



Push-In Fitting Incorporated Type Manifold Solenoid Valve Solenoid Valve **SVA20** Series

- *Lightweight and Large Capacity*
- *Effective Sectional Area 18mm^2 (C_v 0.97)
with valve width 16mm ($5/8''$)*
- *Various Valve Selections*

■ Characteristics

- *Easy maintenance by a single-screw mechanism.*
- *3 selections of wiring; Sub-D, Flat (Ribbon) Cable and Individual Plug-in Connector*
- *2 selections of connector lead-out direction: (Top and Side)*
- *2 color selections: Black and Light Gray*
- *Check Valve can be selected for each exhaust port for each to prevent back pressure*
- *2 actuators are operated independently and simultaneously by Twin 3-Way Solenoid Valve*

Vacuum-Operable 2 / 3-Port Solenoid Valve _____

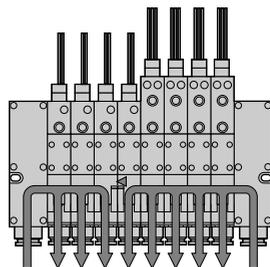
- *Vacuum-Operable 2 / 3-Port Solenoid Valve which does not require an external piping and has the same function as external pilot system.*
- *Elimination of external piping thus allowing these valves to be mounted along with other types of valves. This saves wiring, piping, and space.*
- *Selectable from single solenoid and double solenoid.*

DIN Rail Mounting Bracket _____

- *Easy and speedy attachment and detachment of DIN rail (width: 35mm).*
- *Installing a valve manifold on a DIN rail firmly.*

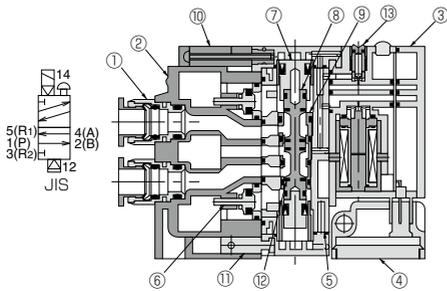
Dual Pressure Option _____

- *Possible to control 2 different pressures in one manifold.*



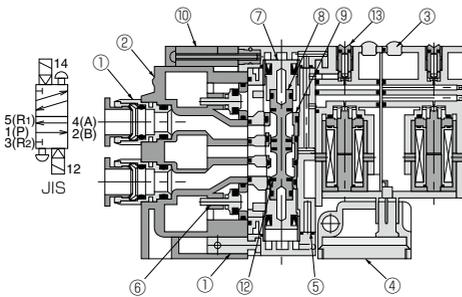
Construction

● 2-Position, 5-Port, Single Solenoid Valve (SVA □ S)



No.	Part	Material
1	Fitting Ass'y	
2	Manifold-block	Polyamide Base Plastic
3	Pilot Valve Ass'y	
4	Electric Component Ass'y	
5	Valve Body	PBT GF15%
6	Check Valve Ass'y	
7	Piston	Nickel-plated brass (Electroless Ni plating)
8	Spool	Aluminum Alloy
9	Sleeve	Aluminum Alloy
10	Slide Part	POM GF25%
11	Fixing Bracket	Nickel-plated brass (Electroless Ni plating)
12	Spool Seal Rubber	NBR
13	Push-Lock Manual Button	

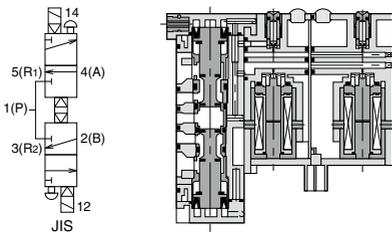
● 2-Position, 5-Port Double Solenoid Valve (SVA □ D)



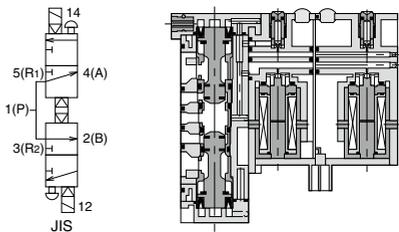
No.	Part	Material
1	Fitting Ass'y	
2	Manifold-block	Polyamide Base Plastic
3	Pilot Valve Ass'y	
4	Electric Component Ass'y	
5	Valve Body	PBT GF15%
6	Check Valve Ass'y	
7	Piston	Nickel-plated brass (Electroless Ni plating)
8	Spool	Aluminum Alloy
9	Sleeve	Aluminum Alloy
10	Slide Part	POM GF25%
11	Fixing Bracket	Nickel-plated brass (Electroless Ni plating)
12	Spool Seal Rubber	NBR
13	Push-Lock Manual Button	

● 2 Position, 3-Port, Solenoid Valve (Twin 3-Way Valve)

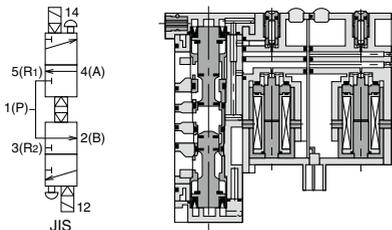
A / B Port: Normally Closed (SVA □ E)



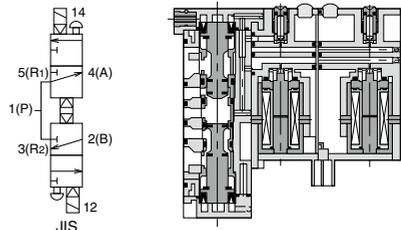
A / B Port: Normally Open (SVA □ F)



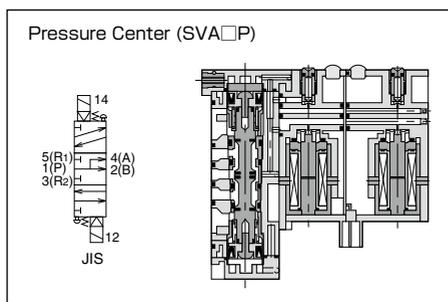
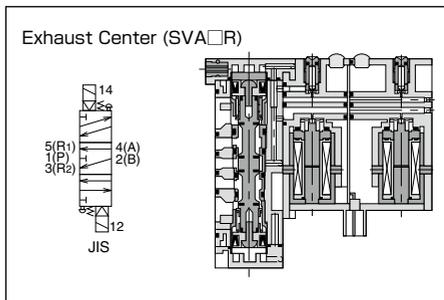
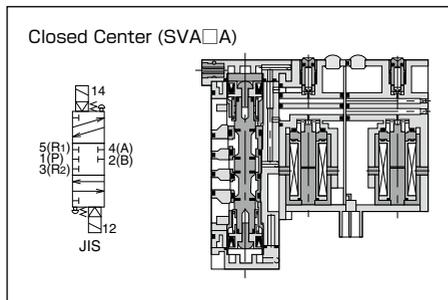
A Port: Normally Closed, B Port: Normally Open



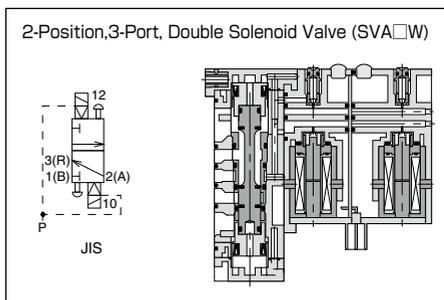
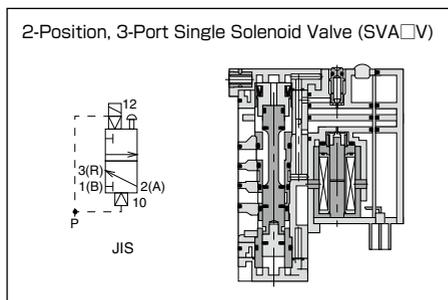
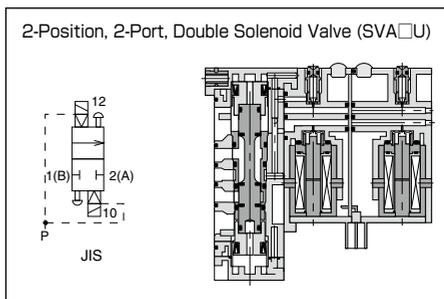
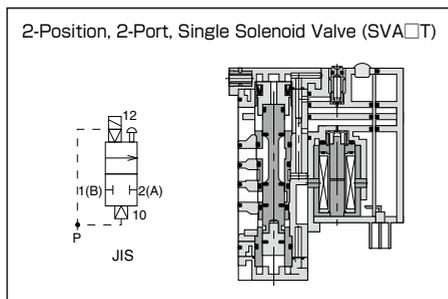
A Port: Normally Open, B Port: Normally Closed



● 3-Position, 5-Port, Double Solenoid Valve



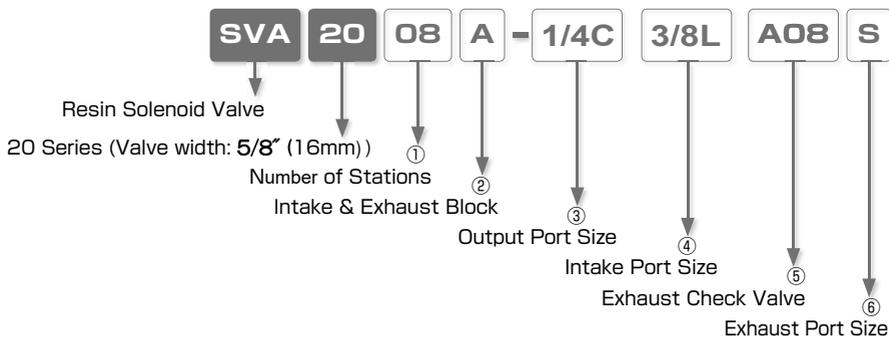
● Vacuum-Operable 2/3 Port Solenoid Valve



SOLENOID VALVE Series

Solenoid Valve SVA20 Series

Model Designation of SVA20 Manifold Type(Example)



① Number of Stations

Code	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
No. of stations	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

❖ Max. 12 stations for Sub-D connector specifications

② Intake & Exhaust Block

A : Intake & Exhaust Block on Both Sides

B : Intake & Exhaust Block on One Side

③ Output Port Size

Fitting Type	Push-In Fitting (mm)						Push-In Fitting (inch)			
	1C	1/4C	5/16C	1L	1/4L	5/16L	6C	8C	6L	8L
Size (O.D.)	Combination of Port Size	ø1/4	ø5/16	Combination of Port Size	ø1/4	ø5/16	ø6	ø8	ø6	ø8
Piping direction	Side			Top (Elbow fitting)			Side		Top (Elbow fitting)	

④ Intake Port Size

Fitting Type	Push-In Fitting (inch)						Push-In Fitting (mm)					
	5/16C	3/8C	1/2C	5/16L	3/8L	1/2L	8C	0C	2C	8L	0L	2L
Size (O.D.)	ø5/16	ø3/8	ø1/2	ø5/16	ø3/8	ø1/2	ø8	ø10	ø12	ø8	ø10	ø12
Piping direction	Side			Top (Elbow fitting)			Side			Top (Elbow fitting)		

⑤ Exhaust Check Valve

No Code : without Check Valve

A : with Check Valve

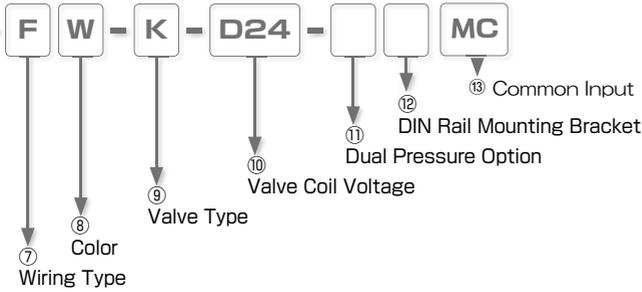
Code	A01	A02	A03	A04	A05	A06	A07	A08	A09	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19
Qty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

⑥ Exhaust Port Size

Fitting Type	Push-In Fitting (inch)			Push-In Fitting (mm)			Silencer (Open-air exhaust)
Code	5/16	3/8	1/2	8	0	2	S
Size (O.D.)	ø5/16	ø3/8	ø1/2	ø8	ø10	ø12	-

* The piping direction of Exhaust Port is the same direction as that of Intake Port.

* Use the order format when ordering.



