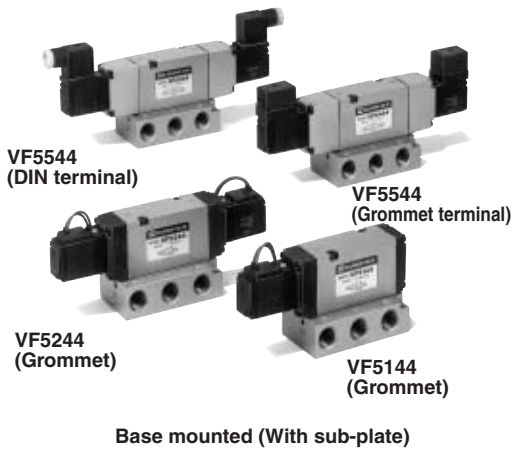


# 5 Port Pilot Operated Solenoid Valve Rubber Seal

## Series VF5000

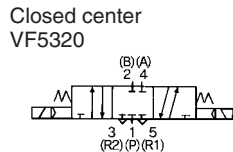
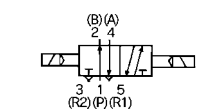
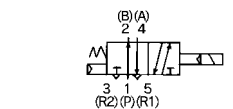
**Compact and lightweight:  
32 mm width**  
**Compact yet provides a large flow capacity:  
Sonic conductance  
C: 12 dm<sup>3</sup>/(s·bar)  
{4/2 → 5/3(A/B → EA/EB)}**  
**Low power consumption: 1.8 W (DC)**



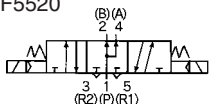
### JIS Symbol

Single  
VF5120

Double  
VF5220



Pressure center  
VF5520



### Specifications

Fluid		Air
Operating pressure range	2 position single/3 position	0.15 to 0.9 MPa
	2 position double	0.1 to 0.9 MPa
Ambient and fluid temperature		-10 to 50°C (No freezing. Refer to page 3-13-4.)
Response time <sup>(1)</sup>	2 position single/double	30 ms or less (at the pressure of 0.5 MPa)
	3 position	50 ms or less (at the pressure of 0.5 MPa)
Max. operating frequency	2 position single/double	5 Hz
	3 position	3 Hz
Lubrication		Not required
Manual override	Non-locking push type, Locking type B*, Locking type C*	
Mounting orientation	Unrestricted	
Shock/Vibration resistance <sup>(2)</sup>	300/50 m/s <sup>2</sup>	
Enclosure	Dustproof	

Note 1) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage, without surge suppressor)

Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Electrical entry		Grommet, Grommet terminal Conduit terminal, DIN terminal	
Coil rated voltage (V)	AC50/60 Hz	100, 200, 12*, 24*, 48*, 110*, 220*, 240*	
	DC	24, 6*, 12*, 48*, 100*, 110*	
Allowable voltage fluctuation		-15 to +10% of rated voltage	
Apparent power <sup>Note)</sup>	AC	Inrush	5.6 VA (50 Hz), 5.0 VA (60 Hz)
		Holding	3.4 VA (50 Hz), 2.3 VA (60 Hz)
Power consumption <sup>Note)</sup>	DC	1.8 W, 2 W (With indicator light)	
Light/Surge voltage suppressor	AC	ZNR (Varistor), Neon bulb (LED100 V or less)	
	DC	ZNR (Varistor), LED (Neon bulb100 V or more)	

\* Option Note) At rated voltage

### Flow Characteristics/Weight

Valve model	Type of actuation	Port size	Flow characteristics						Weight <sup>(2)</sup> (kg)				
			1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → EA/EB)							
			C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv					
Body ported	VF5□20-□□-02	1/4	2 position single	7.1	0.46	1.9	7.7	0.51	2.2	0.38			
			2 position double	7.1	0.46	1.9	7.7	0.51	2.2	0.45			
			3 position closed center	6.7	0.46	1.8	6.6	10.41	1.8	0.56			
			3 position exhaust center	7.1	0.42	1.9	8.0 [7.4]	0.45 [0.47]	2.2 [2.1]	0.56			
			3 position pressure center	6.8 [2.7]	0.51 [0.50]	2.0 [0.78]	5.7	0.37	1.4	0.56			
			2 position single	8.8	0.44	2.4	10	0.49	2.9	0.38			
	VF5□20-□□-03	3/8	2 position double	8.8	0.44	2.4	10	0.49	2.9	0.45			
			3 position closed center	7.5	0.43	2.0	7.5	0.38	1.9	0.56			
			3 position exhaust center	8.3	0.40	2.2	10 [8.7]	0.48 [0.46]	3.0 [2.4]	0.56			
			3 position pressure center	9.2 [3.0]	0.50 [0.49]	2.6 [0.85]	6.1	0.35	1.6	0.56			
			Base mounted <sup>(1)</sup>	VF5□44-□□-02	1/4	2 position single	7.3	0.49	2.1	7.3	0.50	2.0	0.57
						2 position double	7.3	0.49	2.1	7.3	0.50	2.0	0.65
3 position closed center	6.6	0.35				1.7	6.3	0.31	1.6	0.74			
3 position exhaust center	7.4	0.33				1.9	8.1 [7.4]	0.35 [0.34]	2.1 [1.9]	0.74			
3 position pressure center	8.0 [2.9]	0.35 [0.48]				2.1 [0.85]	5.6	0.31	1.5	0.74			
VF5□44-□□-03	3/8	2 position single				8.4	0.34	2.2	8.9	0.29	2.3	0.57	
		2 position double	8.4	0.34	2.2	8.9	0.29	2.3	0.65				
		3 position closed center	7.3	0.34	2.0	7.1	0.28	1.8	0.74				
		3 position exhaust center	8.1	0.27	2.0	14 [8.3]	0.26 [0.31]	3.4 [2.2]	0.74				
		3 position pressure center	8.1 [2.5]	0.33 [0.48]	2.0 [0.74]	5.7	0.31	1.4	0.74				
		VF5□44-□□-04	1/2	2 position single	9.4	0.43	2.7	12	0.32	3.0	0.62		
2 position double	9.4			0.43	2.7	12	0.32	3.0	0.69				
3 position closed center	7.1			0.41	2.1	7.4	0.32	2.0	0.79				
3 position exhaust center	8.6			0.39	2.4	13 [8.9]	0.21 [0.40]	3.1 [2.5]	0.79				
3 position pressure center	11 [2.6]			0.18 [0.47]	2.6 [0.78]	6.1	0.35	1.6	0.79				

Note 1) With sub-plate

Note 3) [ ]: Normal position

Note 2) Weight stands for grommet type.

