

3, 4, 5 port pilot operated valve **4K** Series

Overview

The 4KA and 4KB Series are the compact 3, 4, 5 port valve series available in valve widths including 15, 18, 23, and 29 mm. This series is suitable for driving 40 to 160 diameter cylinders.

Features

High reliability

The newly designed soft spool increases reliability.

The manifold has a standard filter on the P port.

Long life

Newly developed wear-resistant packing extends life.

Responsiveness

Responsiveness during initial operation is stabilized by newly developed special packing.

Compact

The compact design downsizes the entire device.

Ample wire connections

Connections such as wire lead, terminal box, and connectors are available. Operation indicator light and surge suppressors can also be used.

High-density integration

Manifolds can be freely and flexibly combined, making it easy to increase and decrease the number of stations.

4KA/B

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(2) How to wire terminal box wiring and connector	880



Safety precautions

Always read this section before starting use.
Refer to Intro 63 for precautions on general valve.

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMFO

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMFPV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*0E

HNV
HSV2QV
3QV

SKH

PCD/
FS/FD

Ending

3, 4, 5 port pilot operated valve 4K Series

Design & Selection

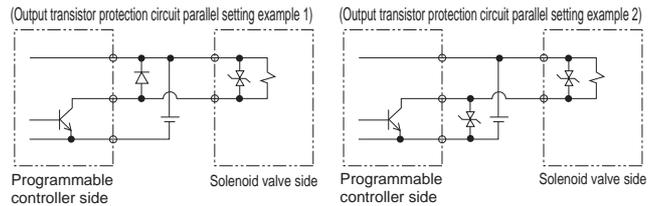
1. Surge suppressor

CAUTION

- The surge suppressor enclosed with the solenoid valve is to protect the output contact for that solenoid valve's drive. There is no significant protection for other devices in the area, and the surge may cause damage or malfunctions. Surge generated by other devices could be absorbed and cause damage such as burning. Note the followings when selecting the type with built-in surge suppressor (wire connection symbols: L, L2, LS, C*, D*).
- (1) The surge suppressor limits solenoid valve surge voltage, which can reach several hundred volts, to a lower voltage level withstandable by the output contact. Depending on the output circuit used, this may be insufficient and could result in damage or malfunction. Check whether the surge suppressor can be used by the surge voltage limit of the solenoid valve in use, the output device's withstand pressure and circuit structure, and by the degree of return delay time. If necessary, provide other surge measures. Solenoid valves with surge suppressors suppress the reverse voltage surge generated during OFF operation to the levels below.

Rated voltage	Reverse voltage value when OFF
12 VDC	27 V
24 VDC	47 V

- (2) When using the NPN output unit, a surge voltage equivalent to the voltage above plus the power voltage surge could be applied. Provide contact protection circuit.



- (3) If another device or solenoid valve is connected in parallel to the solenoid valve, the inverse voltage surge generated when the valve is OFF would apply to those devices. Even when using the solenoid valve with surge suppressor for 24 VDC, the surge voltage may reach minus several ten V depending on the model. This inverse polarity voltage could damage or cause the other devices connected in parallel to malfunction. Avoid parallel connection of devices suspected of reversing polarity voltages, e.g., LED indicators. When driving several solenoid valves in parallel, the surge from other solenoid valves could enter the surge suppressor of one solenoid valve with a surge suppressor. Depending on the current value, that surge suppressor could burn. When driving several solenoid valves with surge suppressors in parallel, surge current could concentrate at the surge suppressor with the lowest limit voltage and cause similar burning. Even if the solenoid valve type is the same, the surge suppressor's limit voltage can be inconsistent, and in the worst case, could result in burning. Avoid parallel drive of a solenoid valve of plurality.
- (4) The surge suppressor incorporated in the solenoid valve often short-circuits if damaged by overvoltage or overcurrent from a source other than the solenoid valve. If the surge suppressor fails, if a large current flows when output is on, the output circuit or solenoid valve could be damaged or ignite. Do not keep power on in a faulty state. Provide an overcurrent protection circuit on the power or drive circuit or use a power supply with overcurrent protection so that a large current does not flow continuously.

During Use & Maintenance

CAUTION

- Do not plug P/R port. Pilot pressure is not exhausted and valve does not work.
- Energizing for a long time could impair solenoid valve performance. Consult with CKD when using in a continuously energized application. Similar caution is required in the following use.
 - During intermittent energizing, energizing takes longer than non-energizing.
 - During intermittent energizing, one energizing session exceeds 30 min.
 Consider heat dissipation when installing. Consult with CKD when using in a continuously energized application.

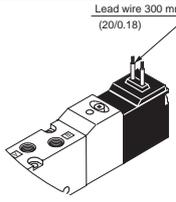
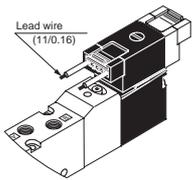
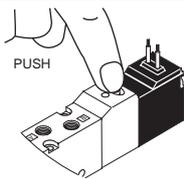
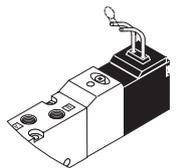
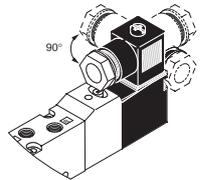
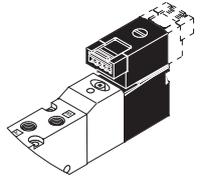
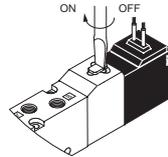
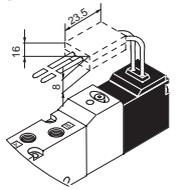
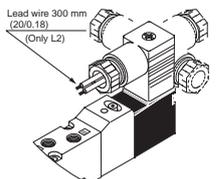
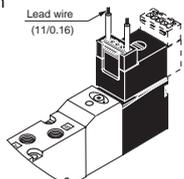
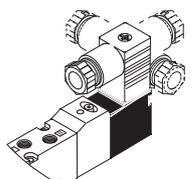
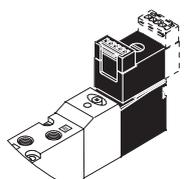
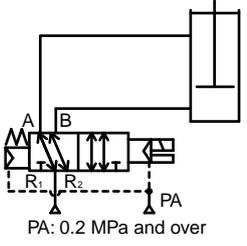
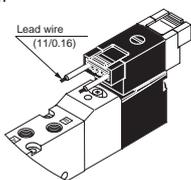
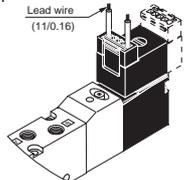
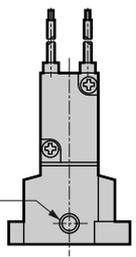
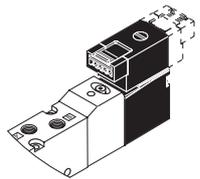
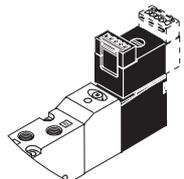
- Life could be shortened when using dry air (atmospheric dew point -20°C or less) and AC voltage. Using DC voltage with dry air is recommended. Consult with CKD when using AC voltage.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Appearance		Model no.	Position No. of solenoid JIS symbol	Valve performance		Voltage (V)	
				Flow characteristics C (dm ³ / (s·bar)) Note 1	Applicable cylinder bore size		
Discrete	Body porting	3 port	3KA1	<p>3KA1</p> <ul style="list-style-type: none"> ● 2-position single N.C. type ● 2-position single N.O. type ● 2-position double solenoid <p>4KA1 to 4KA4 4KB2 to 4KB4</p> <ul style="list-style-type: none"> ● 2-position single solenoid 	0.65	ø20 to ø40 ø40 to ø80 ø63 to ø100 ø125 to ø160	100 AC 200 AC 24 DC Option 110 AC 220 AC 12 DC
		5 port	4KA1		0.60 to 0.68		
			4KA2		2.3 to 2.9		
			4KA3		4.1 to 5.6		
			4KA4		8.2 to 11		
	Sub-plate porting	5 port	4KB1	0.63 to 1.2			
			4KB2	2.4 to 3.0			
			4KB3	5.6 to 6.6			
			4KB4	10 to 13			
			Metal base	Individual wiring manifold	Body porting	3 port	
5 port	M4KA1	0.69 to 0.97					
	M4KA2	2.4 to 3.0					
	M4KA3	4.1 to 5.9					
	M4KA4	8.3 to 11					
Sub-plate porting	5 port	M4KB1		0.60 to 0.81			
		M4KB2		1.8 to 2.1			
		M4KB3		4.3 to 4.8			
		M4KB4		8.6 to 9.4			
		Block manifold		Sub-plate porting	5 port	MN4KB1	0.60 to 0.80
MN4KB2	2.3 to 3.1						

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

3KA/4KA/4KB Series

	Electric connection		Manual override		Other options	
MN3E0 MN4E0						
4GA/B						
M4GA/B						
MN4GA/B						
4GA/B (Master)						
W4GA/B2						
W4GB4						
MN3S0 MN4S0						
4TB						
4L2-4/LMFO						
4SA/B0						
4SA/B1						
4KA/B						
4F						
PV5G/CMF						
PV5/CMF						
3MA/B0						
3PA/B						
P/MB						
NP/NAP/NVP						
4F*0E						
HMV HSV						
2QV 3QV						
SKH						
PCD/ FS/FD						
Ending						
	Blank Grommet lead wire		Blank Non-locking		S With surge suppressor	
		C2 C-connector with lead wire with surge suppressor/light ● Lead wire length C2 : 300 mm C20 : 500 mm C21 : 1000 mm C22 : 2000 mm C23 : 3000 mm				
				AC, DC (other than grommet lead wire type)		
				*: Operates while held down.		
	B Small terminal box, w/o lead wire	C3 C-connector, w/o lead wire with surge suppressor/light	M1 Locking		DC (only grommet lead wire)	
						
	* 4K \hat{a} 3 and 4K \hat{a} 4 only rotate 180°.		* Operates in the ON direction. This should normally be set to the OFF side.		(Suppression connector type)	
	L (L2) Small terminal box with indicator light	D D-connector with lead wire			P Mounting plate	
		● Lead wire length D : 300 mm D00 : 500 mm D01 : 1000 mm D02 : 2000 mm D03 : 3000 mm				
	* 4K \hat{a} 3 and 4K \hat{a} 4 only rotate 180°.					
	LS Small terminal box with surge suppressor/light	D1 D-connector, w/o lead wire			K External pilot	
					When using at low pressure of 0.15 MPa or less lower than the minimum working pressure, use the following external pilot. Note that the PA port must be pressurized.	
	* 4K \hat{a} 3 and 4K \hat{a} 4 only rotate 180°.					
	C C-connector with lead wire	D2 D-connector with lead wire with surge suppressor/light			PA: 0.2 MPa and over	
	● Lead wire length C : 300 mm C00 : 500 mm C01 : 1000 mm C02 : 2000 mm C03 : 3000 mm	● Lead wire length D2 : 300 mm D20 : 500 mm D21 : 1000 mm D22 : 2000 mm D23 : 3000 mm				
						
	C1 C-connector, w/o lead wire	D3 D-connector, w/o lead wire with surge suppressor/light			External pilot PA port	
						

3KA/4KA/4KB Series

Electric connection circuit diagram

Voltage type	Option	Electric wire circuit diagram	Wiring method
AC	-		Grommet lead wire Terminal box (B) C-connector (C, C0*, C1) D-connector (D, D0*, D1)
	With indicator light		Terminal box (L, L2)
	With surge suppressor and indicator light		Terminal box (LS) C-connector (C2, C2*, C3) D-connector (D2, D2*, D3)
	With surge suppressor (Option)		Surge suppressor attached (S)
DC	-		Grommet lead wire Terminal box (B) C-connector (C, C0*, C1) D-connector (D, D0*, D1)
	With indicator light		Terminal box (L, L2) For 4KA/B1, 4KA/B2, surge suppressor / indicator light is provided.
	With surge suppressor and indicator light		Terminal box (LS) C-connector (C2, C2*, C3) D-connector (D2, D2*, D3)
	With surge suppressor (Option)		Grommet lead wire (24 VDC or less) Surge suppressor attached (S)
		Surge suppressor attached (S)	

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

3, 4, 5 port pilot operated valve 4K Series



Discrete valve body porting 3, 5 port pilot operated valve pneumatic valve

3KA1, 4KA1/2/3/4 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$

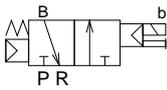


Refer to Intro 17 for details.

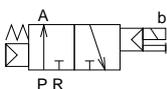


JIS symbol

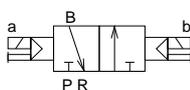
- 3 port valve
2-position single N.C. type



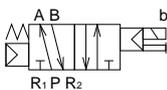
- 3 port valve
2-position single N.O. type



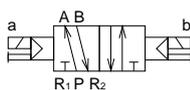
- 3 port valve
2-position double solenoid



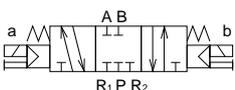
- 5 port valve
2-position single solenoid



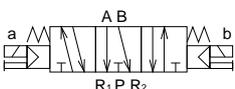
- 5 port valve
2-position double solenoid



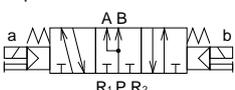
- 5 port valve
3-position all ports closed



- 5 port valve
3-position A/B/R connection



- 5 port valve
3-position P/A/B connection



Common specifications

Descriptions	
Type of valve/operation method	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to the following individual specifications.
Withstanding pressure MPa	1.05
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Protective structure	Dust proof
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Containing corrosive gas is impermissible.

Electric specifications

Descriptions		3KA1, 4KA1/2	4KA3/4
Rated voltage	AC	100, 200 (50/60 Hz)	
	DC	24	
Rated voltage fluctuation range		±10%	
Starting current	AC 100 V	0.056/0.044	0.046/0.042
	AC 200 V	0.028/0.022	0.023/0.021
		DC 24 V	—
Holding current	AC 100 V	0.028/0.022	0.023/0.021
	AC 200 V	0.014/0.011	
		DC 24 V	0.075
Power consumption W	AC 100 V	1.8 / 1.4	1.6 / 1.3
	AC 200 V	1.8 / 1.4	1.6 / 1.3
		DC 24 V	1.8 (2.0)
Heat proof class		B (molded coil)	
Temperature rise °C		43	30

Remarks: The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Individual specifications

Descriptions			3KA1	4KA1	4KA2	4KA3	4KA4
Min. working pressure	2-position	Single solenoid	0.15	0.15	0.15	0.15	0.15
		Double solenoid					
MPa	3-position		-	0.20	0.20	0.20	0.20
	Port size	P/A/B port	M5	M5	Rc1/8	Rc1/4	Rc3/8
Note 1		R1/R2 port	Push-in joint $\varnothing 4, \varnothing 6$	Push-in joint $\varnothing 4, \varnothing 6$	Push-in joint $\varnothing 6, \varnothing 8$	Push-in joint $\varnothing 8, \varnothing 10$	Push-in joint $\varnothing 10, \varnothing 12$
Response time	2-position		30 or less	30 or less	30 or less	30 or less	30 or less
	Note 2	3-position	-	60 or less	60 or less	60 or less	60 or less
Weight	g	2-position	70	70	115	214	325
		Single solenoid					
		3-position	110	110	155	315	435
		Double solenoid	-	120	170	354	505

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for information.

Note 2: Response time is the value when supply pressure 0.5 MPa, not lubricated and ON. The value varies depending on pressure and quality of lubricant.

Flow characteristics

Model no.	Solenoid position	C (dm ³ / (s·bar))	b	
3KA1	2-position	0.65	0.37	
4KA1	2-position	0.65	0.37	
	3-position	All ports closed	0.60	0.32
		A/B/R connection	0.68	0.39
		P/A/B connection	0.61	0.36
4KA2	2-position	2.6	0.43	
	3-position	All ports closed	2.3	0.43
		A/B/R connection	2.9	0.34
		P/A/B connection	2.3	0.42
4KA3	2-position	5.6	0.49	
	3-position	All ports closed	4.1	0.60
		A/B/R connection	4.1	0.62
		P/A/B connection	4.2	0.68
4KA4	2-position	9.8	0.49	
	3-position	All ports closed	8.2	0.54
		A/B/R connection	11	0.50
		P/A/B connection	8.4	0.54

Note 1: Effective sectional area S and sonic conductance C are converted as $S \approx 5.0 \times C$.
Flow characteristics are the value when port size is M5 (3KA1, 4KA1), Rc1/8 (4KA2), Rc1/4 (4KA3) and Rc3/8 (4KA4).

