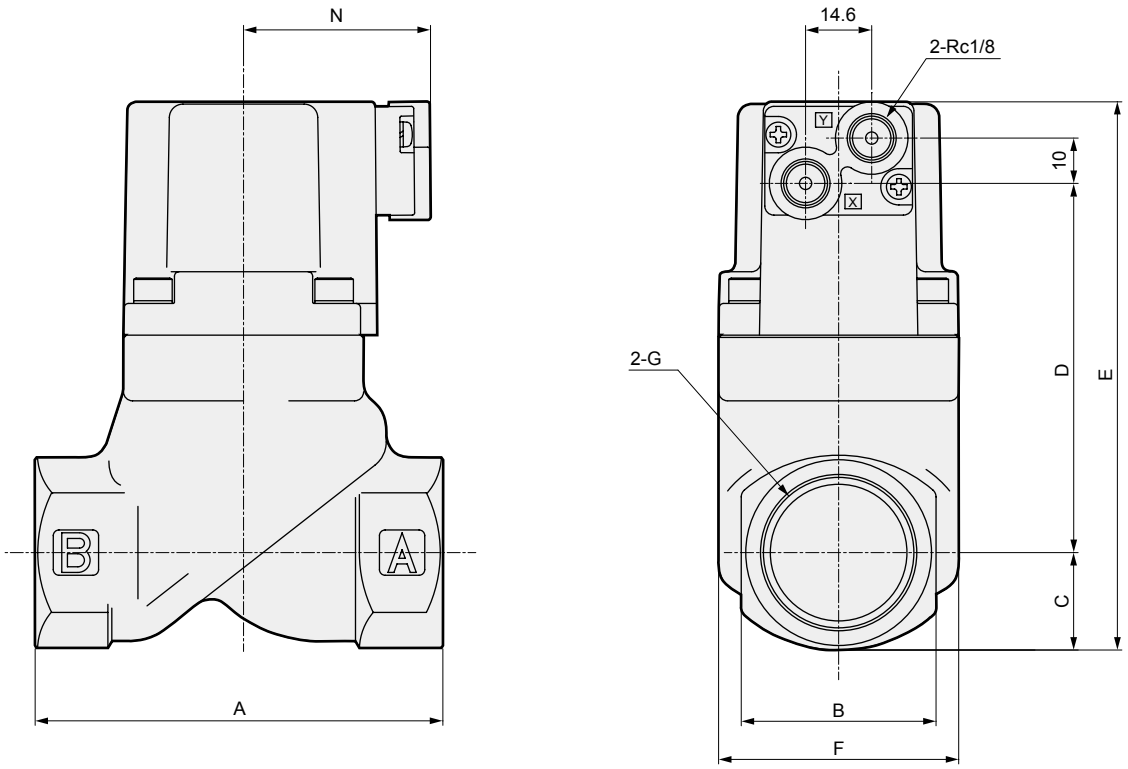


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604(SUS304)	Copper alloy (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR(FKM, EPDM) SUS304	Nitrile rubber (fluoro rubber, ethylene propylene rubber) stainless steel
6	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O-ring	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)
9	MY packing	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)

*1 : ( ) shows options.
*2 : For 65F and 80F, the body is FC250 (cast iron), and the main valving element material is FKM.

Dimensions CAD

● SAB*A-8* to 50* (female thread)

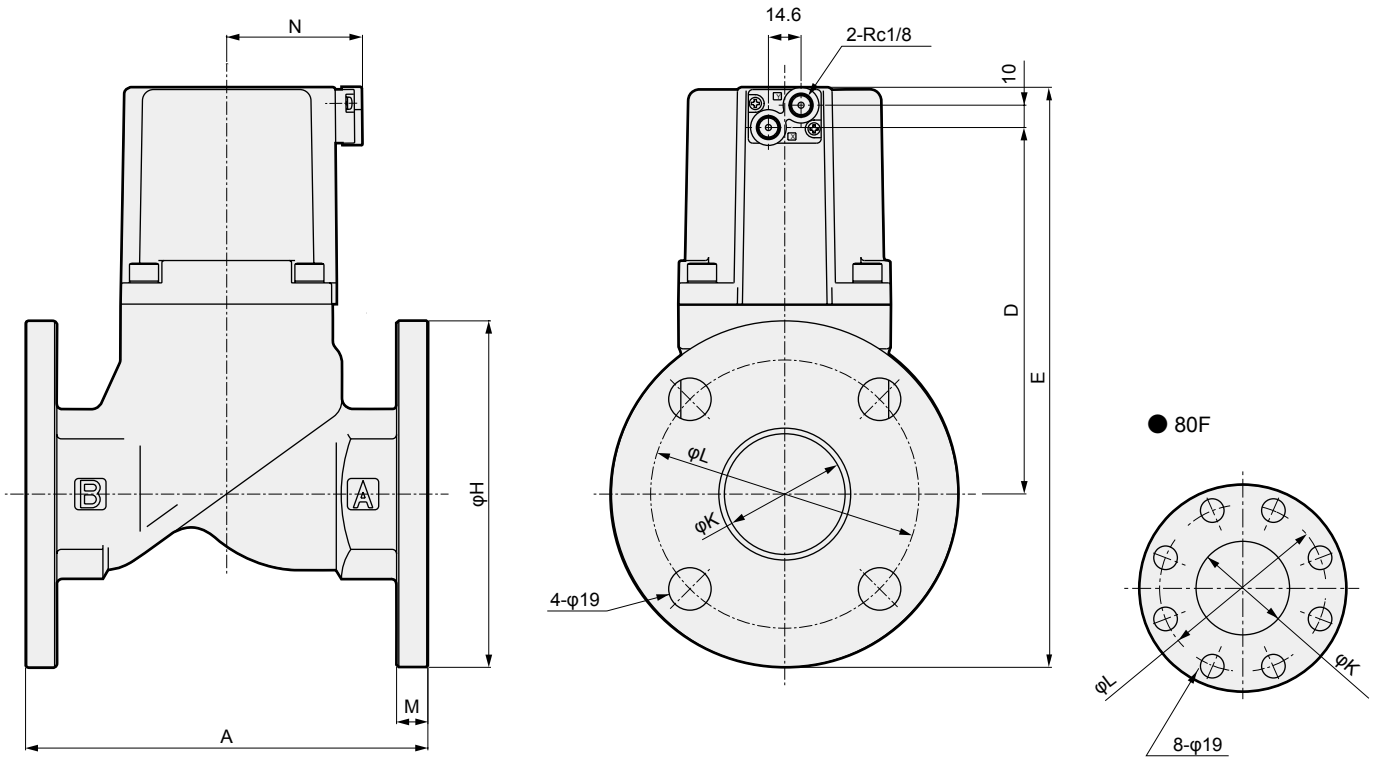


Model No.	A	B	C	D	E	F	G	N
SAB*A-8A/G/N	50	24	12	41.5	71.5	32	Rc1/4 / G1/4 / 1/4-18NPT	37(42)
SAB*A-10A/G/N							Rc3/8 / G3/8 / 3/8-18NPT	
SAB*A-15A/G/N	71	28	14.5	61.5	94	43	Rc1/2 / G1/2 / 1/2-14NPT	38(43)
SAB*A-20A/G/N	80	35	17.5	71	106.5	43	Rc3/4 / G3/4 / 3/4-14NPT	38(43)
SAB*A-25A/G/N	90	43	21	81.5	120.5	53	Rc1/G1/1-11.5NPT	41.5(46.5)
SAB*A-32A/G/N	125	55	27.5	109.5	155	63	Rc1 1/4 / G1 1/4 / 1 1/4-11.5 NPT	46(51)
SAB*A-40A/G/N	140	61	30.5	130.5	179	77	Rc1 1/2 / G1 1/2 / 1 1/2-11.5 NPT	53(58)
SAB*A-50A/G/N	160	76	38	164	220	95	Rc2/G2/2-11.5NPT	61(66)

*1: ( ) shows values for G thread.