## How to Order

**Body ported** VF5 **1** 20 — **1** **G** **03**

**Base mounted** VF5 **1** 44 — **1** **G** **03**

**Port size**

02	1/4
03	3/8

**Thread type**

Nil	Rc
F	G
N	NPT
T	NPTF

**Type of actuation**

1	Single solenoid
2	Double solenoid
3	Closed center
4	Exhaust center
5	Pressure center

**Manual override**

Nil	Non-locking push type
B	Locking type B
C	Locking type C

**Port size**

Nil	Without sub-plate
02	1/4
03	3/8
04	1/2


**Coil rated voltage**

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

\* Option

**Light/Surge voltage suppressor**

Nil	None
Z*	With light/surge voltage suppressor
S*	With surge voltage suppressor

 \* Indicator light is not available for grommet type. W/surge voltage suppressor is available for grommet type only.

**Electrical entry**

G	Grommet (Lead wire length: 300 mm)	
H	Grommet (Lead wire length: 600 mm)	
E	Grommet terminal	
T	Conduit terminal	
D	DIN terminal	With connector
DO		Without connector

## How to Order Pilot Valve Assembly

SF4 — **1** **DZ** — 50

(A) (B) (C)

### (A) Coil rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 to 120 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
7*	240 VAC, 50/60 Hz
9*	Other

\* Option

### (B) Electrical entry, Light/Surge voltage suppressor

Symbol	Electrical entry	Light/Surge voltage suppressor
G	Grommet	None
GS		With surge voltage suppressor
H	Grommet	None
HS		With surge voltage suppressor
E	Grommet terminal	None
EZ		With light/surge voltage suppressor
T	Conduit terminal	None
TZ		With light/surge voltage suppressor
D	DIN terminal	None
DZ		With light/surge voltage suppressor
DO		None
DOZ		With light/surge voltage suppressor

### (C) Manual override

Nil	Non-locking push type
B	Locking type B
C	Locking type C

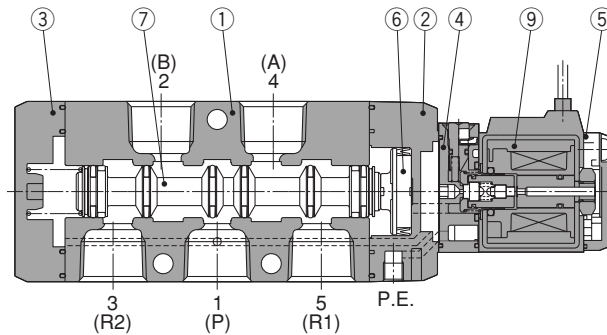
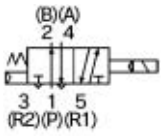


\* Interchangeable with the previous model, "DXT154-A-□□□□".

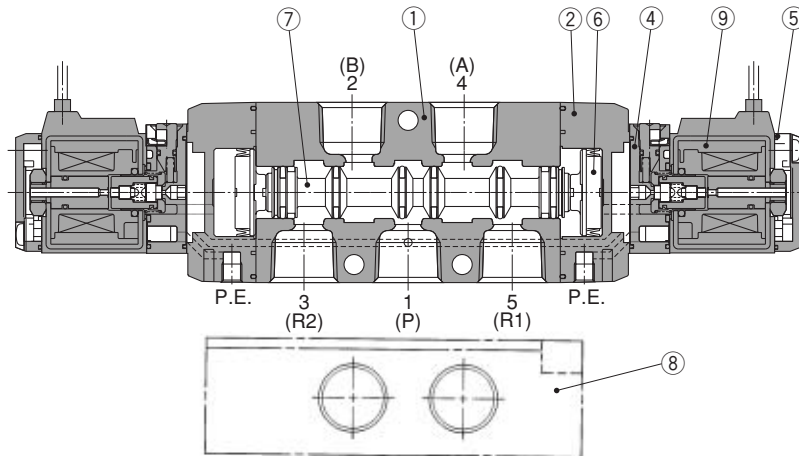
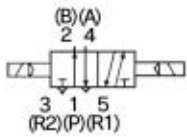
# 5 Port Pilot Operated Solenoid Valve Rubber Seal Series VF5000

## Construction

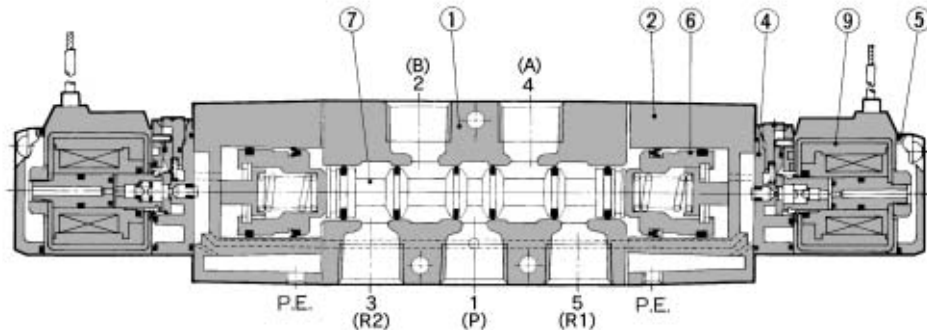
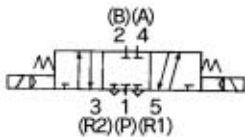
### Single solenoid



### Double solenoid



### 3 position closed center



### Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted	Platinum silver
②	Adapter plate	Resin <sup>(1)</sup>	Black <sup>(3)</sup>
③	End cover	Resin <sup>(1)</sup>	Black
④	Pilot body	Resin	
⑤	Pilot cover	Resin	
⑥	Piston	Resin <sup>(2)</sup>	
⑦	Spool valve	Aluminum, HNBR	

Note 1) 3 position: Aluminum die-casted  
 Note 2) 3 position: Aluminum  
 Note 3) 3 position: Metallic paint

### Replacement Parts

No.	Description	Part no.	Note
⑧	Sub-plate	DXT156-24-1□P	1/4
		DXT156-24-2□P	3/8
		DXT156-24-3□P	1/2
⑨	Pilot valve assembly	SF4-□□□-50	Refer to "How to Order" on page 3-4-34.

Sub-plate Part No.

