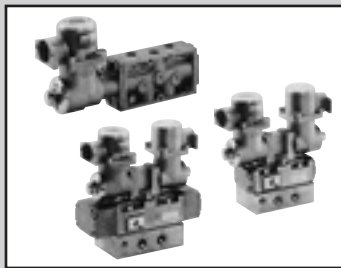


Discrete valve  
Pilot operated explosion-proof 5-port valve pneumatic valve

# 4F\*\*0E Series

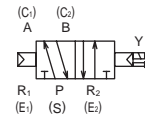
- Japan Conformity Certificate No. Class A: No. T64364 Class H: No. T64363
- China Conformity Certificate No. (CCC) 2020322307002070
- China explosion-proof type (NEPSI) GYB20.2251X
- Cylinder bore size:  $\phi 63$  to  $\phi 250$



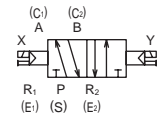
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (master)
- 4GB With sensor
- 4GD/E
- M4GD/E
- MN4GD/E
- 4GA4/B4
- MN3E MN4E
- W4GA/B2
- W4GB4
- MN3S0 MN4S0
- 4SA/B0
- 4KA/B
- 4KA/B (master)
- 4F
- 4F (master)
- PV5G GMF
- PV5 GMF
- PV5S-0
- 3Q
- MV3QR
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP NVP
- 4G\*0EJ
- 4F\*0EX
- 4F\*0E**
- HMV HSV
- 2QV 3QV
- SKH
- Silencer
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- Ending

## JIS symbol

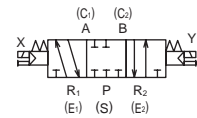
2-position/single



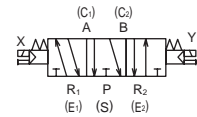
2-position/double



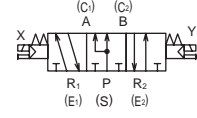
3-position/all ports closed



3-position/ABR connection



3-position/PAB connection



## Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressureMPa	1.0
Min. working pressureMPa	Refer to Individual specifications listed below
Proof pressure MPa	1.5
Ambient temperature°C (*1)	-10 to 60(no freezing)
Fluid temperature °C	5 to 60
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)
Explosion-proof performance	d2G4
Manual override	Locking
Vibration resistance $m/s^2$	50 or less
Shock resistance $m/s^2$	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

\*1: The ambient temperature indicates the temperature for storage and upon installation, which will differ from the fluid temperature during operation.

## Electrical specifications

Item	Description		
Rated voltage	AC	100V,200V,110V,220V(50/60Hz)	
	DC	24V, 12V	
Voltage fluctuation range		$\pm 10\%$	
Starting current	AC	100V	0.186/0.135
		200V	0.093/0.068
		110V	0.169/0.123
		220V	0.085/0.061
A	DC	24V	0.166
		12V	0.332
Holding current	AC	100V	0.06/0.05
		200V	0.03/0.025
		110V	0.055/0.045
		220V	0.027/0.023
A	DC	24V	0.166
		12V	0.332
Power consumption	AC	100V	4.5/4.0
		200V	4.5/4.0
		110V	4.5/4.0
		220V	4.5/4.0
W	DC	24V	4.0
		12V	4.0
Thermal class		A (*1, H)	

\*1: Thermal class H is available as an option. The dimensions are the same as those of A.

## Individual specifications

Item			4F3	4F4	4F5	4F6	4F7
Min. working pressure MPa	2-position	Single	0.1	0.1	0.1	0.15	0.15
		Double					
	3-position	All ports closed					
		A/B/R connection					
Port size (*1)	Air supply port S, cylinder port C		Rp1/4,Rp3/8	Rc1/4,Rc3/8	Rc3/8,Rc1/2	Rc1/2,Rc3/4	Rc3/4,Rc1
	Exhaust port E		Rp1/4,Rp3/8	Rc1/4,Rc3/8	Rc3/8,Rc1/2	Rc1/2,Rc3/4	Rc3/4,Rc1
	Pilot exhaust port (PE)		(Rp1/8)	(Rc1/8)	(Rc1/8)	(Rc1/4)	(Rc1/4)

\*1: NPT threads can also be used for piping port. Contact CKD for details. (However, the external wire inlet is G1/2.)

## Performance/characteristics by model

Item			4F3	4F4	4F5	4F6	4F7
Response time ms	(*1)		100	120	140	400	600

\*1: The response times are values with working pressure of 0.5 MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.

## Weight

Item			4F3	4F4	4F5	4F6	4F7
Weight kg (*1)	2-position	Single	0.80	1.16	1.41	2.08	3.62
		Double	1.24	1.61	1.90	2.58	4.10
	3-position		1.45	1.78	2.16	2.96	5.12

\*1: The weight is the value for TP. For the weight of GP, add 0.07 x (number of pilot actuators) kg.

### Flow characteristics

Model No.	Solenoid position		Port size	C[dm <sup>3</sup> /(s·bar)]	b	S(mm <sup>2</sup> )
4F3	2-position	Single	Rp1/4	3.9	0.42	-
		Double				
	3-position	All ports closed		4.0	0.35	
		A/B/R connection		4.5	0.42	
		P/A/B connection	4.0	0.35		
	2-position	Single	Rp3/8	5.8	0.42	
		Double				
	3-position	All ports closed		4.4	0.42	
A/B/R connection		5.1		0.46		
P/A/B connection		4.4	0.42			
4F4	2-position	Single	Rc1/4	5.0	0.21	-
		Double				
	3-position	All ports closed	Rc3/8	4.7	0.24	
		A/B/R connection		5.3	0.29	
		P/A/B connection		5.3	0.29	
4F5	2-position	Single	Rc3/8	10.0	0.32	-
		Double				
	3-position	All ports closed	Rc1/2	9.7	0.28	
		A/B/R connection		9.8	0.25	
		P/A/B connection				
4F6	2-position	Single	Rc1/2	18.0	0.31	-
		Double				
	3-position	All ports closed	Rc3/4	15.0	0.23	
		A/B/R connection				
		P/A/B connection				
4F7	2-position	Single	Rc3/4	-	-	160
		Double				
	3-position	All ports closed	Rc1	-	-	
		A/B/R connection				
		P/A/B connection				

\*1: Effective cross-sectional area S and sonic conductance C are converted as  $S \approx 5.0 \times C$ .