⑦ Wiring Type

- D : Sub-D Connector
- S : Individual Plug-in Connector
- F : Flat (Ribbon) Cable Connector

⑧ Color

- B : Black
- W : Light Gray

⑨ Valve Type

Code	Position	# of Port	Valve Function
S	2	5	Single Solenoid
D	2	5	Double Solenoid
E	2	3	4(A),2(B),Normally Closed (Twin 3-Way Valve)
F	2	3	4(A),2(B),Normally Open (Twin 3-Way Valve)
G	2	3	4(A),Normally Closed, 2(B),Normally Open
H	2	3	4(A),Normally Open, 2(B),Normally Closed
A	3	5	Closed Center
R	3	5	Exhaust Center
P	3	5	Pressure Center

Code	Position	# of Port	Valve Function
T	2	2	Single Solenoid (available for vacuum system)
U	2	2	Double Solenoid (available for vacuum system)
V	2	3	Single Solenoid (available for vacuum system)
W	2	3	Double Solenoid (available for vacuum system)
K	Combination of Valves		
B	Block Plate		
M	Manifold-base Only		

⑩ Valve Coil Voltage

- D24 : DC24V
- 100 : AC100V

⑪ Dual Pressure Option

- No Code : Single Pressure
- P : Dual Pressure (*)

- ❖ Please specify where on the manifold to mount using the order form. (Refer to the code example)
- ❖ For the manifold type with Dual Pressure, Intake & Exhaust Block "A" (Intake & Exhaust Block on Both Sides) is only selectable.

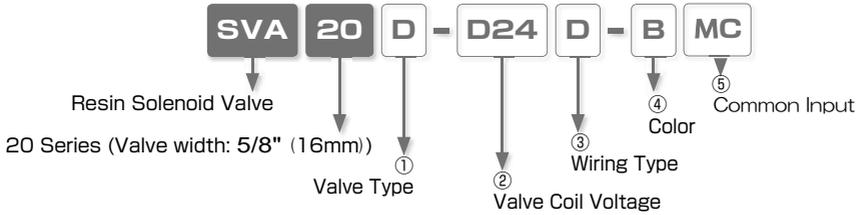
⑫ DIN Rail Mounting Bracket

- No Code : Without Bracket
- D : With Bracket (1 set (2pcs) is equipped.)

⑬ Common Polarity Specification

- No Code : Positive common
- MC : Negative common
- ❖ Negative common, MC is selectable when coil voltage is 24VDC

■ Model Designation of Mounting Unit (Example)



① Valve Type

Code	Position	No. of Port	Valve Type
S	2	5	Single Solenoid
D	2	5	Double Solenoid
E	2	3	4(A),2(B),Normally Closed (Twin 3-Way Valve)
F	2	3	4(A),2(B),Normally Open (Twin 3-Way Valve)
G	2	3	4(A),Normally Closed, 2(B),Normally Open
H	2	3	4(A),Normally Open, 2(B),Normally Closed

Code	Position	No. of Port	Valve Type
A	3	5	Closed Center
R	3	5	Exhaust Center
P	3	5	Pressure Center
T	2	2	Single Solenoid (available for vacuum system)
U	2	2	Double Solenoid (available for vacuum system)
V	2	3	Single Solenoid (available for vacuum system)
W	2	3	Double Solenoid (available for vacuum system)

② Valve Coil Voltage

D24 : DC24V
100 : AC100V

③ Wiring Type

D : Concentrated wiring (Sub-D connector / Flat (Ribbon) Cable Connector)
S : Individual Plug-in Connector

④ Color

B : Black
W : Ivory

⑤ Common Polarity Specification

No Code : Positive common
MC : Negative common
❖ Negative common, MC is selectable when coil voltage is 24VDC

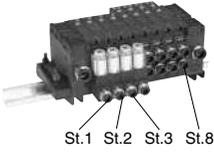
■ Model Code of DIN Rail Mounting Bracket

DRF35S

DIN Rail Mounting Bracket

Code Example

Model	Series	Number of Stations	Intake / Exh. Block config.	Output Port Size	Intake Port Size	Exhaust Check Valve	Exhaust Port Size	Wiring Type	Color	Valve Type	Coil Voltage	Dual Pressure Option	DIN Rail Bracket	Common Input
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
SVA	20	08	A	1C	3/8C	AO3	S	F	B	K	D24	P	D	MC



St.1 St.2 St.3 St.8

※.Station Number is counted St.1, St.2, St.3 ...St.8 from left side with the tube fittings at the front as shown in the figure.

Station Number	Output Port Size	Exhaust Check Valve	Valve Type	Dual Pressure Option
St 1	1/4		SVA20 S	
St 2	1/4		SVA20 S	
St 3	6		SVA20 S	
St 4	6		SVA20 W	
St 5	5/16		SVA 20 W	○
St 6	5/16	A	SVA 20 D	
St 7	8	A	SVA 20 D	
St.8	8	A	SVA 20 D	

Order Form: SVA 20 Series

From : _____

Name : _____

Order # : _____

Date : _____

Requested EX-W PISCO Date : _____ Quantity : _____

Series	Number of Stations	Intake / Exh. Block config.	Output Port Size	Intake Port Size	Exhaust Check Valve	Exhaust Port Size	Wiring Type	Color	Valve Type	Coil Voltage	Dual Pressure Option	DIN Rail Bracket	Common Input
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
SVA	20												

Station No.	Output Port Size	Exhaust Check Valve	Valve Type	Dual Pressure Option
St 1			SV	
St 2			SV	
St 3			SV	
St 4			SV	
St 5			SV	
St 6			SV	
St 7			SV	
St.8			SV	
St.9			SV	
St.10			SV	
St.11			SV	
St.12			SV	
St.13			SV	
St.14			SV	
St.15			SV	
St.16			SV	
St.17			SV	
St.18			SV	
St.19			SV	
St.20			SV	

* Write a circle for Dual Pressure Option to indicate the border where the air pressure is separated.

Manifold Specification

Item	Model	SVA 20·A·····D	SVA 20·B·····D	SVA 20·A·····F	SVA 20·B·····F	SVA 20·A·····S	SVA 20·B·····S						
Fluid Medium	Air												
Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)												
Pressure Resistance	150psi (1.05MPa)												
Operating Temp. Range	40~120°F (5 ~ 50°C)												
Installing Direction	No Restriction (*1)												
Max. Mountable Number of Valve Unit	Max. 12 units			Max. 19 units									
Fitting O.D.	1(P),5(R1),3(R2) Port	ø5/16"×2	ø8mm×2	ø5/16"×1	ø8mm×1	ø5/16"×2	ø8mm×2	ø5/16"×1	ø8mm×1	ø5/16"×2	ø8mm×2	ø5/16"×1	ø8mm×1
		ø3/8"×2	ø10mm×2	ø3/8"×1	ø10mm×1	ø3/8"×2	ø10mm×2	ø3/8"×1	ø10mm×1	ø3/8"×2	ø10mm×2	ø3/8"×1	ø10mm×1
		ø1/2"×2	ø12mm×2	ø1/2"×1	ø12mm×1	ø1/2"×2	ø12mm×2	ø1/2"×1	ø12mm×1	ø1/2"×2	ø12mm×2	ø1/2"×1	ø12mm×1
	4(A),2(B) Port	Push-In Fitting : 1/4", 5/16", ø6mm, ø8mm											
Wiring Type	Type	Sub-D connector			Flat (Ribbon) Cable Connector		Individual Plug-in Connector						
	# of Pin	9 pins and 25 pins (*2)			10 pins, 26 pins and 40 pins (※3)		3 pins						
Silencer	Standard equipment only for 5(R1) and 3(R2) port with open-air exhaust.												

*1. Refer to "Warning" of "Detailed Safety Instructions".

*2. 2 to 4 stations: 9 pins, 5 to 12 stations: 25 pins

*3. 2 to 4 stations: 10 pins, 5 to 12 stations: 26 pins, 13 to 19 stations: 40 pins

Solenoid Valve Specifications (DC24V)

Item	Model	SVA 20S-D24	SVA 20D-D24	SVA 20A-D24	SVA 20E-D24	SVA 20T-D24	SVA 20U-D24	SVA 20V-D24	SVA 20W-D24
				SVA 20R-D24 SVA 20P-D24	SVA 20F-D24 SVA 20G-D24 SVA 20H-D24				
Pilot Valve	Valve Type	Direct Acting Valve							
	Valve Structure	Elastic Seal, Poppet Valve							
	Rated Coil Voltage	DC24V							
	Tolerance of Voltage Range	DC21.6 ~ 26.4V							
	Power Consumption	1.2W (With LED)							
	Surge Protection Circuit	Diode							
	Manual Operation	Non-Lock Push Button							
	Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)							
Main Valve	Valve Type	Pneumatic Operation by Pilot Valve							
	Valve Structure	Elastic Seal, Spool Valve							
	Number of Position	2-Position		3-Position	2-Position				
	Number of Port	5-Port			3-Port × 2 (*1)	2-Port		3-Port	
	Valve Function	Single Solenoid	Double Solenoid		Single Solenoid × 2	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid
	# of pilot points	1	2			1	2	1	2
	Response Time (*2)	18msec	12msec	18msec		15msec			
	Max. Operation Cycle	5Hz							
	Min. Excitation Time	50msec					50msec	50msec	
	Lubrication	Not Required							
	Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)				-14.5~100psi (-0.1 ~ 0.7MPa)			

*1. This is a valve construction incorporating 2 × 3-port valves. 1(P) is common.

*2. Values are at air pressure of 72.5psi (0.5MPa) and from power off to on. For 3 positions valve, the value is from neutral position of all port block valve.

Solenoid Valve Specifications (AC100V)

Item		Model							
		SVA 20S-100	SVA 20D-100	SVA 20A-100 SVA 20R-100 SVA 20P-100	SVA 20E-100 SVA 20F-100 SVA 20G-100 SVA 20H-100	SVA 20T-100	SVA 20U-100	SVA 20V-100	SVA 20W-100
Pilot Valve	Valve Type	Direct Acting Valve							
	Valve Structure	Elastic Seal, Poppet Valve							
	Rated Coil Voltage	AC100V							
	Tolerance of Voltage Range	AC90 ~ 110V							
	Power Consumption	1.5VA (with LED)							
	Surge Protection Circuit	Diode							
	Manual Operation	Non-Lock Push Button							
	Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)							
Main Valve	Valve Type	Pneumatic Operation by Pilot Valve							
	Valve Structure	Elastic Seal, Spool Valve							
	Number of Position	2-Position	3-Position	2-Position					
	Number of Port	5-Port		3-Port × 2 (*1)	2-Port		3-Port		
	Valve Function	Single Solenoid	Double Solenoid	Single Solenoid × 2	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	
	# of pilot points	1	2		1	2	1	2	
	Response Time (*2)	18msec	12msec	18msec	15msec				
	Max. Operation Cycle	5Hz							
	Min. Excitation Time		50msec				50msec		50msec
	Lubrication	Not Required							
Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)				-14.5~100psi (-0.1 ~ 0.7MPa)				

*1. There are two 3-port solenoid valves incorporated in one valve. Port 1(P) is common.

*2. Response Time represents the value at air pressure of 72.5psi (0.5MPa) (OFF to ON) and that of 3-Position Solenoid Valve represents the value from the neutral position with all ports blocked.

Flow Characteristics

Piping Port	Model	SVA 20S-□	SVA 20D-□	SVA 20A-□	SVA 20E-□	SVA 20T-□	SVA 20V-□
				SVA 20R-□	SVA 20F-□	SVA 20U-□	SVA 20W-□
1(P)→4(A).2(B) (φ 3/8", 10mm)(*2)	C (*3)						
	S (*4)						
1(P)→4(A).2(B) (φ 5/16", 8mm)(*2)	C (*3)	3.2	3.2	2.4	2.9	2.7	2.7
	S (*4)	16(0.86)	16(0.86)	12(0.65)	14.5(0.78)	13.5(0.73)	13.5(0.73)
1(P)→4(A).2(B) (φ 1/4", 6mm)(*2)	C (*3)	2.1	2.1	1.9	2.1	1.8	1.8
	S (*4)	10.5(0.56)	10.5(0.56)	9.5(0.51)	10.5(0.56)	9(0.49)	9(0.49)
4(A).2(B) (φ 3/8", 10mm)→5(R1). 3(R2) without Check Valve (*1)	C (*3)						
	S (*4)						
4(A).2(B) (φ 5/16", 8mm)→5(R1). 3(R2) with Check Valve (*1)	C (*3)	3.4	3.4	2.6	2.5		2.8
	S (*4)	17(0.92)	17(0.92)	13(0.7)	12.5(0.67)		14(0.76)
4(A).2(B) (φ 5/16", 8mm)→5(R1). 3(R2) without Check Valve (*1)	C (*3)	4.2	4.2	3	2.7		3.1
	S (*4)	21(1.13)	21(1.13)	15(0.81)	13.5(0.73)		15.5(0.84)
4(A).2(B) (φ 1/4", 6mm)→5(R1). 3(R2) with Check Valve (*1)	C (*3)	2.1	2.1	2	2		2
	S (*4)	10.5(0.56)	10.5(0.56)	10(0.54)	10(0.54)		10(0.54)
4(A).2(B) (φ 1/4", 6mm)→5(R1). 3(R2) without Check Valve (*1)	C (*3)	2.1	2.1	2	2		1.9
	S (*4)	10.5(0.56)	10.5(0.56)	10(0.54)	10(0.54)		9.5(0.51)

*1. The value of .5(R1) and 3(R2) ports with Open-air Exhaust.

