

Series VFR2000 Manifold Specifications

Manifold Specifications

Base model	Wiring	Porting specifications		Port size		Stations	Applicable valve model
		A, B port		P, EA, EB	A, B		
Plug-in type VV5FR2-01□	<ul style="list-style-type: none"> • With terminal block • With multi-connector • With D-sub connector 					2 to 15	VFR2□00-□F
						2 to 8	
Non plug-in type VV5FR2-10	<ul style="list-style-type: none"> • Grommet • Grommet terminal • Conduit terminal • DIN terminal • L plug connector • M plug connector 	Side/Bottom <small>(Note)</small>	1/4	1/8, 1/4 C6, C8	2 to 15	VFR2□10-□G VFR2□10-□E VFR2□10-□T VFR2□10-□D VFR2□10-□L VFR2□10-□M	

Note) Side ported and bottom ported cannot be taken at the same time.

How to Order Manifold Assembly

<Example> Plug-in type with terminal block (6 stations, one-piece junction cover)

VV5FR2-01T1-061-02 1 set (Manifold base part no.)
 *VFR2100-5FZ 3 sets (2 position single part no.)
 *VFR2200-5FZ 2 sets (2 position double part no.)
 *VVFS2000-10A 1 set (Blanking plate assembly part no.)
 ↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Valve arrangement is counted from the D side.
 When ordering, specify the part nos. in order from the 1st. station in the D side.
 When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

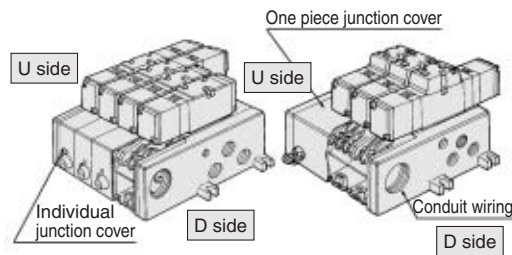
<Example> Non plug-in type: 6 stations

VV5FR2-10-061-01 1 set (Manifold base part no.)
 *VFR2110-5D 5 sets (2 position single part no.)
 *VFR2410-5D 1 set (3 position exhaust part no.)
 *VVFS2000-R-01-2 1 set (Individual EXH spacer part no.)
 ↳ The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

Valve arrangement is counted from the D side.
 When ordering, specify the part nos. in order from the 1st. station in the D side.
 When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

Plug-in Type: With Terminal Block

- Since lead wires of solenoid valve are connected with the terminals on upper surface of terminal block corresponding lead wires from power source can be wired at the bottom of terminal block.



VV5FR2 - 01T 1 - 08 1 - 02 □

Series VFR2000
Manifold

Plug-in type
with terminal block

Junction cover

Nil	Individual junction cover
1	One-piece junction cover

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Passage		Porting specification A, B
	P	EA, EB	
1	Common	Common	Side
2*	Common	Common	Bottom
3*	Common	Individual	Side
4*	Common	Individual	Bottom
5*	Individual	Common	Side
6*	Individual	Common	Bottom
7*	Individual	Individual	Side
8*	Individual	Individual	Bottom

* Option

Port size

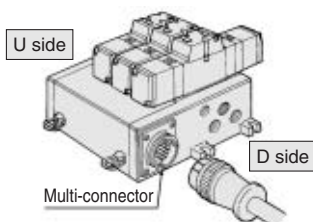
Symbol	P, EA, EB	A, B *	
		1/8	1/4
01	1/4	1/8	1/4
02		1/8	1/4
C6		One-touch fitting for ø6	
C8		One-touch fitting for ø8	
M		Mixed	

* For bottom ported, 1/8 is only available.

Thread type	
Nil	Rc
F	G
N	NPT
T	NPTF

Plug-in Type: With Multi-connector (For wiring specifications, refer to page 3-5-8.)

- Master connection of power and solenoid valves.
- Quick wiring permits ease of installation.



VV5FR2 - 01C D 1 - 05 1 - 01 □

Series VFR2000
Manifold

Plug-in type with
multi-connector

Connector
mounting
direction

D	D side mounting
U	U side mounting

Junction cover

1	One-piece junction cover
---	--------------------------

Stations

02	2 stations
⋮	⋮
08	8 stations

* Max. 8 stations

Symbol

Symbol	Passage		Porting specification A, B
	P	EA, EB	
1	Common	Common	Side
2*	Common	Common	Bottom
3*	Common	Individual	Side
4*	Common	Individual	Bottom
5*	Individual	Common	Side
6*	Individual	Common	Bottom
7*	Individual	Individual	Side
8*	Individual	Individual	Bottom

* Option

Port size

Symbol	P, EA, EB	A, B *	
		1/8	1/4
01	1/4	1/8	1/4
02		1/8	1/4
C6		One-touch fitting for ø6	
C8		One-touch fitting for ø8	
M		Mixed	

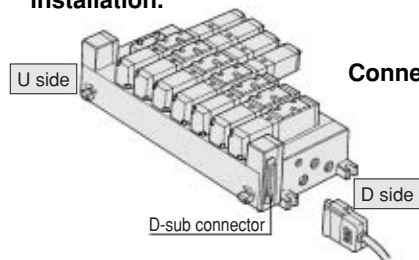
* For bottom ported, 1/8 is only available.

Thread type	
Nil	Rc
F	G
N	NPT
T	NPTF

Series VFR2000

Plug-in Type: With D-sub Connector (For wiring specifications, refer to page 3-5-8.)

- Wide range of interchangeability (D-sub connector (25P) conforming to MIL standard)
- Quick wiring permits easier installation.



VV5FR2 - 01F U 1 - 06 1 - 01

Series VFR2000 Manifold Plug-in type with D-sub connector

Connector mounting direction

D	D side mounting
U	U side mounting

Junction cover

1	One-piece junction cover
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Stations

02	2 stations
⋮	⋮
08	8 stations

* Max. 8 stations

Symbol			Port size			Thread type		
Symbol	Passage		Porting specifications A, B	Symbol	P, EA, EB	A, B *	Nil	Rc
	P	EA, EB						
01				01		1/8	F	G
02				02		1/4	N	NPT
1	Common	Common	Side	C6	1/4	One-touch fitting for ø6	T	NPTF
2 *			Bottom					
3 *	Side							
4 *	Bottom							
5 *	Individual	Common	Side	C8		One-touch fitting for ø8		
6 *			Bottom					
7 *	Individual	Individual	Side	M		Mixed		
8 *			Bottom					

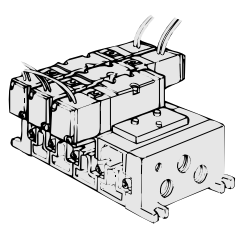
* For bottom ported, 1/8 is only available.