Dimensions

● SAB*A-32F to 80F (flange)

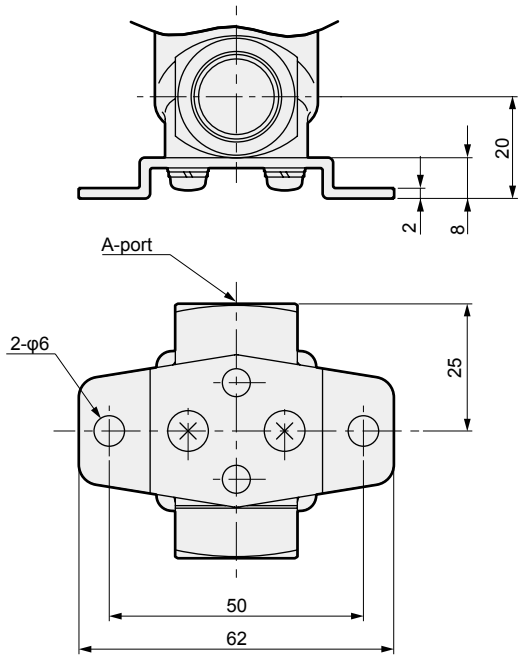


Model No.	A	D	E	H	K	L	M	N
SAB*A-32F	170	109.5	195	135	36	100	12	46
SAB*A-40F	180	130.5	218.5	140	42	105	12	53
SAB*A-50F	180	164	259.5	155	54	120	14	61
SAB*A-65F	210	199	347.5	175	68	140	16	101
SAB*A-80F	240	214	367.5	185	82	150	16	111

Optional dimensions

● Mounting plate
SAB*A-8*/10*-* B

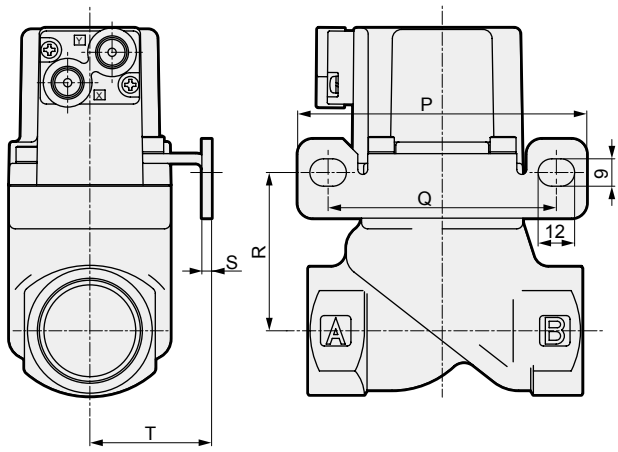
Material: Steel
Zinc plated



* Use the body mounting screws if fixing without a mounting plate.
(Thread size: M4 depth 8 pitch 19)

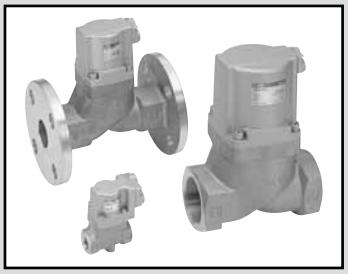
● Mounting plate
SAB*A-15* to 32*-* B / B-R

Material: Steel
Zinc plated



* The figure shows B.

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



Air operated 2-port valve
(cylinder valve)

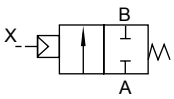
SAB*V Series

- NC, NO, double acting
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Low vacuum

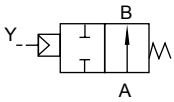
RoHS CAD

JIS symbol

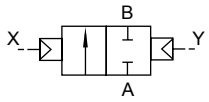
● NC



● NO



● Double acting



Common specifications

Descriptions	SAB1V	SAB2V	SAB3V
Actuation	NC	NO	Double acting
Working fluid	Low vacuum (air, water) (*1)		
Working pressure Pa(abs)	1.3 x 10^2 to 7 x 10^5 (refer to the working pressure in the individual specifications.)		
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)		
Fluid temperature °C	-10 (14°F) to 60 (140°F) (no freezing) (*2)		
Ambient temperature °C	-10 (14°F) to 60 (140°F)		
Valve seat leakage Pa·m^3/s He	1.33 x 10^{-3} or less		
Pilot fluid	Air		
Mounting orientation	Unrestricted		

*1 : Refer to the working fluid check list on Intro Page 39.
*2 : -10 to 90°C for fluoro rubber seal (FKM).

Individual specifications

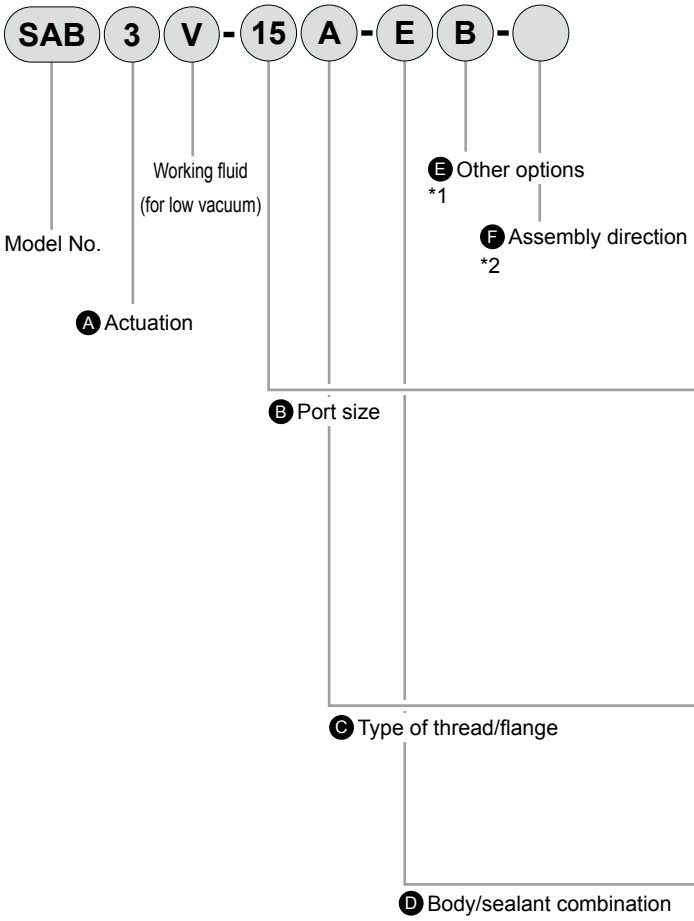
1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Descriptions / Model No.	Port size	Orifice size (mm)	C [dm^3/(s·bar)]	b	S (mm^2)	Working pressure Pa (abs)			Pilot pressure (MPa)			Pilot port size	Weight (kg)		
						NC	NO	Double acting	NC	NO	Double acting		NC	NO	Double acting
SAB*V-8A	Rc1/4	10	8.9	0.4	-								0.3		
SAB*V-10A	Rc3/8	10	12	0.3	-	1.3×10^2	1.3×10^2		0.35				0.3		
SAB*V-15A	Rc1/2	15	-	-	140	to	to		to				0.6		
SAB*V-20A	Rc3/4	16	-	-	180	7×10^5	1×10^6		0.7				0.8		
SAB*V-25A	Rc1	20	-	-	280								1.1		
SAB*V-32A	Rc1 1/4	26	-	-	450								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	1.3×10^2	1.3×10^2		0.25				3.4	3.2	3.2
SAB*V-40F	40 flange	32	-	-	680	to	to		to				6.5	6.3	6.3
SAB*V-50A	Rc2	42	-	-	1020	5×10^5	1×10^6		0.7				5.5	5.2	5
SAB*V-50F	50 flange	42	-	-	1020								9.4	9.1	8.9

(*1)

*1 : Refer to page 568 for the pilot air pressure for the NO and double acting.
*2 : Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*3 : Female thread is available in G thread and NPT thread.

