5 Port Pilot Solenoid Valve
Metal Seal
Series VFS

Models and Variations

Series	Port Size Effective area (mm²) (Nℓ/min)	Configuration	Voltage	Electrical entry	Option (Indicator light and surge suppressor)	Manual override
Body ported						
VFS1000	1/8: 9.0 (491)	2 position single 2 position double 3 position closed centre 3 position exhaust centre 3 position pressure centre	Standard 100V AC50/60Hz 200V AC50/60Hz 24V DC Option 110 to 120V AC50/60Hz 220V AC50/60Hz 240V AC50/60Hz 12V DC 100V DC	DIN connector (D)(Y)	With indicator light and surge voltage suppressor •Din connector (DZ)(YZ)	Non-locking push style (Flush) Non-locking push style (Extended) Locking style (Slotted) Locking style* (Lever)
VFS2000	1/8: 16.2 (883) 1/4: 18 (981)					
VFS3000	1/4: 32.4 (1777) 3/8: 36.0 (1963)					
Base mounted						
VFS2000 Plug-in Non plug-in	1/8: 12.6 (687) 1/4: 15 (815)	2 position single 2 position double 3 position closed centre	Standard 100V AC50/60Hz 200V AC50/60Hz 24V DC Option 110 to 120V AC50/60Hz 220V AC50/60Hz 240V AC50/60Hz 12V DC 100V DC	**Plug-in** Conduit terminal (F) **Non plug-in** DIN connector (D)(Y)	☐ With indicator light and surge voltage suppressor •Non plug-in Din connector (DZ)(YZ)	Non-locking push style (Flush) Non-locking push style (Extended) Locking style (Slotted) Locking style (Lever)
VFS3000 Plug-in Non plug-in	1/4: 32.4 (1777) 3/8: 36.0 (1963)	3 position exhaust centre 3 position pressure centre				
VFS4000 Plug-in Non plug-in	3/8: 59.4 (3239) 1/2: 64.8 (3533)	3 position double check		**Plug-in** Conduit terminal (F) **Non plug-in** DIN connector (D)(Y)	☐ With indicator light and surge voltage suppressor •Plug-in Conduit terminal (FZ) •Non plug-in Din connector (DZ)(YZ)	
VFS5000 Plug-in Non plug-in	3/8: 78.7 (4319) 1/2: 97.2 (5300) 3/4: 102.6 (5595)					
VFS6000 Plug-in Non plug-in	3/4: 162 (8833) 1: 180 (9815)	2 position single 2 position double				Non-locking push style (Flush)

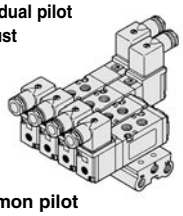
*Locking style (Lever) is not available for direct mount series VFS2000, 3000.

Manifold Variations

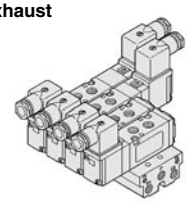
		Manifold Type						
		Bar base	Stacking base	Insert plug with lead wire	With terminal block	With multi-connector	With D-sub connector	Non plug-in
Body Ported	VFS1000	●						
	VFS2000	●						
	VFS3000		●					
Base Mounted Plug-in	VFS2000			●	●	●	●	
	VFS3000				●	●	●	
	VFS4000				●	●	●	
	VFS5000				●	●	●	
Base Mounted Non Plug-in	VFS2000							●
	VFS3000							●
	VFS4000							●
	VFS5000							●

Bar base
(Series VFS1000, 2000)

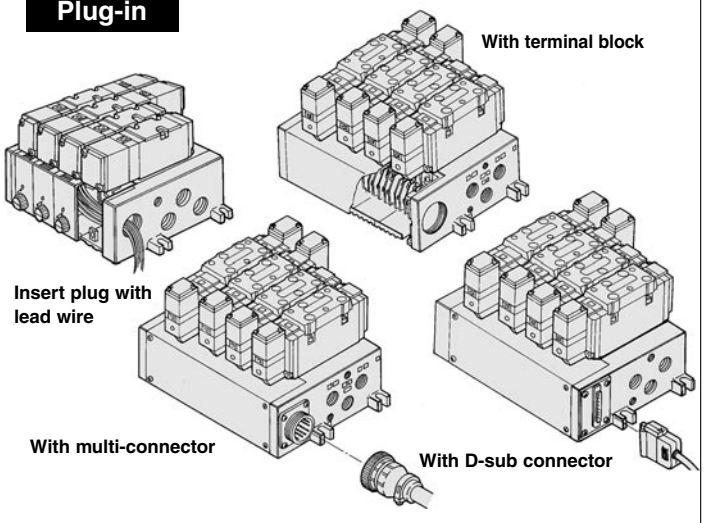
Individual pilot exhaust



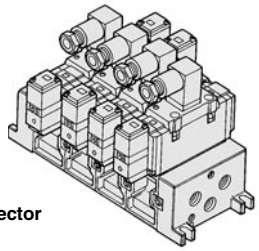
Common pilot exhaust



Plug-in



Non plug-in



DIN connector

*Bottom porting is optional.

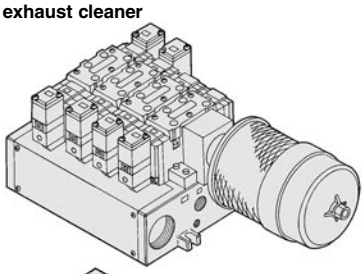
Manifold Options

With exhaust cleaner	With control unit	Serial interface unit
	●	● (1)
●	●	● (1)
●	●	● (1)
●		● (1)
	●	
●	●	
●	●	
●		

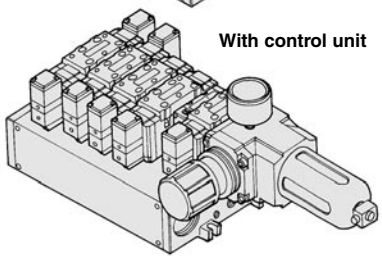
Manifold Optional Parts

Individual SUP spacer	Individual EXH spacer	SUP block disk	EXH block disk	Interface speed control	Interface regulator	Air shut-off valve spacer	Air release valve spacer	Double check spacer	Blank plate
									●
									●
									●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●		●	●	●
●	●	●	●	●	●		●	●	●
●	●	●	●	●	●			●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●		●	●	●
●	●	●	●	●	●		●	●	●
●	●	●	●	●	●			●	●

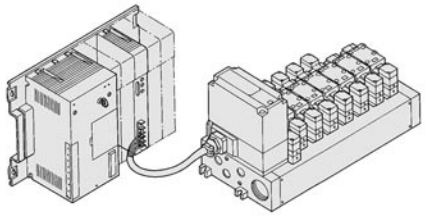
With exhaust cleaner



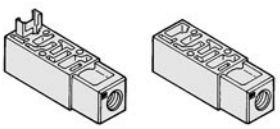
With control unit



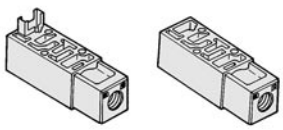
Serial interface unit



Individual SUP spacer

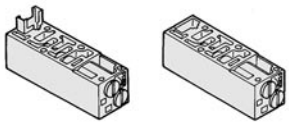


Individual EXH spacer

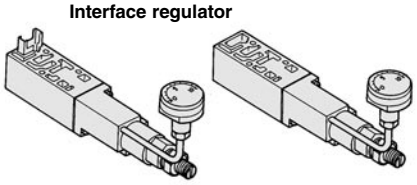


SUP/EXH block disk

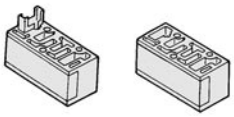
Interface speed control



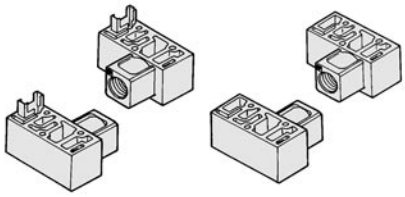
Interface regulator



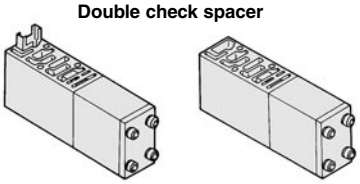
Air shutoff valve spacer



Air release valve spacer



Double check spacer



Note 1) Available.

⚠ Precautions

Be sure to read before handling. Refer to p.0-33 to 0-36 for Safety Instructions and common precautions.