Ozone proof specifications (Ending 5)

** - Voltage - P11

Coolant proof specifications

- Special structure with excellent oil proof and water proof properties

** - A - Voltage

Copper and PTFE free

- Copper and PTFE material not used for flow path

** - Voltage - P6

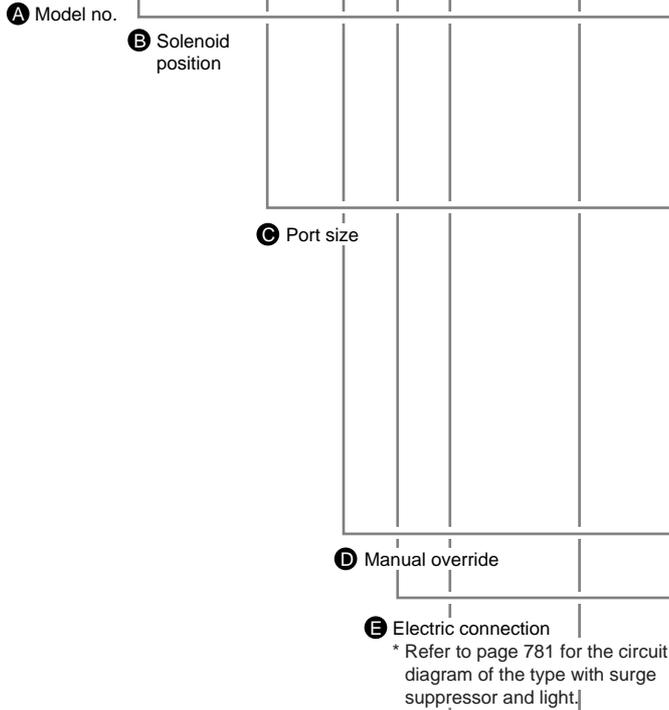
MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/ FS/FD
Ending

Discrete 3, 5 port pilot operated valve

3KA1/4KA1 to 4 Series

Discrete valve: Body porting

How to order



<Table 1> Small terminal box L/L2/LS table

Symbol	Descriptions		3KA1	4KA1	4KA2	4KA3	4KA4	Surge suppressor
L	No lead wire	With light	●	●	●	●	●	
		With surge suppressor/light				●	●	Integrated
	With lead wire (300 mm)	With light	●	●	●			
		With surge suppressor/light						Integrated
LS	No lead wire	With surge suppressor/light	●	●	●	●	●	Integrated
		DC			●	●	Integrated	

Note on model no. selection

- Note 1: 3KA1, 4KA1 and 4KA2 compact terminal box, L and L2 DC voltage, and LS have a built-in surge absorber.
- Note 2: With a 24 VDC or less grommet lead wire, the enclosed surge suppressor is a suppression connector. (Refer to page 780)

<Example of model number>

4KA210-06-M1BP-AC100V

- Ⓐ Model : 4KA2
- Ⓑ Solenoid position: 2-position single solenoid
- Ⓒ Port size : Rc1/8
- Ⓓ Manual override : Locking manual override
- Ⓔ Electric connection : Small terminal box, w/o lead wire
- Ⓕ Other options : Mounting plate
- Ⓖ Voltage : 100 VAC 50/60Hz

Ⓐ Model no.

3KA1	4KA1	4KA2	4KA3	4KA4
------	------	------	------	------

Symbol	Descriptions	3KA1	4KA1	4KA2	4KA3	4KA4
Ⓑ Solenoid position	1	2-position single solenoid		●	●	●
	2	2-position double solenoid	●	●	●	●
	3	3-position all ports closed		●	●	●
	4	3-position A/B/R connection		●	●	●
	5	3-position P/A/B connection		●	●	●
Ⓒ Port size	1	2-position single solenoid normally closed	●			
	11	2-position single solenoid normally open	●			

Port	P/A/B port	R1/R2 port			
		(1) = M5	(2) = Rc1/8	(3) = Rc1/4	(4) = Rc3/8
M5	M5	(1)	(1)		
06	Rc1/8			(2)	
08	Rc1/4				(3)
10	Rc3/8				(4)
GS4	ø4 push-in joint	(1)	(1)		
GS6	ø6 push-in joint	(1)	(1)	(2)	
GS8	ø8 push-in joint			(2)	(3)
GS10	ø10 push-in joint				(3)
GS12	ø12 push-in joint				(4)

Ⓓ Blank	Non-locking manual override	●	●	●	●	●
M1	Locking manual override	●	●	●	●	●

Ⓔ Electric connection		3KA1	4KA1	4KA2	4KA3	4KA4
Grommet lead wire						
Blank	Grommet lead wire (300 mm)	●	●	●	●	●
Small terminal box						
B	No lead wire	●	●	●	●	●
L	No lead wire					
L2	Lead wire length (300 mm)					
LS	No lead wire with surge suppressor/light					

C-connector (lead wire lateral)		3KA1	4KA1	4KA2	4KA3	4KA4
C	Lead wire length (300 mm)	●	●	●	●	●
C00	Lead wire length (500 mm)	●	●	●	●	●
C01	Lead wire length (1000 mm)	●	●	●	●	●
C02	Lead wire length (2000 mm)	●	●	●	●	●
C03	Lead wire length (3000 mm)	●	●	●	●	●
C1	No lead wire	●	●	●	●	●
C2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●	●
C20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●	●
C21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●	●
C22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●	●
C23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●	●
C3	No lead wire with surge suppressor/light	●	●	●	●	●

D-connector (lead wire upward)		3KA1	4KA1	4KA2	4KA3	4KA4
D	Lead wire length (300 mm)	●	●	●	●	●
D00	Lead wire length (500 mm)	●	●	●	●	●
D01	Lead wire length (1000 mm)	●	●	●	●	●
D02	Lead wire length (2000 mm)	●	●	●	●	●
D03	Lead wire length (3000 mm)	●	●	●	●	●
D1	No lead wire	●	●	●	●	●
D2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●	●
D20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●	●
D21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●	●
D22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●	●
D23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●	●
D3	No lead wire with surge suppressor/light	●	●	●	●	●

Ⓕ Blank	No option	●	●	●	●	●
P	Mounting plate (only 2-position single solenoid)	●	●	●	●	●
S	Surge suppressor attached Note 2	●	●	●	●	●

Voltage	Option	Standard			
		3KA1	4KA1	4KA2	4KA3
AC100V	100 VAC 50/60Hz	●	●	●	●
AC200V	200 VAC 50/60Hz	●	●	●	●
DC24V	24 VDC	●	●	●	●
AC110V	110 VAC 50/60Hz	●	●	●	●
AC220V	220 VAC 50/60Hz	●	●	●	●
DC12V	12 VDC	●	●	●	●

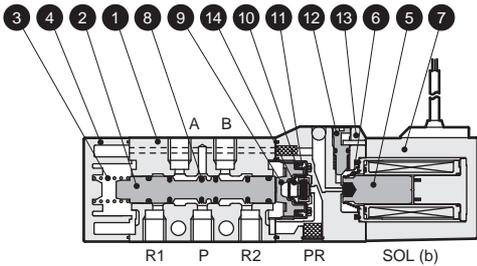
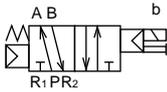
3KA1/4KA1 Series

Discrete valve: Body porting

Internal structure and parts list

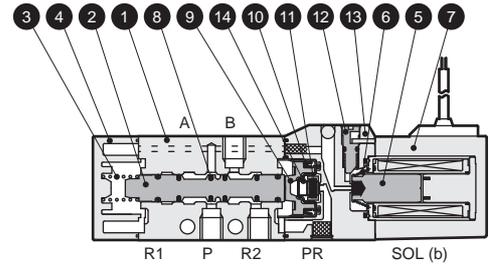
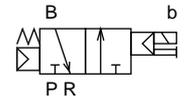
4KA110

● 2-position single solenoid



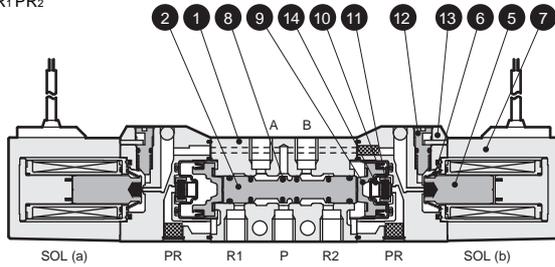
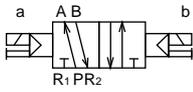
3KA110-NC

● 2-position single solenoid / N.C. type



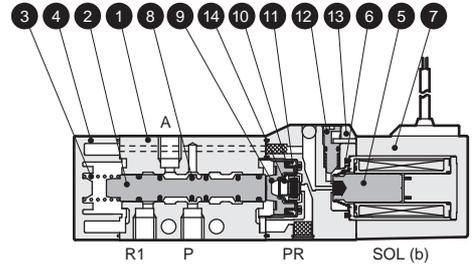
4KA120

● 2-position double solenoid



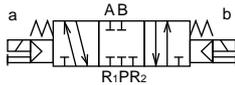
3KA1110-NO

● 2-position single solenoid / N.O. type



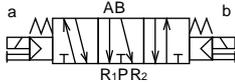
4KA130

● 3-position all ports closed



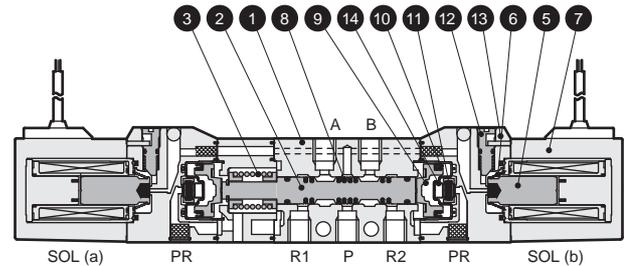
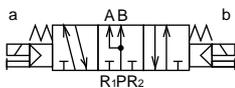
4KA140

● 3-position A/B/R connection



4KA150

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Valve seat spring	Stainless steel

Repair parts list

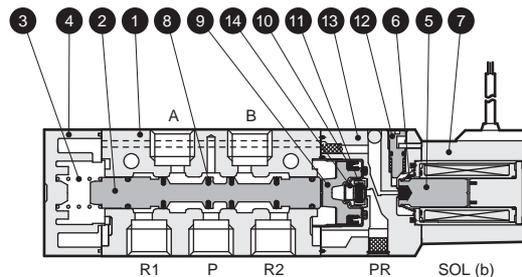
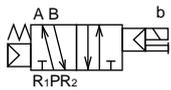
No. / parts name Model no.	2 8	9 10	5 6 7
	Spool assembly	Piston assembly	Coil assembly *
3KA110	4K9-110		4K1L- E Electric connection option symbol — Blank for grommet lead wire COIL- G Voltage
3KA1110		4K9-151	
3KA120	4K9-118		
4KA110	4K9-110	4K9-151	
4KA120	4K9-118		
4KA130	4K9-111		
4KA140	4K9-112		
4KA150	4K9-113	4K9-152	

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

Internal structure and parts list

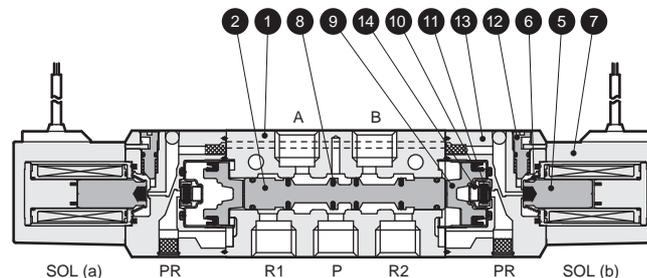
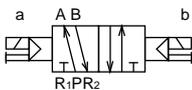
4KA210

● 2-position single solenoid



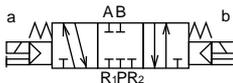
4KA220

● 2-position double solenoid



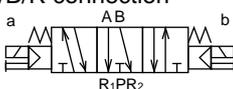
4KA230

● 3-position all ports closed



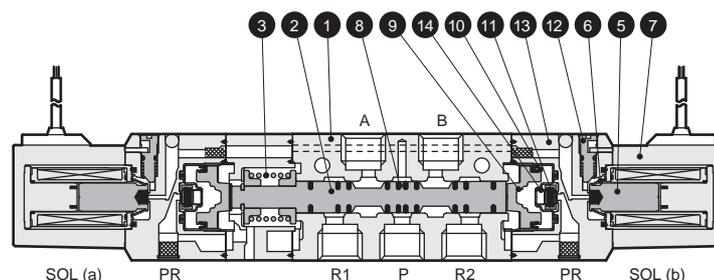
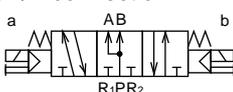
4KA240

● 3-position A/B/R connection



4KA250

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Valve seat spring	Stainless steel

Repair parts list

No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *
4KA210	4K9-150	4K9-153	4K9-154
4KA220	4K9-126		
4KA230	4K9-127		
4KA240	4K9-128		
4KA250	4K9-129		

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/
LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/
CMF
PV5/
CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/
NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/
FS/FD
Ending

Discrete
3, 5 port pilot operated valve

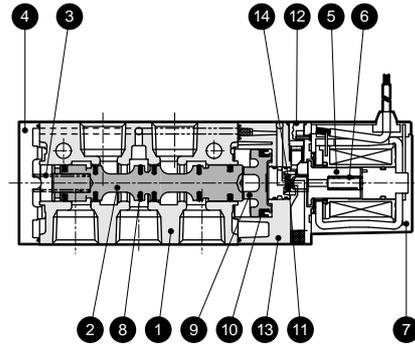
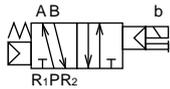
4KA3 Series

Discrete valve: Body porting

Internal structure and parts list

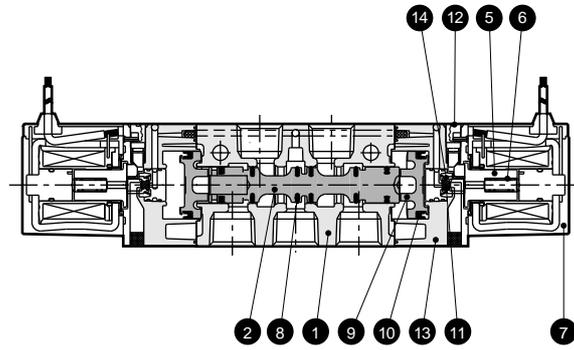
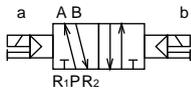
4KA310

● 2-position single solenoid



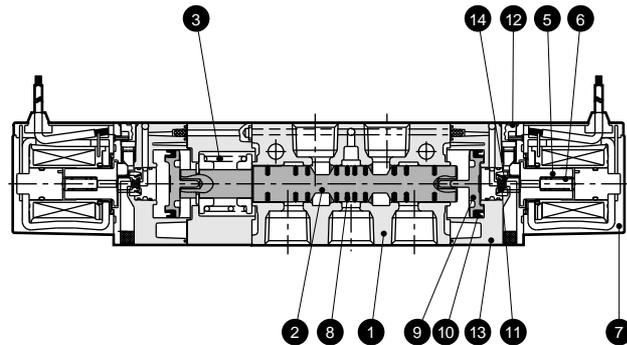
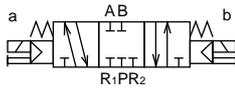
4KA320

● 2-position double solenoid



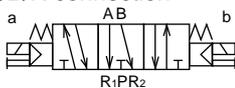
4KA330

● 3-position all ports closed



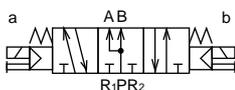
4KA340

● 3-position A/B/R connection



4KA350

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Valve seat spring	Stainless steel

Repair parts list

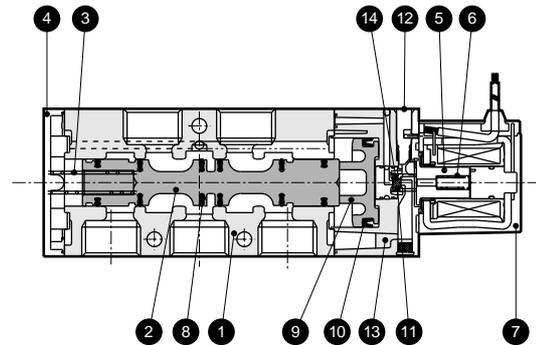
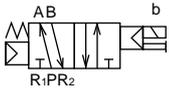
No. / parts name Model no.	2 8	9 10	5 6 7
	Spool assembly	Piston assembly	Coil assembly *
4KA310	4K9-133	4K9-137	4K3- Electric connection option symbol Blank for grommet COIL- Voltage lead wire
4KA320	4K9-134	4K9-138	
4KA330	4K9-135		
4KA340	4K9-136		
4KA350	4K9-136		

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

Internal structure and parts list

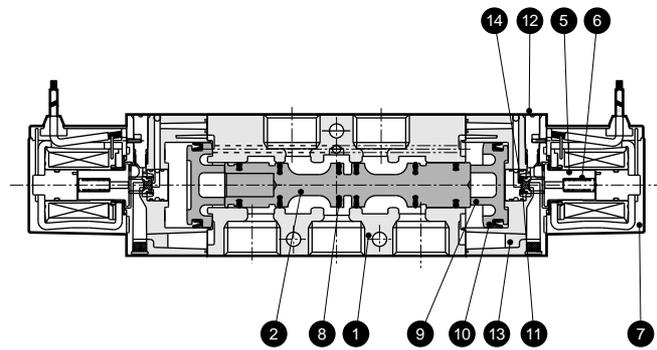
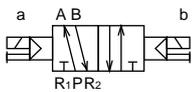
4KA410

● 2-position single solenoid



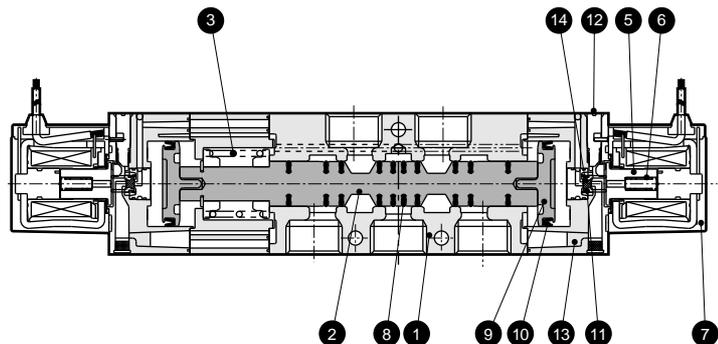
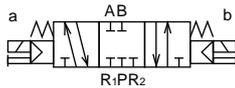
4KA420

● 2-position double solenoid



4KA430

● 3-position all ports closed



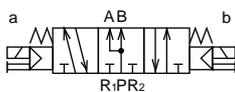
4KA440

● 3-position A/B/R connection



4KA450

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Valve seat spring	Stainless steel

Repair parts list

No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *
4KA410	4K9-140	4K9-144	4K3- E Electric connection option symbol Blank for grommet COIL- G Voltage lead wire
4KA420	4K9-141	4K9-145	
4KA430	4K9-142	4K9-143	
4KA440	4K9-143	4K9-144	

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/
LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/
CMF
PV5/
CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/
NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/
FS/FD
Ending

