




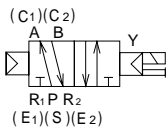
# Discrete valve: Body porting 5 port pilot operated valve 4F0/1/2/3 Series

• Applicable cylinder bore size: 16 to 100mm  CAD DATA AVAILABLE.

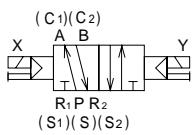
## JIS symbol

• 5 port valve

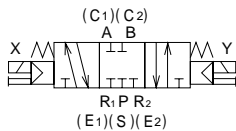
2-position single



2-position double

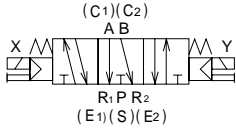


3-position all ports closed

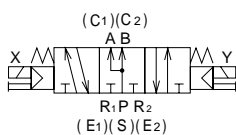


3-position

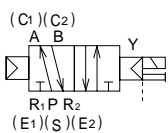
A/B/R connection



3-position P/A/B connection



• External pilot



(Symbol for 2-position single.)

## Common specifications

Descriptions	
Valve and solenoid type	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0
Min. working pressure MPa	Refer to following individual specifications.
Withstanding pressure MPa	1.5
Ambient temperature °C	-10 to 60
Fluid temperature °C	5 to 60
Lubrication	Not required
Protection structure	Dust proof
Vibration/impact m/s <sup>2</sup> (G)	50 or less/300 or less
Working environment	Not to be subject to corrosive gas

## Other specifications (consult with CKD about details.)

Descriptions	Model No.
Copper and PTFE free	** -Voltage - P6

• 4F0 is not available.

## Electric specifications

Descriptions		(A)4F0 to 1	4F2/3	
Rated voltage V	AC	100, 200 (50/60Hz)		
	DC	24	24	
Rated voltage fluctuation range		±10%		
Starting current	A	AC 100V	0.056/0.044	0.170/0.140
		AC 200V	0.034/0.026	0.090/0.070
	DC	12V	0.150	0.500
		24V	0.075	0.250
Holding current	A	AC 100V	0.028/0.022	0.100/0.080
		AC 200V	0.017/0.013	0.050/0.040
	DC	12V	0.150	0.500
		24V	0.075	0.250
Power consumption W	AC	100V	1.8/1.4	5.0/4.0
		200V	2.1/1.6	5.0/4.0
	DC	12V	1.8	6
	24V	1.8	6	
Heat proof class		B (molded coil)		

Reference: AC100V coil is available for AC110V, while AC200V is available for AC220V.

## Individual specifications

Descriptions			(A)4F0 • 1	4F1	4F2	4F3		
Min. working pressure MPa	2-position	Single	0.15	0.15	0.10	0.10		
		Double		0.10				
	3-position	All ports closed	-	0.20	0.15	0.15		
		A/B/R connection						
		P/A/B connection						
Port size			M5	Rp 1/8	Rp 1/8	Rp 1/4	Rp 1/4	Rp 3/8
Effective sectional area mm <sup>2</sup>	2-position	Single	2	3	11	18	25	32
		Double						
	3-position	All ports closed	-	7	11	17	21	
		A/B/R connection						
		P/A/B connection						
Response time • 2 ms			30	30	50	50		
Mass kg	2-position	Single	0.13	0.18	0.56	0.66		
		Double					0.18	0.22
	3-position	-	0.32	1.10	1.40			

• 1: When (A) is single type, mode No. is A4F010.

• 2: Response time is the value when supply pressure 0.5MPa, pre-lubricated and ON. The value varies depending on supplied pressure and oil quality.

### How to order discrete valve/body porting



Model

**A** Solenoid position

**B** Port size

- 1: M5 for R1/R2 of 4F0.
- 2: Rp1/8 for R1/R2 of 4F1.

**C** Manual override

**D** Electric connection

- Ⓜ : Lead wire length (300mm)
- Ⓢ : Surge suppressor attached
- Ⓛ : Indicator light
- 3: For L, L2 of DC type, surge suppressor is integrated. (Please refer to Page 577 about circuit diagram of surge suppressor with light.)

**E** Other options

**F** Voltage

<Example of model No.>

**4F340-08-M2P1-AC100V**

Model: 4F3

- A** Solenoid position : 3-position A/B/R connection
- B** Port size : Rp1/4
- C** Manual override : Non-locking
- D** Electric connection : Blank for DIN terminal box (Pg11)
- E** Other options : Mounting bracket
- F** Voltage : AC100V