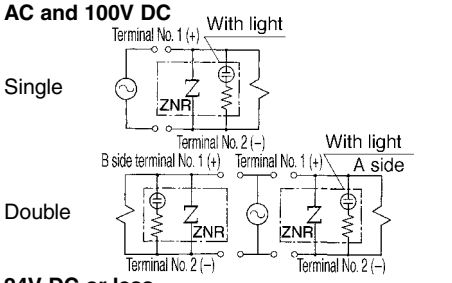
⚠ Caution

Light/Surge Voltage Suppressor/Electrical Entry — Single Unit

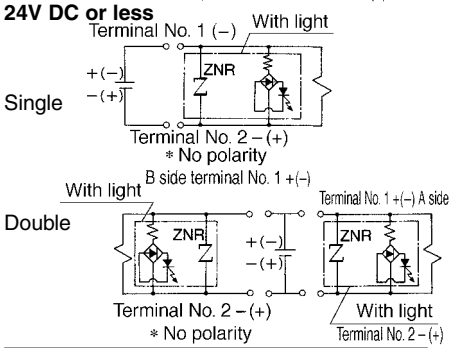
Body Ported
Series VFS1000, 2000, 3000

Light/Surge Voltage Suppressor

AC and 100V DC

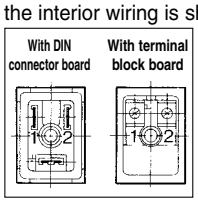


24V DC or less



Wiring

In the case of DIN connector and Terminal block (with indicator light/surge voltage suppressor), the interior wiring is shown below.

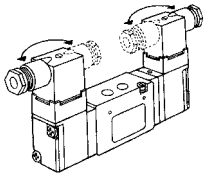


Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S. But, in the case of DIN connector board, it is not a terminal structure.

∗ No polarity

To Change Direction of DIN Connector

To change direction of DIN connector retaining screw, pull off outer cover, rotate connector board through 180˚. Replace cover and tighten screw.



Changing Direction of Electrical Entry and Manual Override (Series VFS1000 only)

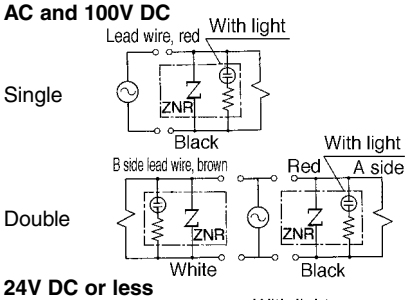
Loosen the set screw (M3-2pcs.), take out pilot operator, turn solenoid valve180° degrees to change the direction of lead wire and manual override. (Possible on Series VFS1000 only.)

Base Mounted — **Series VFS2000**

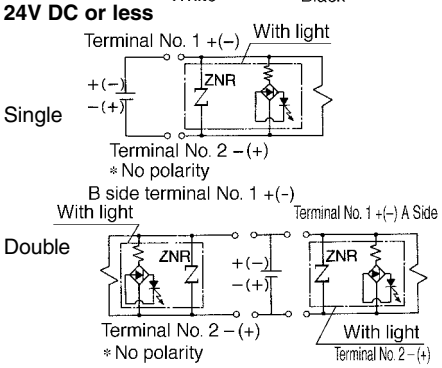
Light/Surge Voltage Suppressor

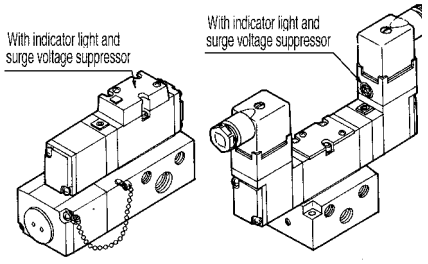
•In the case with surge voltage suppressor, surge voltage absorption device ZNR is attached to AC power.

AC and 100V DC



24V DC or less





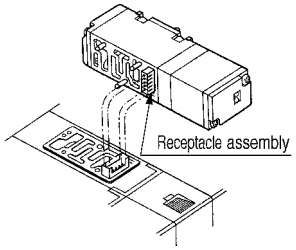
Plug-in **Non Plug-in**

How to Exchange

Solenoid valve

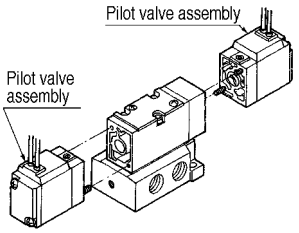
•Loosen 3 set screws (hexagonal socket head cap screw M3 X 31) and pull solenoid valve out vertically, otherwise it may cause damage to the solenoid valve. Never remove a valve at an angle.

•When mounting solenoid valve onto the base, plug pin ass'y (base-side) into receptacle ass'y (body-side) vertically.



Pilot valve

•When changing rated voltage and electrical entry etc., pilot valve assembly can be exchanged since this is a plug-in style.



Wiring

Valve/Sub-plate porting plug-in : T
Conduit with terminal (with terminal block)

•Remove junction cover ① of subplate, and you can see plug-in terminal block board ② (Part No. NVF2000-27A-1) attached to the inside of the subplate.

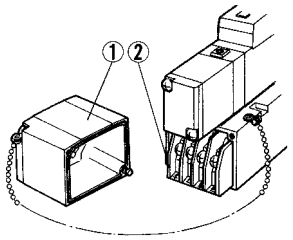
•The following markings are on the terminal block

Designation	Solenoid A-side	Solenoid B-side
Terminal block board marking	A	B

•No polarity

•When ground wiring and COM wiring are required, please specify separately.

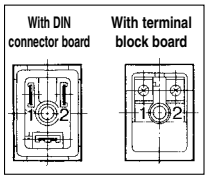
•Applicable terminal
1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S



Valve/Sub-plate porting non plug-in: D

•**G type:** Use lead wire from solenoid to connect with power side.

•**E, T, D-type:** In the case of a DIN connector and terminal block (with light/surge voltage suppressor), the interior wiring is shown below. Please connect with corresponding power side.



Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S. But in the case of with DIN connector board, is not a terminal structure.

∗ No polarity

Changing Direction of DIN Connector/Cable Entry

•Unscrew retaining screw, pull off outer cover, rotate connector board through 180˚. Replace cover and tighten screw.
Applicable cable: O. D. ø6 to ø8.

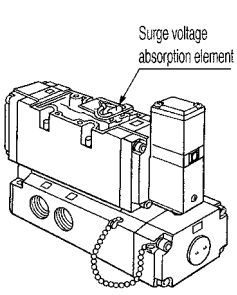
⚠ Caution

Light/Surge Voltage Suppressor/Electrical Entry — Single Unit

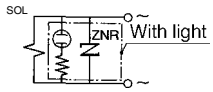
Base Mounted — **Series VFS3000, 4000, 5000, 6000**

Light/Surge Voltage Suppressor

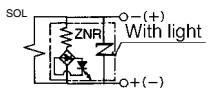
In the case of voltage suppressor, surge voltage absorption element is attached to terminal block on body area.



AC and 100V DC or



24V DC or less

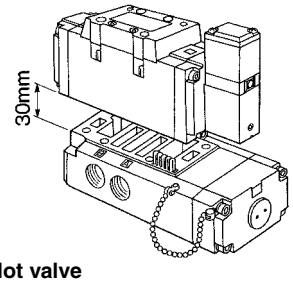


∗ **No polarity**

How to Exchange

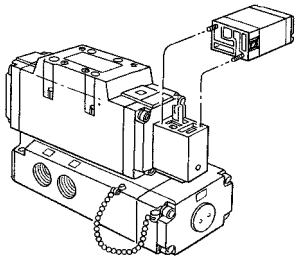
Solenoid valve

- Loosen set screw and take solenoid valve out vertically, otherwise it may cause damage to the solenoid valve. Never remove a valve at an angle.
- When mounting solenoid valve onto the base, plug pin ass'y (base-side) into receptacle ass'y (body-side) vertically.



Pilot valve

- When changing the rated voltage, electrical entry, etc., pilot valve ass'y can be exchanged easily since this is plug-in style. Then, when changing the rated voltage with light/surge voltage suppressor, change of light/surge voltage suppressor substrate is also needed. So, order together with pilot valve assembly.



Light and surge voltage suppressor substrate part No.

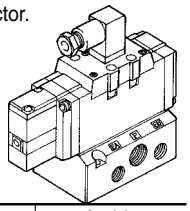
VFS3000	VFS3000-10A-□
VFS4000	VF4000-9A-□
VFS5000	AXT627-7A-□
VFS6000	VF4000-9A-□

-□: Voltage

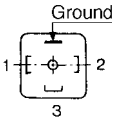
Wiring

DIN connector

- Male pin terminal of DIN connector block board of solenoid valve and wires as shown below. Please connect each valve to corresponding terminal block on connector.



DIN connector (Wiring)

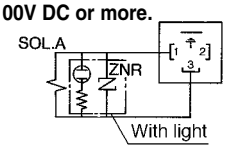


1	A side
2	B side
3	COM
⏚	Ground

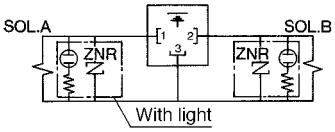
No polarity applies.

AC and 100V DC or more.

Single

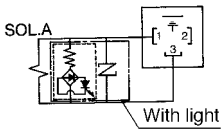


Double

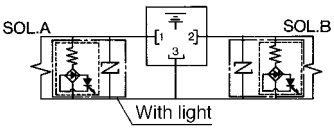


24V DC or less

Single



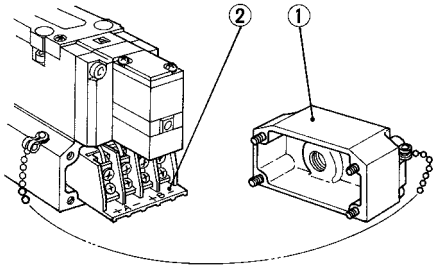
Double



- Cabtire cable
  Applicable cable O. D.: ø6.8 to ø11.5
- Applicable terminal
  Applicable terminal on block board: 3 (kinds)
  1.25Y-3L, 1.25-3.5S, 1.25-4M
- Connector/Clamping torque
  Set screw 6kgf-cm
  Terminal screw 9kgf-cm
- Incorrect common (DIN connector No.3) causes damage on power side circut.