Discrete
3, 5 port pilot operated valve

3KA1 Series

Discrete valve: Body porting

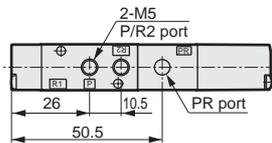
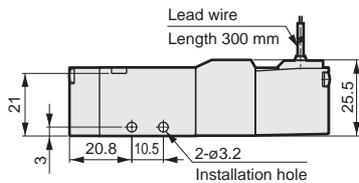
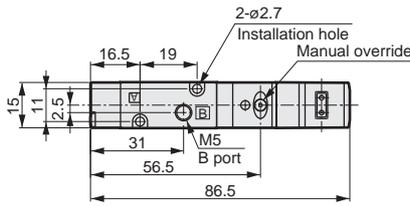
MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Dimensions

3KA110



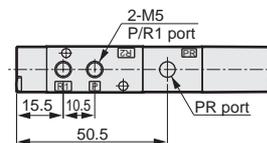
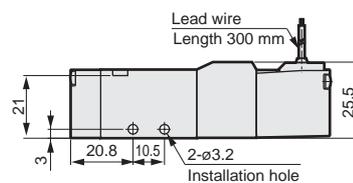
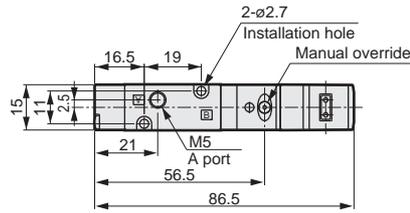
● 2-position single N.C. type: Grommet lead wire



3KA1110



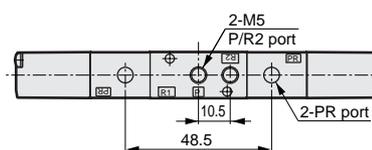
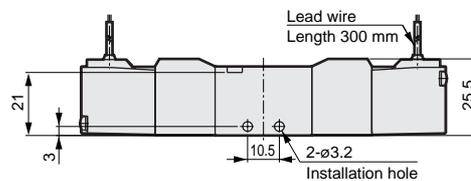
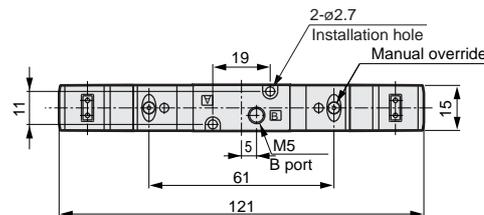
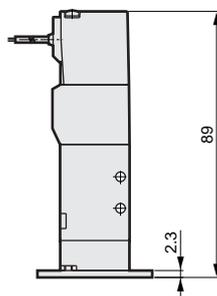
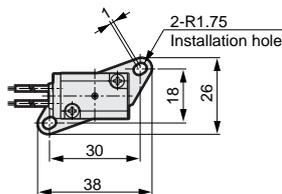
● 2-position single N.O. type: Grommet lead wire



3KA120

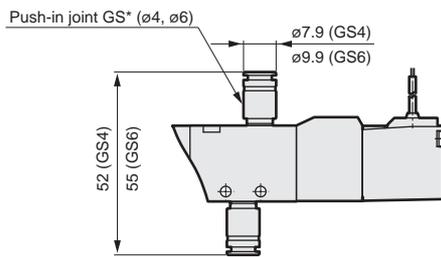


● 2-position double N.C. type: Grommet lead wire



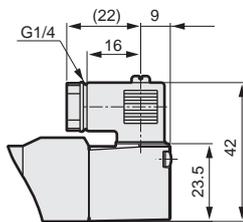
Dimensions

- $\varnothing 4/\varnothing 6$ push-in joint: (GS4, GS6)

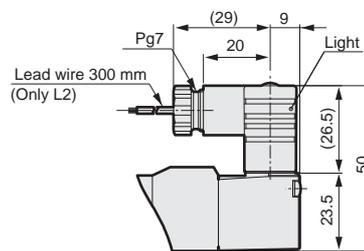


- Small terminal box: (B <without indicator light> , L, L2, LS <with indicator light>)

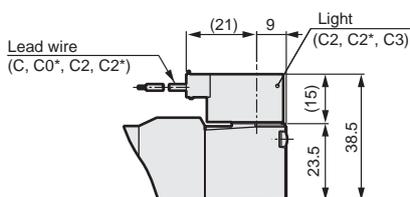
Without indicator light



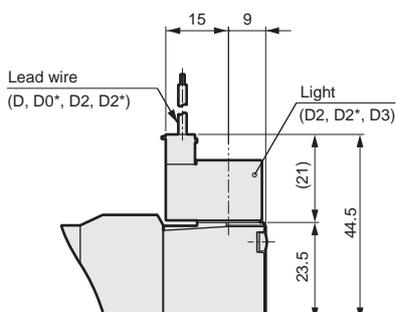
With indicator light



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 3, 5 port pilot operated valve

4KA1 Series

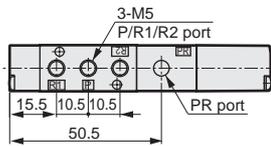
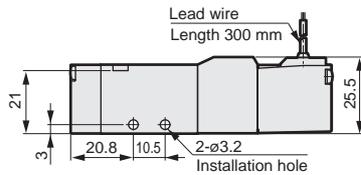
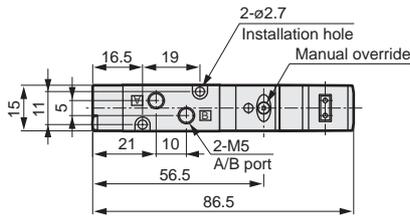
Discrete valve: Body porting

Dimensions

4KA110



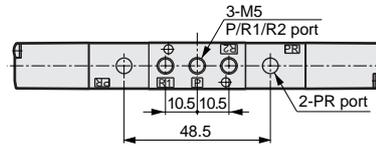
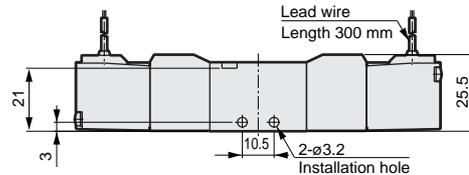
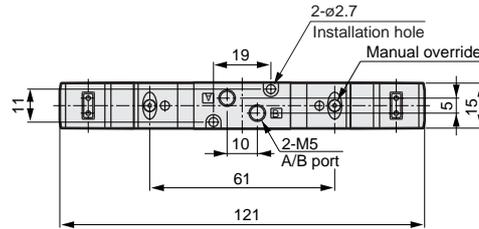
● 2-position single solenoid: Grommet lead wire



4KA120



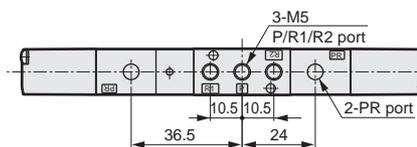
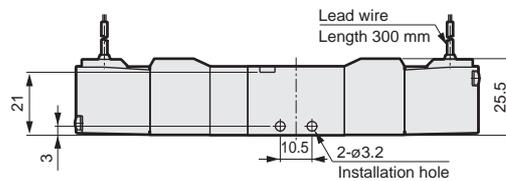
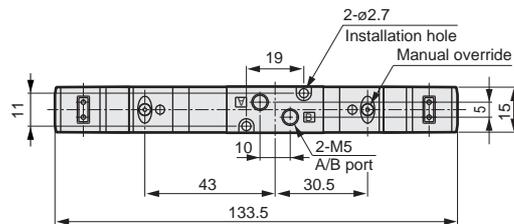
● 2-position double solenoid: Grommet lead wire



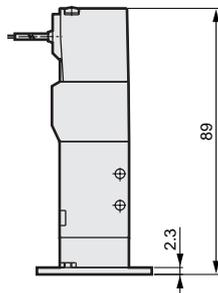
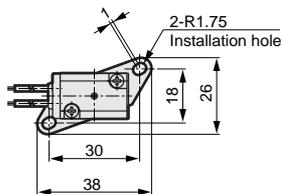
4KA140³/₅



● 3-position: Grommet lead wire



● Mounting plate: (P <Only 2-position single solenoid>)



4KA2 Series

Discrete valve: Body porting

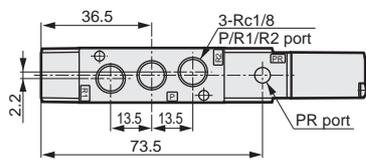
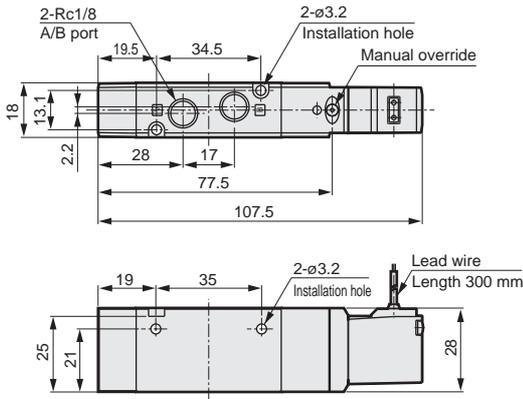
MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/MB
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Dimensions

4KA210



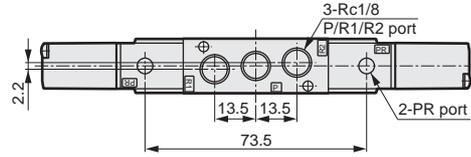
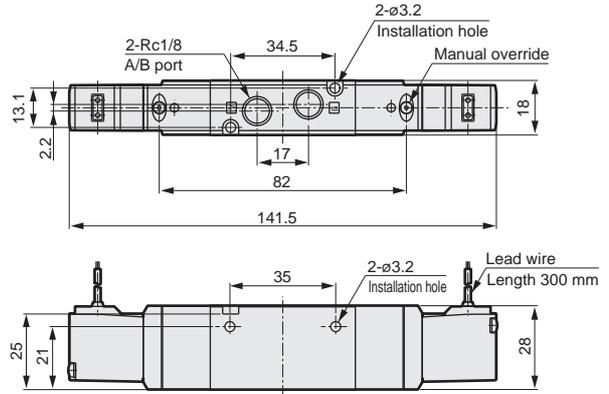
● 2-position single solenoid: Grommet lead wire



4KA220



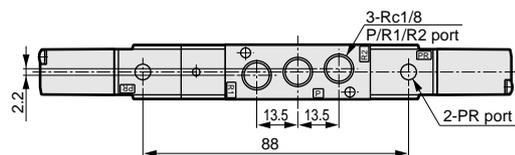
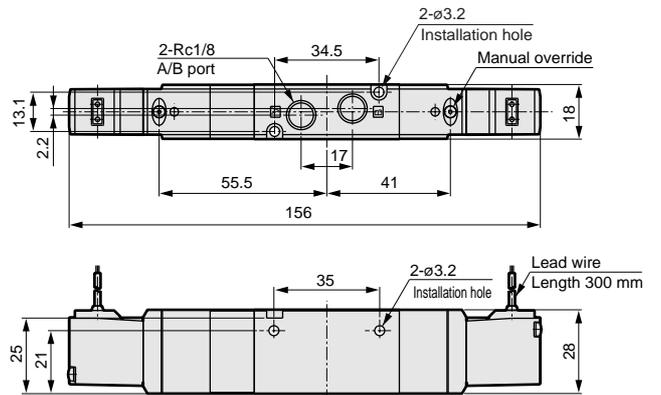
● 2-position double solenoid: Grommet lead wire



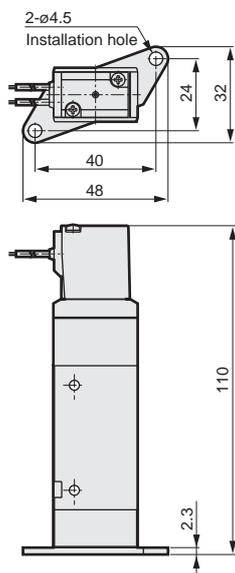
4KA240



● 3-position: Grommet lead wire



● Mounting plate: (P <Only 2-position single solenoid>)



4KA3 Series

Discrete valve: Body porting

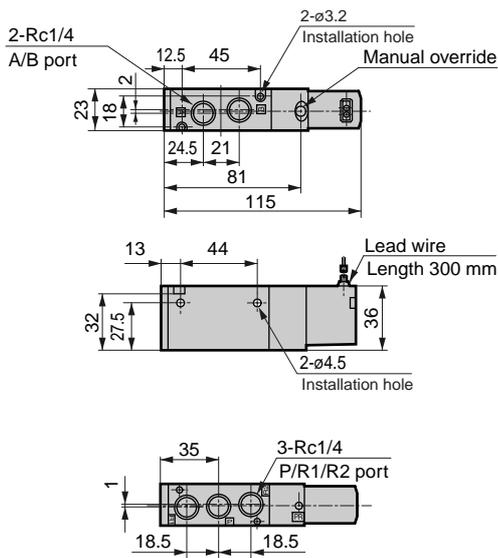
MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Dimensions

4KA310



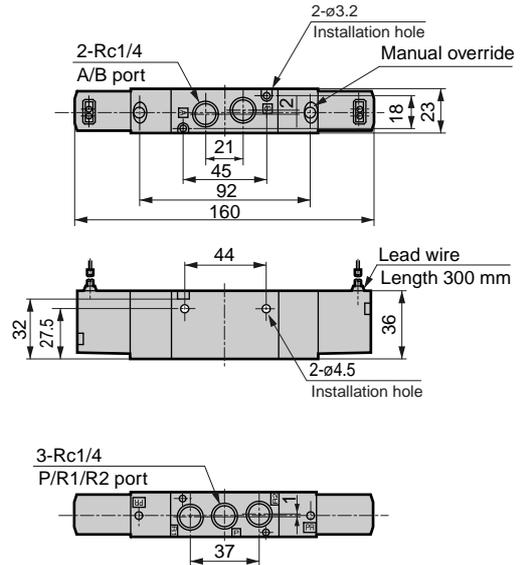
● 2-position single solenoid: Grommet lead wire



4KA320



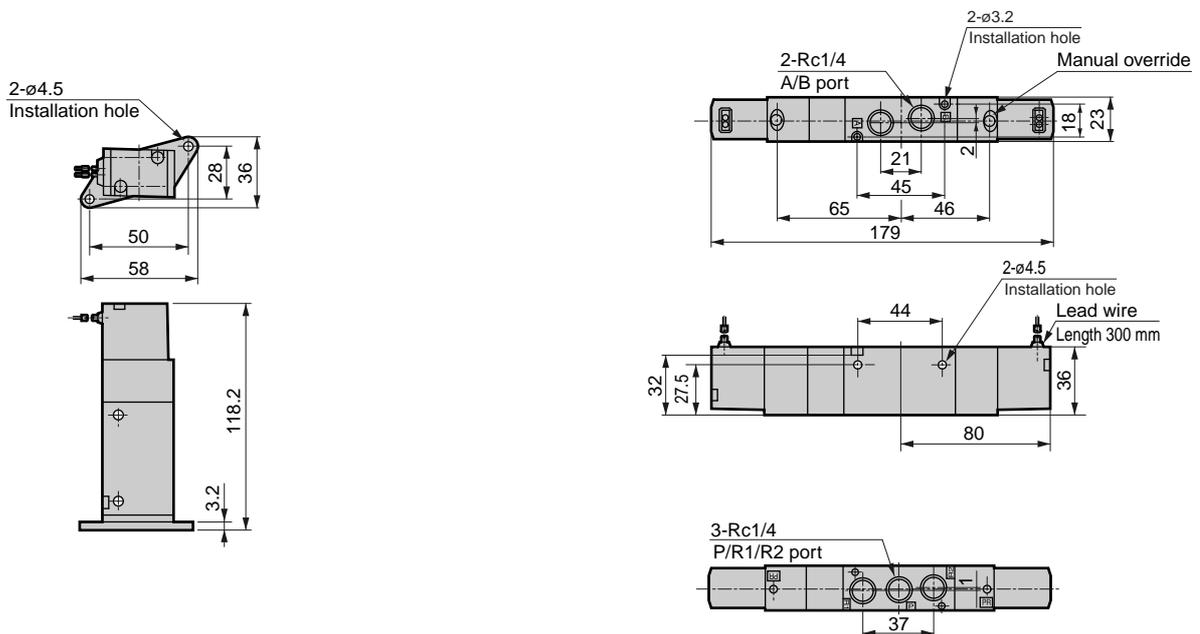
● 2-position double solenoid: Grommet lead wire



4KA340³/₅

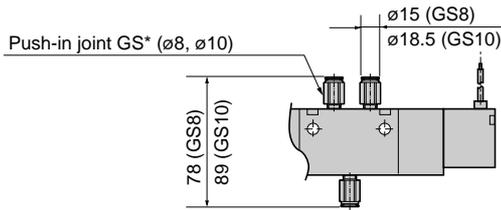


● 3-position: Grommet lead wire

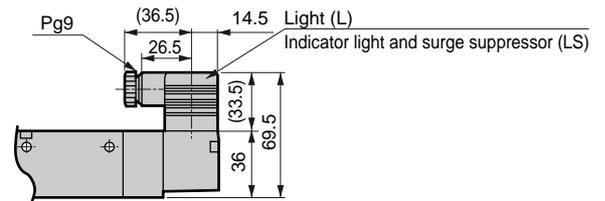


Dimensions

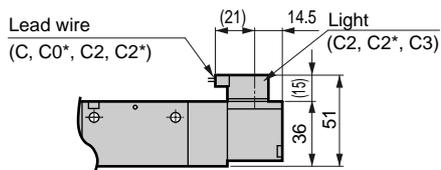
- $\varnothing 8/\varnothing 10$ push-in joint: (GS8, GS10)



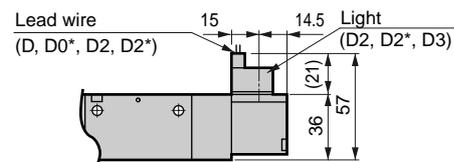
- Terminal box: (B, L, LS)



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 3, 5 port pilot operated valve