### Specifications for rechargeable battery

- For use in the rechargeable battery manufacturing process, materials used for air path and sliding section are limited; inquire with CKD for model numbers.

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5
GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
<b>4F*0E</b>
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# 4F\*\*0E Series

## Discrete valve

### How to order

● Pneumatic explosion-proof 5-port valve



**A** Model No.

**B** Solenoid position

**C** Port size

**D** External wire pull method

**E** Option

**F** Thermal class

**G** Voltage (\*1)

### ⚠ Precautions for model No. selection

\*1: Only the following voltage products are available as made to order. (There are no certifications for other than the listed voltage.)

Voltage	AC[V](50/60 Hz)	12, 24, 48, 115, 120, 125, 127, 210, 230, 240, 250, 380
	DC[V]	45, 48, 80, 100, 110, 125

\*2: Order coils as a pilot actuator assembly.

\*3: In order to ensure explosion-proof specifications, select a cable from the following for use with type G.

Cable type	No. of cores	Nominal section area	Wire config	Finished outer ø
Polyethylene cable (EV)	2-conductor	2 mm <sup>2</sup>	7/0.6	ø10.5
600 V vinyl insulation vinyl Sheath cable (VV)	2-conductor	2 mm <sup>2</sup>	7/0.6	ø10.5
Control vinyl insulation vinyl Sheath cable (CVV)	2-conductor	2 mm <sup>2</sup>	7/0.6	ø10.5

### [Example of model No.]

#### 4F410E-10-GP-P-X-AC100V

- A** Model No. : Pilot operated explosion-proof 5-port valve
- B** Solenoid position : 2-position single
- C** Port size : Rc3/8
- D** External wire pull method : Pressure-proof packing protection pipe screw-in
- E** Option : Installation feet U type bracket
- F** Thermal class : H
- G** Voltage : 100 VAC

**H** Organizations for explosive-proof certification

A Model No.				
4F3	4F4	4F5	4F6	4F7
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>B Solenoid position</b>						
1	2 position single	●	●	●	●	●
2	2-position double	●	●	●	●	●
3	3-position all ports closed	●	●	●	●	●
4	3-position ABR connection	●	●	●	●	●
5	3-position PAB connection	●	●	●	●	●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>C Port size</b>						
08	Rp1/4 (for 4F3), Rc1/4	●	●			
10	Rp3/8 (for 4F3), Rc3/8	●	●	●		
15	Rc1/2			●	●	
20	Rc3/4				●	●
25	Rc1					●
08N	NPT1/4	●	●			
10N	NPT3/8	●	●	●		
15N	NPT1/2			●	●	
20N	NPT3/4				●	●
25N	NPT1					●
08G	G1/4	●	●			
10G	G3/8	●	●	●		
15G	G1/2			●	●	
20G	G3/4				●	●
25G	G1					●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>D External wire pull method</b>						
G	Pressure proof packing protection pipe screw-in *3	●	●	●	●	●
T	Conduit thread system	●	●	●	●	●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>E Option</b>						
Blank	No option	●	●	●	●	●
P	Installation feet L-bracket (for 4F3 2-position single) installation feet U type bracket (for 4F4 to 4F7)	●	●	●	●	●
P1	Installation feet U type bracket (for 2-position double solenoid/3-position)	●				
H	Check valve attached (dedicated for 3-position all ports closed)	●	●	●	●	●
N	Plug included (for 3-port valve)	●	●	●	●	●
R	Position change of manual override	●				
NC	3-port valve specifications plug assembly (C1 (A), E1 (R1) assembly)	●	●	●	●	●
NO	3-port valve specifications plug assembly (C2 (B), E2 (R2) assembly)	●	●	●	●	●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>F Thermal class</b>						
Blank	A (standard product)	●	●	●	●	●
X	H (Option)	●	●	●	●	●

Code	Description	4F3	4F4	4F5	4F6	4F7
<b>G Voltage</b>						
AC100V	100 VAC (50/60 Hz)	●	●	●	●	●
AC200V	200 VAC (50/60 Hz)	●	●	●	●	●
DC24V	24 VDC	●	●	●	●	●
DC12V	12 VDC	●	●	●	●	●
AC110V	110 VAC (50/60 Hz)	●	●	●	●	●
AC220V	220 VAC (50/60 Hz)	●	●	●	●	●

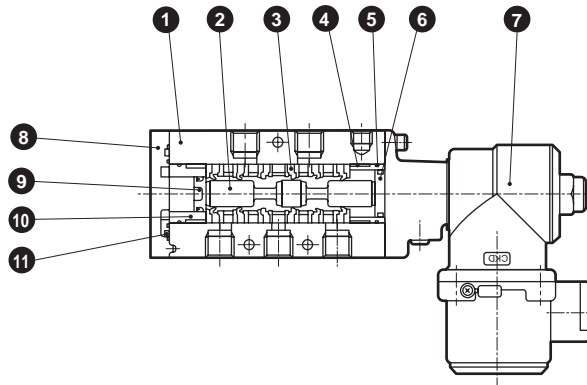
* Other made-to-order products						
[AC voltage]						
12V, 24V, 48V, 115V, 120V, 125V, 127V,						
210V, 230V, 240V, 250V, 380V	●	●	●	●	●	●
[DC voltage]						
45V, 48V, 80V, 100V, 110V, 125V	●	●	●	●	●	●

<b>H Organizations for explosive-proof certification</b>						
Blank	Japan Certification (TIIS)	●	●	●	●	●
CN	China Compulsory Certificate (CCC)	●	●	●	●	●