Plug-in (with terminal)

- If removing the junction cover ① on the sub-plate, there appears the plug-in style terminal block ② attached to the inside of sub-plate.



- The following marking are on the terminal block. Connect with corresponding power side.

	Solenoid A side	Solenoid B side
Terminal block	A	B
Marking	+ −	+ −

- Applicable terminal
  VFS3000: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S
  VFS4000: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M
  VFS5000: 1.25-4, 1.25-4M
  VFS6000: 1.25-3.5M, 1.25Y-3L, 1.25-3M
- No polarity applies.

⚠ Caution

Maintenance

①A lot of carbon powder and oil waste from air sources (mostly from compressor) entering into the valve sometimes can lead to increased sliding resistance at the switching spool and cause valve malfunction. In the worst case, spool can adhere to the valve. Therefore supply air should be kept clean.

Also please note that if pressurized states on SUP is left for a long time with inferior air quality, carbon powder and oil waste in the compressed air accumulate in the clearance of spool and the sleeve, and can cause the spool to adhere to the valve. The remedy for this case is to check the compressor lubrication oil and find out the least oxidizing compressor lubrication oil.

Meanwhile, a high filtration Mist Separator (Series AM) installed on the back of regular filter (Series AF) can prevent foreign particles from entering into the valve.

②In case foreign matter from the air source adheres to spool and sleeve, disassemble the adapter plate section and end plate section (return spring insert section).

Then, take out spool and sleeve from valve and clean them with trichlene or freon solutions, when cleaning, prevent O rings from touching cleaning solutions.

③When disassembling and re-assembling, please ensure that all components are in proper positions. Prevent gaskets from slipping, and clamp bolts down equally. Use torques listed below when mounting pilot valves and solenoid valve bodies.

Pilot valve assembly

Set screw	Correct clamping torque (Nm)
M3	4.5 to 6

Solenoid valve body

Set screw	Correct clamping torque (Nm)
M3	8 to 12
M4	14 to 25
M5	28 to 50

How to Calculate Flow Rate

See p.0-36 for calculating flow rate.

Interface Regulator Specifications

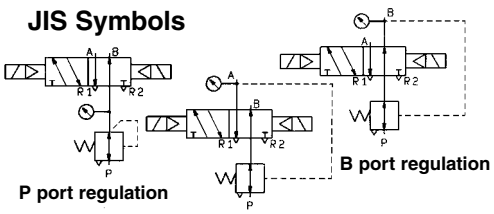
Model (1)		ARBF2000	ARBF3050			ARBF4050			ARBF5050		
Applicable solenoid valve series		VFS2000	VFS3000			VFS4000			VFS5000		
Regulation		P	A	B	P	A	B	P	A	B	P
Proof pressure		1.5MPa									
Max. operating pressure		1.0MPa									
Set pressure range		0.1 to 0.83MPa (2)									
Ambient and fluid temperature		5 to 60°C									
Gauge connecting port		M5	1/8								
Weight (kg)		0.16	0.46			0.72			0.83		
Effective area of the supply side (mm^2) (3)	P→A	5.5	21	18.5	11	35	31	26	44	38	32
S at P_1=0.7MPa, P_2=0.5MPa	P→B	5.1	18.5	22	12	31	31	24	38	40	31
Effective area of the exhaust side (mm^2) (3)	A→EA	12	40			55			90		
S at P_2=0.5MPa	B→EB	11	36			45			77		

Note 1) Set within the operating pressure range of solenoid valve.
Note 2) Synthesized effective area with solenoid valve 2 position single style.
Note 3) •To supply air to Interface Regulator P port is the only supply port except for when used with a reverse pressure valve.
•To combine a pressure center valve and the A and B port pressure reduction of a spacer style regulator, use the ARBF3000, 4000, or 5000 model.
•To combine a reverse pressure valve and a spacer style regulator, use the ARBF3000, 4000, or 5000 model. The P port pressure reduction cannot be used.
•To combine a double check valve and interface regulator, use the manifold or the sub-plate as a reference, and stack them in the order of the double check spacer, the interface regulator and the valve.
•A closed centre valve cannot be used combined with an interface regulator for applications of cylinder intermediate stops as there is leakage from the relief port of the interface regulator.

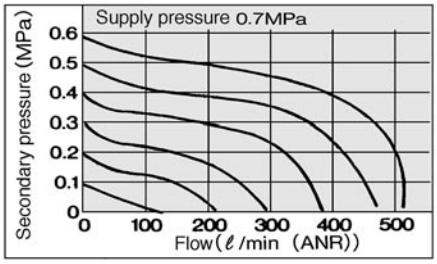
Flow Characteristics (P→A)

(Conditions: Supply pressure 0.7MPa. When 2 position solenoid valve is mounted.)

JIS Symbols



ARBF2000-00-P



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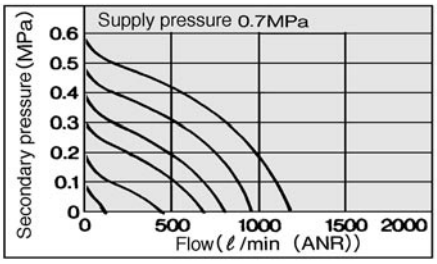
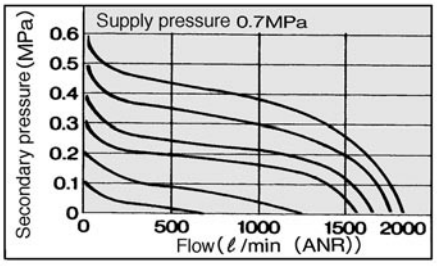
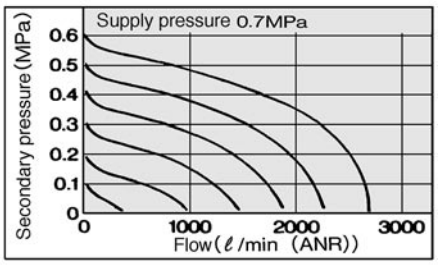


ARBF3050-00-A



ARBF4050-00-P



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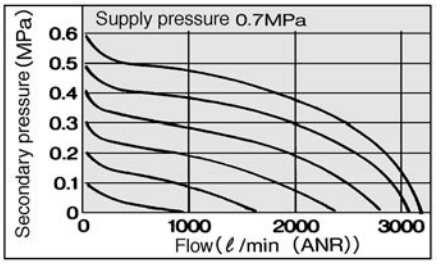

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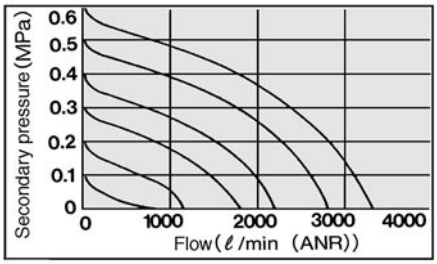
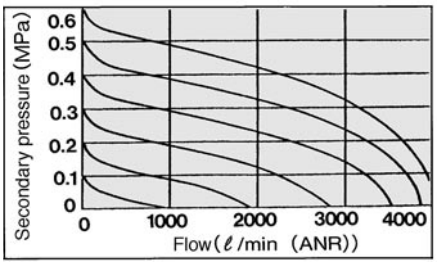


ARBF5050-00-A



⚠ Caution

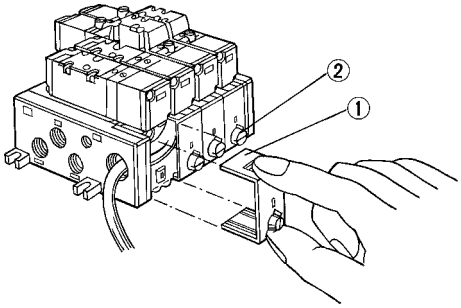
Wiring Manifold/Plug-in

01 Type Insert Plug with Lead Wire

Series VFS2000 (Only VFS2000) (Insert plug with lead wire is not available for VF3000, 4000, and 5000.)

How To Remove Junction Cover (01 Type)

•Turn the knob ② of junction cover ① on the manifold block side by hand or slotted screwdriver to the C□O direction (counter-clockwise) 90˚. While holding the knob and upper part of junction cover, pull outward to remove junction cover.
When reassembling, do the opposite.

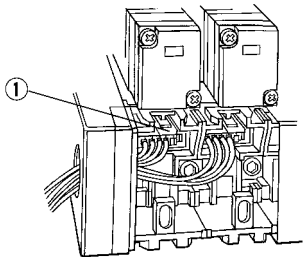


Wiring

The insert plug ① is attached to the manifold block and lead wire is plugged in with valve side as shown in the following list.
(Single solenoid: AXT624-52A-S-1
Double solenoid: AXT624-52A-D-1)
Please connect with corresponding power side.