**DXT156-24- $\frac{1}{3}$ □P**

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

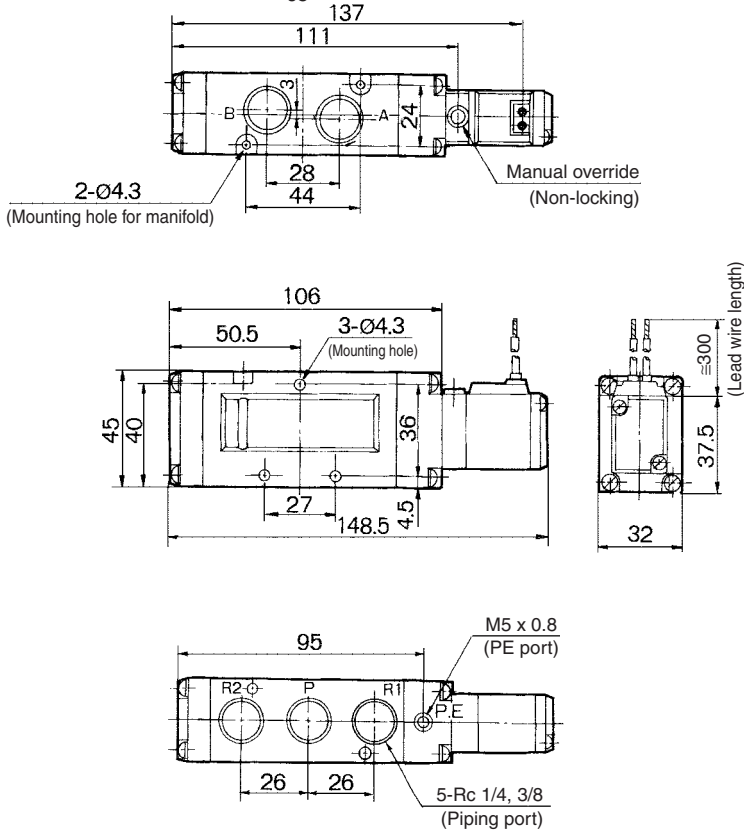
EVS

VFN

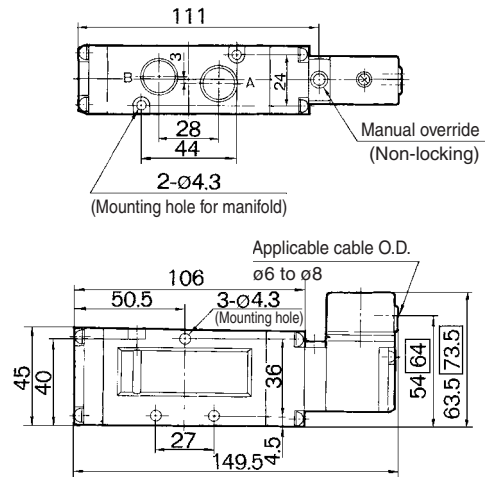
# Series VF5000

## Body Ported: 2 Position Single Solenoid

Grommet: VF5120-□G-<sup>02</sup>/<sub>03</sub>

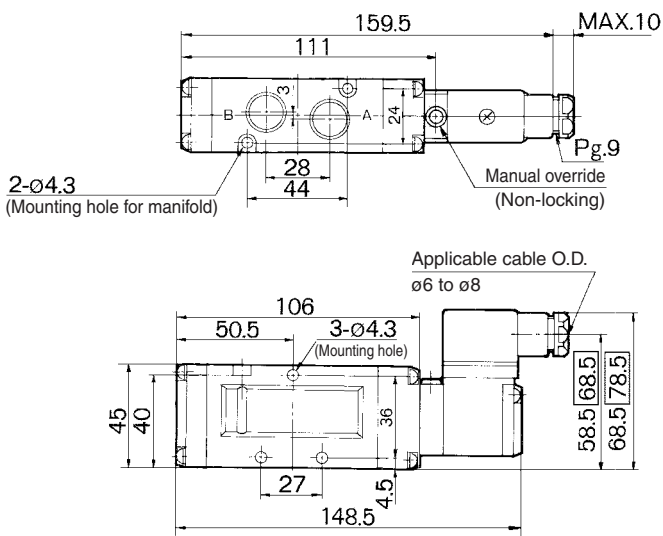


Grommet terminal: VF5120-□E-<sup>02</sup>/<sub>03</sub>



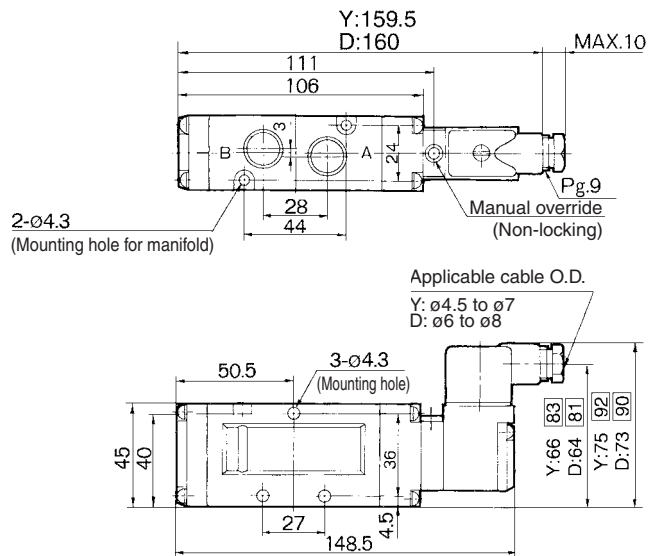
□ : With light/surge voltage suppressor

Conduit terminal: VF5120-□T-<sup>02</sup>/<sub>03</sub>



□ : With light/surge voltage suppressor

DIN terminal: VF5120-□D-<sup>02</sup>/<sub>03</sub>  
VF5120-□Y-<sup>02</sup>/<sub>03</sub>