How to order



Code	Content
Ⓐ Actuation	
1	NC
2	NO
3	Double acting
Ⓑ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
Ⓒ Type of thread/flange	
A	Rc(8A to 50A)
F	Flange (32F to 50F)
G	G(8G to 50G)
N	NPT(8N to 50N)

Ⓓ Body/sealant combination			
		Body	**Seal**
0	Standard	Bronze	Nitrile rubber
B	Option	Bronze	Fluoro rubber
P		Bronze	Ethylene propylene rubber
D		Stainless steel	Nitrile rubber
E		Stainless steel	Fluoro rubber
R		Stainless steel	Ethylene propylene rubber

Ⓔ Other options	
Blank	No option
B	Mounting plate *2
Ⓕ Assembly direction	
Blank	No option
R	Mounting plate assembly position reversed

Refer to the figure below for the layout drawing.

⚠ Precautions for model No. selection

*1 : The mounting plate (Item Ⓔ B) can be attached to only the female thread of port size 8 to 32.
*2 : Reversed mounting plate (Item Ⓕ B-R) is available for port size 15 to 32.
*3 : Clockwise when viewed from above with the port A on the right.

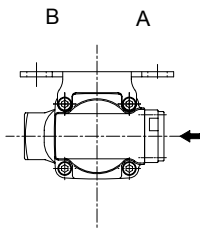
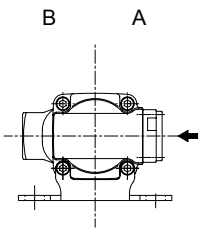
[Example of model No.]

SAB3V-15A-EB

Model: SAB

Ⓐ Actuation	: Double acting
Ⓑ Port size	: 1/2
Ⓒ Type of thread/flange	: Rc
Ⓓ Body/sealant combination	: Body - stainless steel, sealant - fluoro rubber
Ⓔ Other options	: With mounting plate
Ⓕ Assembly direction	: No option

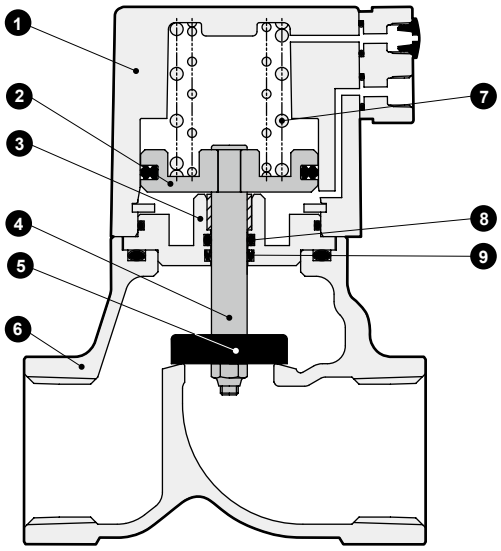
Item Ⓕ Assembly direction

SAB [Air operated] *1/3		
Code	B (with mounting plate)	B-R *2
Direction	No rotation	Mounting plate reversed
Layout		

⬅shows pilot port IN.

Internal structure and parts list

● SAB1V

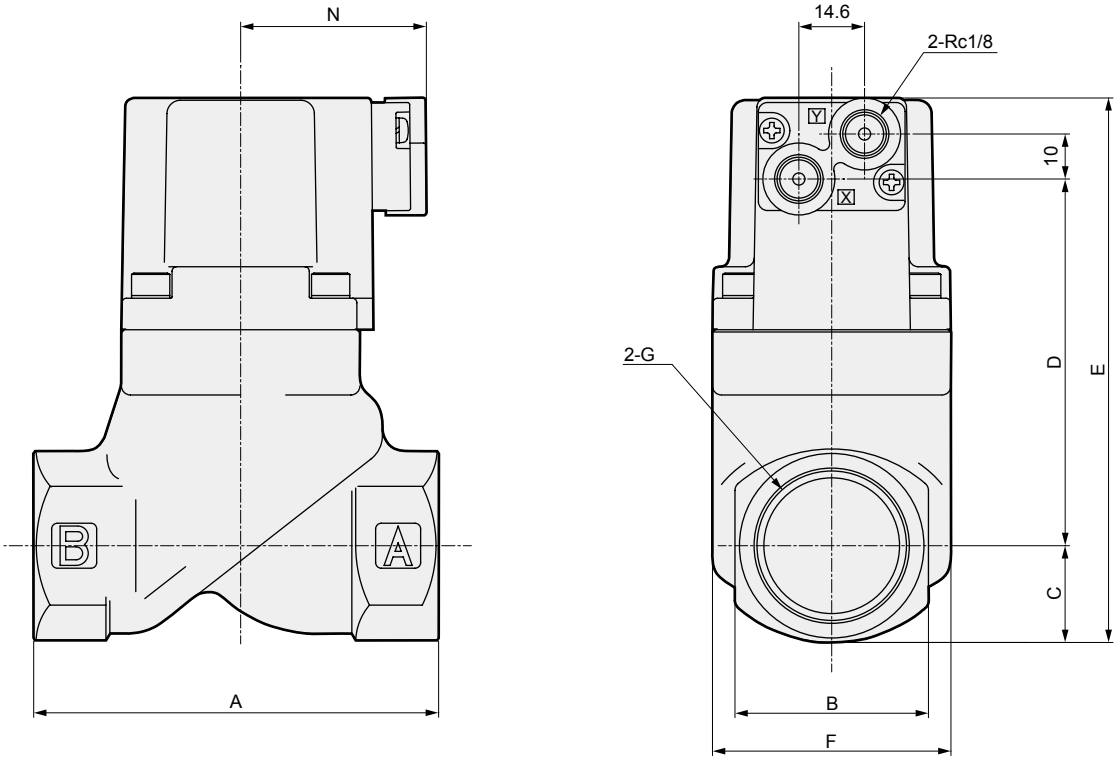


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604(SUS304)	Copper alloy (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	NBR(FKM, EPDM) SUS304	Nitrile rubber (fluoro rubber, ethylene propylene rubber) stainless steel
6	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	O-ring	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)
9	MY packing	NBR(FKM, EPDM)	NBR (FPM, EPM rubber)

( ) shows options.