## Internal structure and parts list

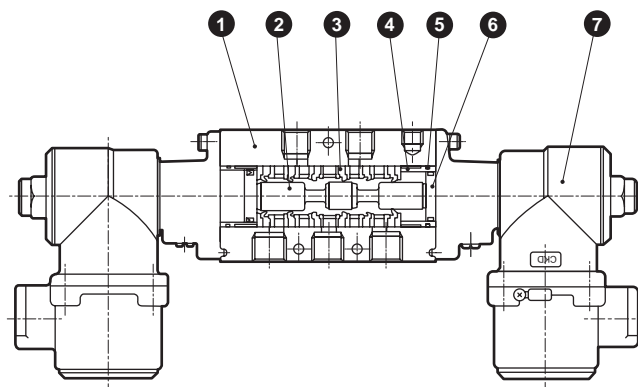
### 4F310E

● 2-position single



### 4F320E

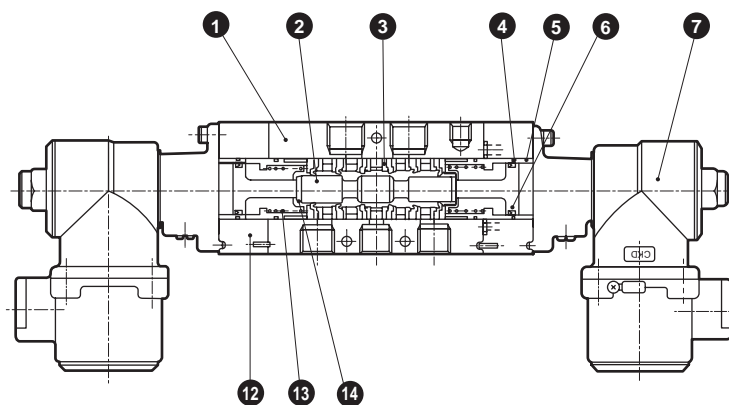
● 2-position double



### 4F330E/4F340E/4F350E

● 3-position

All ports closed  
A/B/R connection  
P/A/B connection



## Main parts list

No.	Part name	Material
1	Body	Aluminum alloy die-casting
2	Spool	Aluminum alloy
3	Sealant assembly	-
4	Cylinder (A) (large)	Aluminum alloy
5	O-ring	Nitrile rubber
6	Piston assembly (A) (large)	-
7	Actuator assembly	*1
8	Cap	Aluminum alloy die-casting
9	Piston assembly (B) (small)	-
10	Cylinder (B) (small)	Aluminum alloy
11	Gasket	Nitrile rubber
12	Body block	Aluminum alloy die-casting
13	Spring	Piano wire
14	Spring seat	Stainless steel

## Repair parts list

No./part name	3 6 9	3	6	9
Model No.	Repair parts kit	Sealant Assy	Piston Assy (A) (L)	Piston Assy (B) (S)
4F310E	4F310-K	4F9-106	4F9-104	4F9-103
4F320E	4F320-K		-	-
4F330E	4F330-K		-	-
4F340E			4F9-114	-
4F350E		-	-	

\*1 (Actuator assembly model No.)  
4F3<sup>1</sup>0E-(D)-P-(F)-(G)  
Select from How to order on page 1812.

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E
MN4E
W4GA/B2
W4GB4
MN3S0
MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G
GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP
NVP
4G*0EJ
4F*0EX
<b>4F*0E</b>
HMV
HSV
2QV
3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

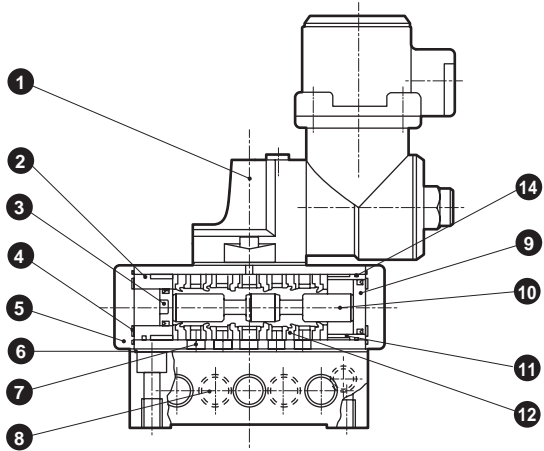
# 4F<sup>4</sup><sub>5</sub><sup>7</sup>\*0E Series

Discrete valve; sub-plate piping

## Internal structure and parts list

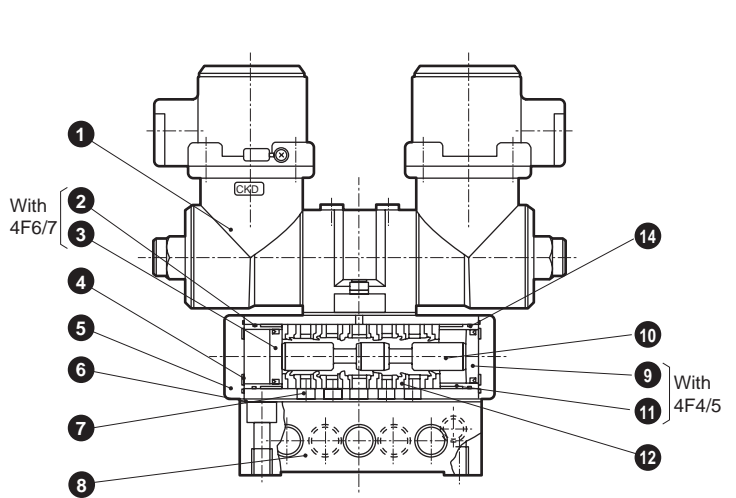
### 4F<sup>4</sup><sub>5</sub><sup>6</sup>10E