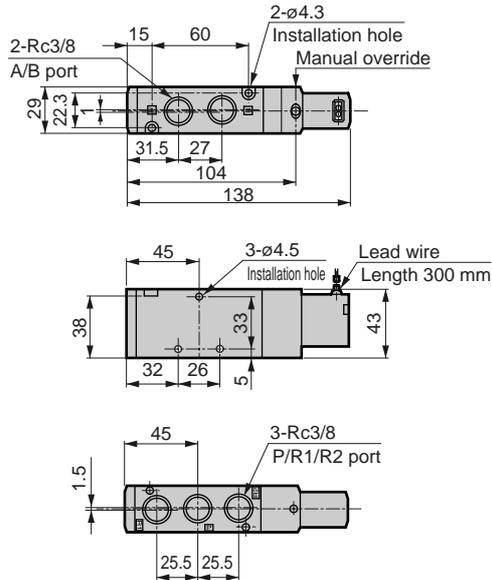
4KA4 Series

Discrete valve: Body porting

Dimensions

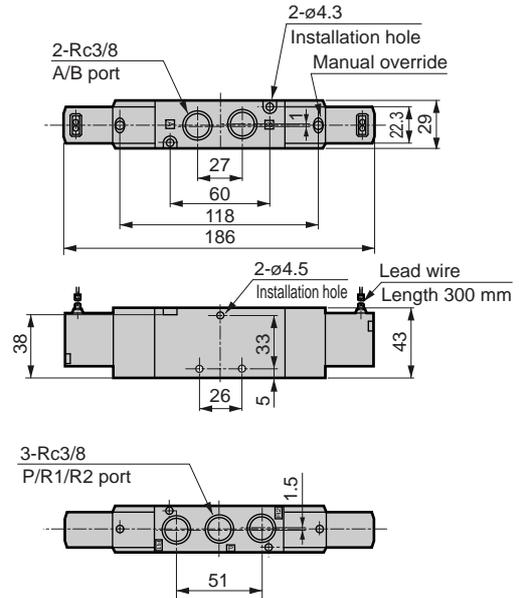
4KA410

● 2-position single solenoid: Grommet lead wire



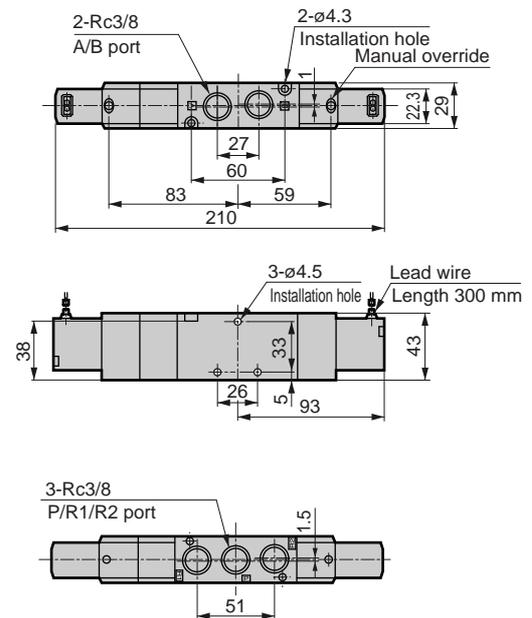
4KA420

● 2-position double solenoid: Grommet lead wire

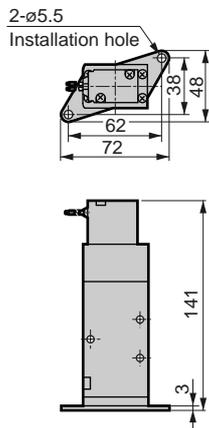


4KA440

● 3-position: Grommet lead wire

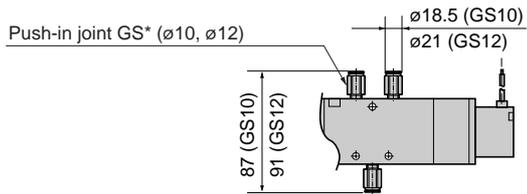


● Mounting plate: (P <Only 2-position single solenoid>)

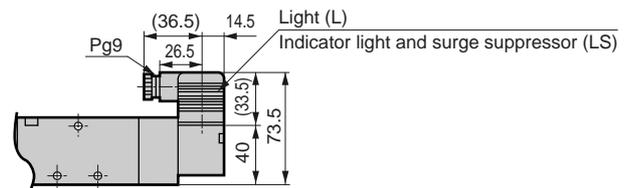


Dimensions

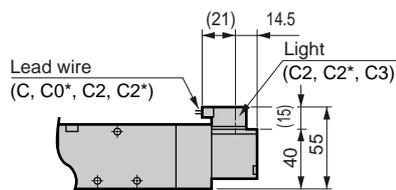
- $\varnothing 10/\varnothing 12$ push-in joint: (GS10, GS12)



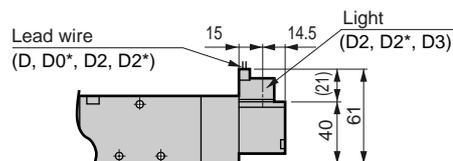
- Terminal box: (B, L, LS)



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 3, 5 port pilot operated valve



Discrete valve Sub-plate porting

5 port pilot operated valve pneumatic valve

4KB1/2/3/4 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$

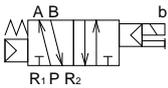
CE Refer to Intro 17 for details.



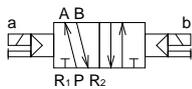
- MN3E0
- MN4E0
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (Master)
- W4GA/B2
- W4GB4
- MN3S0
- MN4S0
- 4TB
- 4L2-4/LMFO
- 4SA/B0
- 4SA/B1
- 4KA/B
- 4F
- PV5G/CMF
- PV5/CMF
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F*0E (2-position single solenoid)
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD/FS/FD
- Ending

JIS symbol

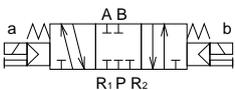
- 5 port valve
2-position single solenoid



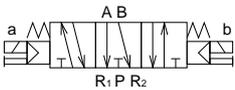
- 5 port valve
2-position double solenoid



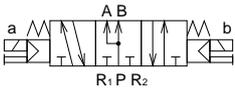
- 5 port valve
3-position all ports closed



- 5 port valve
3-position A/B/R connection



- 5 port valve
3-position P/A/B connection



- External pilot



(2-position single solenoid)

Common specifications

Descriptions	
Type of valve/operation method	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to the following individual specifications.
Withstanding pressure MPa	1.05
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Protective structure	Dust proof
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Containing corrosive gas is impermissible.

Note 1: The working pressure range is 0 to 0.7 MPa when the external pilot (option symbol: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electric specifications

Descriptions		4KB1/2	4KB3/4
Rated voltage	AC	100, 200 (50/60 Hz)	
	DC	24	
Rated voltage fluctuation range		±10%	
Starting current	AC 100 V	0.056/0.044	0.046/0.042
	AC 200 V	0.028/0.022	0.023/0.021
		DC 24 V	—
Holding current	AC 100V	0.028/0.022	0.023/0.021
	AC 200V	0.014/0.011	
		DC 24 V	0.075
Power consumption	AC 100 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
	AC 200 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
		DC 24 V	1.8 (2.0)
Heat proof class		B (molded coil)	
Temperature rise °C		43	30

Remarks: The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Individual specifications

Descriptions		4KB1	4KB2	4KB3	4KB4
Min. working pressure MPa	2-position Single solenoid	0.15	0.15	0.15	0.15
	Double solenoid		0.10	0.10	0.10
	3-position	0.20	0.20	0.20	0.20
Port size	P/A/B port	Rc1/8	Rc1/8, Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2
Note 1	R1/R2 port	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2
Response time ms	2-position	30 or less	30 or less	30 or less	30 or less
	3-position	60 or less	60 or less	60 or less	60 or less
Weight g	2-position	Single solenoid	100	200	335
		Double solenoid	140	245	442
	3-position	150	255	474	730

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for information.

Note 2: Response time is the value when supply pressure 0.5 MPa, not lubricated and ON. The value varies depending on pressure and quality of lubricant.

Flow characteristics

Model no.	Solenoid position	C (dm ³ / (s·bar))	b	
4KB1	2-position	0.89	0.44	
	3-position	All ports closed	0.63	0.50
		A/B/R connection	1.2	0.29
		P/A/B connection	0.75	0.39
4KB2	2-position	2.7	0.24	
	3-position	All ports closed	2.4	0.29
		A/B/R connection	3.0	0.27
		P/A/B connection	2.4	0.34
4KB3	2-position	6.3	0.26	
	3-position	All ports closed	5.6	0.27
		A/B/R connection	6.6	0.20
		P/A/B connection	5.9	0.27
4KB4	2-position	12	0.24	
	3-position	All ports closed	11	0.27
		A/B/R connection	13	0.21
		P/A/B connection	10	0.22

Note 1: Effective sectional area S and sonic conductance C are converted as $S \div 5.0 \times C$.

Ozone proof specifications (Ending 5)

** - Voltage - P11

Coolant proof specifications

● Special structure with excellent oil proof and water proof properties

** - A - Voltage

Copper and PTFE free

● Copper and PTFE material not used for flow path

** - Voltage - P6

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV HSV
2QV 3QV
SKH
PCD/ FS/FD
Ending

Discrete 5 port pilot operated valve

4KB1 to 4 Series

Discrete valve: Sub-plate porting

How to order



- MN3E0
- MN4E0
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (Master)
- W4GA/B2
- W4GB4
- MN3S0
- MN4S0
- 4TB
- 4L2-4/LMFO
- 4SA/B0
- 4SA/B1
- 4KA/B**
- 4F
- PV5G/CMF
- PV5/CMF
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD/FS/FD
- Ending

A Model no.

B Solenoid position

C Port size

D Manual override

E Electric connection
* Refer to page 781 for the circuit diagram of the type with surge suppressor and light.

F Other options

G Voltage

<Table 1> Small terminal box L/L2/LS table

Symbol	Descriptions		4KB1	4KB2	4KB3	4KB4	Surge suppressor	
L	No lead wire	With light	AC	●	●	●	●	
		DC			●	●		
	With surge suppressor/light	AC						
		DC	●	●				Integrated
L2	With lead wire (300 mm)	With light	AC	●	●			
		DC						
	With surge suppressor/light	AC						
		DC	●	●				Integrated
LS	No lead wire	With surge suppressor/light	AC	●	●	●	●	Integrated
		DC			●	●		Integrated

Note on model no. selection

Note 1: 4KB1 and 4KB2 compact terminal box, L and L2 DC voltage, and LS have a built-in surge absorber.

Note 2: Consult CKD for details on using vacuum with the external pilot (K).

Note 3: With a 24 VDC or less grommet lead wire, the enclosed surge suppressor is a suppression connector. (Refer to page 780)

<Example of model number>

4KB210-06-M1BK-AC100V

- A** Model : 4KB2
- B** Solenoid position : 2-position single solenoid
- C** Port size : Rc1/8
- D** Manual override : Locking manual override
- E** Electric connection : Small terminal box, w/o lead wire
- F** Other options : Mounting plate
- G** Voltage : 100 VAC 50/60Hz

A Model no.

	4KB1	4KB2	4KB3	4KB4
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●
●	●	●	●	●

Symbol	Descriptions						
B Solenoid position	1	2-position single solenoid	●	●	●	●	
	2	2-position double solenoid	●	●	●	●	
	3	3-position all ports closed	●	●	●	●	
	4	3-position A/B/R connection	●	●	●	●	
	5	3-position P/A/B connection	●	●	●	●	
C Port size	Port	P/A/B port	R1, R2 port (1) = Rc1/8 (2) = Rc1/4 (3) = Rc3/8 (4) = Rc1/2				
	06	Rc1/8	(1)	(2)			
	08	Rc1/4		(2)	(2)		
	10	Rc3/8			(3)	(3)	
	15	Rc1/2				(4)	
D	Blank	Non-locking manual override	●	●	●	●	
	M1	Locking manual override	●	●	●	●	
E Electric connection	Grommet lead wire						
	Blank	Grommet lead wire (300 mm)	●	●	●	●	
	Small terminal box						
	B	No lead wire	●	●	●	●	
	L	No lead wire	●	●	●	●	
	L2	Lead wire length (300 mm)	Refer to <Table 1> on the left. Note 1				
	LS	No lead wire with surge suppressor/light	●	●	●	●	
	C-connector (lead wire lateral)						
	C	Lead wire length (300 mm)	●	●	●	●	
	C00	Lead wire length (500 mm)	●	●	●	●	
	C01	Lead wire length (1000 mm)	●	●	●	●	
	C02	Lead wire length (2000 mm)	●	●	●	●	
	C03	Lead wire length (3000 mm)	●	●	●	●	
	C1	No lead wire	●	●	●	●	
	C2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●	
C20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●		
C21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●		
C22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●		
C23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●		
C3	No lead wire with surge suppressor/light	●	●	●	●		
D-connector (lead wire upward)							
D	Lead wire length (300 mm)	●	●	●	●		
D00	Lead wire length (500 mm)	●	●	●	●		
D01	Lead wire length (1000 mm)	●	●	●	●		
D02	Lead wire length (2000 mm)	●	●	●	●		
D03	Lead wire length (3000 mm)	●	●	●	●		
D1	No lead wire	●	●	●	●		
D2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●		
D20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●		
D21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●		
D22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●		
D23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●		
D3	No lead wire with surge suppressor/light	●	●	●	●		
F	Blank	No option	●	●	●	●	
	K	External pilot Note 2	●	●	●	●	
	S	Surge suppressor attached Note 3	●	●	●	●	
G Voltage	AC100V	100 VAC 50/60Hz	●	●	●	●	
	AC200V	200 VAC 50/60Hz	●	●	●	●	
	DC24V	24 VDC	●	●	●	●	
	AC110V	110 VAC 50/60Hz	●	●	●	●	
	AC220V	220 VAC 50/60Hz	●	●	●	●	
	DC12V	12 VDC	●	●	●	●	

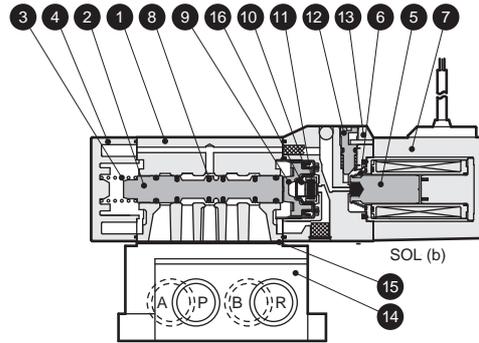
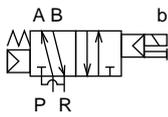
4KB1 Series

Discrete valve: Sub-plate porting

Internal structure and parts list

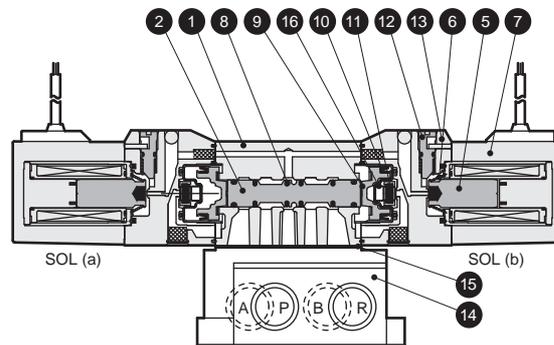
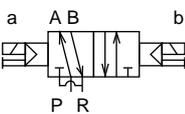
4KB110

● 2-position single solenoid



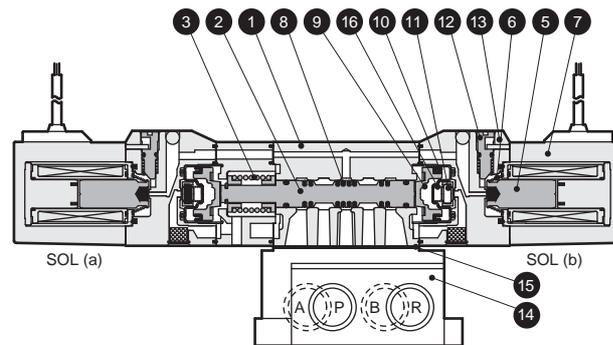
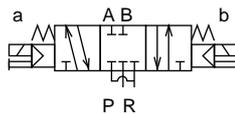
4KB120

● 2-position double solenoid



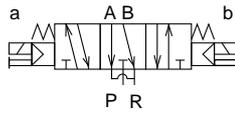
4KB130

● 3-position all ports closed



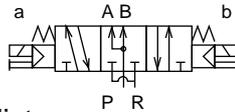
4KB140

● 3-position A/B/R connection



4KB150

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Sub-plate	Aluminum alloy die-casting
15	Gasket	Nitrile rubber
16	Valve seat spring	Stainless steel

Main parts list

No.	Component name	Model no.
14	Sub-plate kit	4KB110- B Port size - F External pilot - SUB-BASE-KIT

* Set screw is included with a sub-plate kit.