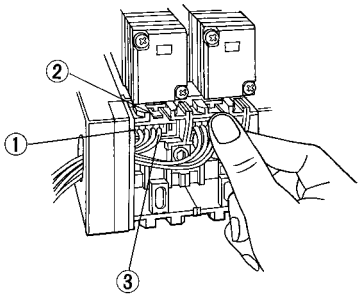
Power	Valve	Solenoid A	Solenoid B
AC	Single solenoid	Red, Black	—
DC	Double solenoid	Red, Black	Brown, White

∗ No polarity applies.
∗ Lead wire length is 1m.

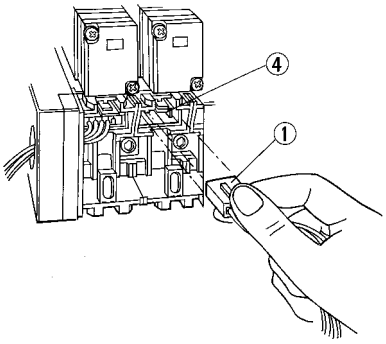


How To Use Insert Plug

•When removing insert plug ① from manifold base, push the lever area ② of insert plug downward with thumb and pull it together with the lead wire ③ outward.



•When placing the insert plug ① into the manifold base, push the lever area of insert plug with thumb and plug it in its place in the receptacle housing ④ horizontally.
After plugging, pull lead wire out a little bit to ensure that insert plug is secure.



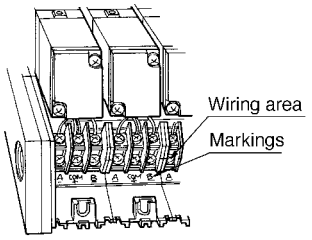
01T Type with Terminal Block

Series VFS2000

•Remove junction cover of manifold, exposing terminal block attached to the manifold block. Lead wires from solenoid valve are connected with the terminals on upper side of terminal block. (On the terminal block, lead wire is connected with both A and B sides of solenoid valve in accordance with the corresponding markings A and B on the block.)
Connect each lead wire of power side corresponding to respective solenoid valve on the lower terminal block.

Model \ Marking	A	COM	B
VFS2100	A side	COM	
VFS2200	A side	COM	B side
VFS2$\frac{3}{4}$00	A side	COM	B side

•Applicable terminal: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S
•Plugging COM bridge (Part No. AXT625-73: 5 stations) in between each + COM on the block board will make the specifications of all the stations + COM and enables you to understand the wiring process.
•No polarity.



Series VFS3000

Model \ Marking	A	COM	B
VFS3100	A side	COM	
VFS3200	A side	COM	B side
VFS3$\frac{3}{4}$00	A side	COM	B side

•Applicable terminal:
1.25-3.5M, 1.25Y-3L, 1.25-3M
•No polarlity.
•VFS 3000 has the marking + COM on the block board, but – COM specification is also available.

Series VFS4000, 5000

Model \ Marking	A+	A−	B+	B−
VFS$\frac{4}{5}$100	A side	A side		
VFS$\frac{4}{5}$200	A side	A side	B side	B side
VFS4$\frac{3}{4}$00 **VFS5$\frac{3}{4}$00**	A side	A side	B side	B side

•Applicable terminal:
1.25-3.5M, 1.25Y-3L, 1.25Y-3M
•No polarity

⚠ Caution

Lead Wire Wiring — Manifold/Plug-in

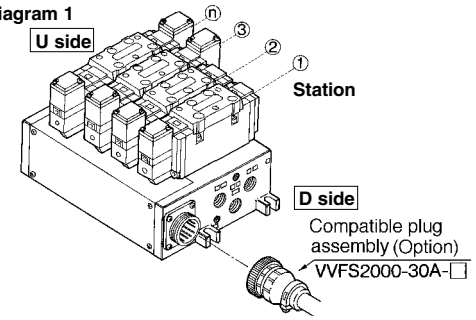
01C Type with Multi-connector

Series VFS2000, 3000, 4000, 5000

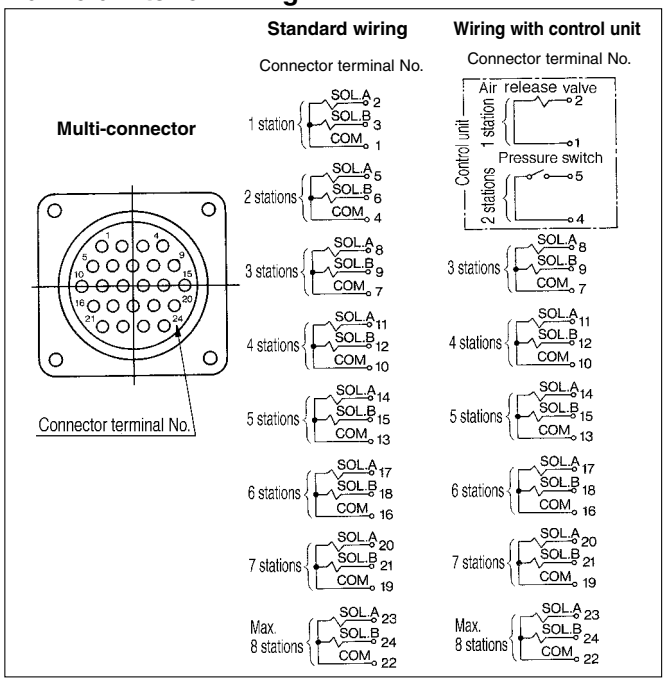
•Wiring

Manifold interior wiring is in accordance with + COM specifications and is connected with both the A side and B side of the solenoid valve by a receptacle terminal as shown below.

Diagram 1



Manifold Interior Wiring



Note 1) Maximum stations: 8 Note 2) No polarity

Note 3) Indications of stations are one station from D side regardless of the connector mounting side, D

Applicable Plug Assembly (Option)

Assembly part No.	Cable length	Components
VVFS2000-30A-1	1.5m	AMP Japan Plug: 206837-1 (1 pc.) Cable clamp: 206138-1 (1 pc.) Socket: 66105-2 (24 pcs.) Cable: VCTF24-wire, 0.75mm^2
VVFS2000-30A-2	3m	
VVFS2000-30A-3	5m	
VVFS2000-30A-4 *	7m	
VVFS2000-30A-5 *	10m	
VVFS2000-30A-6 *	15m	
VVFS2000-30A-7 *	20m	

*Option

Wire Color Table

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lead wire colour	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	⑩	⑩	⑪	⑪	⑫	⑫
Dot marking	—	5	—	2	—	7	—	4	—	1	—	6	—	9	—	5	—	⑬	—	⑩	—	8	—	6

1Orange, 2Black, 3Green, 4Red, 5Blue, 6Yellow, 7Brown, 8White, 9Pink, ⑩Grey, ⑪Sky blue, ⑫Bright green, ⑬Purple

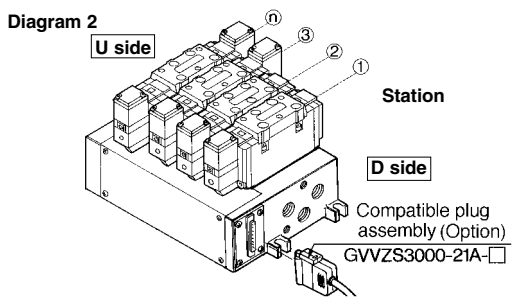
01F Type with D-sub Connector

Series VFS2000, 3000, 4000, 5000

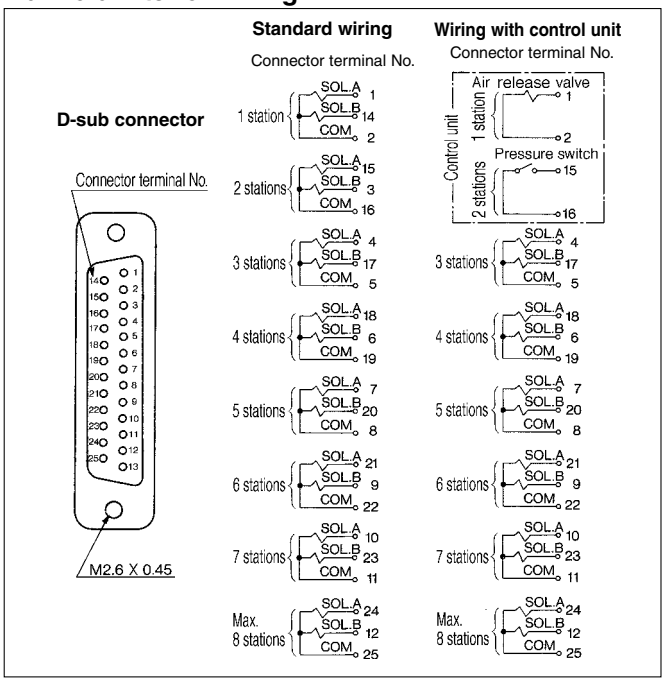
•Wiring

Manifold interior wiring is in accordance with + COM specifications and is connected with both the A side and B side of the solenoid valve by the receptacle terminal as shown below.