Dimensions CAD

● SAB*V-8* to 50* (female thread)

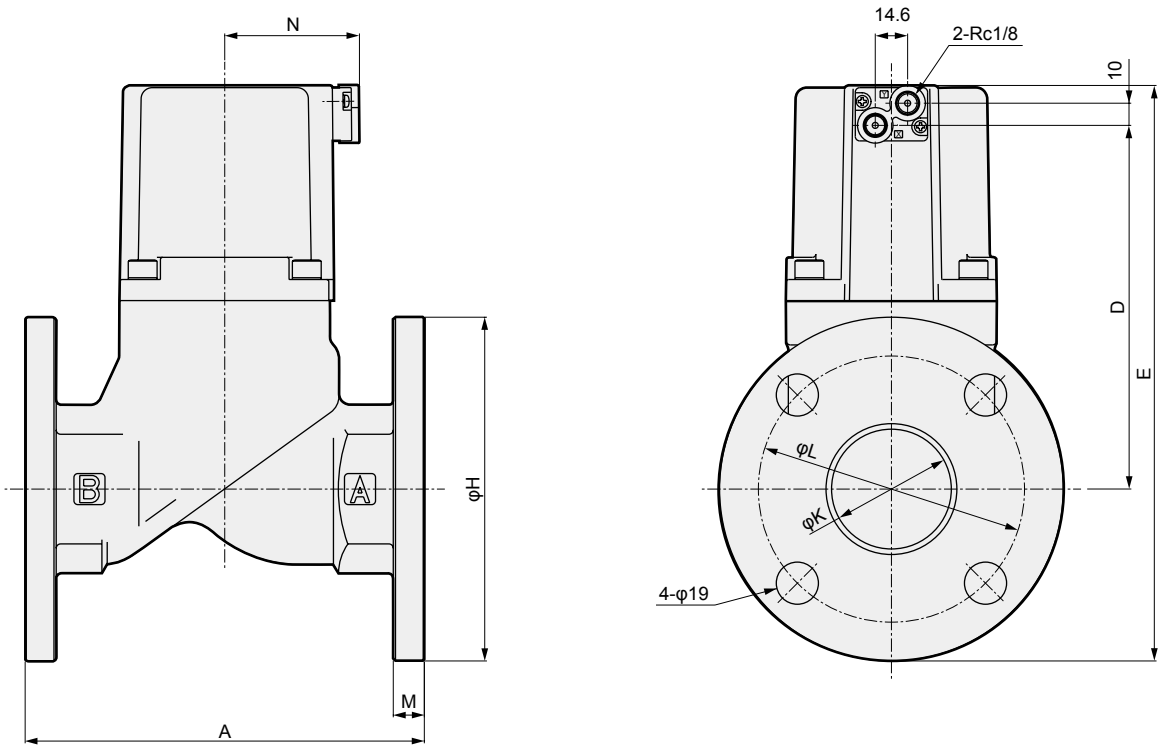


Model No.	A	B	C	D	E	F	G	N
SAB*V-8A/G/N	50	24	12	41.5	71.5	32	Rc1/4 / G1/4 / 1/4-18NPT	37(42)
SAB*V-10A/G/N							Rc3/8 / G3/8 / 3/8-18NPT	
SAB*V-15A/G/N	71	28	14.5	61.5	94	43	Rc1/2 / G1/2 / 1/2-14NPT	38(43)
SAB*V-20A/G/N	80	35	17.5	71	106.5	43	Rc3/4 / G3/4 / 3/4-14NPT	38(43)
SAB*V-25A/G/N	90	43	21	81.5	120.5	53	Rc1/G1/1-11.5NPT	41.5(46.5)
SAB*V-32A/G/N	125	55	27.5	109.5	155	63	Rc1 1/4 / G1 1/4 / 1 1/4-11.5 NPT	46(51)
SAB*V-40A/G/N	140	61	30.5	130.5	179	77	Rc1 1/2 / G1 1/2 / 1 1/2-11.5 NPT	53(58)
SAB*V-50A/G/N	160	76	38	164	220	95	Rc2/G2/2-11.5NPT	61(66)

*1: ( ) shows values for G thread.

Dimensions

● SAB*V-32F to 50F (flange)

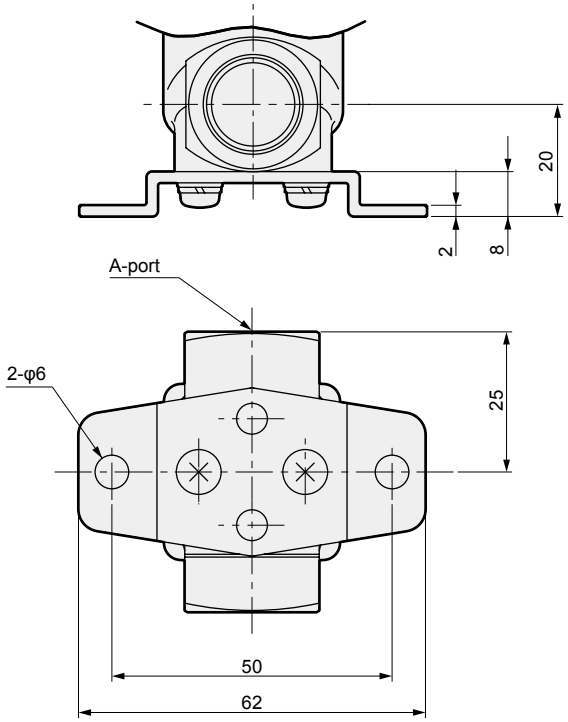


Model No.	A	D	E	H	K	L	M	N
SAB*V-32F	170	109.5	195	135	36	100	12	46
SAB*V-40F	180	130.5	218.5	140	42	105	12	53
SAB*V-50F	180	164	259.5	155	54	120	14	61

Optional dimensions

● Mounting plate
SAB*V-8*/10*-* B

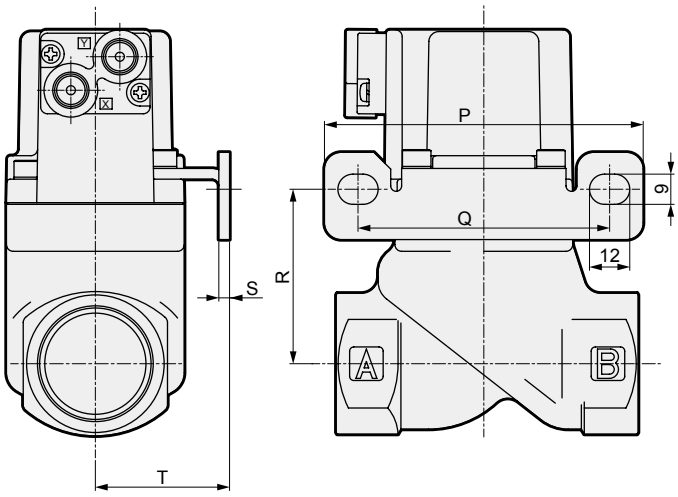
Material: Steel
Zinc plated



* Use the body mounting screws if fixing without a mounting plate.
(Thread size: M4 depth 8 pitch 19)

● Mounting plate
SAB*V-15* to 32*-* B / B-R

Material Steel
Zinc plated



* The figure shows B .

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

Air operated 2-port valve
(cylinder valve)

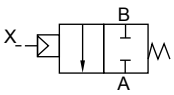
SAB*S Series

- NC, NO, double acting
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluids: Steam, water, air

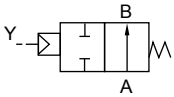
RoHS CAD

JIS symbol

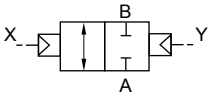
● NC



● NO



● Double acting



Common specifications

1 MPa = 10 bar

Descriptions	SAB1S	SAB2S	SAB3S
Actuation	NC	NO	Double acting
Working fluid	Steam/water/air/non-corrosive liquid (*1)		
Liquid viscosity mm²/s	500 or less		
Working pressure MPa	0 (≈0 psi, 0 bar) to 1 (≈150 psi, 10 bar)		
Proof pressure (water pressure) MPa	2.0 (≈290 psi, 20 bar)		
Fluid temperature °C	-10 (14°F) to 184 (363.2°F) (no freezing)		
Ambient temperature °C	-10 (14°F) to 90 (194°F)		
Valve seat leakage cm³/min	300 or less (at pneumatic pressure 0.02 to 1 MPa)		
Pilot fluid	Air		
Pilot pressure MPa	0.35 (≈51 psi) to 0.7 (≈100 psi)	Refer to page 568.	
Mounting orientation	Unrestricted		