Repair parts list

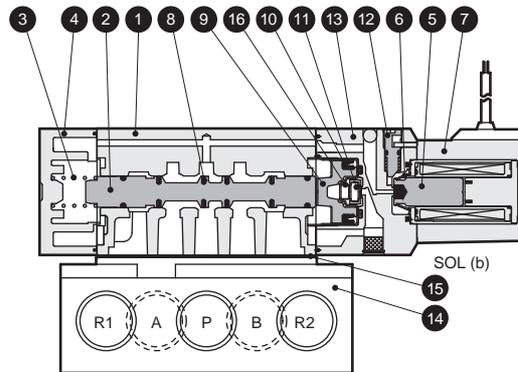
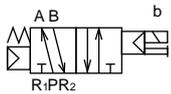
No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *
4KB110	4K9-110	4K9-151	4K1L- E Electric connection option symbol Blank for grommet lead wire
4KB120	4K9-118		
4KB130	4K9-111	4K9-152	
4KB140	4K9-112		
4KB150	4K9-113		

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

Internal structure and parts list

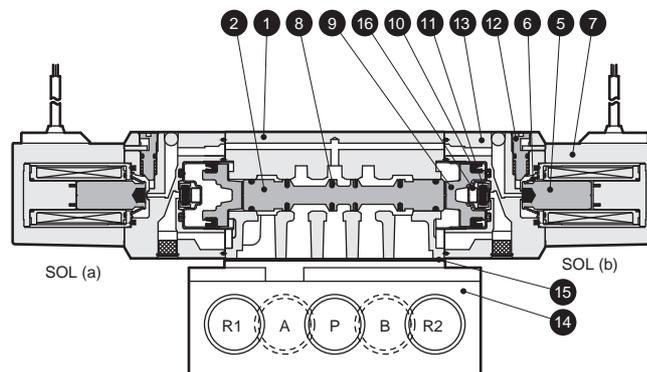
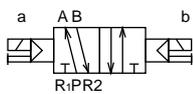
4KB210

● 2-position single solenoid



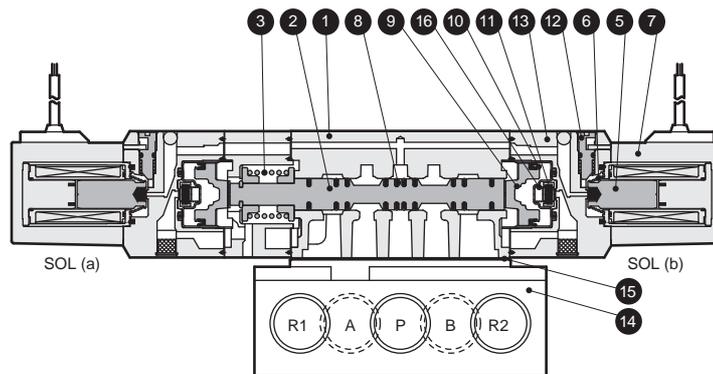
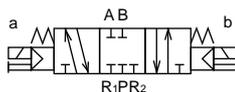
4KB220

● 2-position double solenoid



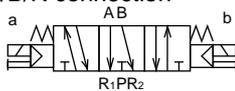
4KB230

● 3-position all ports closed



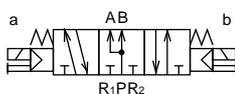
4KB240

● 3-position A/B/R connection



4KB250

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Sub-plate	Aluminum alloy die-casting
15	Gasket	Nitrile rubber
16	Valve seat spring	Stainless steel

Main parts list

No.	Component name	Model no.
14	Sub-plate kit	4KB210- B Port size - F External pilot -SUB-BASE-KIT
15		

* Set screw is included with a sub-plate kit.

Repair parts list

No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *
4KB210	4K9-150	4K9-153	4K1L- E Electric connection option symbol Blank for grommet lead wire COIL- G Voltage
4KB220	4K9-126		
4KB230	4K9-127	4K9-154	
4KB240	4K9-128		
4KB250	4K9-129		

* Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/
FS/FD

Ending

Discrete 5 port pilot operated valve

4KB3 Series

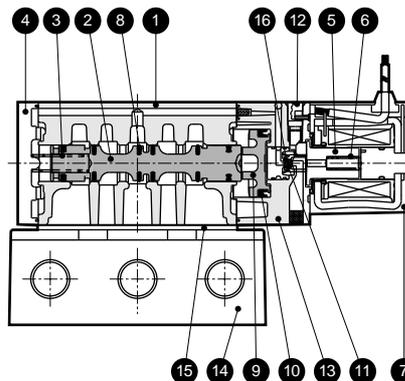
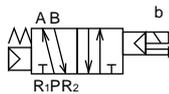
Discrete valve: Sub-plate porting

Internal structure and parts list

MN3E0
MN4E0

4KB310

● 2-position single solenoid



4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

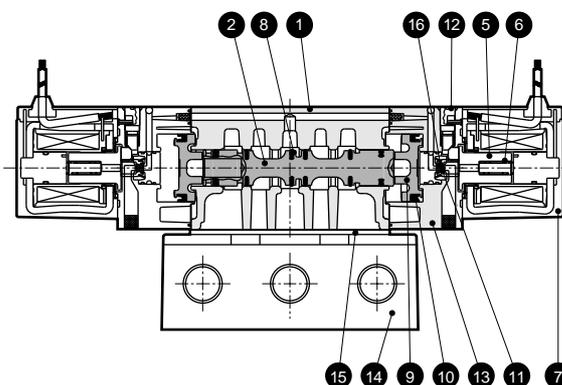
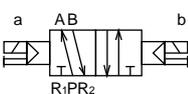
W4GA/B2

W4GB4

MN3S0
MN4S0

4KB320

● 2-position double solenoid



4TB

4L2-4/
LMFO

4SA/B0

4SA/B1

4KA/B

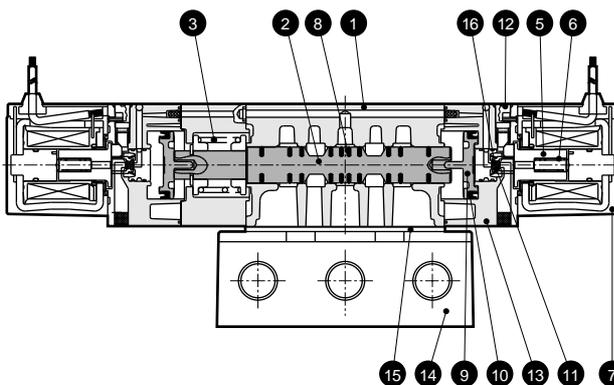
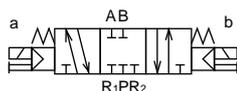
4F

PV5G/
CMF

PV5/
CMF

4KB330

● 3-position all ports closed

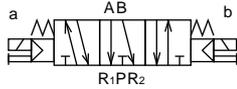


3MA/B0

3PA/B

4KB340

● 3-position A/B/R connection



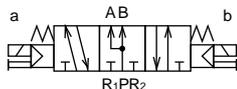
P/M/B

NP/NAP/
NVP

4F*0E

4KB350

● 3-position P/A/B connection



HMV
HSV

2QV
3QV

Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Sub-plate	Aluminum alloy die-casting
15	Gasket *2	Nitrile rubber
16	Valve seat spring	Stainless steel

Main parts list

No.	Component name	Model no.
14	Sub-plate kit	4KB310- E Port size - F External pilot
15		-SUB-BASE-KIT

* Set screw is included with a sub-plate kit.

Repair parts list

No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *1
4KB310			
4KB320	4K9-133	4K9-137	
4KB330	4K9-134		
4KB340	4K9-135	4K9-138	
4KB350	4K9-136		

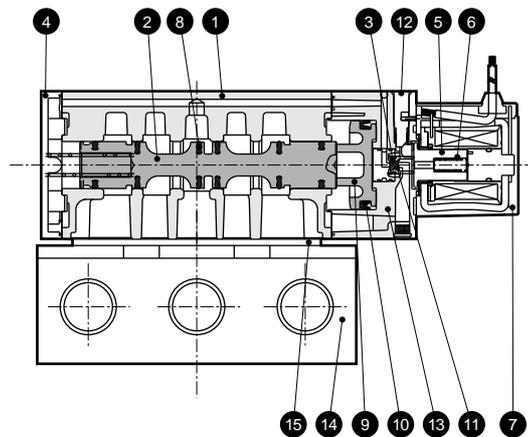
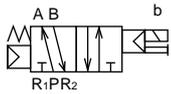
*1: Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

*2: The gasket (15) has a preset installation direction.

Internal structure and parts list

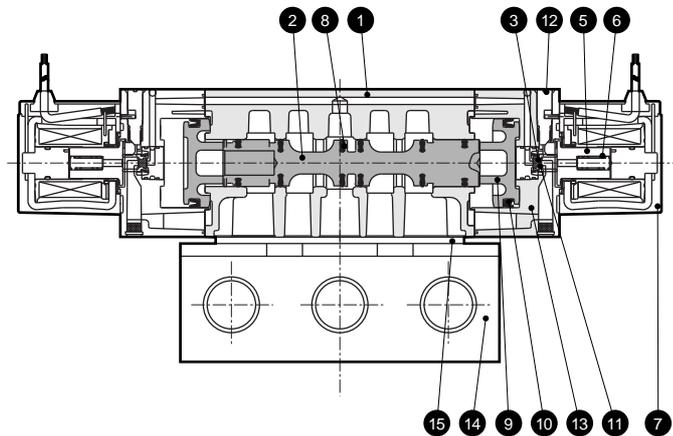
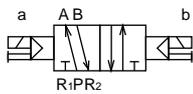
4KB410

● 2-position single solenoid



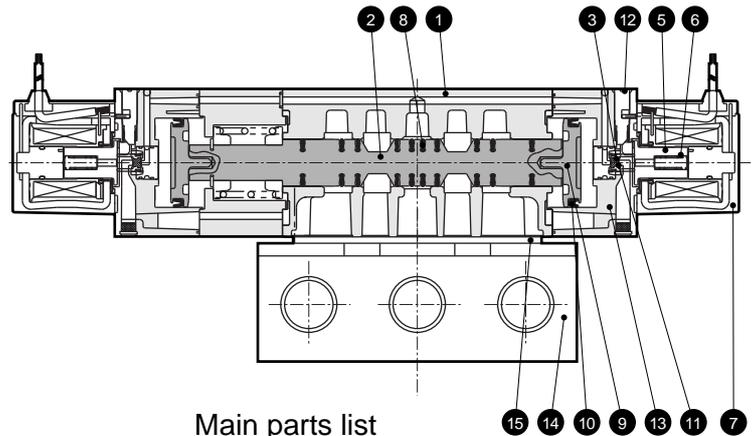
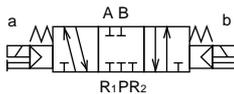
4KB420

● 2-position double solenoid



4KB430

● 3-position all ports closed



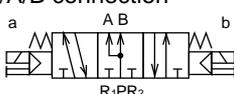
4KB440

● 3-position A/B/R connection



4KB450

● 3-position P/A/B connection



Main parts list

No.	Parts name	Material
1	Body	Aluminum alloy die-casting
2	Valving element (spool)	Aluminum
3	Valve spring	Stainless steel
4	Cap	Resin
5	Plunger	-
6	Plunger spring	-
7	Coil assembly	-
8	Spool packing seal	Nitrile rubber
9	Piston	Resin
10	Piston packing seal	Nitrile rubber
11	Valve seat	Nitrile rubber
12	Manual button	Resin
13	Pilot operated valve	Resin
14	Sub-plate	Aluminum alloy die-casting
15	Gasket	Nitrile rubber
16	Valve seat spring	Stainless steel

Main parts list

No.	Component name	Model no.
14	Sub-plate kit	4KB410- B Port size - F External pilot -SUB-BASE-KIT
15		

* Set screw is included with a sub-plate kit.

Repair parts list

No. / parts name	2 8	9 10	5 6 7
Model no.	Spool assembly	Piston assembly	Coil assembly *
4KB410	4K9-140	4K9-144	4K3- E Electric connection option symbol Blank for grommet COIL- G Voltage lead wire
4KB420			
4KB430	4K9-141	4K9-145	
4KB440			
4KB450	4K9-143		

*1: The plunger assembly is enclosed with the coil assembly. The coil and plunger combination is limited, so do not interchange parts.

*2: Options satisfying the model selection are assembled or enclosed with the coil assembly compact terminal box and connector.

*3: Precautions apply when assembling the coil assembly into the valve. Contact CKD for information.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 5 port pilot operated valve

4KB1 Series

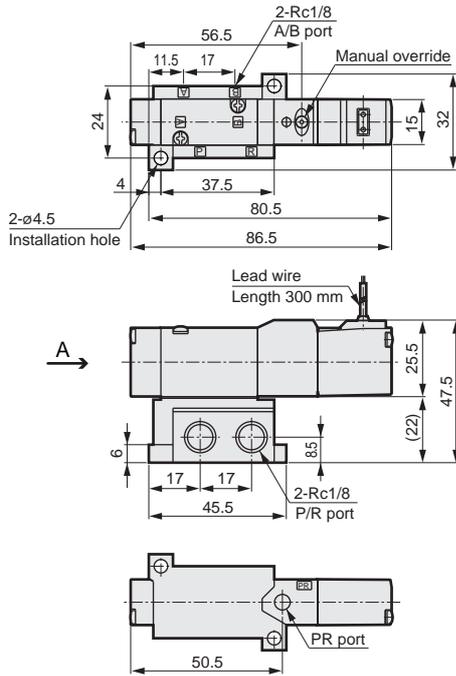
Discrete valve: Sub-plate porting



Dimensions

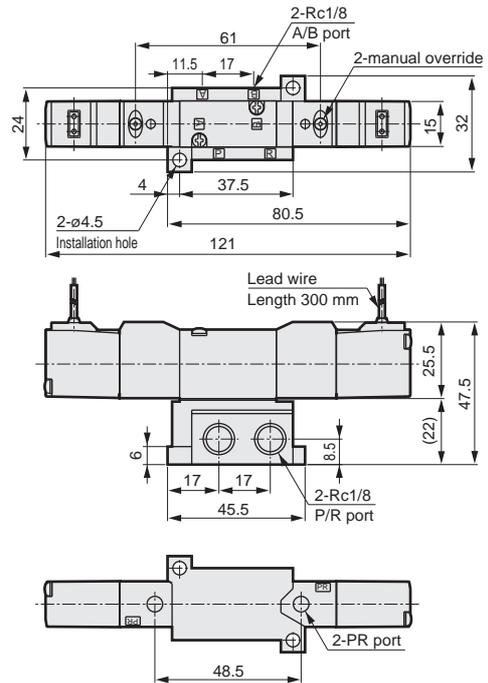
4KB110

● 2-position single solenoid: Grommet lead wire



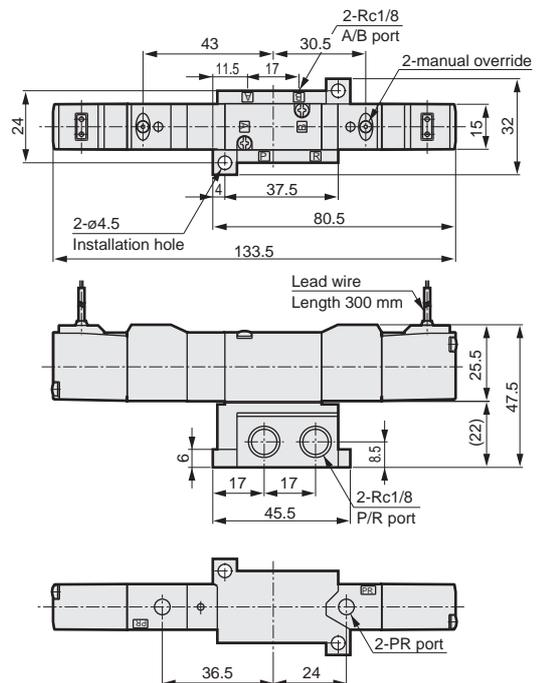
4KB120

● 2-position double solenoid: Grommet lead wire



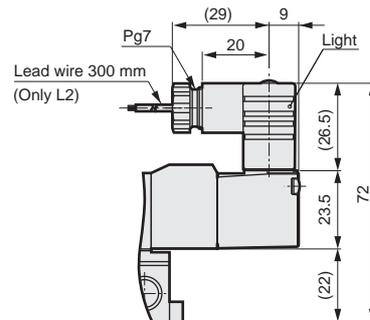
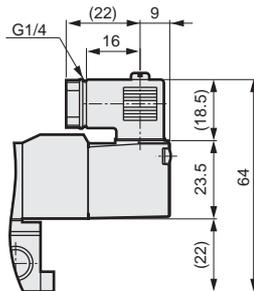
4KB140³/₅

● 3-position: Grommet lead wire

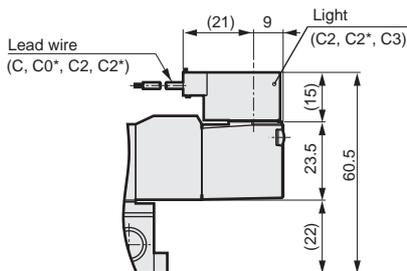


Dimensions

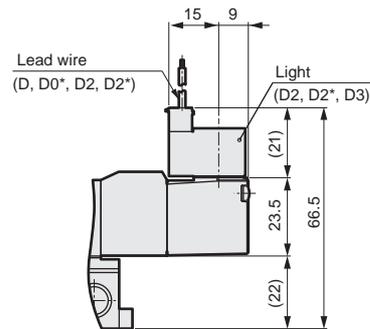
- Small terminal box: (B <without indicator light> , L, L2, LS <with indicator light>)
 - Without indicator light
 - With indicator light



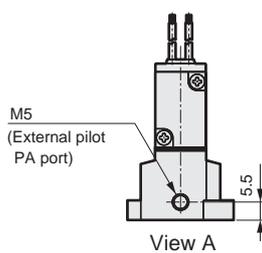
- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



- External pilot: (K)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 5 port pilot operated valve