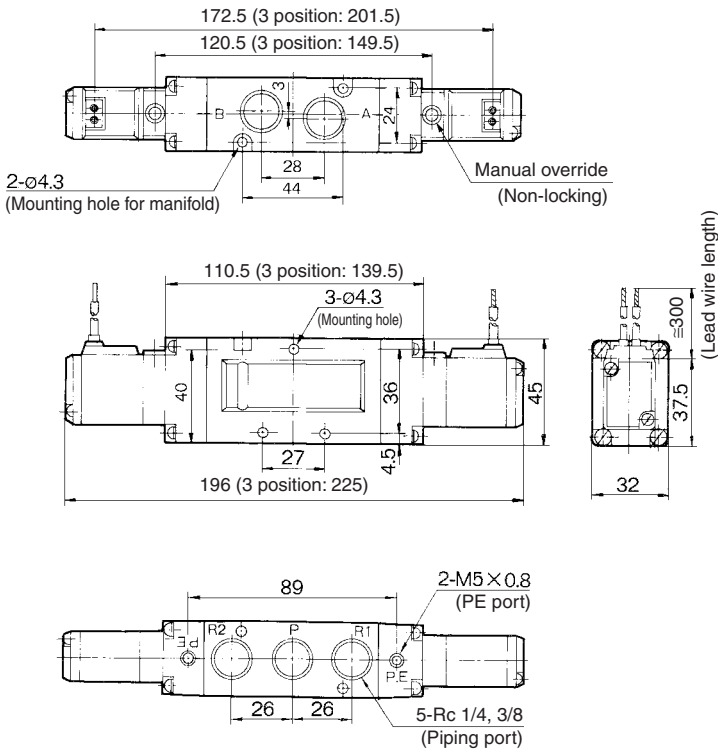


□ : With light/surge voltage suppressor

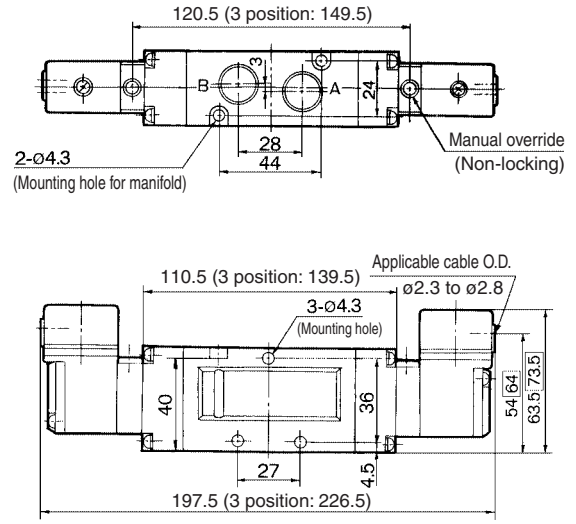
# 5 Port Pilot Operated Solenoid Valve Rubber Seal Series VF5000

## Body Ported: 2 Position Double Solenoid, 3 Position Closed Center/Exhaust Center/Pressure Center

Grommet: VF5□20-□G-<sup>02</sup>/<sub>03</sub>



Grommet terminal: VF5□20-□E-<sup>02</sup>/<sub>03</sub>



□ : With light/surge voltage suppressor

VK

VZ

VF

VFR

VP4

VZS

VFS

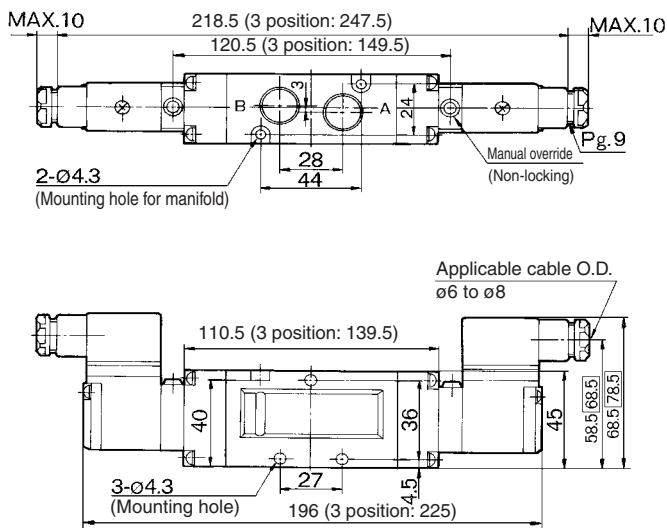
VS4

VQ7

EVS

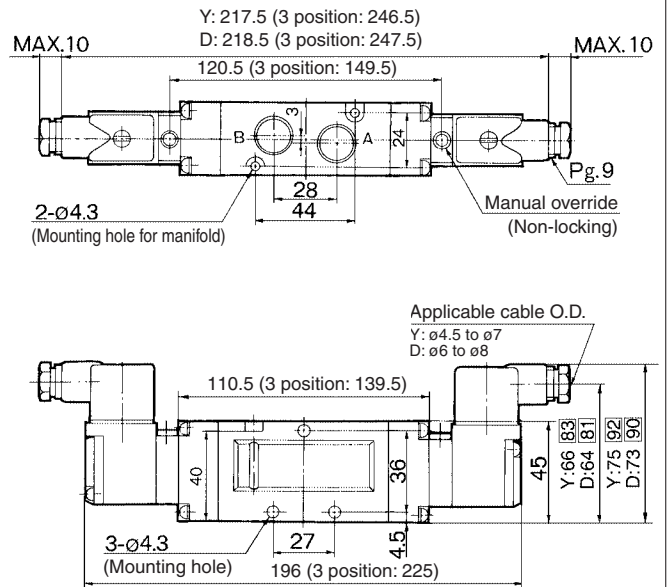
VFN

Conduit terminal: VF5□20-□T-<sup>02</sup>/<sub>03</sub>



□ : With light/surge voltage suppressor

DIN terminal: VF5□20-□D-<sup>02</sup>/<sub>03</sub>  
VF5□20-□Y-<sup>02</sup>/<sub>03</sub>