		Model			
		4F0	4F1	4F2	4F3
<b>Symbol</b>	<b>Descriptions</b>				
<b>A Solenoid position</b>					
1	2-position single	●	●	●	●
2	2-position double	●	●	●	●
3	3-position all ports closed		●	●	●
4	3-position A/B/R connection		●	●	●
5	3-position P/A/B connection				●
<b>B Port size</b>					
M5	M5	●			
06	Rp 1/8		• 1	●	
08	Rp 1/4		• 2	●	●
10	Rp 3/8				●
<b>C Manual override</b>					
M1	Locking	●	●		
Blank	Locking			●	●
Blank	Non-locking	●	●		
M2	Non-locking			●	●
M3	Locking with manual lever			●	●
M4	Non-locking, dust proof cover	●	●		
M6	Non-locking upward	●	●		
R	Position change of manual override	●	●	●	●
<b>D Electric connection</b>					
B				●	
Blank	Small terminal box			●	
L			• 3	Ⓛ	●
L2		Ⓜ	• 3	Ⓛ	●
Blank	DIN terminal box (Pg11)				●
L	DIN terminal box (Pg11)		Ⓛ		●
F	DIN terminal box (G1/2)				●
C	C-connector (axial lead wire)	Ⓜ		●	●
C1				●	●
C2		Ⓜ	Ⓢ	Ⓛ	●
C3		Ⓢ	Ⓛ	●	●
D	D-connector (Radial lead wire)	Ⓜ		●	●
D1				●	●
D2		Ⓜ	Ⓢ	Ⓛ	●
D3			Ⓢ	Ⓛ	●
Blank	Grommet lead wire			●	
E				●	●
E1	Conduit with lead wire (CTC19)				●
E2	Conduit with lead wire (G1/2)				●
B1	Round terminal box (G3/4)				●
B	Round terminal box (G1/2)				●
BL		Assemble to conduit with lead wire (E1).		Ⓛ	●
G	Round terminal box				●
GL	Gland (A-15a)		Ⓛ		●
<b>E Other options</b>					
Blank	No option	●	●	●	●
P	Mounting bracket (L shaped bracket) (2-position single)	●	●	●	●
P1	Mounting bracket (U shaped bracket)	●	●	●	●
S	Surge suppressor (variable resistor) attached	●	●	●	●
H	Check valve attached (only for 3-position all ports closed)			●	●
N	Plug attached (3 port valve)	●	●	●	●
NC	3 way valve (C1: A. E1: R1) plug assembly	●	●	●	●
NO	3 way valve (C2: B. E2: R2) plug assembly	●	●	●	●
<b>F Voltage</b>					
AC100V	AC100V 50/60Hz	●	●	●	●
AC200V	AC200V 50/60Hz	●	●	●	●
DC 12V	DC 12V	●	●	●	●
DC 24V	DC 24V	●	●	●	●
AC110V	AC110V 50/60Hz	●	●	●	●
AC220V	AC220V 50/60Hz	●	●	●	●

4SA/B0

4SA/B1

4GA/B

MN4GA/B

4GA/B (master)

MN3S0/ MN4S0

4TB

4L2-4/ LMFO

4KA/B

4F

PV5/ CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/ NVP

4F\*\*0E

HMV/ HSV

Uniwire system

SKH

PCD/ FS/FD

Discrete

5 port pilot operated valve

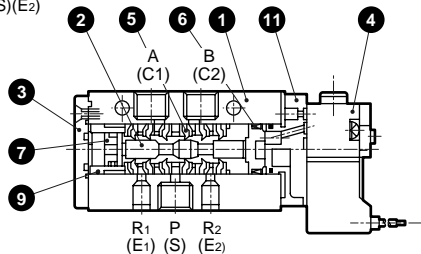
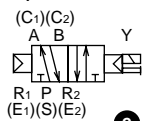
# 4F0/4F1 Series

Discrete valve: Body porting

## Internal structure and parts list

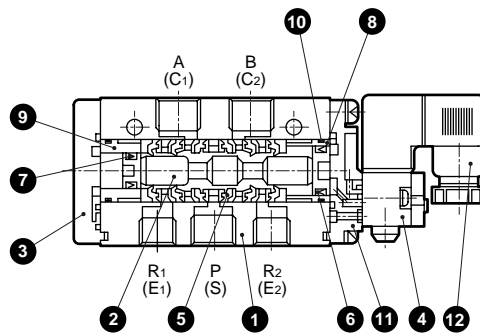
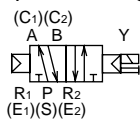
### 4F010

• 2-position single



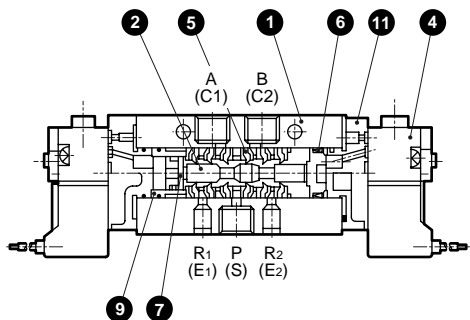
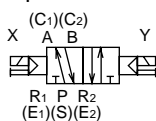
### 4F110

• 2-position single



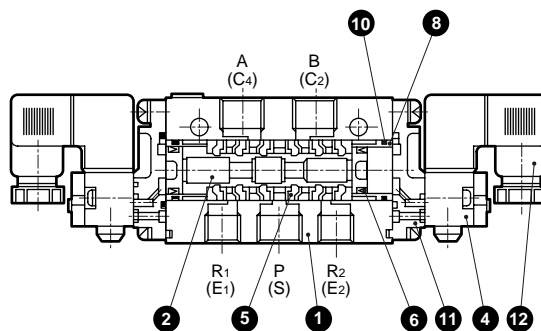
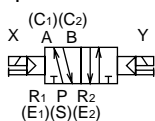
### 4F020

• 2-position double



### 4F120

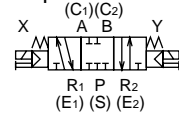
• 2-position double



### 4F130

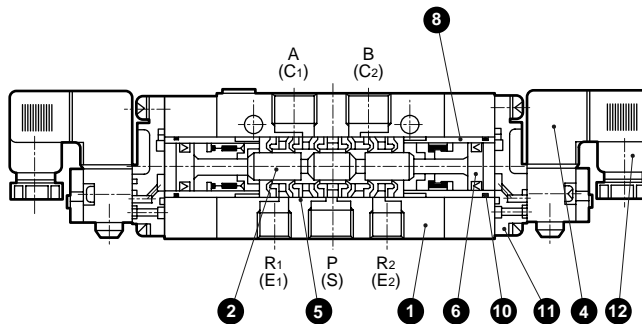
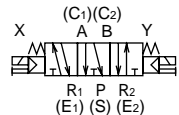
• 3-position