* Option

Note) P port or EA/EB port of symbol "3" to "8" can be individual port with block plate. Therefore, if using individual SUP spacer or individual EXH interface for individual port, its symbol is "1".

Non Plug-in Type: Grommet, Grommet Terminal, Conduit Terminal, DIN Terminal

- Wiring for every valve



VV5FR2 - 10 - 05 1 - 01

Series VFR2000 Manifold Non plug-in type

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol			Port size			Thread type		
Symbol	Passage		Porting specifications A, B	Symbol	P, EA, EB	A, B *	Nil	Rc
	P	EA, EB						
01				01		1/8	F	G
02				02		1/4	N	NPT
1	Common	Common	Side	C6	1/4	One-touch fitting for ø6	T	NPTF
2 *			Bottom					
3 *	Side							
4 *	Bottom							
5 *	Individual	Common	Side	C8		One-touch fitting for ø8		
6 *			Bottom					
7 *	Individual	Individual	Side	M		Mixed		
8 *			Bottom					

* For bottom ported, 1/8 is only available.

* Option

Note) P port or EA/EB port of symbol "3" to "8" can be individual port with block plate. Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is "1".

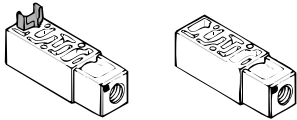
5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR2000

Manifold/Option Parts Assembly

Individual SUP spacer

Setting individual SUP spacer on the manifold block enables individual SUP port for each valve.

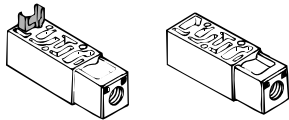
Body type	Plug-in type	Non plug-in type
Part no. Rc 1/8	VVFS2000-P-01-1	VVFS2000-P-01-2
Rc 1/4	VVFS2000-P-02-1	VVFS2000-P-02-2



Individual EXH spacer

Setting individual EXH spacer on the manifold block enables individual EXH port for each valve.

Body type	Plug-in type	Non plug-in type
Part no. Rc 1/8	VVFS2000-R-01-1	VVFS2000-R-01-2
Rc 1/4	VVFS2000-R-02-1	VVFS2000-R-02-2



SUP block disk

When supplying manifold with more than two different kinds of pressure, high and low, insert a block disk in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	

EXH block disk

When valve exhaust affects the other stations in the circuit, insert EXH block disk in between stations to separate valve exhaust.

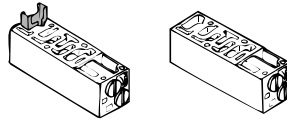
Body type	Plug-in type	Non plug-in type
Part no.	AXT625-12A	



Throttle valve spacer

Needle valve set on the manifold block can control cylinder speed by throttling exhaust.

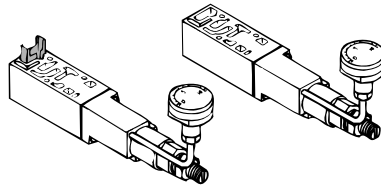
Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-20A-1	VVFS2000-20A-2



Interface regulator

Interface regulator set on the manifold block can regulate pressure for each valve. (Refer to "Flow Characteristics" on page 3-5-6 before operation.)

Body type	Plug-in type	Non plug-in type
P port regulation	ARBF2000-00-P-1	ARBF2000-00-P-2

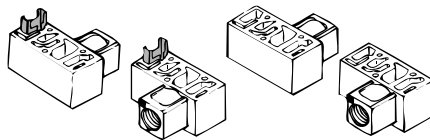


Air release valve spacer

Valve VFR21□0 (single) can be used as air release valve by combining with release valve spacer.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-24A-1 ^h	VVFS2000-24A-2 ^h

Note) L: U side mount R: D side mount



SUP stop valve spacer ^{Note)}

If SUP stop valve spacer is set, valve can be removed for maintenance without stopping air pressure supply for other valves.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-37A-1	VVFS2000-37A-2

(Height will be 23.2 mm higher.)

Note) Used with manifold base. Please contact SMC for details.

Blanking plate

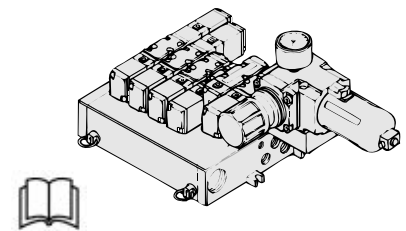
It is used by attaching on the manifold block for being prepared for removing a valve for maintenance reasons or planning to mount a spare valve, etc.

Body type	Plug-in type	Non plug-in type
Part no.	VVFS2000-10A	

Manifold Option

With control unit Plug-in/Non Plug-in type

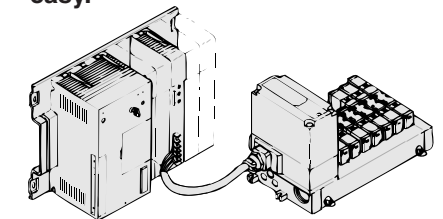
- Filter, regulation valve, pressure switch and air release valve all combine to form one unit.
- Piping processes are eliminated.



For details, refer to page 3-5-24.

With serial interface unit for serial transmission Plug-in type

- Solenoid valve wiring process reduced considerably.
- Disperse installation possible. Manifold solenoid valve: 8 stations max, 32 positions (512 solenoids).
- Maintenance and inspection are easy.



For details, refer to "Serial Transmission" catalog separately.

