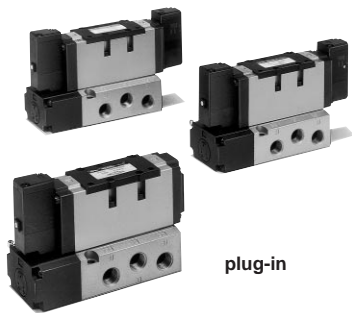


# 5 Port Pilot/Rubber Seal Plug-in, Non Plug-in

# Series VFR4000



plug-in



Non plug-in

## Model

Configuration	Model		Port size Rc(PT)	Effective area (mm <sup>2</sup> )(Cv)	Max. operating frequency (Hz)	Response time (ms)	Weight (kg)
	Plug-in	Non Plug-in					
2 position	Single	VFR410□	VFR411□ VFR414□	3/8	65(3.6)	5	50 or less
				1/2	67(3.7)		
	Double	VFR420□	VFR421□ VFR424□	3/8	62(3.6)	5	50 or less
				1/2	67(3.7)		
3 position	Closed center	VFR430□	VFR431□ VFR434□	3/8	57.6(3.2)	3	50 or less
				1/2	57.6(3.2)		
	Exhaust center	VFR440□	VFR441□ VFR444□	3/8	P→A, B: 51(2.8) A, B→EA, EB: 57.6(3.2) A, B→EA, EB : 45(2.5) (Normal position)	3	70 or less
				1/2	P→A, B: 51(2.8) A, B→EA, EB: 57.6(3.2) A, B→EA, EB : 45(2.5) (Normal position)		
	Pressure center	VFR450□	VFR451□ VFR454□	3/8	65(3.6) Normal position: 30.6(1.7)	3	70 or less
				1/2	67(3.6) Normal position: 30.6(1.7)		

- Note 1) Min. operating frequency is once in 30 days. (Based on JIS B8375)  
 Note 2) Based on dynamic performance test, JIS B8375-1981. (0.5MPa, coil temperature: 20°C, at rated voltage, without surge voltage suppressor)  
 Note 3) In case of VFR4□00-□FZ-03, ( ): VFR4□10- DZ□-03 > : VFR4□40-□G-03  
 Note 4) EA, EB port: Rc(PT)3/8

## Standard Specifications

Valve	Fluid	Air		
	Operating pressure range	2 position single, 3 position	0.2 to 0.9MPa	
		2 position double	0.1 to 0.9MPa	
	Ambient and fluid temperature	Max. 50°C		
	Lubrication	Not required <sup>(1)</sup>		
	Manual override	Non-locking push style		
	Mounting	Free		
	Shock/Vibration resistance	300/50m/s <sup>(2)</sup>		
	Protection structure	Dust proof		
	Solenoid	Coil rated voltage	100, 200V AC (50/60Hz), 24V DC	
Allowable voltage		-15% to +10% Rated voltage		
Apparent power AC <sup>(3)</sup>		Inrush	5.6VA/50Hz, 5.0VA/60Hz	
		Holding	3.4VA(2.1W)/50Hz, 2.3VA(1.5W)/60Hz	
Power consumption DC <sup>(3)</sup>		1.8W		
Electrical entry	Plug-in	Conduit terminal		
	Non Plug-in	Grommet, Grommet terminal, Conduit terminal, DIN connector		

- Note 1) If a lubricant is used, use turbine oil class1, ISO VG32. Note 3) At rated voltage  
 Note 2) Shock resistance: No malfunction resulted from the impact test using a drop impact tester. The test was performed on the axis and right angle directions of the main valve and armature, for both energized and de-energized states.  
 Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000 Hz. Test was performed at both energized and de-energized states to the axis and right angle directions of the main valve and armature. (Value in the initial stage.)

## Symbol

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

## Option Specifications

Pilot	External pilot <sup>(1)</sup>	
Manual override	Main valve	Direct manual override
	Pilot valve	Non-locking push A (Extended), Lock B (Slotted), Looking C (Lever)
Coil rated voltage	110 to 120V, 220V, 240V AC 50/60Hz	
	12V, 100V DC	
Piping	Bottom piping	
Option	With indicator light and surge voltage suppressor	

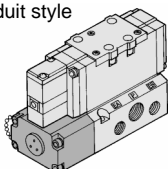
- Note 1) Operating pressure: 2 position 0 to 0.9MPa Pilot pressure: 2 position single 0.2 to 0.9MPa  
 3 position 0.15 to 0.9MPa 2 position double 0.1 to 0.9MPa  
 3 position 0.5 X P+0.1 to 0.9MPa (P: Operating pressure)

# VFR4000

## How to Order

**Electrical entry**

F: Plug-in conduit style



**Option**

-	None
Z	With indicator light/surge voltage suppressor

**Piping (P, A, EA, EB port)**

-	Side piping
B*	Bottom piping

\*Option. No bottom piping for external pilot.

**Port size (P, A, B, EA, EB port)**

-	Without sub-plate
03	Rc(PT)3/8
04*	Rc(PT)1/2

EA, EB port: Rc(PT)3/8

**Plug-in** VFR4  0   5 F    03

**Non plug-in** VFR4  1  1  1 D   03 **Common electrical entry**

**Non plug-in** VFR4  4  0  1 G   03 **Individual electrical entry**

**Configuration**

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

**Body option**

0	Standard
1*	Direct manual override

\*Option

**Pilot**

-	Internal pilot
R*	External pilot

\*Option

**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*	Others

\*Option

**Option/VFR4□1□**

-	None
Z*	With indicator light and surge suppressor

\*Only applicable to DIN connector.