All ports closed



### 4F140

A/B/R connection



## Main parts list

No.	Parts name	Material	No./parts name	
			Model No.	Repair kits
1	Body	Aluminum alloy die-casting	A4F010	A4F010-K
2	Valving element (spool)	Aluminum	4F020	4F020-K
3	Cap	Aluminum alloy die-casting	4F110	4F110-K
4	Coil assembly (solenoid valve)	-	4F120	4F120-K
5	Seal assembly	-	4F130	4F130-K
6	Piston (A) assembly	-	4F140	-
7	Piston (B) assembly	-	-	-
8	Cylinder A	Aluminum	-	-
9	Cylinder B	Aluminum	-	-
10	O ring	Nitrile rubber	-	-
11	Pilot valve body	Aluminum alloy die-casting	-	-
12	Small terminal box	-	-	-

## Repair parts list

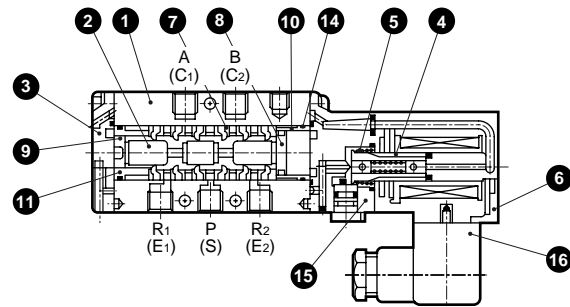
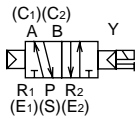
No./parts name	5	6	7	4
	Repair kits	Seal assembly	Piston (A) assembly	Piston (B) assembly
Model No.	4F9-126	4F9-124	4F9-125	4F9-111
		4F9-110	-	-
		4F9-159	-	-

• For consumable parts, kit is available. Please replace a whole kit but not a part. (The kit includes packing seal assembly, piston assembly (A) and (B) but not any coil assembly.)

### Internal structure and parts list

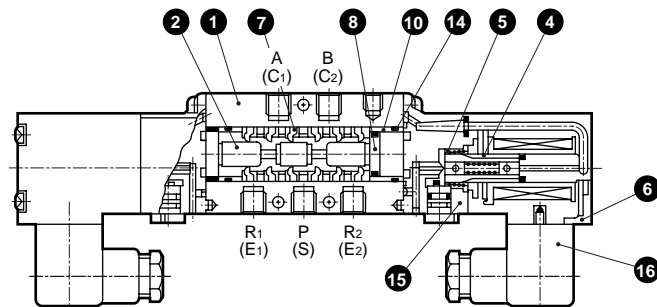
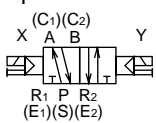
#### 4F210/4F310

- 2-position single



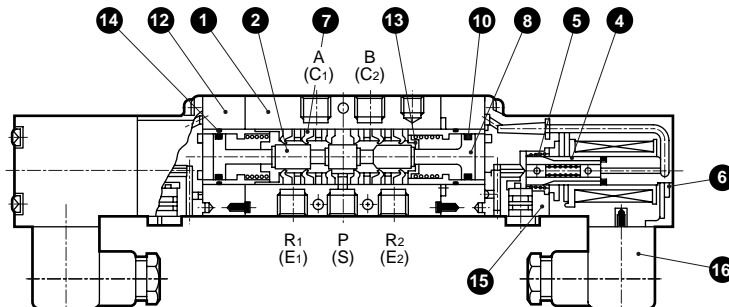
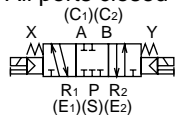
#### 4F220/4F320

- 2-position double

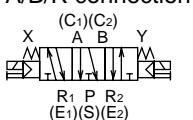


#### 4F230/4F330

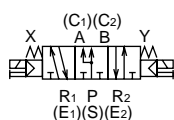
- 3-position
- All ports closed



#### 4F240/4F340



#### 4F250/4F350



### Main parts list

### Repair parts list

No.	Parts name	Material	No./parts name		7	8	9	6	
			Model No.	Repair kits					
1	Body	Aluminum alloy die-casting	4F210	4F210-K	4F9-105	4F9-101	4F9-102	4F2*0-	
2	Valving element (spool)	Aluminum	4F220	4F220-K			-	-	Electric connection -
3	Cap	Aluminum alloy die-casting	4F230	4F230-K			-	-	Coil-Voltage
4	Plunger	-	4F240	-	4F9-106	4F9-104	4F9-103	4F3*0-	
5	Plunger spring	-	4F310	4F310-K			-	-	Electric connection -
6	Coil assembly	-	4F320	4F320-K			-	-	Coil-Voltage
7	Seal assembly	-	4F330	-	4F330-K	4F9-114	-	-	
8	Piston (A) assembly	-	4F340	-			-	-	-
9	Piston (B) assembly	-	4F350	-			-	-	-
10	Cylinder A	Aluminum	-	-	-	-	-	-	
11	Cylinder B	Aluminum	-	-	-	-	-	-	
12	Body block	Aluminum alloy die-casting	-	-	-	-	-	-	
13	Spring retainer	Stainless steel	-	-	-	-	-	-	
14	O ring	Nitrile rubber	-	-	-	-	-	-	
15	Pilot valve body	Aluminum alloy die-casting	-	-	-	-	-	-	
16	DIN terminal box	-	-	-	-	-	-	-	

- For consumable parts, kit is available. Please replace a whole kit but not a part. (The kit includes packing seal assembly, piston assembly (A) and (B) but not any coil assembly.)
- Plunger assembly is attached to coil assembly.