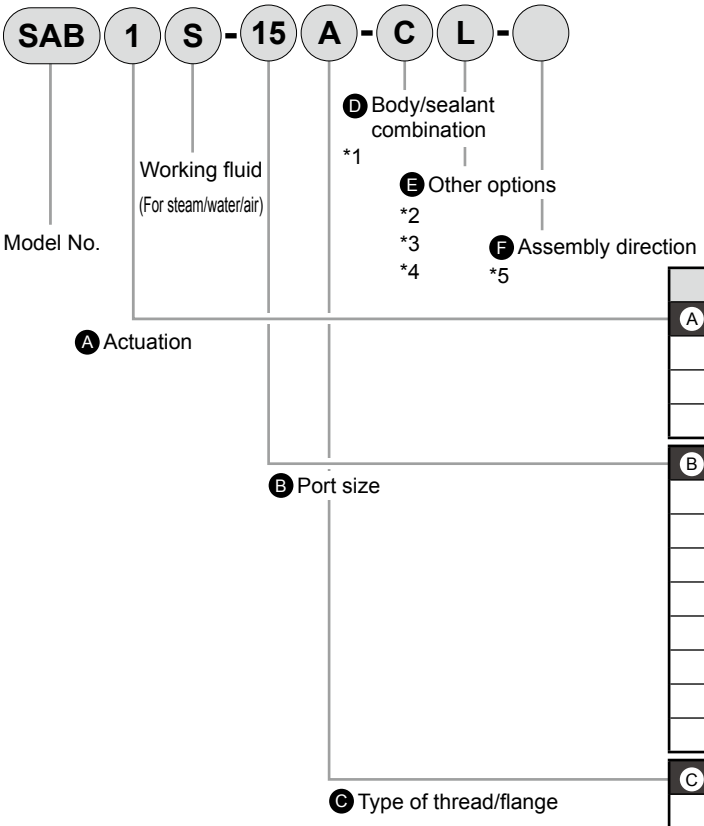
*1: Refer to the working fluid check list on Intro Page 39.

Individual specifications

Descriptions / Model No.	Port size	Orifice size (mm)	C [dm³/(s·bar)]	b	S (mm²)	Cv	Pilot port size	Weight (kg)
NC: 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	Rc1¼	26	-	-	390	18.5		2.2
SAB1S-32F	32 flange	26	-	-	390	18.5		5.2
SAB1S-40A	Rc1½	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: Normally open type								
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	Rc1¼	26	-	-	450	20		2.2
SAB2S-32F	32 flange	26	-	-	450	20		5.2
SAB2S-40A	Rc1½	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 (*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	Rc1¼	26	-	-	390(450)	18.5(20)		2.2
SAB3S-32F	32 flange	26	-	-	390(450)	18.5(20)		5.2
SAB3S-40A	Rc1½	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 : ( ) of C, b and S columns of double acting shows the flow rates of when port A is pressurized.
*2 : Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*3 : Female thread is available in G thread and NPT thread.

How to order



Code	Content
A Actuation	
1	NC
2	NO
3	Double acting
B Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
C Type of thread/flange	
A	Rc(8A to 50A)
F	Flange (32F to 50F)
G	G(8G to 50G)
N	NPT(8N to 50N)

D Body/sealant combination

	Body	Seal	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-based

E Other options	
Blank	No option
B	Mounting plate *2
L	With indicator
F Assembly direction	
Blank	No option
R	Mounting plate assembly position reversed

Refer to the figure below for the layout drawing.

Precautions for model No. selection

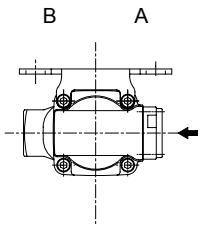
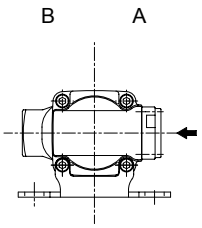
*1 : When the working fluid is steam, select C or E.
*2 : The mounting plate (Item E B) can be attached to only the female thread of port size 8 to 32.
*3 : Indicator (Item E L) can be attached to only the NC (actuation 1).
*4 : To add both the mounting plate and indicator options, specify Item E as BL.
*5 : Reversed mounting plate (Item E B-R) is available for port size 15 to 32.
*6 : Clockwise when viewed from above with the port A on the right.

[Example of model No.]

SAB1S-15A-CL

Model: SAB
A Actuation : NC
B Port size : 1/2
C Type of thread/flange : Rc
D Body/sealant combination : Body - bronze, sealant - tetrafluoroethylene resin
E Other options : Indicator
F Assembly direction : No option

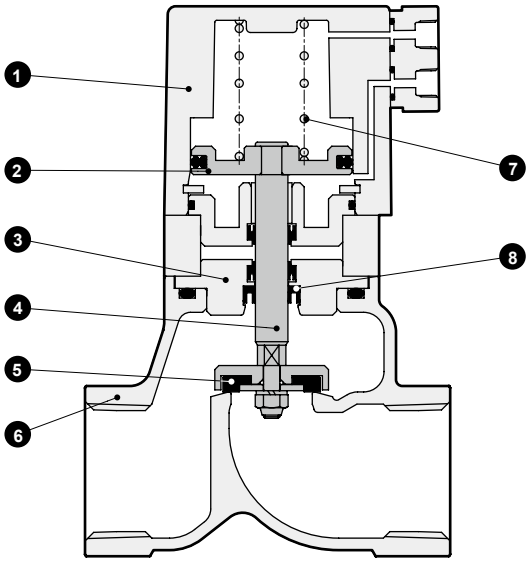
Item F Assembly direction

SAB [Air operated] *2/6		
Code	B (with mounting plate)	B-R *5
Direction	No rotation	Mounting plate reversed
Layout		

←shows pilot port IN.

