

Master valve single unit/manifold
Pilot operated 5-port pneumatic valve

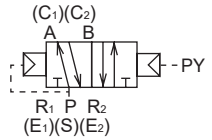
4F Series

● Cylinder bore size: ø10 to ø250

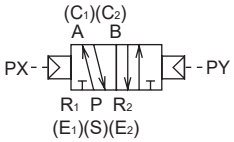
RoHS

● JIS symbol

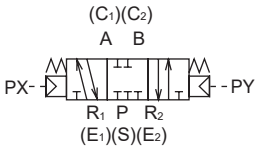
2-position single



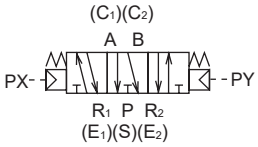
2-position double



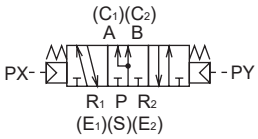
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)
Min. working pressure MPa	Refer to main pressure section in the table below
Ambient temperature °C (*1)	-10 (14°F) to 60 (140°F) (no freezing)
Fluid temperature °C	5 (41°F) to 60 (140°F)
Lubrication	Not required (use turbine oil ISO VG32 if lubrication is necessary)
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.

Individual specifications (discrete valve/manifold) 1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Position No. of solenoids					Model No.		Specifications					
							*1 Port size					
2-position single	2-position double	3-position all ports closed	3-position A/B/R connection	3-position P/A/B connection	Series Model No.		Air supply port S	Cylinder port C	Exhaust port E Pilot exhaust port PE	Pilot port	Main pressure MPa	Pilot signal pressure MPa
●					4F0 Series	A4F011	M5, Rp 1/8	M5, Rp 1/8	M5	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F021					0 to 1.0	P ≥ 0.15
●					4F1 Series	4F111	Rp 1/8 Rp 1/4	Rp 1/8 Rp 1/4	Rp 1/8	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F121					0 to 1.0	P ≥ 0.15
		●				4F131						P ≥ 0.2
			●			4F141						
●					4F2 Series	4F211	Rp 1/4	Rp 1/4	E:Rp 1/4 PE:Rp 1/8	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F221					0 to 1.0	P ≥ 0.15
		●				4F231						P ≥ 0.2
			●			4F241						
●					4F3 Series	4F311	Rp 1/4 Rp 3/8	Rp 1/4 Rp 3/8	E:Rp 1/4 Rp 3/8 PE:Rp 1/8	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F321					0 to 1.0	P ≥ 0.15
		●				4F331						P ≥ 0.2
			●			4F341						
				●		4F351						
●					4F4 Series	4F411	Rc 1/4 Rc 3/8	Rc 1/4 Rc 3/8	E:Rc 1/4 Rc 3/8 PE:Rc 1/8	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F421					0 to 1.0	P ≥ 0.15
		●				4F431						P ≥ 0.2
			●			4F441						
				●		4F451						
●					4F5 Series	4F511	Rc3/8 Rc1/2	Rc3/8 Rc1/2	E:Rc 3/8 Rc 1/2 PE:Rc 1/8	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F521					0 to 1.0	P ≥ 0.15
		●				4F531						P ≥ 0.2
			●			4F541						
				●		4F551						
●					4F6 Series	4F611	Rc1/2 Rc3/4	Rc1/2 Rc3/4	E:Rc 1/2 Rc 3/4 PE:Rc 1/4	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F621					0 to 1.0	P ≥ 0.15
		●				4F631						P ≥ 0.2
			●			4F641						
				●		4F651						
●					4F7 Series	4F711	Rc3/4 Rc1	Rc3/4 Rc1	E:Rc 3/4 Rc1 PE:Rc 1/4	Rc 1/8	0.15 to 1.0	P ≥ 0.6 x main pressure + 0.06
	●					4F721					0 to 1.0	P ≥ 0.15
		●				4F731						P ≥ 0.2
			●			4F741						
				●		4F751						

*1: There are options available for port size other than those in the above table. Refer to the model No. display on page 1456.