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

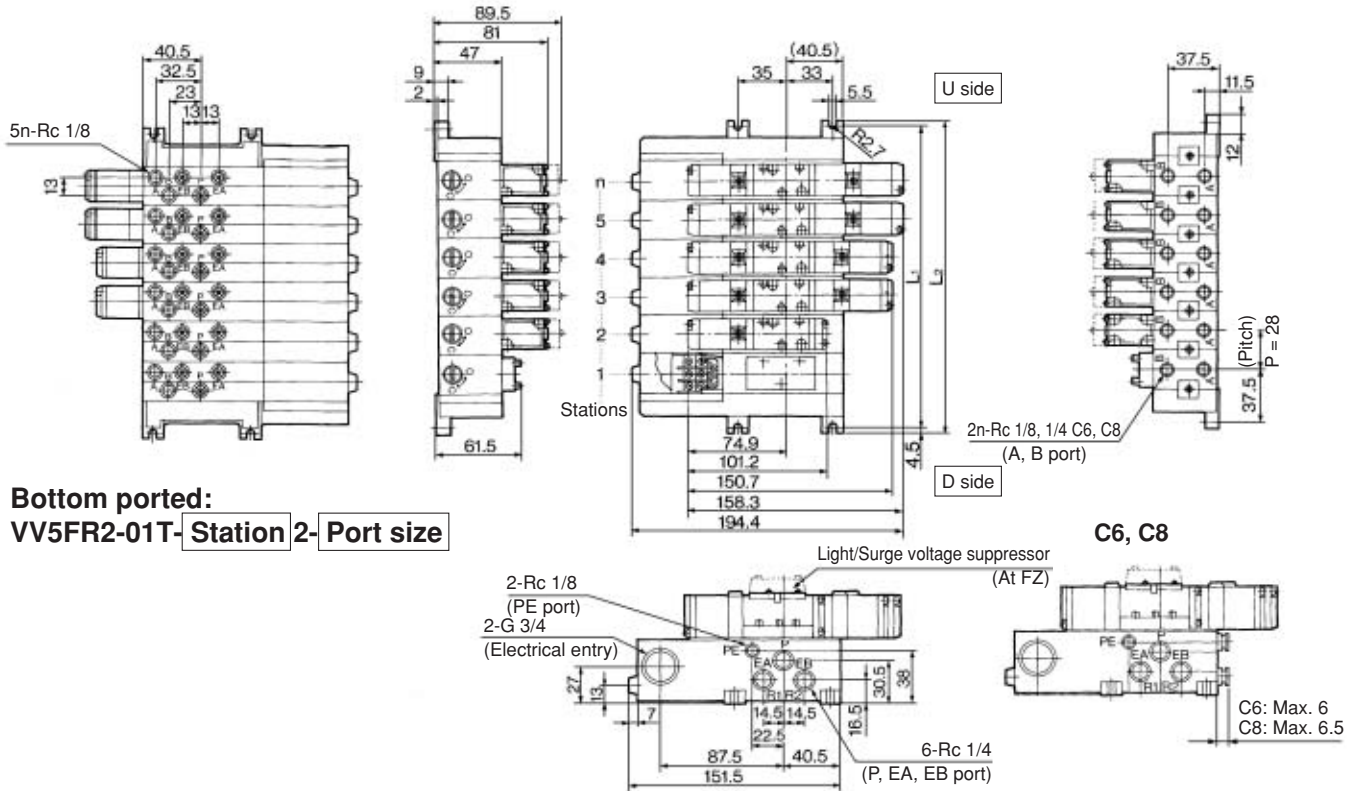
EVS

VFN

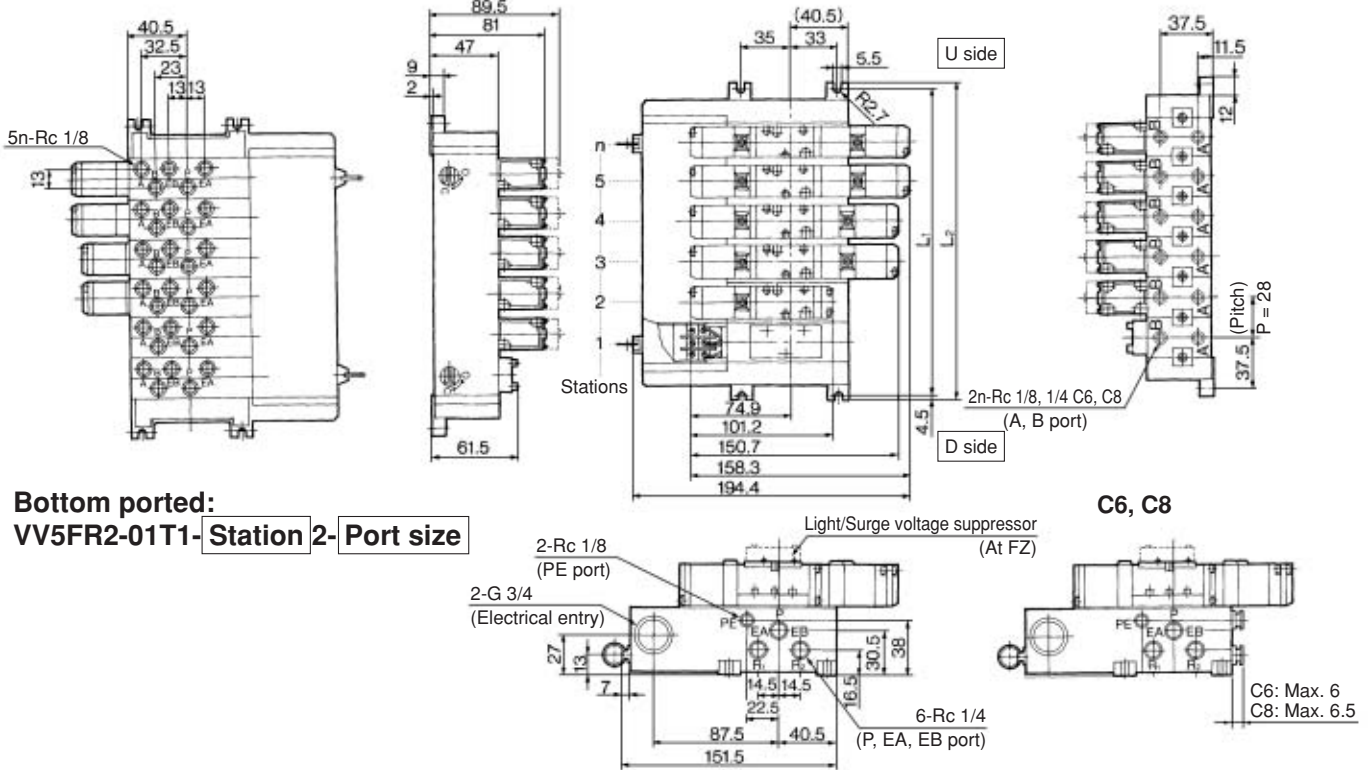
Series VFR2000

Manifold Plug-in type

With terminal block (Individual junction cover): VV5FR2-01T-Station 1-Port size



With terminal block (One-piece junction cover): VV5FR2-01T1-Station 1-Port size



