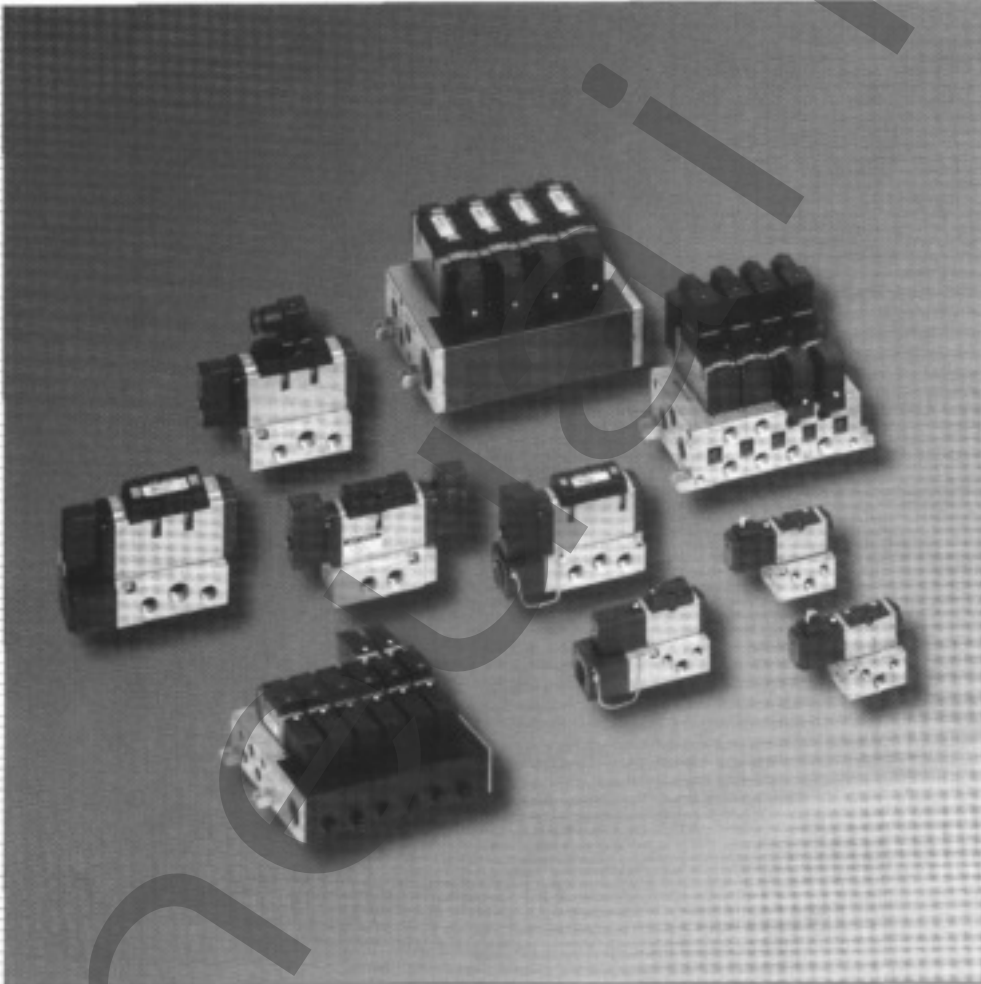


4 Way • 5 Port / Solenoid/Pilot Operated

# *NVFR Series*

Rubber Seal Models 2000/3000/4000



Large Flow Capacity - Cv 0.9 ~ 3.7

Low Power Consumption

Block Type Manifold

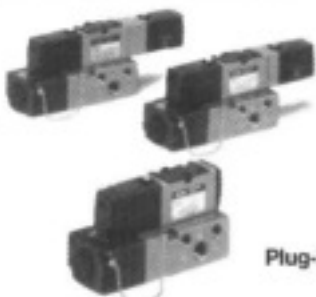
Plug-in and Non Plug-in Styles

Wide Variety of Options and Accessories

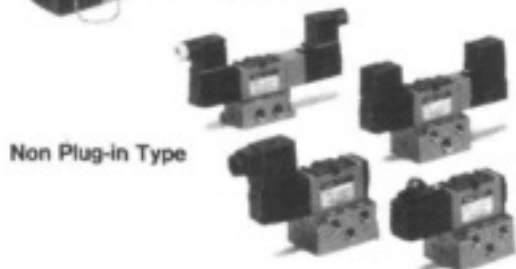
Cv:0.9

# 5 Port Pilot Type/Rubber Seal Series NVFR2000

## Plug-in Type, Non Plug-in Type

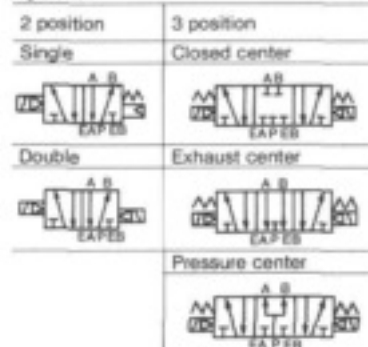


Plug-in Type



Non Plug-in Type

**Symbol**



(Additional functions achieved by using external pilot option).

**Model**

Position/No. of solenoid		Type		Port size (NPT)	Cv factor	Max. Operating cycle CPM	Response time (ms)	Weight lbs (kgf)
		Plug-in	Non Plug-in					
2 position	Single	NVFR2100	NVFR2110	1/8	0.9	300	20 or less	0.75 (0.34)
	Double	NVFR2200	NVFR2210	1/8				
3 position	Closed center	NVFR2300	NVFR2310	1/8	0.7	180	30 or less	0.95 (0.43)
	Exhaust center	NVFR2400	NVFR2410	1/8				
	Pressure center	NVFR2500	NVFR2510	1/8				

※ In case of NVFR2000-OFZ-01T  
† Special Order

**Standard Specifications**

Valve	Fluid	Air	
	Max. operating pressure	130 PSI (9.0kgf/cm <sup>2</sup> )	
	Min. operating pressure	2-pos. pilot	30 PSI (2.0kgf/cm <sup>2</sup> )
		2-pos. dbl.	15 PSI (1.0kgf/cm <sup>2</sup> )
	Ambient and fluid temperature	32 ~ 120°F (0 ~ +50°C)	
	Lubrication	Not required	
	Pilot operator manual override	Non-locking push type (Flush)	
	Protection construction	Dust proof	
	Rated voltage	AC	110VAC <sup>±5%</sup> /50Hz, 220V <sup>±5%</sup> /50Hz, 24V <sup>±5%</sup> /50Hz
		DC	12V, 24V
	Allowable voltage range	-15 ~ +10% rated voltage	
	Coil insulation	Class B or equivalent	
	Apparent power (Power consumption) AC	Inrush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power consumption DC	1.8W	
Electrical entry	Plug-in	Conduit terminal (base access)	
	Non plug-in	Grommet, DIN connector (Conduit terminal, grommet)	

**Optional Specifications\***

Pilot type		Note) External pilot type
Manual override	Pilot operator	Non-locking push type (extended), Lock type (tool), Lock type (lever)
Voltage	AC	100V <sup>±5%</sup> /50Hz, 200V <sup>±5%</sup> /50Hz
	DC	6V, 48V, 100V
Porting	Bottom ported subplate	
Option	With indicator light and surge voltage suppressor	

Note) Operating pressure: 0 ~ 130PSI (0 ~ 9.0kgf/cm<sup>2</sup>)  
Pilot operating pressure 2 position double: 15 ~ 150PSI (1 ~ 9.9kgf/cm<sup>2</sup>)  
2 position single; 3 position: 30 ~ 130PSI (2.0 ~ 9.0kgf/cm<sup>2</sup>)  
\*Some options listed as "Special Order" items.

### How To Order

**Option**

None
Z With indicator light and surge voltage suppressor

**Porting**

Side
WB Bottom

\* 1/8NPTF only

**Port size**

Without subplate	
01T	1/8NPTF Plug-in (With Terminal block std.)
02T	1/8NPTF

\* Bottom ported 1/8 NPTF only  
(See pg. 16 for individual subplate part nos.)

**Body type**

O-Plug in
F-Through base

**Electrical entry**

Non-locking push type (Flush)
B-Lock type (Screw type)
A-Non-locking Push type (Extended)
C-lock type (Lever)

\* Special Order

**Symbol**

2 position single
2 position double
3 position closed center
3 position exhaust center
3 position pressure center

**Body type**

1-Non plug-in
---------------

**Pilot operator**

Internal
R External

\* Special Order

**Voltage**

1 100VAC <sup>1</sup> /Hz
2 200VAC <sup>1</sup> /Hz
3 110VAC <sup>1</sup> /Hz
4 220VAC <sup>1</sup> /Hz
5 24VDC
6 12VDC
9 Others (Note 1)

\* Special Order

Note 1) Indicate in parentheses at end of part no.  
Ex. (AC24V).

**Port size**

Without subplate	
01T	1/8 NPTF Non plug-in
02T	1/8 NPTF

\* Bottom ported 1/8 NPTF only  
(See pg. 16 for individual subplate part nos.)

**Option**

None
Z* With indicator light and surge voltage suppressor
S With surge voltage suppressor

\* Special for grommet type G only  
† Z option N/A for grommet type G

**Electrical entry**

G-Grommet
D-DIN Connector
T-Cordset Terminal
E-Grommet Terminal

\* Special Order

**Plug-in** NVFR2 (2) 00 ( ) ( ) ( ) 5 F ( ) ( ) ( ) 01T

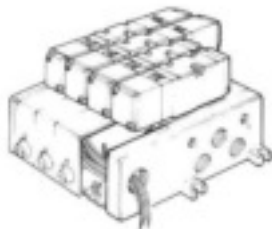
**Non plug-in** NVFR2 (2) 10 ( ) ( ) ( ) 5 D ( ) ( ) ( ) 02T

# Series NVFR2000: Base Mounted Type

## Manifold Specifications

### Plug in Type: Connector with Lead Wire ("wire harness")

● The insert plug is attached to the manifold block and is connected with valve side. Connect leads with corresponding power supply.



**NVV5FR2-01-06 1-01T**

Series NVFR2000 Manifold valve

Plug-in Type Connector with Lead wire (AXT624-52A-D1-3)

Stations ●

02 2 stations

15 15 stations

Port size

Symbol	P, EA, EB	A, B
01T	1/4NPTF	1/8NPTF
02T	1/4NPTF	1/4NPTF

● Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2†			Bottom
* M	Mixed		See pg. 46

● Special Order

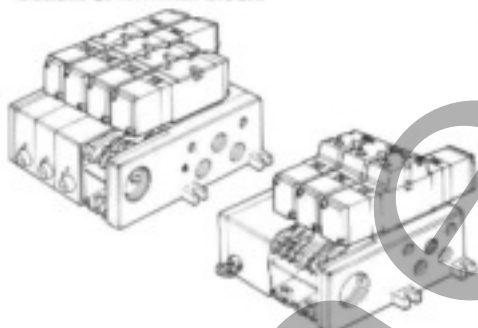
† Bottom porting specification with "02T" is 1/8" P,A,B bottom and 1/4" A,B side. (MBF2612-01-1B; see pg. 16)

Unit type conduit cover: AXT625-2B-3A

Unit type conduit retainer: AXT625-87

### Plug-in Type: With Terminal Blocks

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



**NVV5FR2-01T 1-08 1-02T**

Series NVFR2000 Manifold valve

Plug-in type ● With terminal block

Junction cover / ● classification

— Unit type individual station cover

1 One-pc. type cover

Note: Individual cover part no. above. One-piece type, see pg. 16

Stations ●

02 2 stations

15 15 stations

Port size

Symbol	P, EA, EB	A, B
01T	1/4NPTF	1/8NPTF
02T	1/4NPTF	1/4NPTF

● Symbol

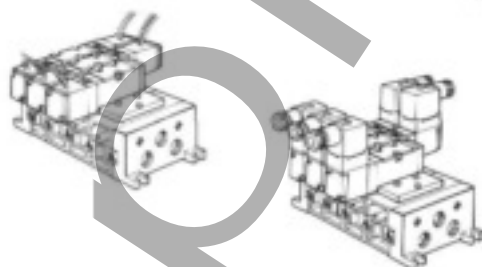
Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2†			Bottom
* M	Mixed		See pg. 46

● Special Order

† Bottom porting specification with "02T" is 1/8" P,A,B bottom and 1/4" A,B side. (MBF2612-01-1A; see pg. 16)

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

● Individual wiring for each valve



**NVV5FR2-10-05 1-01T**

Series NVFR2000 Manifold valve

Non plug-in type ●

Stations ●

02 2 stations

15 15 stations

Port size

Symbol	P, EA, EB	A, B
01T	1/4NPTF	1/8NPTF
02T	1/4NPTF	1/4NPTF

● Symbol

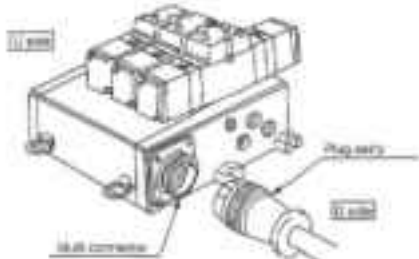
Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2†			Bottom
* M	Mixed		See pg. 46

● Special Order

† Bottom porting specification with "02T" is 1/8" P,A,B bottom and 1/4" A,B side. (MB2612-01-1; see pg. 16)

**Plug-in Type: With Multi-Connector**

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



NVV5FR2 — 01C D — 05 2 — 01T

Series NVFR2000 Manifold valve

Plug-in type • With multi connector

Mounting direction of connector

D	D side mounting
U	U side mounting

Port size •

Symbol	P, EA, EB	A, B
01T	1/4 NPTF	1/4 NPTF
02T	1/4 NPTF	1/4 NPTF

• Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
+2	Common	Common	Bottom

• Solenoid porting: 1/8" or 1/4"

Stations •

02: 2 stations

1: 1

08: 8 stations

• Max: 8 stations

**Plug-in Type: With D-Sub Connector**

- Wide range of interchangeability (MIL. Spec DIN type connector terminal-25 pin.)
- Quick wiring permits ease of installation.

**D-Subconnector for 2000 Series**

Orientation of D-Sub connector for 2000 Series manifold is parallel with mounting surface. For other manifold sizes the connector receptacle is perpendicular to the mounting surface.

NVV5FR2 — 01F U — 06 1 — 01T

Series NVFR2000 Manifold valve

Plug-in type • With D sub connector

Mounting direction of connector

D	D side mounting
U	U side mounting

Port size •

Symbol	P, EA, EB	A, B
01	1/4 NPTF	1/4 NPTF
02	1/4 NPTF	1/4 NPTF

• Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
+2	Common	Common	Bottom

• Solenoid porting: 1/8" or 1/4"

Stations •

02: 2 stations

1: 1

08: 8 stations

• Max: 8 stations

# Series NVFR2000: Base Mounted Type

## Plug-in Type: Serial Interface Manifold

NVV5FR2 — 01SU — 08 1 — 02T — X200

● The use of serial interface technology offers advantages such as reduced wiring, quicker installation time, easier start-up and simplified maintenance.

**Stations**

02	2 stations
:	:
17	17 stations

\* Includes 1 station to mount SI unit.

**\*SI option**

-	For standard **1 type modules
X200	For AB2 module

\*SI module must be ordered separately

**Symbol**

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting: 1/4 only

**Port size**

Symbol	P, EA, EB	A, B
01T	1/4 NPTF	1/4 NPTF
02T	1/4 NPTF	1/4 NPTF

## Series IN313 Serial Interface Modules

IN313 — AB 1

**Protocol**

AB	Allen Bradley
DN	DeviceNet
MB	Mitsubishi
PR	Profibus
TA	Omron

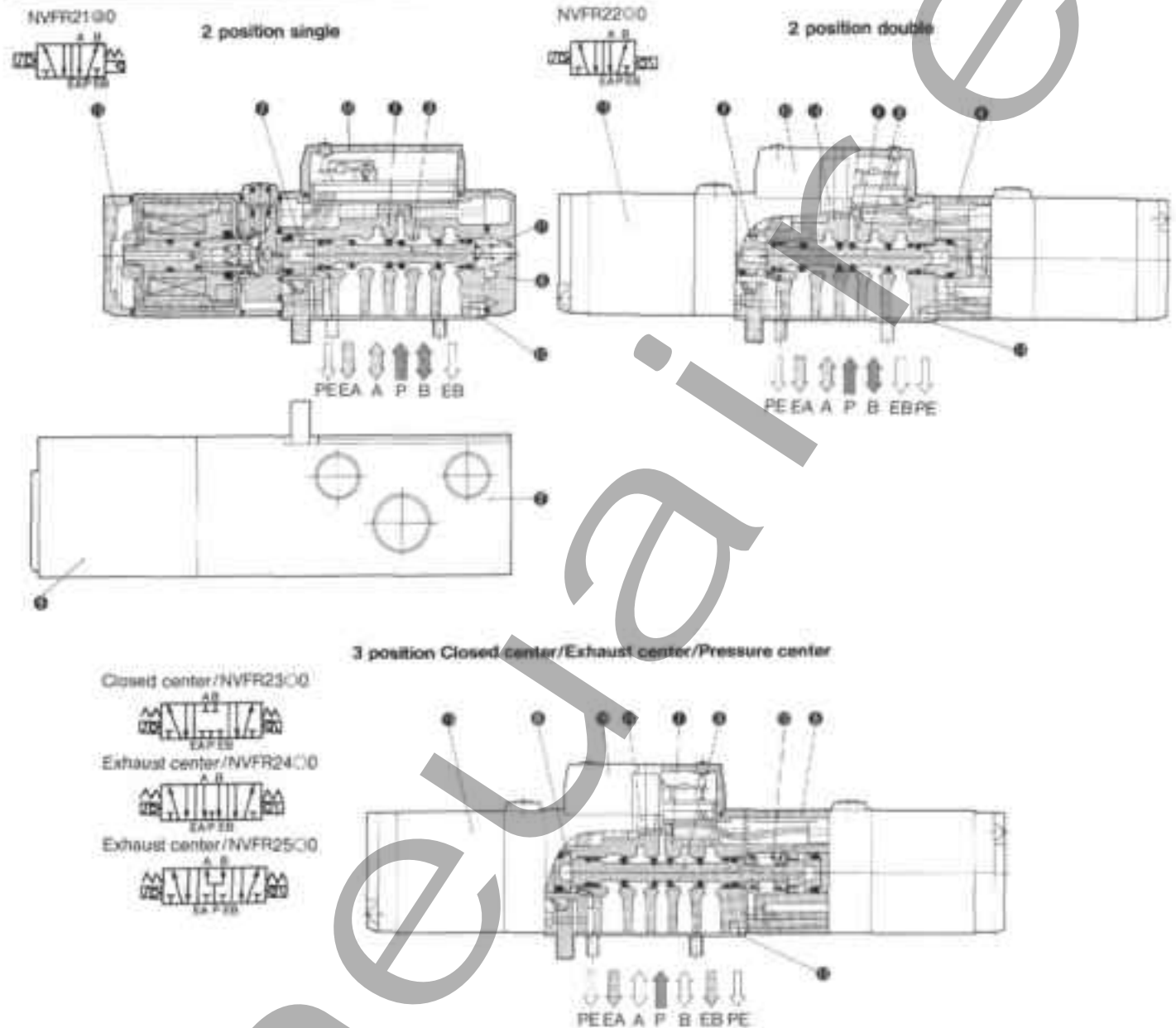
**Output/Inputs**

1	16 outputs
2	32 outputs/32 inputs (Available on Allen Bradley only)

## AB2 Accessories

Part #	Description
VVZR3000-21A-6-X2	D-sub cable with connectors on both ends
EX300-IB1-AB	Input Base Unit
EX300-IE1-AB	Input Expander Unit

Construction/Parts List



Main Parts

No.	Description	Material	Note
1	Body	Aluminum diecast	Platinum silver
2	Subplate	Aluminum diecast	Platinum silver
3	Spool	Aluminum/NBR	
4	Adapter plate	Aluminum diecast	Platinum silver
5	Adapter plate	Aluminum diecast	Platinum silver
6	End plate	Resin	Black

No.	Description	Material	Note
7	Piston	Resin	
8	Piston	Resin	
9	Junction cover	Resin	
10	Light cover	Resin	
11	Spool spring	SUS	
12	Return spring	SUS	

Spare Parts

No.	Description	Material	Part Nos.		
			NVFR2100	NVFR2200	NVFR2300, 2400, 2500
13	Gasket	NBR	AXT624-20-2	AXT624-20-2	AXT624-20-2
14	Valve mounting bolt	Steel	AXT624-26 (M3X31)	AXT624-26 (M3X31)	AXT624-26 (M3X31)
15	Pilot Ass'y	-	Refer to "Pilot Operator Ass'y/How to Order" on page 8.		

