Push-In Fitting Incorporated Type Manifold Solenoid Valve

Solenoid Valve SVA20 Series

- *Lightweight and Large Capacity*
- *Effective Sectional Area 18mm² (Cv 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

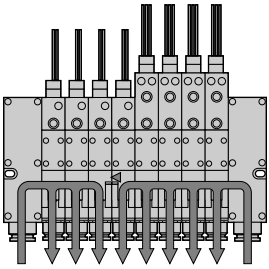
- *Vacuum-Operable 2 / 3-Port Solenoid Valve which does not require an external piping and has the same function as external pilot system.*
- *Elimination of external piping thus allowing these valves to be mounted along with other types of valves. This saves wiring, piping, and space.*
- *Selectable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

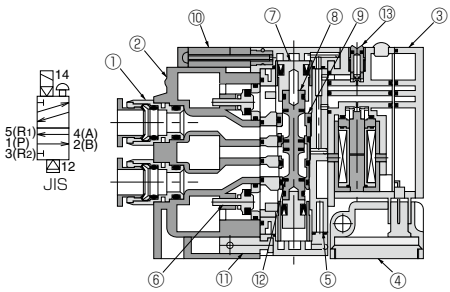
Dual Pressure Option

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



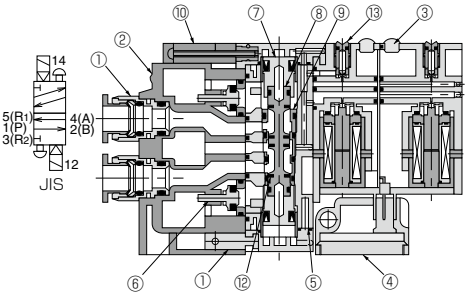
Construction

● 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	

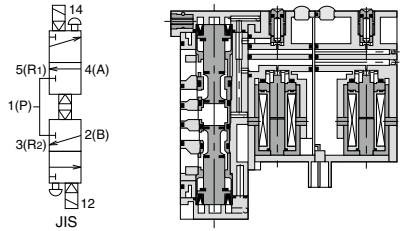
● 2-Position, 5-Port Double Solenoid Valve (SVA □ D)



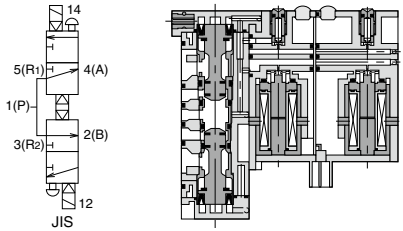
No.	Part	Material
1	Fitting Ass'y	
2	Manifold-block	Polyamide Base Plastic
3	Pilot Valve Ass'y	
4	Electric Component Ass'y	
5	Valve Body	PBT GF15%
6	Check Valve Ass'y	
7	Piston	Nickel-plated brass (Electroless Ni plating)
8	Spool	Aluminum Alloy
9	Sleeve	Aluminum Alloy
10	Slide Part	POM GF25%
11	Fixing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

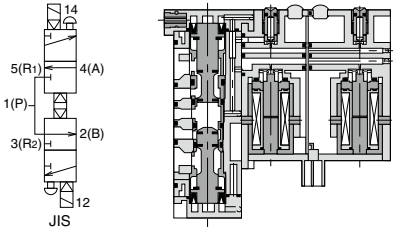
A / B Port: Normally Closed (SVA□E)



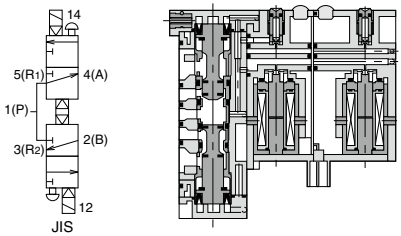
A / B Port: Normally Open (SVA□F)



A Port: Normally Closed, B Port: Normally Open

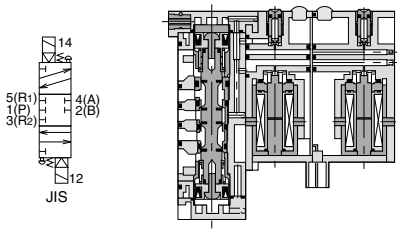


A Port: Normally Open, B Port: Normally Closed

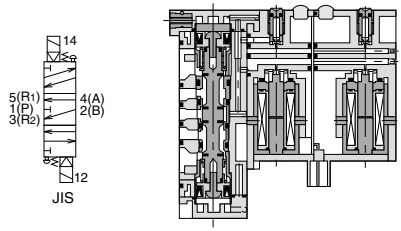


● 3-Position, 5-Port, Double Solenoid Valve

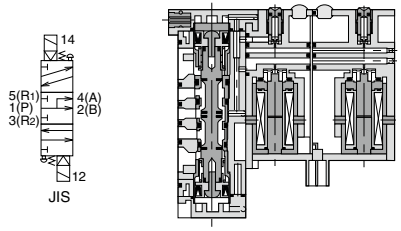
Closed Center (SVA□A)



Exhaust Center (SVA□R)

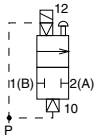


Pressure Center (SVA□P)

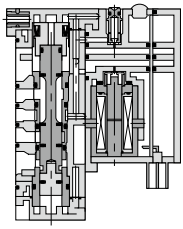


● Vacuum-Operable 2/3 Port Solenoid Valve

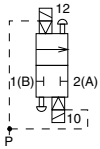
2-Position, 2-Port, Single Solenoid Valve (SVA□T)



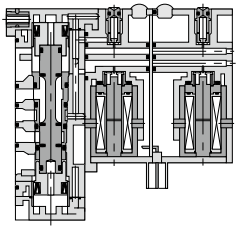
JIS



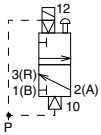
2-Position, 2-Port, Double Solenoid Valve (SVA□U)



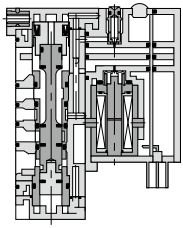
JIS



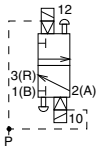
2-Position, 3-Port Single Solenoid Valve (SVA□V)



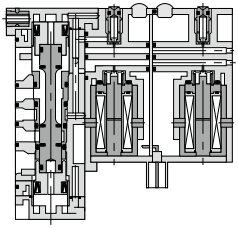
JIS



2-Position,3-Port, Double Solenoid Valve (SVA□W)



JIS



Model Designation of SVA20 Manifold Type(Example)

SVA 20 08 A - 1/4C 3/8L A08 S

- SVA: Resin Solenoid Valve
- 20: 20 Series (Valve width: 5/8″ (16mm))
- 08: ① Number of Stations
- A: ② Intake & Exhaust Block
- 1/4C: ③ Output Port Size
- 3/8L: ④ Intake Port Size
- A08: ⑤ Exhaust Check Valve
- S: ⑥ Exhaust Port Size

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)			
Code	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)					
Code	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

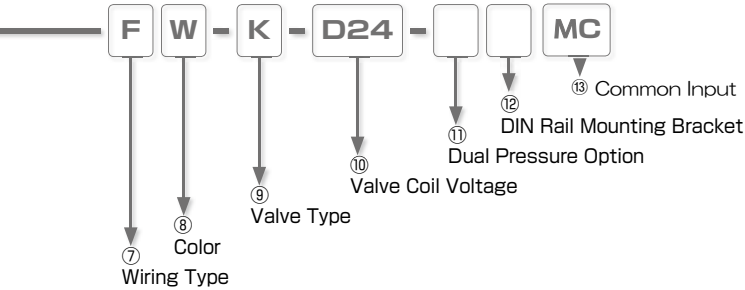
Code	A01	A02	A03	A04	A05	A06	A07	A08	A09	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19
Qty	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

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.)