● 2-position single



### 4F<sup>4</sup><sub>5</sub><sup>7</sup>20E

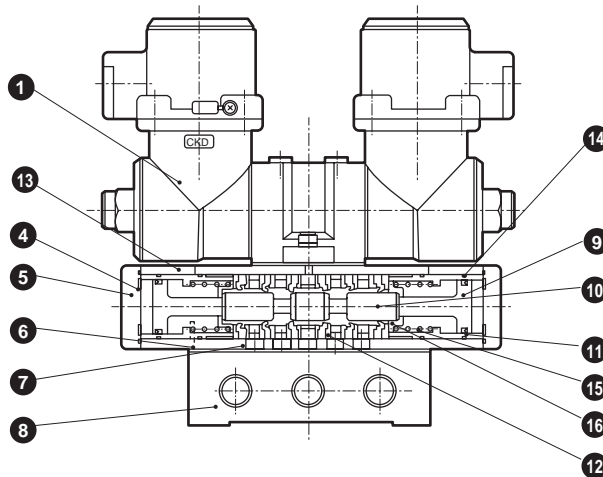
● 2-position double



### 4F<sup>4</sup><sub>5</sub><sup>6</sup>30E/4F<sup>4</sup><sub>5</sub><sup>6</sup>40E/4F<sup>4</sup><sub>5</sub><sup>6</sup>50E

● 3-position

All ports closed  
A/B/R connection  
P/A/B connection



## Main parts list

## Repair parts list

No.	Part name	Material	No./part name	9 12 3	9	12	3
				Model No.	Repair parts kit	Piston Assy (A) (L)	Sealant Assy
1	Actuator assembly	*1	4F410E	4F410-K	4F9-104	4F9-106	4F9-103
2	Cylinder (B) (small)	Aluminum alloy	4F420E	4F420-K			-
3	Piston assembly (B) (small)	-	4F430E	4F430-K	4F9-114	4F9-108	-
4	Gasket	Nitrile rubber	4F440E	4F440-K			-
5	Cap	Aluminum alloy die-casting	4F450E	4F450-K	4F9-108	4F9-107	4F9-109
6	Sub-plate gasket	Nitrile rubber	4F510E	4F510-K			-
7	Body	Aluminum alloy die-casting	4F520E	4F520-K	4F9-115	4F9-107	-
8	Sub-plate	Aluminum alloy die-casting	4F530E	4F530-K			-
9	Piston assembly (A) (large)	-	4F540E	4F540-K	4F9-117	4F9-118	-
10	Spool	Aluminum alloy	4F550E	4F550-K			-
11	Cylinder (A) (large)	Aluminum alloy	4F610E	4F610-K	-	4F9-118	4F9-116
12	Sealant assembly	-	4F620E	4F620-K			-
13	Body block	Aluminum alloy die-casting	4F630E	4F630-K	4F9-122	4F9-119	-
14	O-ring	Nitrile rubber	4F640E	4F640-K			-
15	Spring	Piano wire	4F650E	4F650-K	4F9-121	4F9-119	-
16	Spring seat	Stainless steel	4F710E	4F710-K			-
			4F720E	4F720-K	4F9-123	4F9-119	4F9-120
			4F730E	4F730-K			-
			4F740E	4F740-K	4F9-123	4F9-119	-
			4F750E	4F750-K			-

\*1 (Actuator assembly)  
4F4<sup>1</sup><sub>2</sub>0E-**Ⓧ**P-**Ⓧ**Ⓧ  
Select from How to order on page 1812.

# MEMO

4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
<b>4F*0E</b>
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# 4F3\*0E Series

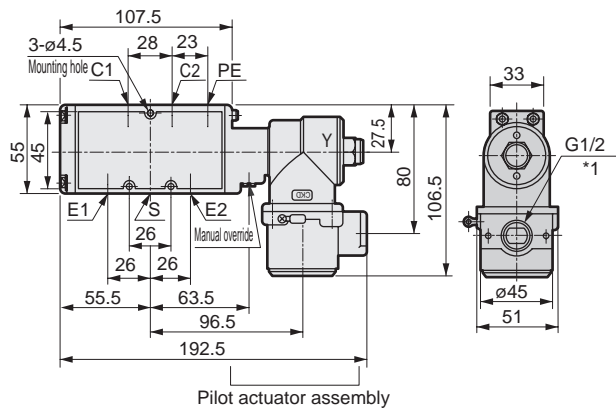
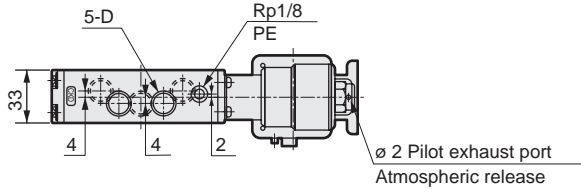
Discrete valve; body piping

## Dimensions



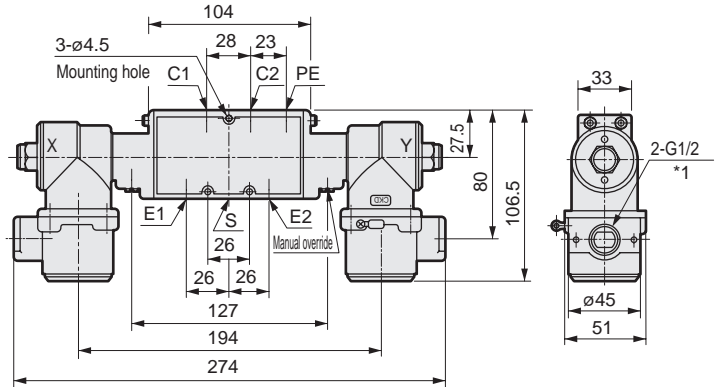
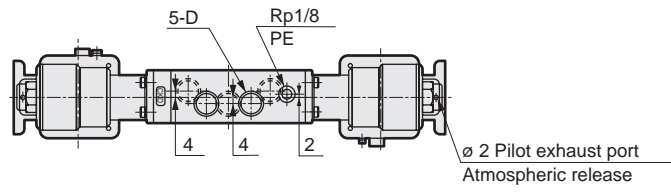
### 4F310E