Pilot Operator Ass'y/How to Order

SF4-3 DZ 60

• Voltage

- # 1 100VAC $\frac{1}{2}$ Hz
- # 2 200VAC $\frac{1}{2}$ Hz
- # 3 110VAC $\frac{1}{2}$ Hz
- # 4 220VAC $\frac{1}{2}$ Hz
- # 5 24VDC
- # 6 12VDC
- # 9 Others (Note 1)

• Special Order

Note 1) Indicate in parentheses at end of part no. Ex. (AC24V)

• Electrical entry and indicator light and surge voltage suppressor

- |       |  |                  |
|-------|--|------------------|
| F     | Plug-in  | plug-in type     |
| G     | Grommet  |                  |
| † GS  | Grommet with surge voltage suppressor                              |                  |
| D     | DIN connector  |                  |
| DZ    | DIN connector with indicator light and surge voltage suppressor    |                  |
| † DO  | * DIN connector  | Non plug-in type |
| † DOZ | * DIN connector with indicator light and surge voltage suppressor  |                  |
| † T   | Conduit terminal   |                  |
| † TZ  | Conduit terminal with indicator light and surge voltage suppressor |                  |
| † E   | Grommet terminal   |                  |
| † EZ  | Grommet terminal with indicator light and surge voltage suppressor |                  |

\* Without DIN top  
† Special Order

• Valve Series

60 NVFR2000 Series

Manual override / classification

- # A Non-locking push type (Flush type)
- # B Lock type (Screw type)
- # C Lock type (Lever type)
- \* Special Order

Manifold stations vs. Effective Orifice Area (Cv-Factor)

Porting/No. of stations	First station	Fifth station	Tenth station	Fifteenth station
P→A or B	0.72	0.72	0.71	0.70
A→EA, B→EB	0.9	0.9	0.9	0.9

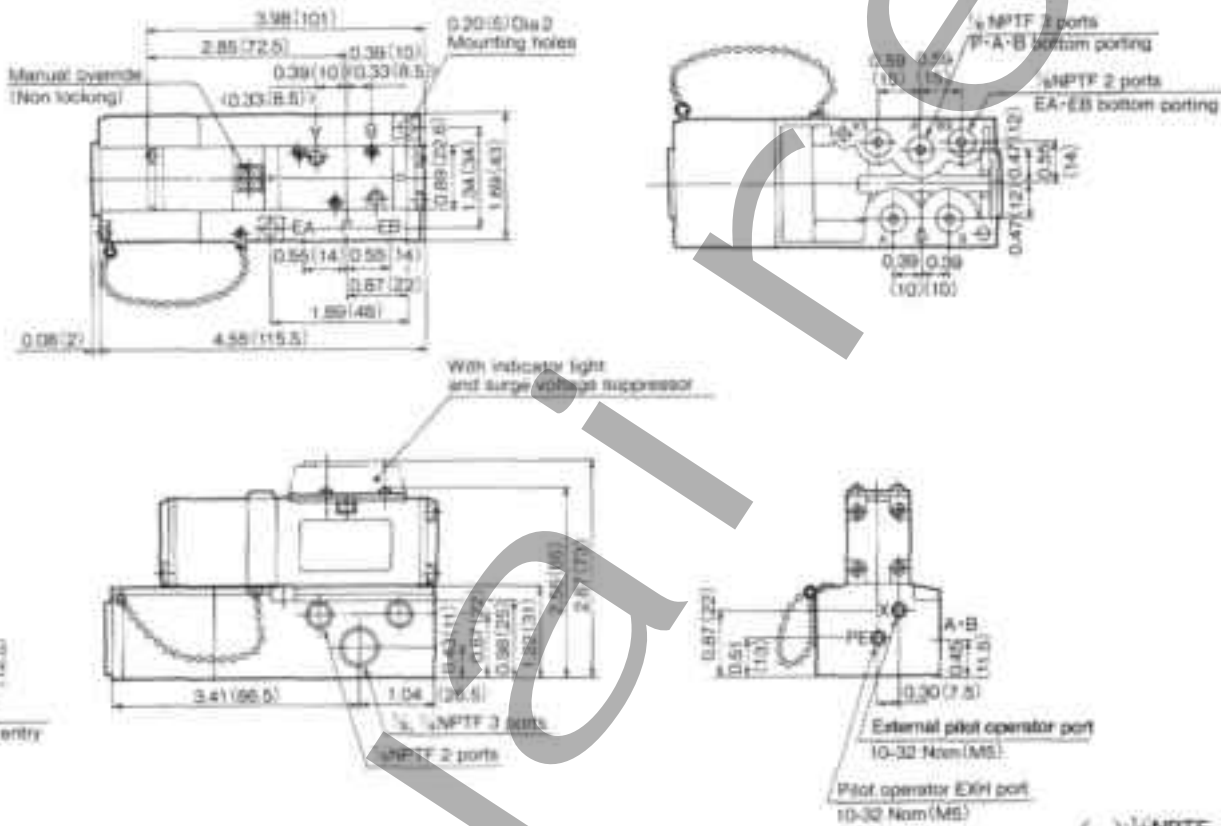
2 position single. Port size:  $\frac{1}{4}$  NPTF



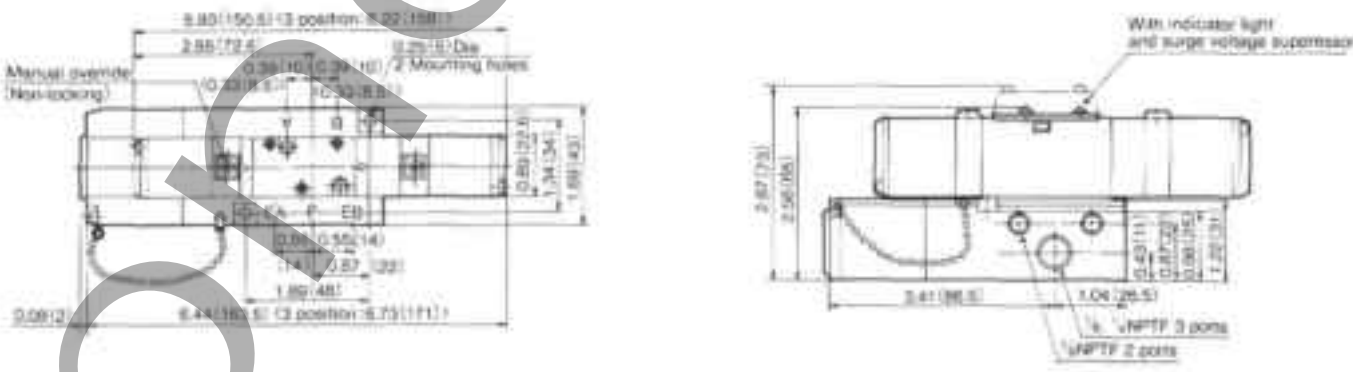
**Plug-in type 2 position single, double, 3 position/Dimensions**

inch (mm)

**2 position single: NVFR2100-OF**



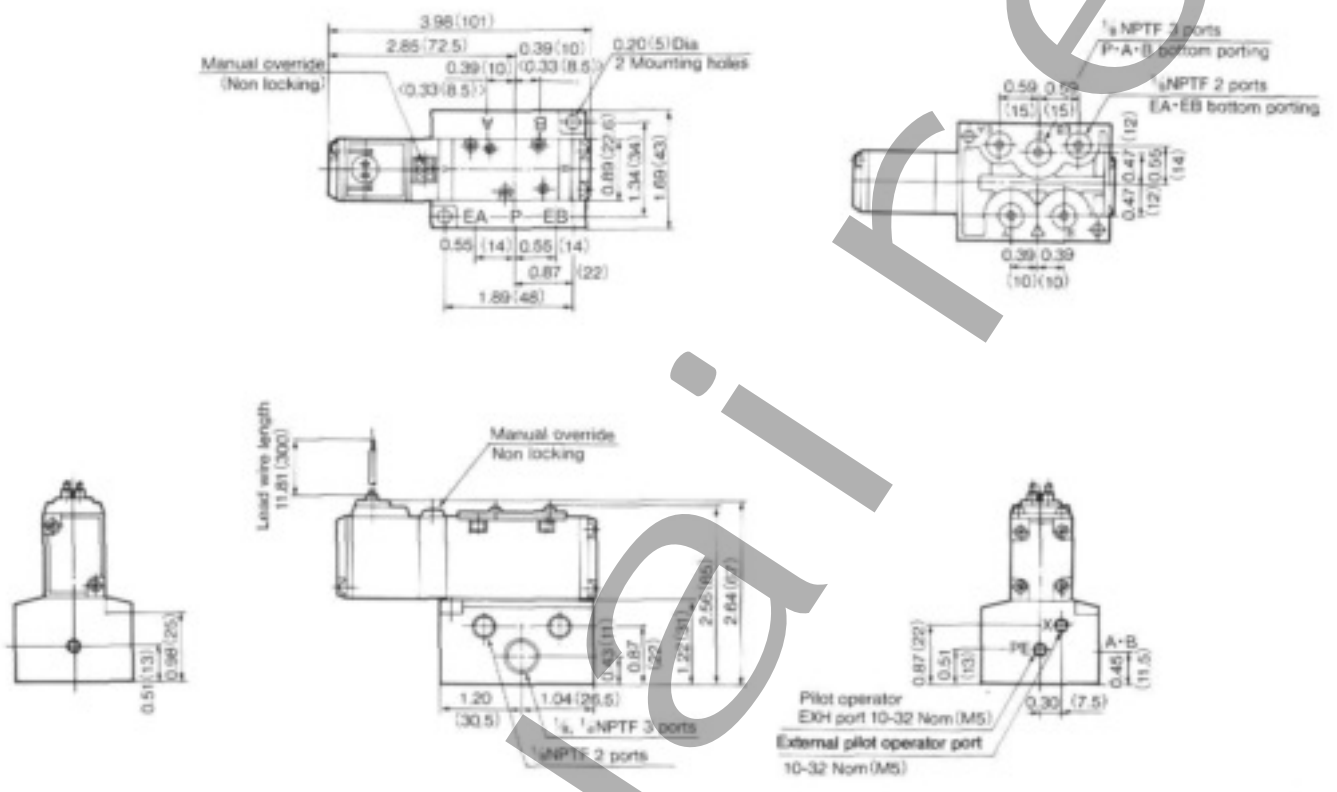
- 2 position double: NVFR2200-OF
- 3 position closed center: NVFR2300-OF
- 3 position exhaust center: NVFR2400-OF
- 3 position pressure center: NVFR2500-OF



Non Plug-in type 2 position single/Dimensions

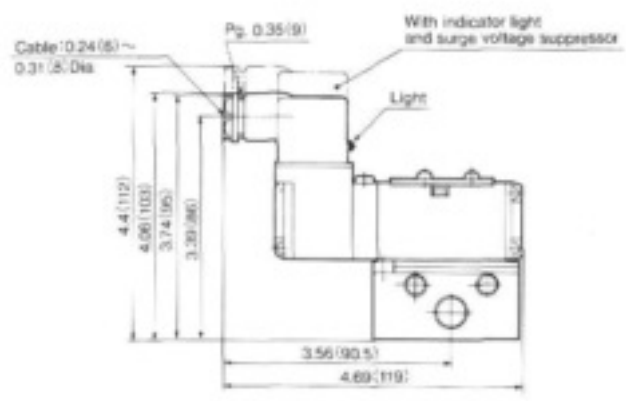
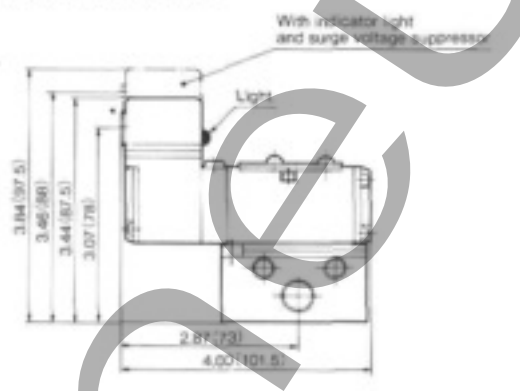
inch (mm)

Grommet:NVFR2110-OG

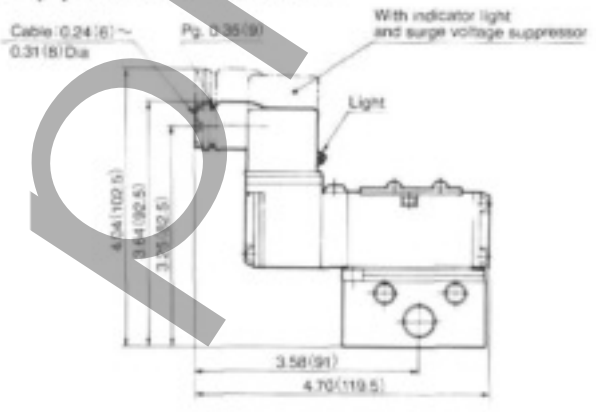


Grommet Terminal:NVFR2110-OE

DIN Connector:NVFR2110-OD



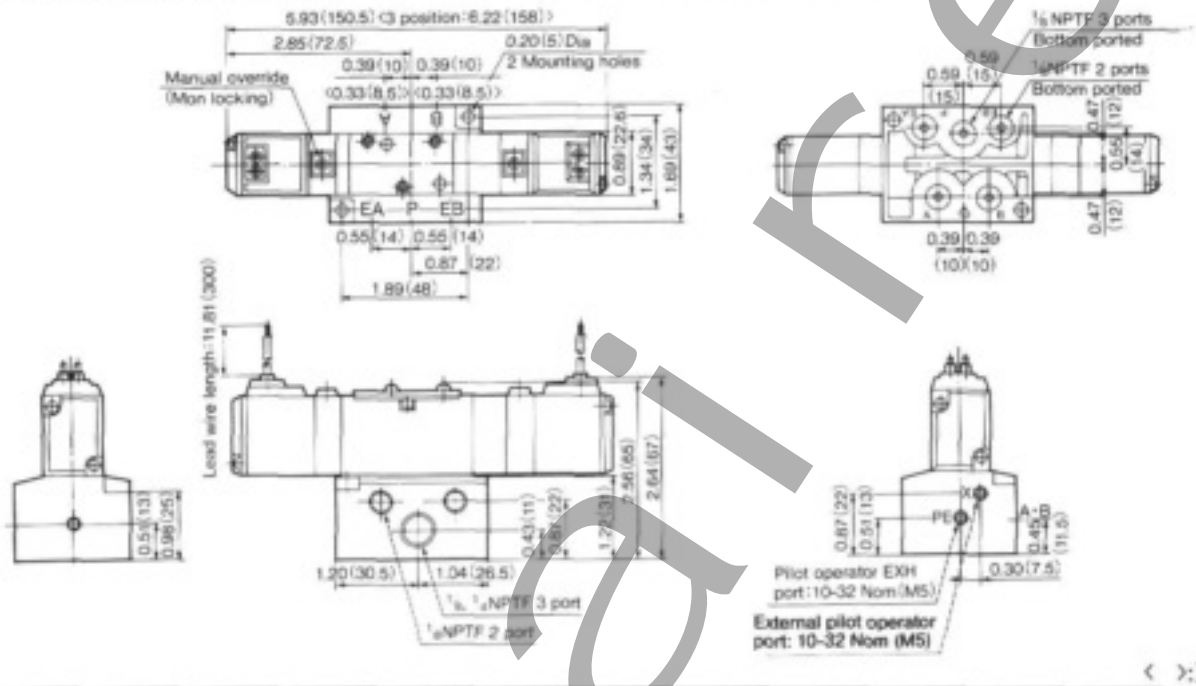
Conduit (1/4) Terminal:NVFR2110-OT



**Non Plug-in type 2 position double, 3 position /Dimensions**

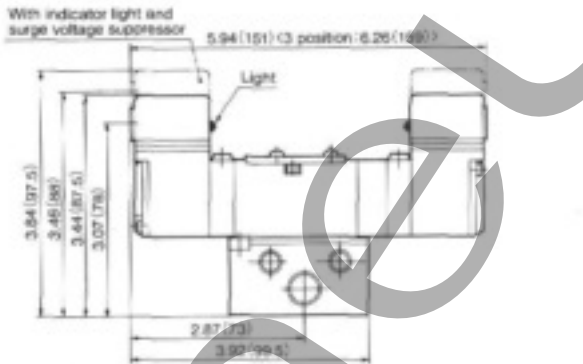
inch (mm)

Grommet: 2 position double/NVFR2210-OG 3 position closed center/NVFR2310-OG  
 3 position exhaust center/NVFR2410-OG 3 position pressure center/NVFR2510-OG

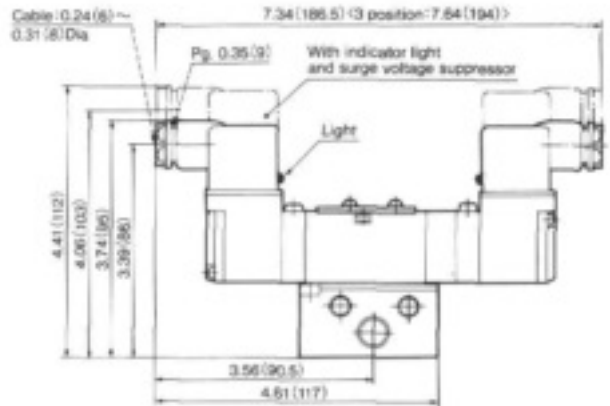


< >: 1/8 NPTF

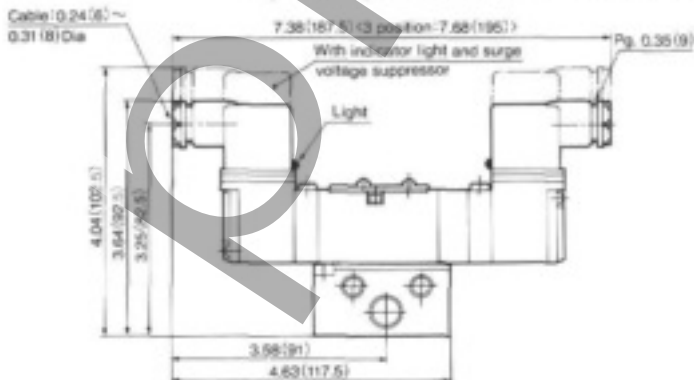
**Grommet Terminal:** 2 position double/NVFR2210-OE  
 3 position closed center/NVFR2310-OE  
 3 position exhaust center/NVFR2410-OE  
 3 position pressure center/NVFR2510-OE



**DIN connector:** 2 position double/NVFR2210-OD  
 3 position closed center/NVFR2310-OD  
 3 position exhaust center/NVFR2410-OD  
 3 position pressure center/NVFR2510-OD



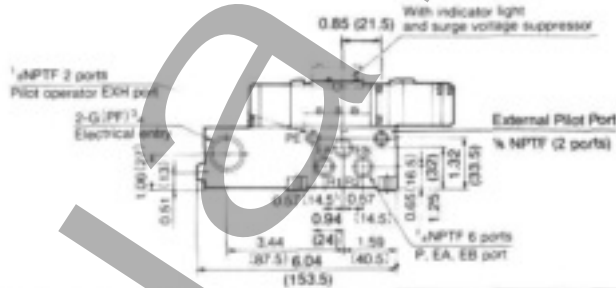
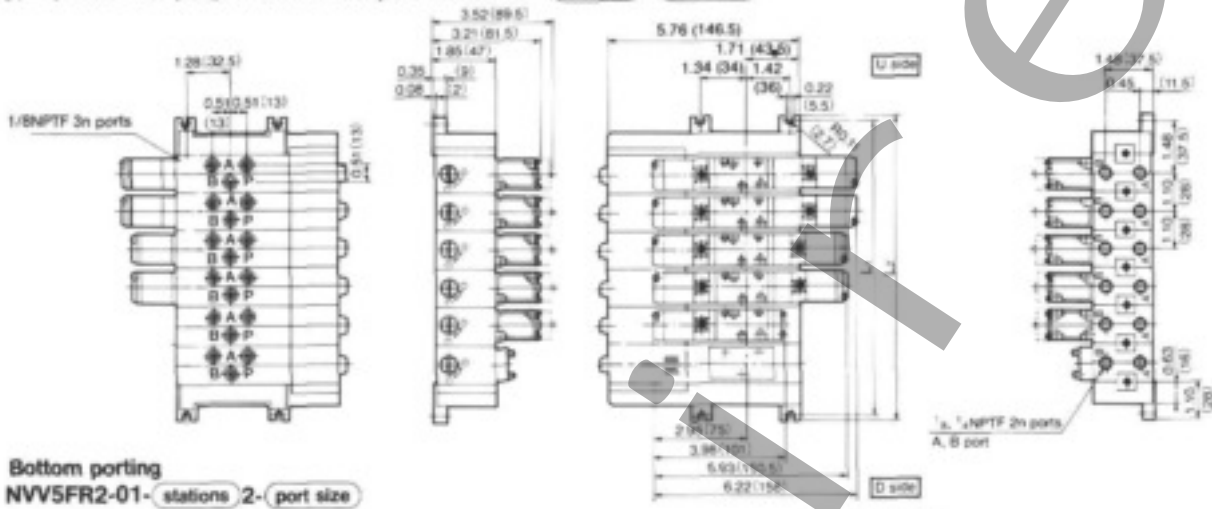
**Conduit (1/4) Terminal:** 2 position double/NVFR2210-OT  
 3 position closed center/NVFR2310-OT  
 3 position exhaust center/NVFR2410-OT  
 3 position pressure center/NVFR2510-OT