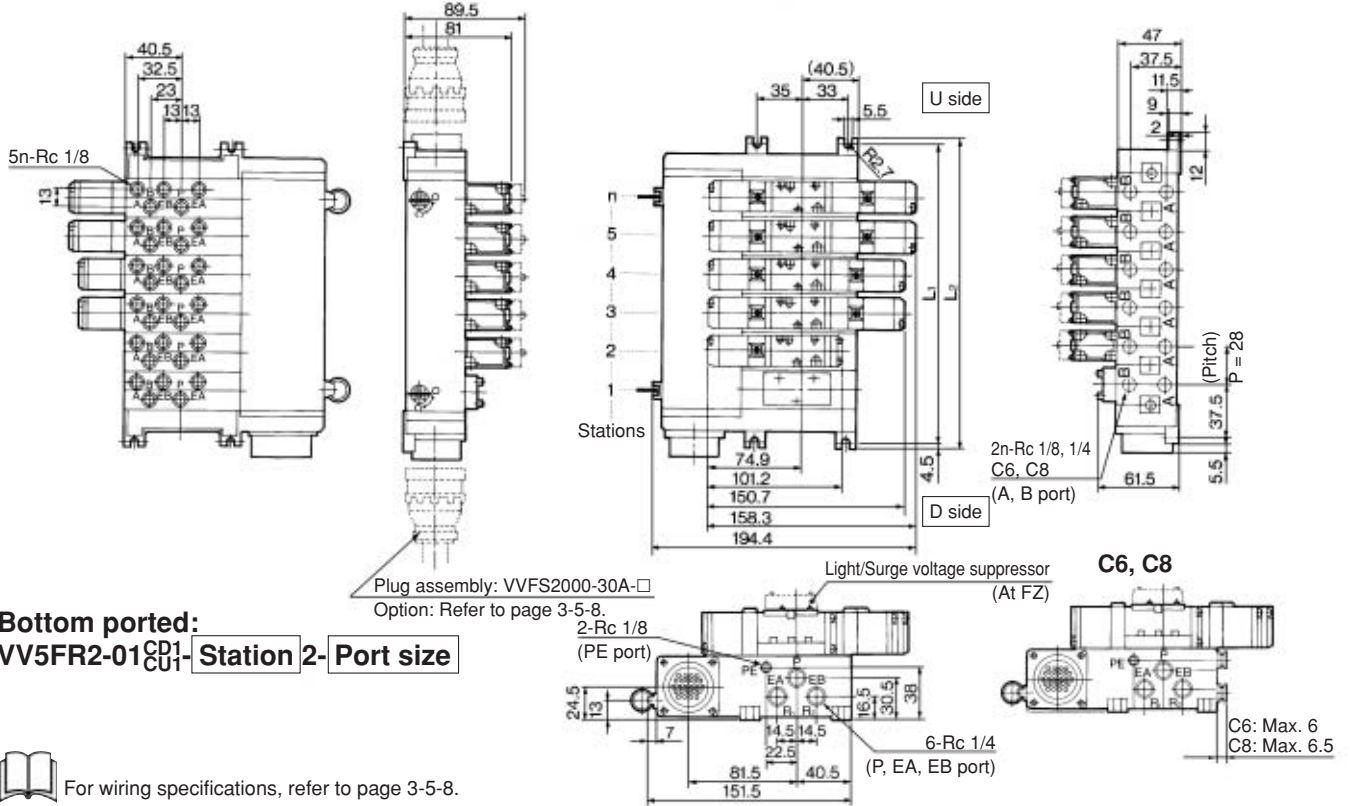
n: Stations

Stations	1	2	3	4	5	6	7	8	9	10	Formula
L ₁	75	103	131	159	187	215	243	271	299	327	L ₁ = 28 x n + 47
L ₂	84	112	140	168	196	224	252	280	308	336	L ₂ = 28 x n + 56

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR2000

Manifold Plug-in type

With multi-connector: VV5FR2-01CD1-Station 1-Port size, VV5FR2-01CU1-Station 1-Port size