*2. 2(B) → 4(A) piping is applied to valve type T · U · V · W.

*3. C: Sonic Conductance C(dm³/(s·bar))

*4. S: Effective Sectional Area S(mm²(CV)).

Cylinder Speed Table

Cylinder Speed (mm/s)	Cylinder Tube bore (mm)									
	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 140
100										
200										
300										
400										
500										
600										
700										
800										

Note) ● The cylinder average speed is referential at 72.5psi (0.5MPa) of pressure, 30% of load factor and 1m of tube length.

● The cylinder speed can vary according to the configuration of piping and fittings.

● The data in the above table represents the value when ø8mm Push-In Fitting is used on 4(A) and 2(B) ports of SVA20S-D24.

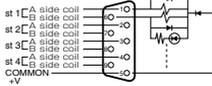
DIN Rail Mounting Bracket

Recommended Tightening Torque	0.3 ~ 0.4N·m
Max. Load	100N

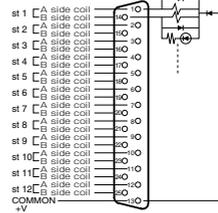
Electric Circuit (DC24V)

● Sub-D connector

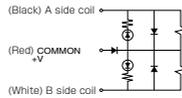
9 pins



25 pins



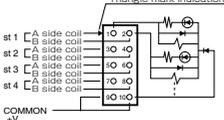
● Individual Plug-in Connector



Note) The color in parenthesis is lead wire color.

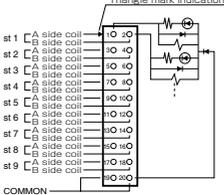
● Flat (Ribbon) Cable Connector

10 pins



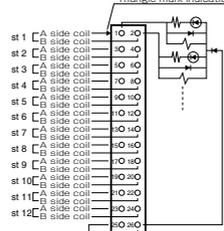
Note) COMMON(+V) pins No.9 and 10 are short-circuited inside.

20 pins



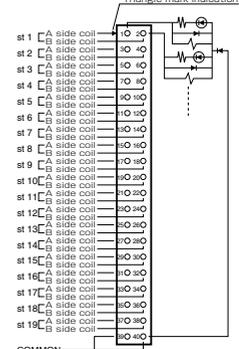
Note) COMMON(+V) pins No.19 and 20 are short-circuited inside.

26 pins



Note) COMMON(+V) pins No.25 and 26 are short-circuited inside.

40 pins

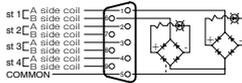


Note) COMMON(+V) pins No.39 and 40 are short-circuited inside.

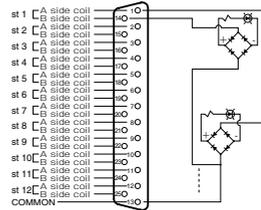
Electric Circuit (AC100V)

● Sub-D connector

9 pins

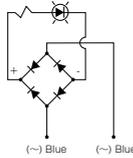


25 pins

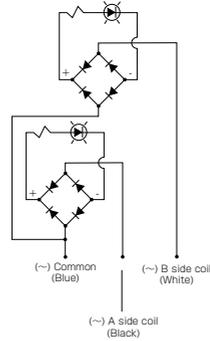


● Individual Plug-in Connector

Single Solenoid

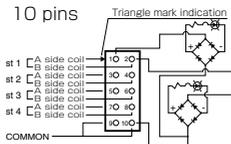


Double Solenoid



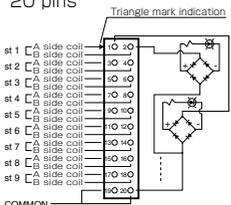
● Flat (Ribbon) Cable Connector

10 pins



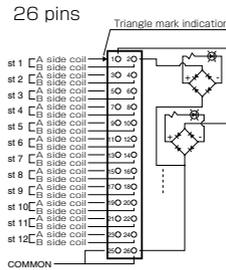
Note) COMMON(+V) pins No.9 and 10 are short-circuited inside.

20 pins



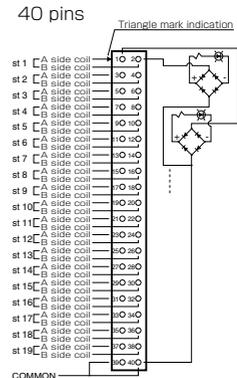
Note) COMMON(+V) pins No.19 and 20 are short-circuited inside.

26 pins



Note) COMMON(+V) pins No.25 and 26 are short-circuited inside.

40 pins



Note) COMMON(+V) pins No.39 and 40 are short-circuited inside.

Weight List

Valve Type	Weight (g)
SVA 20S	84.5
SVA 20D	120.5
SVA 20E	122.5
SVA 20F	122.5
SVA 20G	122.5
SVA 20H	122.5
SVA 20A	123.5
SVA 20P	123
SVA 20R	123
SVA 20B	36.5
SVA 20T	82
SVA 20U	118
SVA 20V	80
SVA 20W	118

Manifold-base	Weight/Station (g)
Individual Connector Type	45.5
Concentrated Wiring Type	47.5
Individual Connector Type with Check Valve	46.5
Concentrated Wiring Type with Check Valve	48.5

Manifold Block for Dual Pressure Type	Weight/Station (g)
Individual Connector Type	46
Concentrated wiring Type	48
Individual Connector type with Check Valve	49
Concentrated Wiring type with Check Valve	47

Connector cable Type	Weight (g)
2P	3
3P	4.5

Manifold Type	Exhaust Type	Wiring	Weight (g)
One Side Block	Tube Exhaust	Individual Connector	154.5
One Side Block	Tube Exhaust	9 Pins Sub-D connector	178.5
One Side Block	Tube Exhaust	25 Pins Sub-D connector	185
One Side Block	Tube Exhaust	10 Pins Flat (Ribbon) Cable Connector	173.5
One Side Block	Tube Exhaust	26 Pins Flat (Ribbon) Cable Connector	175
One Side Block	Tube Exhaust	40 Pins Flat (Ribbon) Cable Connector	179
One Side Block	Open-air Exhaust	Individual Connector	153
One Side Block	Open-air Exhaust	9 Pins Sub-D connector	177
One Side Block	Open-air Exhaust	25 Pins Sub-D connector	183.5
One Side Block	Open-air Exhaust	10 Pins Flat (Ribbon) Cable Connector	172
One Side Block	Open-air Exhaust	26 Pins Flat (Ribbon) Cable Connector	173.5
One Side Block	Open-air Exhaust	40 Pins Flat (Ribbon) Cable Connector	177.5
Both Sides Block	Tube Exhaust	Individual Connector	221
Both Sides Block	Tube Exhaust	9 Pins Sub-D connector	245
Both Sides Block	Tube Exhaust	25 Pins Sub-D connector	251.5
Both Sides Block	Tube Exhaust	10 Pins Flat (Ribbon) Cable Connector	240
Both Sides Block	Tube Exhaust	26 Pins Flat (Ribbon) Cable Connector	241.5
Both Sides Block	Tube Exhaust	40 Pins Flat (Ribbon) Cable Connector	245.5
Both Sides Block	Open-air Exhaust	Individual Connector	217.5
Both Sides Block	Open-air Exhaust	9 Pins Sub-D connector	241.5
Both Sides Block	Open-air Exhaust	25 Pins Sub-D connector	248
Both Sides Block	Open-air Exhaust	10 Pins Flat (Ribbon) Cable Connector	236.5
Both Sides Block	Open-air Exhaust	26 Pins Flat (Ribbon) Cable Connector	238
Both Sides Block	Open-air Exhaust	40 Pins Flat (Ribbon) Cable Connector	242

SVA 20 Cartridge Fitting	Weight (g)
CJC 14-06	11.5
CJC 14-08	10
CJC 18-08	20
CJC 18-10	19
CJC 18-12	26
CJL 14-06	15
CJL 14-08	18
CJL 18-08	25
CJL 18-10	31.5
CJL 18-12	37.5
CJLL 14-06	31
CJLL 14-08	24.5
CJLL 18-08	55
CJLL 18-10	65
CJLL 18-12	86
CJP 18	6

■ Use the following formula to calculate the weight of SVA20 Series.

(Manifold-base x Station Qty) + Manifold Type + (Cartridge Fitting x Qty) + (Individual Connector Cable x Qty) + (Valve Type x Qty)

Example 1 **SVA 2005 B - 6C 8C8 - S W - S - D24**

$$227.5 + 154.5 + 57.5 + 40 + 15 + 422.5 = 917$$

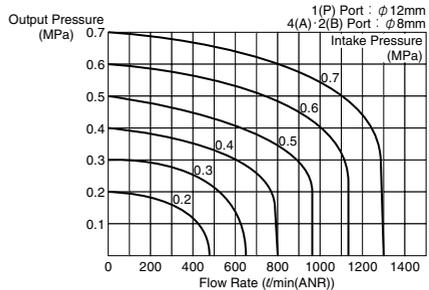
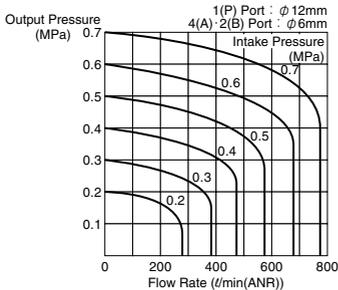
- ① Manifold-base: 45.5g x 5
- ② Manifold Type: 154.5g
- ③ Cartridge Fitting for Output (CJC14-06): 11.5g x 6
- ④ Cartridge Fitting for Intake and Exhaust (CJC18-08): 20g x 2
- ⑤ Individual Connector Cable (2P): 3g x 5
- ⑥ Valve Type (SVA20S): 84.5g x 5

Example 2 **SVA 2003 A - 6C 8CS - D B - D - D24**

$$142.5 + 241.5 + 69 + 40 + 361.5 = 854.5g$$

- ① Manifold-base: 47.5g x 3
- ② Manifold Type: 241.5g
- ③ Cartridge Fitting for Output (CJC14-06): 11.5g x 6
- ④ Cartridge Fitting for Intake and Exhaust (CJC18-08): 20g x 2
- ⑤ Valve Type (SVA20D): 120.5g x 3

Flow Characteristics



Standard Size List

Type	Refer to the pages below	Port	Fitting Type	Tube O.D.
SVA Intake & Exhaust Block on Both Sides Tube Exhaust	Sub-D connector	Output port 4(A) 2(B)	Push-In Fitting (Straight / Elbow)	ø1/4 ø5/16 ø6mm ø8mm
	Individual Plug-in Connector Flat (Ribbon) Cable Connector	Intake port 1(P) Exhaust port 5/3(R)	Push-In Fitting (Straight / Elbow)	ø5/16 ø3/8 ø1/2 ø8mm ø10mm ø12mm
SVA Intake & Exhaust Block on One Side Tube Exhaust	Sub-D connector	Output port 4(A) 2(B)	Push-In Fitting (Straight / Elbow)	ø1/4 ø5/16 ø6mm ø8mm
	Individual Plug-in Connector Flat (Ribbon) Cable Connector	Intake port 1(P) Exhaust port 5/3(R)	Push-In Fitting (Straight / Elbow)	ø5/16 ø3/8 ø1/2 ø8mm ø10mm ø12mm
SVA Open-air Exhaust	Sub-D connector	Output port 4(A) 2(B)	Push-In Fitting (Straight / Elbow)	ø1/4 ø5/16 ø6mm ø8mm
	Individual Plug-in Connector Flat (Ribbon) Cable Connector	Intake port 1(P)	Push-In Fitting (Straight / Elbow)	ø5/16 ø3/8 ø1/2 ø8mm ø10mm ø12mm
SVA Open-air Exhaust	Sub-D connector	Output port 4(A) 2(B)	Push-In Fitting (Straight / Elbow)	ø1/4 ø5/16 ø6mm ø8mm
	Individual Plug-in Connector Flat (Ribbon) Cable Connector	Intake port 1(P)	Push-In Fitting (Straight / Elbow)	ø5/16 ø3/8 ø1/2 ø8mm ø10mm ø12mm