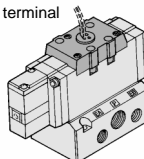
**Option/VFR4□4□**

-	None
Z*	With indicator light/surge voltage suppressor
S*	With surge voltage suppressor

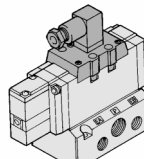
\*Indicator light("Z") is not available on grommet. Surge voltage suppressor ("S") is available only on grommet.

**Electrical entry/VFR4□1□**

E: Grommet terminal

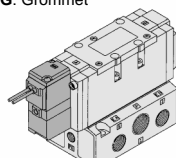


D: DIN connector

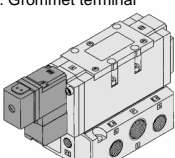


**Electrical entry/VFR4□4□**

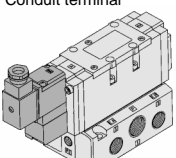
G: Grommet



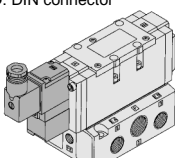
E: Grommet terminal



T: Conduit terminal



D: DIN connector



\*Option

**Pilot valve manual override**

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

\*Option

## How to Order Pilot Valve Assembly

SF4 - 1 F - 70 -

### Voltage

Symbol	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*	Others

\*Option

### Electrical entry/Indicator light and surge voltage suppressor

Symbol	Electrical entry	Indicator	Surge voltage suppressor	Applicable solenoid valve
F*	Plug-in	-	-	VFR4□0□ VFR4□1□
G	Grommet	-	-	VFR4□4□
GS		-	●	
E	Grommet terminal	-	-	
EZ		●	●	
T	Conduit terminal	-	-	
TZ		●	●	
D	DIN connector	-	-	
DZ		●	●	