4KB2 Series

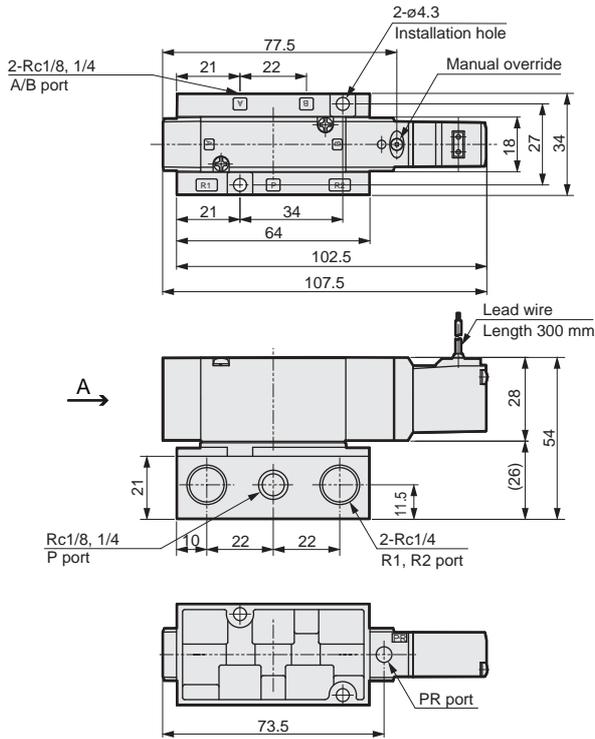
Discrete valve: Sub-plate porting



Dimensions

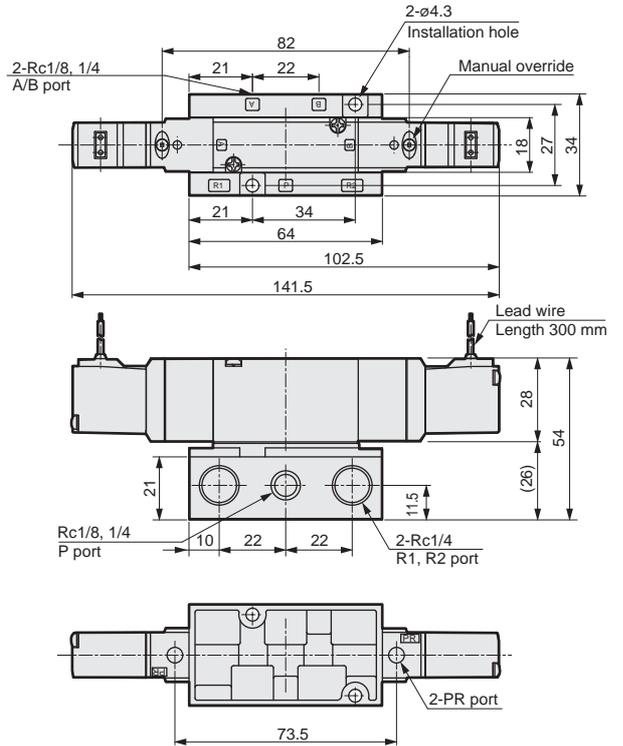
4KB210

● 2-position single solenoid: Grommet lead wire



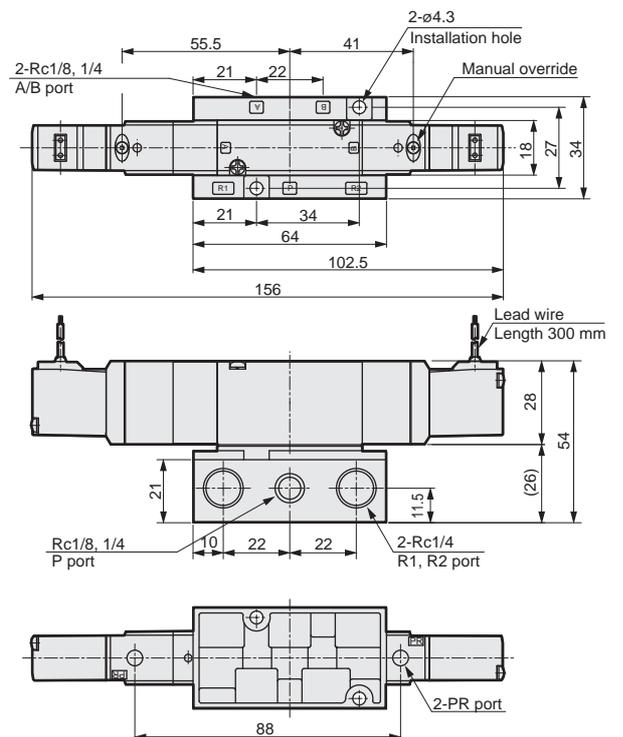
4KB220

● 2-position double solenoid: Grommet lead wire



4KB2³₅40

● 3-position: Grommet lead wire

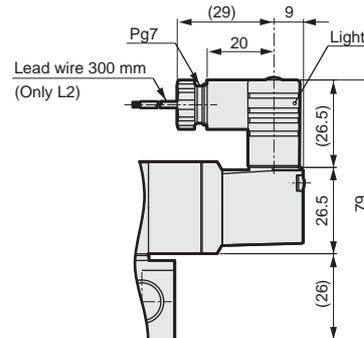
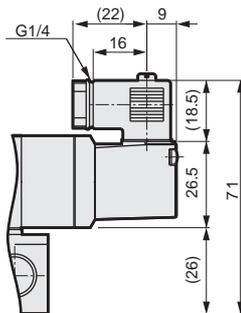


Dimensions

- Small terminal box: (B <without indicator light> , L, L2, LS <with indicator light>)

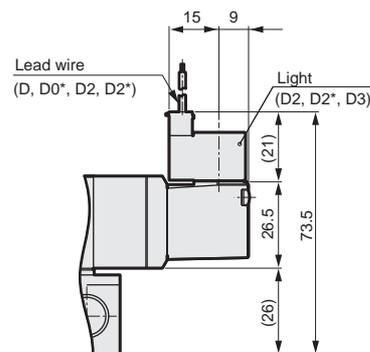
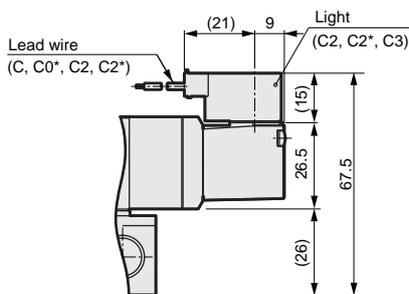
Without indicator light

With indicator light

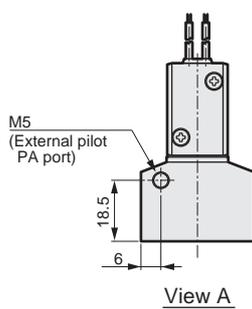


- C-connector: (C, C1, C0*, C2, C2*, C3)

- D-connector: (D, D1, D0*, D2, D2*, D3)



- External pilot: (K)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Discrete 5 port pilot operated valve

4KB3 Series

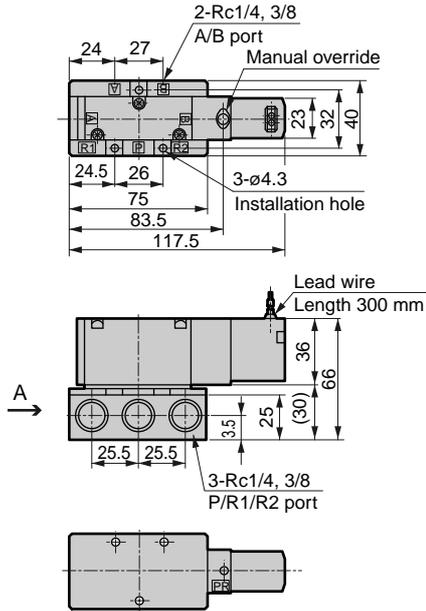
Discrete valve: Sub-plate porting



Dimensions

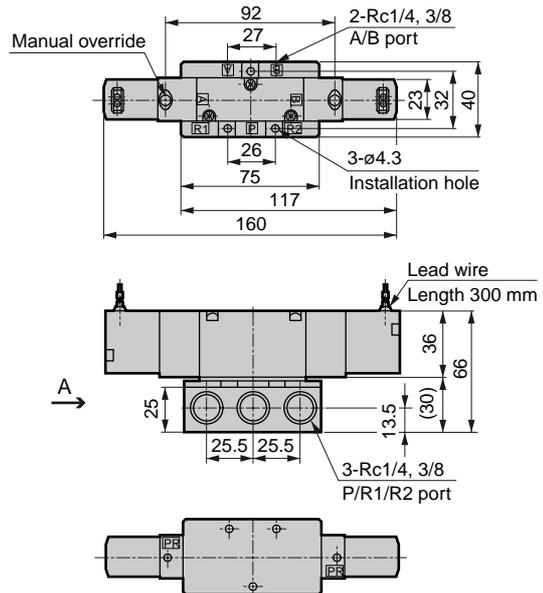
4KB310

● 2-position single solenoid: Grommet lead wire



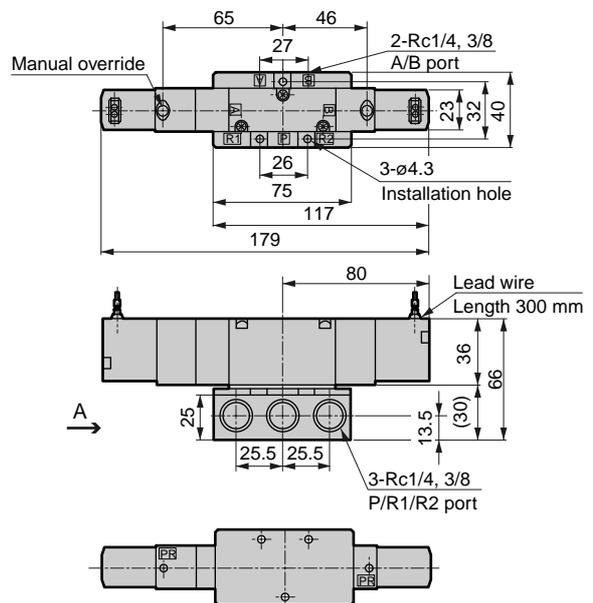
4KB320

● 2-position double solenoid: Grommet lead wire



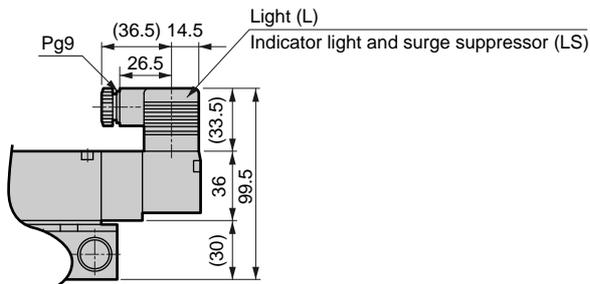
4KB3³/₅40

● 3-position: Grommet lead wire

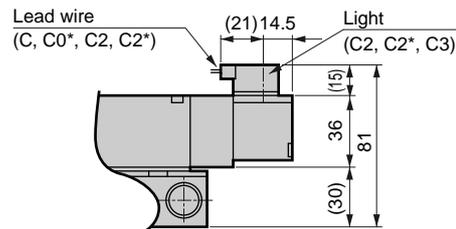


Dimensions

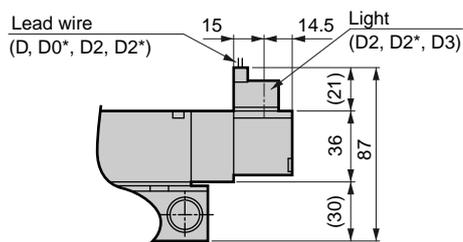
● Terminal box: (B, L, LS)



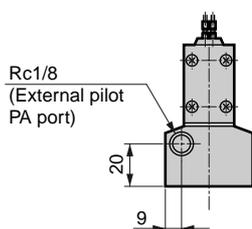
● C-connector: (C, C1, C0*, C2, C2*, C3)



● D-connector: (D, D1, D0*, D2, D2*, D3)



● External pilot: (K)



View A

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/ FS/FD
Ending

Discrete
5 port pilot operated valve

4KB4 Series

Discrete valve: Sub-plate porting

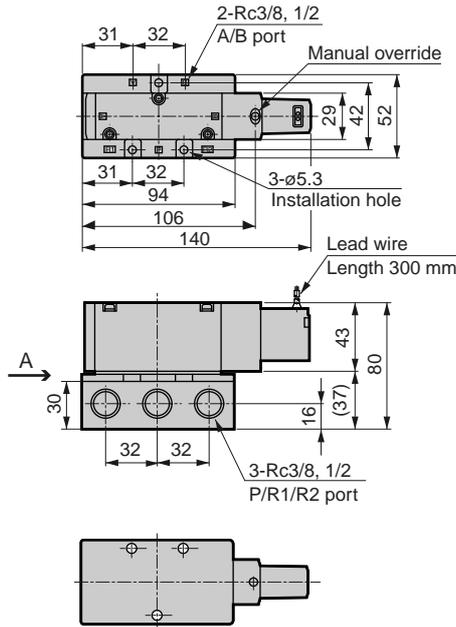
Dimensions



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

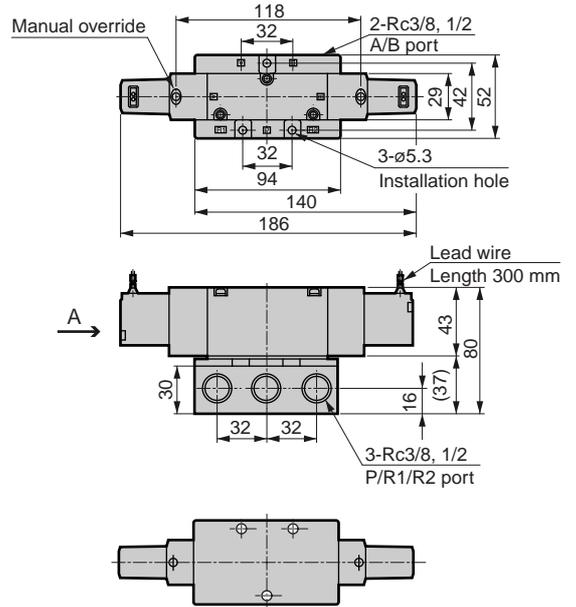
4KB410

● 2-position single solenoid: Grommet lead wire



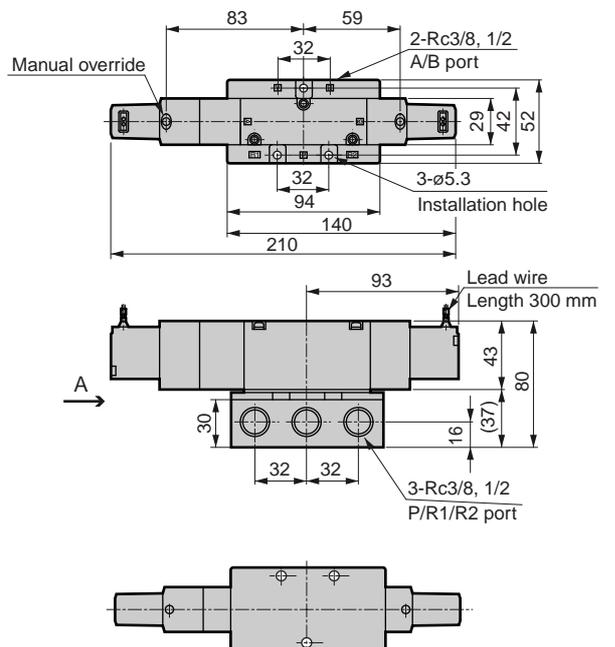
4KB420

● 2-position double solenoid: Grommet lead wire



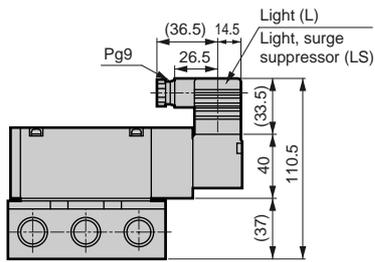
4KB4³/₅0

● 3-position: Grommet lead wire

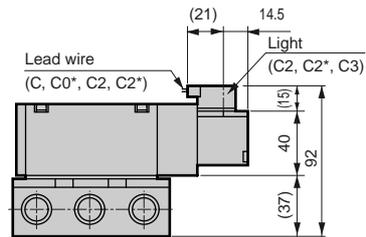


Dimensions

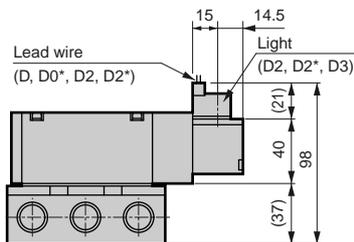
● Terminal box: (B, L, LS)



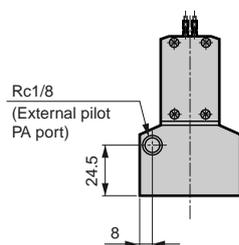
● C-connector: (C, C1, C0*, C2, C2*, C3)



● D-connector: (D, D1, D0*, D2, D2*, D3)



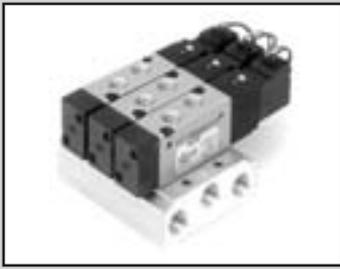
● External pilot: (K)



View A

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/ FS/FD
Ending

Discrete 5 port pilot operated valve



Individual wiring manifold Body porting 3, 5 port pilot operated valve pneumatic valve M3KA1, M4KA1/2/3/4 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$



Refer to Intro 17 for details.



JIS symbol

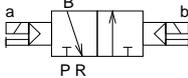
- 3 port valve
2-position single N.C. type



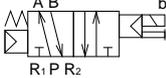
- 3 port valve
2-position single N.O. type



- 3 port valve
2-position double N.C. type



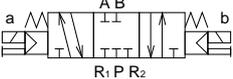
- 5 port valve
2-position single solenoid



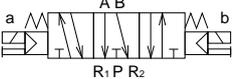
- 5 port valve
2-position double solenoid



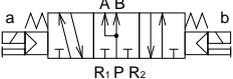
- 5 port valve
3-position all ports closed



- 5 port valve
3-position A/B/R connection



- 5 port valve
3-position P/A/B connection



Common specifications

Descriptions	
Manifold method	Manifold integrated
Manifold type	Common supply, common exhaust
Station number	Note 1 2 to 20 stations
Type of valve/operation method	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to the following individual specifications.
Withstanding pressure MPa	1.05
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Protective structure	Dust proof
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Containing corrosive gas is impermissible.

Note 1: The maximum number of stations for 4KA3 is 15 and for 4KA4 is 12.