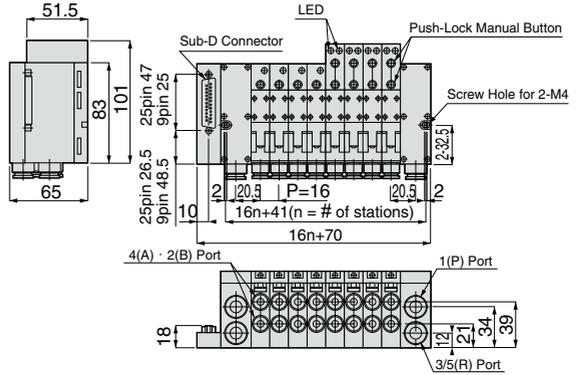
Sub-D Connector



Intake & Exhaust Block on Both Sides Tube Exhaust

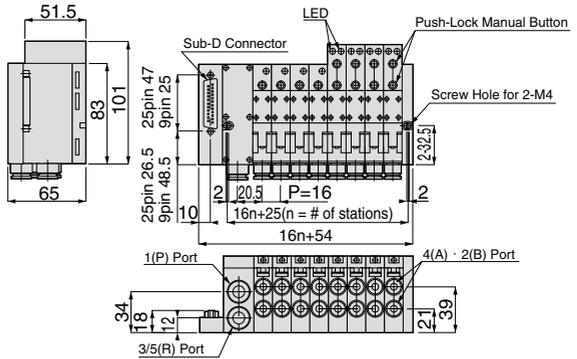
Unit : mm

Model Code	CAD file name
SVA20□A-□□□□-D□-□□-□□□□	SVA-016
	SVA-018
	SVA-028
	SVA-030
	SVA-038



Intake & Exhaust Block on One Side Tube Exhaust

Model Code	CAD file name
SVA20□B-□□□□-D□-□□-□□□□	SVA-017
	SVA-019
	SVA-029
	SVA-031
	SVA-038

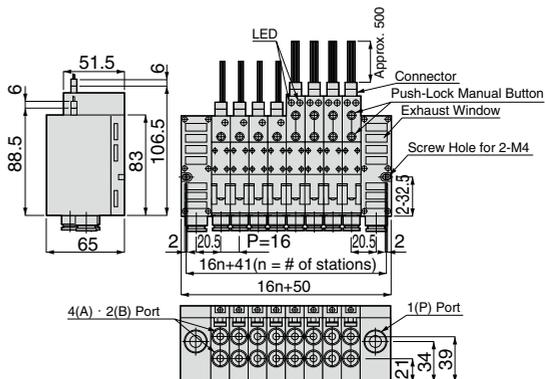




Intake & Exhaust Block on Both Sides Open-air Exhaust

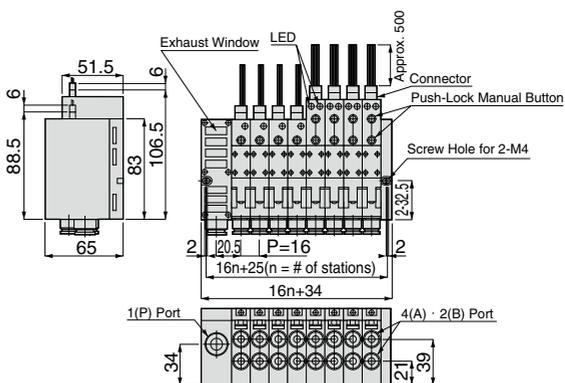
Unit : mm

Model Code	CAD file name
SVA20 □ A-□□□ S-S□-□□-□-□□	SVA-014 SVA-026 SVA-038



Intake & Exhaust Block on One Side Open-air Exhaust

Model Code	CAD file name
SVA20 □ B-□□□ S-S□-□□-□-□□	SVA-015 SVA-027 SVA-038



SOLENOID VALVE Series

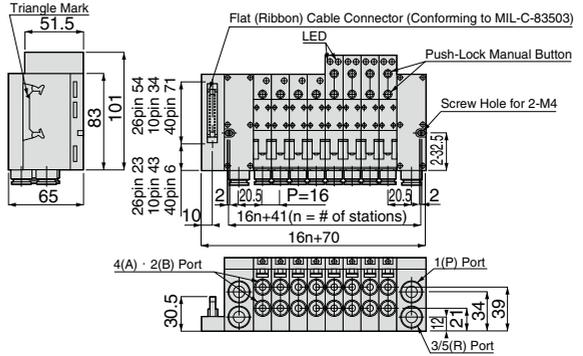
Solenoid Valve SVA20 Series

Flat (Ribbon) Cable Connector

Unit : mm

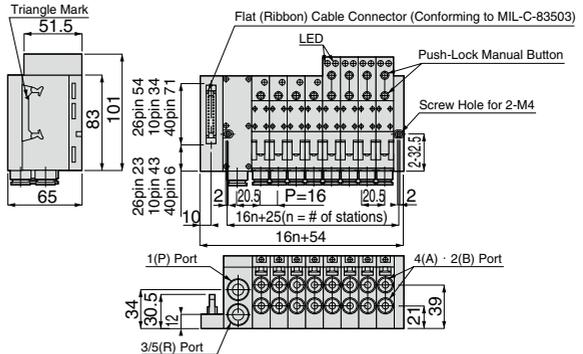
SVA 20 Intake & Exhaust Block Both Sides Tube Exhaust

Model Code	CAD file name
SVA-020	SVA-020
SVA-022	SVA-022
SVA-024	SVA-024
SVA20□A-□□□□-F□-□□-□-□□	SVA-032
	SVA-034
	SVA-036
	SVA-038



SVA 20 Intake & Exhaust Block on One Side Tube Exhaust

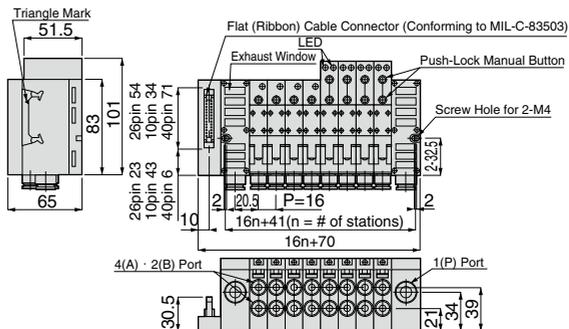
Model Code	CAD file name
SVA-021	SVA-021
SVA-023	SVA-023
SVA-025	SVA-025
SVA20□B-□□□□-F□-□□-□-□□	SVA-033
	SVA-035
	SVA-037
	SVA-038



SVA₂₀ Intake & Exhaust Block on Both Sides Open-air Exhaust

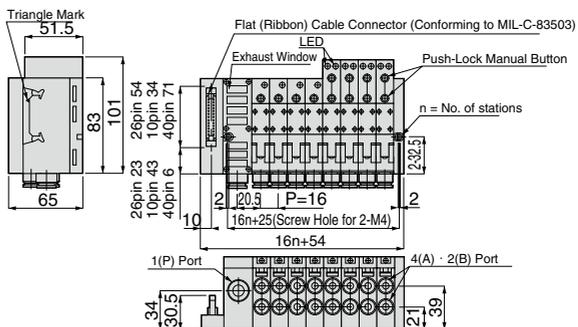
Unit : mm

Model Code	CAD file name
SVA-020	SVA-020
SVA-022	SVA-022
SVA-024	SVA-024
SVA20□A-□□□S-F□-□□-□-□□	SVA-032
	SVA-034
	SVA-036
	SVA-038



SVA₂₀ Intake & Exhaust Block one One Side Open-air Exhaust

Model Code	CAD file name
SVA-021	SVA-021
SVA-023	SVA-023
SVA-025	SVA-025
SVA20□B-□□□S-F□-□□-□-□□	SVA-033
	SVA-035
	SVA-037
	SVA-038

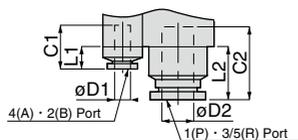


SOLENOID VALVE Series

Solenoid Valve SVA20 Series

Dimension of Fitting Part

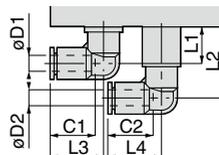
Straight Type



Unit : mm

	Tube O.D. $\phi D1$	C1	L1	Tube O.D. $\phi D1$	C2	L2
4(A)Port	6(1/4)	17	12	—	—	—
2(B)Port	8(5/16)	18.5	13.5	—	—	—
1(P)Port	—	—	—	8(5/16)	18.5	12.5
3/5(R)Port	—	—	—	10(3/8)	21	15
	—	—	—	12(1/2)	23.5	19

Elbow Type



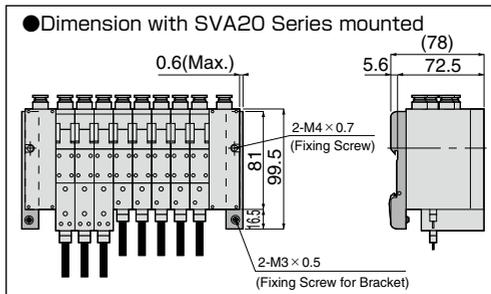
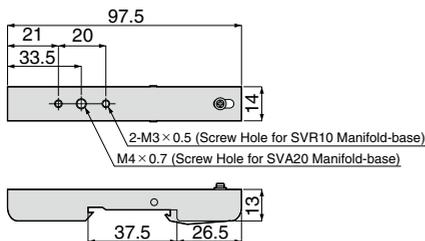
Unit : mm

	Tube O.D. $\phi D1 \cdot \phi D1$	C1 · C2	L1	L2	L3 · L4
4(A)Port	6(1/4)	17	14	27	20
2(B)Port	8(5/16)	18.5	17	30	23
1(P)Port	8(5/16)	18.5	17	30	23
3/5(R)Port	10(3/8)	20.5	21	35.5	26.5
	12(1/2)	23.5	23	37.5	29.5

DIN Rail Mounting Bracket

DRF35S DIN Rail Mounting Bracket

Model Code	CAD file name
DRF35S	SVA-047



■ Method for Attaching / Detaching DIN Rail Bracket and DIN Rail

(1) Fix a solenoid valve on DIN Rail Bracket (DRF35S) by tightening a screw. (*1).

*1 Use a screw with the designated size.

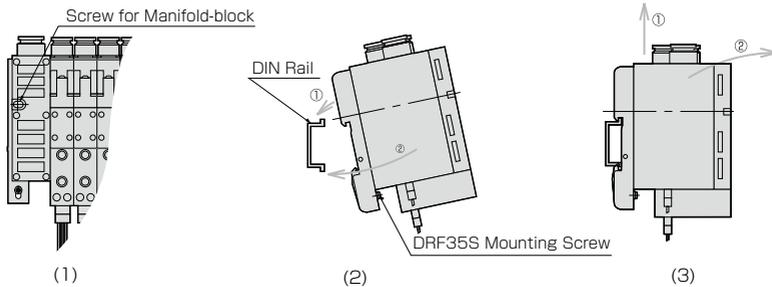
Screw: M4x0.7 (L=62~64)

(2) Mount DIN Rail Bracket (DRF35S) on DIN Rail. Tighten the fixing screw of DIN Rail Bracket (DRF35S) with the designated tightening torque in the below table.

■ Table. Tightening Torque of Fixing Screw

Tightening Torque for Fixing Screw	0.3 ~ 0.4N·m
Max. Load	100N

(3) Loosen the fixing screw of DRF35S and lean forward the solenoid valve in the way like pulling it up, detach it from the rail as following figure shows.



△ Safety Instructions for DIN Rail Mounting Bracket

1. Fixing shall be tightened within the designated tightening torque.
2. Do not place anything which exceeds the maximum load on DIN Rail and Bracket.
3. Do not place DIN rail on a place with extreme vibration (9.8m/s² or less).

⚠ Detailed Safety Instructions

Before using PISCO products, be sure to read "Safety Instructions" and "Safety Instruction Manual" and "Common Safety Instructions for Solenoid Valve Series".

Warning

1. When a solenoid valve is operated under vibration less than 5G, install it so that a spool valve is at a right angle to the vibrating direction.

*Refer to the figure of "4. Installation" under "Precautions for Use".