Internal structure and parts list

● SAB1S

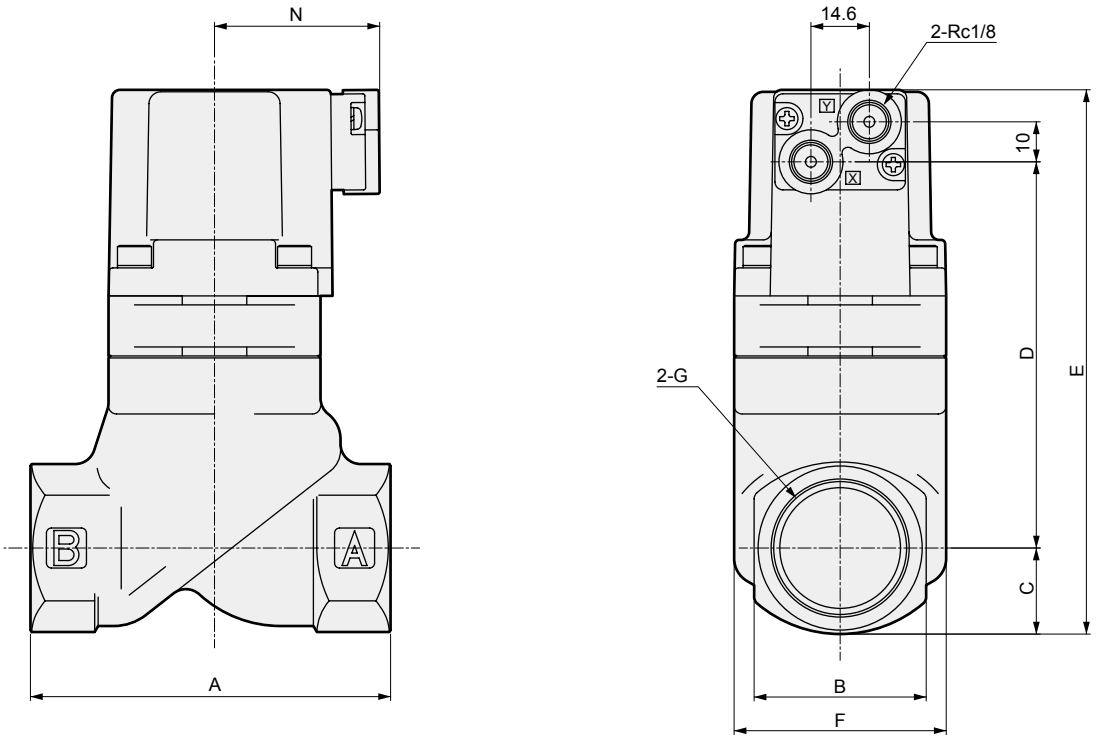


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	Piston	A2017	Aluminum
3	Adaptor	C3604(SUS304)	Copper alloy (stainless steel)
4	Piston rod	SUS304	Stainless steel
5	Main valving element	PTFE	Tetrafluoroethylene resin
6	Body	CAC408(SCS13)	Bronze casting (stainless steel casting)
7	Spring	SWP	Piano wire
8	Rod packing	PTFE	Tetrafluoroethylene resin

( ) shows options.

Dimensions CAD

● SAB*S-8* to 50* (female thread)

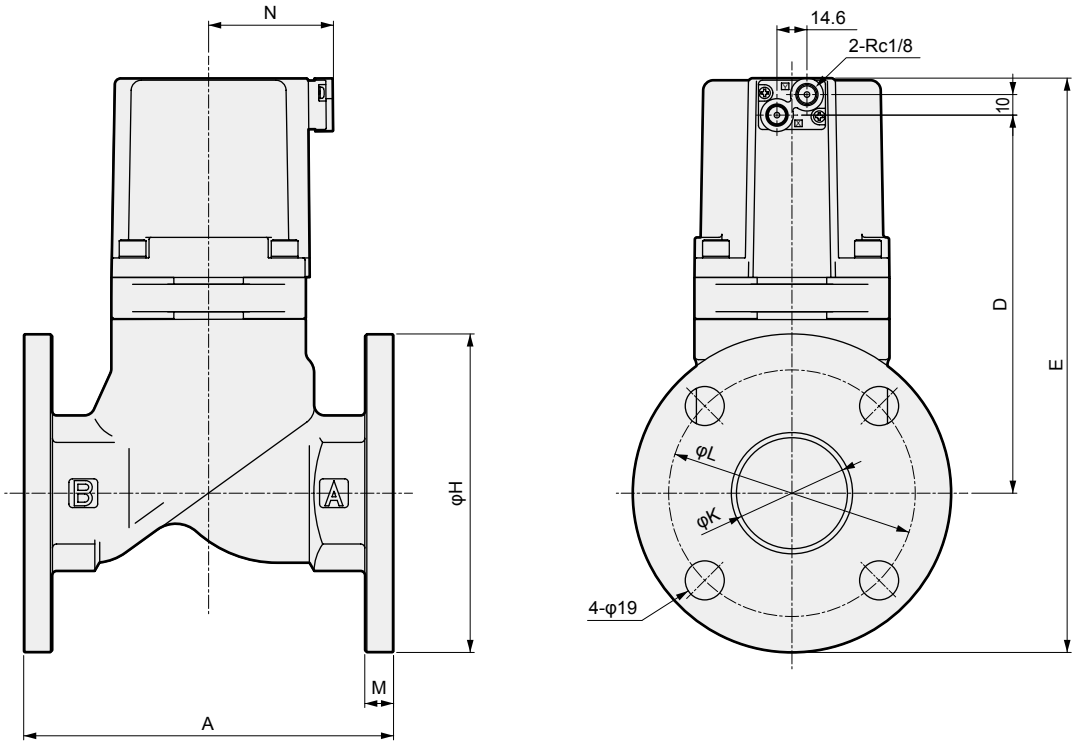


Model No.	A	B	C	D	E	F	G	N
SAB*S-8A/G/N	50	24	12	52.5	82.5	32	Rc1/4 / G1/4 / 1/4-18NPT	37(42)
SAB*S-10A/G/N							Rc3/8 / G3/8 / 3/8-18NPT	
SAB*S-15A/G/N	71	28	14.5	77.5	110	43	Rc1/2 / G1/2 / 1/2-14NPT	38(43)
SAB*S-20A/G/N	80	35	17.5	87	122.5	43	Rc3/4 / G3/4 / 3/4-14NPT	38(43)
SAB*S-25A/G/N	90	43	21	98	137	53	Rc1/G1/1-11.5NPT	41.5(46.5)
SAB*S-32A/G/N	125	55	27.5	124.5	170	63	Rc1 1/4 / G1 1/4 / 1 1/4-11.5 NPT	46(51)
SAB*S-40A/G/N	140	61	30.5	150.5	199	77	Rc1 1/2 / G1 1/2 / 1 1/2-11.5 NPT	53(58)
SAB*S-50A/G/N	160	76	38	184	240	95	Rc2/G2/2-11.5NPT	61(66)

*1: ( ) shows values for G thread.

Dimensions

● SAB*S-32F to 50F (flange)

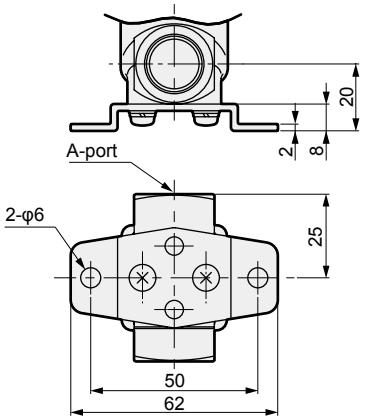


Model No.	A	D	E	H	K	L	M	N
SAB*S-32F	170	124.5	210	135	36	100	12	46
SAB*S-40F	180	150.5	238.5	140	42	105	12	53
SAB*S-50F	180	184	279.5	155	54	120	14	61

Optional dimensions

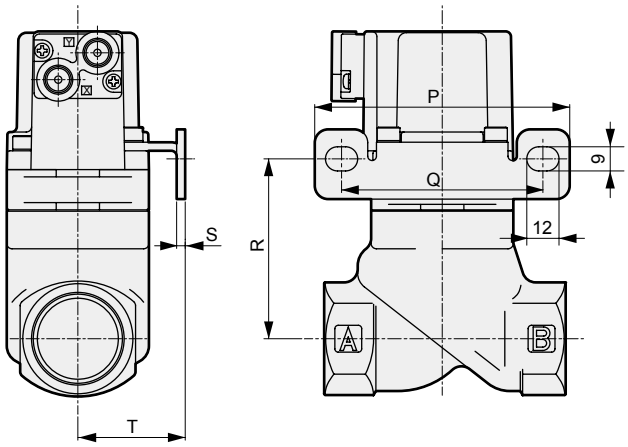
● Mounting plate
SAB*S-8*/10*-* B

Material: Steel
Zinc plated

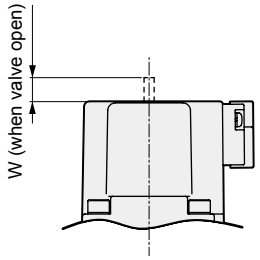


● Mounting plate
SAB*S-15* to 32*-* B / B-R

Material: Steel
Zinc plated



● Indicator
SAB1S-8* to 50*-* L



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

* The figure shows B .