Electric specifications

Descriptions		3KA1, 4KA1/2	4KA3/4
Rated voltage	AC	100, 200 (50/60 Hz)	
	DC	24	
Rated voltage fluctuation range		±10%	
Starting current	AC 100 V	0.056/0.044	0.046/0.042
	AC 200 V	0.028/0.022	0.023/0.021
	DC 24 V	—	
Holding current	AC 100 V	0.028/0.022	0.023/0.021
	AC 200 V	0.014/0.011	0.014/0.011
	DC 24 V	0.075	
Power consumption	AC 100 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
	AC 200 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
	DC 24 V	1.8 (2.0)	
Heat proof class		B (molded coil)	
Temperature rise °C		43	30

Remarks: The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Individual specifications

Descriptions		3KA1	4KA1	4KA2	4KA3	4KA4
Min. working pressure MPa	2-position	Single solenoid	0.15	0.15	0.15	0.15
		Double solenoid			0.10	0.10
	3-position	-	0.20	0.20	0.20	0.20
Port size Note 1	A/B port	M5 Push-in joint $\varnothing 4, \varnothing 6$	M5 Push-in joint $\varnothing 4, \varnothing 6$	Rc1/8 Push-in joint $\varnothing 6, \varnothing 8$	Rc1/4 Push-in joint $\varnothing 8, \varnothing 10$	Rc3/8 Push-in joint $\varnothing 10, \varnothing 12$
	P/R1/R2 port	Rc1/8	Rc1/8	Rc1/4	Rc3/8	Rc1/2
Response time Note 2 ms	2-position	30 or less	30 or less	30 or less	30 or less	30 or less
	3-position	-	60 or less	60 or less	60 or less	60 or less

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for information.

Note 2: Response time is the value when supply pressure 0.5 MPa, not lubricated and ON. The value varies depending on pressure and quality of lubricant.

M3KA1/M4KA1 to 4 Series

Individual wiring manifold: Body porting

Flow characteristics

Model no.	Solenoid position	C (dm ³ / (s·bar))	b	
3KA1	2-position	0.69	0.29	
4KA1	2-position	0.69	0.29	
	3-position	All ports closed	0.69	0.29
		A/B/R connection	0.97	0.31
		P/A/B connection	0.73	0.30
4KA2	2-position	2.6	0.25	
	3-position	All ports closed	2.4	0.32
		A/B/R connection	3.0	0.16
		P/A/B connection	2.4	0.31
4KA3	2-position	5.6	0.39	
	3-position	All ports closed	4.1	0.51
		A/B/R connection	5.9	0.37
		P/A/B connection	4.1	0.56
4KA4	2-position	9.7	0.29	
	3-position	All ports closed	8.3	0.40
		A/B/R connection	11	0.30
		P/A/B connection	8.7	0.46

Note 1: Effective sectional area S and sonic conductance C are converted as $S \div 5.0 \times C$.
Flow characteristics are the value when port size is M5 (3KA1, 4KA1), Rc1/8 (4KA2), Rc1/4 (4KA3) and Rc3/8 (4KA4).

Ozone proof specifications (Ending 5)

** - Voltage - P11

Coolant proof specifications

- Special structure with excellent oil proof and water proof properties

** - A - Station number - Voltage

Copper and PTFE free

- Copper and PTFE material not used for flow path

** - Voltage - P6

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/ FS/FD
Ending

Individual wiring manifold
3, 5 port pilot operated valve

M3KA1/M4KA1 to 4 Series

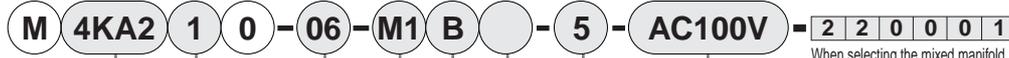
Individual wiring manifold: Body porting

How to order

● Discrete solenoid valve for manifold



● Manifold



A Model no. B Solenoid position

C Port size

D Manual override

E Electric connection
* Refer to page 781 for the circuit diagram of the type with surge suppressor and light.

<Table 1> Small terminal box L/L2/LS table

Symbol	Descriptions	3KA1	4KA1	4KA2	4KA3	4KA4	Surge suppressor
L	No lead wire	With light AC	●	●	●	●	
		DC			●	●	
	With surge suppressor/light	AC	●	●	●		
		DC					Integrated
L2	With lead wire (300 mm)	With light AC	●	●	●		
		DC					
	With surge suppressor/light	AC	●	●	●		
		DC	●	●	●		Integrated
LS	No lead wire	With surge suppressor/light AC	●	●	●	●	Integrated
		DC			●	●	Integrated

Note on model no. selection

Note 1: If the changeover position class is mixed (8), indicate details of the combination at the end of the model. Refer to the following page.

Note 2: 3KA1, 4KA1 and 4KA2 compact terminal box, L and L2 DC voltage, and LS have a built-in surge absorber.

Note 3: With a 24 VDC or less grommet lead wire, the enclosed surge suppressor is a suppression connector. (Refer to page 780)

<Example of model number>

M4KA210-06-M1B-2-AC100V

- A Model : M4KA2
- B Solenoid position: 2-position single solenoid
- C Port size : Rc1/8
- D Manual override : Locking manual override
- E Electric connection : Small terminal box, w/o lead wire
- F Other options : None
- G Station number : 2 stations
- H Voltage : 100 VAC 50/60Hz

		A Model no.					
		3KA1	4KA1	4KA2	4KA3	4KA4	
B Solenoid position	1	2-position single solenoid	●	●	●	●	
	2	2-position double solenoid	●	●	●	●	
	3	3-position all ports closed		●	●	●	
	4	3-position A/B/R connection		●	●	●	
	5	3-position P/A/B connection		●	●	●	
	1	2-position single solenoid normally closed	●				
	11	2-position single solenoid normally open	●				
	8	Mix manifold Note 1	●	●	●	●	
C Port size	Port	A/B port	P/R1/R2 port (1)=Rc1/8 (2)=Rc1/4 (3)=Rc3/8 (4)=Rc1/2				
	M5	M5	(1)	(1)			
	06	Rc1/8			(2)		
	08	Rc1/4				(3)	
	10	Rc3/8				(4)	
	GS4	ø4 push-in joint	(1)	(1)			
	GS6	ø6 push-in joint	(1)	(1)	(2)		
	GS8	ø8 push-in joint			(2)	(3)	
D Manual override	Blank	Non-locking manual override	●	●	●	●	
	M1	Locking manual override	●	●	●	●	
	E Electric connection	Grommet lead wire					
		Blank	Grommet lead wire (300 mm)	●	●	●	●
Small terminal box							
B		No lead wire	●	●	●	●	
L	No lead wire						
L2	Lead wire length (300 mm)	Refer to <Table 1> on the left. Note 2					
LS	No lead wire with surge suppressor/light						
F Other options	C-connector (lead wire lateral)						
	C	Lead wire length (300 mm)	●	●	●	●	
	C00	Lead wire length (500 mm)	●	●	●	●	
	C01	Lead wire length (1000 mm)	●	●	●	●	
	C02	Lead wire length (2000 mm)	●	●	●	●	
	C03	Lead wire length (3000 mm)	●	●	●	●	
	C1	No lead wire	●	●	●	●	
	C2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●	
	C20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●	
	C21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●	
	C22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●	
	C23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●	
	C3	No lead wire with surge suppressor/light	●	●	●	●	
	D-connector (lead wire upward)						
	D	Lead wire length (300 mm)	●	●	●	●	
	D00	Lead wire length (500 mm)	●	●	●	●	
	D01	Lead wire length (1000 mm)	●	●	●	●	
	D02	Lead wire length (2000 mm)	●	●	●	●	
	D03	Lead wire length (3000 mm)	●	●	●	●	
	D1	No lead wire	●	●	●	●	
	D2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●	
	D20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●	
	D21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●	
D22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●		
D23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●		
D3	No lead wire with surge suppressor/light	●	●	●	●		
G Station number	Blank	No option	●	●	●	●	
	S	Surge suppressor attached Note 3	●	●	●	●	
H Voltage	2 to 12	2 to 12 stations				●	
	2 to 15	2 to 15 stations				●	
	2 to 20	2 to 20 stations	●	●	●	●	
I Voltage	Option Standard	AC100V	100 VAC 50/60Hz	●	●	●	
		AC200V	200 VAC 50/60Hz	●	●	●	
		DC24V	24 VDC	●	●	●	
		AC110V	110 VAC 50/60Hz	●	●	●	
		AC220V	220 VAC 50/60Hz	●	●	●	
		DC12V	12 VDC	●	●	●	

How to order masking plate kit

M 4KA180 - MP-KIT

* Gasket and set screw attached

A Model no.

A Model no.
4KA180
4KA280
4KA380
4KA480

How to order mix manifold

· 3 port valve

M 3KA1 8 0 - M5 - 4 - AC100V -

S10	S11	S20	MP
3	0	0	1

S10 = 1 to 3 MP = 4

· 5 port valve

M 4KA3 8 0 - 06 - 7 - AC100V -

S1	S2	S3	S4	S5	MP
2	2	2	1	0	0

S1 = 1, 6 S2 = 2, 5 S3 = 3, 4 S4 = 7

Mix manifold "8"

* Refer to previous page for the others

How to Order Mixed Manifold Models

(1) Indicate the quantity for each function (solenoid position) at the end of the model.

Functions and symbols are indicated below.

S1	S2	S3	S4	S5	MP
2	2	2	1	0	0

Indicate the quantity.

Example: 5 port valve 2-position single solenoid → S1

· 3 port valve

Symbol	Function (solenoid position)
S10	3 port valve 2-position single solenoid N.C. type
S11	3 port valve 2-position single solenoid N.O. type
S20	3 port valve 2-position double solenoid
MP	Masking plate

· 5 port valve

Symbol	Function (solenoid position)
S1	2-position single solenoid
S2	2-position double solenoid
S3	3-position all ports closed
S4	3-position A/B/R connection
S5	3-position P/A/B connection
MP	Masking plate

(2) Indicate the function (solenoid position) and layout position in the Remarks field.

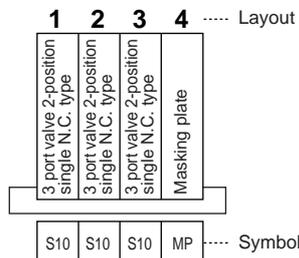
Solenoid position symbol = ○, ○ th station (Facing the piping port. The 1st station is at left.)

Example: S10 = 1 to 3 (1st to 3rd station are the 3 port valve 2-position single solenoid N.C. type.)

S1 = 1, 6 (1st, 6th station are the 5 port valve 2-position single solenoid.)

(Example of model number 1)

For 3 port valve 4 stations



3 port valve 2-position single solenoid (S10) : 3 piece (1st to 3rd station)
Masking plate (MP) : 1 piece (4th station)



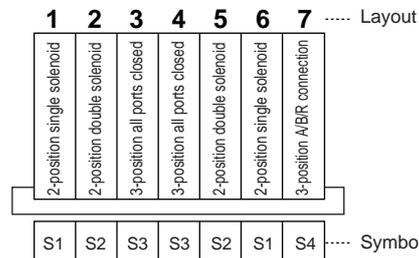
M3KA180-M5-4-100 VAC -

S10	S11	S20	MP
3	0	0	1

S10 = 1 to 3 MP = 4

(Example of model number 2)

For 5 port valve 7 stations



2-position single solenoid (S1) : 2 piece (1st and 6th station)
2-position double solenoid (S2) : 2 piece (2nd and 5th station)
3-position all ports closed (S3) : 2 piece (3rd and 4th station)
3-position A/B/R connection (S4) : 1 piece (7th station)



M4KA380-06-7-100 VAC -

S1	S2	S3	S4	S5	MP
2	2	2	1	0	0

S1 = 1, 6 S2 = 2, 5 S3 = 3, 4 S4 = 7

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMF0

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*OE

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

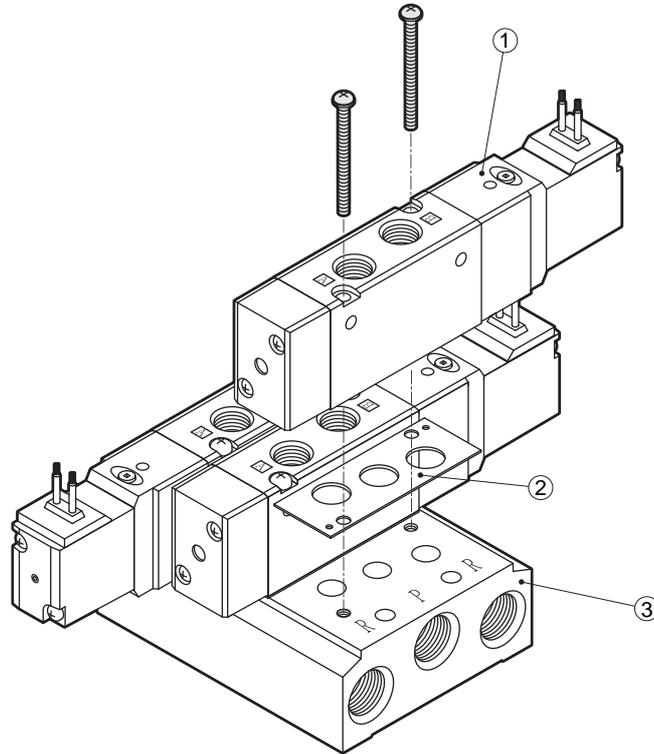
Individual wiring manifold
3, 5 port pilot operated valve

M3KA1/M4KA1 to 4 Series

Individual wiring manifold: Body porting

Manifold components explanation and parts

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B
(Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/
LMFO
4SA/B0
4SA/B1
4KA/B



Main parts list

No.	Component name	Model no. (example)	Descriptions
1	Discrete solenoid valve	4KA219-06-DC24V	Discrete solenoid valve 2 set screws Gasket
2	Gasket kit	M4KA210-GASKET-KIT	Gasket 2 set screws
3	Manifold sub-plate kit	M4KA210-06-3-SUB-BASE-KIT	Manifold sub-plate 2 set screws Gasket

Repair parts list

No.	Parts name	Model no.	Applicable model	No.	Parts name	Model no.	Applicable model
-	Coil assembly	4K1L- * -COIL- *	3KA1	-	Piston assembly	4K9- * └ 151	3KA11(1)0, 4KA110 3KA120, 4KA120
		┌ Electric connection ┐ Voltage	4KA1			152	4KA130 4KA140 4KA150
		4K3- * -COIL- *	4KA3				
		┌ Electric connection ┐ Voltage	4KA4				
4K9- * └ 110	3KA11(1)0, 4KA110	153	4KA210 4KA220				
┌ 118	3KA120, 4KA120						
┌ 111	4KA130						
┌ 112	4KA140						
-	Spool assembly	┌ 113	4KA150			154	4KA230 4KA240 4KA250
		┌ 150	4KA210				
		┌ 126	4KA220				
		┌ 127	4KA230				
		┌ 128	4KA240			137	4KA310, 4KA320
		┌ 129	4KA250				
		┌ 133	4KA310, 4KA320				
		┌ 134	4KA330				
		┌ 135	4KA340	138	4KA330 4KA340 4KA350		
		┌ 136	4KA350				
		┌ 140	4KA410, 4KA420				
		┌ 141	4KA430				
┌ 142	4KA440	144	4KA410, 4KA420				
┌ 143	4KA450						
				145	4KA430 4KA440 4KA450		

M3KA1/M4KA1 Series

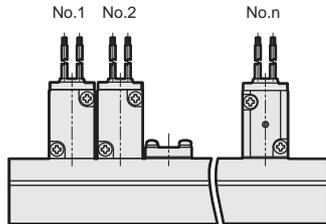
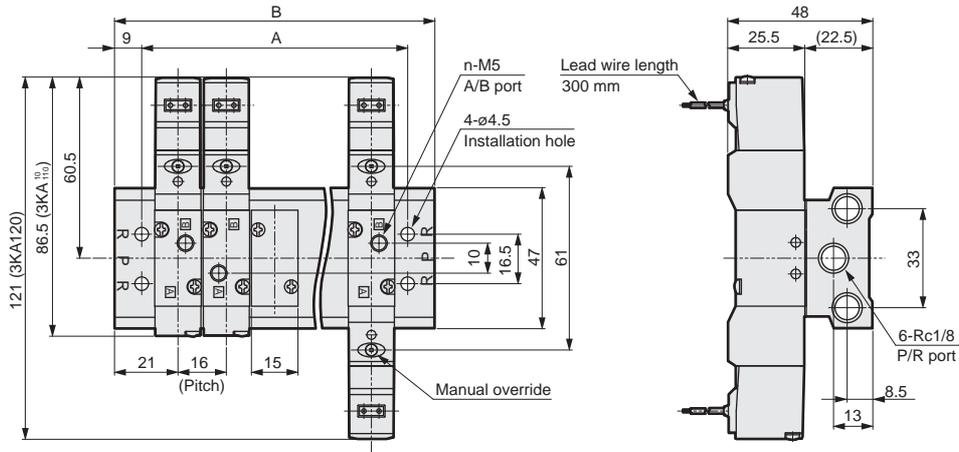
Individual wiring manifold: Body porting

Dimensions



M3KA1-M5

● 3-port valve / port size M5: Grommet lead wire

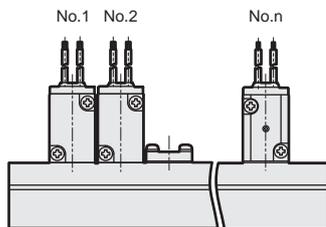
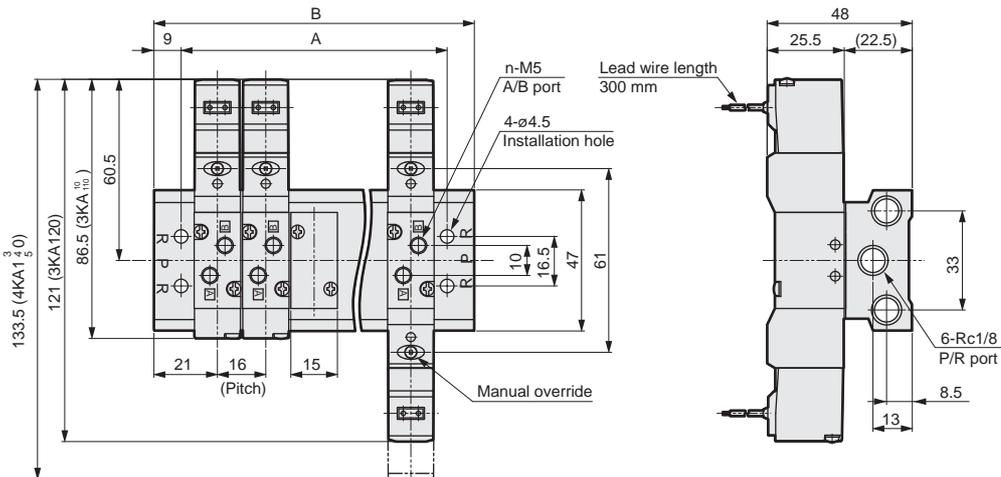


■ Discrete manifold model no. 3KA1*9-M5-OPTION-VOLTAGE

* The B port is the connection port for 3KA119-M5 and the A port is the connection port for 3KA1119-M5.