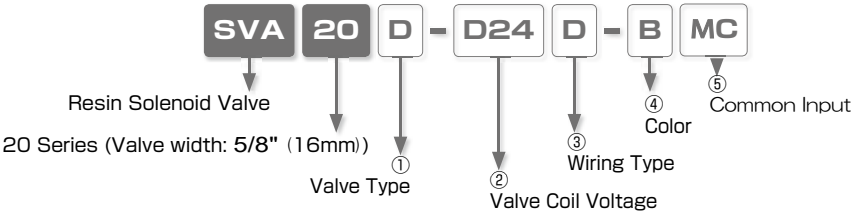
⑬ Common Polarity Specification

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

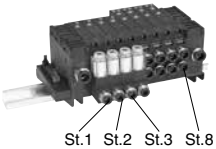
❖ Negative common, MC is selectable when coil voltage is 24VDC

Model Code of DIN Rail Mounting Bracket

DIN Rail Mounting Bracket

Code Example

Model	Series	Number of Stations ①	Intake /Exh. Block config. ②	Output Port Size ③	Intake Port Size ④	Exhaust Check Valve ⑤	Exhaust Port Size ⑥	Wiring Type ⑦	Color ⑧	Valve Type ⑨	Coil Voltage ⑩	Dual Pressure Option ⑪	DIN Rail Bracket ⑫	Common Input ⑬
SVA	**20**	08	A	1C	3/8C	A03	S	F	B	K	D24	P	D	MC



※.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	O
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

To: PISCO USA, Inc.

From :

Name :

Order # :

Date :

Requested EX-W PISCO Date : Quantity :

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

※ Make a copy of this page and use it for ordering.

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 20R-D24 SVA 20P-D24	SVA 20E-D24 SVA 20F-D24 SVA 20G-D24 SVA 20H-D24	SVA 20T-D24	SVA 20U-D24	SVA 20V-D24	SVA 20W-D24
Pilot Valve	Valve Type	Direct Acting Valve							
	Valve Stracture	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 Stracture	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 Stracture	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 Stracture	Elastic Seal, Spool Valve							
	Number of Position	2-Position		3-Position	2-Position				
	Number of Port	5-Port			3-Port X 2 (*1)	2-Port		3-Port	
	Valve Function	Single Solenoid	Double Solenoid		Single Solenoid X 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 20R-□ SVA 20P-□	SVA 20E-□ SVA 20F-□ SVA 20G-□ SVA 20H-□	SVA 20T-□ SVA 20U-□	SVA 20V-□ SVA 20W-□
1(P)→4(A).2(B) (φ3/8", 10mm)(*2)	C (*3)						
	S (*4)						
1(P)→4(A).2(B) (φ5/16", 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) (φ1/4", 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) (φ3/8", 10mm)→5(R1). 3(R2) without Check Valve (*1)	C (*3)						
	S (*4)						
4(A).2(B) (φ5/16", 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) (φ5/16", 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) (φ1/4", 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) (φ1/4", 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(dm^3/(s-bar)

*4. S: Effective Sectional Area S(mm^2(CV)).

Cylinder Speed Table

Cylinder Speed (mm/s)	Cylinder Tube bore (mm)									
	φ20	φ25	φ32	φ40	φ50	φ63	φ80	φ100	φ125	φ140
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.

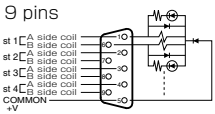
DIN Rail Mounting Bracket

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

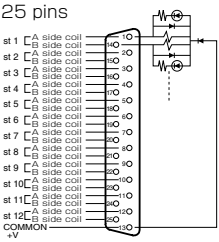
Electric Circuit (DC24V)

●Sub-D connector

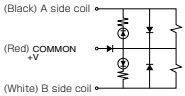
9 pins



25 pins



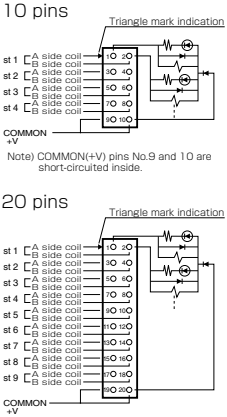
●Individual Plug-in Connector



Note) The color in parenthesis is lead wire color.

●Flat (Ribbon) Cable Connector

10 pins

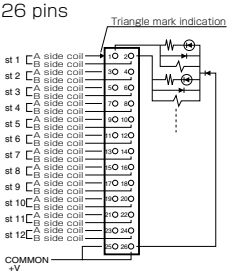


Note) COMMON(+V) pins No.9 and 10 are short-circuited inside.

20 pins

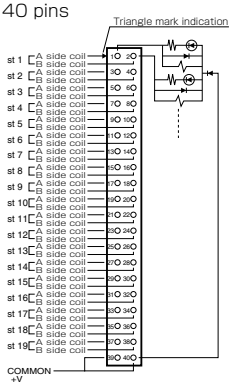
Note) COMMON(+V) pins No.19 and 20 are short-circuited inside.

26 pins



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

40 pins

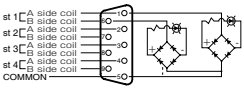


Note) COMMON(+V) pins No.39 and 40 are short-circuited inside.

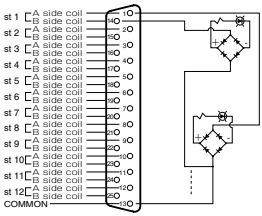
Electric Circuit (AC100V)

●Sub-D connector

9 pins

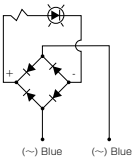


25 pins

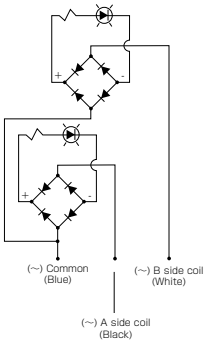


●Individual Plug-in Connector

Single Solenoid

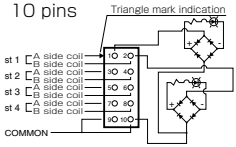


Double Solenoid



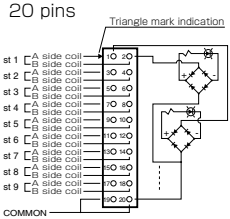
●Flat (Ribbon) Cable Connector

10 pins



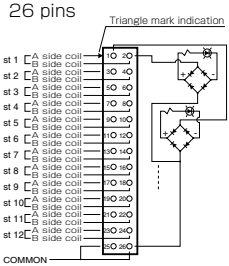
Note) COMMON(+V) pins No.9 and 10 are short-circuited inside.

20 pins



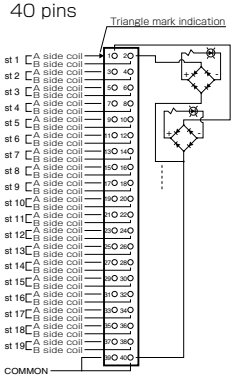
Note) COMMON(+V) pins No.19 and 20 are short-circuited inside.