Caution

1. When the valves are used with Valve Manifold, back pressure can cause malfunctions of the actuator (single acting cylinder, etc.) In such a case, provide a check valve to the exhaust port.
2. Do not use a 3-position valve for accurate mid-stroke positioning of the cylinder. Compressiveness of air may not allow accuracy in stop position. Also, the valve permits leakage, so that the stop position may not remain constant for a long time
3. Do not give excessive tension or bending to the individual plug-in connector (Cable). Disconnection or damage to the connector may be caused.
4. The Cartridge Fitting can be disconnected by removing the lock pin. However, make sure that the lock pin is properly in place before using.
5. Read the manual carefully for proper installation and removal of valves. Also, keep the manual at hand.
6. Read the method for replacing Cartridge Fitting in the catalog carefully.
7. Read the method for replacing Cartridge Fitting and piping $\varnothing 8\text{mm}$ Compression Fitting in the catalog carefully.

⚠ Safety Instructions for Vacuum-Operateble 2/3-Port Solenoid Valve

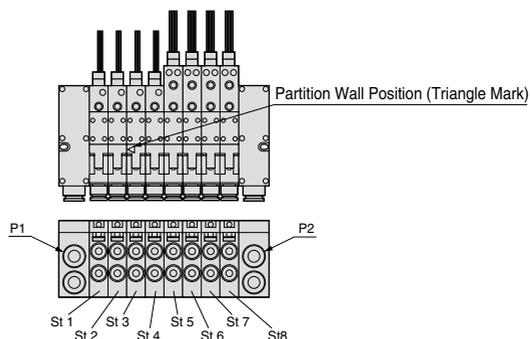
- Connect 2(B) Port with air supply port and 4(A) Port with an actuator port. The reverse connection causes troubles.
- Place a filter to prevent foreign particles from entering inside.

⚠ Precautions for Dual Pressure Option

- Triangle Mark indicates the partition to separate supply pressure. Refer to the right figure. The intake air pressure of the partitioned right side including the triangle marked-manifold block is supplied from P2, and that of the partitioned left side is supplied from P1.

(In the right figure, St.1 to 2 is P1 side, and St.3 to 8 is on P2 side.)

- Air partition border can not be change its position after shipment.
- Selectable Intake and Exhaust Port is only "A" for Dual Pressure option.



△ Safety Rules for Use

1. Air Quality

- Impurities contained in air may cause malfunctions or troubles of solenoid valves. Remove drain and dust from the supply air.
- Apply flushing to both supplying and cylinder sides when piping. Place a filter (filtering accuracy: $5\mu\text{m}$ or less) close to a solenoid valve.
- A large amount of drain, excessive lubrication and super dry air may cause malfunctions or troubles. Pay special attention to air quality.

2. Operating Environment

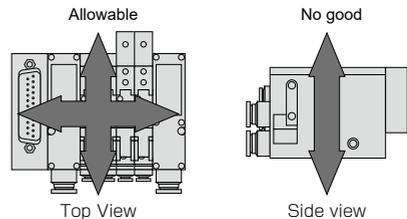
- Operate solenoid valves under the following environment.
 - Within Operating Temp. Range
 - Avoid dew condensation by temperature change
 - No water / oil drops and dust
 - No corrosive gas

3. Leakage Current

- When a solenoid valve is operated by a programmable controller, leakage current in output side shall be less than 1mA. There is a risk that the leakage current of the output can cause malfunctions.

4. Installation

- When a solenoid valve is operated under a vibrating condition, install it so that a spool valve is at a right angle to the vibrating direction.
(Operate the valve under a vibration of less than 49m/s^2)



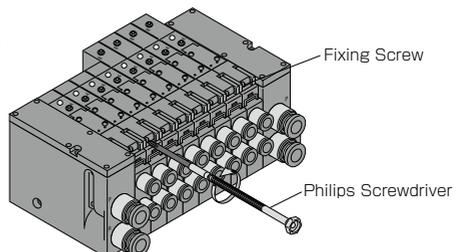
5. Lubrication

- No lubrication is necessary.
- When a system needs to be lubricated, use Turbine Oil Class 1 (ISO VG 32) / free of additives. If the lubrication is stopped supplying to the system in the middle of operation, malfunctions may be caused due to the loss of the initial lubricant on valves. Keep providing lubricant.

6. Method for Attaching / Detaching Solenoid Valve

- In order to attach or detach a valve unit on a Manifold-block, follow the instructions below.

- ① Loosen the one fixing screw with a Philips screwdriver and take it out completely from the valve unit. (One screw clamping function)



SOLENOID VALVE Series

Solenoid Valve SVA20 Series

- ② There is a concave niche on the back of the solenoid valve as figure 1 shows. Insert a flathead screwdriver into it and to pull up a solenoid valve as figure 2 shows.

Figure 1

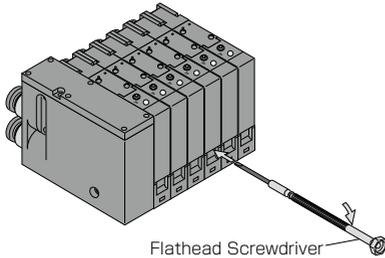
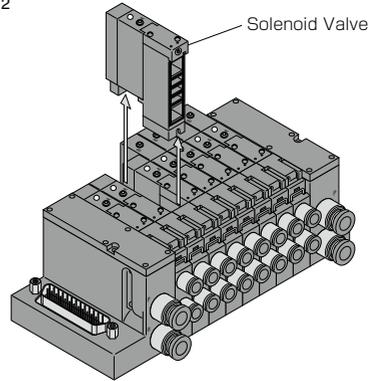
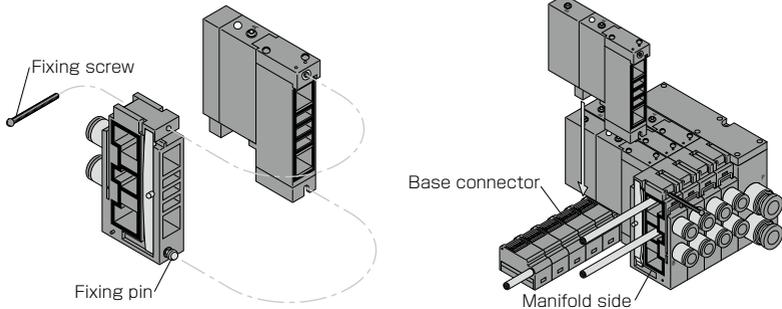


Figure 2



- ③ To mount a solenoid valve on a manifold base, insert the valve toward the arrowed direction with attentions to the connection of a base connector and a fixing pin.



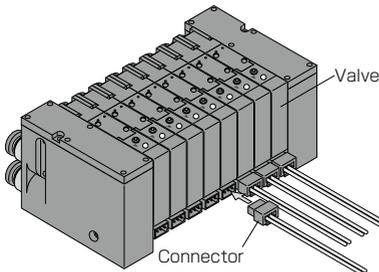
- ④ Tighten a fixing screw with the tightening torque 0.35-0.4Nm.

7. Detachable Individual Plug-in Connector

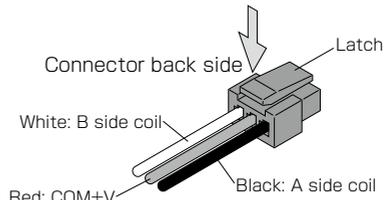
● Detachable Individual Plug-in Connector

■ The individual Plug-in Connector is attached by inserting the connector into the socket.(Figure 3)

■ In order to detach the connector, push the latch to the arrowed direction in the figure below and pull out the connector.



* Insert to a socket with the latch facing down.

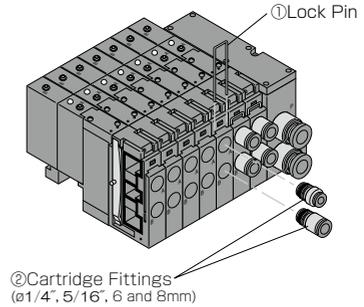


8. Replacement of Cartridge Fitting

■ All Fittings at connecting ports(A port & B ports) are detachable. Follow the instructions below.

- ① Pull up a lock pin with a tool such as a flathead screwdriver and take it out.
- ② Pull out Cartridge Fitting (Push-In Fitting or Compression Fitting) to the fitting taken-out direction.

* When installing a cartridge fitting, make sure no dust or fluffs stuck on O-ring.



9. Manual Operation

■ A valve can be switched over by a manual operation only when pilot air is supplied.

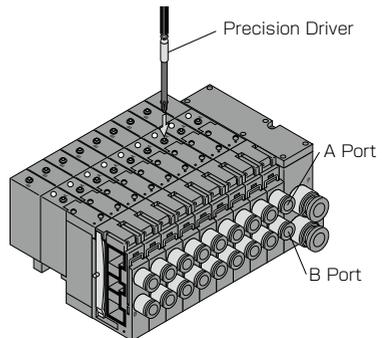
Push a manual button on the valve top with a precision driver until it stops.

● 2-Position Single Solenoid Valve

Push a button A for a A Port output and by releasing the button A, B Port output becomes available.

● 2-Position Double Solenoid Valve

Push a button A to hold an output of A Port and by releasing the button A, B Port output becomes available.

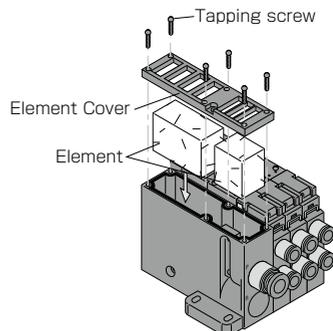


10. Replacement of Silencer Element

■ Follow the instructions below for the replacement of Silencer Element.

- ① Take out 6 screws fixing an element cover.
- ② Take out the element (Model code: SVA20EX-E (2pcs/set))
- ③ Install a new element, set back the element cover and fix it by tightening the screws.

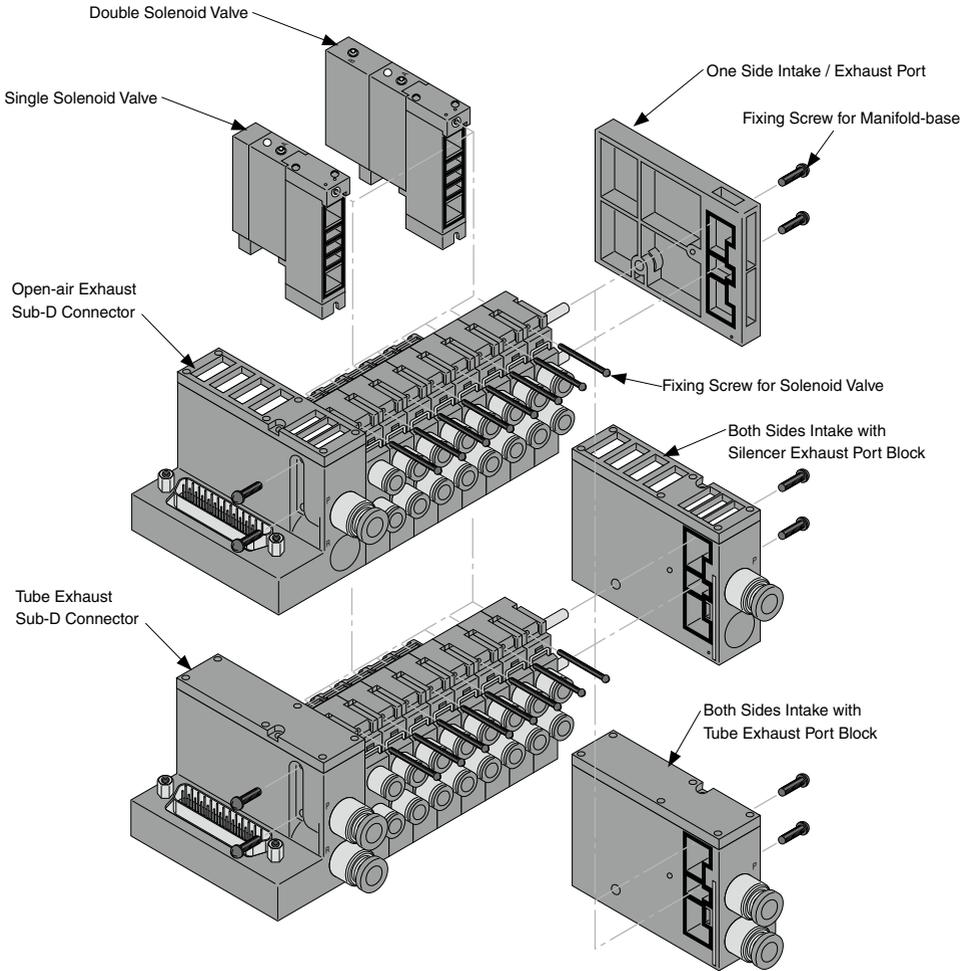
(Tapping screws for resin are used for this product. Confirm the mesh with a precision driver first, then completely tighten all of them. Recommended tightening torque: 0.4-0.5Nm)