### Manual override

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

\*Option

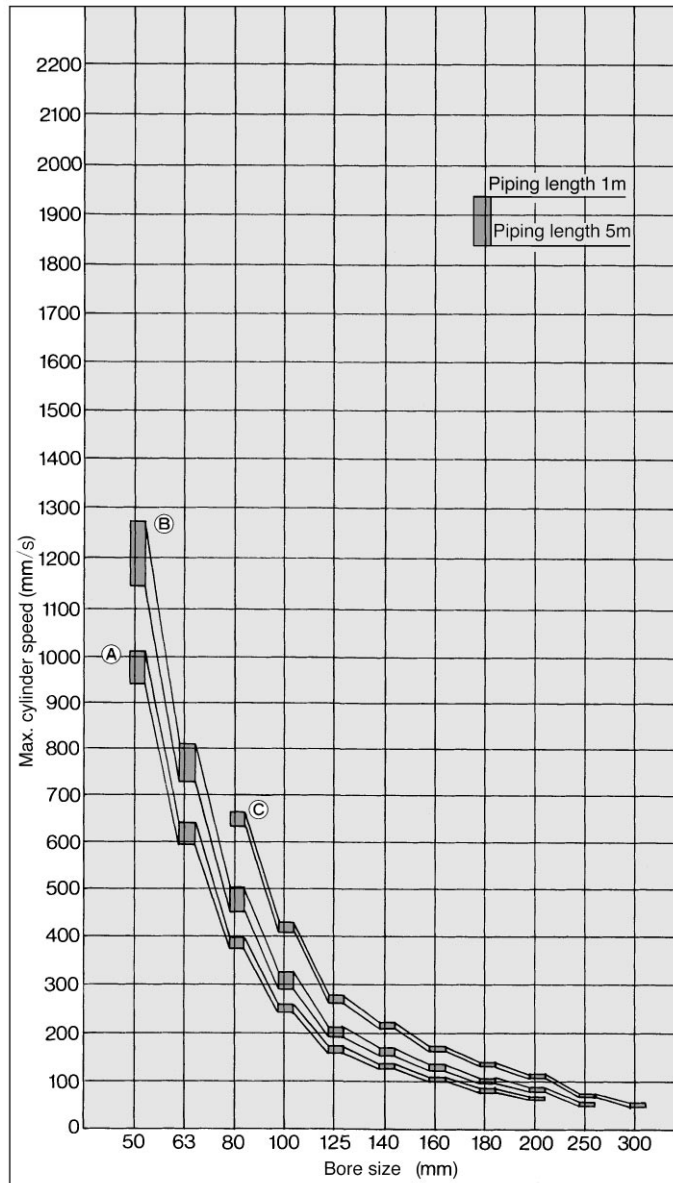
### Symbol

Symbol	Applicable solenoid valve
-	VFR4□0□ VFR4□1□
1	VFR4□4□

## Maximum Cylinder Speed

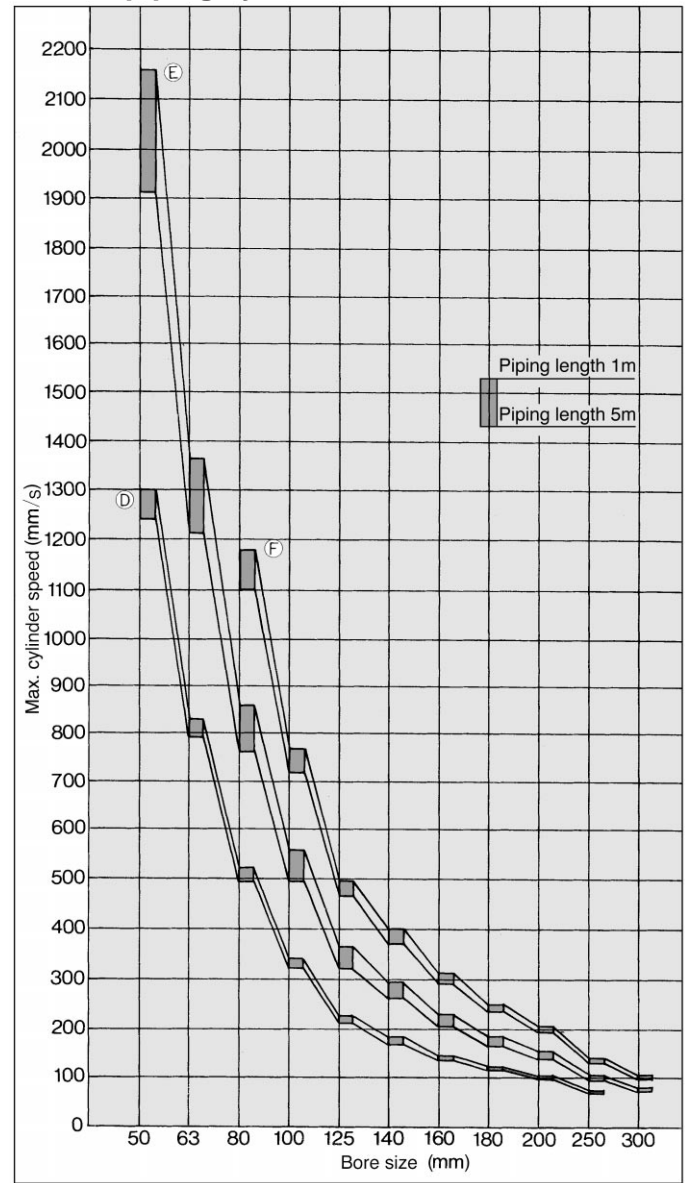
Condition: Supply pressure 0.5MPa, Load factor 50%

### Rubber hose piping system



System	Solenoid valve	Speed controller	Silencer	Piping
A	Series VFR4000 Rc(PT)3/8	AS4000-03 (S=21mm <sup>2</sup> )	AN300-03 (S=60mm <sup>2</sup> )	3/8 Rubber hose (Fitting 4pcs.)
B	Series VFR4000 Rc(PT)3/8	AS420-03 (S=73mm <sup>2</sup> )	AN300-03 (S=60mm <sup>2</sup> )	3/8 Rubber hose (Fitting 4pcs.)
C	Series VFR4000 Rc(PT)1/2	AS420-04 (S=97mm <sup>2</sup> )	AN400-04 (S=90mm <sup>2</sup> )	1/2 Rubber hose (Fitting 4pcs.)

### S. G. P. piping system



System	Solenoid valve	Speed controller	Silencer	Piping
D	Series VFR4000 Rc(PT)3/8	AS4000-03 (S=21mm <sup>2</sup> )	AN30-033 (S=60mm <sup>2</sup> )	3/8 <sup>B</sup> , SGP (Elbow 4pcs.)
E	Series VFR4000 Rc(PT)3/8	AS420-03 (S=73mm <sup>2</sup> )	AN300-03 (S=60mm <sup>2</sup> )	3/8 <sup>B</sup> , SGP (Elbow 4pcs.)
F	Series VFR4000 Rc(PT)1/2	AS420-04 (S=97mm <sup>2</sup> )	AN400-04 (S=90mm <sup>2</sup> )	1/2 <sup>B</sup> , SGP (Elbow 4pcs.)

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

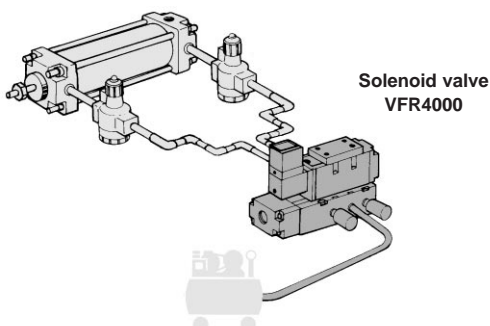
VZS

VFS

VS

VS7

### System diagram



### How to Order Sub-plate Assembly <Side piping>

Plug-in	VFR4000	- P -	04
Non plug-in	VFS4000	- S -	04

### <Bottom piping>

Plug-in	VFR4000	- P - B	04
Non plug-in	VFS4000	- S - B	04



Note) · No bottom piping for external pilot.  
· Mounting bolts and gaskets are not included.