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**
① ② ③ ④ ⑤ ⑥

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

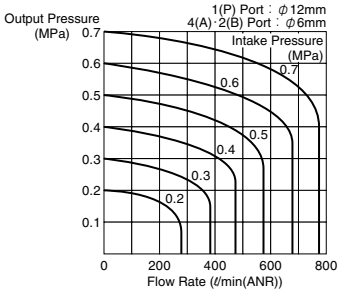
① Manifold-base: 45.5g x 5
② Manifold Type: 154.5g
③ Cartridge Fitting for Output (CJC14-06): 11.5g x 6
④ Cartridge Fitting for Intake and Exhaust (CJC18-08): 20g x 2
⑤ Individual Connector Cable (2P): 3g x 5
⑥ Valve Type (SVA20S): 84.5g x 5

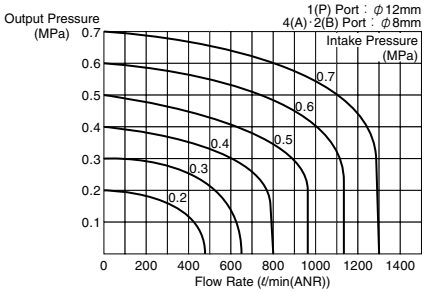
Example 2 **SVA 2003 A - 6C 8CS - D B - D - D24**
① ② ③ ④ ⑤

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
	Individual Plug-in Connector			ø6mm
				ø8mm
	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

Type	Refer to the pages below	Port	Fitting Type	Tube O.D.
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
	Individual Plug-in Connector			ø6mm
				ø8mm
	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

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

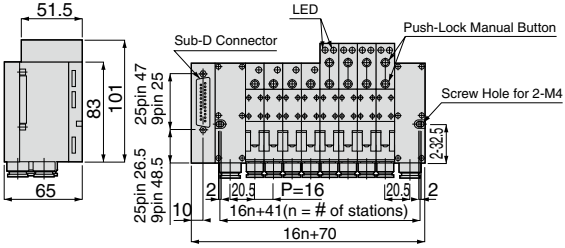
Type	Refer to the pages below	Port	Fitting Type	Tube O.D.
SVA Intake & Exhaust Block on One Side Open-air Exhaust	Sub-D connector	Output port 4(A) 2(B)	Push-In Fitting (Straight / Elbow)	ø1/4
				ø5/16
	Individual Plug-in Connector			ø6mm
				ø8mm
	Flat (Ribbon) Cable Connector	Intake port 1(P)	Push-In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

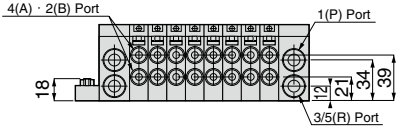
Sub-D Connector

Intake & Exhaust Block on Both Sides Tube Exhaust

Unit : mm

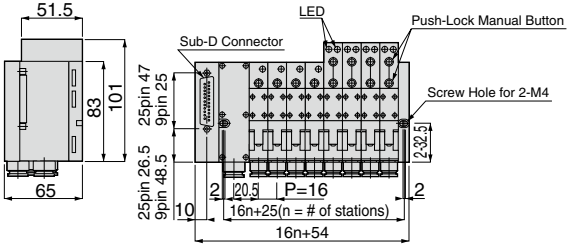
Model Code	CAD file name
SVA20□A-□□□□-D□-□□-□-□□	SVA-016 SVA-018 SVA-028 SVA-030 SVA-038

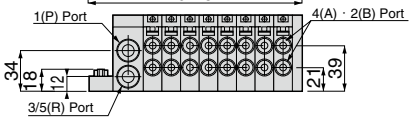




Intake & Exhaust Block on One Side Tube Exhaust

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

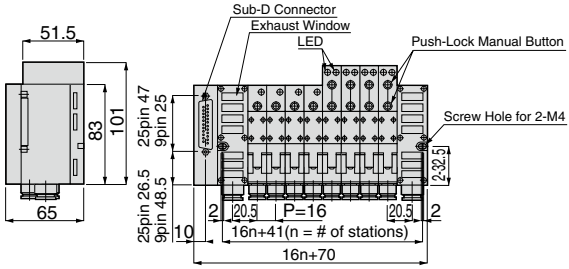


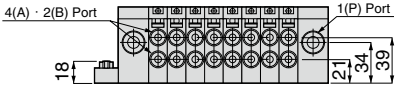


SVA 20 Intake & Exhaust Block on Both Sides Open-air Exhaust

Unit：mm

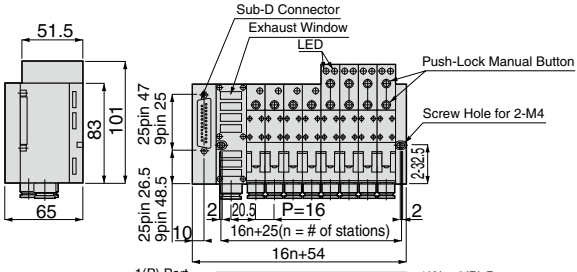
Model Code	CAD file name
SVA20□A-□□□S-D□-□□-□-□□	SVA-016 SVA-018 SVA-028 SVA-030 SVA-038

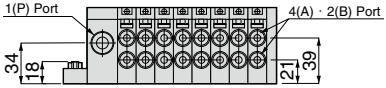




SVA 20 Intake & Exhaust Block on One Side Open-air Exhaust

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



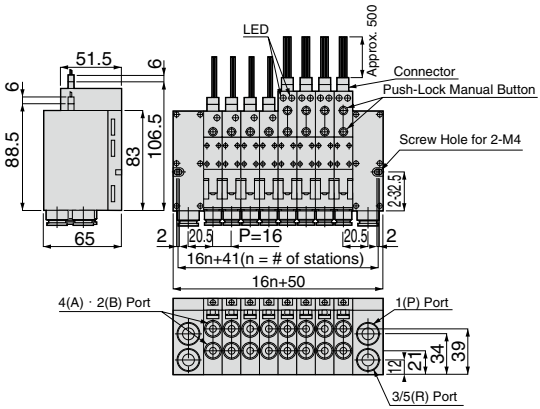


Individual Plug-in Connector

Unit : mm

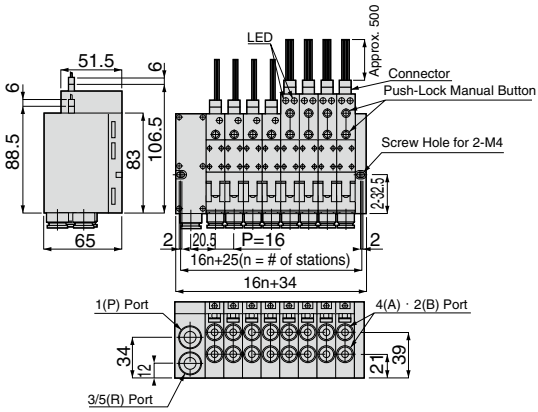
Intake & Exhaust Block on Both Sides Tube Exhaust

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



Intake & Exhaust Block on One Side Tube Exhaust

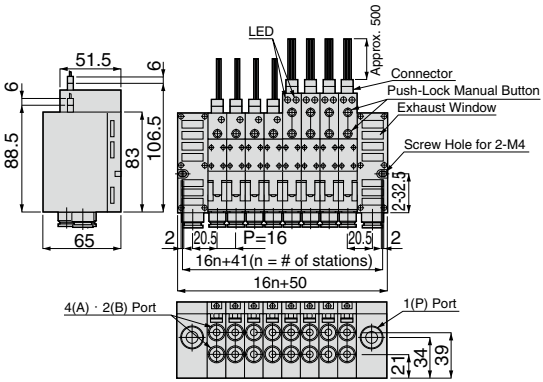
Model Code	CAD file name
SVA20□B-□□□□-S□-□□-□-□□	SVA-015 SVA-027 SVA-038