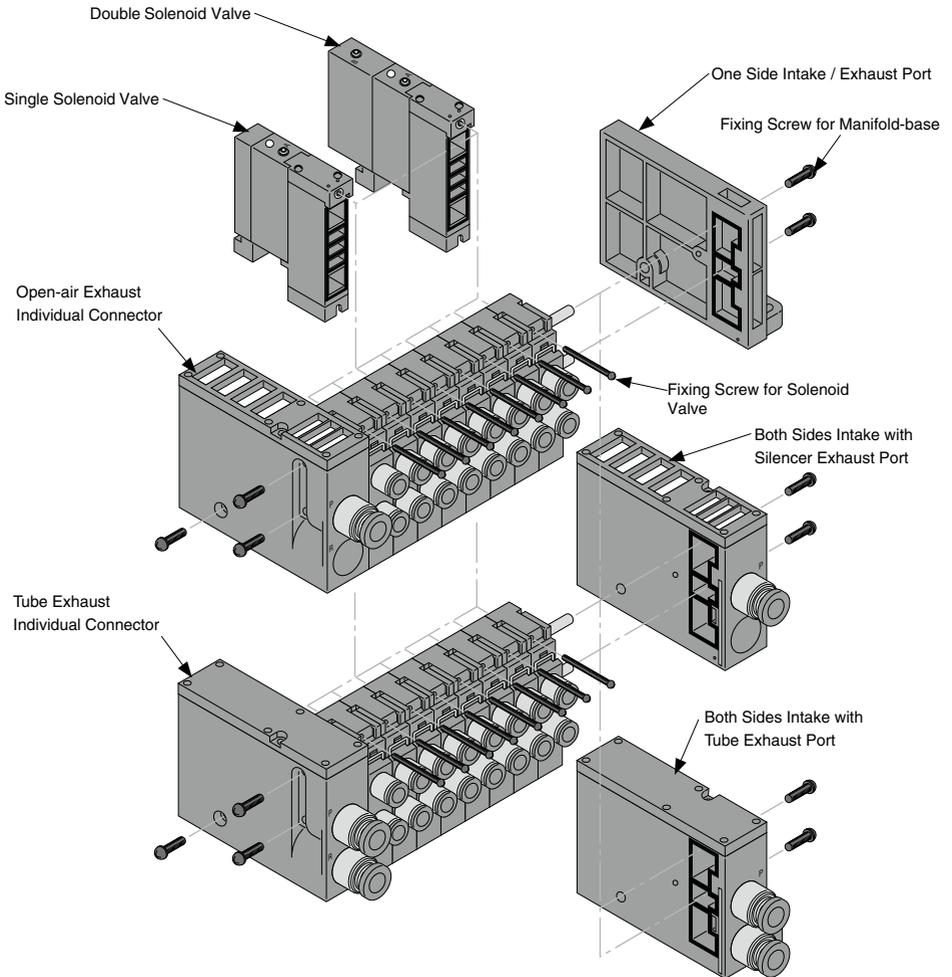
SOLENOID VALVE Series

Solenoid Valve SVA20 Series

Construction Specification of SVA20 Series(Manifold type) with Sub-D Connector



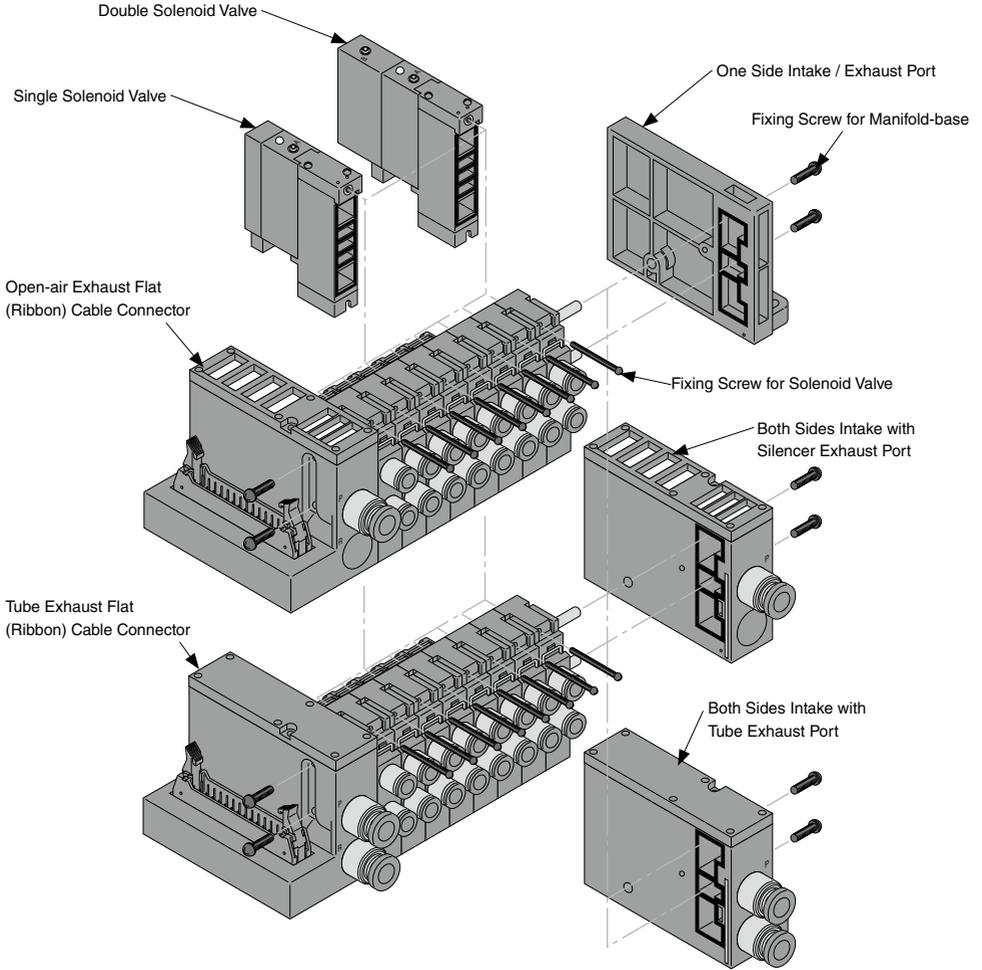
Construction Specification of SVA20 Series (Manifold type) with Individual Plug-in Connector



SOLENOID VALVE Series

Solenoid Valve SVA20 Series

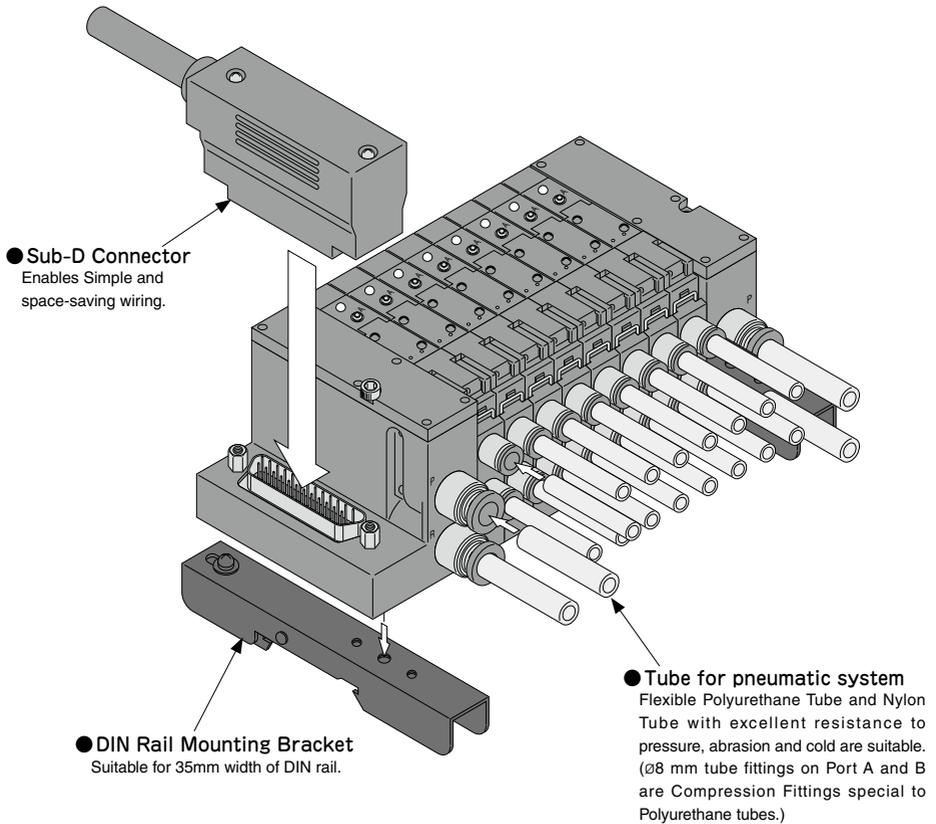
Construction Specification of SVA20 Series (Manifold type) with Flat (Ribbon) Cable Connector



Related Products of SVA20 Series

There are the following related products for SVA20 Series.

(Sub-D Connector is only available for Wiring Type: Sub-D Connector. When Individual Plug-in Connector is selected, Individual Plug-in Connectors are accompanied by, but Flat (Ribbon) Cable is Not accompanied. Please prepare a Flat (Ribbon) Cable separately on your own.



 **Caution**

1. A solenoid valve allows air leakage. Do not use the valve for applications which requires air tightness.
 2. Do not use a solenoid valve for a large air-blow. A drop of inner pressure can cause the internally piloted-valve structure malfunctions.
 3. When a solenoid valve is switched over by a manual operation, connected actuators start operation. Confirm the safety before the system is operated.
 4. Make sure to turn off the power supply and wire colors before wiring.
 5. Solenoid valves work without lubrication. When lubrication is necessary, use Turbine Oil Class 1 (ISO VG 32). If lubrication is stopped in the middle of the operation, it can cause malfunctions due to the loss of initial lubricant on valves. Keep providing lubricant.
 6. Make sure each port by a marking on a solenoid valve body when piping.
 7. Turn off the power and air supply and make sure the residual pressure becomes zero before maintenance. It should be noted that the residual pressure exists between a solenoid valve and an actuator in Three-Position Closed Center type.
 8. Clogged element of a manifold with silencer increases the exhaust resistance. It can also cause impairing the performance in a whole pneumatic system. Carry out the maintenance periodically.
 9. Thoroughly read and understand instructions and precautions in this catalog before replacing a silencer element.
-



Push-In Fitting Incorporated Type Solenoid Valve Solenoid Valve **SVA21** Series

- *Lightweight and Large Capacity*
- *Effective Sectional Area 18mm² (Cv 0.97)
with valve width 16mm (5/8")*
- *Various Valve Selections*

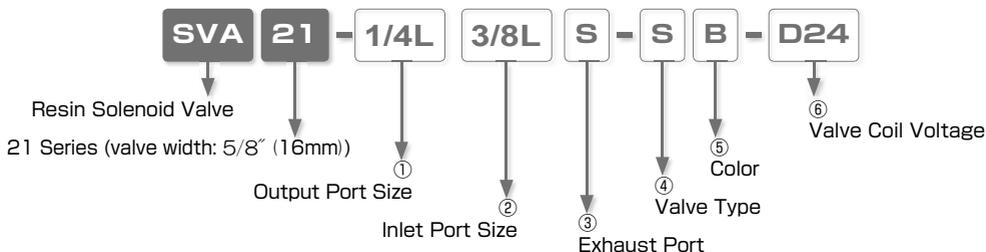
■ Characteristics

- *2 selections of piping direction: (Top and Side)*
- *2 color selection: Black and Light Gray*
- *Twin 3-Port Solenoid Valve (3-way valve) enables to control 2 actuators separately with one unit.*

Vacuum-operatable 2 / 3-Port Solenoid Valve _____

- *Vacuum-operatable 2 or 3-way valve which does not require external piping.*
- *Single and Double solenoid types are available*

■ Model Designation of SVA21 Single Valve type (Example)



① Output Port Size, ② Inlet Port Size (*)

Fitting Type	Push-In Fitting (inch)						Push-In Fitting (mm)						
	Code	1/4C	5/16C	3/8C	1/4L	5/16L	3/8L	6C	8C	0C	6L	8L	0L
Size O.D.	ø1/4"	ø5/16"	ø3/8"	ø1/4"	ø5/16"	ø3/8"	ø6	ø8	ø10	ø6	ø8	ø10	
Piping Direction	Side			Top (Elbow)			Side			Top (Elbow)			

* When the silencer exhaust is selected, the inlet port piping option is only "Side" (straight fitting).