Model No.	P	Q	R	S	T
SAB*S-15A/G/N	90	70	55	2.3	30
SAB*S-20A/G/N	90	70	64.5	2.3	30
SAB*S-25A/G/N	95	75	68.5	3.2	40
SAB*S-32A/G/N	105	85	81.5	3.2	45

Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

Precautions for each model series: product-specific cautions

Air operated 2-port valve (cylinder valve) SAB/SVB/NAB

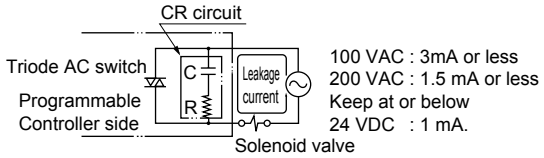
Design/selection

1. Safety design

⚠ CAUTION

■ Leakage current from other fluid control components

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



100 VAC : 3mA or less
200 VAC : 1.5 mA or less
Keep at or below
24 VDC : 1 mA.

2. Working fluid

⚠ WARNING

■ Working fluids

(1) Do not use any fluid other than the working fluids specified in the catalog.

(2) Before starting use, check the compatibility between the product and working fluid with the working fluid check list (Intro Page 39).

(3) The durability of the rod packing (MY packing) decreases sharply if the working fluid is of poor quality and/or 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 the devices in the air circuit.
Perform periodic maintenance or take other appropriate measures.

■ Grease for special fluids

For cylinder valve, grease is applied to the piston rod sealant sections. When using special fluids, specify the type of grease.

[Example] Oxygen : fluorine grease
Medium vacuum : silicone grease
Fluids for foods : Vaseline
Dry air for painting : Vaseline

■ Fluid temperature

Be sure to use the coolant check valve within the specified fluid temperature range.

⚠ CAUTION

■ External pilot air

(1) Draining: Compressed air contains a large amount of drainage (water, oil oxides, tar, foreign matter). This is a factor that significantly reduces the reliability of the pneumatic components. For drainage measures, 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 pre-lubricated, so no lubrication is required. However, once lubrication has been started, it must be continued so that the lubricant does not run out. Use turbine oil Class 1 ISO VG32 (#90) or equivalent for lubrication.

(3) Filter - Install a filter with a 5 μm or less filter element.

3. Working environment

⚠ WARNING

■ SVB Series cannot be used in an explosive gas atmosphere. When using in an explosive gas atmosphere, change to the SAB Series, and provide a separate explosion-proof solenoid valve on the pilot air circuit.

■ If there are high levels of dust in the area, install a downward-facing silencer or elbow fitting on the exhaust port so that dust does not enter.

■ Take appropriate safeguards when using this product in places where it can be exposed to dripping water.

■ Make sure that there is no torsion, tension or moment load applied to the fitting when using NAB or GNAB models with fittings.

Mounting, installation and adjustment

1. Piping

⚠ CAUTION

■ Make sure not to use the wrong supply port when connecting the pipes to the product.

■ Do not pipe using the solenoid valve section. There is a risk of damage. (For solenoid valve mounted)

■ If C18 and L18 are selected as pilot port size for NAB and GNAB, use the fiber tube for push-in fitting for pilot air piping.

■ When piping the GNAB Series, check the supply port on the pilot operation side.

Model No.	Pilot operation side supply port
GNAB1/GNAB1V	X
GNAB2/GNAB2V	Y
GNAB3/GNAB3V	X and Y

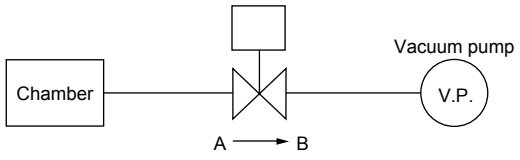
■ When piping the NAB/SAB/SVB Series, check the supply ports on the body side and pilot operation side.

Model No.	Body side supply port	Pilot operation side supply port
NAB1-8/10	A or B *1) *2)	X
NAB2-8/10	A or B *1) *2)	Y
NAB3-8/10	A or B *1) *2)	X and Y
NAB1V-8/10	A *3)	X
NAB2V-8/10	A *3)	Y
NAB3V-8/10	A *3)	X and Y
SAB1W	A	X
SAB2W	A	Y
SAB3W	A	X and Y
SAB1A	B	X
SAB2A	A	Y
SAB3A	A or B *1)	X and Y
SAB1V	A *3)	X
SAB2V	A *3)	Y
SAB3V	A *3)	X and Y
SAB1S	B	X
SAB2S	A	Y
SAB3S	A or B *1) *2)	X and Y
SVB1W	A	P
SVB2W	A	P
SVB1A	B	P
SVB2A	A	P
SVB1V	A *3)	P
SVB2V	A *3)	P
SVB1S	B	P
SVB2S	A	P

*1) When both ports A and B are pressurized, connect the normally pressurized side to port A.
If port B is connected to the normally pressurized side, the durability could degrade further than when port A is connected.

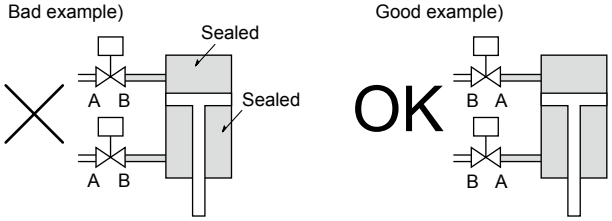
*2) If the working fluid is an incompressible fluid, e.g. water, connect the normally pressurized side to port A in order to prevent water hammer.

*3) For SAB$\frac{1}{3}$V, SVB$\frac{1}{2}$V, and NAB$\frac{1}{3}$ body-side supply ports, connect the chamber (vacuum holding side) to port A.

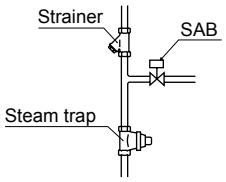


When using for vacuum burst, etc., set the pressurized port to port A.

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



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

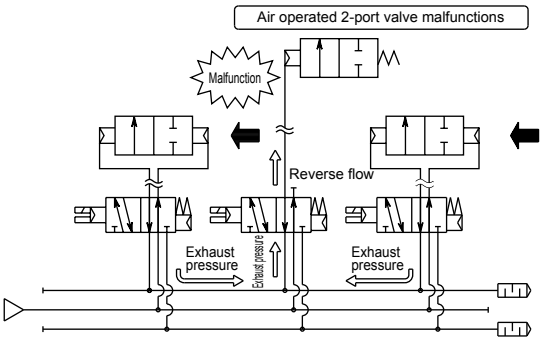


■ Refer to the table below for tightening torque of the pilot air piping.

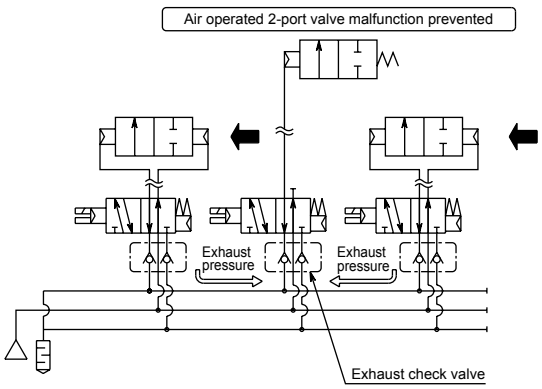
Piping nominal diameter	Recommended piping tightening torque (Nm)
Rc1/8	7 to 9

■ If a manifold is used on the SAB/NAB/GNAB Series operation valve, the exhaust pressure could be drawn in from other valves, which causes malfunctions such as a momentary opening of the valve. When using a manifold on an operation valve, use a valve with a built-in “exhaust 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 the CKD pilot operated 3, 5-port valve 4G Series.

Example of pneumatic pressure system that may malfunction



4G series pneumatic pressure system



Mounting, installation and adjustment

2. Wiring

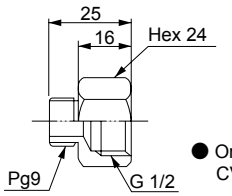
⚠ CAUTION

■ When using an explosion-proof solenoid valve, follow the Recommended Practices for Explosion-protected Electrical Installations in General Industries when wiring.