SVA 20 Intake & Exhaust Block on Both Sides Open-air Exhaust

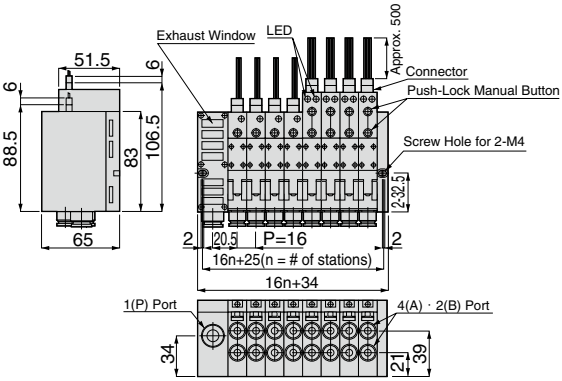
Unit：mm

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



SVA 20 Intake & Exhaust Block on One Side Open-air Exhaust

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

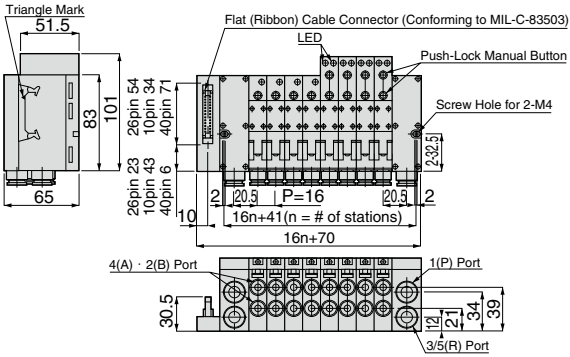


Flat (Ribbon) Cable Connector

Intake & Exhaust Block Both Sides Tube Exhaust

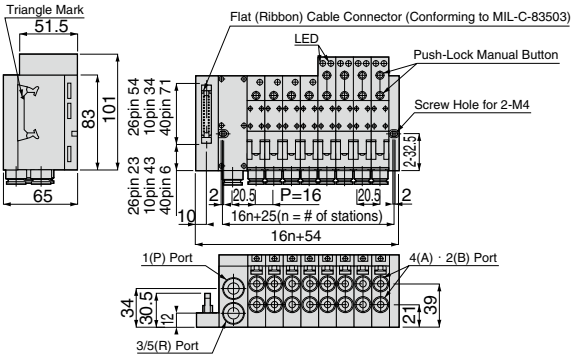
Unit : mm

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



Intake & Exhaust Block on One Side Tube Exhaust

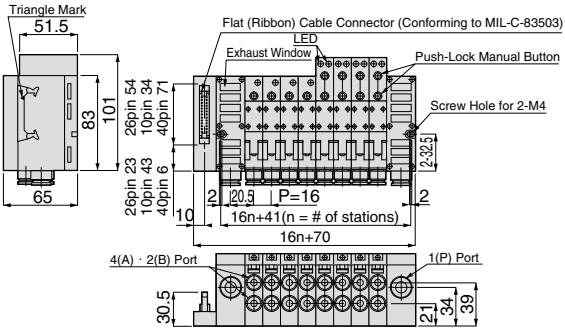
Model Code	CAD file name
SVA20□B-□□□□-F□-□□-□-□□	SVA-021
	SVA-023
	SVA-025
	SVA-033
	SVA-035
	SVA-037
	SVA-038



SVA 20 Intake & Exhaust Block on Both Sides Open-air Exhaust

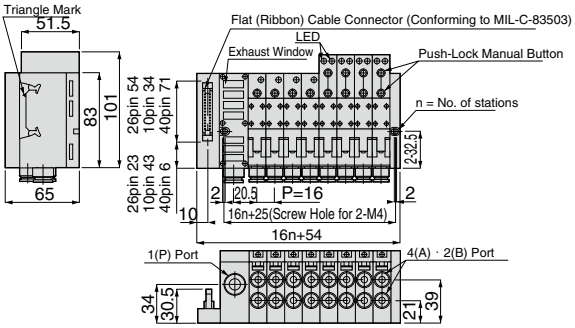
Unit：mm

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



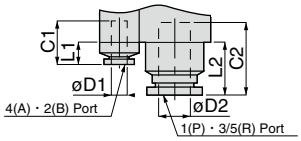
SVA 20 Intake & Exhaust Block one One Side Open-air Exhaust

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



Dimension of Fitting Part

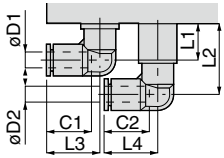
Straight Type



Unit：mm

	Tube O.D. øD1	C1	L1	Tube O.D. øD1	C2	L2
4(A)Port 2(B)Port	6(1/4)	17	12	–	–	–
	8(5/16)	18.5	13.5	–	–	–
1(P)Port 3/5(R)Port	–	–	–	8(5/16)	18.5	12.5
	–	–	–	10(3/8)	21	15
	–	–	–	12(1/2)	23.5	19

Elbow Type



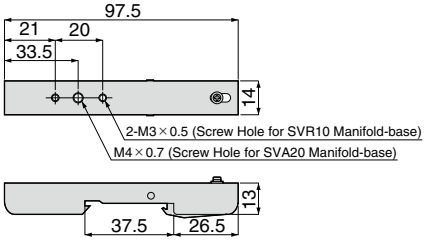
Unit：mm

	Tube O.D. øD1・øD1	C1・C2	L1	L2	L3・L4
4(A)Port 2(B)Port	6(1/4)	17	14	27	20
	8(5/16)	18.5	17	30	23
1(P)Port 3/5(R)Port	8(5/16)	18.5	17	30	23
	10(3/8)	20.5	21	35.5	26.5
	12(1/2)	23.5	23	37.5	29.5

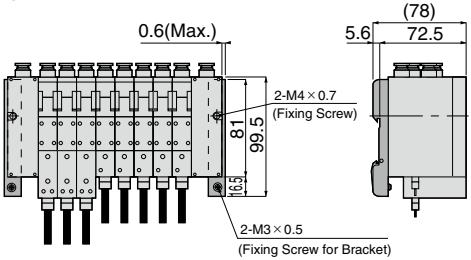
DIN Rail Mounting Bracket

DRF35S DIN Rail Mounting Bracket

Model Code	CAD file name
DRF35S	SVA-047



●Dimension with SVA20 Series mounted



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.

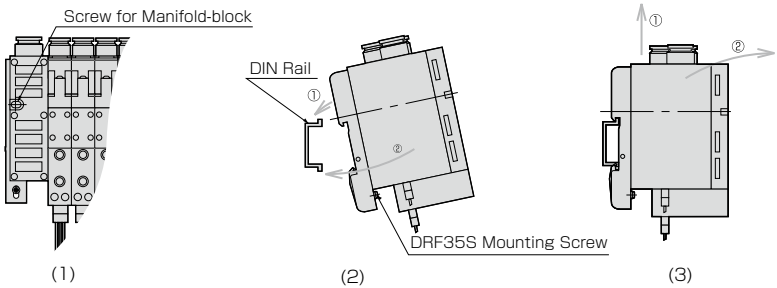
Screw: M4x0.7 (L=62~64)

(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/s^{2}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 viblation 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

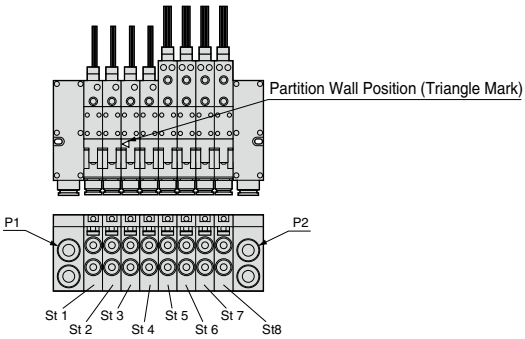
1. When the valves are used with Valve Manifold, back pressure can cause malfunctions of the actuator (single acting cylinder, etc.) In such a case, provide a check valve to the exhaust port.
2. Do not use a 3-position valve for accurate mid-stroke positioning of the cylinder. Compressiveness of air 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 ø8mm 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 etering 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 traiangle marked-manifold block is suppled 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 μm 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