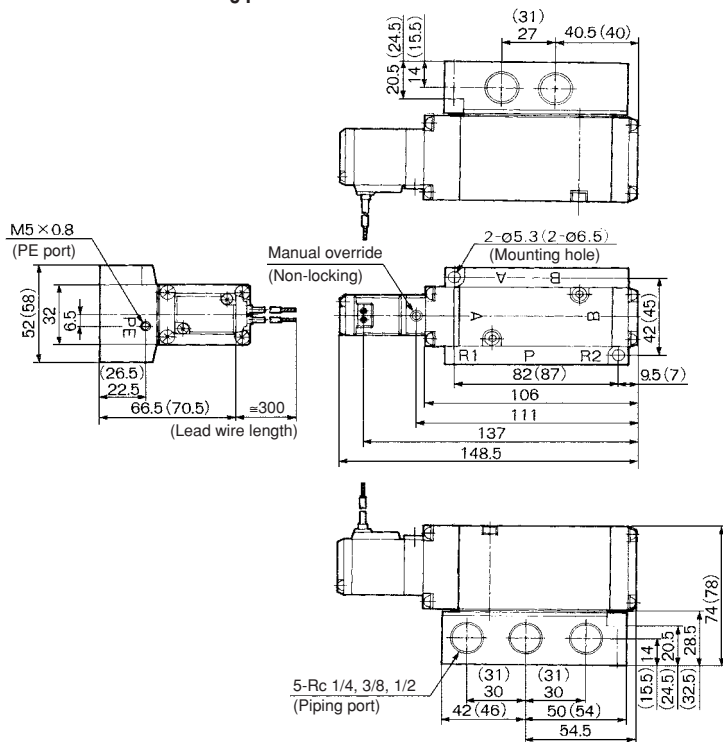


□ : With light/surge voltage suppressor

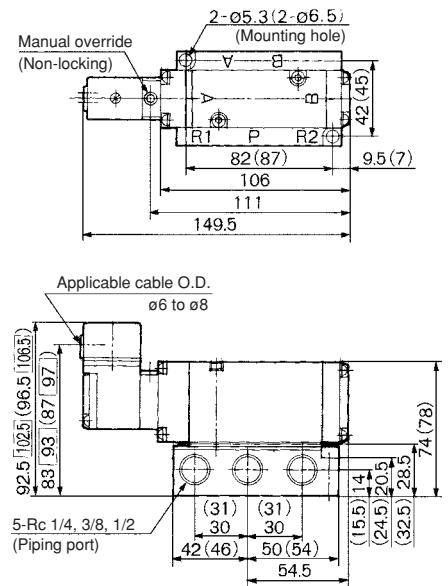
# Series VF5000

## Base Mounted: 2 Position Single Solenoid

Grommet: VF5144-□G-<sup>02</sup><sub>03</sub><sub>04</sub>



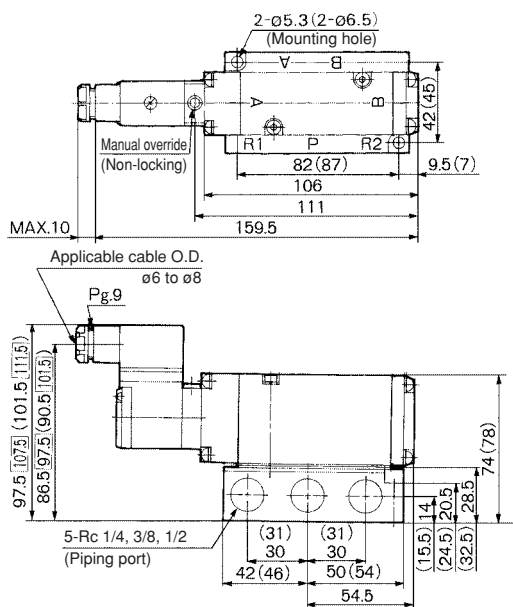
Grommet terminal: VF5144-□E-<sup>02</sup><sub>03</sub><sub>04</sub>



( ) : VF5144-□G-04

( ) : VF5144-□E-04  
□ : With light/surge voltage suppressor

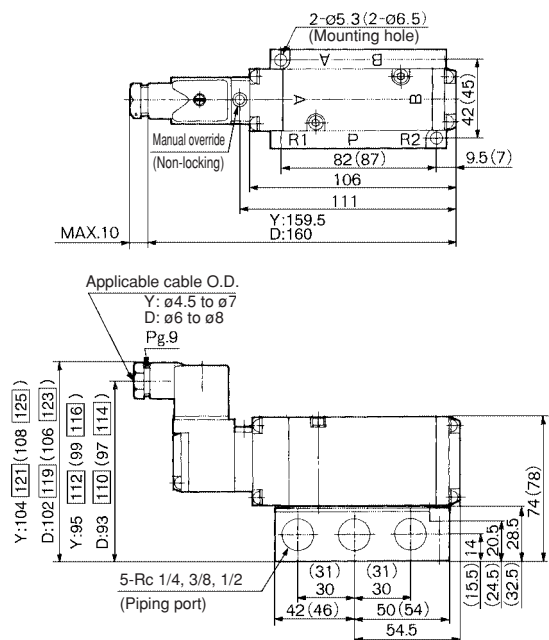
Conduit terminal: VF5144-□T-<sup>02</sup><sub>03</sub><sub>04</sub>



( ) : VF5144-□T-04  
□ : With light/surge voltage suppressor

DIN terminal: VF5144-□D-<sup>02</sup><sub>03</sub><sub>04</sub>

VF5144-□Y-<sup>02</sup><sub>03</sub><sub>04</sub>



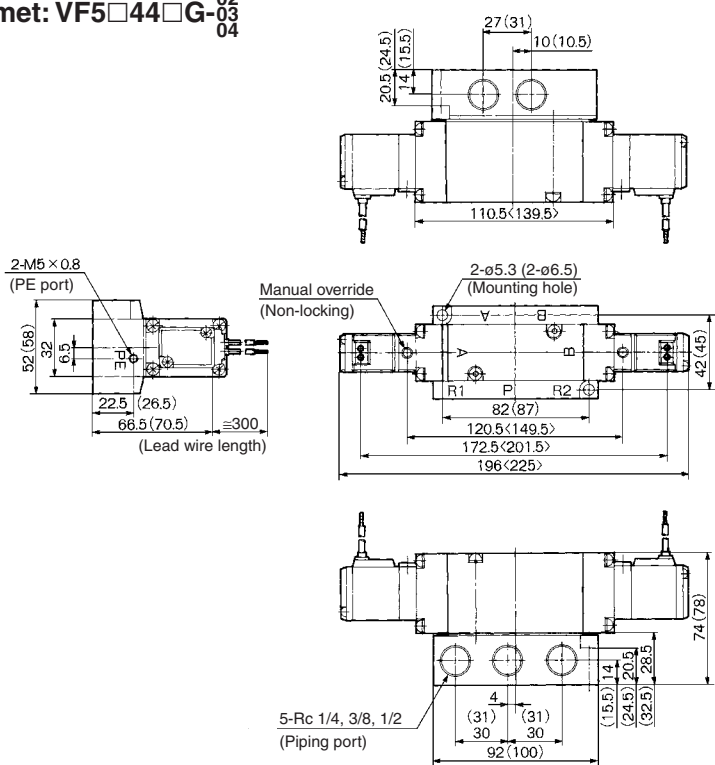
( ) : VF5144-□D-04  
□ : With light/surge voltage suppressor