③ Exhaust Port

Fitting Type	Push-In Fitting (mm)			Push-In Fitting (inch)			Silencer (Open-Air Exhaust)
	Code	1/4	5/16	3/8	6	8	
Size O.D.	ø1/4"	ø5/16"	ø3/8"	ø6	ø8	ø10	—

* Piping direction of exhaust ports are the same style as the inlet port. If you choose "Top" direction of inlet port (elbow type), the exhaust ports come with all "Top" directions (elbows).

* Do not plug the exhaust ports even when you choose T or U type of valve (2-way valve) since the pilot valve air exhausts through the ports.

④ Valve Type

Code	Position	Port	Valve Function	Code	Position	Port	Valve Function
S	2	5	Single Solenoid	A	3	5	Closed Center
D	2	5	Double Solenoid	R	3	5	Exhaust Center
E	2	3	4(A).2(B).Normally Closed (Twin 3-way valve)	P	3	5	Pressure Center
F	2	3	4(A).2(B).Normally Open (Twin 3-way valve)	T	2	2	Single Solenoid (Vacuum-operatable valve)
G	2	3	4(A).Normally Closed, 2(B).Normally Open	U	2	2	Double Solenoid (Vacuum-operatable valve)
H	2	3	4(A).Normally Open, 2(B).Normally Closed	V	2	3	Single Solenoid (Vacuum-operatable valve)
				W	2	3	Double Solenoid (Vacuum-operatable valve)

⑤ Color

B : Black

W : Light Gray

⑥ Valve Coil Voltage

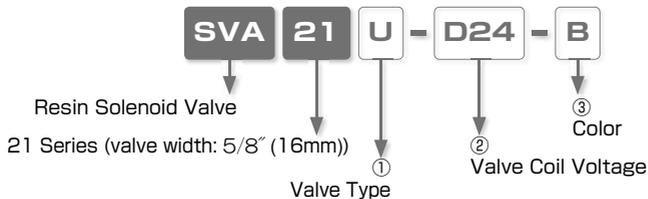
D24 : DC24V

100 : AC100V

SOLENOID VALVE Series

Solenoid Valve SVA21 Series

Model Designation of Mounting Unit (Example)



① Valve Type

Code	Position	Port	Valve Function
S	2	5	Single Solenoid
D	2	5	Double Solenoid
E	2	3	4(A),2(B),Normally Closed (Twin 3-way valve)
F	2	3	4(A),2(B),Normally Open (Twin 3-way valve)
G	2	3	4(A),Normally Closed, 2(B),Normally Open
H	2	3	4(A),Normally Open, 2(B),Normally Closed

Code	Position	Port	Valve Function
A	3	5	Closed Center
R	3	5	Exhaust Center
P	3	5	Pressure Center
T	2	2	Single Solenoid (Vacuum-operatable valve)
U	2	2	Double Solenoid (Vacuum-operatable valve)
V	2	3	Single Solenoid (Vacuum-operatable valve)
W	2	3	Double Solenoid (Vacuum-operatable valve)

② Valve Coil Voltage

D24 : DC24V

100 : AC100V

③ Color

B : Black

W : Light Gray

Sub-Base Specifications

Fluid Medium	Air		
Operating Pressure Range	30~100psi (0.2 ~ 0.7MPa)		
Pressure Resistance	150psi (1.05MPa)		
Operating Temp. Range	40~ 120°F (5 ~ 50°C)		
Installing Direction	No Restriction (*1)		
No. Mountable Main Valve	1 unit		
Tube Dia.	1(P),5(R1),3(R2) Port	Push-In Fitting	ø1/4", 6mm (*2)
			ø5/16", 8mm (*2)
	ø3/8", 10mm (*2)		
	4(A),2(B) port	Push-In Fitting : ø5/32", ø1/4", ø5/16", ø4mm, ø6mm, ø8mm	
Wiring Method	Type	Individual Plug-in Connector	
	No. of Pins	3 pins	
Silencer	Standard equipment only with open-air exhaust (5(R1) and 3(R2) Port).		

*1. Refer to "Warning" in "Detailed Safety Instructions".

Solenoid Valve Specifications (DC24V)

Model		SVA 21S-D24	SVA 21D-D24	SVA 21A-D24	SVA 21E-D24	SVA 21T-D24	SVA 21U-D24	SVA 21V-D24	SVA 21W-D24	
				SVA 21R-D24 SVA 21P-D24	SVA 21F-D24 SVA 21G-D24 SVA 21H-D24					
Pilot Valve	Valve Type	Direct Acting Valve								
	Valve Structure	Elastic Seal, Poppet Valve								
	Rated Coil Voltage	DC24V								
	Tolerance of Voltage Range	DC21.6 ~ 26.4V								
	Power Consumption	1.2W (with LED)								
	Surge Protection Circuit	Diode								
	Manual Operation	Non-Lock Push Button								
	Operating Pressure Range	30~100psi (0.2~0.7MPa)								
Main Valve	Valve Type	Pneumatic Operation by Pilot Valve								
	Valve Structure	Elastic Seal ,Spool Valve								
	Number of Positions	2-Position		3-Position		2-Position				
	Number of Ports	5-Port			3-Port × 2 (*1)		2-Port		3-Port	
	Valve Function	Single Solenoid	Double Solenoid		Single Solenoid × 2		Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid
	# of pilot points	1	2			1	2	1	2	
	Response Time (*2)	18msec	12msec	18msec		15msec				
	Max. Operation Cycle	5Hz								
	Min. Excitation Time	50msec					50msec		50msec	
	Lubrication	Not Required								
	Operating Pressure Range	30~100psi (0.2~0.7MPa)				-14.5~100psi (-0.1 ~ 0.7MPa)				

*1. This is a valve construction incorporating 2 × 3-port valves. 1(P) is common.

*2. Values are at air pressure of 0.5MPa (72psi) and from power off to on. For 3 positions valve, the value is from neutral position of all port block (closed center) valve.

SOLENOID VALVE Series

Solenoid Valve SVA21 Series

Solenoid Valve Specifications (AC100V)

Model		SVA 21S-100	SVA 21D-100	SVA 21A-100	SVA 21E-100	SVA 21F-100	SVA 21U-100	SVA 21V-100	SVA 21W-100	
				SVA 21R-100 SVA 21P-100	SVA 21F-100 SVA 21G-100 SVA 21H-100					
Item	Valve Type	Direct Acting Valve								
	Valve Structure	Elastic Seal, Poppet Valve								
Pilot Valve	Rated Coil Voltage	AC100V								
	Tolerance of Voltage Range	AC90 ~ 110V								
	Power Consumption	1.5VA (with LED)								
	Surge Protection Circuit	Diode								
	Manual Operation	Non-Lock Push Button								
	Operating Pressure Range	30~100psi (0.2~0.7MPa)								
	Valve Type	Pneumatic Operation by Pilot Valve								
Main Valve	Valve Structure	Elastic Seal, Spool Valve								
	Number of Position	2-Position		3-Position	2-Position					
	Number of Ports	5-Port			3-Port × 2 (*1)	2-Port		3-Port		
	Valve Function	Single Solenoid	Double Solenoid		Single Solenoid × 2	Single Solenoid	Double Solenoid	Single Solenoid	Double Solenoid	
	# of pilot points	1	2			1	2	1	2	
	Response Time (*2)	18msec	12msec	18msec		15msec				
	Max. Operation Cycle	5Hz								
	Min. Excitation Time			50msec				50msec		50msec
	Lubrication	Not Required								
	Operating Pressure Range	30~100psi (0.2~0.7MPa)				-14.5~100psi (-0.1 ~ 0.7MPa)				

*1. This is a valve construction incorporating 2x3-port valves. 1(P) is common.

*2. Values are at air pressure of 72.5psi (0.5MPa) and from power-off to-on. For 3-positions valve, the value is from neutral position of all port block valve.

Flow Characteristics

Piping Spec.	Model	SVA 21S-□	SVA 21D-□	SVA 21A-□ SVA 21R-□ SVA 21P-□	SVA 21E-□ SVA 21F-□ SVA 21G-□ SVA 21H-□	SVA 21T-□ SVA 21U-□	SVA 21V-□ SVA 21W-□
		1(P)→4(A).2(B) (φ 3/8", 10mm)(*2)	C (*3)	3.4	3.4	2.4	3
	S (*4)	17(0.92)	17(0.92)	12(0.65)	15(0.81)	17(0.92)	17(0.92)
1(P)→4(A).2(B) (φ 5/16", 8mm) (*2)	C (*3)	3.2	3.2	2.4	2.9	2.6	2.6
	S (*4)	16(0.86)	16(0.86)	12(0.65)	14.5(0.78)	13(0.7)	13(0.7)
1(P)→4(A).2(B) (φ 1/4", 6mm) (*2)	C (*3)	2.1	2.1	1.9	2.1	1.7	1.7
	S (*4)	10.5(0.56)	10.5(0.56)	9.5(0.51)	10.5(0.56)	8.5(0.46)	8.5(0.46)
4(A).2(B) (φ 3/8", 10mm)→ 5(R1).3(R2)without Check Valve (*1)	C (*3)	3.6	3.6	2.8	2.8		3.5
	S (*4)	18(0.97)	18(0.97)	14(0.75)	14(0.75)		17.5(0.95)
4(A).2(B) (φ 5/16", 8mm)→ 5(R1).3(R2)with Check Valve (*1)	C (*3)						
	S (*4)						
4(A).2(B) (φ 5/16", 8mm)→ 5(R1).3(R2)without Check Valve (*1)	C (*3)	3.4	3.4	2.7	2.7		2.8
	S (*4)	17(0.92)	17(0.92)	13.5(0.73)	13.5(0.73)		14(0.76)
4(A).2(B) (φ 1/4", 6mm)→ 5(R1).3(R2)with Check Valve (*1)	C (*3)						
	S (*4)						
4(A).2(B) (φ 1/4", 6mm)→ 5(R1).3(R2)without Check Valve (*1)	C (*3)	2.1	2.1	2	2		1.9
	S (*4)	10.5(0.56)	10.5(0.56)	10(0.54)	10(0.54)		9.5(0.51)

*1. The value of .5(R1) and 3(R2) port are those of Open-air Exhaust.

*2. 2(B) to 4(A) piping is applied to valve type T / U / V / W.

*3. C: Sonic Conductance C(dm³/s-bar)

*4. S: Effective Sectional Area S(mm²(CV))

Cylinder Speed Table

Cylinder Speed (m/s)	Cylinder Tube bore (mm)									
	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 140
100										
200										
300										
400										
500										
600										
700										
800										

Note) ● The average speed of the cylinder represents a reference value where the pressure is 0.5MPa (72psi), the load factor is 30% and the piping tube length is 1m.

● Cylinder speed can vary depending on the piping and joint configurations.

● The table represents the case that ø8mm Push-In Fitting is used on 4(A) and 2(B) ports of SVA21S-D24.

SOLENOID VALVE Series

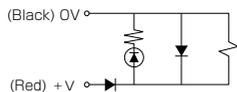
Solenoid Valve SVA21 Series

Construction

Refer to SVA20 Series.

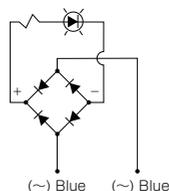
Electric Circuit

● Individual Plug-in Connector for DC24V



Note) The color in the parenthesis is lead wire color.

● Individual Plug-in Connector for AC100V



Weight List

Valve Type	Weight (g)	Valve Type	Weight (g)		Weight (g)	Cartridge Fitting	Weight (g)
SVA 21S	85.5	SVA 21P	131	Sub Base	52.5	CJC 18-06	20.5
SVA 21D	129	SVA 21R	131			CJC 18-08	20
SVA 21E	131	SVA 21T	81.5	Silencer Unit	Weight (g)	CJC 18-10	19
SVA 21F	131	SVA 21U	125	Port ϕ 6mm	28	CJL 18-06	23
SVA 21G	131	SVA 21V	81.5	Port ϕ 8mm	22.5	CJL 18-08	25
SVA 21H	131	SVA 21W	125	Port ϕ 10mm	27	CJL 18-10	31.5
SVA 21A	131.5						

■ Use the following formula to calculate the weight of SVA21.