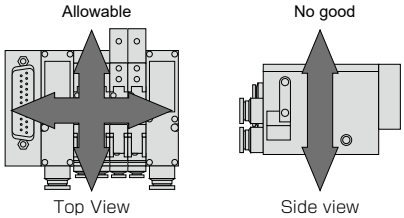
- Operate solenoid valves under the following environment.
  - · Within Operating Temp. Range
  - · Avoid dew condensation by temperature change
  - · No water / oil drops and dust
  - · No corrosive gas

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)



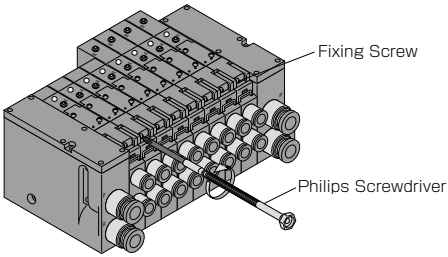
5. Lubrication

- 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)



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

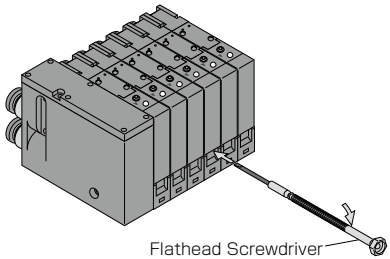
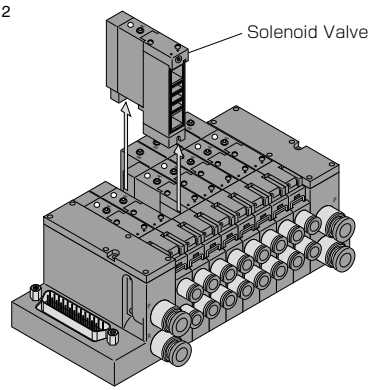
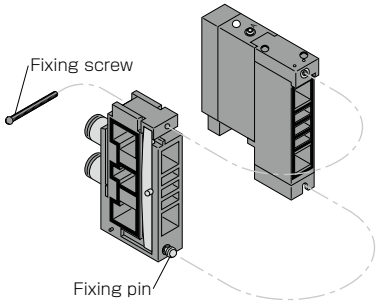
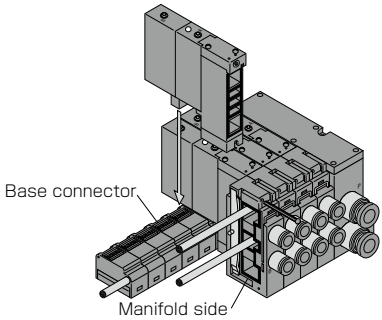


Figure 2



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.





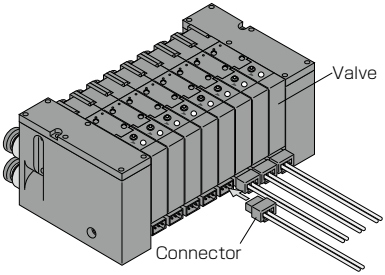
④ Tighten a fixing screw with the tightening torque 0.35-0.4Nm.

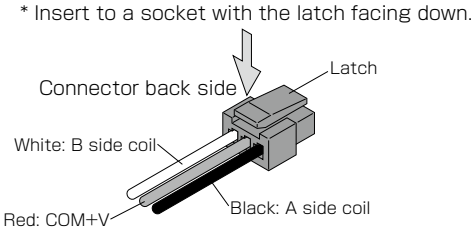
7. Detachable Individual Plug-in Connector

● 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.





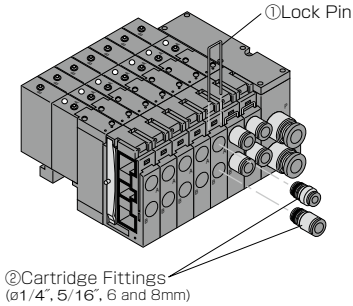
8. Replacement of Cartridge Fitting

■ All Fittings at connecting ports(A port & B ports) are deatchable. 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.

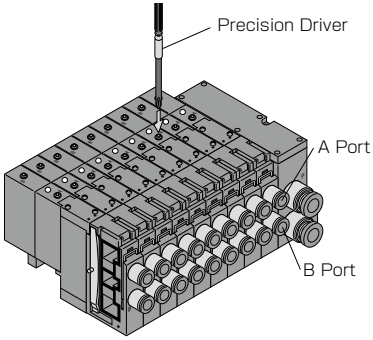


9. Manual Operation

■ 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.



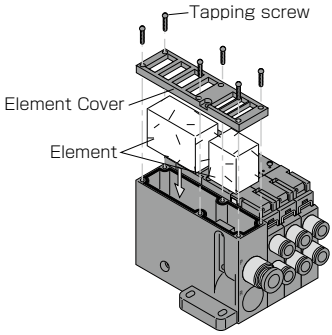
10. Replacement of Silencer Element

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

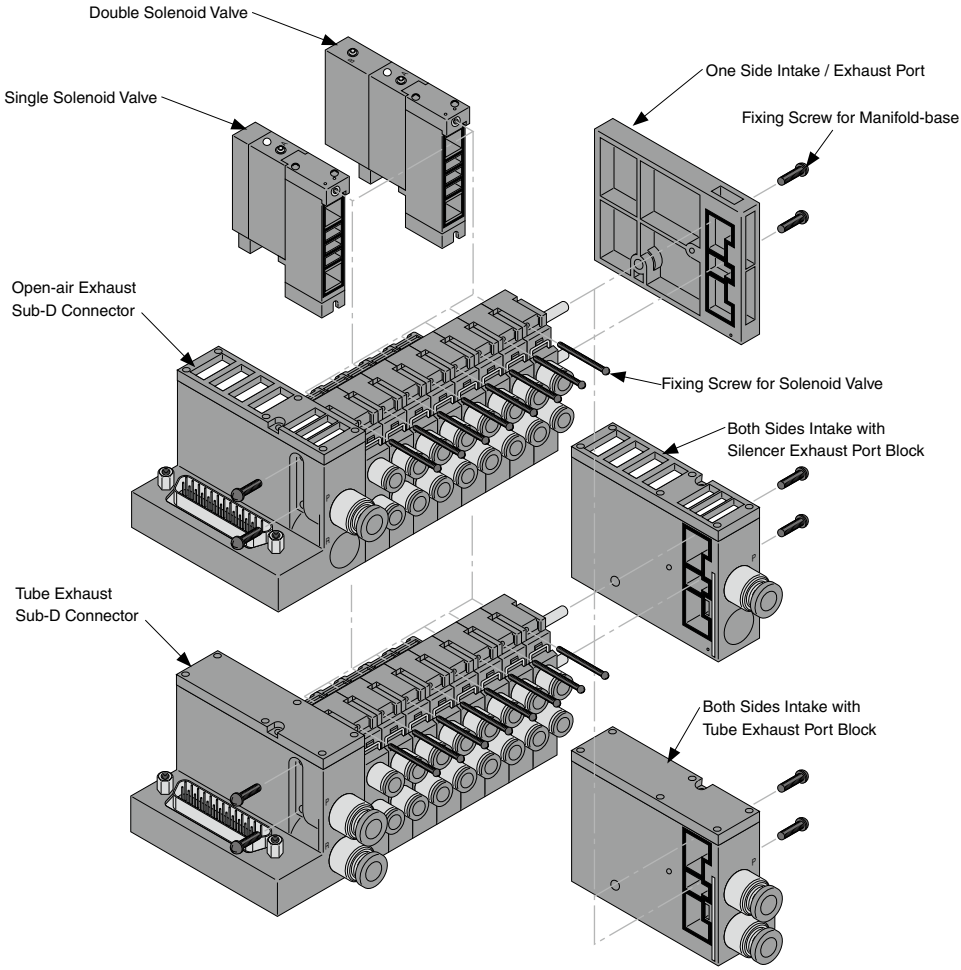
① Take out 6 screws fixing an element cover.