Diagram 2



Manifold Interior Wiring



Note 1) Maximum stations: 8 Note 2) No polarity

Note 3) Indications of stations are one station from D side regardless of the connector mounting side, D

Applicable Plug Assembly (Option)

Assembly part No.	Cable length	Components
GVVZS3000-21A-1S	1m	Plug: MIL standard D type connector 25 terminals Cable: 25-wire, 0.3mm^2
GVVZS3000-21A-2S	3m	
GVVZS3000-21A-3S	5m	
GVVZS3000-21A-4S	8m	
GVVZS3000-21A-5S	20m	

Wire Color Table

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Lead wire colour	8	7	4	6	10	9	5	4	2	8	10	4	8	7	8	6	8	10	8	9	8	7	8	7	8
Dot marking	—	—	—	—	—	—	—	—	—	—	9	5	3	3	6	7	10	7	9	7	5	5	4	4	2

1)Orange, 2)Black, 3)Green, 4)Red, 5)Blue, 6)Yellow, 7)Brown, 8)White, 9)Pink, 10)Grey, 11)Sky blue, 12)Bright green, 13)Purple

5 Port Pilot/Metal Seal

Body Ported

Series VFS1000

Compact and Large Flow Capacity: 491Nℓ/min Small Power Consumption/ 1.8W DC

Model

Configuration		Model		Port size	Effective area (mm^2) (Nℓ/min)	Max. operating cycle (CPM) (1)	Response time (ms) (2)	Weight (kgf) (3)
2 position	Single	**VFS1120**	**VFS1130**	1/8	9.0 (491)	1200	15 or less	0.18
	Double	**VFS1220**	**VFS1230**	1/8	9.0 (491)	1200	13 or less	0.26
3 position	Closed centre	**VFS1320**	**VFS1330**	1/8	7.2 (393)	600	20 or less	0.27
	Exhaust centre	**VFS1420**	**VFS1430**	1/8	9.0 (491)	600	20 or less	0.27
	Pressure centre	**VFS1520**	**VFS1530**	1/8	8.8 (481)	600	20 or less	0.27

Note 1) According to JISB8375 (Once per 30 days) for the minumum operating frequency.
Note 2) According to JISB8375-1981. (The valve at supply pressure 0.5MPa.)
Note 3) In case of a grommet.
Note 4) The factors of "Note 1)" and "Note 2)" are achieved in controlled clean air.

Standard Specifications

Valve	Fluid		Air and inert gas
	Max. operating pressure		1.0MPa
	Min. operating pressure	2 position	0.1MPa
		3 position	0.15MPa
	Proof pressure		1.5MPa
	Ambient and fluid temperature		–10 to 60°C (1)
	Lubrication		Not required (2)
	Pilot valve manual override		Non-locking push style (Flush)
	Shock/vibration resistance		150/50m/s² (3)
	Protection structure		Dust proof (protection level 0) (4)
Solenoid	Rated voltage		100V, 200V AC (50/60Hz), 24V DC
	Allowance voltage		–15% to +10% rated voltage
	Coil insulation		Class B or equivalent (5)
	Apparent power (Power consumption) AC	Inrush	5.6VA (50Hz), 5.0VA (60Hz)
		Holding	3.4VA (2.1W)/50Hz, 2.3VA (1.5W)/60Hz
	Power consumption DC		1.8W
	Electrical entry		DIN connector

Note 1) Use dry air at low temperatures.
Note 2) Use turbine oil No.1 (ISO VG 32), if lubricated.
Note 3) Shock resistance: No malfunction on test using drop impact tester, to axis and right angle directions of and armature main valve, each one time when energized and deenergized. (Valve in the initial stage.)
Vibration resistance: No malfunction on test with 8.3 to 2000Hz, 1 sweep, to axis and right angle directions of and armature main valve, each one time when energized and de-energized. (Valve in the initial stage.)
Note 4) Based on JIS C0902. Note 5) Based on JIS C4003.

Option Specifications

Manual override	Non-locking push style (Extended), Locking style (Slotted), Locking style (Lever)
Voltage	110 to 120V, 220V, 240V AC (50/60Hz)
	12V, 100V DC
Option	With indicator light and surge voltage suppressor (1)
Foot bracket (with screw)	Part No. AXT626-10A, VFS1120 (single) only

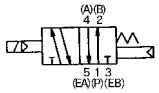
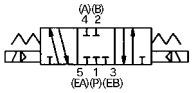
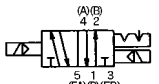
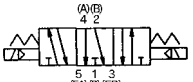
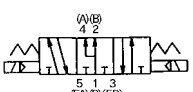
Note 1) No light for grommet but surge voltage suppressor (direct connecting lead wire) is installed.

Manifold

Valve model	Applicable manifold base (Pilot EXH)
VFS1□20	Bar manifold (Individual EXH)
VFS1□30	Bar manifold (Common EXH. base side)

Note) VFS1□30: Manifold only. Cannot be used as a single unit.

JIS Symbol

2 position	3 position
Single	Closed centre
	
Double	Exhaust centre
	
	Pressure centre
	

VFS1000

How to Order

□ VFS1 [1] [20] – [1] [D] [ ] [ ] – [01] [ ] – [ ] – Q

Ordering source area code

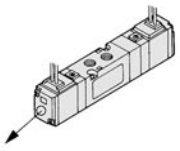
Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Configuration

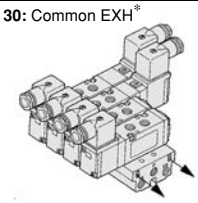
1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre

Body (Pilot exhaust)

20: Individual EXH



30: Common EXH*



*Manifold only.

Protective class
class I (Mark: ⏚)

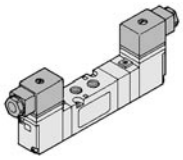
Voltage

1	100V AC (50/60Hz)
2	200V AC (50/60Hz)
3	110V to 120V AC (50/60Hz)
4	220V AC (50/60Hz)
5	24V DC
6	12V DC
7	240V AC (50/60Hz)
9	Other (250 or less)

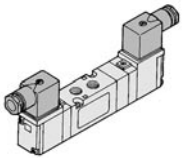
Order Made Contact SMC for other voltages (9)

Electrical entry

D: DIN connector
DO: Without connector



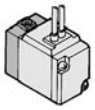
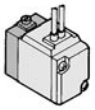
Y: DIN connector (DIN 43650)
YO: Without DIN connector



Indicator light/surge voltage suppressor

–	None
Z	With indicator light and surge voltage suppressor

Manual override

—: Non-locking push style (Flush)	A: Non-locking push style (Extended) *	B: Locking style (Slotted) *	C: Locking style (Lever) *
			

*Option

Port size

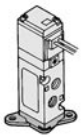
01	1/8

Thread

–	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Optional accessory

F: Foot bracket



*Only for VFS1120.

How to Order Pilot Valve Assembly

SF4 – [1] [DZ] [ ] – [21] – Q

Voltage

1	100V AC 50/60Hz
2	200V AC 50/60Hz
3	110 to 120V AC (50/60Hz)
4	220V AC 50/60Hz
5	24V DC
6	12V DC
7	240V AC 50/60Hz
9	Other(250 or less)

Order Made Contact SMC for other voltages (9)

Protective class
class I (Mark: ⏚)

Electrical entry/Indicator light and surge voltage suppressor

D	DIN connector
DZ	DIN connector with indicator light and surge suppressor
DO	DIN connector*
DOZ	DIN connector with indicator light and surge suppressor*
Y	DIN Connector (DIN 43650B)
YO	Without connector

*Without DIN connector.

Manual override

–	Non-locking push style (Flush)
A*	Non-locking push style (Extended)
B*	Locking style (Slotted)
C*	Locking style (Lever)

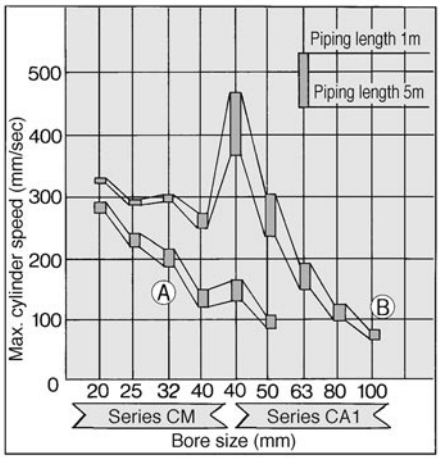
*Option

Applicable model

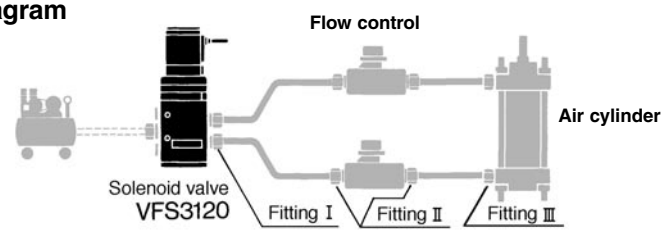
21	For VFS1□20	Individual pilot exhaust
22	For VFS1□30	Common pilot exhaust