Flow characteristics

Series	Model No.	Port size	C[dm³/(s·bar)]	b	S(mm²)
4F0	A4F011	M5	0.61	0.35	-
	4F021				
	A4F011	Rp1/8	0.74	0.27	-
	4F021				
4F1	4F111	Rp1/8	2.0	0.33	-
	4F121				
	4F131	Rp1/4	1.5	0.31	
	4F141		1.6	0.29	
4F2	4F211	Rp1/4	3.0	0.33	-
	4F221				
	4F231		2.5	0.43	
	4F241				
4F3	4F311	Rp1/4	3.9	0.42	-
	4F321				
	4F331		4.0	0.35	
	4F341		4.5	0.42	
	4F351		4.0	0.35	
	4F311	Rp3/8	5.8	0.30	-
	4F321				
	4F331		4.4	0.42	
	4F341		5.1	0.46	
	4F351		4.4	0.42	
4F4	4F411	Rc1/4 Rc3/8	5.0	0.21	-
	4F421				
	4F431		4.7	0.24	
	4F441		5.3	0.29	
	4F451		5.3	0.29	
4F5	4F511	Rc3/8 Rc1/2	10.0	0.32	-
	4F521				
	4F531		9.7	0.28	
	4F541		9.8	0.25	
	4F551				
4F6	4F611	Rc1/2 Rc3/4	18.0	0.31	-
	4F621				
	4F631		15.0	0.23	
	4F641				
	4F651				
4F7	4F711	Rc3/4 Rc1	-	-	160
	4F721				
	4F731				
	4F741				
	4F751				

*1: Effective cross-sectional area “S” and sonic conductance “C” are converted as S ≈ 5.0 x C.

How to order single valve/body piping

4F2 1 1 - 08 - P

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Option

Code	Description	Ⓐ Model No. Body piping A4F0(*1)	4F1	4F2	4F3
Ⓑ Solenoid position					
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				●
Ⓒ Port size					
M5	M5	●			
06	Rp 1/8	●	●		
08	Rp 1/4		●	●	●
10	Rp 3/8				●
06N	NPT 1/8		●		
08N	NPT 1/4		●	●	●
10N	NPT 3/8				●
06G	G 1/8		●		
08G	G 1/4		●	●	●
10G	G 3/8				●
Ⓓ Option					
Blank	No	●	●	●	●
P	Installation feet (for 2-position single)	●	●	●	●
P1	Installation feet	●	●	●	●
N	Plug included (for 3-port valve)	●	●	●	●
H	Check valve attached (only for 3-position all ports closed)			●	●
NC	3-way valve used plug assembly (C1(A).E1(R1)Assembly)	●	●	●	●
NO	3-way valve used plug assembly (C2(B).E2(R2)Assembly)	●	●	●	●

[Example of model No.]

4F111-06-P

Ⓐ Model: 4F1
Ⓑ Solenoid position: 2-position single
Ⓒ Port size: Rp1 / 8
Ⓓ Option: with P type installation feet

*1: With the single type, (A) will be A4F011.

How to order single valve/sub-plate piping

4F4 1 1 - 08 - P

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Option

Code	Description	Ⓐ Model No. Sub-plate piping 4F4	4F5	4F6	4F7
Ⓑ Solenoid position					
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	●	●	●	●
Ⓒ Port size					
08	Rc 1/4	●			
10	Rc 3/8	●	●		
15	Rc 1/2		●	●	
20	Rc 3/4			●	●
25	Rc 1				●
08N	NPT 1/4	●			
10N	NPT 3/8	●	●		
15N	NPT 1/2		●	●	
20N	NPT 3/4			●	●
25N	NPT 1				●
08G	G 1/4	●			
10G	G 3/8	●	●		
15G	G 1/2		●	●	
20G	G 3/4			●	●
25G	G 1				●
Ⓓ Option					
Blank	No	●	●	●	●
P	Installation feet	●	●	●	●
N	Plug included (for 3-port valve)	●	●	●	●
H	Check valve attached (for 3-position all ports closed)	●	●	●	●
NC	3-way valve used plug assembly (C1(A).E1(R1)Assembly)	●	●	●	●
NO	3-way valve used plug assembly (C2(B).E2(R2)Assembly)	●	●	●	●

[Model No. example]

4F411-08-P

Ⓐ Model: 4F4
Ⓑ Solenoid position: 2-position single
Ⓒ Port size: Rp1 / 4
Ⓓ Option: with P type installation feet

How to order manifold/body piping

● Master valve for manifold

4F2 1 1 - 08 - ○ ---------- Refer to the following precautions.

4F3 1 8 - 08 - ○ —— I

● Manifold

M 4F3 1 1 - 08 - ○ - 3 - CU - S1 S2 S3 S4 S5 MP

4F3: up to S5
Up to 4F1.2:S4
Up to 4F0:S2

For mix manifolds, create a manifold specifications sheet (pages 1448 and 1449).

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Other options

Ⓔ Station No.