### Pilot

-	Internal pilot
R	External pilot

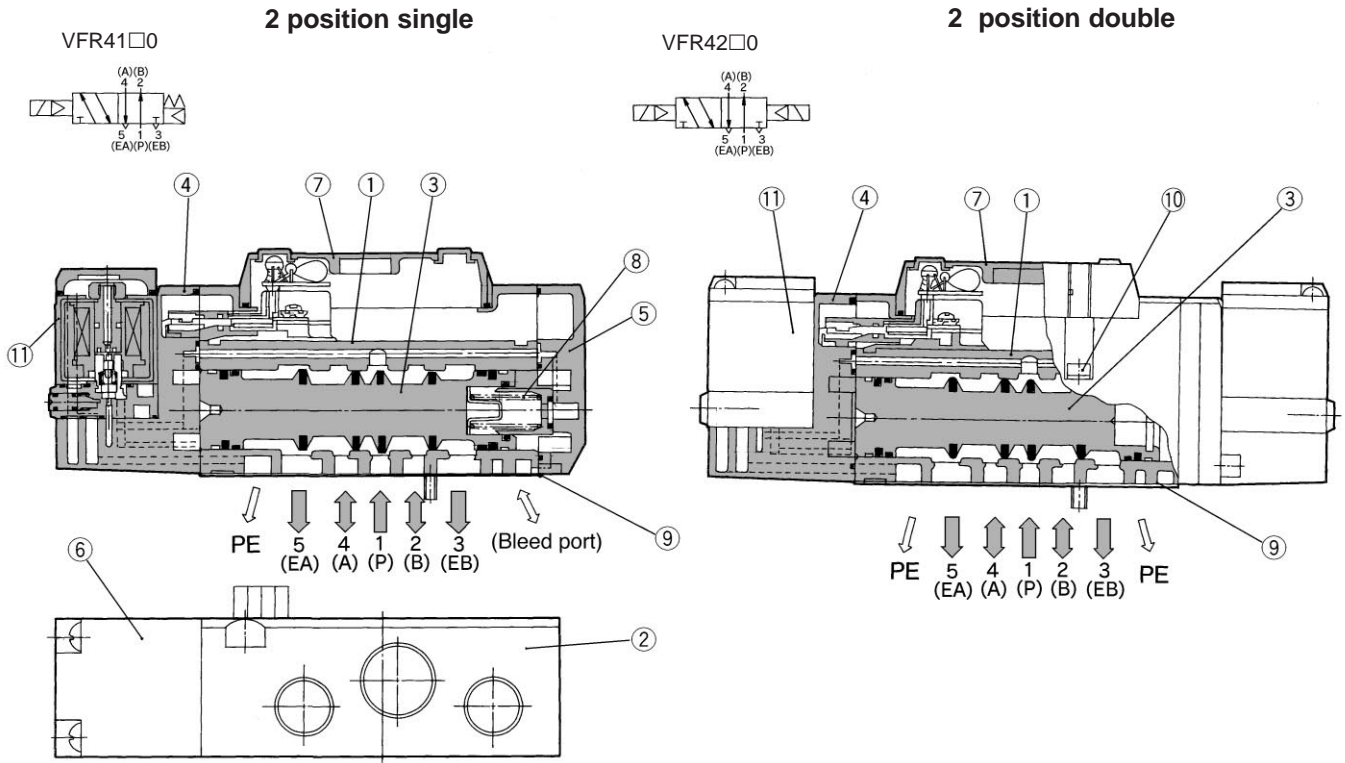
### Port size (P, A, B port)

03	Rc(PT) 3/8
04	Rc(PT) 1/2

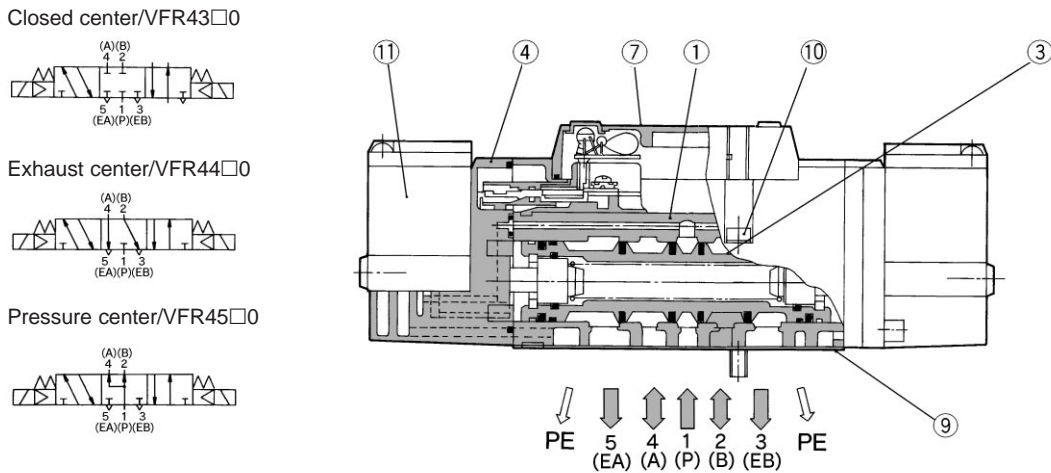
EA, EB port: Rc(PT)3/8

# VFR4000

## Construction



### 3 position closed center/exhaust center/pressure center



This figure shows closed center.