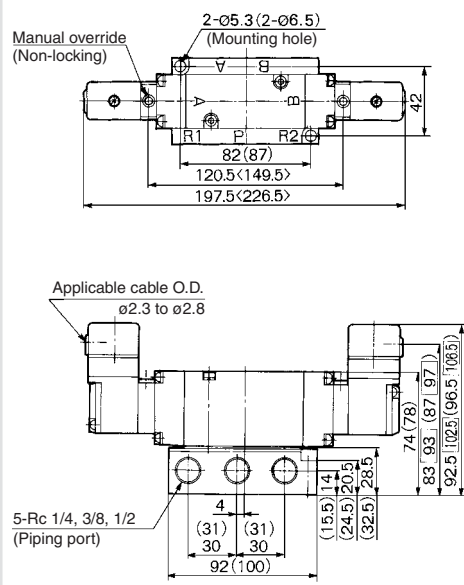
# 5 Port Pilot Operated Solenoid Valve Rubber Seal Series VF5000

Base Mounted: 2 Position Double Solenoid, 3 Position Closed Center/Exhaust Center/Pressure Center

Grommet: VF5□44□G-<sup>02</sup>/<sub>03</sub>/<sub>04</sub>



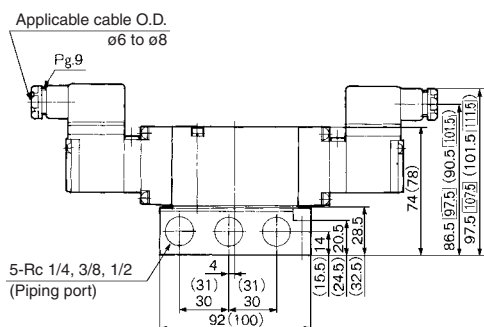
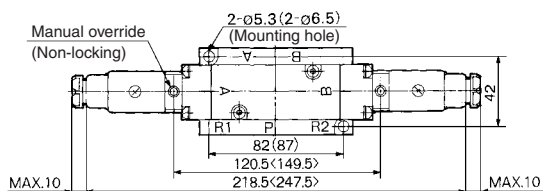
Grommet terminal: VF5□44□E-<sup>02</sup>/<sub>03</sub>/<sub>04</sub>



( ) : VF5□44□G-04  
< > : 3 position

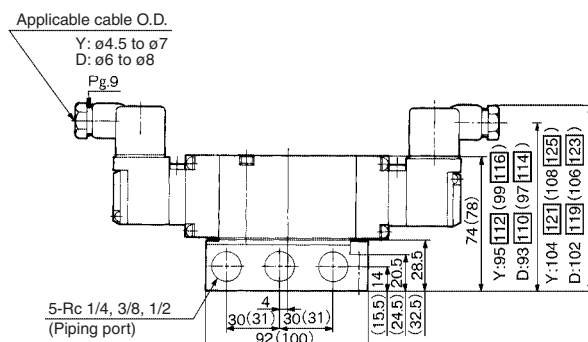
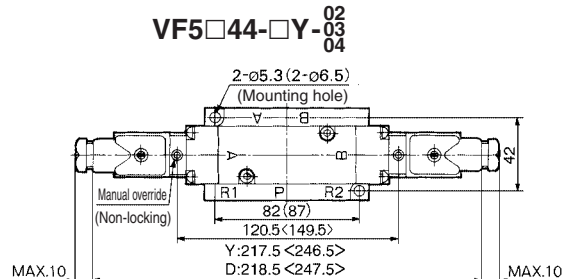
( ) : VF5□44□E-04  
□ : With light/surge voltage suppressor  
< > : 3 position

Conduit terminal: VF5□44□T-<sup>02</sup>/<sub>03</sub>/<sub>04</sub>



( ) : VF5□44□T-04  
□ : With light/surge voltage suppressor  
< > : 3 position

DIN terminal: VF5□44□D-<sup>02</sup>/<sub>03</sub>/<sub>04</sub>



( ) : VF5□44□D-04  
□ : With light/surge voltage suppressor  
< > : 3 position

VK

VZ

VF

VFR

VP4

VZS

VFS

VS4

VQ7

EVS

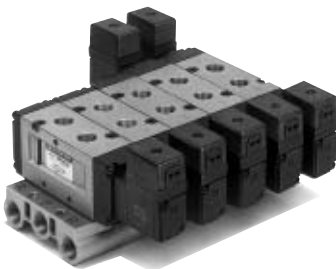
VFN

# Series VF5000

# Manifold Specifications



VV5F5-21



VV5F5-20

## Manifold Specifications

Manifold type	B mount (Single base type)
Exhaust port type	Common EXH
Max. number of stations*	10 (15 for 21 type w/side block)

\* For more than 5 stations for type 20 and 40 or more than 8 station for type 21, supply air from both sides of supply (P) port and exhaust air from both sides of exhaust (R) port.

Manifold base model	R (EXH) <sup>(1)</sup> port type	Piping/Port location			Port size Rc			Applicable <sup>(2)</sup> valves model
		P	R	A, B	P	R	A, B	
VV5F5-20	Common	Side Base	Side Base	Top Valve	3/8	3/8	1/4 3/8	VF5□20
VV5F5-21	Common	Side Side block	Side Side block	Top Valve	1/2	1/2	1/4 3/8	
VV5F5-40*	Common	Side Base	Side Base	Bottom Base	3/8	3/8	1/4	VF5□44

\* Its flow characteristics is 80% of that with sub-plate.

Note 1) P (SUP) port is all common.

Note 2) Model number for valve unit is that for application manifold.

## Option

Description	Part no.	Applicable manifold model
Individual EXH spacer assembly <sup>Note)</sup>	DXT156-20-1A	VV5F5-20/21
	DXT156-20-3A	VV5F5-40
Blanking plate assembly	DXT156-19-1A	VV5F5-20/21
	DXT156-19-2A	VV5F5-40

Note) Spacer is used when it is necessary to exhaust from certain valves individually.

## How to Order Manifold

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example) VV5F5-20-051..... 1 pc. (Manifold base)

\*VF5120-1G-03....2 pcs. (Valve)

\*VF5220-1G-03....2 pcs. (Valve)

\*DXT156-19-1A....1 pc. (Blanking plate assembly)

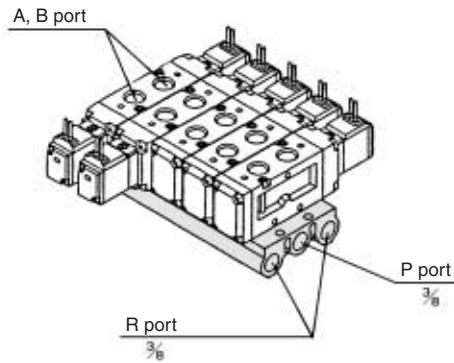
The asterisk denotes the symbol for assembly. Prefix it to the part nos. of the solenoid valve, etc.