Ⓕ Exhaust installation method

Ⓐ Model No.		Body piping			
Code	Description	A4F0(*1)	4F1	4F2	4F3
Ⓑ Solenoid position					
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				●
8	Mix manifold	●	●	●	●
Ⓒ Port size					
M5	M5	●			
06	Rp 1/8	●	●		
08	Rp 1/4		●	●	●
10	Rp 3/8				●
06N	NPT 1/8		●		
08N	NPT 1/4		●	●	●
10N	NPT 3/8				●
06G	G 1/8		●		
08G	G 1/4		●	●	●
10G	G 3/8				●
Ⓓ Other options					
Blank	No option	●	●	●	●
NC	3-way valve used plug assembly (C1(A).E1(R1)Assembly)	●	●	●	●
NO	3-way valve used plug assembly (C2(B).E2(R2)Assembly)	●	●	●	●
Ⓔ Station No.					
2 to 10	2 stations to 10 stations	●	●	●	●
Ⓕ Exhaust installation method					
CL	Common exhaust with L-bracket (for 2-position single)	●	●	●	●
CU	Common exhaust with U-bracket	●	●	●	●
IL	Individual exhaust with L-bracket (for 2-position single)	●	●	●	●
IU	Individual exhaust with U-bracket	●	●	●	●
C	Common exhaust			●	●
I	Individual exhaust		●	●	●

⚠ Precautions for model No. selection

Separate use of the single master valves for manifolds as listed below depending on the model.

■ When 4F0 to 4F1

4F1 B 1 - C - D

When using the unit as a repair item, separately also purchase the gasket kit listed below depending on the model.

M4F0-GASKET-KIT
M4F1-GASKET-KIT
M4F1-I-GASKET-KIT

■ When 4F2/4F3

Exhaust installation method CL, CU, IL, IU
* Installed on the manifold.

4F3 B 1 - C - D

When using the unit as a repair item, separately also purchase the gasket kit listed below depending on the model.

M4F2-GASKET-KIT
M4F3-GASKET-KIT

■ When the exhaust installation method is C or I
* Connect the body.

4F3 B 8 - C — D - F

(However, when item Ⓕ is C: blank, when I: write I)

The gasket kit is attached.
*1: With the single type, (A) will be A4F011.

[Example of model No.]

M4F341-08-NO-5-C

Ⓐ Model : M4F3
Ⓑ Solenoid position : 3-position A, B, R connection
Ⓒ Port size : Rp1 / 4
Ⓓ Other options : 3-way valve used plug assembly (C2:B, E2:R2)
Ⓔ Station No. : 5 stations
Ⓕ Exhaust installation method : common exhaust

How to order manifold/sub-plate piping

● Master valve for manifold

4F4 1 8 - 00 - ( )

● Manifold

M 4F4 1 1 - 08 - ( ) - 3 - C - S_1 S_2 S_3 S_4 S_5 MP

For mix manifolds, create a manifold specifications sheet (pages 1450 and 1451).

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Other options

Ⓔ Station No.

Ⓕ Exhaust installation method

Code	Description	Ⓐ Model No. Sub-plate piping 4F4	4F5	4F6	4F7
Ⓑ Solenoid position					
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	●	●	●	●
8	Mix manifold	●	●	●	●
Ⓒ Port size					
08	Rc 1/4	●			
10	Rc 3/8		●		
D15	Rc 1/2			●	
E20	Rc 3/4				●
08N	NPT 1/4	●			
10N	NPT 3/8		●		
D15N	NPT 1/2			●	
E20N	NPT 3/4				●
08G	G 1/4	●			
10G	G 3/8		●		
D15G	G 1/2			●	
E20G	G 3/4				●
Ⓓ Other options					
Blank	No option	●	●	●	●
NC	3-way valve used plug assembly (C1(A).E1(R 1)Assembly)	●	●	●	●
NO	3-way valve used plug assembly (C2(B).E2(R 2)Assembly)	●	●	●	●
Ⓔ Station No.					
2	2 stations	●	●	●	●
to	to				
10	10 stations				
Ⓕ Exhaust installation method					
C	Common exhaust	●	●	●	●

[Example of model No.]

M4F441-08-NC-5-C

Ⓐ Model : M4F4
Ⓑ Solenoid position : 3-position A, B, R connection
Ⓒ Port size : Rp1 / 4
Ⓓ Other options : 3-way valve used plug assembly (C1:A, E1:R1)
Ⓔ Station No. : 5 stations
Ⓕ Exhaust installation method : common exhaust