### Component Parts

No.	Description	Material	Note
①	Body	Aluminum die cast	Platinum silver
②	Subplate	Aluminum die cast	Platinum silver
③	Spool valve	Aluminum, NBR	
④	Adaptor plate	Resin	Black

### Component Parts

No.	Description	Material	Note
⑤	End plate	Resin	Black
⑥	Junction cover	Resin	
⑦	Light cover	Resin	
⑧	Spool spring	Stainless steel	

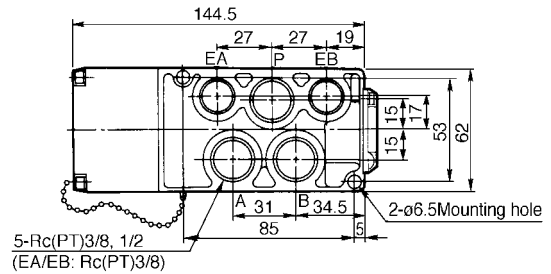
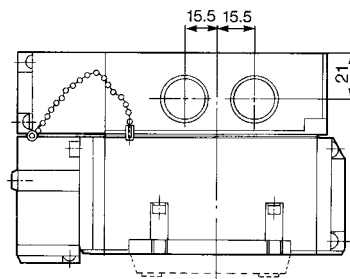
### Replacement Parts

No.	Description	Material	Part No.		
			VFR41□□	VFR42□□	VFR43□□, 44□□, 45□□
⑨	Gasket	NBR	VF4000-20-1	VF4000-20-1	VF4000-20-1
⑩	Hex. socket head cap screw	Steel	AXT335-1-11(M4 X 40)	AXT335-1-11(M4 X 40)	AXT335-1-11(M4 X 40)
⑪	Pilot valve assembly	—	Refer to "How to Order Pilot Valve Assembly on p.1.7-50.		
—	Sub-plate assembly	—	Refer to "How to Order Sub-plate Assembly on p.1.7-51.		

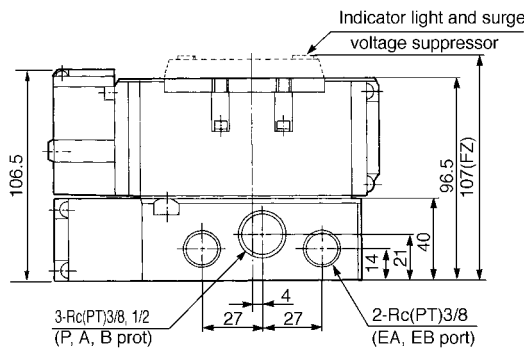
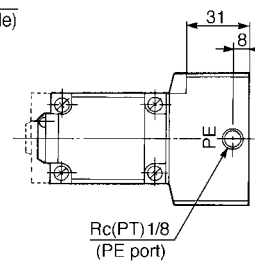
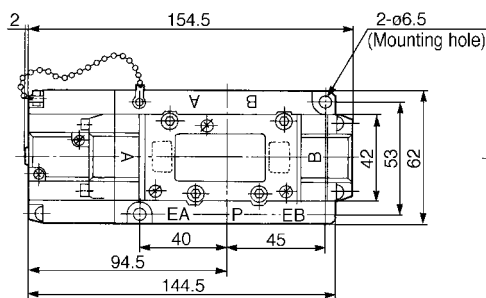
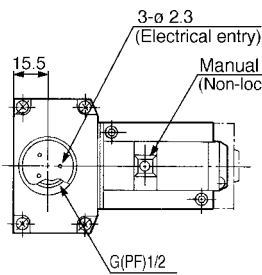


## Plug-in 2 Position Single/Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position single: VFR410 $\frac{1}{2}$ -□F



Bottom piping

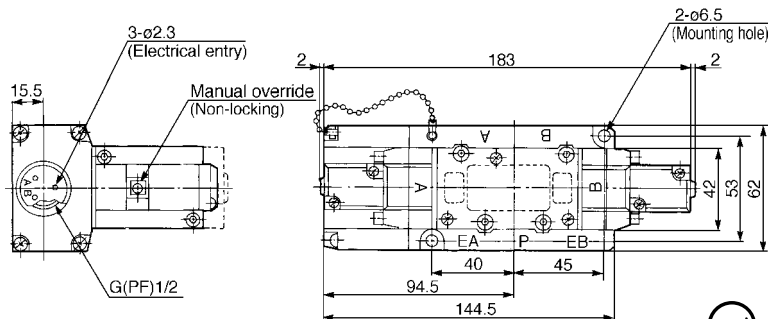


2 position double: VFR420 $\frac{1}{2}$ -□F

3 position closed center: VFR430 $\frac{1}{2}$ -□F

3 position exhaust center: VFR440 $\frac{1}{2}$ -□F

3 position pressure center: VFR450 $\frac{1}{2}$ -□F



\*Other dimensions are the same as single style.



2 position single ————— SV5FR41, #1+#7

2 position double ————— SV5FR41, #2+#7

3 position ————— SV5FR41, #3+#7

Bottom piping ————— SV5FR41, #1+#8

Indicator light and surge voltage suppressor – SV5FR41, #9 and #001 are added.