■ Wiring for models with solenoid valve

(1) Refer to Connections on Intro Pages 65 and 66 when wiring to a DIN terminal box or T type terminal box.

(2) The thread size for the junction box outlets of the DIN terminal box can be changed from Pg9 to G1/2 using the optional connector below.



● Order Model No.:
CVS2-CONNECTOR-F4-202936

(3) Coil direction can be changed 180°. To reverse the electrical connection direction, rotate only the coil. Do not lose internal parts when removing the coil.

Use/maintenance

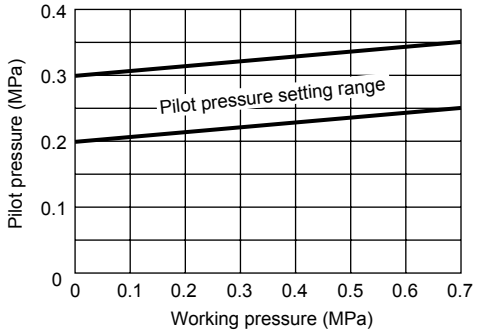
1. Maintenance and inspection

⚠ CAUTION

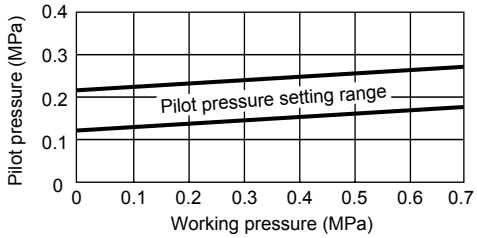
■ Pilot pressure

Set pilot air pressure within the specified range.
Set the pilot pressure for the NAB/GNAB/SAB/SVB Series NO and double acting as shown in the graph below. If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised.
The NC is recommended when the pilot pressure cannot be controlled.

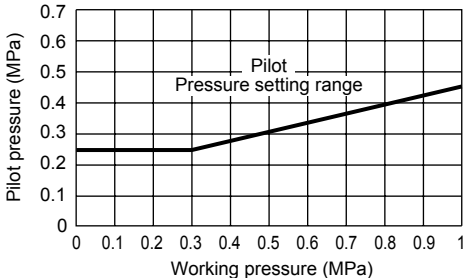
● NAB$^{2}_{2V}$ Series/GNAB$^{2}_{2V}$ Series



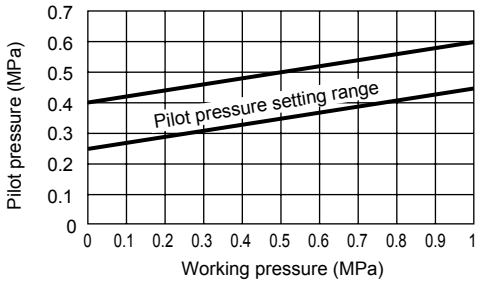
● NAB$^{3}_{3V}$ Series/GNAB$^{3}_{3V}$ Series



● SAB$^{2}_{3}{}^{W}_{A}{}_{V}$Series/SVB2$^{W}_{A}{}_{V}$Series



● SAB$^{2}_{3}$S Series/SVB2S Series



2. Disassembly/assembly

⚠ WARNING

■ A spring is used in the cylinder cover. When disassembling this type, be careful as the spring could pop out and cause injuries.
The NC has a snap ring to prevent the spring from popping out. Do not remove the snap ring.

■ When loosening the lock nut (*1) that fixes the piston rod and the main valving element, take the following precautions in order to prevent the piston rod from seizing:

*1 In the case of 8A and 10A, the lock nut that fixes the piston rod and piston

Remove any dirt and foreign matter from the thread part.

(1) Apply lubricant to the gap between the nut and the rod

(2) thread part.

When reusing the main valving element, make sure that no lubricant adheres thereto.

Fix the piston rod, attach a wrench to the lock nut, and

(3) carefully and gently turn it.

If the external thread part of the piston rod is damaged, it cannot be reused. In this case, replace the kit including the piston rod.

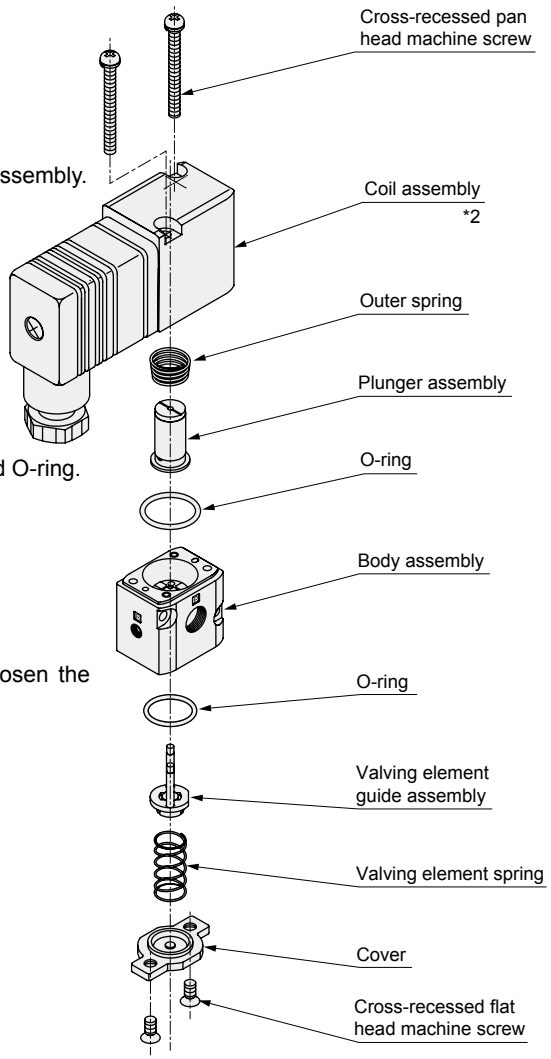
■ Pilot solenoid valve (with solenoid valve) assembly procedure

If the pilot solenoid valve has been disassembled, assemble it as follows.

(1) Coil side
- Disassembly
  Loosen the cross-recessed pan head machine screw and lift up the coil assembly. Take out the outer spring, plunger assembly, and O-ring.
- Reassembly
  Assemble the parts in the sequence of O-ring, plunger assembly, outer spring and coil assembly. Tighten the cross-recessed pan machine screws with a torque of 0.7 to 1.1 N·m.

(2) Cover side
- Disassembly
  Loosen the cross-recessed flat head screw to remove the cover. Take out the valving element spring, valving element guide assembly, and O-ring.
- Reassembly
  Set the parts in the sequence of O-ring, valving element guide assembly, valving element spring and cover. Tighten the flat-head cross-recessed screw with a torque of 0.7 to 1.1 N·m.

*1 : Be careful not to lose components such as springs during disassembly.
*2 : The orientation of the coil assembly can be changed 180 degrees. Loosen the cross-recessed pan head machine screw to adjust the orientation.
*3 : Plunger is coated with turbine oil for lubrication.



■ For SVB*W/SVB*A/SVB*V

Model No. of pilot solenoid valve (actuator assembly kit)

CVSE2-ACTUATOR-0 [*1] - (Rated voltage)

Specify the coil option code in the *1 field.

■ Model No. of pilot solenoid valve (actuator assembly kit) for SVB*S

SVB-ACTUATOR-C [*1] - (Rated voltage)

Specify the coil option code in the *1 field.

■ Orientation of gasket (models with solenoid valve)

The gasket has an orientation. Make sure to check the orientation when re-assembling.