● 2-position single



### 4F320E

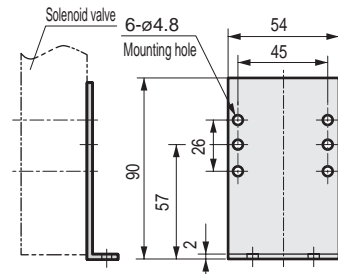
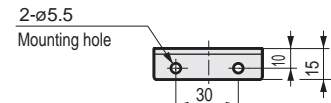
● 2-position double



Model No.	D
*-08	Rp1/4
*-10	Rp3/8

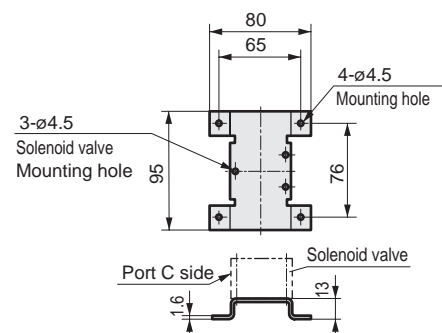
\*1 If model No. "-CN", it will be NPT1/2.

● L type installation feet (P) Single Dedicated material: Cold-rolled steel plates (SPCC) Zinc plated



Model No.	D
*-08	Rp1/4
*-10	Rp3/8

● U type installation feet (P1) Material: Cold-rolled steel plates (SPCC) Zinc plated



### 4F330E

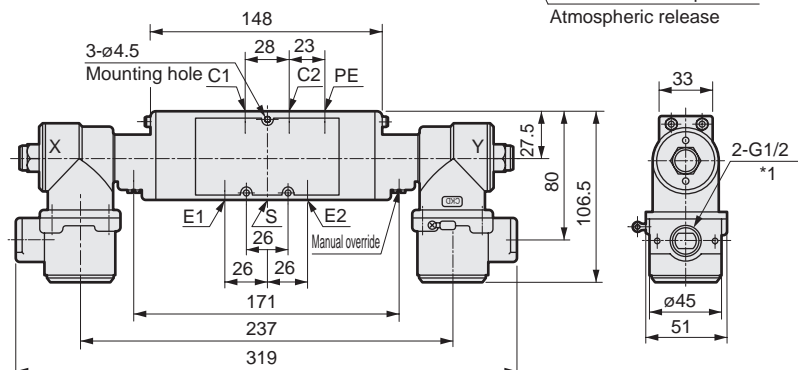
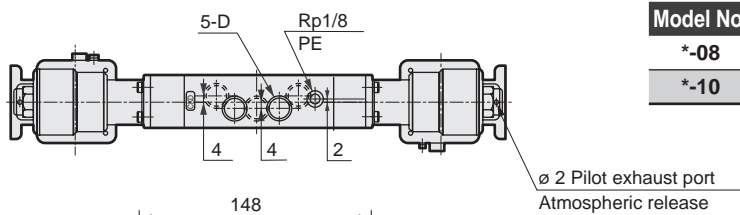
● 3-position all ports closed

### 4F340E

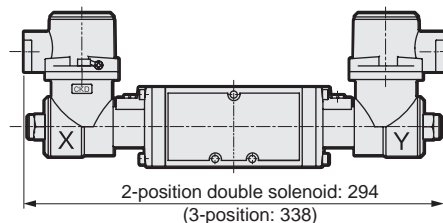
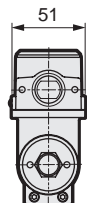
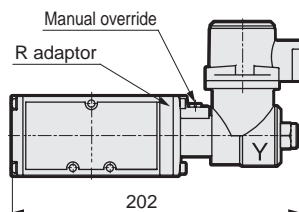
● 3-position A/B/R connection

### 4F350E

● 3-position P/A/B connection



● Position change of manual override (R)



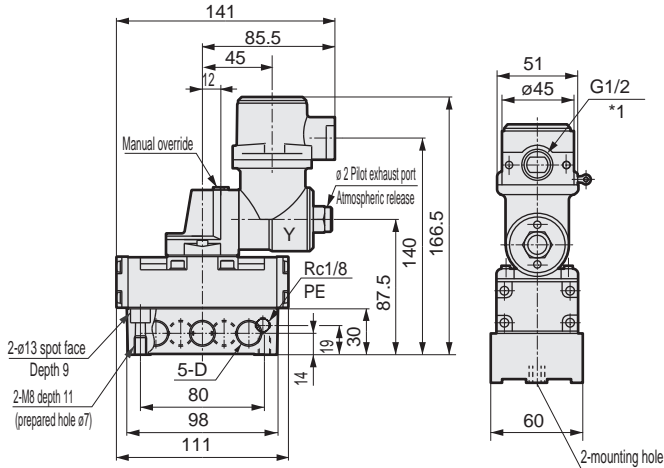
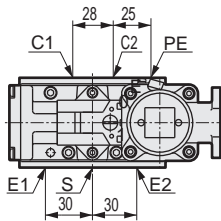


## Dimensions



### 4F410E

● 2-position single

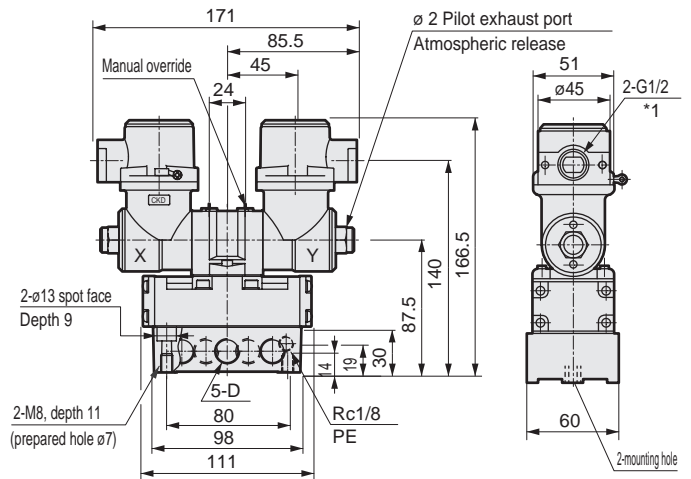
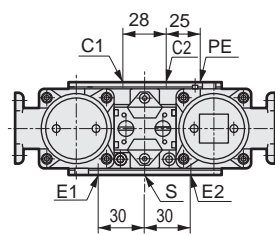


Model No.	D
*-08	Rc1/4
*-10	Rc3/8

\*1 If model No. "-CN", it will be NPT1/2.