# 5 Port Pilot Operated Solenoid Valve Rubber Seal Series VF5000

## B Mount (Integrated type)

### Top ported/Common EXH type Type 20

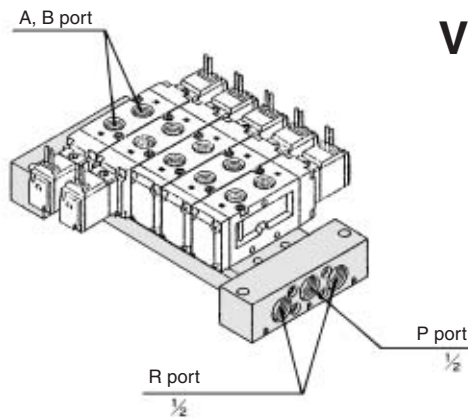


**VV5F5 - 20 - 05 1**

Stations	
02	2 stations
:	:
10	10 stations

**Applicable solenoid valve**  
VF5□20-□□□□- $\frac{02}{03}$ □  
**Applicable individual EXH spacer assembly**  
DXT156-20-1A  
**Applicable blanking plate assembly**  
DXT156-19-1A

### Top ported/Common EXH type Type 21

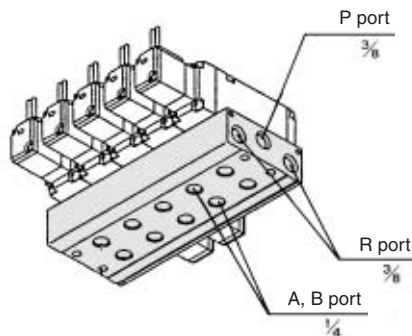


**VV5F5 - 21 - 05 1**

Stations	
02	2 stations
:	:
15	15 stations

**Applicable solenoid valve**  
VF5□20-□□□□- $\frac{02}{03}$ □  
**Applicable individual EXH spacer assembly**  
DXT156-20-1A  
**Applicable blanking plate assembly**  
DXT156-19-1A

### Bottom ported/Common EXH type Type 40



**VV5F5 - 40 - 05 2 - 02**

Stations	
02	2 stations
:	:
10	10 stations

**Applicable solenoid valve**  
VF5□44-□□□□  
**Applicable individual EXH spacer assembly**  
DXT156-20-3A  
**Applicable blanking plate assembly**  
DXT156-19-2A