② Take out the element (Model code: SVA20EX-E (2pcs/set))

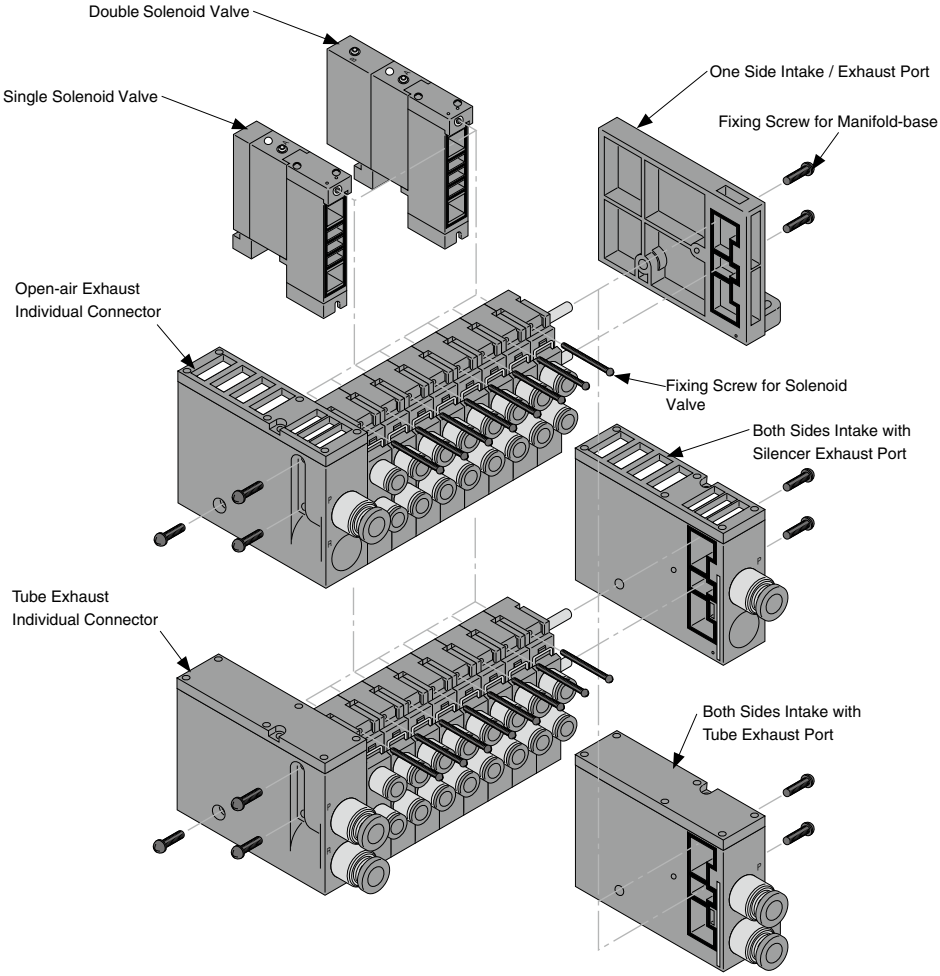
③ Install a new element, set back the element cover and fix it by tightening the screws.
(Tapping screws for resin are used for this product. Confirm the mesh with a precision driver first, then completely tighten all of them. Recommended tightening torque: 0.4-05Nm)



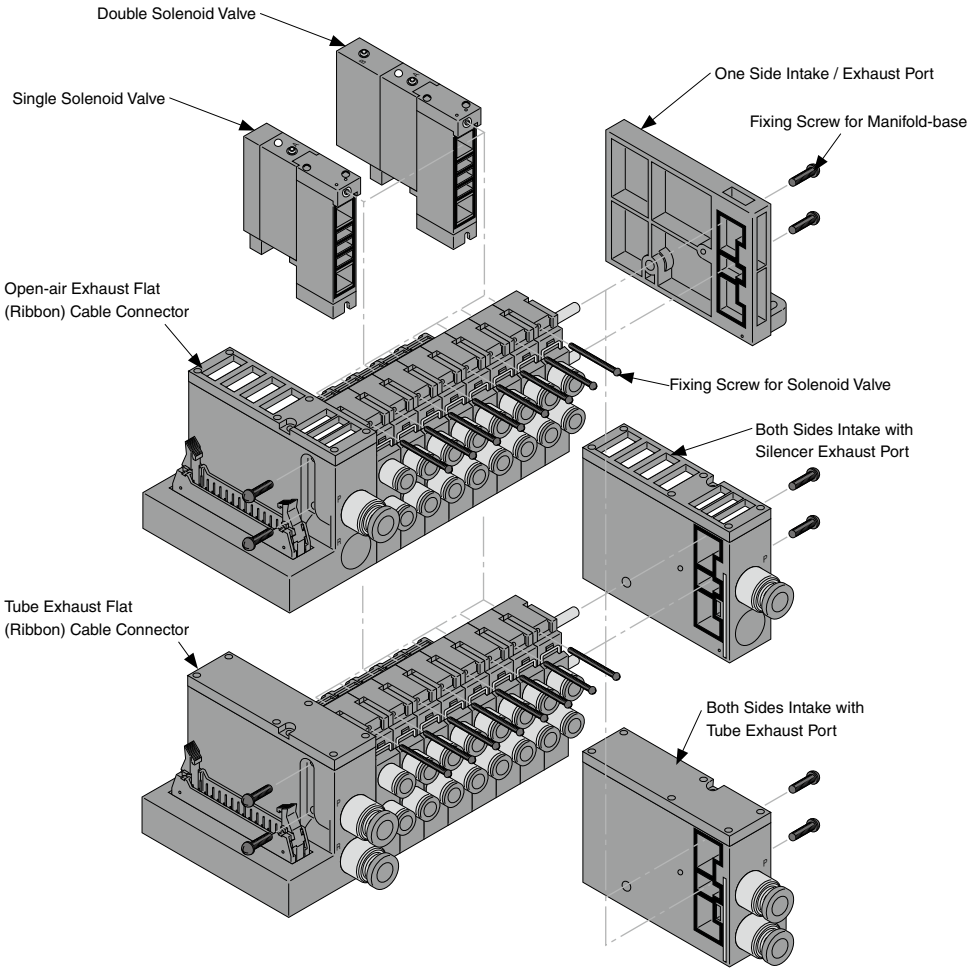
Construction Specification of SVA20 Series(Manifold type) with Sub-D Connector