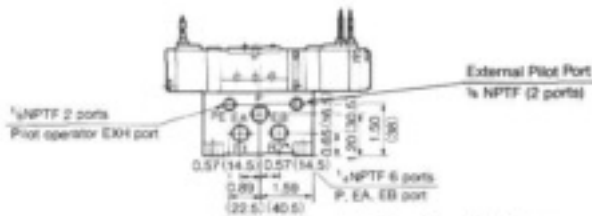
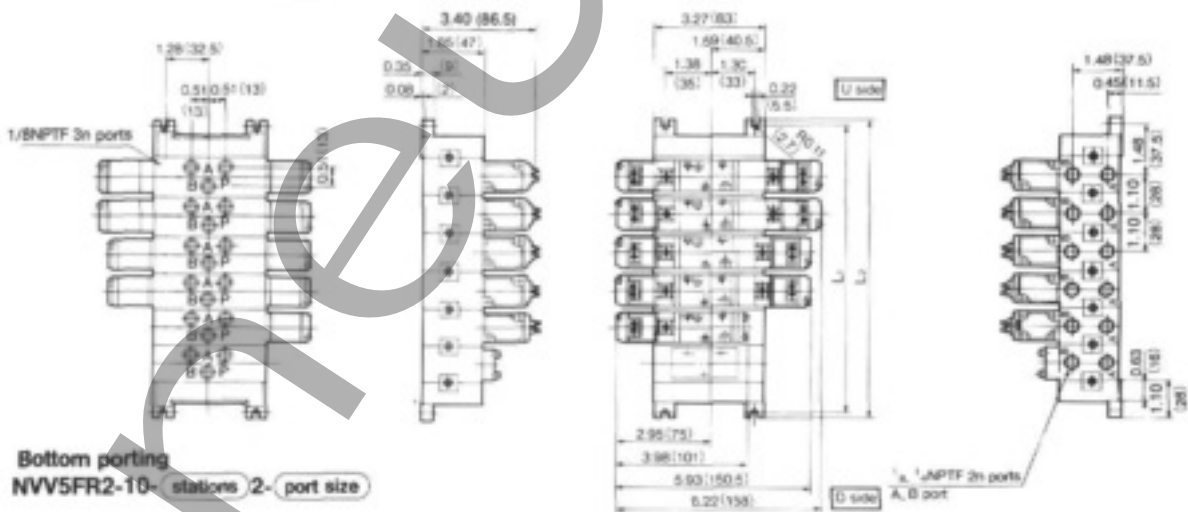
## Manifold Plug-in Type/Non Plug-in Type/Dimensions

inch (mm)

Plug-in type (connector plug with lead wire): NV5FR2-01- stations 1- port size



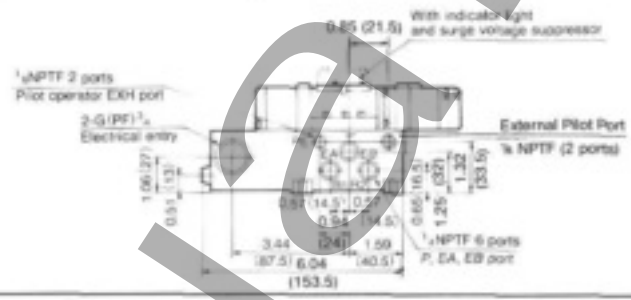
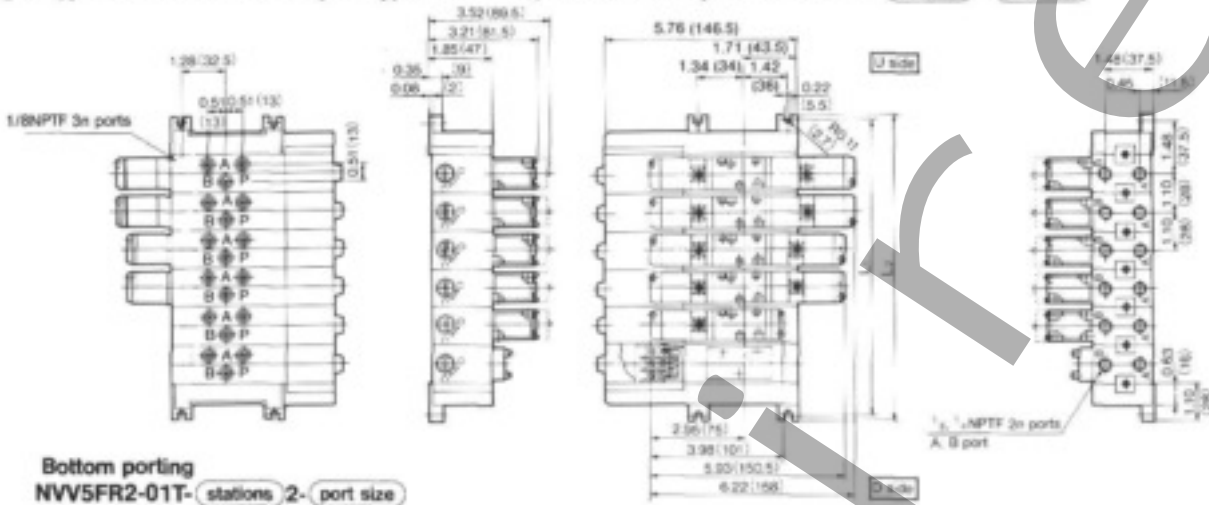
Non plug-in type: NV5FR2-10- stations 1- port size



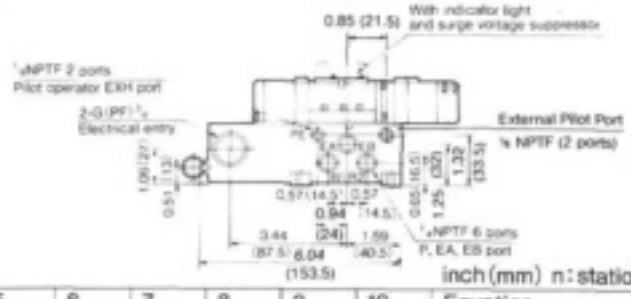
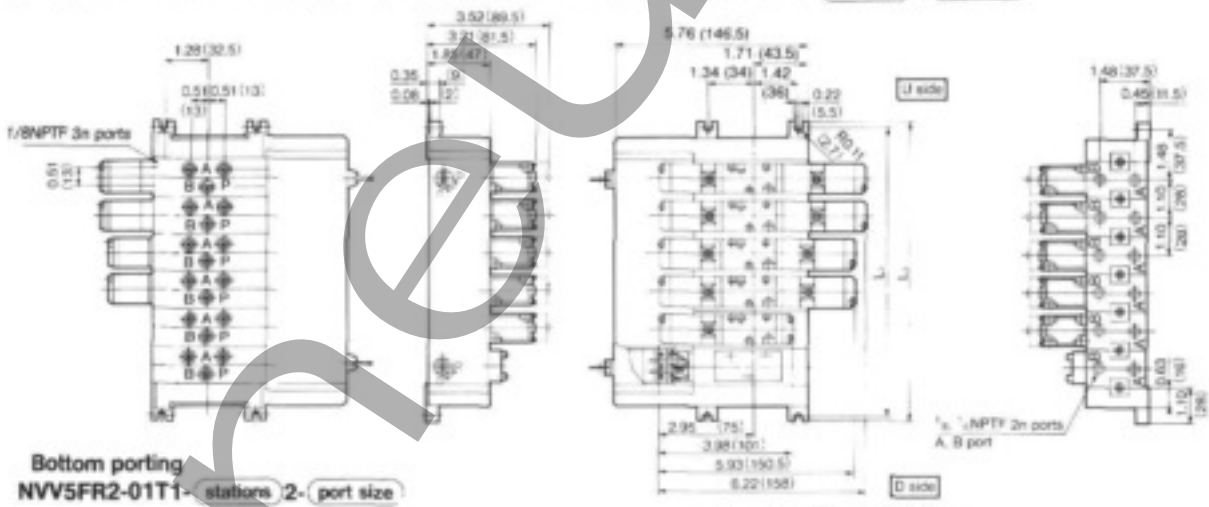
L	station	1	2	3	4	5	6	7	8	9	10	Equation
L <sub>1</sub>		2.95 (75)	4.06 (103)	5.16 (131)	6.26 (159)	7.36 (187)	8.46 (215)	9.57 (243)	10.67 (271)	11.77 (299)	12.87 (327)	L <sub>1</sub> = 1.10 × n + 1.85 (L <sub>1</sub> = 28 × n + 47)
		3.31 (84)	4.41 (112)	5.51 (140)	6.61 (168)	7.72 (196)	8.82 (224)	9.92 (252)	11.02 (280)	12.13 (308)	13.23 (336)	
L <sub>2</sub>		3.31 (84)	4.41 (112)	5.51 (140)	6.61 (168)	7.72 (196)	8.82 (224)	9.92 (252)	11.02 (280)	12.13 (308)	13.23 (336)	L <sub>2</sub> = 1.10 × n + 2.20 (L <sub>2</sub> = 28 × n + 56)

**Manifold Plug-in Type: One-piece type, Unit type of junction cover/Dimensions** inch (mm)

Plug-in type with terminal block (unit type individual junction covers): NVV5FR2-01T- stations 1- port size



Plug-in type with terminal block (one-pc. type junction cover): NVV5FR2-01T1- stations 1- port size



L	station	1	2	3	4	5	6	7	8	9	10	Equation
L <sub>1</sub>		2.95 (75)	4.06 (103)	5.16 (131)	6.26 (159)	7.36 (187)	8.46 (215)	9.57 (243)	10.67 (271)	11.77 (299)	12.87 (327)	L <sub>1</sub> = 1.10 × n + 1.85 (L <sub>1</sub> = 28 × n + 47)
L <sub>2</sub>		3.31 (84)	4.41 (112)	5.51 (140)	6.61 (168)	7.72 (196)	8.82 (224)	9.92 (252)	11.02 (280)	12.13 (308)	13.23 (336)	L <sub>2</sub> = 1.10 × n + 2.20 (L <sub>2</sub> = 28 × n + 56)

**Manifold/Option Parts Ass'y**

**SUP Relocation spacer**

An individual SUP spacer on manifold block can form individual P port for the valve.

Body type	Plug-in type	Non plug-in type
Part No. 1/4NPTF	NVFS2000-P-01T-1	NVFS2000-P-01T-2
Part No. 1/2NPTF	NVFS2000-P-02T-1	NVFS2000-P-02T-2



**EXH gallery block disc**

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to isolate valve exhaust.

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



**Blank plate**

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

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

**Other Options Available:**

(See NVFS Series Catalog)

- Air Shutoff Valve spacer
- Single-check Drop Guard spacer
- Double-check "Perfect" spacer
- Control Unit

**Interface speed control**

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

Body type	Plug-in type	Non plug-in type
Part No.	WFS2000-20A-1	WFS2000-20A-2



**EXH Relocation spacer**

An individual EXH spacer on manifold block can form individual EXH port for the valve.

Body type	Plug-in type	Non plug-in type
Part No. 1/4NPTF	NVFS2000-R-01T-1	NVFS2000-R-01T-2
Part No. 1/2NPTF	NVFS2000-R-02T-1	NVFS2000-R-02T-2



**SUP gallery block disc**

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

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

**Interface regulator**

Spacer type regulating valve on manifold block can regulate the pressure to the valve. Available with standard gauge.

Body type	Plug-in type	Non plug-in type
Pressure Regulation P	NARBF2000-00-P-1	NARBF2000-00-P-2

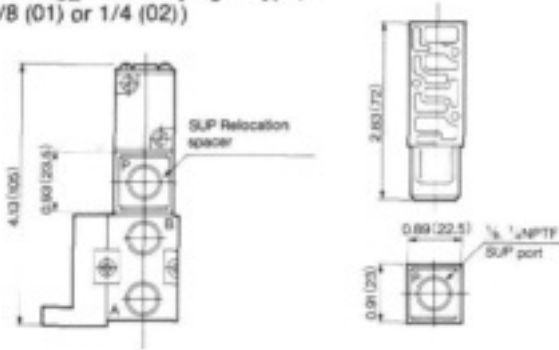


Manifold/Option Parts Plug-in Type/Non Plug-in Type/Dimensions

inch (mm)

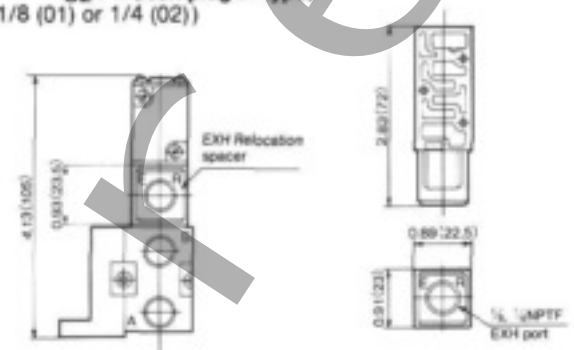
SUP Relocation spacer

NVFS2000-P-0<sup>1</sup>/<sub>2</sub>T-1 (Plug-in type)  
 NVFS2000-P-0<sup>1</sup>/<sub>2</sub>T-2 (Non plug-in type)  
 (Specify 1/8 (01) or 1/4 (02))



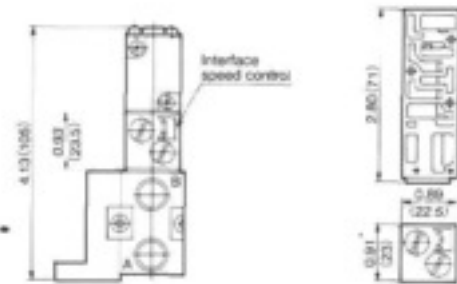
EXH Relocation spacer

NVFS2000-R-0<sup>1</sup>/<sub>2</sub>T-1 (Plug-in type)  
 NVFS2000-R-0<sup>1</sup>/<sub>2</sub>T-2 (Non plug-in type)  
 (Specify 1/8 (01) or 1/4 (02))



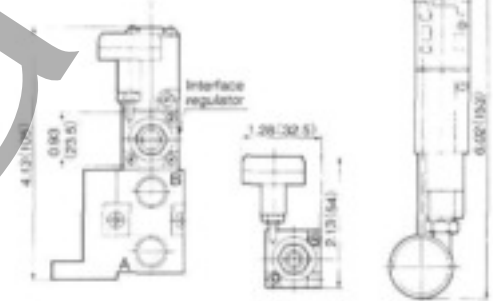
Interface Speed Control

VVFS2000-20A-1 (Plug-in type)  
 VVFS2000-20A-2 (Non plug-in type)

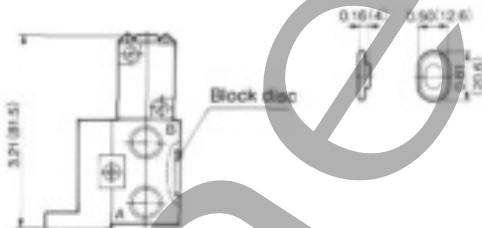


Interface Regulator

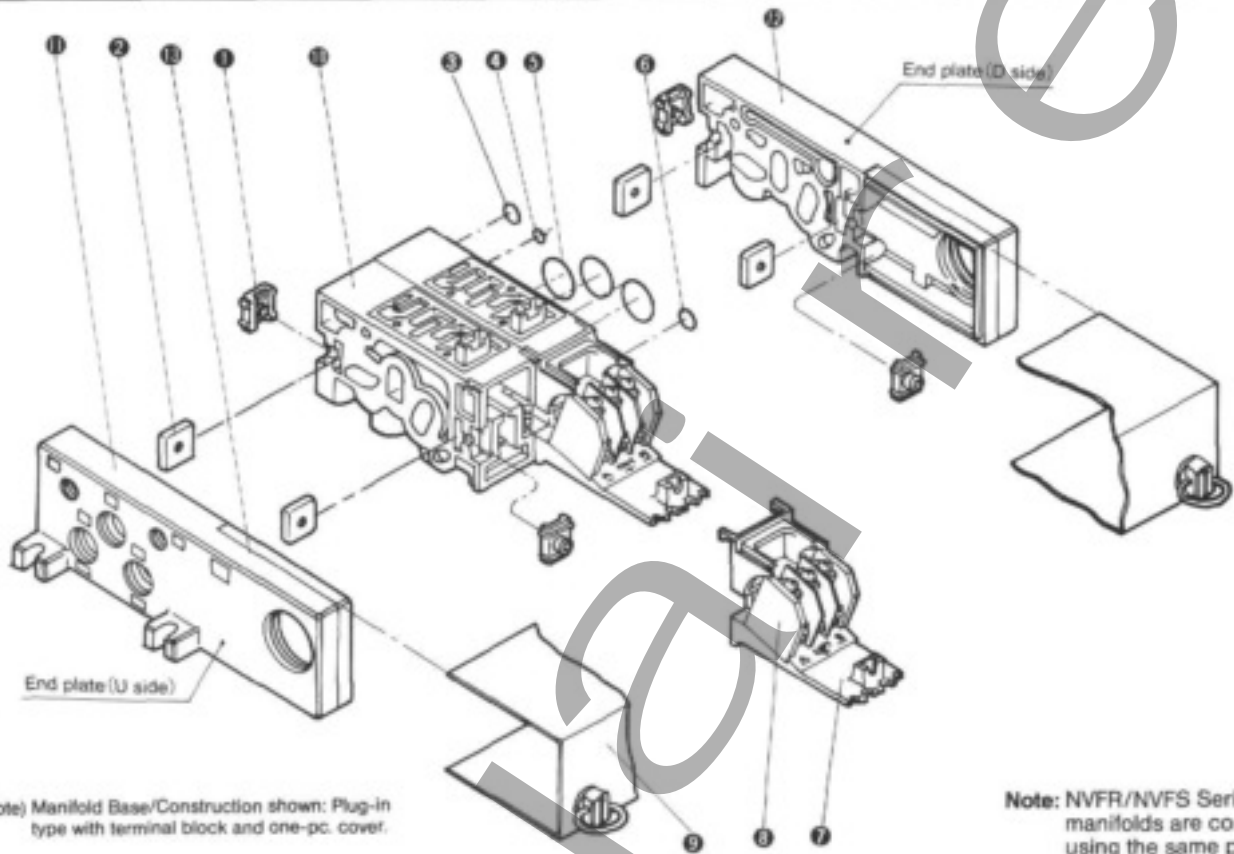
NARBF2000-00-P-1 (Plug-in type)  
 NARBF2000-00-P-2 (Non plug-in type)



SUP/EXH gallery block disc  
 AXT 625-12A



Manifold Base/Construction Plug-in Type/Non Plug-in Type



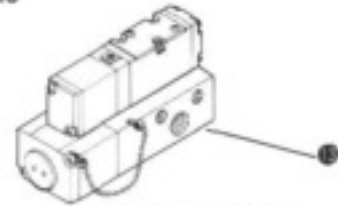
Note) Manifold Base/Construction shown: Plug-in type with terminal block and one-pc. cover.

Note: NVFR/NVFS Series manifolds are constructed using the same parts.

Parts List

No.	Description	Material	Part No.
1	Clamp A	Steel plate	AXT625-4A
2	Clamp B	Steel plate	
3	O-ring	NBR	AXT050-031
4	O-ring	NBR	AXT625-36
5	O-ring (3 req'd)	NBR	AXT625-34
6	O-ring	NBR	AXT625-35
7	Adapter	-	AXT625-26-1
8	Terminal ass'y	-	AXT625-28-2A
9	Conduit cover ass'y	-	NVVF2000-4A- (stations)

Subplate Base  
Cv:0.9



Note) Subplate shown: Plug-in type with terminal.