VK

VZ

**VF**

VFR

VP4

VZS

VFS

VS4

VQ7

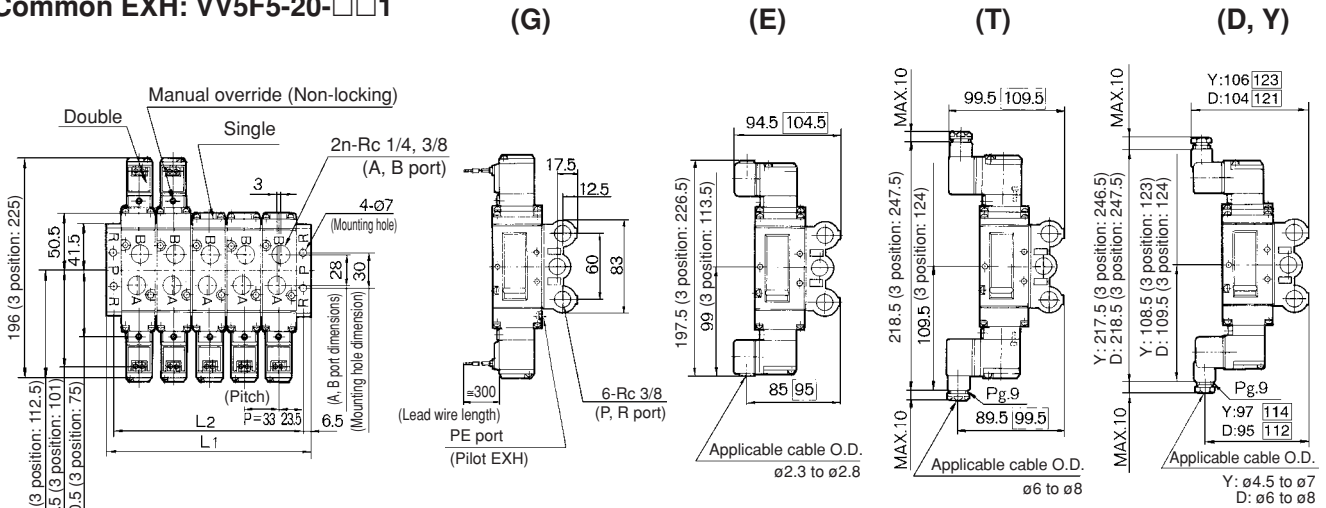
EVS

VFN

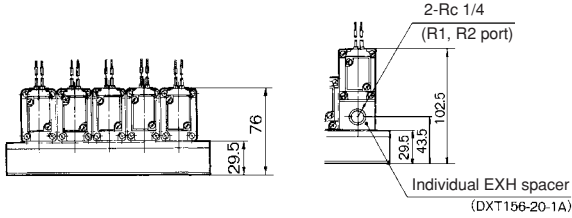
# Series VF5000

## Common EXH: VV5F5-20, VV5F5-21

### Common EXH: VV5F5-20-□□1



### Individual EXH spacer assembly



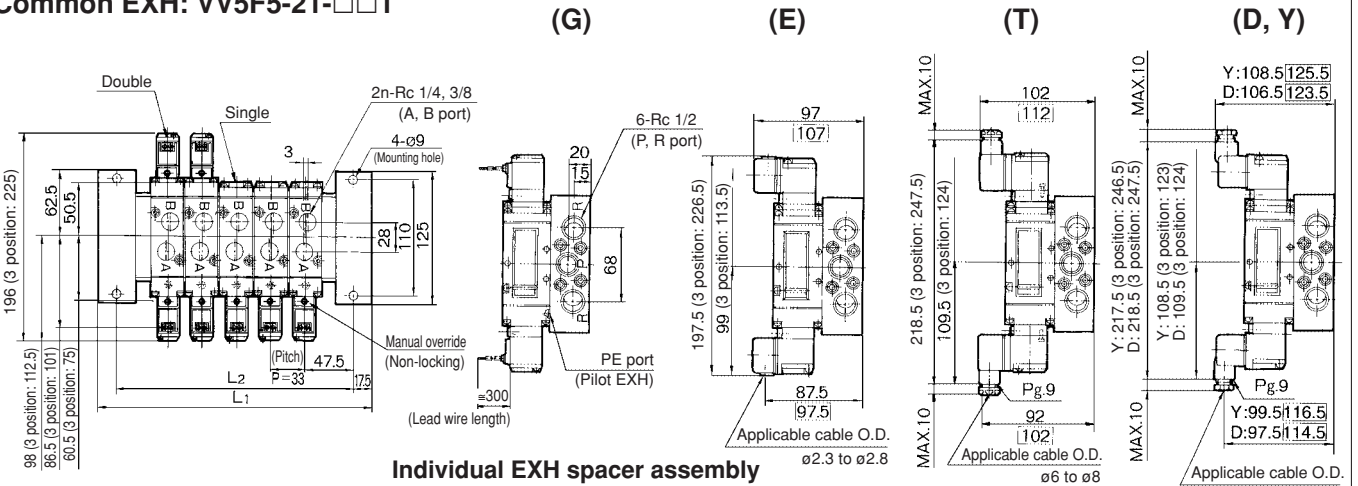
### L Dimension

L	n	n: Stations									
		2	3	4	5	6	7	8	9	10	
L <sub>1</sub>		93	126	159	192	225	258	291	324	357	
L <sub>2</sub>		80	113	146	179	212	245	278	311	344	

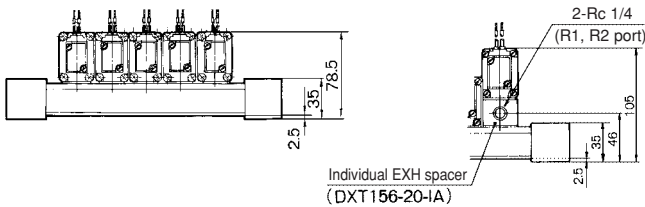


□ : With light/surge voltage suppressor

### Common EXH: VV5F5-21-□□1



### Individual EXH spacer assembly



### L Dimension

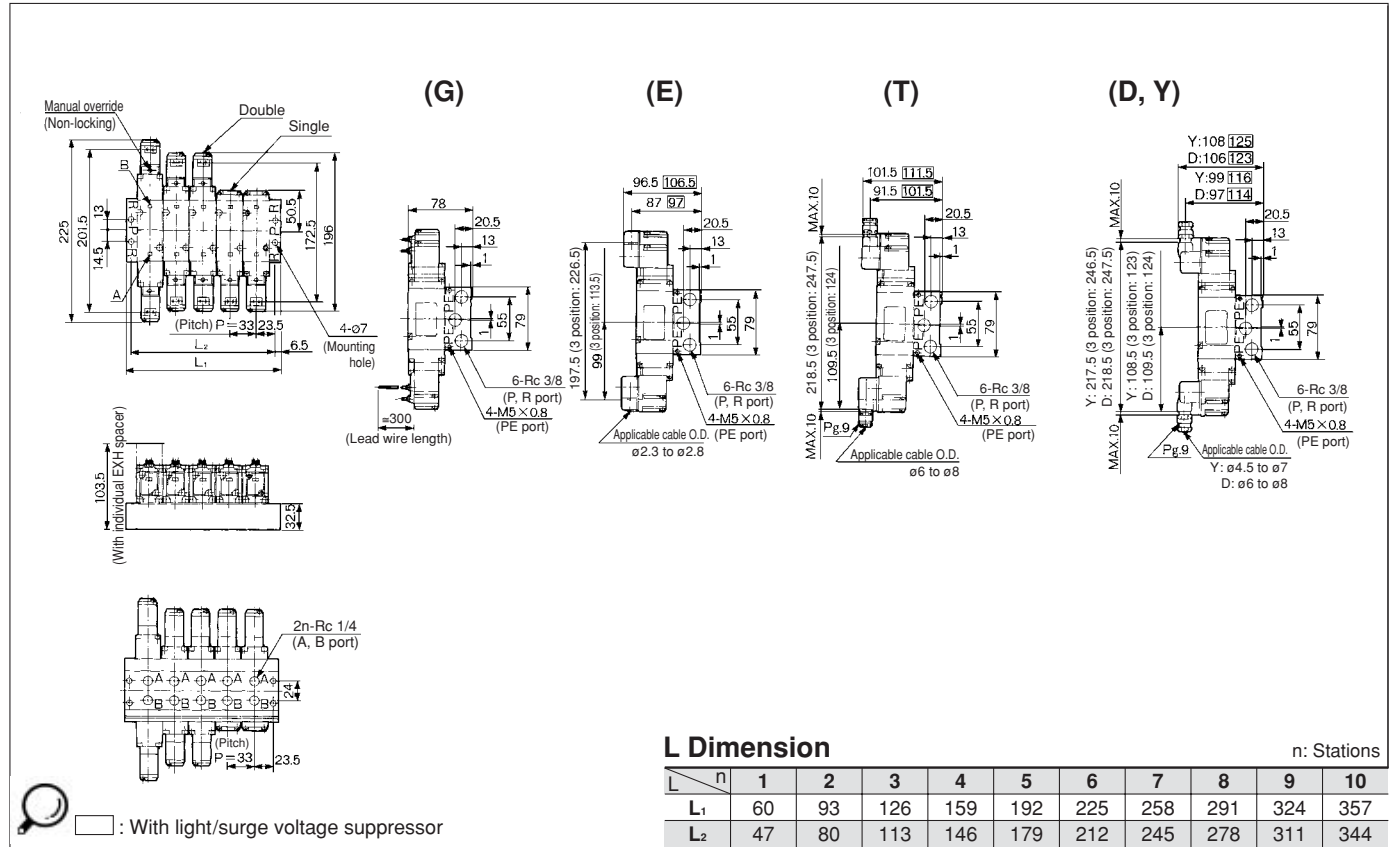
L	n	n: Stations														
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	
L <sub>1</sub>		163	196	229	262	295	328	361	394	427	460	493	526	559	592	
L <sub>2</sub>		128	161	194	227	260	293	326	359	392	425	458	491	524	557	



□ : With light/surge voltage suppressor

# 5 Port Pilot Operated Solenoid Valve Rubber Seal Series VF5000

**Common EXH: VV5F5-40**



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