4SA/B0  
4SA/B1  
4GA/B  
MN4GA/B  
4GA/B (master)  
MN3S0/  
MN4S0  
4TB  
4L2-4/  
LMF0  
4KA/B  
**4F**  
PV5/  
CMF  
3MA/B0  
3PA/B  
P/M/B  
NP/NAP/  
NVP  
4F\*\*0E  
HMV/  
HSV  
Uniwire  
system

SKH  
PCD/  
FS/FD  
Discrete  
5 port pilot operated valve

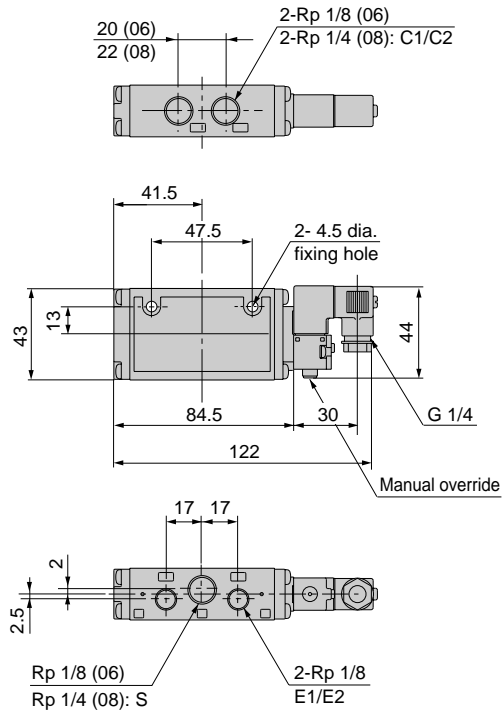
# 4F1 Series


## Discrete valve: Body porting

### Dimensions

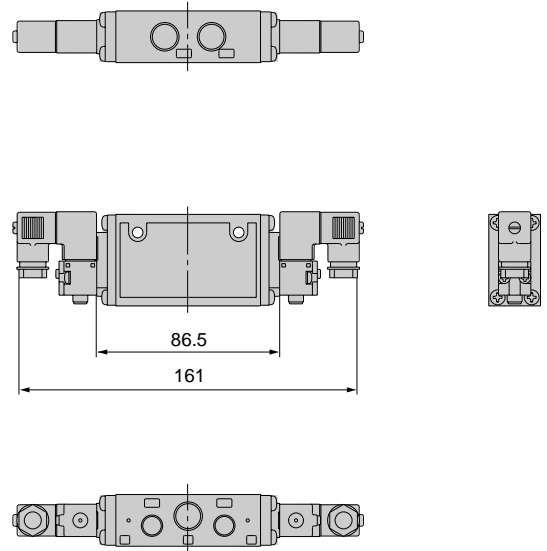
4F110  (File name: Page 638 or Ending 23)


- 2-position single: Small terminal box



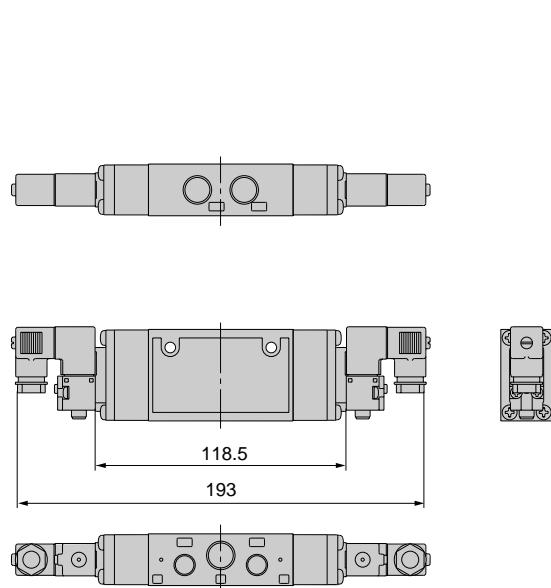
4F120  (File name: Page 638 or Ending 23)

- 2-position double: Small terminal box

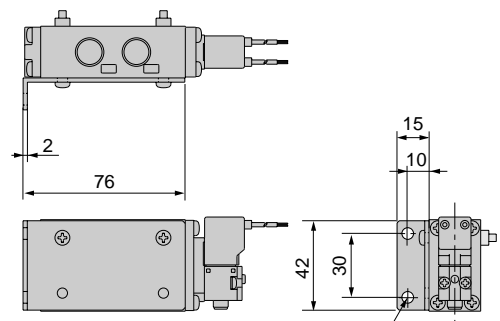


4F1<sup>3</sup>/<sub>4</sub>0  (File name: Page 638 or Ending 23)

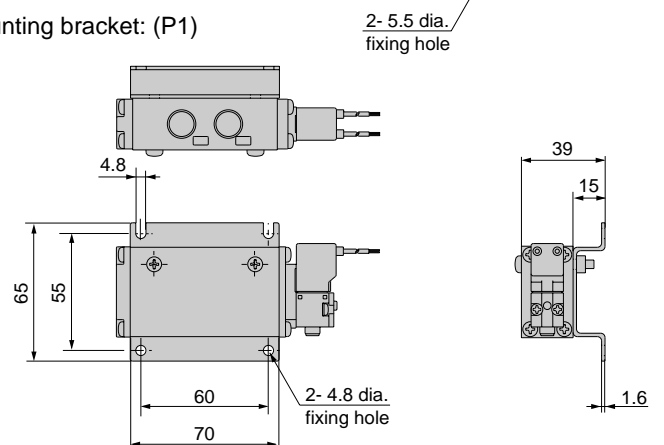
- 3-position: Small terminal box



- Mounting bracket: (P: 2-position single only)