Main Parts sub-ass'y

No.	Description	Part No. Note)	Component parts	Applicable manifold base	
10	Manifold block ass'y *: 0-side ports A, B 1-1/8 P, A, B bottom 2-1/8 P, A, B bottom w/ (1/4 A, B side)	MBF261*-01-1B	Manifold block 10, Clamp 1, 2, O-ring 3, 4, 5, 6, Adapter 7, Pin housing. Guide. Insert plug lead wire	Plug-in type Connector lead wires	
		MBF261*-01-1A	Manifold block 10, Clamp 1, 2, O-ring 3, 4, 5, 6, Adapter 7, Terminal 8, Pin housing. Guide.	Plug-in type With terminal block	
		MB261*-01-1	Manifold block 10, Metal joint 1, 2, O-ring 3, 4, 5, 6	Non plug-in type	
11	End plate (kit) ass'y	ME263LR-02-1	End plate (U) 11, End plate (D) 12, Clamp 1, 2, O-ring 3, 4, 5, 6, Conduit Plug.	Plug-in type Connector lead wires With terminal block.	
		ME272LR-02-1	End Plate (U) 11, End plate (D) 12, Clamp 1, 2, O-ring 3, 4, 5, 6.	Non plug-in type	
12	Subplate ass'y †	SPF0191-01-02	Plug-in type with terminal block	Non Plug-in type	1/8, 1/4 NPTF Side Ports
		SPF0193-01-02			SP0193-01-02

10 †External pilot type order SPF0191R--\*\*

Note) A,B ports:  
01 (1/8NPTF); 02 (1/4NPTF)

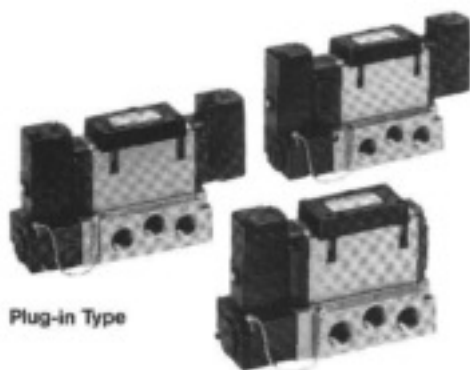


Cv:  $\frac{2.1}{2.3}$

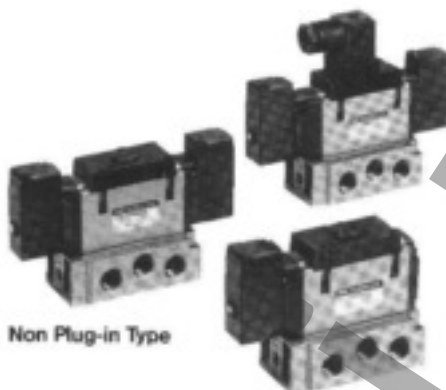
# 5 Port Pilot Type/Rubber Seal Series NVFR3000

## Plug-in Type, Non Plug-in Type

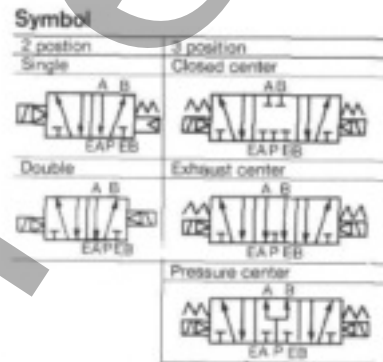
ORDER ONLINE



Plug-in Type



Non Plug-in Type



(Additional function achieved by using external pilot option).

### Model

Position/No. of solenoid		Type		Port size (NPTF)	Cv factor	Max. Operating cycle CPM	Response time (ms)	Weight lbs (kgf)
		Plug-in	Non Plug-in					
2 position	Single	NVFR3100	NVFR3110	$\frac{1}{4}$ $\frac{3}{8}$	2.1 2.3	300	30 or less	0.68 (0.31)
	Double	NVFR3200	NVFR3210	$\frac{1}{4}$ $\frac{3}{8}$	2.1 2.3			
3 position	Closed center	NVFR3300	NVFR3310	$\frac{1}{4}$ $\frac{3}{8}$	1.9 2.0	180	50 or less	0.95 (0.43)
	Exhaust center	NVFR3400	NVFR3410	$\frac{1}{4}$ $\frac{3}{8}$	1.9 2.0			
	Pressure center	NVFR3500	NVFR3510	$\frac{1}{4}$ $\frac{3}{8}$	2.2 2.3			

\* The figures listed are without subplate. In case of plug-in subplate or non plug-in subplate, and 0.65 lbs., and 0.59 lbs. respectively.  
† Special Order

### Standard Specifications

Valve	Fluid	Air	
	Max. operating pressure	130 PSI (9.0kgf/cm <sup>2</sup> )	
	Min. operating pressure	30 PSI (2.0kgf/cm <sup>2</sup> )	
	Ambient and fluid temperature	32 ~ 120°F (0 ~ +50°C)	
	Lubrication	Not required	
	Pilot operator manual override	Non-locking push type (Flush)	
Electrical	Protection construction	Dust proof	
	Rated voltage	AC	110V <sup>50</sup> Hz 220V <sup>50</sup> Hz, 24V <sup>50</sup> Hz
		DC	12V, 24V
	Allowable voltage range	-15 ~ +10% rated voltage	
	Coil insulation	Class B or equivalent	
	Apparent power (Power consumption)	Inrush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power consumption DC	1.8W	
	Electrical entry	Plug-in	Conduit terminal (base access)
		Non plug-in	DIN connector, Grommet terminal

### Optional Specifications\*

Pilot type		Note) External pilot type
Manual override	Pilot operator	Non-locking push type (extended), Lock type (screw), Lock type (lever)
Voltage	AC	100V <sup>50</sup> Hz, 200V <sup>50</sup> Hz
	DC	6V, 48V, 100V
Porting	Bottom ported subplate	
Option	With indicator light and surge voltage suppressor	

Note) Operating pressure: 0 ~ 130PSI (0 ~ 9.0kgf/cm<sup>2</sup>)  
Pilot operating pressure: 30 ~ 130PSI (2 ~ 9.0kgf/cm<sup>2</sup>)  
\*Some options listed as "Special Order" items.

# Series NVFR3000: Base Mounted Type

## How to Order

**Body type**

- O-Plug in
- F-Through base

**Porting**

- Side
- B Bottom
- Special order

**Port size**

—	Without subplate
02T	1/4 NPTF
*03T	3/8 NPTF

\* Not available for bottom ported.  
(See pg. 28 for individual subplates)

**Plug-in**

NVFR3 1 0 0 3 F 02T

**Non Plug-in**

NVFR3 2 1 1 4 D 02T

**Symbol**

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

**Option**

—	Note
Z	With indicator light and surge voltage suppressor

**Pilot operator manual override/ classification**

—	Non-locking push type (Flush)
A	Non-locking push type (Extended)
B	Lock type (Screw type)
C	Lock type (Lever type)

\* Special Order

**Manual option**

D	Standard
*1	Std. + Direct-manual
*	Special order

**Electrical entry**

E	Grommet terminal
D	DIN Connector

**Body type**

- 1—Non plug-in

**Voltage**

*1	100VAC $\pm$ 5% $\pm$ 10%HZ
*2	200VAC $\pm$ 5% $\pm$ 10%HZ
*3	110VAC $\pm$ 5% $\pm$ 10%HZ
*4	220VAC $\pm$ 5% $\pm$ 10%HZ
*5	24VDC
*6	12VDC
*9	Others Note 1)

\* Special order  
Note 1) indicate in parentheses at end of part no.  
Ex. (AC24V).

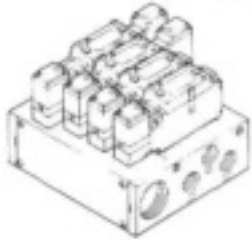
**Pilot operator**

—	Internal
*R	External
*	Special order

## Manifold Specifications

### Plug-in Type: With Terminal Blocks

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



**NVV5FR3 - 01T - 06 1 - 02T**

Series NVFR3000  
 Manifold valve

Plug-in type\*  
 With terminal block

• Port size

Symbol	P, EA, EB
02T	1/4NPTF
03T	3/8NPTF

Bottom ported 1/4NPTF only.

• Porting Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2			Bottom
* M	Mixed		See pg. 46

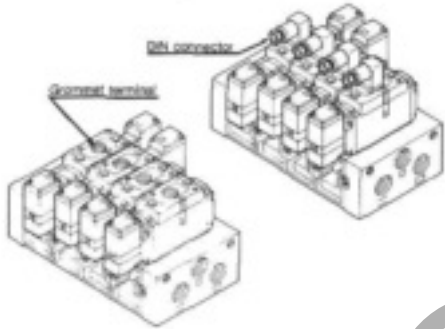
\* Special Order

Stations\*

02	2 stations
...	...
10	10 stations

### Non Plug-in Type: Grommet Terminal / DIN Connector

• Individual wiring for each valve



**NVV5FR3 - 10 - 05 1 - 02T**

Series NVFR3000  
 Manifold valve

Non plug-in type\*

• Port size

Symbol	P, EA, EB
02T	1/4NPTF
03T	3/8NPTF

Bottom ported 1/4NPTF only.

• Porting Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2			Bottom
* M	Mixed		See pg. 46

\* Special Order

Stations\*

02	2 stations
...	...
10	10 stations

See "How to Order Manifold Assemblies," pg. 46

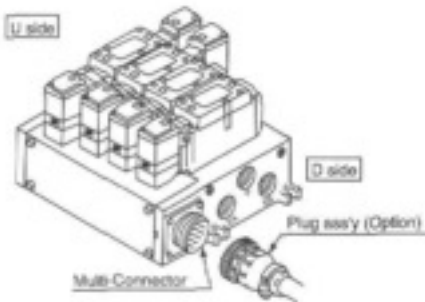
## Manifold Specifications

Base mounted type	Wiring	Porting specifications	Port size		No. of Stations	Applicable solenoid valve
		A,B port	PEA,EB	A,B		
Plug-in type NVV5FR3-01T	With terminal blocks	Side, Bottom	1/2 NPTF	1/4, 3/8 NPTF	2-10	NVFR3000-OF
Non plug-in type NVV5FR3-10	DIN Connector Grommet terminal				2-10	NVFR3010-OD NVFR3010-OE

# Series NVFR2000: Base Mounted Type

## Plug-in Type: With Multi-Connector

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



NVV5FR3 — 01C D — 05 1 — 02T

Series NVFR3000 Manifold valve

Plug-in type  
With multi connector

Mounting direction  
of connector

D	D side mounting
U	U side mounting

● Port size

Symbol	P,EA,EB	A,B
02T	1/2 NPTF	1/4 NPTF
03T	1/2 NPTF	3/8 NPTF

● Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting: 1/4 only

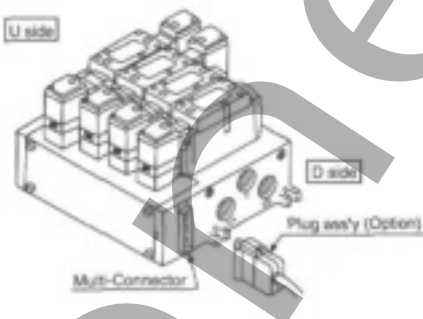
● Stations

02	2 stations
:	:
08	8 stations

\* Max: 8 stations

## Plug-in Type: With D-Sub Connector

- Wide range of interchangeability (MIL Spec DIN type connector terminal 25 pin.)
- Quick wiring permits ease of installation.



NVV5FR3 — 01F D — 06 1 — 02T

Series NVFR3000 Manifold valve

Plug-in type  
With D-sub connector

Mounting direction  
of connector

D	D side mounting
U	U side mounting

● Port size

Symbol	P,EA,EB	A,B
02T	1/2 NPTF	1/4 NPTF
03T	1/2 NPTF	3/8 NPTF

● Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting: 1/4 only

● Stations

02	2 stations
:	:
06	8 stations

\* Max: 8 stations

**Plug-in Type: Serial Interface Manifold**

**NVV5FR3 — 01SU — 08 1 — 02T — X200**

• The use of serial interface technology offers advantages such as reduced wiring, quicker installation time, easier start-up and simplified maintenance.

**Stations •**

02	2 stations
:	:
*11	11 stations

\* Includes 1 station to mount SI unit.

**Symbol •**

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting, 1/2 only

**\*SI option**

-	For standard **1 type modules
X200	For AB2 modules

\*SI module must be ordered separately

**Port size**

Symbol	P, EA, EB	A, B
02T	1/2 NPTF	1/4 NPTF
03T		3/8 NPTF

**Series IN313 Serial Interface Modules**

**IN313 — AB 1**

**Protocol •**

AB	Allen Bradley
DN	DeviceNet
MB	Mitsubishi
PR	Profibus
TA	Omron

**Output/Inputs**

1	16 outputs
2	32 outputs/32 inputs (Available on Allen Bradley only)

**AB2 Accessories**

Part #	Description
VVZR3000-21A-6-X2	D-sub cable with connectors on both ends
EX300-IB1-AB	Input Base Unit
EX300-IE1-AB	Input Expander Unit

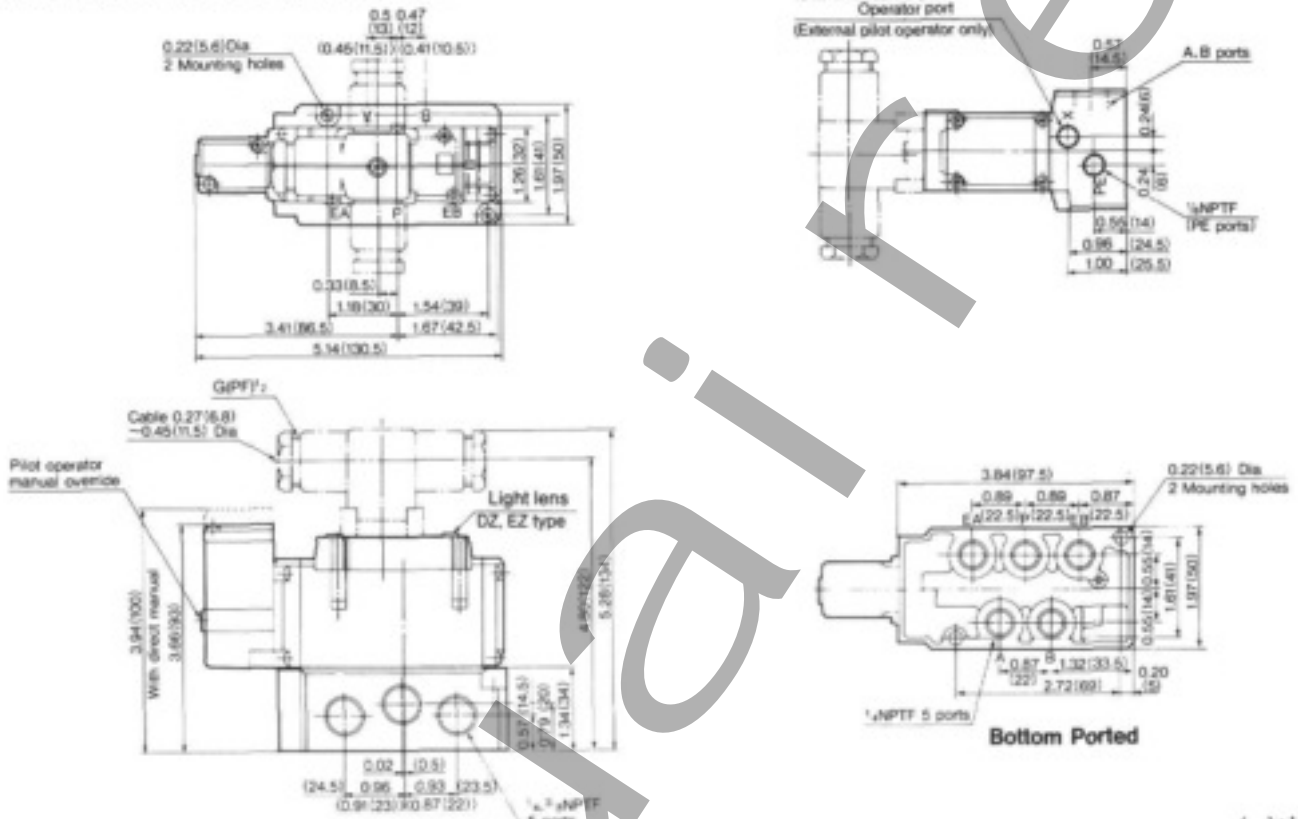
# Series NVFR3000: Base Mounted Type

ORDER  
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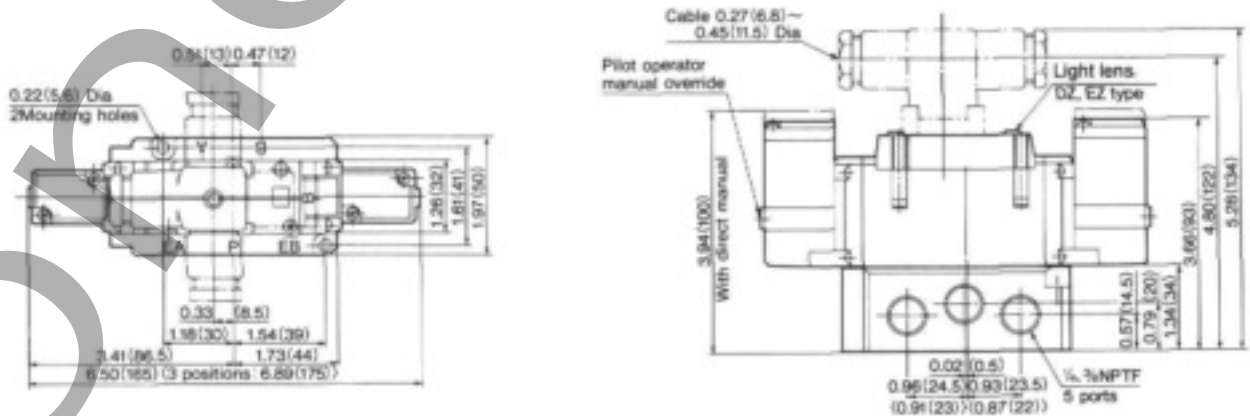
## Non plug-in type 2 position single, double, 3 position / Dimensions

inch (mm)

### 2 position single: NVFR3110-○E, NVFR3110-○D



- 2 position double: NVFR3210-○E, NVFR3210-○D
- 3 position closed center: NVFR3310-○E, NVFR3310-○D
- 3 position exhaust center: NVFR3410-○E, NVFR3410-○D
- 3 position pressure center: NVFR3510-○E, NVFR3510-○D