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

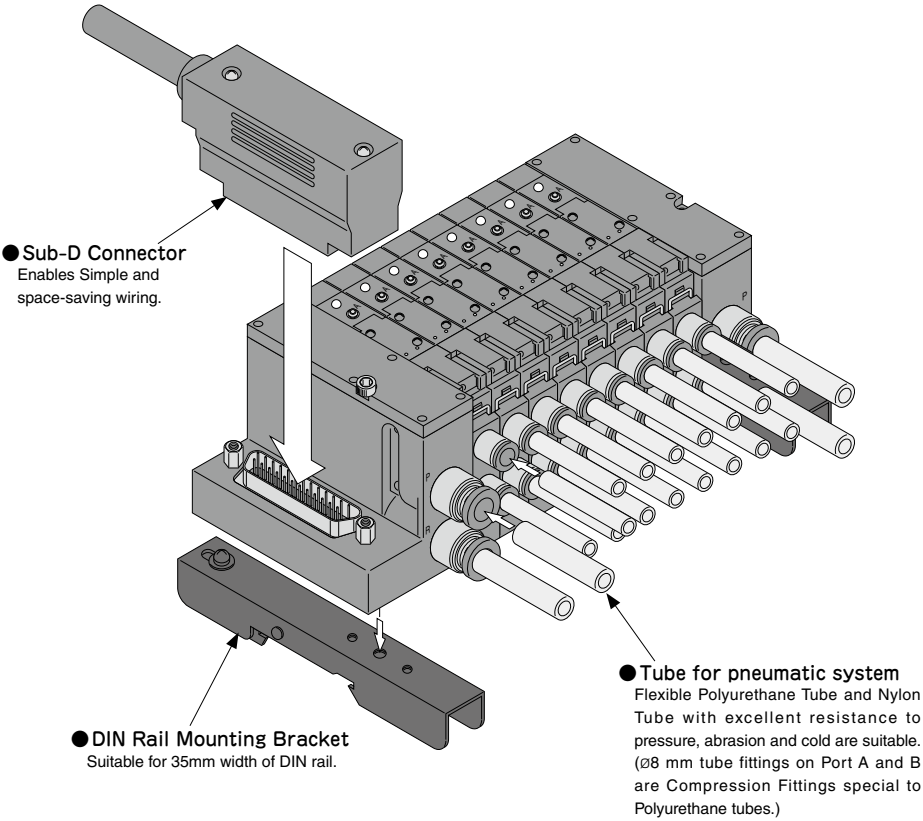


Construction Specification of SVA20 Series (Manifold type) with Flat (Ribbon) Cable Connector



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.



⚠ SAFETY Instructions

This safety instructions aim to prevent personal injury and damage to properties by requiring proper use of PISCO products.

Be certain to follow ISO 4414 and JIS B 8370

ISO 4414 : Pneumatic fluid power…Recomendations for the application of equipment to transmission and control systems.

JIS B 8370 : General rules and safety requirements for systems and their components.

This safety instructions is classified into "Danger", "Warning" and "Caution" depending on the degree of danger or damages caused by improper use of PISCO products.

⚠ Danger	Hazardous conditions. It can cause death or serious personal injury.
⚠ Warning	Hazardous conditions depending on usages. Improper use of PISCO products can cause death or serious personal injury.
⚠ Caution	Hazardous conditions depending on usages. Improper use of PISCO products can cause personal injury or damages to properties.

⚠ Warning

1. Selection of pneumatic products
   ① A user who is a pneumatic system designer or has sufficient experience and technical expertise should select PISCO products.
   ② Due to wide variety of operating conditions and applications for PISCO products, carry out the analysis and evaluation on PISCO products. The pneumatic system designer is solely responsible for assuring that the user's requirements are met and that the application presents no health or safety hazards. All designers are required to fully understand the specifications of PISCO products and constitute all systems based on the latest catalog or information, considering any malfunctions.

2. Handle the pneumatic equipment with enough knowledge and experience
   ① Improper use of compressed air is dangerous. Assembly, operation and maintenance of machines using pneumatic equipment should be conducted by a person with enough knowledge and experience.

3. Do not operate machine / equipment or remove pneumatic equipment until safety is confirmed.
   ① Make sure that preventive measures against falling work-pieces or sudden movements of machine are completed before inspection or maintenance of these machine.
   ② Make sure the above preventive measures are completed. A compressed air supply and the power supply to the machine must be off, and also the compressed air in the systems must be exhausted.
   ③ Restart the machines with care after ensuring to take all preventive measures against sudden movements.

※. This safety instructions are subject to change without notice.

Disclaimer

1. PISCO does not take any responsibility for any incidental or indirect loss, such as production line stop, interruption of business, loss of benefits, personal injury, etc., caused by any failure on use or application of PISCO products.

2. PISCO does not take any responsibility for any loss caused by natural disasters, fires not related to PISCO products, acts by third parties, and intentional or accidental damages of PISCO products due to incorrect usage.

3. PISCO does not take any responsibility for any loss caused by improper usage of PISCO products such as exceeding the specification limit or not following the usage the published instructions and catalog allow.

4. PISCO does not take any responsibility for any loss caused by remodeling of PISCO products, or by combinational use with non-PISCO products and other software systems.

5. The damages caused by the defect of Pisco products shall be covered but limited to the full amount of the PISCO products paid by the customer.

⚠ SAFETY INSTRUCTION MANUAL

PISCO products are designed and manufactured for use in general industrial machines. Be sure to read and follow the instructions below.

⚠ Danger

1. Do not use PISCO products for the following applications.
   ① Equipment used for maintaining / handling human life and body.
   ② Equipment used for moving / transporting human.
   ③ Equipment specifically used for safety purposes.

⚠ Warning

1. Do not use PISCO products under the following conditions.
   ① Beyond the specifications or conditions stated in the catalog, or the instructions.
   ② Under the direct sunlight or outdoors.
   ③ Excessive vibrations and impacts.
   ④ Exposure / adhere to corrosive gas, inflammable gas, chemicals, seawater, water and vapor. *
   ＊Some products can be used under the condition above(④), refer to the details of specification and condition of each product.
2. Do not disassemble or modify PISCO products, which affect the performance, function, and basic structure of the product.
3. Turn off the power supply, stop the air supply to PISCO products, and make sure there is no residual air pressure in the pipes before maintenance and inspection.
4. Do not touch the release-ring of push-in fitting when there is a working pressure. The lock may be released by the physical contact, and tube may fly out or slip out.
5. Frequent switchover of compressed air may generate heat, and there is a risk of causing burn injury.
6. Avoid any load on PISCO products, such as a tensile strength, twisting and bending. Otherwise, there is a risk of causing damage to the products.
7. As for applications where threads or tubes swing / rotate, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Block only. The other PISCO products can be damaged in these applications.
8. Use only Die Temperature Control Fitting Series, Tube Fitting Stainless SUS316 Series, Tube Fitting Stainless SUS316 Compression Fitting Series or Tube Fitting Brass Series under the condition of over 60℃ (140° F) water or thermal oil. Other PISCO products can be damaged by heat and hydrolysis under the condition above.
9. As for the condition required to dissipate static electricity or provide an antistatic performance, use EG series fitting and antistatic products only, and do not use other PISCO products. There is a risk that static electricity can cause system defects or failures.
10. Use only Fittings with a characteristic of spatter-proof such as Anti-spatter or Brass series in a place where flame and weld spatter is produced. There is a risk of causing fire by sparks.
11. Turn off the power supply to PISCO products, and make sure there is no residual air pressure in the pipes and equipment before maintenance. Follow the instructions below in order to ensure safety.
    ① Make sure the safety of all systems related to PISCO products before maintenance.
    ② Restart of operation after maintenance shall be proceeded with care after ensuring safety of the system by preventive measures against unexpected movements of machines and devices where pneumatic equipment is used.
    ③ Keep enough space for maintenance when designing a circuit.
12. Take safety measures such as providing a protection cover if there is a risk of causing damages or fires on machine / facilities by a fluid leakage.