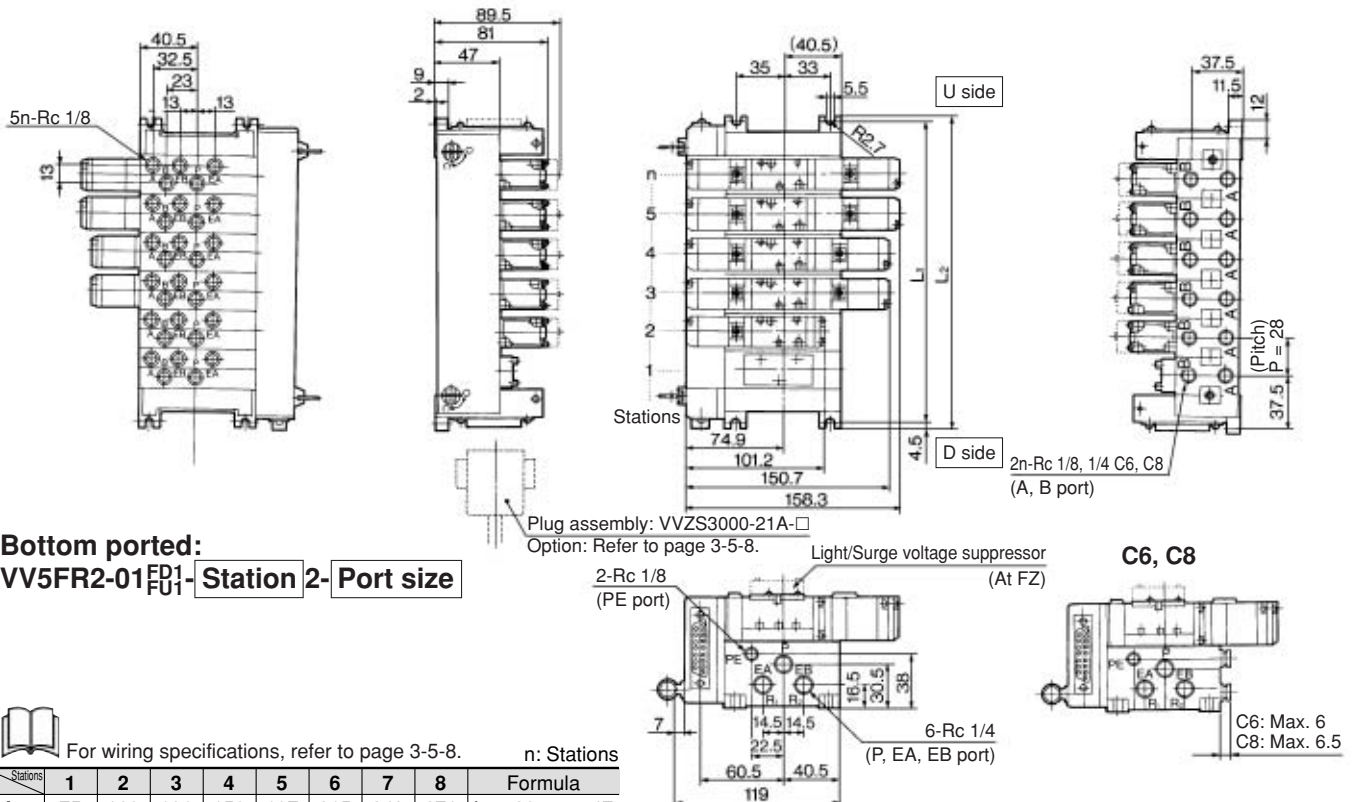


Bottom ported:
VV5FR2-01CD1-Station 2-Port size



For wiring specifications, refer to page 3-5-8.

With D-sub connector: VV5FR2-01FD1-Station 1-Port size, VV5FR2-01FU1-Station 1-Port size



Bottom ported:
VV5FR2-01FD1-Station 2-Port size



For wiring specifications, refer to page 3-5-8.

n: Stations

Stations	1	2	3	4	5	6	7	8	Formula
L ₁	75	103	131	159	187	215	243	271	L ₁ = 28 x n + 47
L ₂	84	112	140	168	196	224	252	280	L ₂ = 28 x n + 56

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

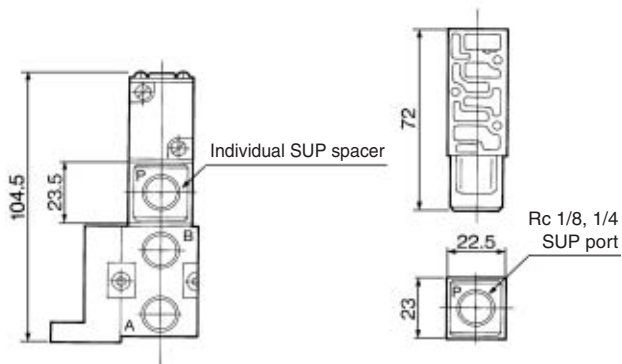
EVS

VFN

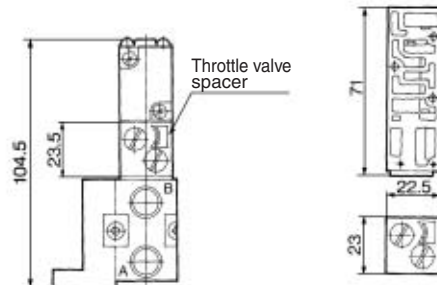
5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR2000

Manifold/Option Parts Assembly Plug-in type/Non plug-in type

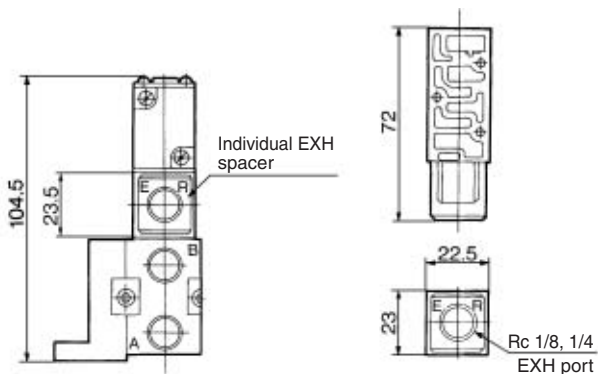
Individual SUP spacer:
 VVFS2000-P-⁰¹/₀₂-1 (Plug-in type)
 VVFS2000-P-⁰¹/₀₂-2 (Non plug-in type)



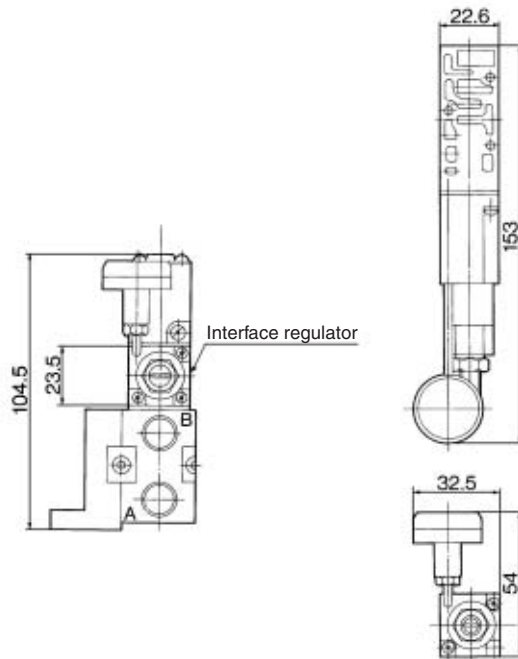
Throttle valve spacer:
 VVFS2000-20A-1 (Plug-in type)
 VVFS2000-20A-2 (Non plug-in type)



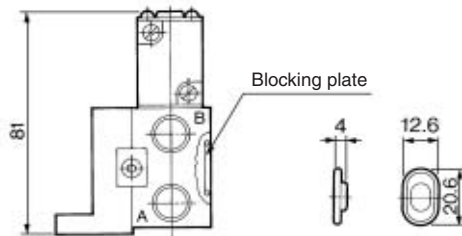
Individual EXH spacer:
 VVFS2000-R-⁰¹/₀₂-1 (Plug-in type)
 VVFS2000-R-⁰¹/₀₂-2 (Non plug-in type)



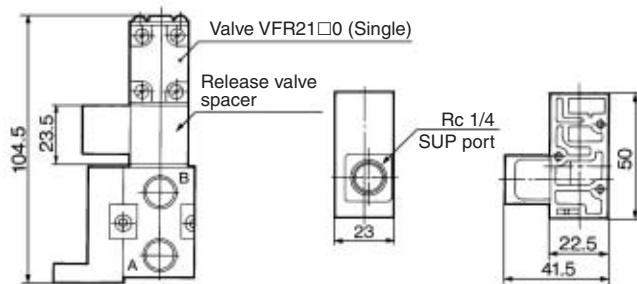
Interface regulator
 ARBF2000-00-P-1 (Plug-in type)
 ARBF2000-00-P-2 (Non plug-in type)