### 4F420E

● 2-position double



### 4F430E

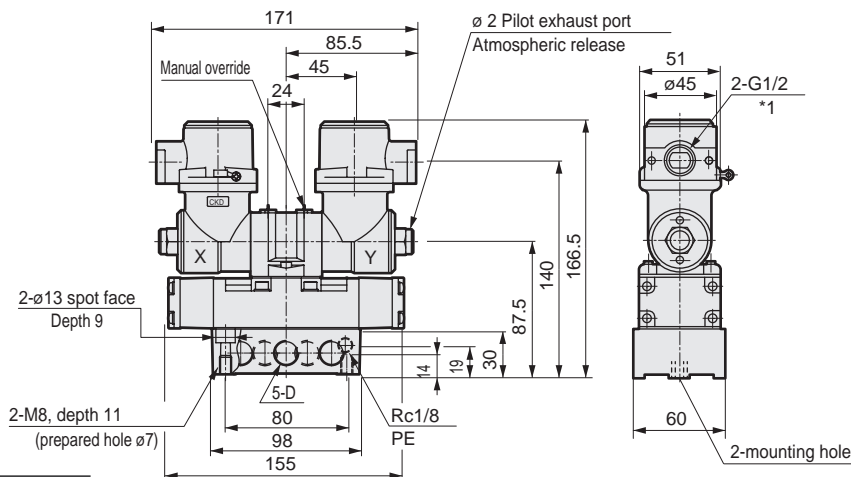
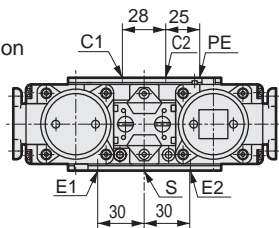
● 3-position all ports closed

### 4F440E

● 3-position A/B/R connection

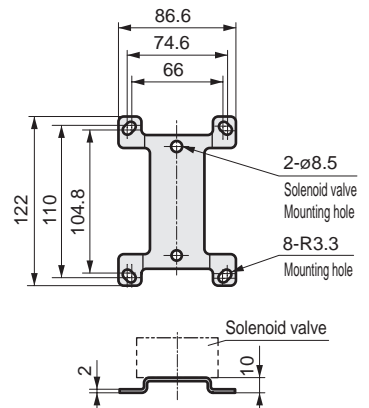
### 4F450E

● 3-position P/A/B connection



Model No.	D
*-08	Rc1/4
*-10	Rc3/8

● U type installation feet (P)  
Material: HOT-ROLLED STEEL SHEET  
ZINC PLATED TREATMENT



4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
<b>4F*0E</b>
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending



# 4F5\*0E Series

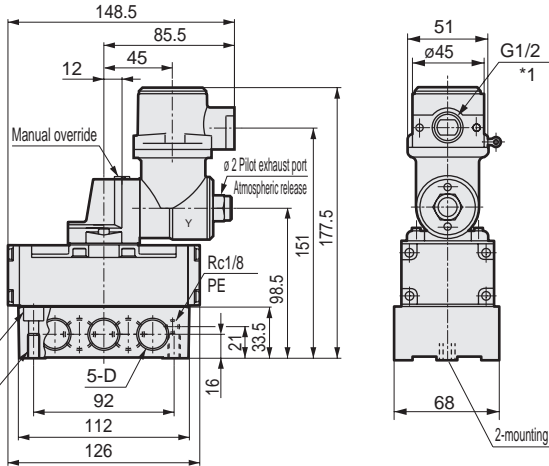
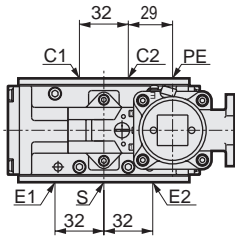
Discrete valve; sub-plate piping

## Dimensions



### 4F510E

● 2-position single

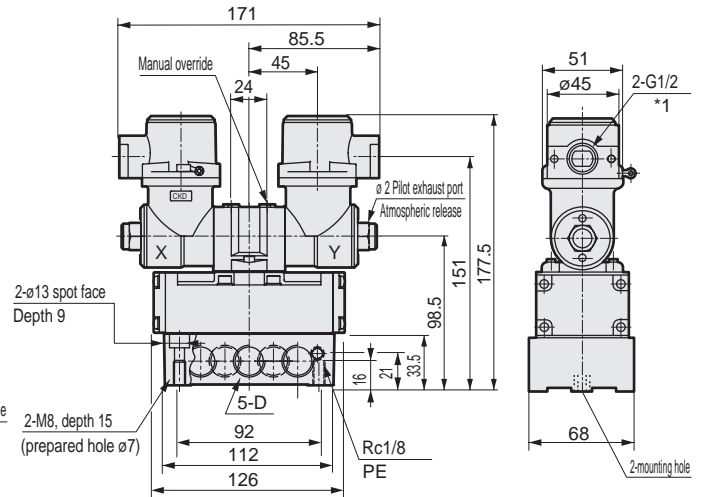
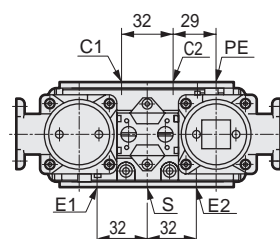


Model No.	D
*-10	Rc3/8
*-15	Rc1/2

\*1 If model No. "-CN", it will be NPT1/2.