( ) : 1/4 NPTF

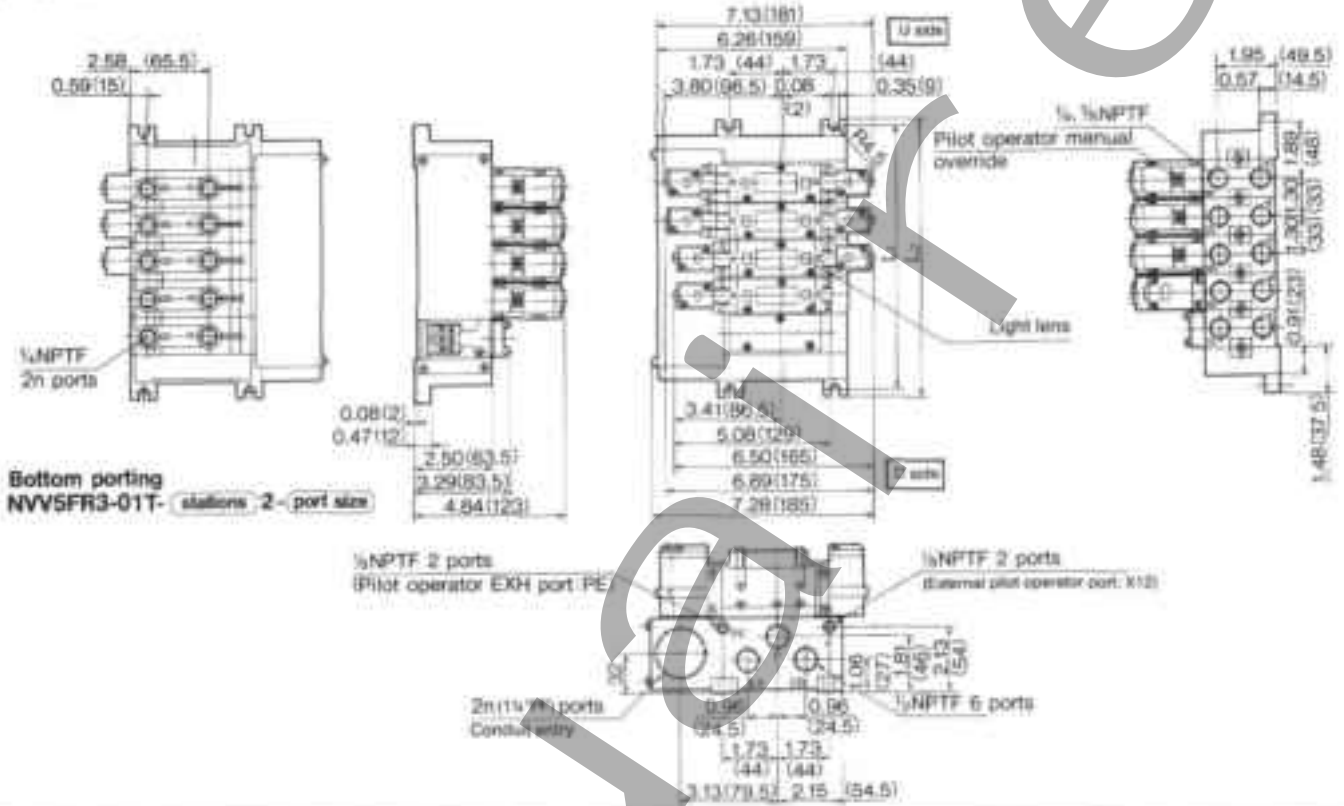
( ) : 1/4 NPTF

ORDER  
ONLINE

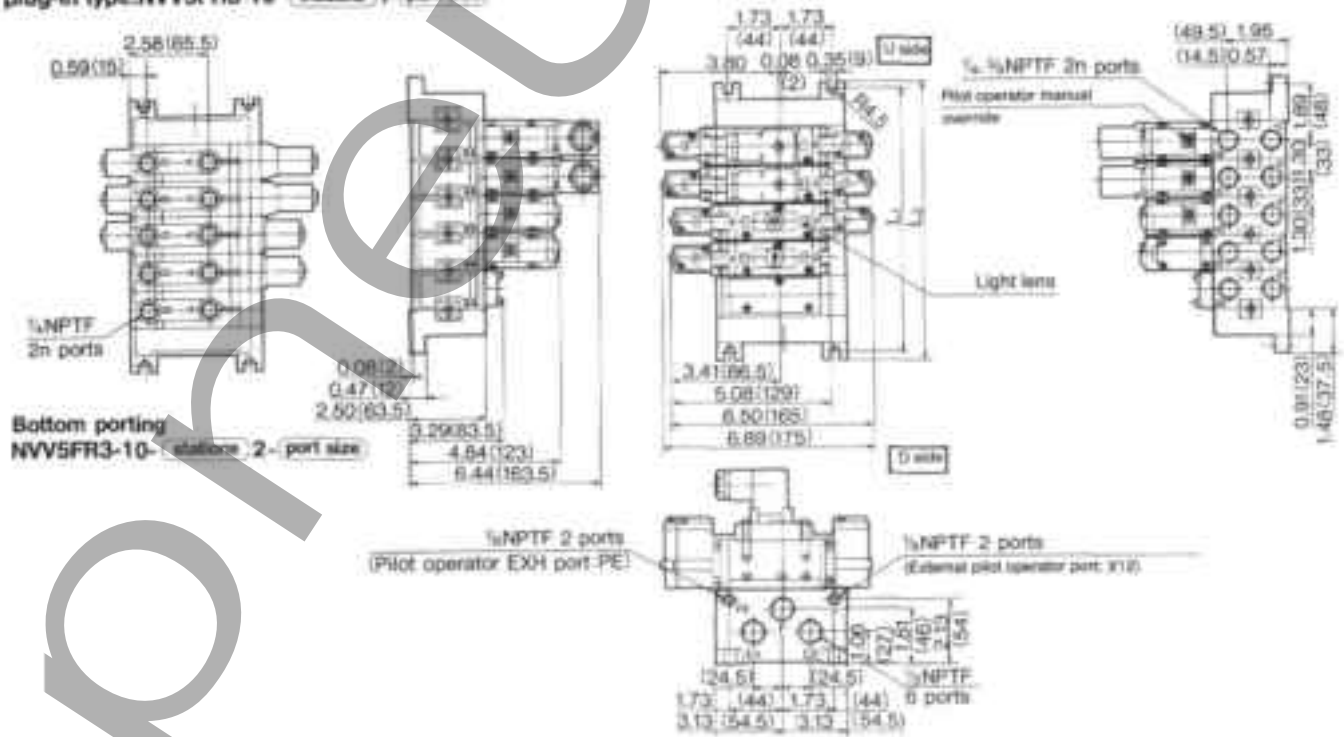
Manifold Plug-in Type / Non Plug-in Type / Dimensions

inch (mm)

Plug-in type (with terminal block): NVV5FR3-01T- stations / 1- port size



Non plug-in type: NVV5FR3-10- stations / 1- port size



inch (mm), n: stations

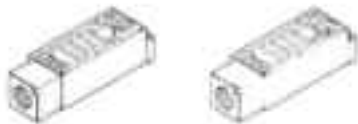
n	2	3	4	5	6	7	8	9	10	Equation
$L_1$	5.08 (129)	6.36 (162)	7.66 (195)	8.98 (228)	10.28 (261)	11.57 (294)	12.87 (327)	14.17 (360)	15.47 (393)	$L_1 = 1.30 \times n + 2.48$ $(L_1 = 33 \times n + 63)$
$L_2$	5.55 (141)	6.85 (174)	8.15 (207)	9.45 (240)	10.75 (273)	12.05 (306)	13.35 (339)	14.65 (372)	15.94 (405)	$L_2 = 1.30 \times n + 2.95$ $(L_2 = 33 \times n + 75)$

**Manifold/Option Parts**

**SUP Relocation spacer**

An individual SUP spacer on manifold block can form individual P port for the valve.

Body type	Plug-in type	Non plug-in type
Part No.	NVFR3000-P-03T-1	NVFR3000-P-03T-2



**EXH gallery block disc**

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Part No.	AZ703-59A	



**Interface regulator**

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type	Non plug-in type
Pressure station 1	NARBF3050-NG-F-1	NARBF3050-NG-F-2
Pressure station 2	NARBF3050-NG-A-1	NARBF3050-NG-A-2
Pressure station 3	NARBF3050-NG-B-1	NARBF3050-NG-B-2

Note: For pressure vent type valves, use pin NARBF3000.



**EXH Relocation spacer**

An individual EXH spacer on the manifold block can form individual R port for the valve.

Body type	Plug-in type	Non plug-in type
Part No.	NVFR3000-R-03T-1	NVFR3000-R-03T-2



**Interface Speed Control**

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

Body type	Plug-in type	Non plug-in type
Part No.	WFS3000-20A-1	WFS3000-20A-2



**Blank plate**

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

Body type	Plug-in type	Non plug-in type
Part No.	VVF53000-10A	

**SUP gallery block disc**

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part No.	AZ703-59A	



Inch (mm)

*Manifold / Option Parts Plug-in Type / Non Plug-in Type / Dimensions*

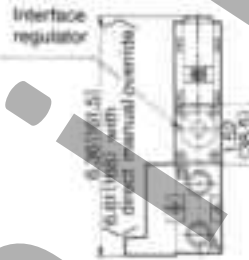
**SUP Relocation spacer**

NVVFS3000-P-03T-1 (Plug-in type)

NVVFS3000-P-03T-2 (Non plug-in type)



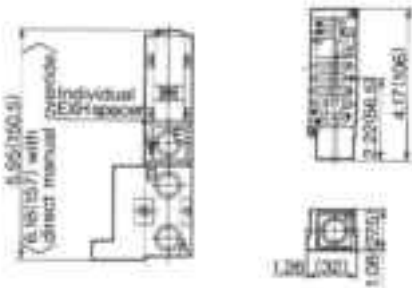
**Interface regulator/regulation to P  
 NARBF3050-NO-P-1 (Plug-in type)  
 NARBF3050-NO-P-2 (Non plug-in type)**



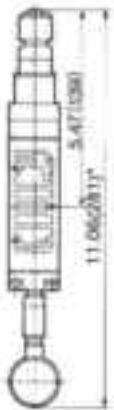
**EXH Relocation spacer**

NVVFS3000-R-03T-1 (Plug-in type)

NVVFS3000-R-03T-2 (Non plug-in type)



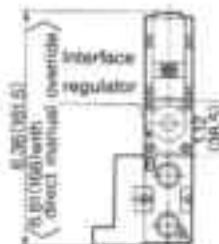
**Interface regulator/regulation to A  
 NARBF3050-NO-A-1 (Plug-in type)  
 NARBF3050-NO-A-2 (Non plug-in type)**



**SUP/EXH gallery block disc: AZ703-59A**



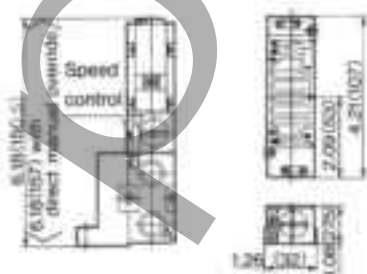
**Interface regulator/regulation to B  
 NARBF3050-NO-B-1 (Plug-in type)  
 NARBF3050-NO-B-2 (Non plug-in type)**



**Interface speed control**

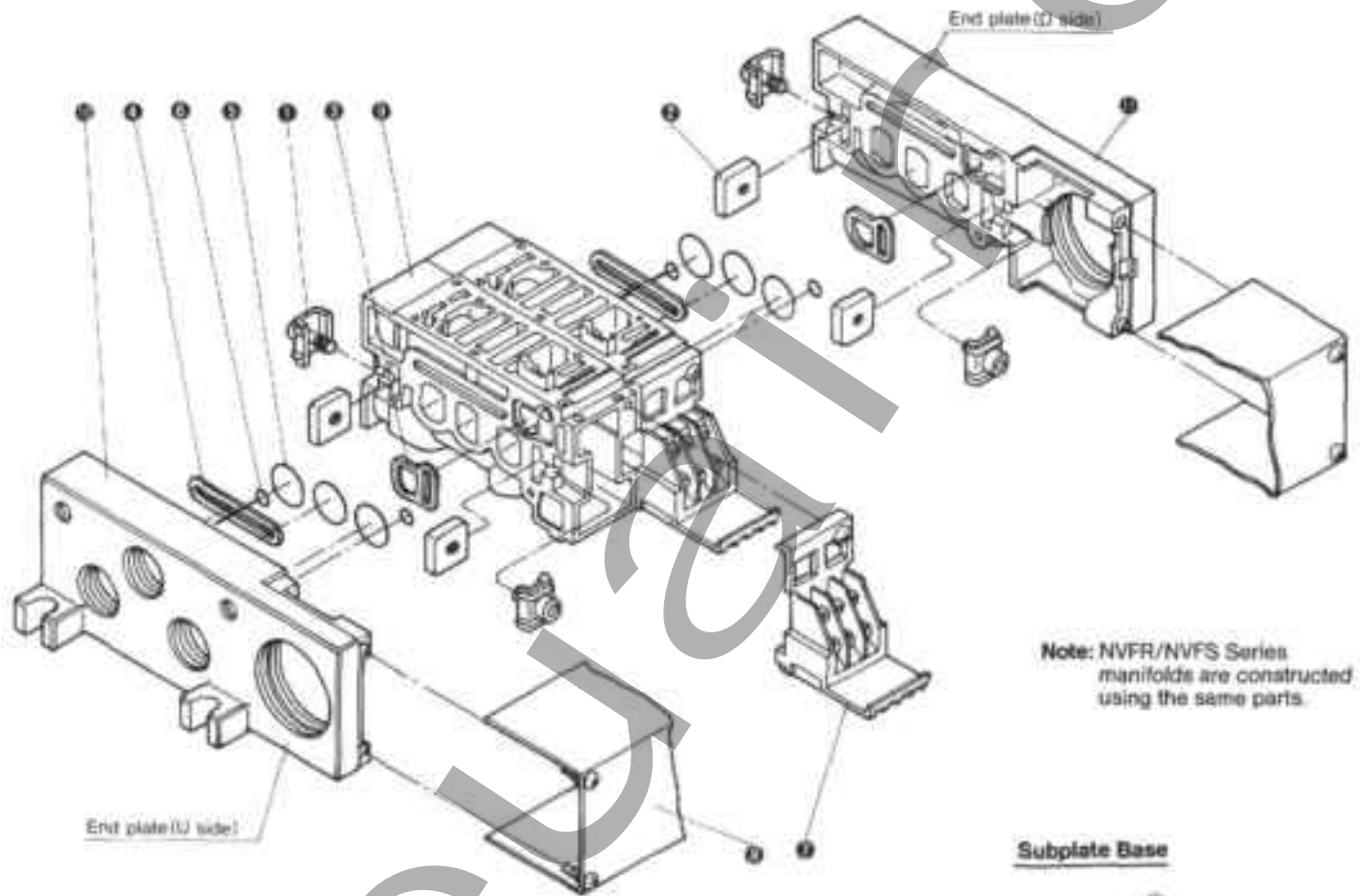
VVFS3000-20A-1 (Plug-in type)

VVFS3000-20A-2 (Non plug-in type)



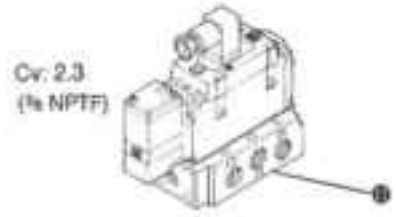
# Series NVFR3000:Base Mounted Type

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



Note: NVFR/NVFS Series manifolds are constructed using the same parts.

**Subplate Base**



Note) Subplate shown; Non plug-in type.

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

**Parts List**

No.	Description	Material	Part No.
1	Metal clamp A	Steel plate	VVFS3000-5-2A
2	Metal joint B	Steel plate	
3	Gasket	NBR	VVFS3000-7
4	Gasket	NBR	VVFS3000-8
5	O-ring	NBR	19.8×16.6×1.6
6	O-ring	NBR	6×3×1.5
7	Terminal ass'y		VVFS3000-6A
8	Conduit cover ass'y		VVFS3000-4A (stations)

**Main Parts sub-ass'y**

No.	Description	Part No. Note)	Component parts	Applicable valve
1	Manifold block ass'y	MBF3610-02-1	Manifold block 1, Terminal 7, Metal joint/clamp 2,3	Plug-in type
		MBF3611-02-1	Gasket 4,5, O-ring 6,7, Receptacle ass'y 8	
		MBF3711-02-1	Manifold block 1, Joint/clamp 2,3, Gasket 4,5, O-ring 6,7	Non plug-in type
2	End plate (R/L) ass'y	MEF363LR-04-1	End plates 9, Joint/clamp 2,3, Gasket 4,5, O-ring 6,7	Plug-in type
		MEF373LR-04-1	End plates 9, Joint/clamp 2,3, Gasket 4,5, O-ring 6,7	Non plug-in type
3	Subplate ass'y †	SPF026*-02-D	Subplate Ass'y (see note below)	Plug-in type
		SPF027*-02	Subplate Ass'y (see note below)	Non Plug-in type

Note) Manifold; 0=side ports, 1=bottom ports. Subplate: 1=side ports, 2=bottom ports (1/4" only). All Bases: 02=1/4"NPTF, 03=3/8"NPTF.

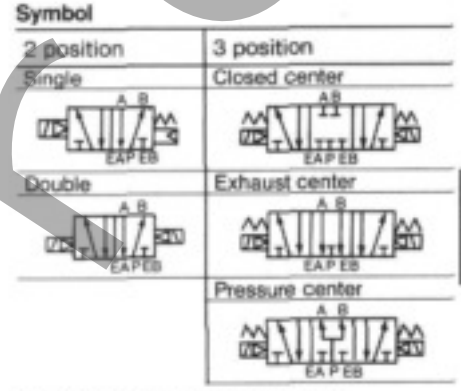
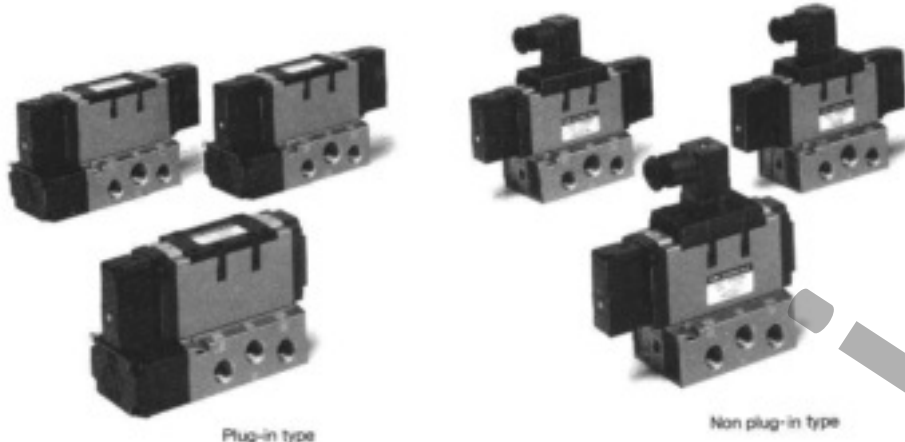
†External pilot type order SPF024\*1R-02

Cv: 3.6  
3.7

# 5 Port Pilot Type/Rubber Seal Series NVFR4000

Plug-in Type, Non Plug-in Type

ORDER ONLINE



(Additional functions achieved by using external pilot option).

NVFR  
4000

## Model

Position/No. of solenoid	Type	Type		Port size (NPTF)	Cv factor	Max. Operating cycle CPM	Response time (ms)	Weight lbs (kgf)
		Plug-in	Non Plug-in					
2 position	Single	NVFR4100	NVFR4110	3/8	3.6	300	50 or less	1.35 (0.61)
	Double	NVFR4200	NVFR4210	1/2	3.7			
3 position	Closed center	NVFR4300	NVFR4310	3/8	3.2	180	70 or less	1.61 (0.73)
				1/2	3.2			
	Exhaust center	NVFR4400	NVFR4410	3/8	2.8	180	70 or less	1.61 (0.73)
				1/2	2.8			
	Pressure center	NVFR4500	NVFR4510	3/8	3.6	180	70 or less	1.61 (0.73)
			1/2	3.6				

\* The Figures listed are without subplate. In the case of plug-in subplate and non plug-in subplate, add 1.10lbs. (0.50kgf) and 0.95lbs. (0.43kgf) respectively.  
† Special Order

## Standard Specifications

Valve	Fluid	Air	
	Max. operating pressure	130 PSIG (9.0kgf/cm <sup>2</sup> )	
	Min. operating pressure	2-pos. sol.	30 PSIG (2.0kgf/cm <sup>2</sup> )
		2-pos. dbl.	15 PSIG (1.0kgf/cm <sup>2</sup> )
	Ambient and fluid temperature	Note 1) 32 ~ 120°F (0 ~ +50°C)	
Lubrication	Note 2) Not required		
Pilot operator manual override	Non-locking push type (Flush)		
Protection construction	Dust proof		
Electrical	Rated voltage	AC	110V <sup>50/60</sup> Hz, 220V <sup>50/60</sup> Hz, 24V <sup>50/60</sup> Hz
		DC	12V, 24V.
	Allowable voltage range	-15 ~ +10% rated voltage	
	Coil insulation	Class B or equivalent	
	Apparent power (Power consumption)	AC	Inrush
Holding			2.3VA(1.5W)60Hz, 3.4VA(2.1W)50Hz
Power consumption	DC	1.8W	
Electrical entry	Plug-in type	Conduit terminal (base access)	
	Non plug-in type	Grommet terminal DIN connector	

Note 1) Use dry-air at low temperature.  
Note 2) Use turbine oil No. 1(ISO VG32), if lubricated.

## Optional Specifications\*

Pilot type		Note) External pilot type
Manual override	Pilot operator	Non-locking push type (extended), Lock type (screw), Lock type (lever)
	Voltage	AC 100V <sup>50/60</sup> Hz, 200V <sup>50/60</sup> Hz DC 6V, 48V, 100V
Porting		Bottom ported subplate
Option		With indicator light and surge voltage suppressor, reinforced type DIN connector


Note: Operating pressure: 0 ~ 130PSI (0 ~ 9.0kgf/cm<sup>2</sup>)  
Pilot operating pressure 2 position double: 15 ~ 150PSI (1 ~ 9.0kgf/cm<sup>2</sup>)  
2 position single; 3 position: 30 ~ 130PSI (2.0 ~ 9.0kgf/cm<sup>2</sup>)  
\*Some options listed as "Special Order" items.

# Series NVFR4000: Base Mounted Type


## How to Order

**Body type**

**O-Plug-in**



**F-Through base**



**Electrical entry**

**Porting**

- Side
- \*B Bottom
- \*Special order

**Port size**

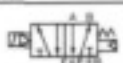



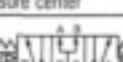
—	Without subplate
<b>03T</b>	3/8 NPTF
*04T	1/2 NPTF
*EA, EB:	3/8 NPTF
Bottom ported: 3/8 only	
(See pg. 40 for part no. of individual subplates)	

**Option**

—	Note
Z	With indicator light and surge voltage suppressor
*P	non-rotating DIN connector
*P, ZP: Only DIN type.	

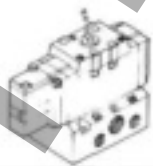
<b>Plug-in</b>	NVFR4	2	0	0	5	F				03T
<b>Non Plug-in</b>	NVFR4	2	1	1	3	E				03T

**Symbol**

Single	
Double	
Closed center	
Exhaust center	
Pressure center	

**Body type**

1—Non plug-in

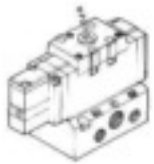


**Manual option**

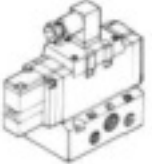
- 0 Standard
- \*1 Std. + Direct-manual
- \* Special order

**Electrical entry**

**E—Grommet terminal**



**D—DIN connector**



**Voltage**





- \*1 100VAC<sub>50/60</sub>HZ
- \*2 200VAC<sub>50/60</sub>HZ
- \*3 110VAC<sub>50/60</sub>HZ
- \*4 220VAC<sub>50/60</sub>HZ
- \*5 24VDC
- \*6 12VDC
- \*9 Others Note 1)
- \* Special order

Note 1) indicate in parentheses at end of part no.  
Ex. (AC24V).