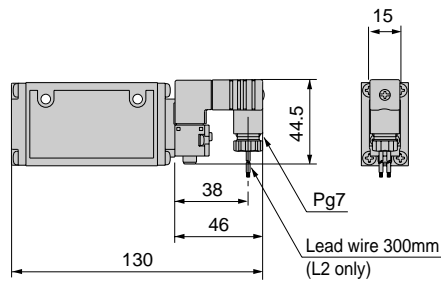
- Mounting bracket: (P1)



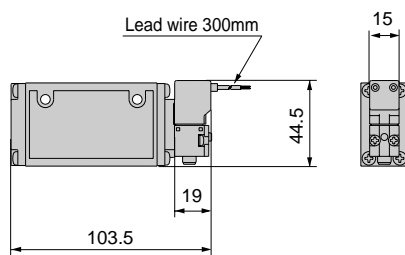
### Dimensions

#### ⬇ 2-position single

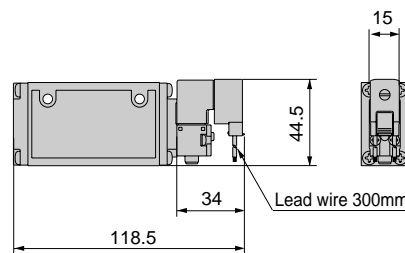
- Small terminal box, light: (L/L2)



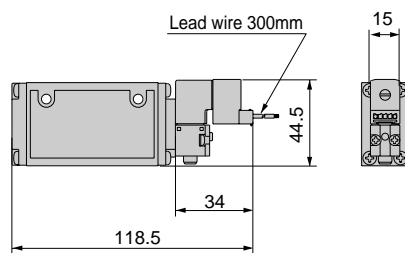
- Grommet lead wire: (E)



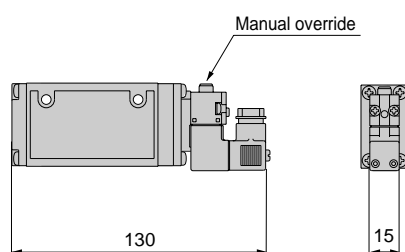
- C-connector: (C/C1/C2/C3)



- D-connector: (D/D1/D2/D3)

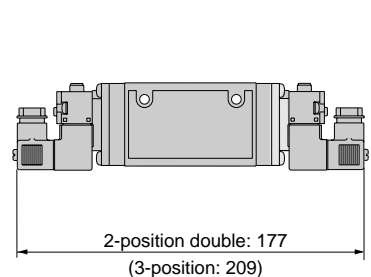
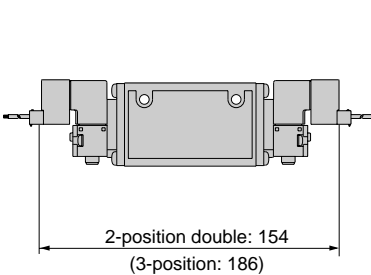
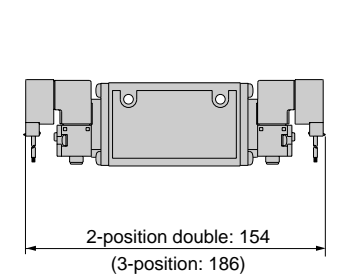
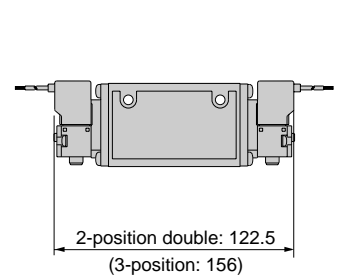
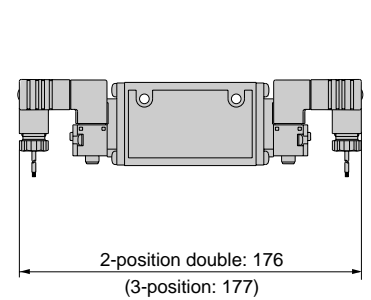


- Position change of manual override: (R)



#### ⬇ 2-position double/3-position

- Figure shows 2-position double.



4SA/B0

4SA/B1

4GA/B

MN4GA/B

4GA/B (master)