### 4F520E

● 2-position double



### 4F530E

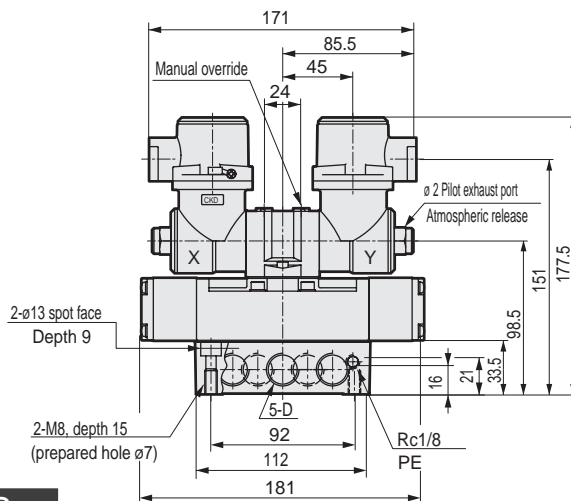
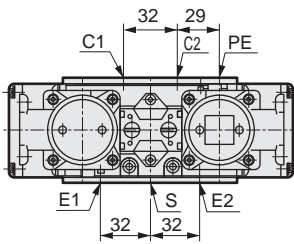
● 3-position all ports closed

### 4F540E

● 3-position A/B/R connection

### 4F550E

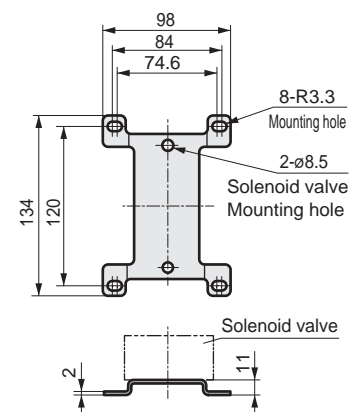
● 3-position P/A/B connection



Model No.	D
*-10	Rc3/8
*-15	Rc1/2

● U type installation feet(P)

Material: HOT-ROLLED STEEL SHEET ZINC PLATED TREATMENT

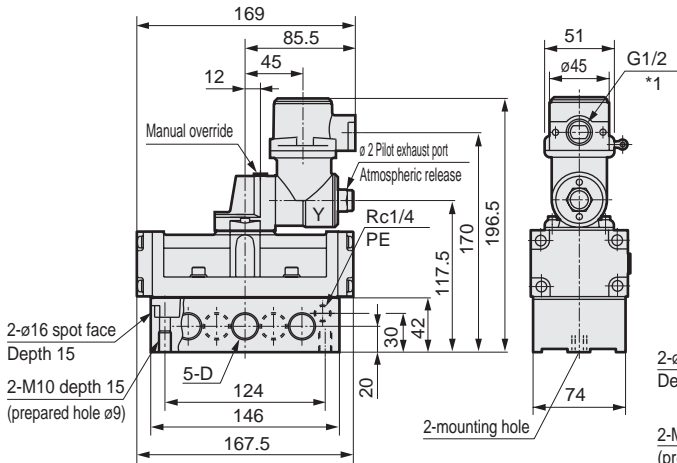
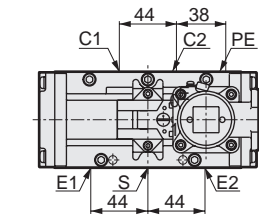


## Dimensions



### 4F610E

● 2-position single

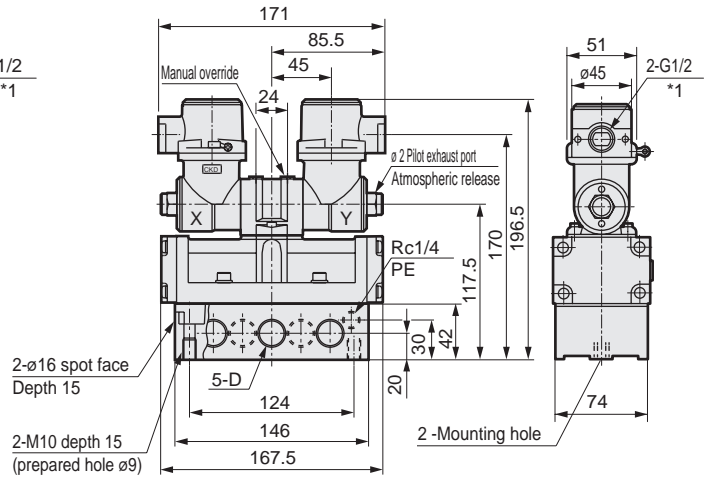
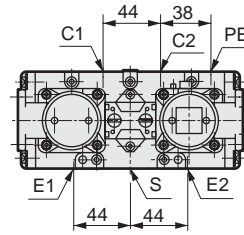


Model No.	D
*-15	Rc1/2
*-20	Rc3/4

\*1 If model No. "-CN", it will be NPT1/2.

### 4F620E

● 2-position double



### 4F630E

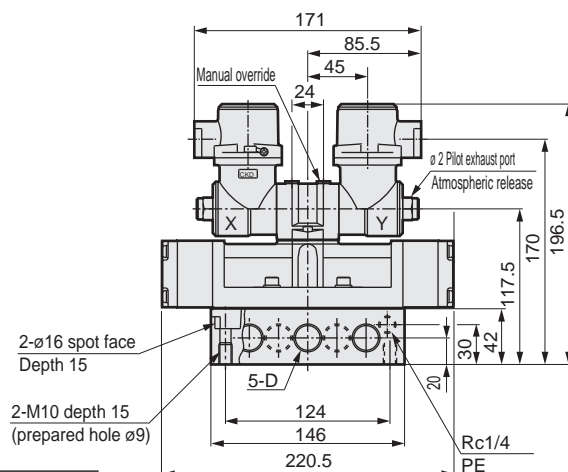
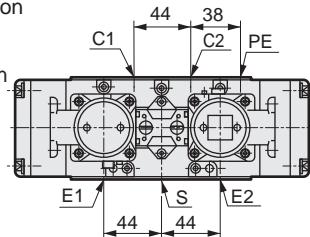
● 3-position all ports closed