⚠ Caution

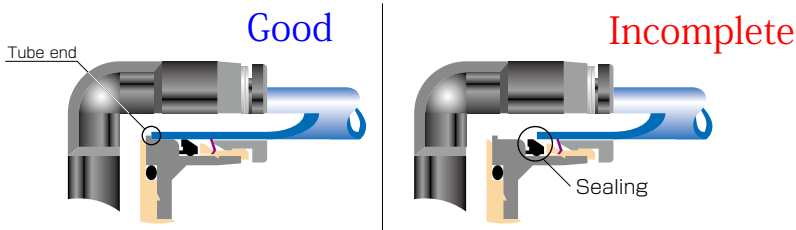
1. Remove dusts or drain before piping. They may get into the peripheral machine / facilities and cause malfunction.
2. When inserting an ultra-soft tube into push-in fitting, make sure to place an Insert Ring into the tube edge. There is a risk of causing the escape of tube and a fluid leakage without using an Insert Ring.
3. The product incorporating NBR as seal rubber material has a risk of malfunction caused by ozone crack. Ozone exists in high concentrations in static elimination air, clean-room, and near the high-voltage motors, etc. As a countermeasure, material change from NBR to HNBR or FKM is necessary. Consult with PISCO for more information.
4. Special option "Oil-free" products may cause a very small amount of a fluid leakage. When a fluid medium is liquid or the products are required to be used in harsh environments, contact us for further information.
5. In case of using non-PISCO brand tubes, make sure the tolerance of the outer tube diameter is within the limits of Table 1.

●Table 1. Tube O.D. Tolerance

mm size	Nylon tube	Polyurethane tube
ø1.8mm	—	±0.05mm
ø3mm	—	±0.15mm
ø4mm	±0.1mm	±0.15mm
ø6mm	±0.1mm	±0.15mm
ø8mm	±0.1mm	±0.15mm
ø10mm	±0.1mm	±0.15mm
ø12mm	±0.1mm	±0.15mm
ø16mm	±0.1mm	±0.15mm

inch size	Nylon tube	Polyurethane tube
ø1/8	±0.1mm	±0.15mm
ø5/32	±0.1mm	±0.15mm
ø3/16	±0.1mm	±0.15mm
ø1/4	±0.1mm	±0.15mm
ø5/16	±0.1mm	±0.15mm
ø3/8	±0.1mm	±0.15mm
ø1/2	±0.1mm	±0.15mm
ø5/8	±0.1mm	±0.15mm

6. Instructions for Tube Insertion
   ① Make sure that the cut end surface of the tube is at right angle without a scratch on the surface and deformations.
   ② When inserting a tube, the tube needs to be inserted fully into the push-in fitting until the tubing edge touches the tube end of the fitting as shown in the figure below. Otherwise, there is a risk of leakage.



Tube is not fully inserted up to tube end.

   ③ After inserting the tube, make sure it is inserted properly and not to be disconnected by pulling it moderately.
   ※. When inserting tubes, Lock-claws may be hardly visible in the hole, observed from the front face of the release-ring. But it does not mean the tube will surely escape. Major causes of the tube escape are the followings;
   ①Shear drop of the lock-claws edge
   ②The problem of tube diameter (usually small)
   Therefore, follow the above instructions from ① to ③, even lock-claws is hardly visible.

7. Instructions for Tube Disconnection
   ① Make sure there is no air pressure inside of the tube, before disconnecting it.
   ② Push the release-ring of the push-in fitting evenly and deeply enough to pull out the tube toward oneself. By insufficient pushing of the release-ring, the tube may not be pulled out or damaged by scratch, and tube shavings may remain inside of the fitting, which may cause the leakage later.
8. Instructions for Installing a fitting
   ① When installing a fitting, use proper tools to tighten a hexagonal-column or an inner hexagonal socket. When inserting a hex key into the inner hexagonal socket of the fitting, be careful so that the tool does not touch lock-claws. The deformation of lock-claws may result in a poor performance of systems or an escape of the tube.
   ② Refer to Table 2 which shows the recommended tightening torque. Do not exceed these limits to tighten a thread. Excessive tightening may break the thread part or deform the gasket and cause a fluid leakage. Tightening thread with tightening torque lower than these limits may cause a loosened thread or a fluid leakage.
   ③ Adjust the tube direction while tightening thread within these limits, since some PISCO products are not rotatable after the installation.

●Table 2: Recommended tightening torque / Sealock color / Gasket materials

Thread type	Thread size	Tightening torque	Sealock color	Gasket materials
Metric thread	M3 × 0.5	0.7N·m	—	SUS304 NBR
	M5 × 0.8	1.0 ~ 1.5N·m		
	M6 × 1	2 ~ 2.7N·m		
	M3 × 0.5	0.5 ~ 0.6N·m		POM
	M5 × 0.8	1 ~ 1.5N·m		
	M6 × 0.75	0.8 ~ 1N·m		
	M8 × 0.75	1 ~ 2N·m		
Taper pipe thread	R1/8	7 ~ 9N·m	White	—
	R1/4	12 ~ 14N·m		
	R3/8	22 ~ 24N·m		
	R1/2	28 ~ 30N·m		
Unified thread	No.10-32UNF	1.0 ~ 1.5N·m	—	SUS304、NBR
National pipe thread taper	1/16-27NPT	7 ~ 9N·m	White	—
	1/8-27NPT	7 ~ 9N·m		
	1/4-18NPT	12 ~ 14N·m		
	3/8-18NPT	22 ~ 24N·m		
	1/2-14NPT	28 ~ 30N·m		

※ These values may differ for some products. Refer to each specification as well.

9. Instructions for removing a fitting
   ① When removing a fitting, use proper tools to loosen a hexagonal-column or an inner hex bolt.
   ② Remove the sealant stuck on the mating equipment. The remained sealant may get into the peripheral equipment and cause malfunctions.
10. Arrange piping avoiding any load on fittings and tubes such as twist, tensile, moment load, shaking and physical impact. These may cause damages to fittings, tube deformations, bursting and the escape of tubes.

⚠ Common Safety Instructions for Solenoid Valve Series

Before selecting or using PISCO products, read the following instructions. Read the detailed instructions for individual series.

⚠ Warning

1. When piping, pipe flushing is required for pipes at both air supply and actuator sides. A filter (filtering accuracy should be 5μm or less) should be located close to a solenoid valve on the upstream side. Drain or dust can cause malfunctions.

2. Do not supply compressed air or dry air more than necessary. Deterioration of seal rubber or oil can cause malfunctions.

3. Do not use a solenoid valve in the location where it is exposed to water, oil and dust falling. Using in such circumstance may cause malfunctions or damages, since the valve is neither drip- nor dust- proof. (Protection Structure: IP30)

4. Solennoid valve is not explosive-proof. Do not use a solenoid valve in the location it is exposed to inflammable and explosive gasses or liquid. Using in such circumstance can cause a fire or explosion.

5. Do not use a solenoid valve in the location where it is exposed to corrosive gas. Using in such circumstance can cause trouble.

6. Do not use a solenoid valve in the location where it is exposed excessive vibrating or shock. Using in such circumstance can cause malfunctions or trouble.

7. Make sure a leakage current is 1mA or less before starting the valve. A leakage current more than 1mA can cause malfunctions.

8. The coil in a valve generates heat by the following (1) to (3) conditions. Heating can impair the product life or cause problems in operation. Heating can also cause getting burnt or damaging peripheral machines.
   Contact us when energization is necessary under the following conditions:
   (1) The power is continuously on for more than 2 hours.
   (2) High-cycle operation
   (3) The total operation time per day is longer than non-operation time even the generator is operated intermittently.

⚠ 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.