**Pilot operator**

- Internal
- \*R External
- \* Special order

**Pilot operator manual override/ classification**

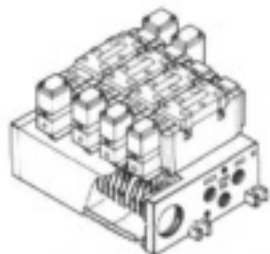
— Non-locking push type (Flush)	
*A—Non-locking push type (Extended)	
B—Lock type (Screw)	
*C—Lock type (Lever)	

\* Special order

## Manifold Specifications

### Plug-in Type: With Terminal Block

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



NVV5FR4 - 01T - 06 1 03T

Series NVFR4000  
Manifold valve

Plug-in type  
With terminal block

Stations ●

02	2 stations
⋮	⋮
10	10 stations

● Port size

Suffix	P, EA, EB	A, B
03T	1/2 NPTF	3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

Bottom ported 3/8NPTF only.

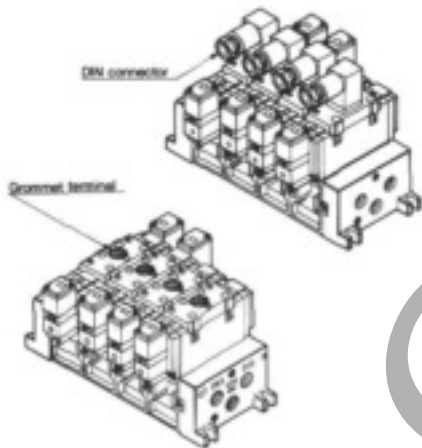
● Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom
M	Mixed		See pg. 46

● Special Order

### Non Plug-in Type: Grommet Terminal/DIN Connector

● Individual wiring for each valve.



NVV5FR4 - 10 05 1 03T

Series NVFR4000  
Manifold valve

Non Plug-in type

Stations ●

02	2 stations
⋮	⋮
10	10 stations

● Port size

Symbol	P, EA, EB	A, B
03T	1/2 NPTF	3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

Bottom 3/8NPTF only.

● Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
2			Bottom
M	Mixed		See pg. 46

● Special Order

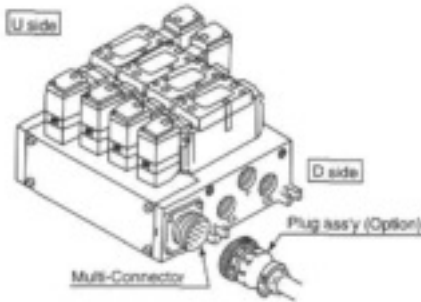
See "How to Order Manifold Assemblies," pg. 46

## Manifold Specifications

Base mounted type	Wiring	Porting specifications	Port size		No. of Stations	Applicable solenoid valve
		A,B port	P,EA,EB	A,B		
Plug-in type NVV5FR4-01T	With terminal blocks	Side, Bottom	1/2 NPTF	3/8-1/2 NPTF	2-10	NVFR4000-OF
Non Plug-in type NVV5FR4-10	DIN Connector Grommet terminal					NVFR4010-OD NVFR4010-OE

Plug-in Type: With Multi-Connector

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



NVV5FR4 — 01C D — 05 2 — 03T

Series NVFR4000 Manifold valve

Plug-in type • With multi connector

Mounting direction of connector

D	D side mounting
U	U side mounting

Stations •

02	2 stations
:	:
08	8 stations
* Max: 8 stations	

• Port size

Symbol	P,EA,EB	A,B
03T	1/2 NPTF	3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

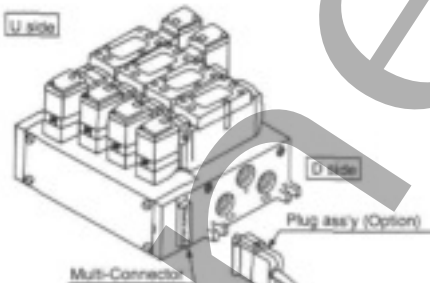
• Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting: 1/2 only

Plug-in Type: With D-Sub Connector

- Wide range of interchangeability (MIL Spec DIN type connector terminal 25 pin.)
- Quick wiring permits ease of installation



NVV5FR4 — 01F D — 06 1 — 03T

Series NVFR4000 Manifold valve

Plug-in type • With D-sub connector

Mounting direction of connector

D	D side mounting
U	U side mounting

Stations •

02	2 stations
:	:
06	6 stations
* Max: 8 stations	

• Port size

Symbol	P,EA,EB	A,B
03T	1/2 NPTF	3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

• Symbol

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Bottom porting: 1/2 only

Plug-in Type: Serial Interface Manifold

NVV5FR4 — 01SU — 08 1 — 02T — X200

The use of serial interface technology offers advantages such as reduced wiring, quicker installation time, easier start-up and simplified maintenance.

**Stations**

02	2 stations
:	:
11	11 stations

\* Includes 1 station to mount SI unit.

**\*SI option**

-	For standard **1 type modules
X200	For AB2 modules

† SI module must be ordered separately

**Symbol**

Symbol	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom

\* Station porting 1/2 only

**Port size**

Symbol	P, EA, EB	A, B
03T	1/2 NPTF	3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

Series IN313 Serial Interface Modules

IN313 — AB 1

**Protocol**

AB	Allen Bradley
DN	DeviceNet
MB	Mitsubishi
PR	Profibus
TA	Omron

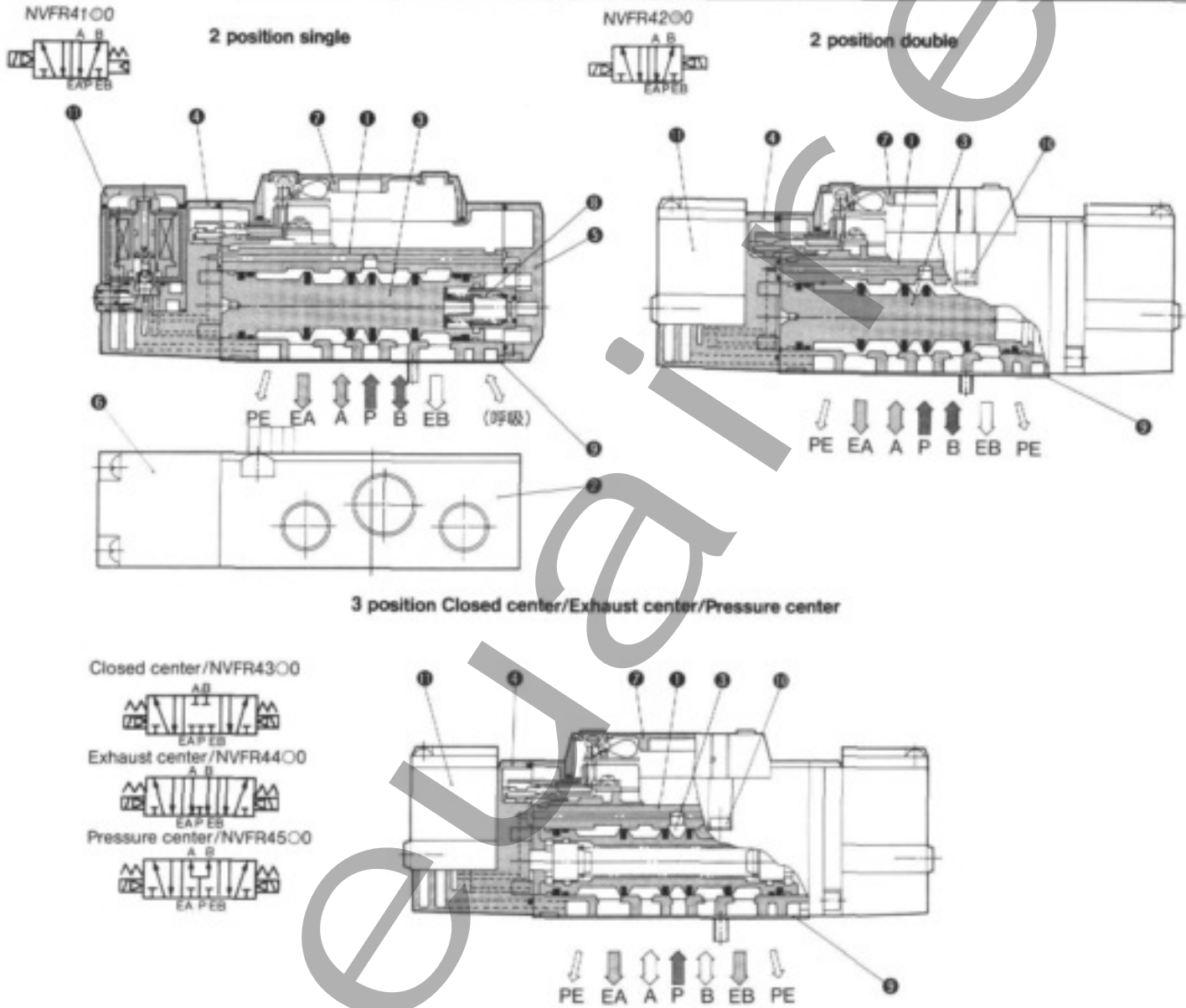
**Output/Inputs**

1	16 outputs
2	32 outputs/32 inputs (Available on Allen Bradley only)

AB2 Accessories

Part #	Description
VVZR3000-21A-6-X2	D-sub cable with connectors on both ends.
EX300-IB1-AB	Input Base Unit
EX300-IE1-AB	Input Expander Unit

**Construction/Parts List**



**Main Parts**

No.	Description	Material	Note
1	Body	Aluminum diecast	Platinum silver
2	Subplate	Aluminum diecast	Platinum silver
3	Spool	Aluminum/NBR	
4	Adapter plate	Aluminum diecast	Black

No.	Description	Material	Note
5	End plate	Aluminum diecast	Black
6	Junction cover	Resin	
7	Lamp cover	Resin	
8	Return spring	SUS	

**Spare Parts**

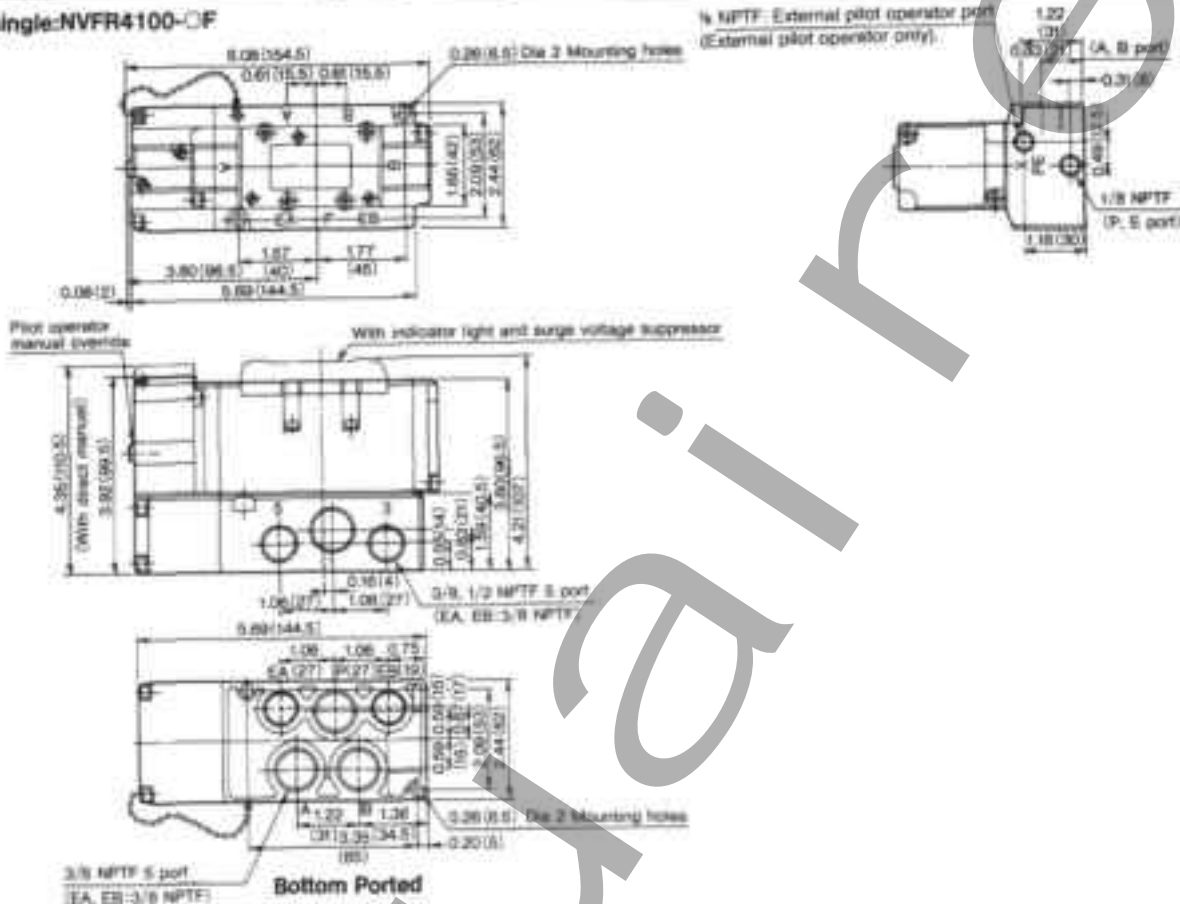
No.	Description	Material	Part Nos.		
			NVFR4100	NVFR4200	NVFR4300, 4400, 4500
9	Gasket	NBR	VF4000-20	VF4000-20	VF4000-20
10	Valve mounting bolt	Steel	AXT335-1-11 (M4X40)	AXT335-1-11 (M4X40)	AXT335-1-11 (M4X40)
11	Pilot Ass'y	-	SF4-F-70		



Plug-in type 2 Position Single, Double, 3 Position/Dimensions

inch (mm)

2 position single: NVFR4100-OF

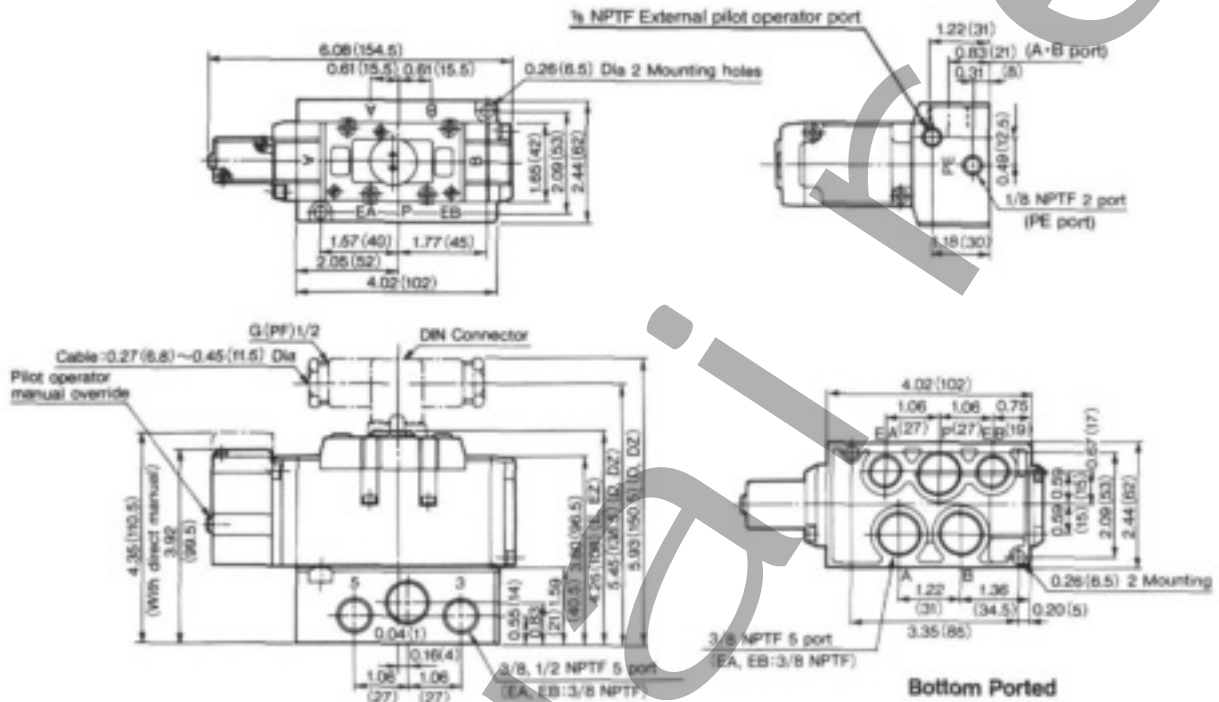


- 2 position double: NVFR4200-OF
- 3 position closed center: NVFR4300-OF
- 3 position exhaust center: NVFR4400-OF
- 3 position pressure center: NVFR4500-OF

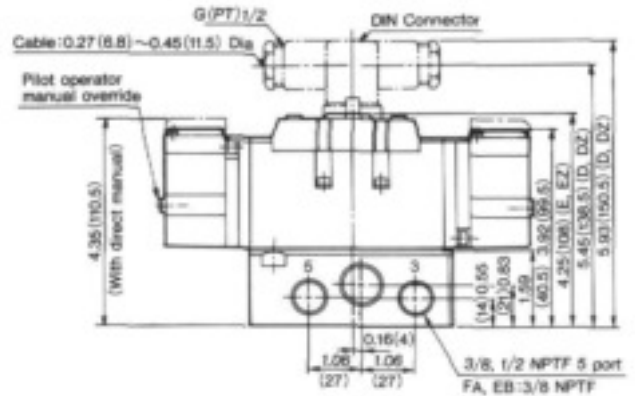
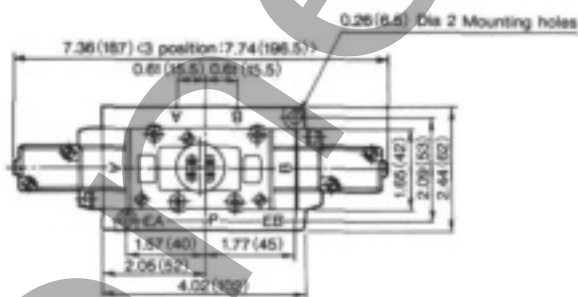


*Non Plug-in type: 2 position Single, Double, 3 position/Dimensions*

2 position single: NVFR4110-○E, NVFR4110-○D



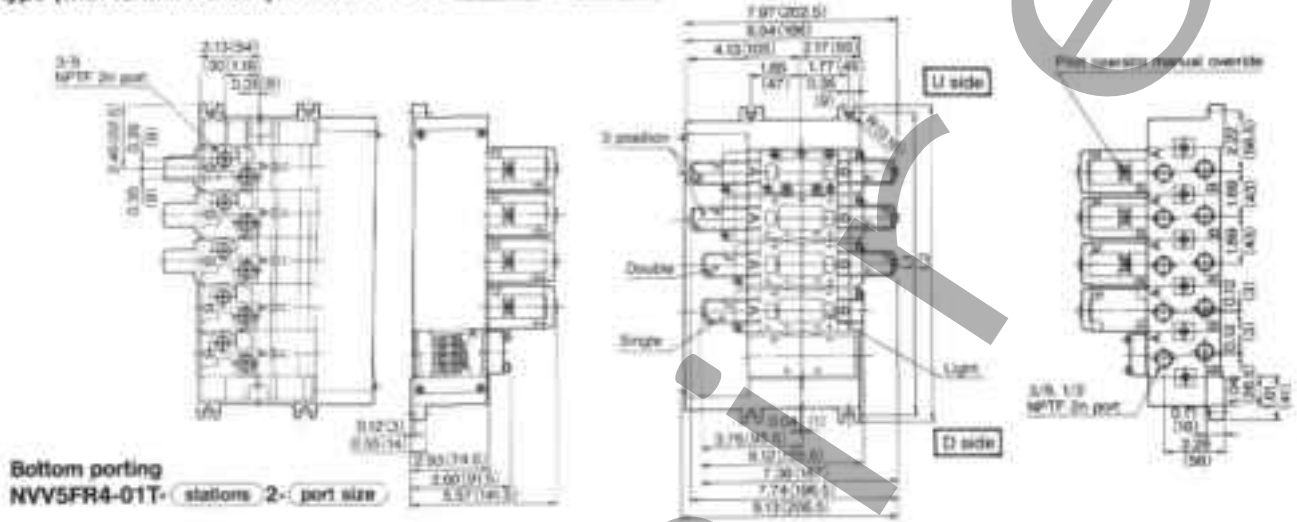
- 2 position double: NVFR4210-○E, NVFR4210-○D
- 3 position closed center: NVFR4310-○E, NVFR4310-○D
- 3 position exhaust center: NVFR4410-○E, NVFR4410-○D
- 3 position pressure center: NVFR4510-○E, NVFR4510-○D