Maximum Cylinder Speed

Conditions: Supply pressure 0.5MPa, Load factor 50%



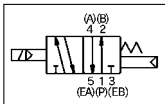
System diagram

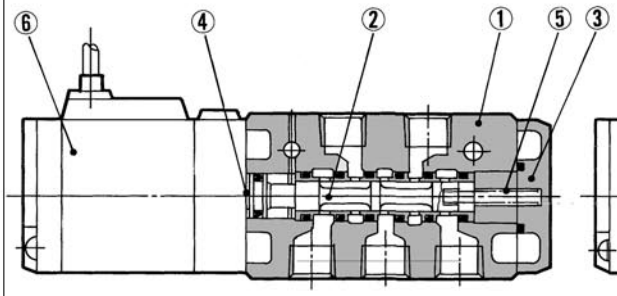


System	Solenoid valve	Port size	Nylon tube O.D./I.D.	Silencer	Speed controller	Fitting (Tube O.D. X Port size)		
						1	2	3
A	**VFS1□20-01**	1/8	ø4/3	AN110-01	AS1000-01 or AS2000-01	ø4 X 1/8	ø4 X 1/8	ø4 X 1/8 to 1/4
B	**VFS1□20-01**	1/8	ø6/4.5		AS4000-02	ø6 X 1/8	ø6 X 1/8	ø6 X 1/8 to 1/2

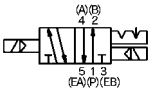
Construction

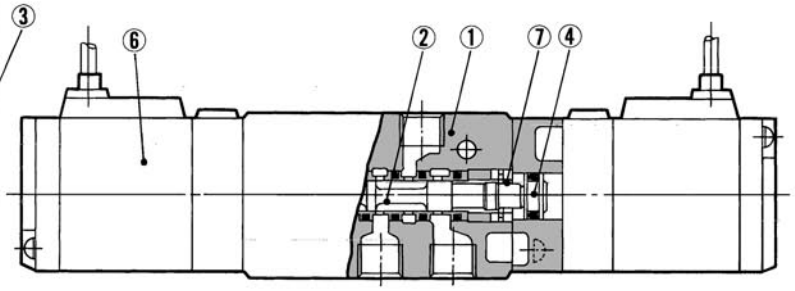
2 position single





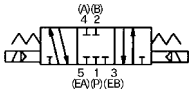
2 position double



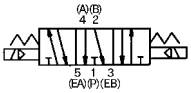


3 position closed centre/exhaust centre/pressure centre

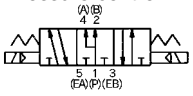
Closed centre

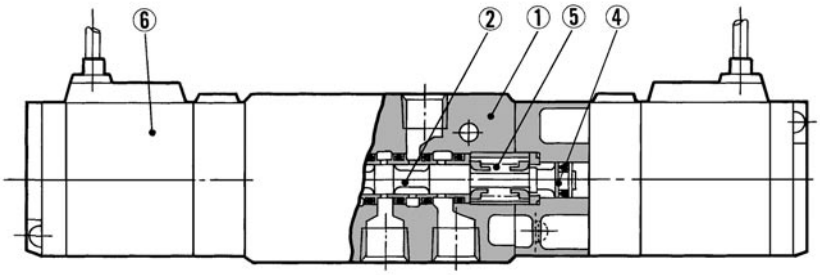


Exhaust centre



Pressure centre





Component Parts

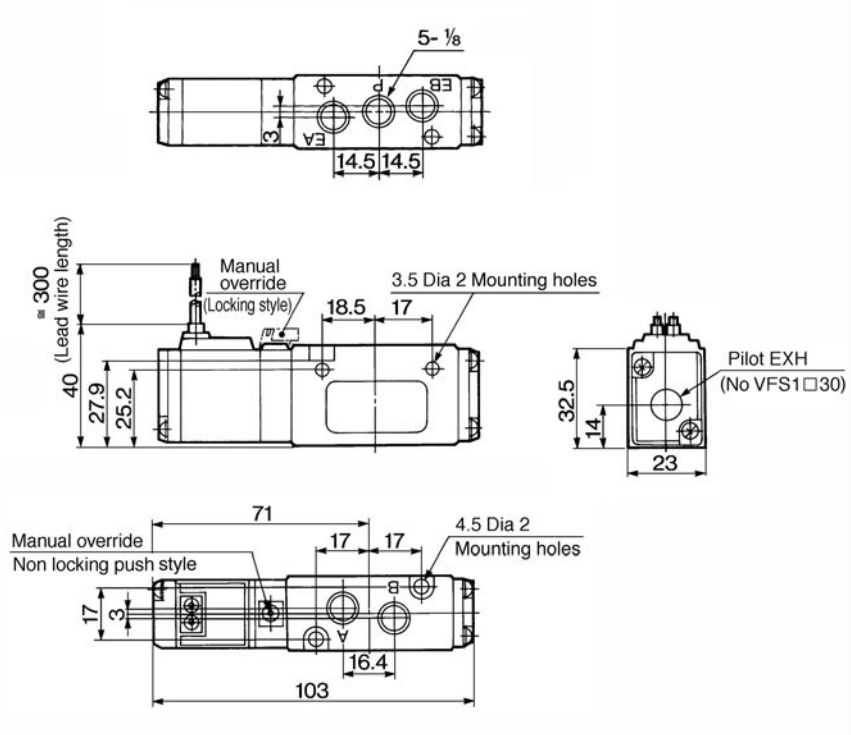
No.	Description	Material	Note
①	Body	Aluminium die-cast	Platinum silver
②	Spool/Sleeve	Stainless steel	—
③	End plate	Resin	—
④	Piston	Resin	—

Replacement Parts

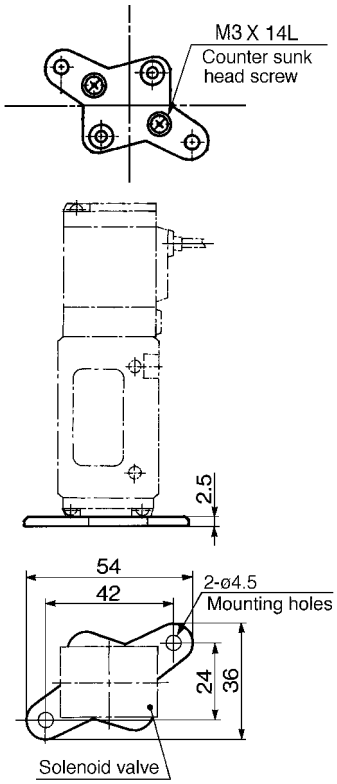
No.	Description	Material	Part No.		
			VFS1120	**VFS1220**	**VFS1320, 1420, 1520**
⑤	Return spring	Stainless steel	AXT626-6	—	AXT626-19
⑥	Pilot valve assembly	—	Refer to "How to order Pilot valve assembly" on p.1.17-10.		
⑦	Detent assembly	—	—	AXT624-11A	—