SUP block disk: AXT625-12A
EXH block disk: AXT625-12A



Release valve spacer
 VVFS2000-24A-1^R/_L (Plug-in type)
 VVFS2000-24A-2^R/_L (Non plug-in type)



Note) VVFS2000-24A-1/2R (D side mounting)

- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

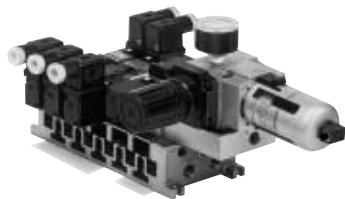
Series VFR2000

Manifold with Control Unit

- Control unit (Filter, Regulator, Pressure switch, Air release valve) are all standardized to the one unit, and can be mounted on the manifold base without any attachments.
- Piping processes are eliminated.



Plug-in type



Non plug-in type

⚠ Caution

Air filter with auto-drain or manual drain must be mounted with the air filter at the bottom.

Manifold Specifications

Manifold	Plug-in type: VV5FR2-01□	Non plug-in type: VV5FR2-10
Wiring	With terminal block With multi-connector With D-sub connector	Grommet, Grommet terminal Conduit terminal, DIN terminal L plug connector, M plug connector
Applicable valve model	VFR2□00-□F	VFR2□10-□G, VFR2□10-□E VFR2□10-□T, VFR2□10-□DY VFR2□10-□L, VFR2□10-□M
Porting specifications Rc	Common SUP, Common EXH	
	A, B port	Side: Rc 1/8, 1/4, C6, C8, Bottom: Rc 1/8 (Option)
	P, EA, EB port	Side: Rc 1/4, Bottom: Rc 1/8 (Option)
Stations	2 to 15 stations * (With multi-connector/D-sub connector: 2 to 8 stations)	



* Including station of control unit

Control Unit Specifications

Air filter (With auto-drain/With manual drain)	
Filtration degree	5 μm
Regulator	
Set pressure (Outlet pressure)	0.05 to 0.85 MPa
Pressure switch	
Set pressure range: OFF	0.1 to 0.6 MPa
Differential	0.08 MPa
Contact	1a
Indicator light	LED (RED)
Max. switch capacity	2 VA AC, 2 W DC
Max. operating current	24 VAC, DC or less: 50 mA 100 VAC, DC: 20 mA
Inside voltage drop	4 V or less
Air release valve (Single only)	
Operating pressure range	0.2 to 0.9 MPa

Control Unit/Option

Air release valve spacer ⁽¹⁾	<Plug-in type>	
	VVFS2000-24A-1R (D side mounting) VVFS2000-24A-1L (U side mounting)	
Pressure switch ⁽²⁾	<Non plug-in type>	
	VVFS2000-24A-2R (D side mounting) VVFS2000-24A-2L (U side mounting)	
Pressure switch	IS1000P-2-1	
Blanking plate	For filter regulator	MP2-2
	For pressure switch	MP3-2
	For air release valve	AXT625-18A
Filter element	111511-5B	



Note 1) Refer to "Manifold Option" on page 3-5-23.

Note 2) Pressure switch cannot be mounted later on non plug-in type.

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR2000

How to Order

VV5FR2 — **10** — **08** **1** — **01** — **AP**

Series VFR2000 Manifold

Base model

Symbol	Electrical entry	Connector mounting direction	Junction cover
01T	Plug-in type terminal block	—	Stacking type
01T1			Integrated type
01CD1	Plug-in type multi-connector	D side	Integrated type
01CU1		U side	
01FD1	Plug-in type D-sub connector	D side	Integrated type
01FU1		U side	
10	Non plug-in type	—	—

Air release valve coil rating

Nil	None
1	100 VAC, 50/60 Hz
5	24 VDC
9	Other

Control unit type

Symbol	Nil	MP	AP	M	A	G	F	C	E
Control equipment									
Air release valve		●	●	●	●			●	●
Air filter regulator with manual drain		●		●		●			
Air filter regulator with auto-drain			●		●		●		
Pressure switch		●	●						
Blanking plate (Air release valve)						●	●		
Blanking plate (Filter regulator)								●	
Blanking plate (Pressure switch)				●	●	●	●	●	
Required stations	2 stations								1 station

Note) Control unit is D side mounting only.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	P, EA, EB	A, B
01	1/4	1/8
02		1/4
C6		One-touch fitting for ø6
C8		One-touch fitting for ø8
M		Mixed

Stations

02	2 stations
⋮	⋮
15 (Note)	15 stations

Note) • 01CD1, 01CU1, 01FD1, 01FU1: Max. 8 stations
• 01T, 01T1, 10: Max. 15 stations
• Including station of control unit

Symbol

Symbol	Passage		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
2*			Bottom
3*	Common	Individual	Side
4*			Bottom
5*	Individual	Common	Side
6*			Bottom
7*	Individual	Individual	Side
8*			Bottom

- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

* Option
P port or EA/EB port of symbol "3" to "8" can be individual port with block disk. Therefore, if using individual SUP spacer or individual EXH spacer for individual port, its symbol is "1".

How to Order Manifold Assembly

<Example> Plug-in type with terminal block

VV5FR2-01T1-091-02-MP5..... 1 set (Manifold base part no.)
 *VFR2100-5FZ..... 5 sets (2 position single part no.)
 *VFR2200-5FZ..... 2 sets (2 position double part no.)

The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

The 1st and 2nd station are used for control unit mounting.
 When ordering, specify the part nos. in order from the 3rd. station in the D side.
 When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

<Example> Non plug-in type

VV5FR2-10-071-01-M5..... 1 set (Manifold base part no.)
 *VFR2110-5D..... 5 sets (2 position single part no.)

The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.