Sub-Base + (Cartridge Fitting x Qty) + Silencer Unit + Valve Type

Example **SVA 21 - OCOC S - S B - D24**

① ② ③ ④

$$52.5 + 38 + 27 + 129 = 246.5g$$

- ① Sub-Base : 52.5g
- ② Cartridge Fitting (CJC 18-10) : 19g×2
- ③ Silencer Unit (ϕ 10mm) : 27g
- ④ Valve Type (SVA 21D) : 129g

△ Detailed Safety Instructions

Before using PISCO products, be sure to read "Safety Instructions" and "Safety Instruction Manual" and "Common Safety Instructions for Solenoid Valve Series".

Warning

1. When a solenoid valve is operated under a vibration of 49m/s^2 or less, install a spool valve at a right angle to the vibrating direction.

* Refer to "4. Installation" in "Precautions for Use".

Caution

1. Do not use a 3-position valve for middle-position stop of the cylinder that requires accuracy. Compressiveness of air does not achieve accuracy in stop position. Also, the valve permits leakage, so that retention of stop position for long term may not be possible.
2. Do not give excessive tension or bending to the individual plug-in connector (cable). Disconnection or damage to the connector may be caused.
3. The cartridge joint can be disconnected by removing the lock pin. During use, however, make certain that the lock pin is properly in place.
4. Read the manual carefully for proper installation and removal of valves. Also, keep the manual at hand.
5. Thoroughly read the method for replacing and piping Cartridge Fittings in this catalog.

△ Safety Instructions for Vacuum-Operateble 2 / 3-Port Solenoid Valve

- Connect 2(B) Port with air supply port and 4(A) Port with an actuator port. The reverse connection causes troubles.
- Place a filter to prevent foreign particles from entering inside.

△ Caution

1. A solenoid valve allows air leakage. Do not use the valve for applications which requires air tightness.
2. Do not use a solenoid valve for a large air-blow. A drop of inner pressure can cause the internally pilotted-valve structure malfunctions.
3. When a solenoid valve is switched over by a manual operation, connected actuators start operation. Confirm the safety before the system is operated.
4. Make sure to turn off the power supply and wire colors before wiring.
5. Solenoid valves work without lubrication. When lubrication is necessary, use Turbine Oil Class 1 (ISO VG 32). If lubrication is stopped in the middle of the operation, it can cause malfunctions due to the loss of initial lubricant on valves. Keep providing lubricant.
6. Make sure each port by a marking on a solenoid valve body when piping.
7. Turn off the power and air supply and make sure the residual pressure becomes zero before maintenance. It should be noted that the residual pressure exists between a solenoid valve and an actuator in Three-Position Closed Center type.
8. Clogged element of a manifold with silencer increases the exhaust resistance. It can also cause impairing the performance in a whole pneumatic system. Carry out the maintenance periodically.
9. Thoroughly read and understand instructions and precautions in this catalog before replacing a silencer element.

SOLENOID VALVE Series

Solenoid Valve SVA21 Series

Standard Size List

Type	Port	Fitting Type	Tube O.D.
SVA Double Solenoid Valve Tube Exhaust	Output port 4(A) 2(B)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm
	Inlet port 1(P) Exhaust port 5(R1) 3(R2)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm

Type	Port	Fitting Type	Tube O.D.
SVA Single Solenoid Valve Tube Exhaust	Output port 4(A) 2(B)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm
	Inlet port 1(P) Exhaust port 5(R1) 3(R2)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm

Type	Port	Fitting Type	Tube O.D.
SVA Double Solenoid Valve Open-air Exhaust	Output port 4(A) 2(B)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm
	Inlet port 1(P)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm

Type	Port	Fitting Type	Tube O.D.
SVA Single Solenoid Valve Open-air Exhaust	Output port 4(A) 2(B)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm
	Inlet port 1(P)	Push-In Fitting (Straight Type / Elbow Type)	ø1/4
			ø5/16 ø3/8 ø6mm ø8mm ø10mm

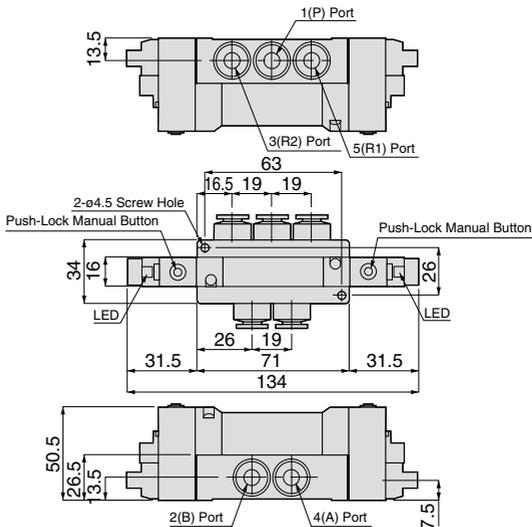
Tube Exhaust



Double Solenoid Valve
Tube Exhaust

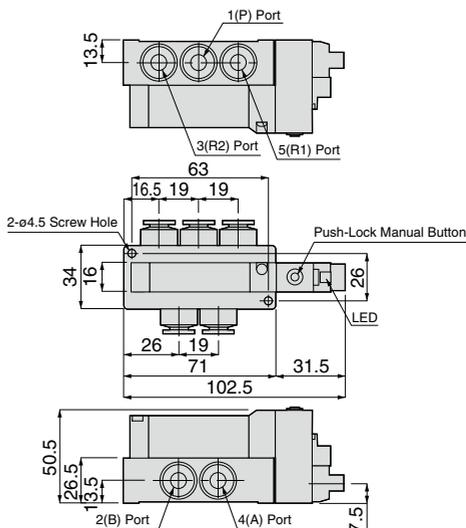
Unit : mm

Model Code	CAD file name
SVA21-□□□-D□-□	SVA-043
SVA21-□□□-E□-□	
SVA21-□□□-F□-□	
SVA21-□□□-G□-□	
SVA21-□□□-H□-□	
SVA21-□□□-A□-□	
SVA21-□□□-R□-□	
SVA21-□□□-P□-□	
SVA21-□□□-U□-□	
SVA21-□□□-W□-□	



Single Solenoid Valve
Tube Exhaust

Model Code	CAD file name
SVA21-□□□-S□-□	SVA-044
SVA21-□□□-T□-□	
SVA21-□□□-V□-□	



SOLENOID VALVE Series

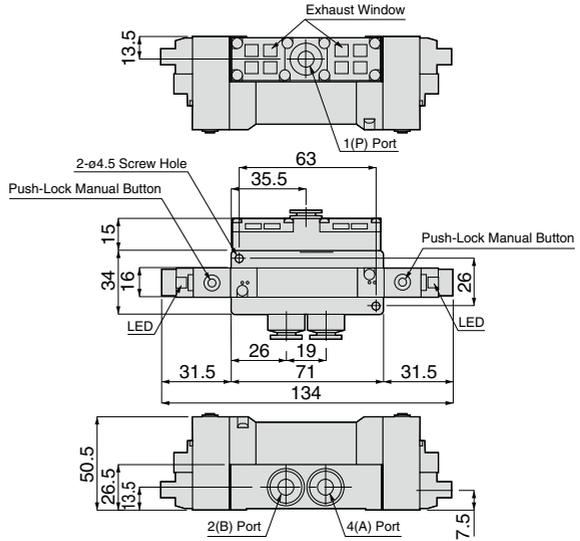
Solenoid Valve SVA21 Series

Open-air Exhaust

SVA 21 Double Solenoid Valve Open-air Exhaust (Silencer Exhaust)

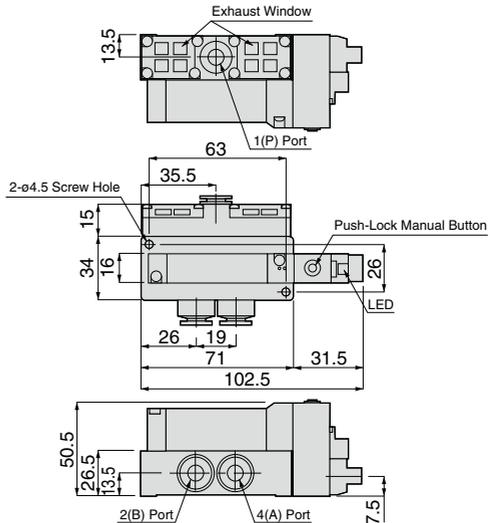
Unit : mm

Model Code	CAD file name
SVA21-□□S-D□-□	SVA-045
SVA21-□□S-E□-□	
SVA21-□□S-F□-□	
SVA21-□□S-G□-□	
SVA21-□□S-H□-□	
SVA21-□□S-A□-□	
SVA21-□□S-R□-□	
SVA21-□□S-P□-□	
SVA21-□□S-U□-□	
SVA21-□□S-W□-□	



SVA 21 Single Solenoid Valve Open-air Exhaust (Silencer Exhaust)

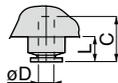
Model Code	CAD file name
SVA21-□□S-S□-□	SVA-046
SVA21-□□S-T□-□	
SVA21-□□S-V□-□	



Dimension of Fitting Part

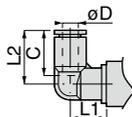
Unit : mm

Piping Direction: Side
Outlet ports - 4(A) · 2(B) Port,
Inlet/Exhaust ports - 1(P) · 5(R1) ·
3(R2) Port (Tube Exhaust)



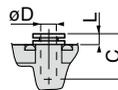
Tube O.D. øD	L	C
6(1/4)	11	17
8(5/16)	12.5	18.5
10(3/8)	15	21

Piping Direction: Top
Outlet ports - 4(A) · 2(B) Port,
Inlet/Exhaust ports - 1(P) · 5(R1) ·
3(R2) Port (Tube Exhaust)



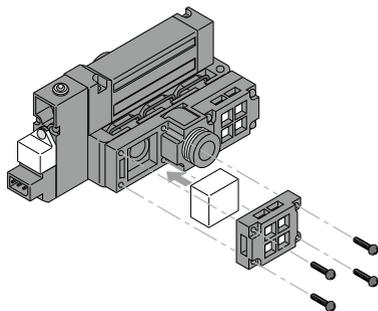
Tube O.D. øD	L1	L2	C
6(1/4)	14	20	17
8(5/16)	17	23	18.5
10(3/8)	21	26.5	20.5

Inlet port - 1(P) Port and
Silencer (Open-air Exhaust)



Tube O.D. øD	L	C
6(1/4)	7	17
8(5/16)	5	18.5
10(3/8)	5.5	20.5

Replacement of Silencer Element



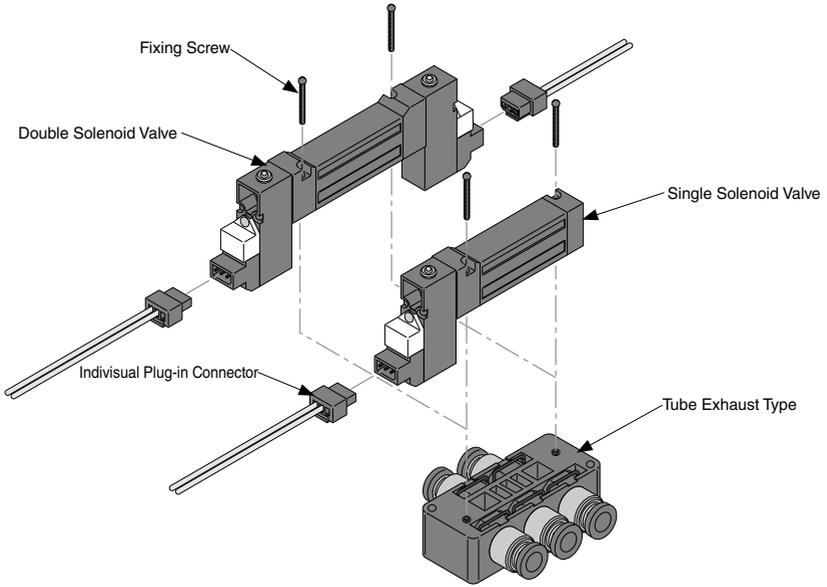
To replace silencer element for 21 series with open-air exhaust, loose the installing screws of the element cover with a proper Phillips head screwdriver, and take out the cover for the replacement.

Model Designation	Adapted Model	Quantity
SVA21EX-E	SVA21 (Open-air exhaust)	2pcs / set

SOLENOID VALVE Series

Solenoid Valve SVA21 Series

Construction of SVA 21 Series (Stand-alone Unit) Tube Exhaust Type



Construction of SVA 21 Series (Stand-alone Unit) Open-air Exhaust Type