2 Position Single DIN Connector

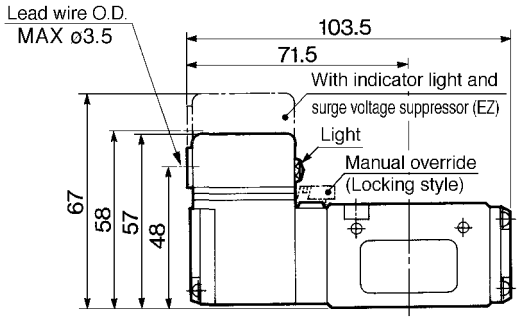
Grommet: VFS1120-□G



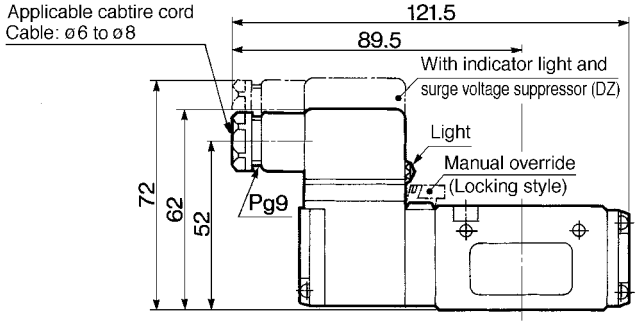
With bracket (F): AXT626-10A



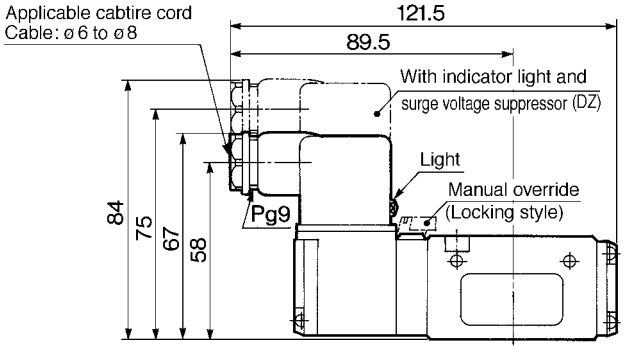
Grommet terminal: VFS1120-□E, EZ



Conduit terminal: VFS1120-□T, TZ

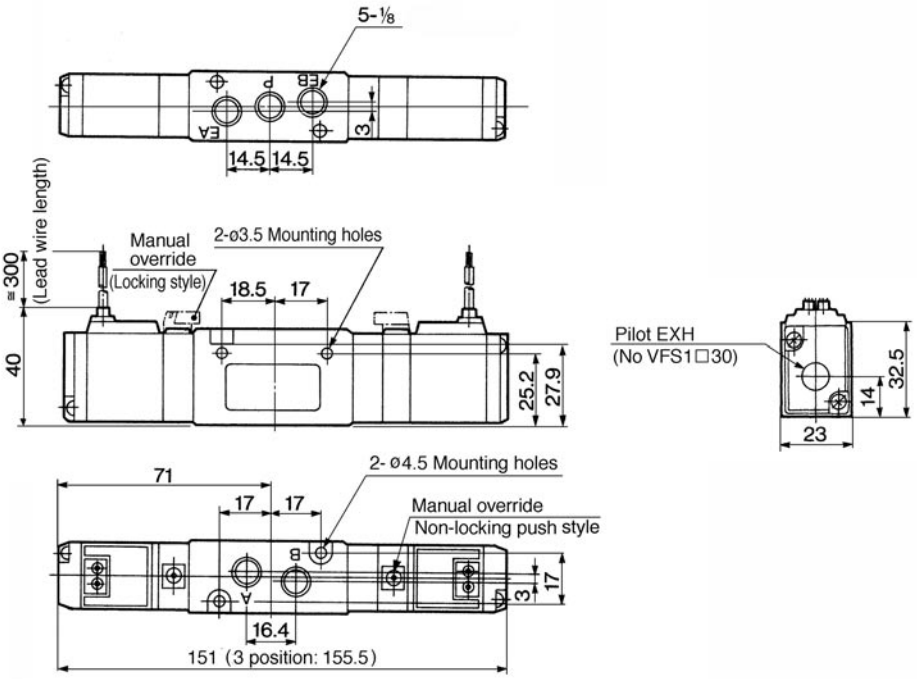


DIN connector: VFS1120-□D, DZ

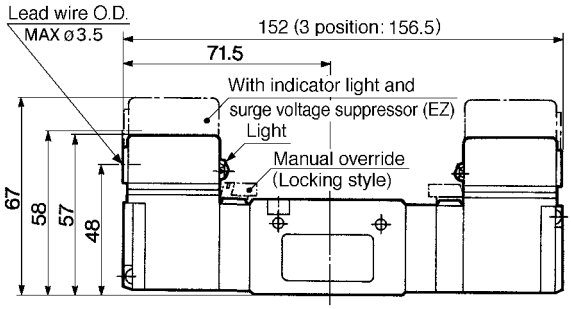


2 Position Double, 3 Position DIN Connector

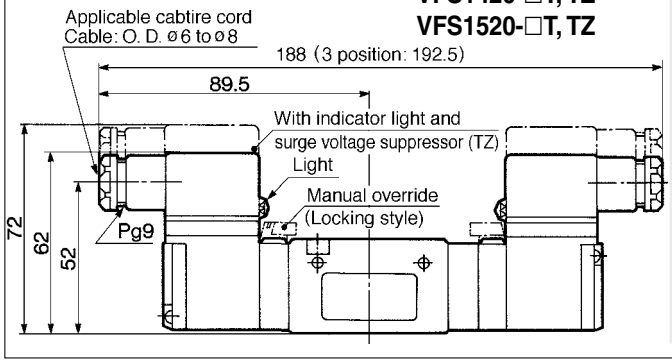
Grommet: VFS1220-□G, VFS1320-□G, VFS1420-□G, VFS1520-□G



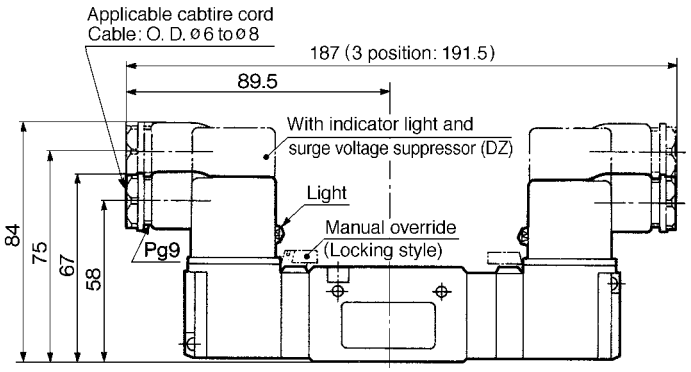
Grommet terminal: VFS1220-□E, EZ **VFS1320-□E, EZ**
VFS1420-□E, EZ
VFS1520-□E, EZ



Conduit terminal: VFS1220-□T, TZ **VFS1320-□T, TZ**
VFS1420-□T, TZ
VFS1520-□T, TZ



DIN connector: VFS1220-□D, DZ **VFS1320-□D, DZ**
VFS1420-□D, DZ
VFS1520-□D, DZ



Series VFS1000
Manifold/Bar Style

Compact and lightweight
Compact due to manifolding on a single base for mounting in small spaces.

Protection of the environment from pilot exhaust
Use of the VV5FS1-30 manifold can exhaust intensively the pilot exhaust gas to the base side, and can prevent environmental aggravation due to noise and oil mist.

Specifications

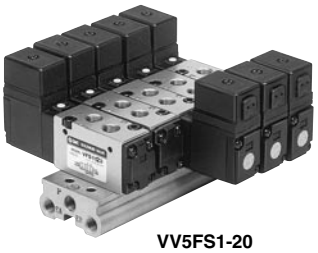
Manifold base	Bar manifold, Body ported
Stations	Max. 15

Port Specifications

Symbol	Port specification		Porting specification (Connecting port size)		
			Base	Valve	Base
	P	EA, EB	P	A, B	EA, EB
1	Common	Common	Side/ 1/8	Top/ 1/8	Side/ 1/8

Option

Blank plate assembly	VVFS1000-10A-1	With gasket, screws



VV5FS1-20

VV5FS1-30

How to Order Manifold Base

□ VV5FS1 – 20 – 05 1 – 01 □ – Q

Series VFS1000 Manifold

Ordering source area code

Code	areas
-	Japan, Asia Australia
E	Europe
N	North America

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

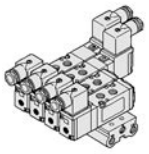
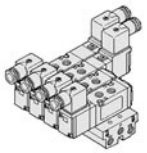
Symbol	Port specifications		Porting specifications
	P	EA, EB	
1	Common 1/8	Common 1/8	Top porting 1/8

P, EA, EB Port size
01— 1/8

Thread

—	Rc (PT)
N	NPT
T	NPTF
F	G (PF)

Base Model

Type	Pilot exhaust	Applicable valve
20	Individual EXH 	VFS1□20-□□-01
30	Common EXH 	VFS1□30-□□-01 ∗VFS1□20-□□-01 mountable

How to Order Manifold Base Assembly

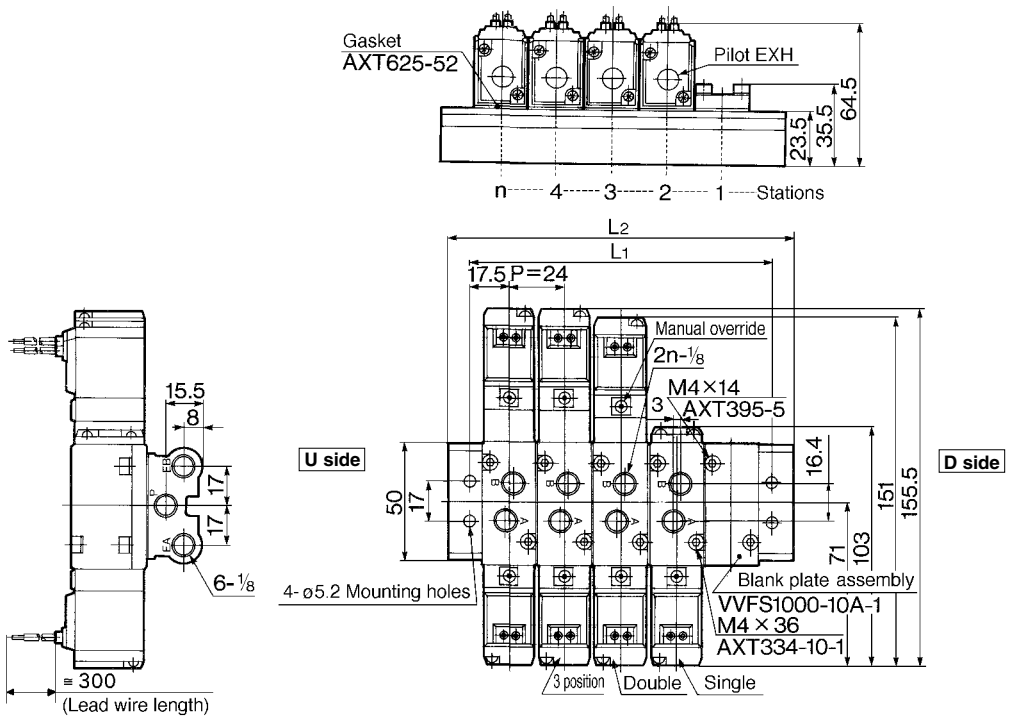
Please indicate manifold base style, valve model, and blank plate.