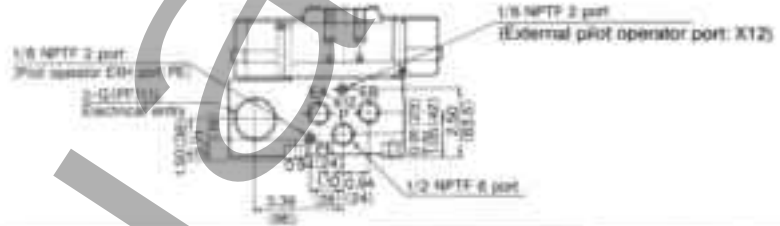
Manifold Plug-in Type/ Non Plug-in Type/ Dimensions

inch (mm)

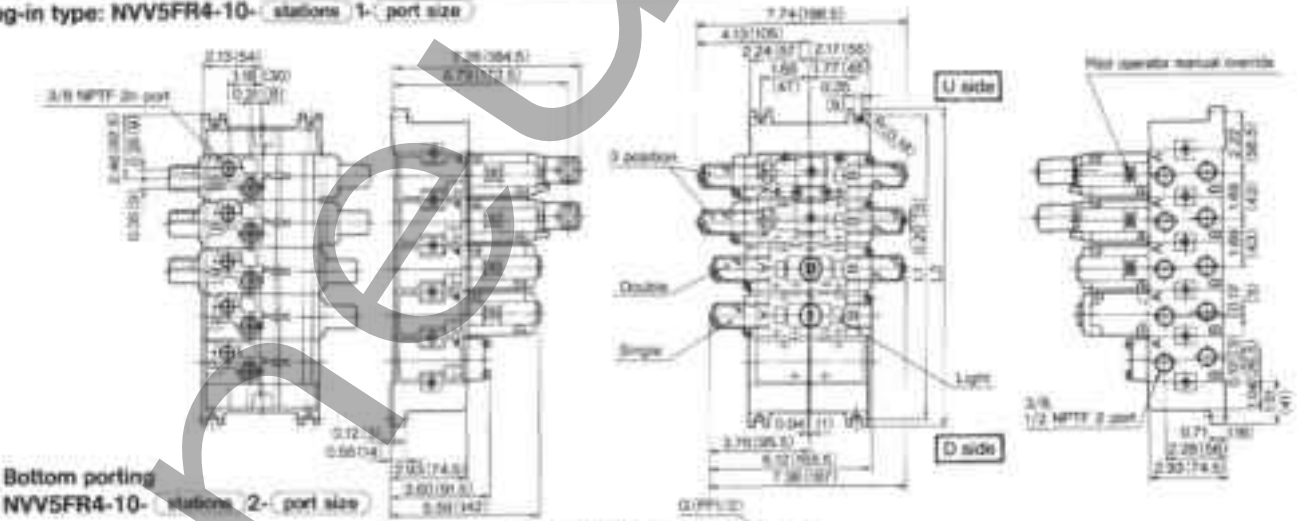
Plug-in type (with terminal block): NVV5FR4-01T- stations 1- port size



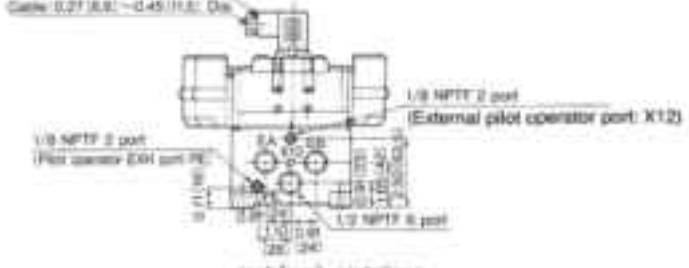
Bottom porting  
 NVV5FR4-01T- stations 2- port size



Non plug-in type: NVV5FR4-10- stations 1- port size



Bottom porting  
 NVV5FR4-10- stations 2- port size



inch (mm), n: stations

stations	2	3	4	5	6	7	8	9	10	Equation
$L_1$	8.14 (156)	7.83 (199)	9.53 (242)	11.22 (285)	12.91 (328)	14.61 (371)	16.30 (414)	17.99 (457)	19.69 (500)	$L_1 = 1.69 \times n + 2.76$ ( $L_1 = 43 \times n + 70$ )
$L_2$	6.61 (168)	8.31 (211)	10.00 (254)	11.69 (297)	13.39 (340)	15.08 (383)	16.77 (426)	18.46 (469)	20.16 (512)	$L_2 = 1.69 \times n + 3.23$ ( $L_2 = 43 \times n + 82$ )

**Manifold/Option Parts**

**SUP Relocation spacer**

An individual SUP spacer on manifold block can form individual P port for the valve.

Body type	Plug-in type	Non plug-in type
Part No.	NVVFS4000-P-03T-1	NVVFS4000-P-03T-2



**EXH gallery block disc**

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

Body type	Plug-in type	Non plug-in type
Parts No.	AXT634-11A	



EXH block disc

**Interface regulator**

Spacer type regulating valve on manifold block can regulate the pressure to the valve. With std. gauge.

Body type	Plug-in type	Non plug-in type
Pressure regulator P	NARBF4050-ND-P-1	NAREF4050-ND-P-2
Pressure regulator A	NARBF4050-ND-A-1	NAREF4050-ND-A-2
Pressure regulator B	NARBF4050-ND-B-1	NAREF4050-ND-B-2

Note: For pressure center type valves, use pin NARBF3000.



**EXH Relocation spacer**

An individual EXH spacer on manifold block can form individual R port for the valve.

Body type	Plug-in type	Non plug-in type
Part No.	NVVFS4000-R-04T-1	NVVFS4000-R-04T-2



**Interface speed control**

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

Body type	Plug-in type	Non plug-in type
Part No.	VVFS4000-20A-1	VVFS4000-20A-2



**Blank plate: VVFS4000-10A**

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

Body type	Plug-in type	Non Plug-in type
Part No.	VVFS4000-10A	

**SUP gallery block disc**

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type	Non plug-in type
Part No.	AXT634-10A	

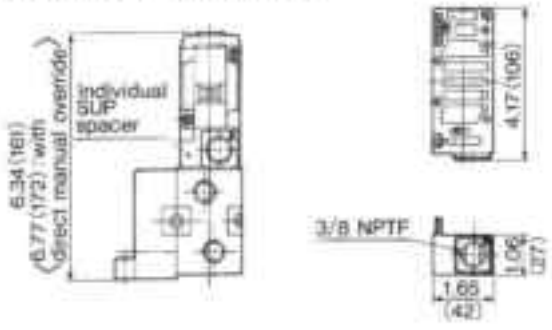


SUP block disc

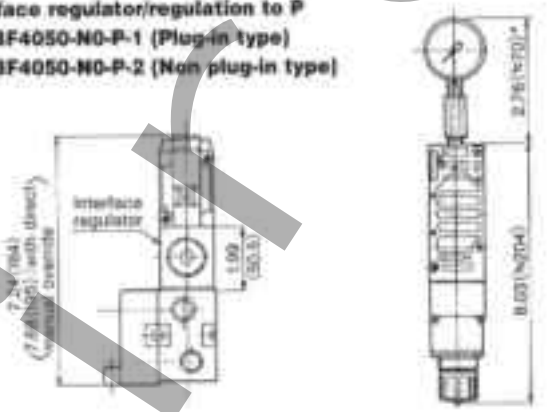
**Manifold/Option Parts Plug-in Type/Non plug-in Type/Dimensions**

**SUP Relocation spacer**

- NVVF54000-P-03T-1 (Plug-in type)
- NVVF54000-P-03T-2 (Non Plug-in type)

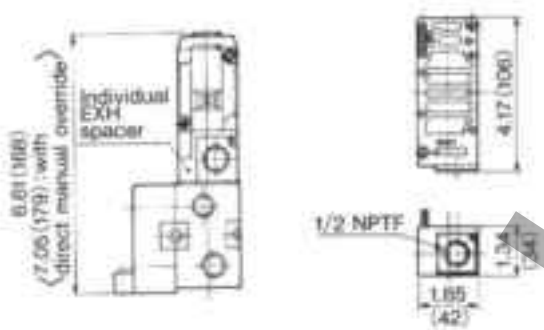


**Interface regulator/regulation to P  
NARBF4050-N0-P-1 (Plug-in type)  
NARBF4050-N0-P-2 (Non plug-in type)**

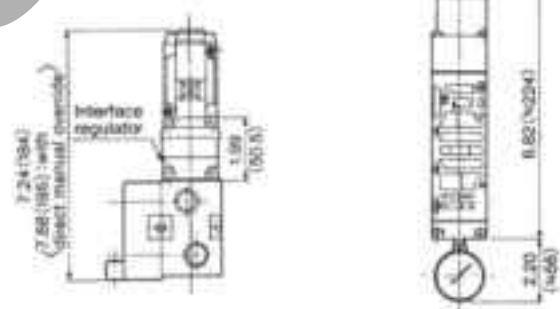


**EXH Relocation spacer**

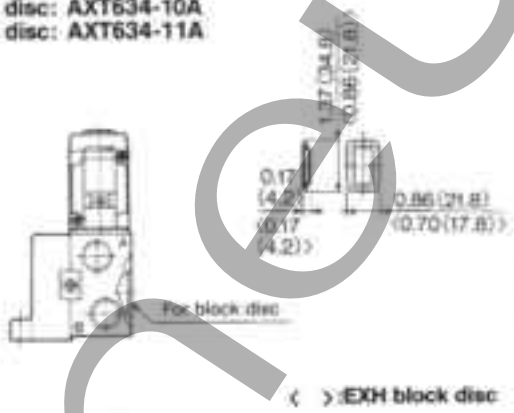
- NVVF54000-R-04T-1 (Plug-in type)
- NVVF54000-R-04T-2 (Non Plug-in type)



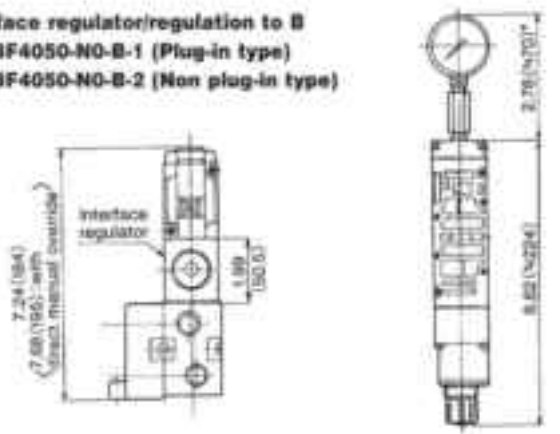
**Interface regulator/regulation to A  
NARBF4050-N0-A-1 (Plug-in type)  
NARBF4050-N0-A-2 (Non plug-in type)**



**SUP gallery block disc: AXT634-10A  
EXH gallery block disc: AXT634-11A**

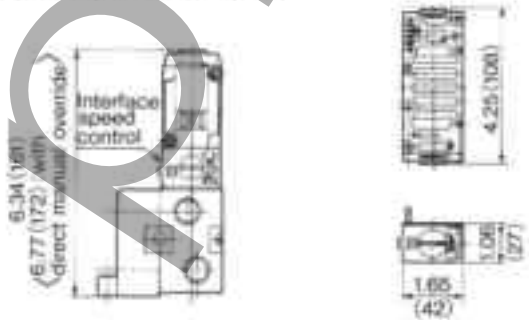


**Interface regulator/regulation to B  
NARBF4050-N0-B-1 (Plug-in type)  
NARBF4050-N0-B-2 (Non plug-in type)**



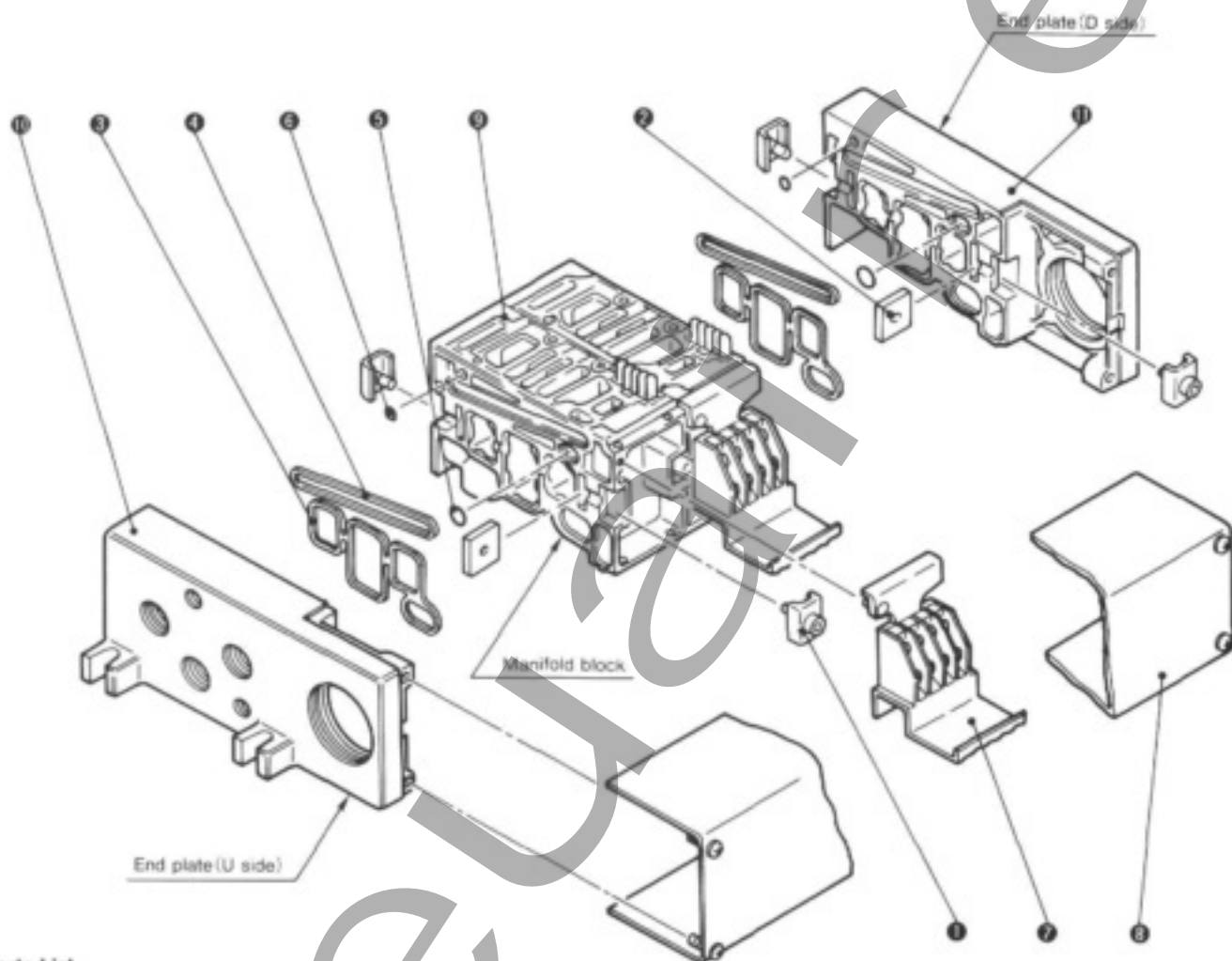
**Interface speed control**

- VVFS4000-20A-1 (Plug-in type)
- VVFS4000-20A-2 (Non plug-in type)



\*nipple size may vary slightly

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



Parts List

No.	Description	Material	Parts No.
1	Metal clamp A	Steel plate	VVFS4000-5-2A
2	Metal joint B	Steel plate	
3	Gasket	NBR	VVF4000-7
4	Gasket	NBR	VVF4000-8
5	O-ring	NBR	AS568-001
6	O-ring	NBR	AS568-006
7	Terminal ass'y	—	VVF4000-6A
8	Conduit cover ass'y	—	VVFS4000-4A- stations

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

Note) NVFR/NVFS Series manifolds are constructed using the same parts

Main Parts sub-ass'y

No.	Description	Part No. Note)	Component parts	Applicable valve
6	Manifold block ass'y	MBF4610-03-1	Manifold block 6, Terminal 7, Metal joint/clamp 1, 2, Gasket 3, 4, O-ring 5, 6, Receptacle ass'y	Plug-in type
		MBF471*-03-1	Manifold block 6, Metal joint 1, 2, Gasket 3, 4, O-ring 5, 6	Non plug-in type
10	End plate (U) ass'y	MEF463LR-04-1	End plate (U) 10, End plate (D) 11, Metal joint/clamp 1, 2, Gasket 3, 4, O-ring 5, 6	Plug-in type
		MEF473LR-04-1	End plate (U) 10, End plate (D) 11, Metal joint/clamp 1, 2, Gasket 3, 4, O-ring 5, 6	Non plug-in type
Subplate ass'y †		SPF038*-03-D	Subplate (see note below)	Plug-in type
		SPF037*-03	Subplate (see note below)	Non plug-in type

Note) Manifolds: 0=side ports; 1=bottom ports. Subplate: 1=side ports; 2=bottom ports (3/8" only). All bases: 03=3/8" NPTF, 04=1/2" NPTF.

†External pilot type order SPF037\*R-\*

*Light/Surge Voltage Surge Suppressor/Electrical Entry*

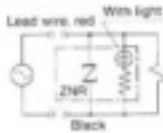
**Base Mounted Type (NVFR2000 only)**

*Light/Surge Voltage Suppressor*

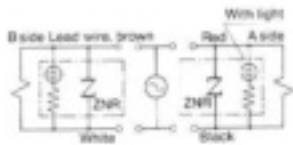
- In the case of surge voltage suppressor, voltage absorption element ZNR is attached to AC power.
- A directional diode is attached for DC power. (24 VDC or less)

**AC and 100VDC**

Single

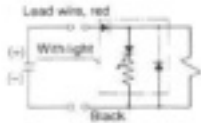


Double

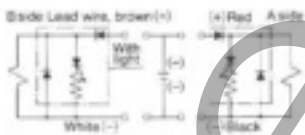


**24VDC or less**

Single



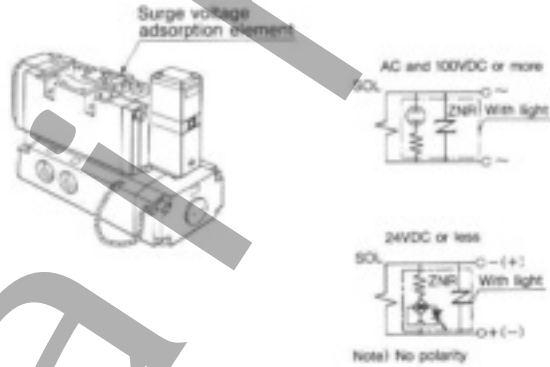
Double



**Base Mounted Types (NVFR3/4000)**

*Light/Surge Voltage Suppressor*

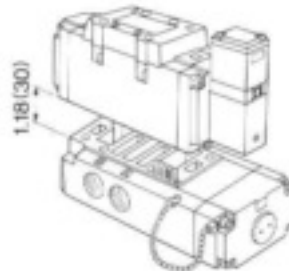
In the case of Voltage suppressor, surge voltage adsorption element is attached to terminal block board on body area.



*Valve Removal/Replacement*

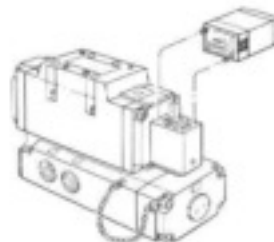
**Solenoid valve**

- Loosen set screw and pull solenoid valve out vertically to avoid damage. Never remove valve at an angle.



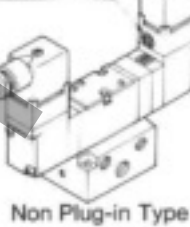
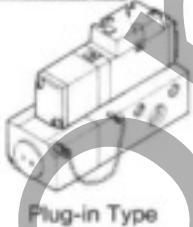
**Pilot operator**

- When mounting pilot operator to the valve, plug pin ass'y (valve side) into receptacle ass'y vertically.



With indicator light and surge voltage suppressor

With indicator light and surge voltage suppressor



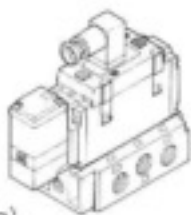
Plug-in Type

Non Plug-in Type

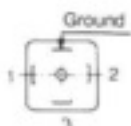
## Electrical Entry

### DIN connector type

- Male pin terminals of DIN connector type solenoid valves are wired as shown below.
- Connect wires to corresponding terminal on the connector.