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

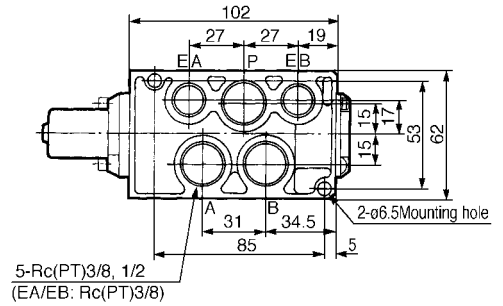
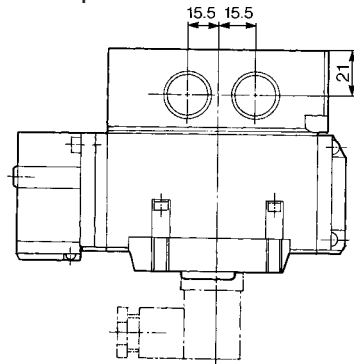
VS7

# VFR4000

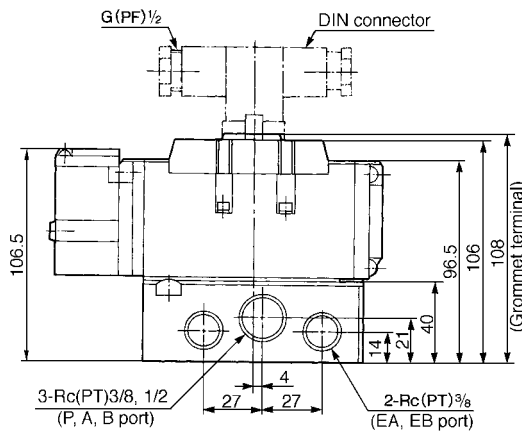
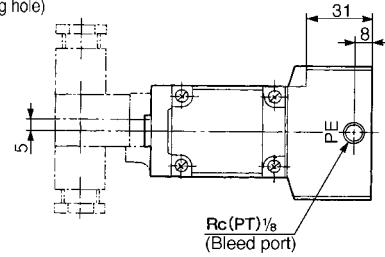
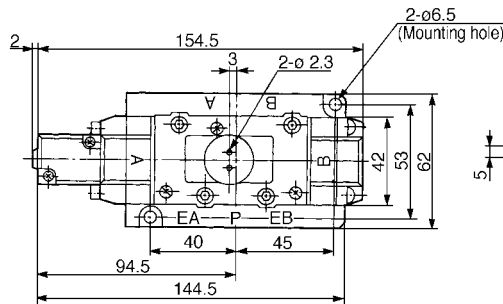
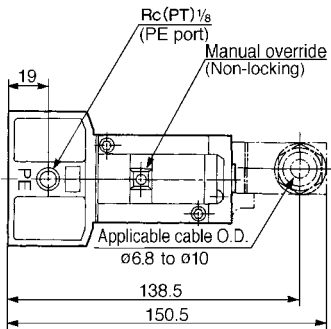


## Non Plug-in 2 Position Single/Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position single: VFR411<sup>0</sup><sub>1</sub>-□E/VFR411<sup>0</sup><sub>1</sub>-□D



Bottom piping

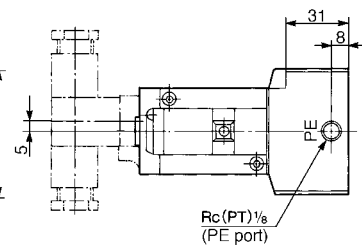
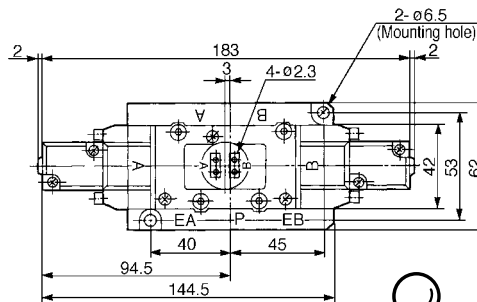
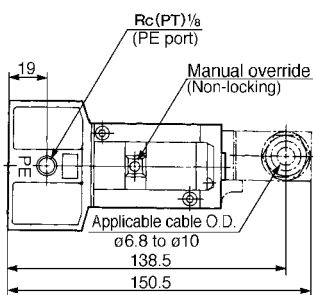


2 position double: VFR421<sup>0</sup><sub>1</sub>-□E/VFR421<sup>0</sup><sub>1</sub>-□D

3 position closed center: VFR431<sup>0</sup><sub>1</sub>-□E/VFR431<sup>0</sup><sub>1</sub>-□D

3 position exhaust center: VFR441<sup>0</sup><sub>1</sub>-□E/VFR441<sup>0</sup><sub>1</sub>-□D

3 position pressure center: VFR451<sup>0</sup><sub>1</sub>-□E/VFR451<sup>0</sup><sub>1</sub>-□D



\*Other dimensions are the same as single style.