MN3S0/  
MN4S0

4TB

4L2-4/  
LMF0

4KA/B

**4F**

PV5/  
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/  
NVP

4F\*\*0E

HMV/  
HSV

Uniwire  
system

SKH


PCD/  
FS/FD

5 port pilot operated valve  
Discrete

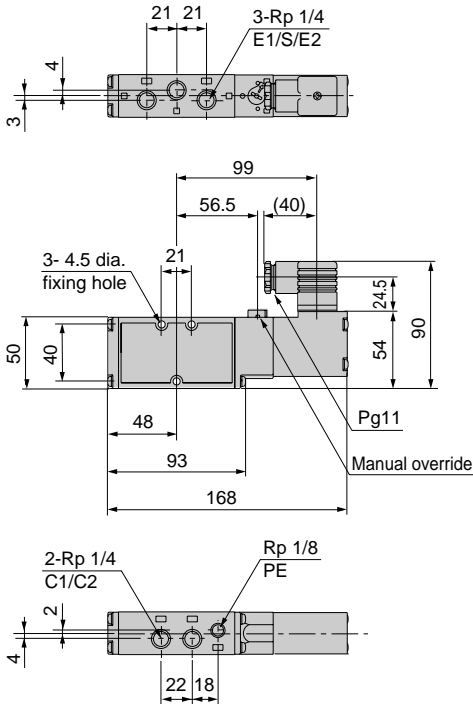
# 4F2 Series


## Discrete valve: Body porting

### Dimensions

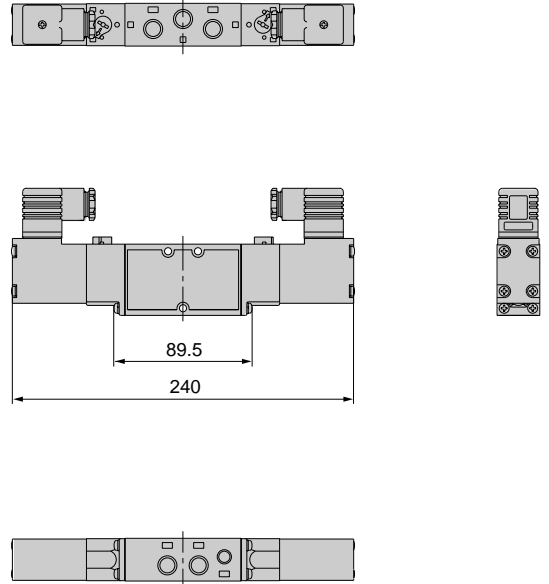
4F210  (File name: Page 638 or Ending 23)


- 2-position single: DIN terminal box



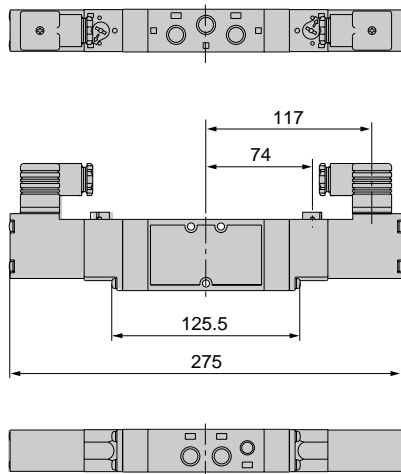
4F220  (File name: Page 638 or Ending 23)

- 2-position double: DIN terminal box

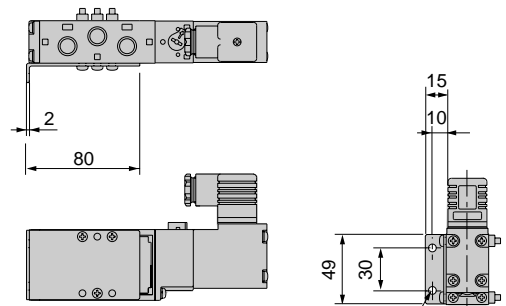


4F2<sup>3</sup>/<sub>4</sub>0  (File name: Page 638 or Ending 23)

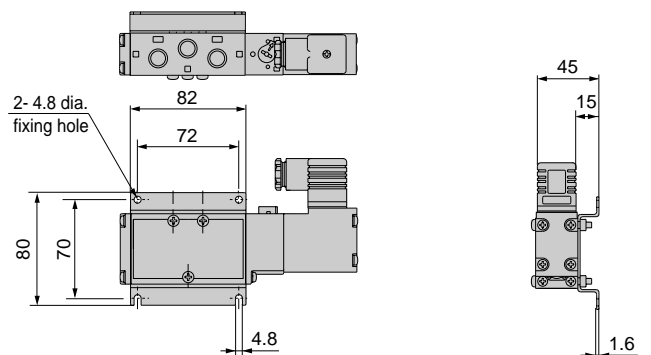
- 3-position: DIN terminal box



- Mounting bracket: (P: 2-position single only)



- Mounting bracket: (P1)



- Please refer to Page 632 about check valve.

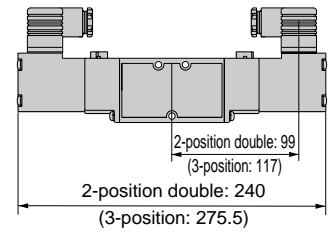
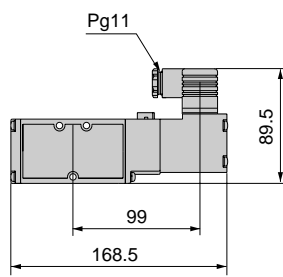
### Dimensions

#### ② 2-position single

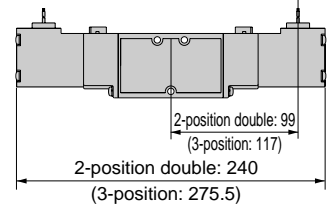
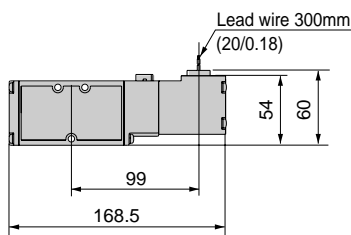
#### ② 2-position double/3-position

• Figure shows 2-position double.

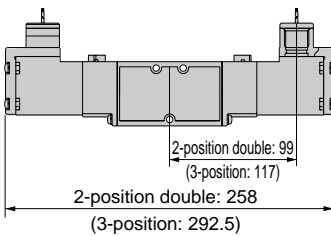
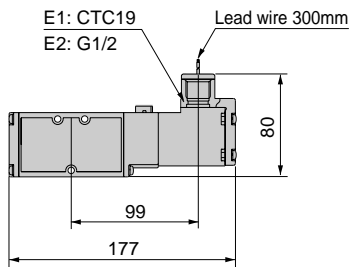
- DIN terminal box indicator light: (L)