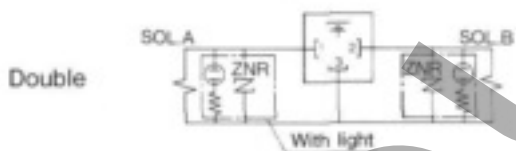
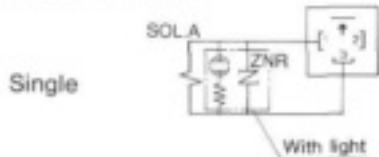
DIN connector (Wiring)



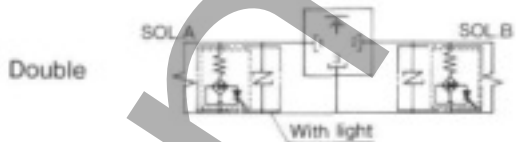
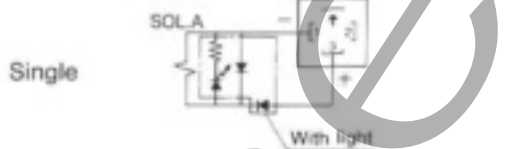
1	A side -
2	B side -
3	COM +
	Ground

- (+, -) indicate the direction of DC Solenoid valve with light, surge voltage suppressor. NVFS valves can be used negative (-) COM.

### AC and 100VDC or more



### 24VDC or less



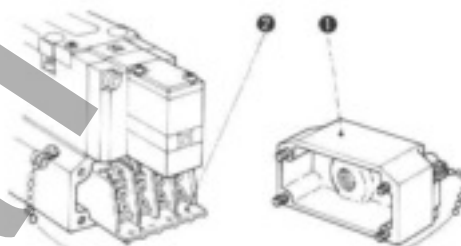
- Cable  
Applicable cable O.D.: 0.27 (6.8) Dia ~ 0.45 (11.5) Dia
- Applicable terminal  
Applicable terminal on block board: (3 kinds)  
1.25Y-3L, 1.25-3.5S, 1.25-4M (1.25mm centers)  
(spade or ring type, size 4, 22-16 AWG)
- Connector/Clamping torque  
Set screw (5.2 in-lbs)  
Terminal screw (7.8 in-lbs)
- Incorrect common (DIN connector terminal No. 3) causes damage on power side circuit.

### Plug-in type (with terminal)

- Remove the junction cover ① on the subplate to expose the plug-in valve terminal block ② attached to the interior of subplate.
- The following are the markings on the terminal block. Connect with corresponding power side.

Designation	Solenoid A side	Solenoid B side
Terminal block	A	B
Marking	+ -	+ -

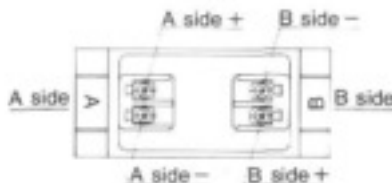
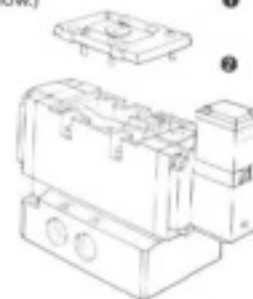
- (+, -) indicate the direction of DC solenoid valve with light or with surge voltage suppressor.
- However reverse direction wiring is also possible in some cases.



- When using COM terminal, jumper contacts (Part No. AZ683-56A (NVFR3000); AZ683-56A (NVFR4000)) allow easy specification of stations COM.

### Non plug-in type (with terminal)

- Remove cover ① over terminal block ② attached to the inside of body. Connect with corresponding power supply. (See diagram below.)



- Applicable terminal  
NVFR3000: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S  
(spade or ring type, size 4, 22-16 AWG)  
NVFR4000, 5000: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M
- (+, -) indicate the direction of DC solenoid valve with light or with surge voltage suppressor.

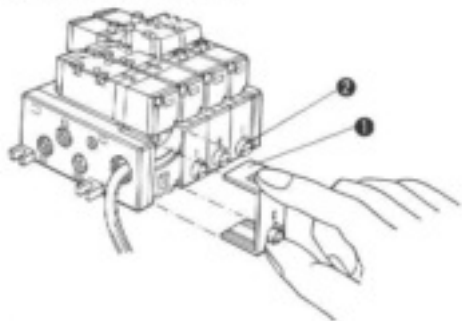


## Lead Wire/Wiring Manifold/Plug-in Type

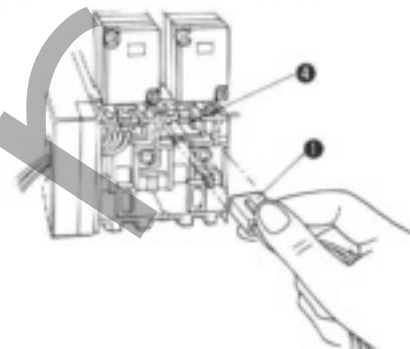
### Type 01 Insert Plug Type Lead Wires

#### How to Remove Junction Cover (Type 01)

- Turn the knob ② of Junction cover ① on the manifold block side by hand or slotted screwdriver in the C→O direction (closed-to-open) 90 degrees. While holding the knob and upper part of junction cover, pull outward to remove it. When reassembling, do the opposite.



- When inserting the plug ① into the manifold base, push the lever area of plug with thumb and place in the receptacle housing ② horizontally. After plugging in, pull lead wires taut to ensure that connection is secure.



#### Wiring

The connector plug ① is inserted into the manifold block and lead wires are connected with valve side as shown in the following list. Please connect with corresponding power supply.

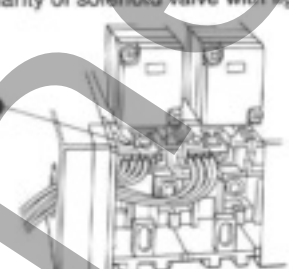
#### AC power/Lead wire color identification

Solenoid	A side	B side
Lead wire color	Red, Black	Brown, White

#### DC power/Lead wire color identification

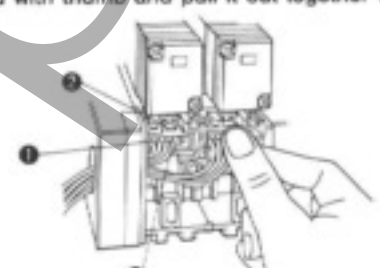
Solenoid	A side		B side	
	+	-	+	-
Lead wire color	Red	Black	Brown	White

- When ground wiring is required, use green wire.
- (+, -) indicate the wiring polarity of solenoid valve with light, surge voltage suppressor.



#### How to Use Connector Plug

- When removing plug ① from manifold base, push the lever area ② of plug downward with thumb and pull it out together with the lead wires ③.



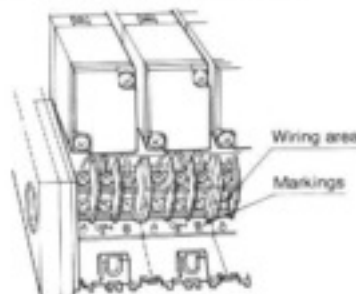
### Type 01T With Terminal Block

- Remove junction cover of manifold to expose terminal block attached to the manifold block. Lead wires from solenoid valve are connected with the terminals on the upper side of the terminal block. Connect lead wires of power supply corresponding to each respective solenoid valve on the lower terminal block board.

Terminal block wiring specification is in accordance with +COM. Please consult SMC about specifying -COM.

Model	Block board marking		
	A-	COM+	B-
NVFR # 100	A side -	COM+	
NVFR # 200	A side -	COM+	B side -
NVFR # 300	A side -	COM+	B side -

- Recommended terminals NVFR 2000, 3000: 1.25-3, 1.25-3S, 1.25Y-3N, 1.25Y-3S (1.25mm centers) (spade type, size 4, 22-16 AWG).
- NVFR4000: 1.25-3.5M, 1.25Y-3L, 1.25Y-3M.
- Plugging COM bridge in between each + COM on the block boards will make the specifications of all the stations +COM and enables you to rationalize the wiring process. (+, -) indicates the polarity of DC solenoid valve with light/surge voltage suppressor.



COM bridge part nos.:

NVFR 2000: AXT625-73

NVFR 3000: AZ683-56A

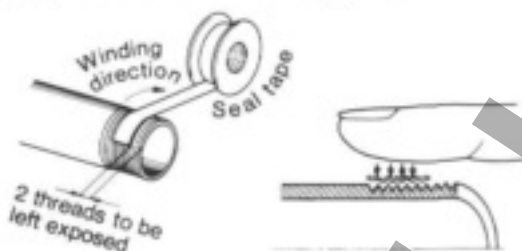
NVFR 4000: AZ683-56A

## Precautions

### Piping

- Use appropriate I.D. piping.
- Before piping, flush out to remove dust, scale, chips, seal tape, etc. in the pipeline both on the supply side (supply pressure port side) and secondary side (operational equipment port side).
- In the case of 3 position closed center valve, check leakage from piping and fittings between the valve and cylinder by means of soapy water to ensure that there is no leakage. Also, check the leakage from cylinder rod seal and piston seal. If there is any leakage, sometimes the cylinder, when valve is deenergized, can move without stopping at mid-position. Therefore, leakage from piping and fittings should be avoided.
- When applying teflon sealing tape to the thread area, wind it around the thread area 1-2 times and fasten it with finger nail. Be sure the thread extends one or two screw pitches beyond the taped area. Also, when applying liquid seal materials, leave 1-2 threads from the end dry, and avoid over-application.

Never apply to the female side of the equipment.



### Clamping torque

Thread	Correct clamping torque inch-lbs (kgf/cm <sup>2</sup> )
10-32 Nom (M5)	13.0-17.3 (15-20)
1/8 NPTF	60.7-78.0 (70-90)
1/4 NPTF	104-121 (120-140)
3/8 NPTF	190-208 (220-240)
1/2 NPTF	242-260 (280-300)
3/4 NPTF	242-260 (280-300)

### Mounting

Single-acting valves can be mounted in any direction. In the case of a double solenoid valve or 3 position valve in a place subject to vibration, the valve should be aligned perpendicular to the vibration. (Never use in a vibration condition of more than 5G.)

### Environmental Conditions

- When the valve is installed in a dusty area, protect the cylinder rod area to prevent dust from entering the secondary piping via the rod area. Install a silencer or elbow fitting with its outlet downwards to prevent dust from entering the exhaust port of the valve.
- When used in environmental conditions such as corrosive gas, chemicals or chemical solutions, steam, sea water, or temperatures higher than 140°F (60°C), etc.

### Lubrication

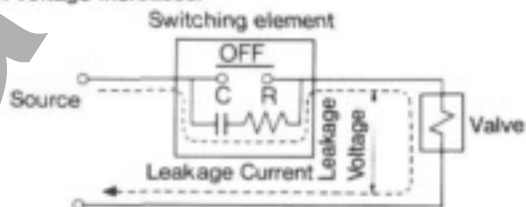
Valves are pre-lubricated. No further lubrication is necessary.

If a lubricant is used (if required for cylinder, etc.), install lubricator in the supply side piping.

Also, please note that the recommended lubricant is turbine oil #1 (ISO VG32). (Never use spindle oil or machine oil.) In addition, when valve is used at low temperature, low temperature oil should be used. The use of turbine oil at temperatures lower than 32°F (0°C) leads to increased viscosity and causes the valve to malfunction.

### Leakage Voltage

It must be noted that in case of connecting C-R element parallel to switching element, leakage current flows through C-R element and the leak voltage increases.



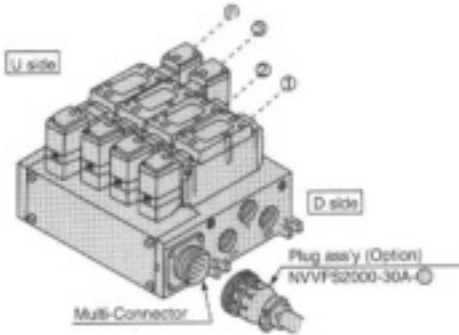
Ensure that any voltage leakage across the coil is as follows:  
 AC coil : No more than 20% of the rated voltage  
 DC coil : No more than 3% of the rated voltage

### Maintenance

- Excessive carbon powder and oil waste from air source (mostly from compressor) entering into the valve can lead to increased spool seal resistance and cause valve malfunction. In the worst case the spool can adhere to the valve. It is important to check the quality of air often. Please note that if SUP pressure is left under pressurization for a long time with inferior quality air, carbon powder and oil waste in the compressed air can deposit in the clearance between the spool and sleeve, build up, and cause the spool to adhere to the valve. To remedy this case, check the compressor oil and use the appropriate least oxidizing compressor oil. A high filtration Mist Separator (Series NAFM) installed behind a regular filter (Series NAF) can prevent foreign particles from entering the valve.
- If waste from air source adheres to spool and sleeve, disassemble adaptor plate area and end plate area (return spring insert area). Remove spool and sleeve from valve and cleanse them with trichlorane or freon solutions. When cleaning, prevent O-rings from contacting cleaning solutions. **Be sure to keep each spool and sleeve assembly paired.**
- When disassembling and re-assembling, please ensure that all components are in their proper positions. Prevent gaskets from slipping, and tighten bolts equally.

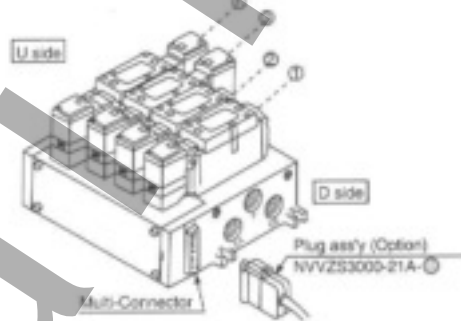
### Type 01C With Multi-Connector Series VFR2000, 3000, 4000, 5000

- The use of multi-connector in wiring enables mass-termination between the power supply and solenoid valves, and leads to the elimination of wiring labor.
- Manifold interior wiring is in accordance with +COM specifications and is connected with both A side and B side of solenoid valve through means of receptacle terminal as shown below.



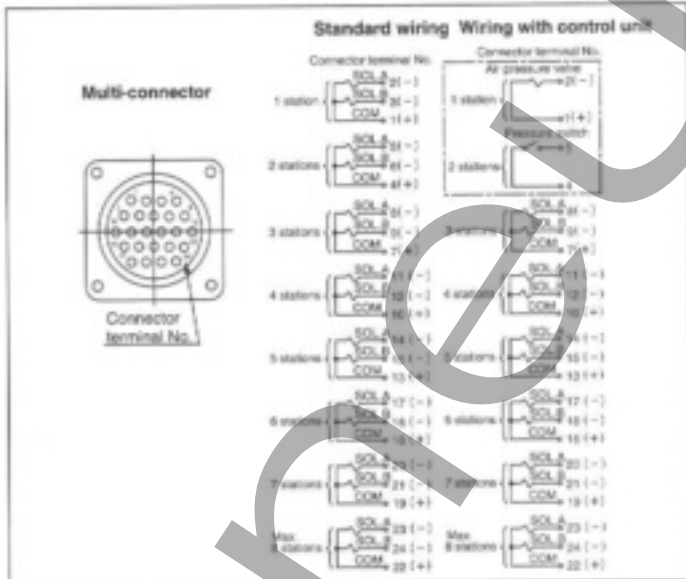
### Type 01F With D Sub Connector Series VFR2000, 3000, 4000, 5000

- The use with D sub connector when wiring enables the elimination of wiring labor.
- Also connectors with MIL Specification DIN type connector (terminal 25 pcs) provides them with a wide range of interchangeability.
- Manifold interior wiring is in accordance with +COM specifications and is connected with both A side and B side of solenoid valve through the receptacle terminal as shown below.

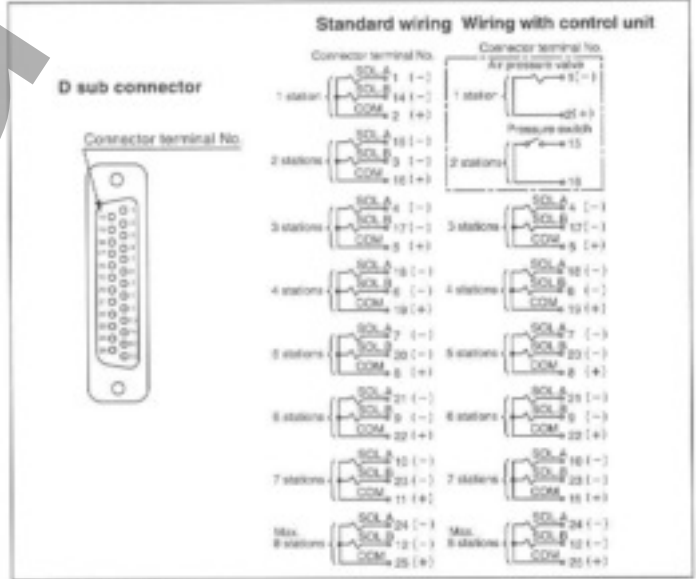


### Manifold Interior Wiring

### Manifold Interior Wiring



(Note 1) Maximum station: 8  
 (Note 2) (+) and (-) indicate the direction of DC solenoid valve with light, surge voltage suppressor.  
 (Note 3) Series VFS3000-COM is also possible



(Note 1) Maximum station: 8  
 (Note 2) (+) and (-) indicate the direction of DC solenoid valve with light, surge voltage suppressor.  
 (Note 3) Series VFS3000-COM is also possible

#### Compatible Plug Ass'y (Option)

Ass'y No.	Cable length	Components
VVFR2000-30A-1	1.5m	Plug-206837-1...1pc Cable clamp 206128-1...1pc Socket 66105-2...24pcs. Nippon AMP's cable VCTF 24 pcs x 0.75mm <sup>2</sup>
VVFR2000-30A-2	3m	
VVFR2000-30A-3	5m	
VVFR2000-30A-4	7m	

#### Compatible Plug Ass'y (Option)

Ass'y No.	Cable length	Components
VVFR2000-21A-1	1.5m	Plug-206837-1...1 pc Cable clamp 206138-1...1 pc Socket 66105-2...24 pcs. Nippon AMP's cable VCTF 24 pcs x 0.75mm <sup>2</sup>
VVFR2000-21A-2	3m	
VVFR2000-21A-3	5m	
VVFR2000-21A-4	8m	

#### Wire Color Table by Terminal Number of Cable

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12
Lead wire color	Orange	Orange	Black	Black	Green	Green	Red	Red	Blue	Blue	Yellow	Yellow
Dot marking	-	Blue	-	White	-	White	-	Blue	-	White	-	Blue

#### Wire Color Table by Terminal Number of Cable

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12
Lead wire color	Black	Brown	Red	Orange	Yellow	Pink	Blue	Violet	Gray	White	White	Yellow
Dot marking	-	-	-	-	-	-	White	Black	Black	Red	Red	Red

13	14	15	16	17	18	19	20	21	22	23	24
Brown	Brown	White	White	Pink	Pink	Gray	Gray	Sky blue	Sky blue	Bright yellow	Bright yellow
-	Blue	-	Blue	-	Blue	-	Blue	-	Blue	-	Blue

13	14	15	16	17	18	19	20	21	22	23	24	25
Orange	Yellow	Pink	Blue	Violet	Gray	Orange	Red	Brown	Pink	Gray	Black	White
Black	Black	Black	White	-	-	Black	White	White	Red	Red	White	-

## HOW TO ORDER MANIFOLD ASSEMBLIES

- 1) Begin the manifold specification process from the LEFT going to the right facing the 'B' end of the valves (and the cylinder ports normally). The first valve on the left is considered Station #1.
- 2) For each station, specify the valve model number (or blank station kit no.), interface accessories if desired, and lastly, gallery blocking discs if desired. (Blocking discs will be placed between this station and the next one).
- 3) For identical stations in sequence, specify these at the same time. However, they must be in sequence to avoid confusion.
- 4) The last specification for the assembly is the manifold base. Specify the entire part number below the last station section. If the manifold is a complex assembly or mixture of block types, please refer carefully to the examples below and specify similarly.

### Example Manifold Assembly Orders:

#### Standard Configuration Manifold:

LINE ITEM	QTY.	DESCRIPTION
1	1	Four Station Manifold Ass'y as follows: Sta. 1) NVFR3100-5FZ Sta. 2) NVFR3200-5FZ NARBF3000-00-P-1 VVFS3000-20A-1 AXT636-1A (P gallery) Sta. 3-4) NVFR3100-5FZ NVV5FR3-01T-041-03T See Note 1)

#### Mixed Configuration Manifold:

LINE ITEM	QTY.	DESCRIPTION
1	1	Six Station Manifold Ass'y as follows: Sta. 1) NVFR2110-3G Sta. 2-6) NVFR2210-3G NVV5FR2-10-06M-02T Mix: sta. 1) 1/4 side sta. 2-6) 1/8 bottom See Note 2)

#### Mixed Configuration Manifold:

LINE ITEM	QTY.	DESCRIPTION
1	2	Four Station Manifold Ass'y as follows: Sta. 1-4) NVFR4100-3FZB NVV5FR4-01T-041-M Mix: sta. 1-2) 3/8 side sta. 3-4) 1/2 side See Note 3)

- Note 1) Indicate gallery for all blocking discs (P, EA, or EB), or any combination.  
 Note 2) "-02T" for manifold number is always side port size unless manifold is exclusively bottom-ported.  
 Note 3) If mixture is both port size and location, follow this example: NVV5FR3-01T-04M-M, then specify individually. (See note 2.)