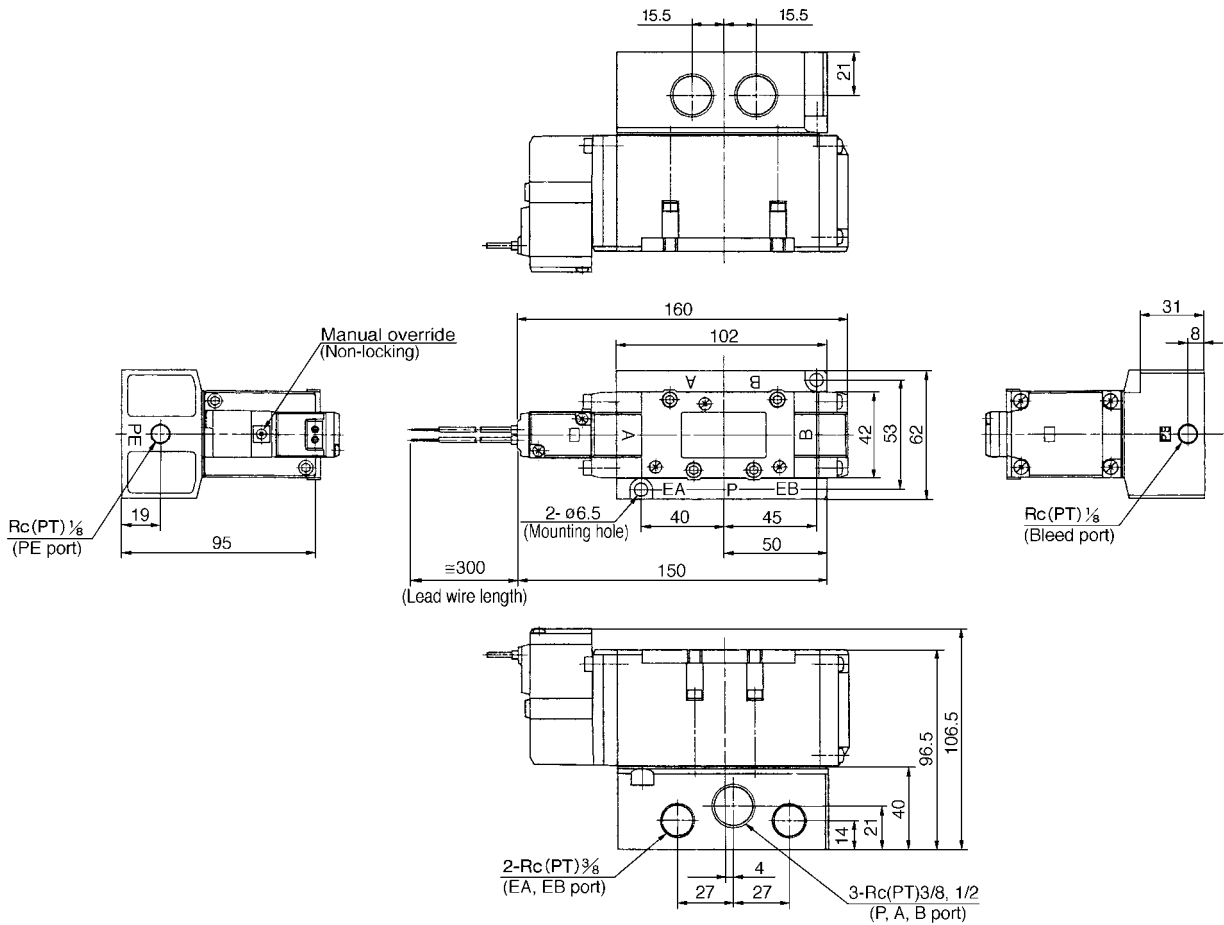


- 2 position single grommet — SV5FR41, #1+#7+(#9, #002)
- 2 position double grommet — SV5FR41, #2+#7+(#9, #002)
- 3 position double — SV5FR41, #3+#7+(#9, #002)
- Bottom piping — SV5FR41, #7 is changed for #8.
- DIN connector — SV5FR41, #9 and #002 are changed for #9 and #003.

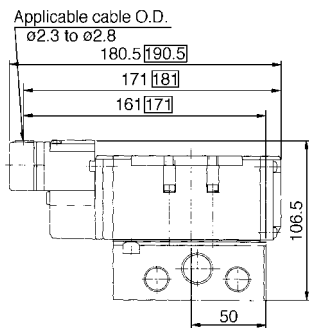


## Non Plug-in 2 Position Single

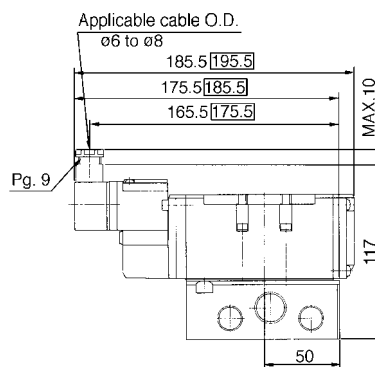
2 position single: VFR414<sup>0</sup><sub>1</sub>-□G



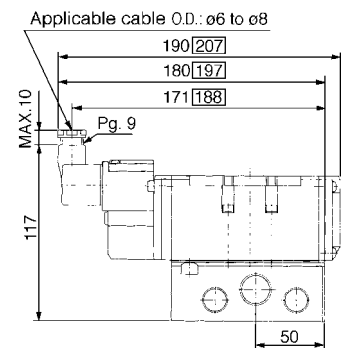
### E: Grommet terminal



### T: Conduit terminal



### D: DIN connector



□: With indicator light and surge voltage suppressor



□: With indicator light and surge voltage suppressor



□: With indicator light and surge voltage suppressor



2 position single grommet ————— SV5FR41, #1 and #7 are changed.