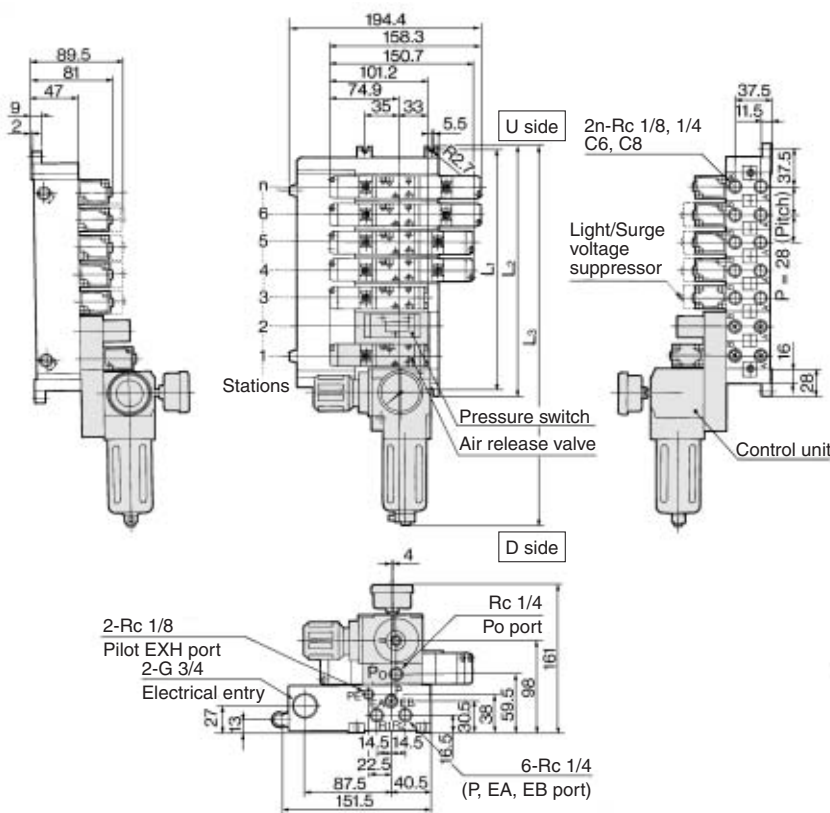
The 1st and 2nd station are used for control unit mounting.
 When ordering, specify the part nos. in order from the 3rd. station in the D side.
 When entry of part numbers becomes complicated, indicate on the manifold specification sheet.

Series VFR2000

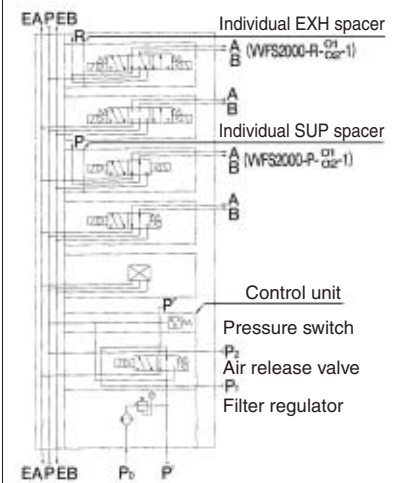
Manifold with Control Unit Plug-in type/Non plug-in type

Plug-in type:

VV5FR2-01T- Station 1- Port size- Control unit- Voltage of air release valve

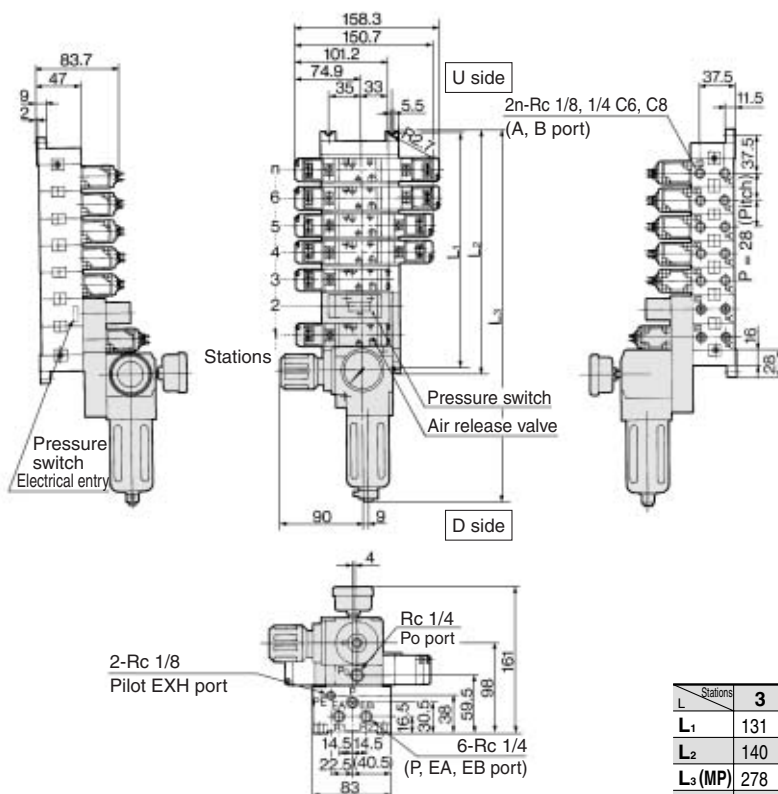


Example for manifold

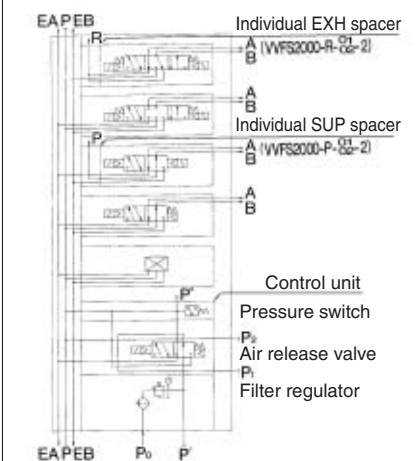


Non plug-in type:

VV5FR2-10- Station 1- Port size- Control unit- Voltage of air release valve



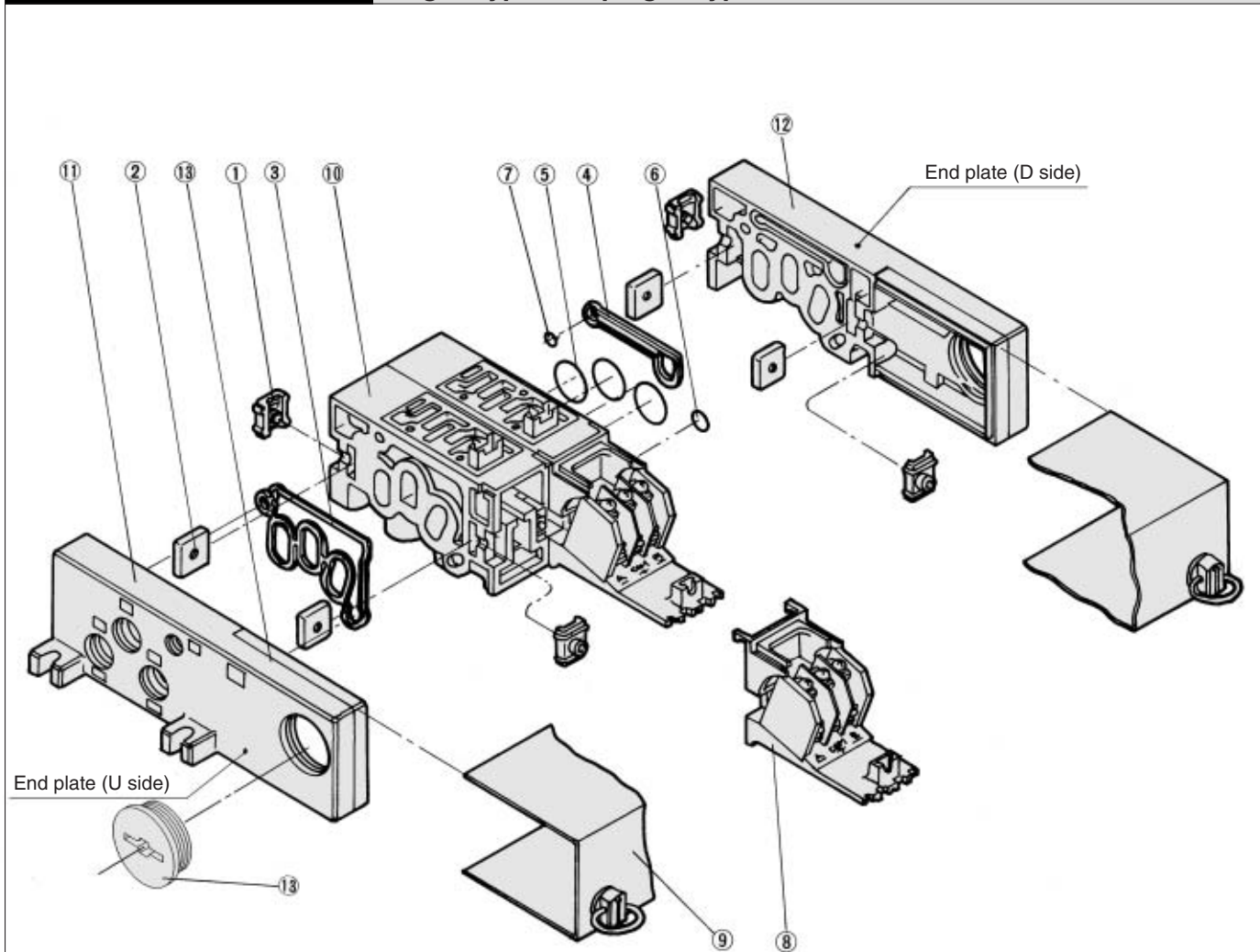
Example for manifold



	n: Stations									
Stations	3	4	5	6	7	8	9	10	Formula	
L ₁	131	159	187	215	243	271	299	327	L ₁ = 28 x n + 47	
L ₂	140	168	196	224	252	280	308	336	L ₂ = 28 x n + 56	
L ₃ (MP)	278	306	334	362	390	418	446	474	L ₃ = 28 x n + 194	
L ₃ (AP)	319.5	347.5	375.5	403.5	431.5	459.5	487.5	515.5	L ₃ = 28 x n + 235.5	

5 Port Pilot Operated Solenoid Valve Rubber Seal, Plug-in/Non Plug-in Series VFR2000

Manifold Base Construction Plug-in type/Non plug-in type



- VK
- VZ
- VF
- VFR
- VP4
- VZS
- VFS
- VS4
- VQ7
- EVS
- VFN

Replacement Parts

No.	Description	Material	Part no.
①	Connection fitting A	Steel plate	AXT625-4-1
②	Connection fitting B	Steel plate	AXT625-5
③	Gasket A	NBR	AXT625-17
④	Gasket B	NBR	AXT625-16
⑤	O-ring	NBR	18 x 15 x 1.5
⑥	O-ring	NBR	10.5 x 7.5 x 1.5
⑦	O-ring	NBR	8 x 5 x 1.5
⑧	Adapter plate assembly	—	For 01T AXT625-28-1A For 01T1 (Terminal and adapter plate)
	Adapter plate	Resin	For 01C AXT625-28-1 For 01F VVF2000-26-6 For 01SU AXT625-6

No.	Description	Material	Part no.
⑨	Junction cover assembly	—	For 01T AXT625-28-3A
			For 01T1 AXT625-28-7A- ^[Stations]
			For 01C AXT625-28-7A- ^[Stations]
			For 01F VVF2000-26-5A- ^[Stations]
⑬	Rubber plug	NBR	For 01T AZ738-10A- ^[Stations]
			For 01SU AXT623-22

Replacement Parts: Sub Assembly



Note) Manifold Base/Construction: Plug-in type with terminal block.

No.	Description	Assembly part no.	Component parts	Applicable manifold base
⑩	Manifold block assembly ⁽¹⁾	AXT625-20A- $\frac{1}{2}$ - ^{C8} ⁽²⁾	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦ Terminal ⑧, Junction cover ⑨, Adaptor plate, Pin housing, Guide	Plug-in type
		AXT625-10A- $\frac{1}{2}$ - ^{C8} ⁽³⁾	Manifold block ⑩, Metal joint ①, ②, O-ring ⑤, ⑥, ⑦	Non plug-in type
⑪	End plate (U side) assembly	AXT625-2A-20	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Plug-in type ^{(For 01T) ⑨} With terminal block ^(01T1)
		AXT625-2A-10	End plate (U) ⑪, Metal joint ①, ②, Gasket A ③, Guard ⑬	Non plug-in type (For 10) ⁽³⁾
⑫	End plate (D side) assembly	AXT625-3A-20	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Plug-in type ^{(For 01T) ⑨} With terminal block ^(01T1)
		AXT625-3A-10	End plate (D) ⑫, Metal joint ①, ②, Gasket B ④, Guard ⑬, Steel ball	Non plug-in type (For 10) ⁽³⁾



Note 1) For side ported

Note 2) 1: A, B port size Rc 1/8, 2: A, B port size Rc 1/4

Note 3) Please contact SMC if parts except for 10/01T/01T1 are needed.