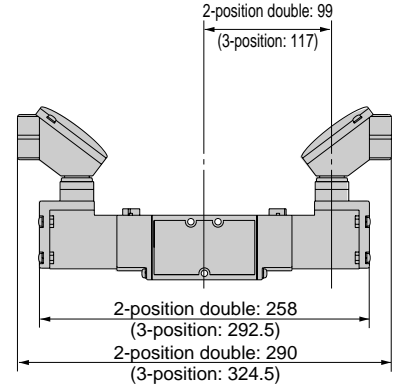
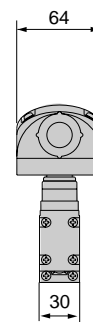
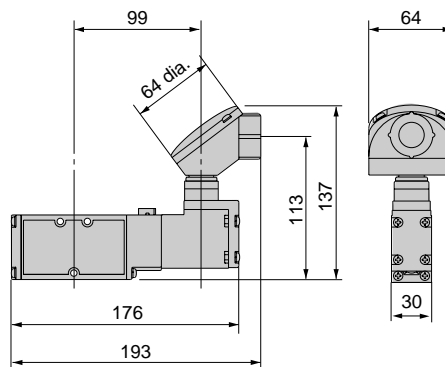
- Grommet lead wire: (E)



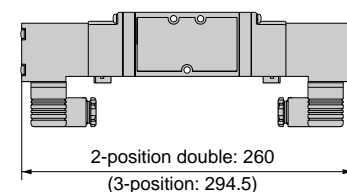
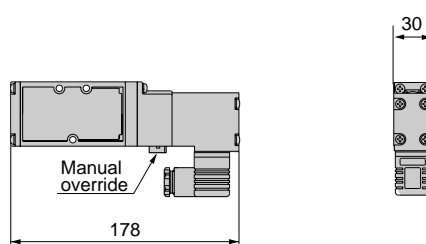
- Conduit with lead wire: (E1/E2)



- Round terminal box: (B1/B/BL)



- Position change of manual override: (R)



4SA/B0

4SA/B1

4GA/B

MN4GA/B

4GA/B  
(master)

MN3S0/  
MN4S0

4TB

4L2-4/  
LMF0

4KA/B

**4F**

PV5/  
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/  
NVP

4F\*\*0E

HMV/  
HSV

Uniwire  
system

SKH

PCD/  
FS/FD


5 port pilot operated valve  
Discrete



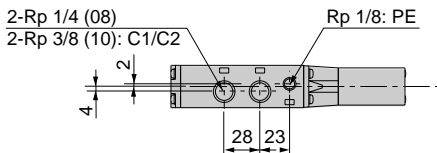
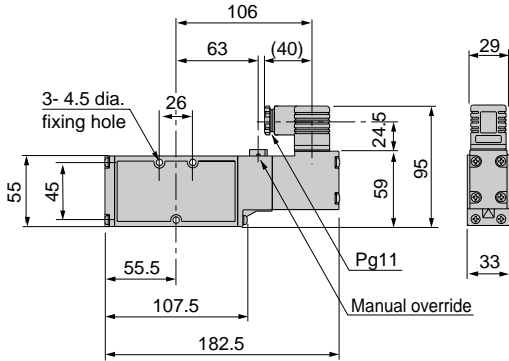
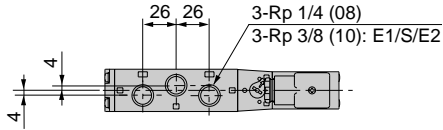
# 4F3 Series


Discrete valve: Body porting

## Dimensions

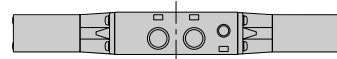
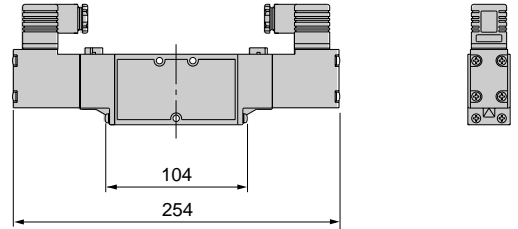
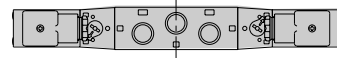
**4F310**  (File name: Page 638 or Ending 23)


- 2-position single: DIN terminal box



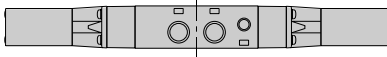
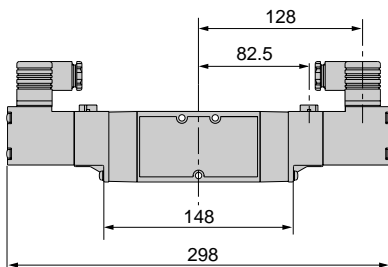
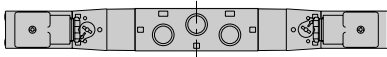
**4F320**  (File name: Page 638 or Ending 23)

- 2-position double: DIN terminal box

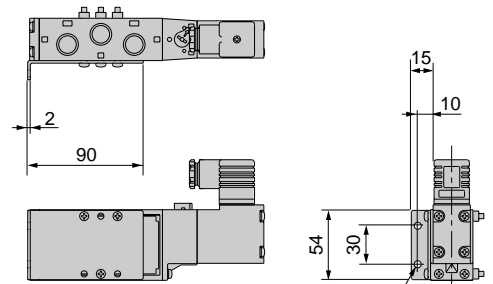


**4F3<sup>3</sup>/<sub>4</sub>0**  (File name: Page 638 or Ending 23)

- 3-position: DIN terminal box

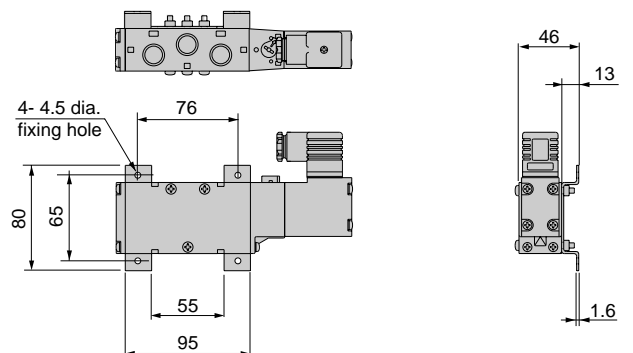


- Mounting bracket: (P: 2-position single only)



- Mounting bracket: (P1)

2- 5.5 dia. fixing hole



- Please refer to Page 632 about check valve.