≪Example≫

(Manifold base style)	**VV5FS1-20-061-01-Q**	1
(2 position single)	**VFS1120-1D-01-Q**	3
(2 position double)	**VFS1220-1D-01-Q**	2
(Blank plate)	**VVFS1000-10A-1**	1

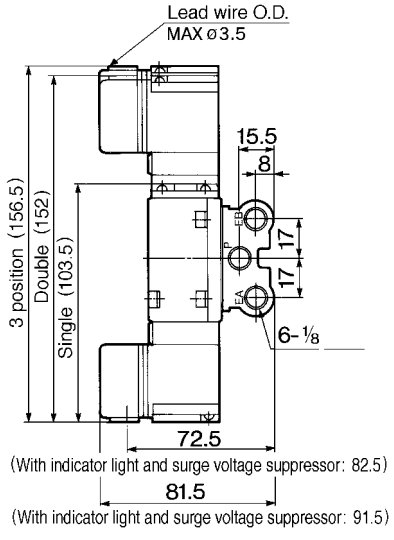
20 Type Manifold Pilot Individual Exhaust: VV5FS1-20- Station 1-01

Grommet: G

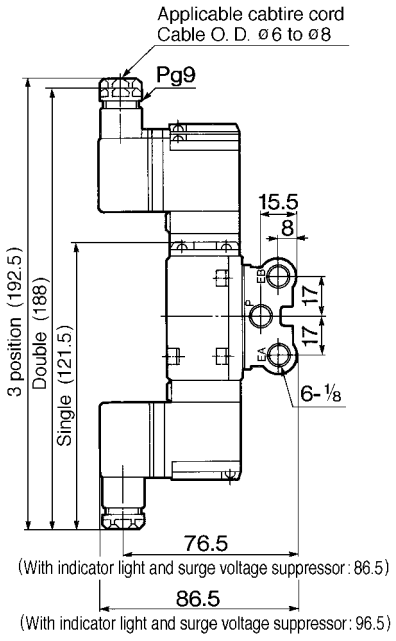


General formula of weight/Manifold M=0.049n+0.059 (kg) n: Station

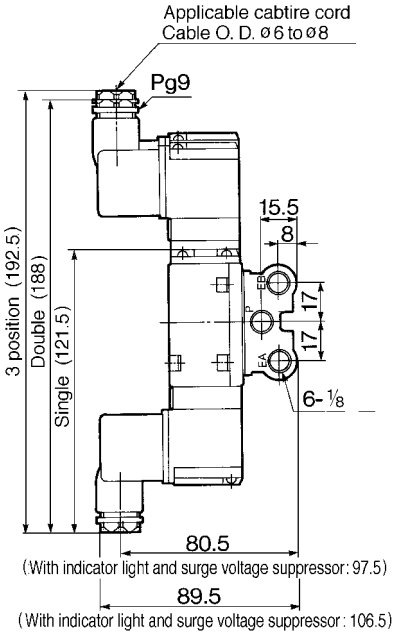
Grommet terminal: E, EZ



Conduit terminal: T, TZ



DIN connector: D, DZ

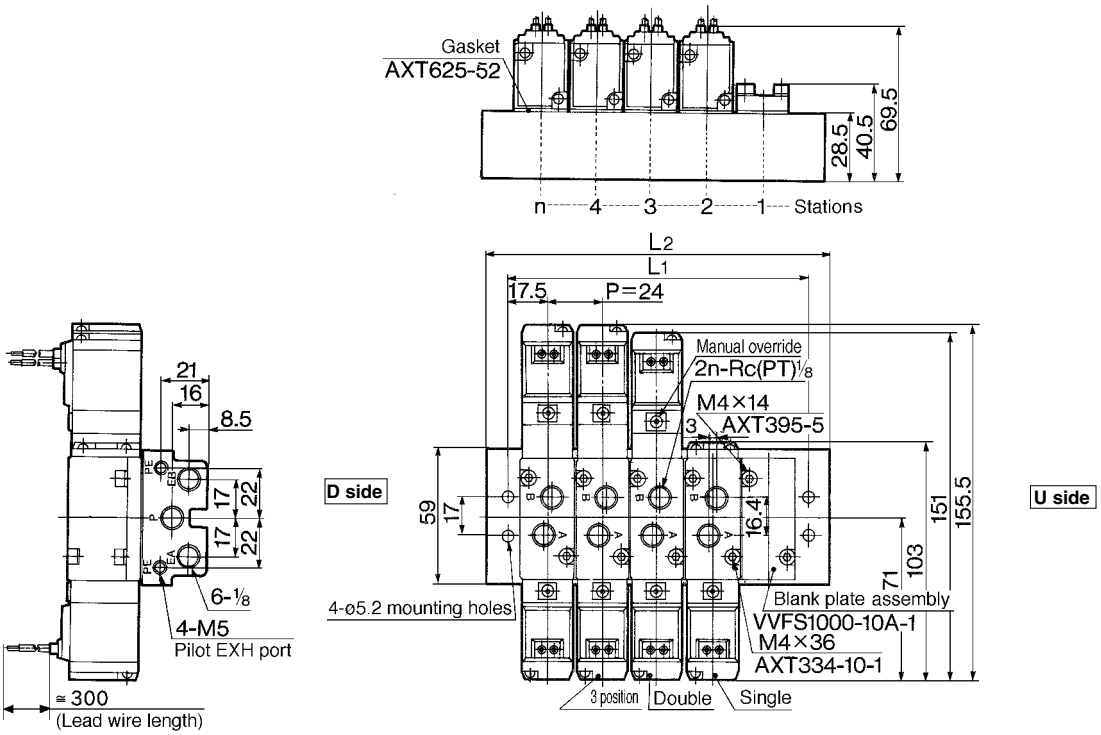


n: Station

L \ n	2	3	4	5	6	7	8	9	10	Equation
L1	59	83	107	131	155	179	203	227	251	L1=24 X n+11
L2	77	101	125	149	173	197	221	245	269	L2=24 X n+29

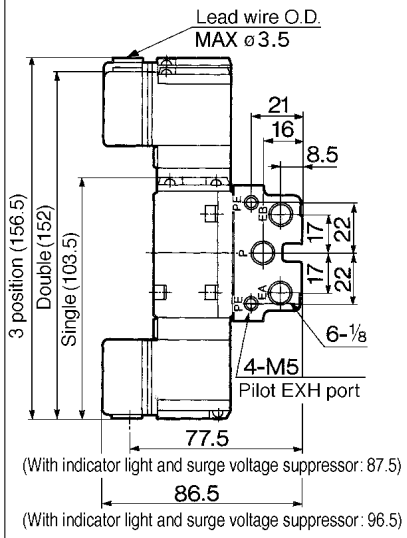
30 Type Manifold Pilot Individual Exhaust: VV5FS1-30- Station 1-01

Grommet: G

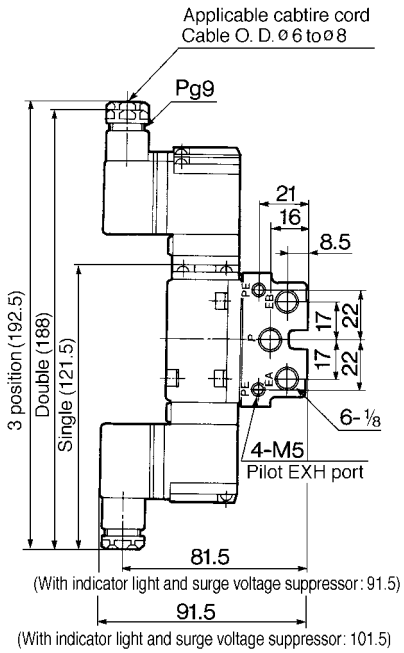


General formula of weight/Manifold M=0.079n+0.093 (kg) n: Station

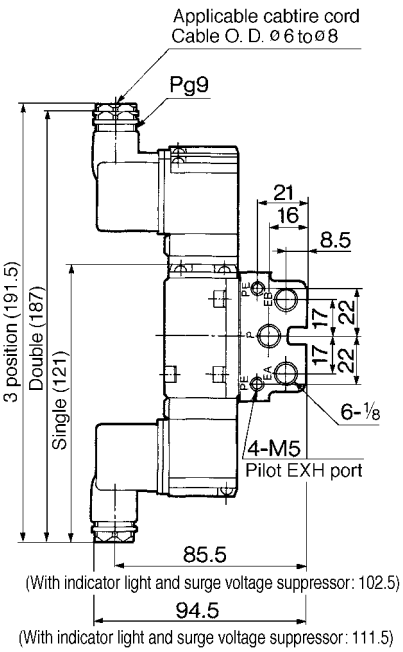
Grommet terminal: E, EZ



Conduit terminal: T, TZ



DIN connector: D, DZ



n: Station

L \ n	2	3	4	5	6	7	8	9	10	Equation
L1	59	83	107	131	155	179	203	227	251	L1=24 X n+11
L2	77	101	125	149	173	197	221	245	269	L2=24 X n+29