### 4F640E

● 3-position A/B/R connection

### 4F650E

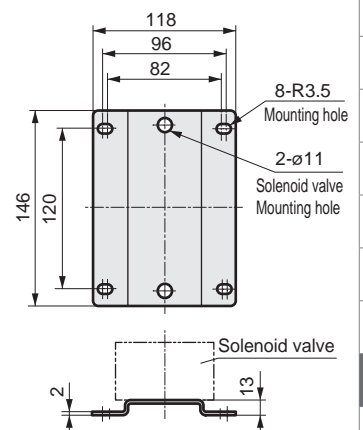
● 3-position P/A/B connection



Model No.	D
*-15	Rc1/2
*-20	Rc3/4

● U type installation feet (P)

Material: Cold-rolled steel plates (SPCC) Zinc plated



4GA/B
M4GA/B
MN4GA/B
4GA/B (master)
4GB With sensor
4GD/E
M4GD/E
MN4GD/E
4GA4/B4
MN3E MN4E
W4GA/B2
W4GB4
MN3S0 MN4S0
4SA/B0
4KA/B
4KA/B (master)
4F
4F (master)
PV5G GMF
PV5 GMF
PV5S-0
3Q
MV3QR
3MA/B0
3PA/B
P/M/B
NP/NAP NVP
4G*0EJ
4F*0EX
<b>4F*0E</b>
HMV HSV
2QV 3QV
SKH
Silencer
TotAirSys (Total Air)
TotAirSys (Gamma)
Ending

# 4F7\*0E Series

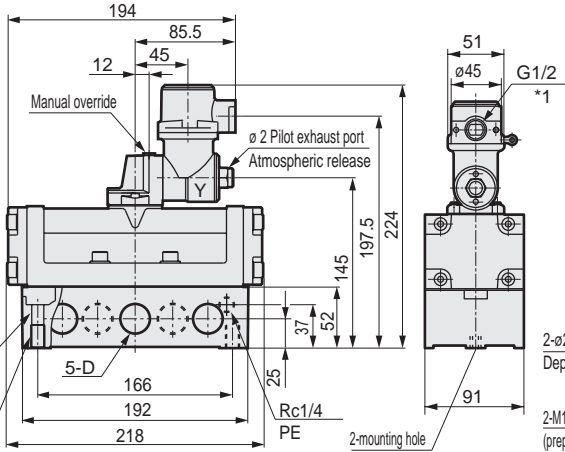
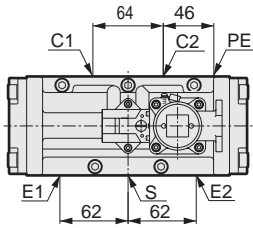
Discrete valve; sub-plate piping

## Dimensions



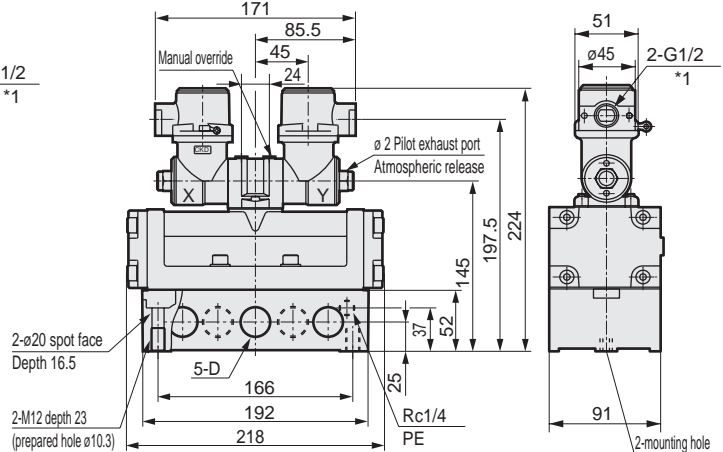
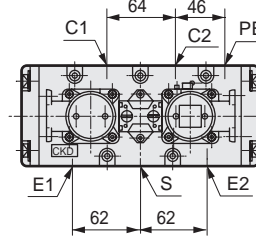
### 4F710E

● 2-position single



### 4F720E

● 2-position double



Model No.	D
*-20	Rc3/4
*-25	Rc 1

\*1 If model No. "-CN", it will be NPT1/2.

### 4F730E

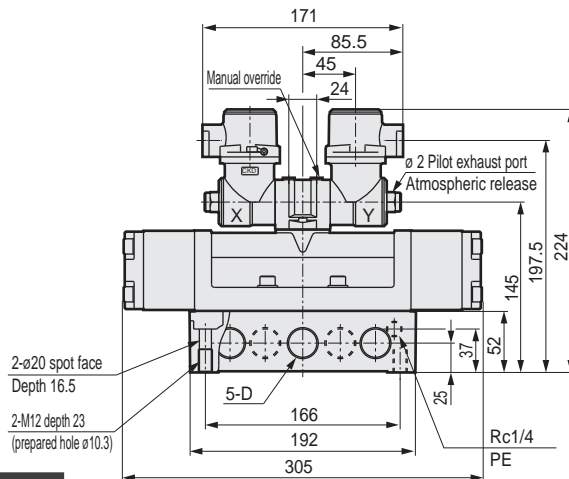
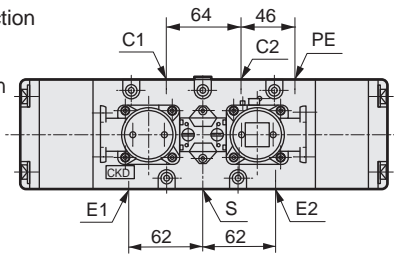
● 3-position all ports closed

### 4F740E

● 3-position A/B/R connection

### 4F750E

● 3-position P/A/B connection



Model No.	D
*-20	Rc3/4
*-25	Rc 1

● U type installation feet (P)  
Material: Cold-rolled steel plates  
(SPCC) Zinc plated