SY

SYJ

SX

VK

VZ

VF

VFR

VP7

VP4

VQ

VQ4

VQZ

VQD

VZS

VFS

VS

VS7

# VFR4000



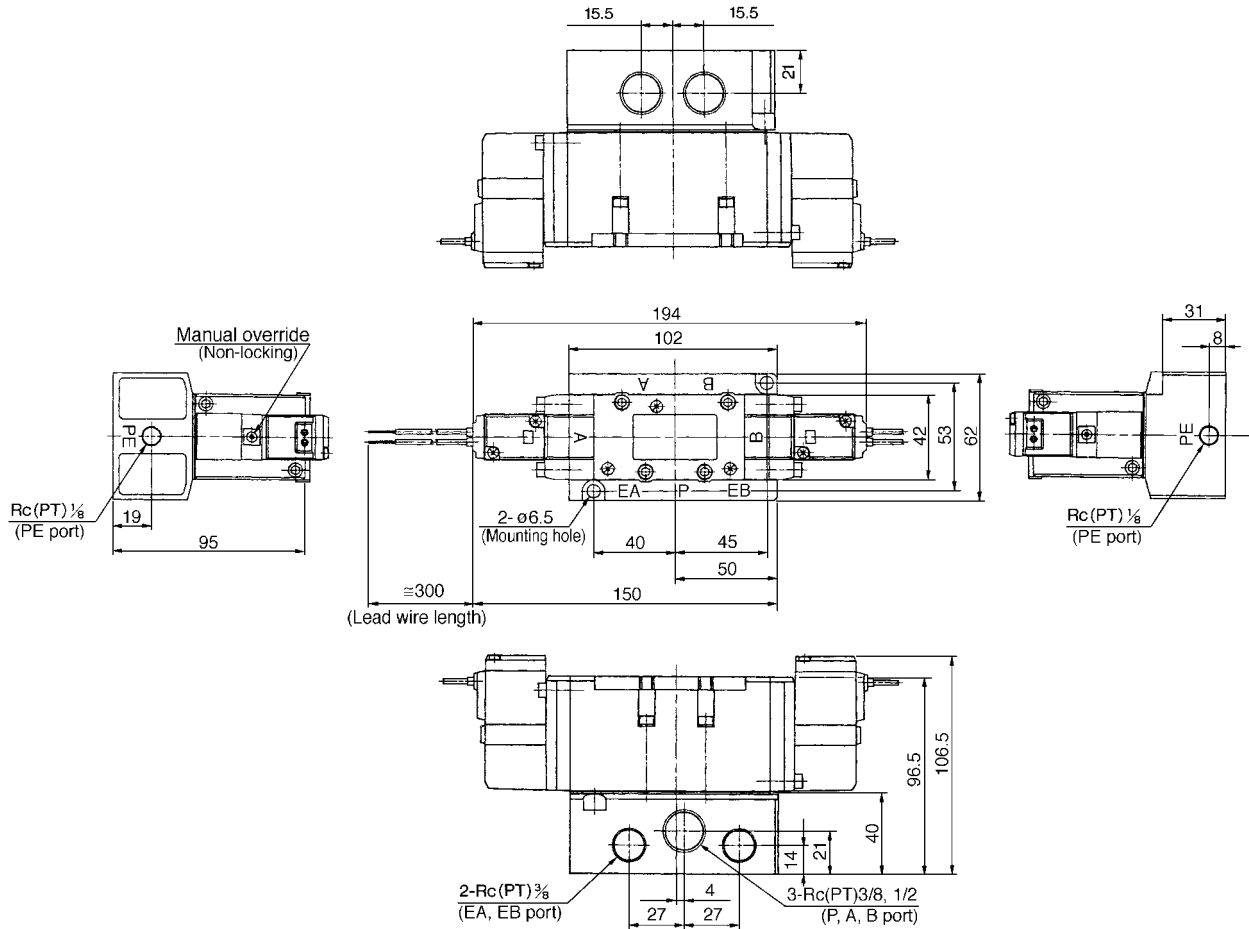
## Non Plug-in 2 Position Double, 3 Position Closed Center/Exhaust Center/Pressure Center

2 position double: VFR424<sup>0</sup><sub>1</sub>-□G

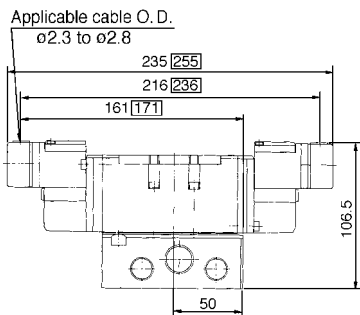
3 position closed center: VFR434<sup>0</sup><sub>1</sub>-□G

3 position exhaust center: VFR444<sup>0</sup><sub>1</sub>-□G

3 position pressure center: VFR454<sup>0</sup><sub>1</sub>-□G

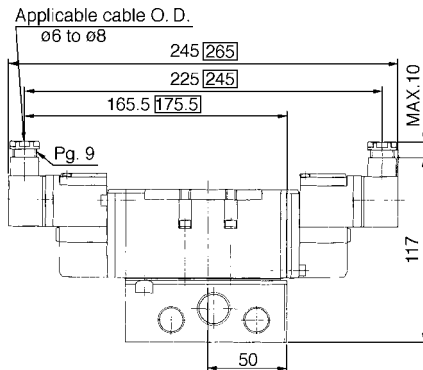


### E: Grommet terminal



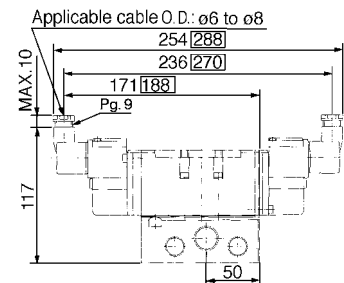
□: With indicator light and surge voltage suppressor

### T: Conduit terminal



□: With indicator light and surge voltage suppressor

### D: DIN connector



□: With indicator light and surge voltage suppressor



2 position double ———— SV5FR41, #2 and #7 are changed.  
3 position ———— SV5FR41, #3 and #7 are changed.