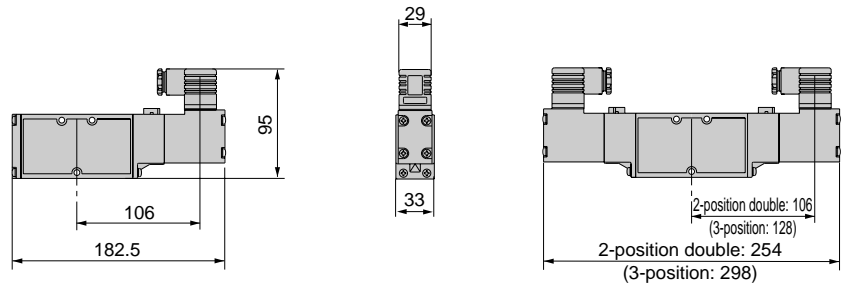
### Dimensions

⊕ 2-position single

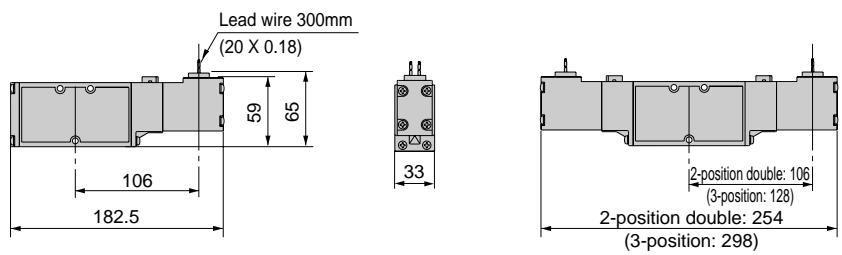
⊕ 2-position double/3-position

• Figure shows 2-position double.

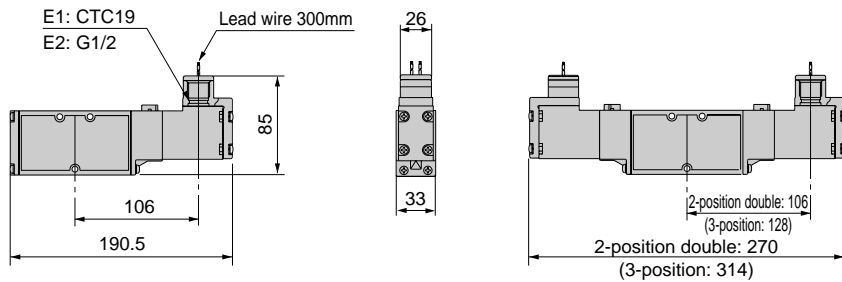
- DIN terminal box indicator light: (L)



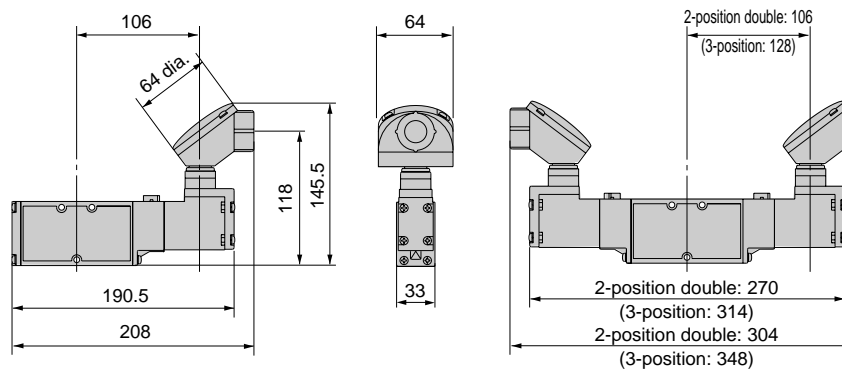
- Grommet lead wire: (E)



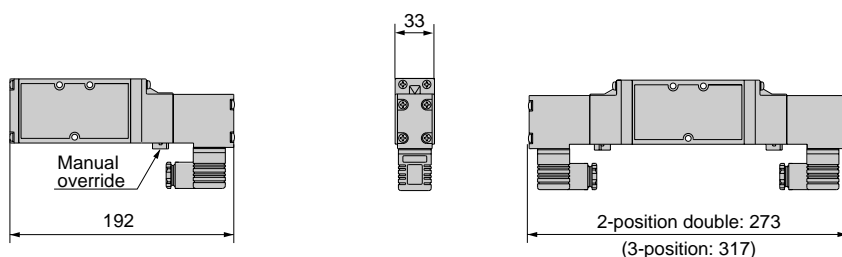
- Conduit with lead wire: (E1/E2)



- Round terminal box: (B1/B/BL)



- Position change of manual override: (R)



4SA/B0

4SA/B1

4GA/B

MN4GA/B

4GA/B  
(master)

MN3S0/  
MN4S0

4TB

4L2-4/  
LMF0

4KA/B

4F

PV5/  
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/  
NVP

4F\*\*0E

HMV/  
HSV

Uniwire  
system

SKH

PCD/  
FS/FD

5 port pilot operated valve  
Discrete