M4KA1-M5

● 5 port valve / port size M5: Grommet lead wire



■ Discrete manifold model no. 4KA1*9-M5-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328
B	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330	346

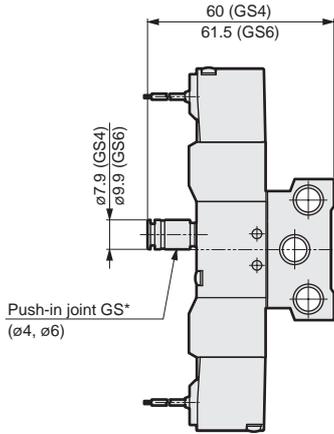
M3KA1/M4KA1 Series

Individual wiring manifold: Body porting

Dimensions

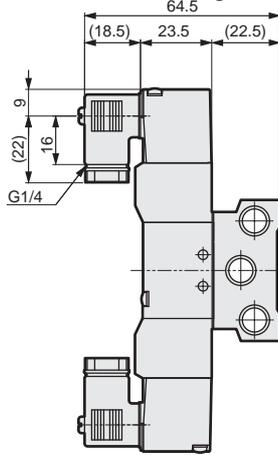
M3KA1 (3 port valve)

- $\varnothing 4$, $\varnothing 6$ push-in joint: (GS4, GS6)

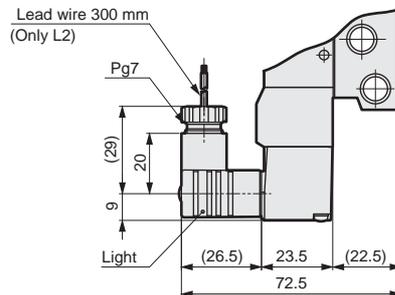


- Small terminal box: (B, L, L2, LS)

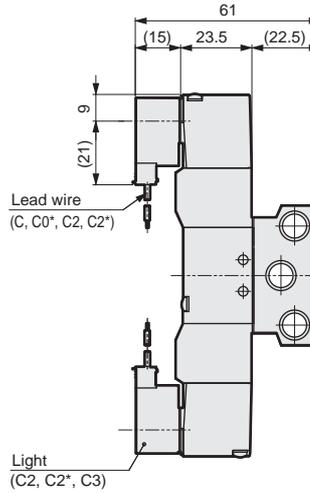
Without indicator light



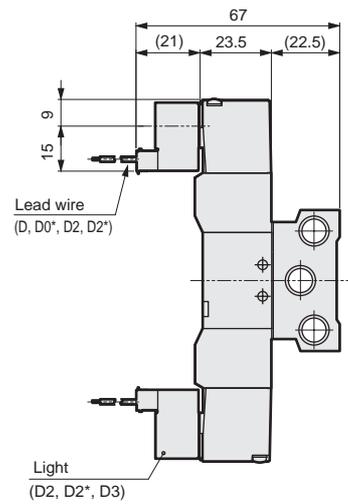
With indicator light



- C-connector: (C, C1, C0*, C2, C2*, C3)

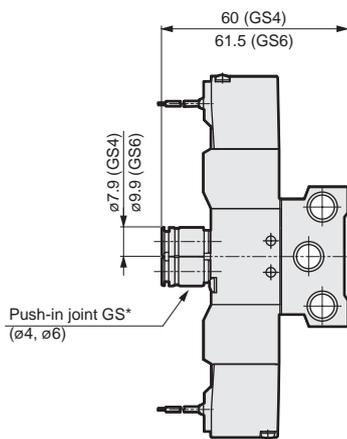


- D-connector: (D, D1, D0*, D2, D2*, D3)



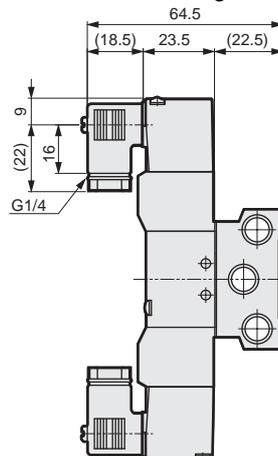
M4KA1 (5 port valve)

- $\varnothing 4$, $\varnothing 6$ push-in joint: (GS4, GS6)

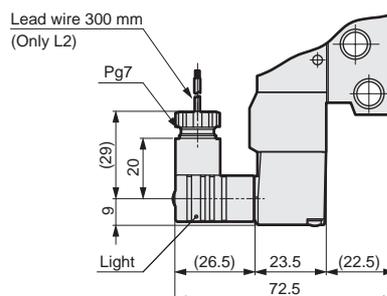


- Small terminal box: (B, L, L2, LS)

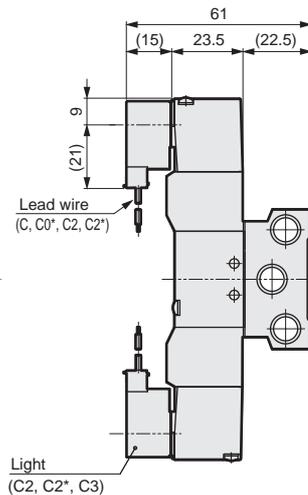
Without indicator light



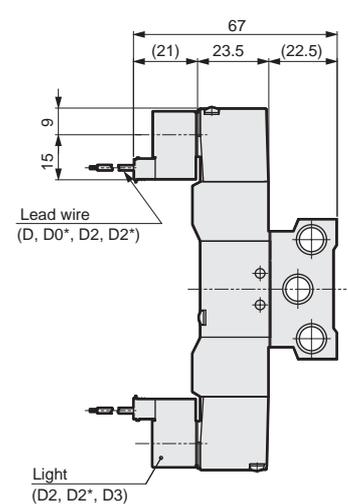
With indicator light



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
3, 5 port pilot operated valve

M4KA2/M4KA3 Series

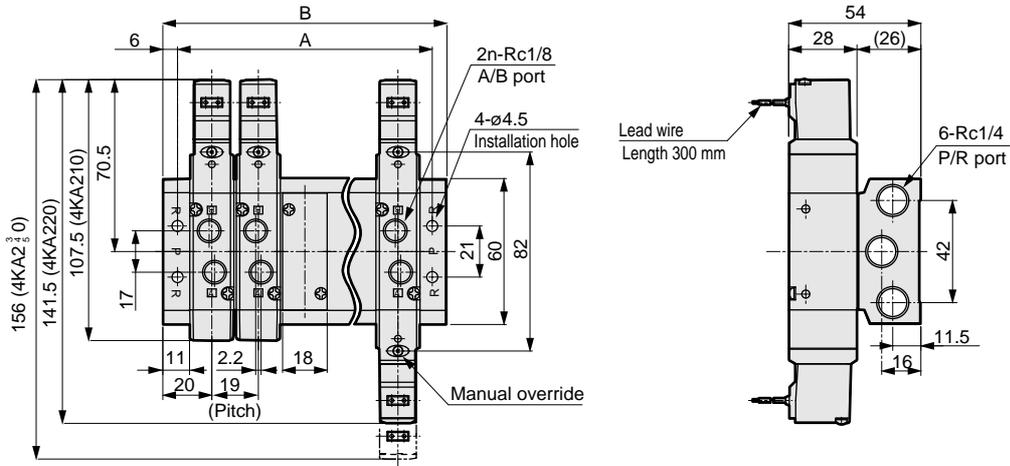
Individual wiring manifold: Body porting



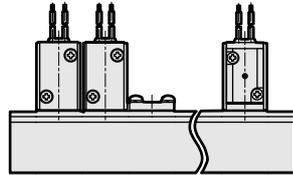
Dimensions

M4KA2-06

● Port size Rc1/8: Grommet lead wire



Station number No. 1 No. 2 No. 3 ... No. n

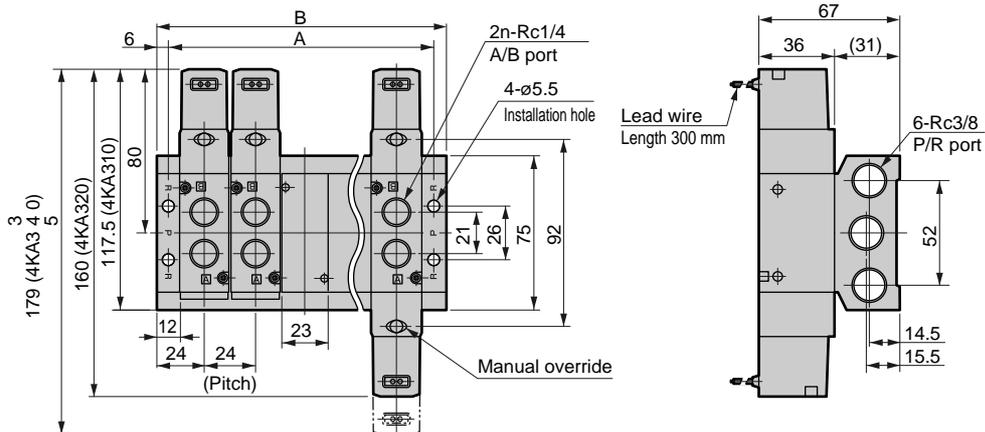


■ Discrete manifold model no.
4KA2*9-06-OPTION-VOLTAGE

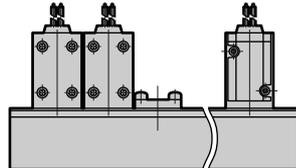
Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	47	66	85	104	123	142	161	180	199	218	237	256	275	294	313	332	351	370	389
B	59	78	97	116	135	154	173	192	211	230	249	268	287	306	325	344	363	382	401

M4KA3-08

● Port size Rc1/4: Grommet lead wire



No.1 No.2 No.3-.....No.n



■ Discrete manifold model no.
4KA3*9-08-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	60	84	108	132	156	180	204	228	252	276	300	324	348	372
B	72	96	120	144	168	192	216	240	264	288	312	336	360	384

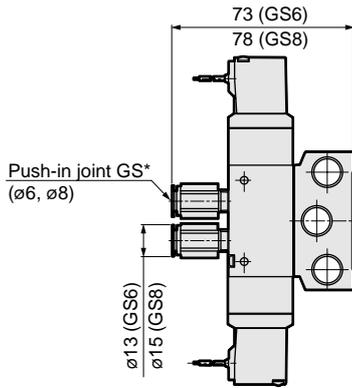
M4KA2/M4KA3 Series

Individual wiring manifold: Body porting

Dimensions

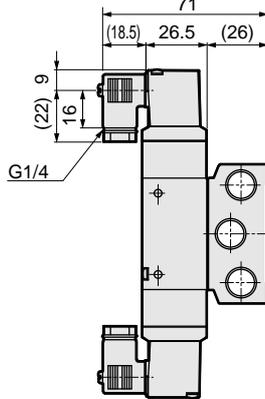
M4KA2

● $\varnothing 6$, $\varnothing 8$ push-in joint:
(GS6, GS8)

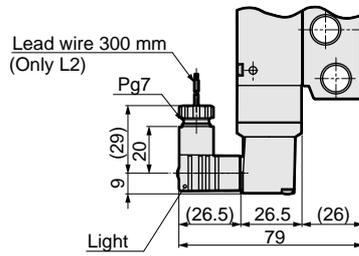


● Small terminal box:
(B, L, L2, LS)

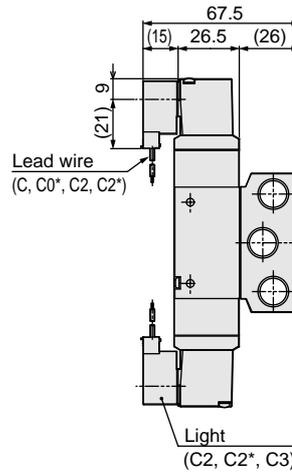
Without indicator light



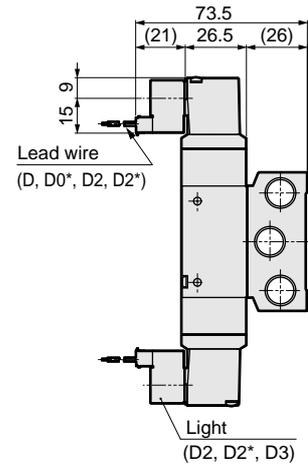
With indicator light



● C-connector:
(C, C1, C0*, C2, C2*, C3)

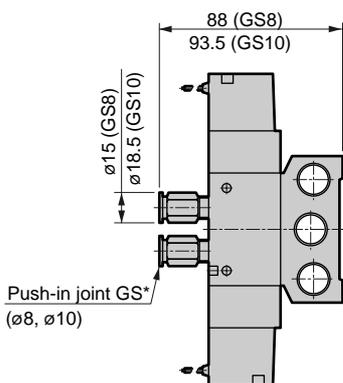


● D-connector:
(D, D1, D0*, D2, D2*, D3)

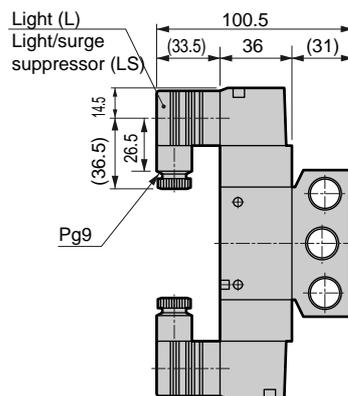


M4KA3

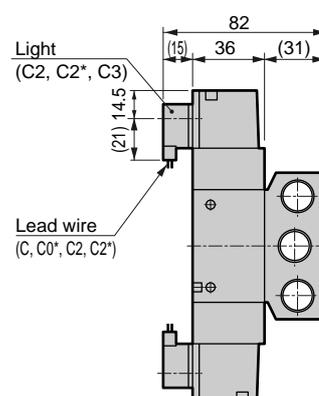
● $\varnothing 8$, $\varnothing 10$ push-in joint:
(GS8, GS10)



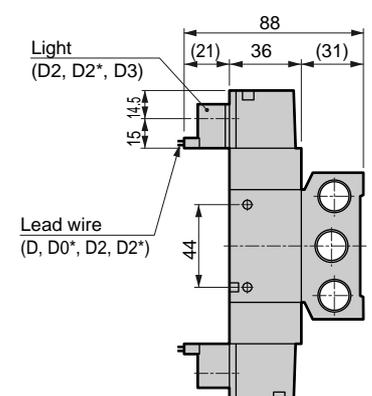
● Small terminal box:
(B, L, L2, LS)



● C-connector:
(C, C1, C0*, C2, C2*, C3)



● D-connector:
(D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NPN/NP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
3, 5 port pilot operated valve

M4KA4 Series

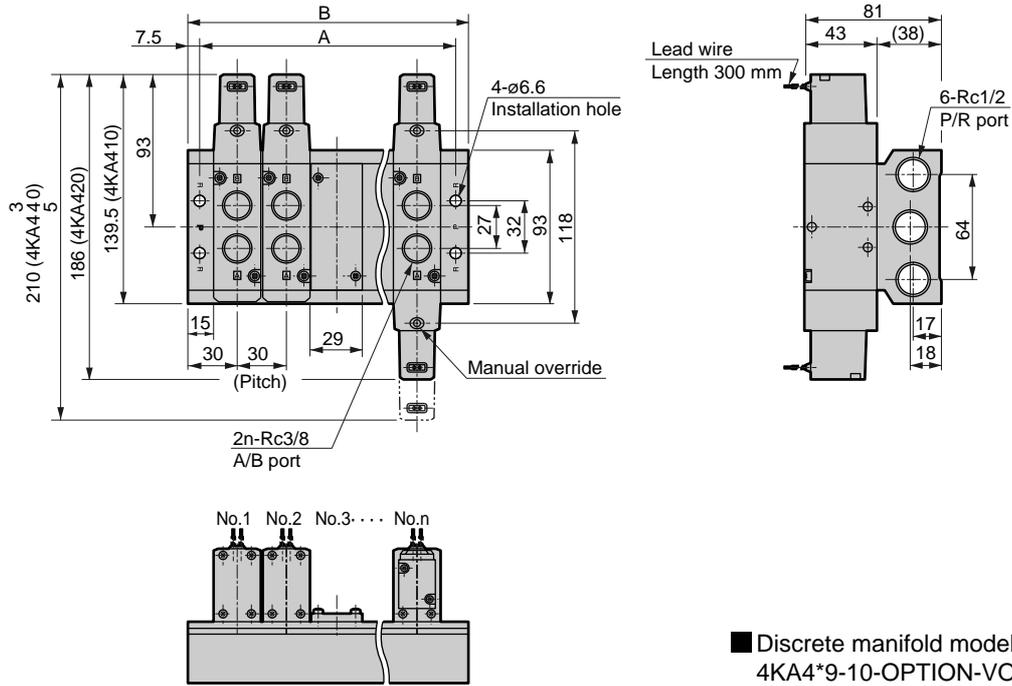
Individual wiring manifold: Body porting



Dimensions

M4KA4-10

● Port size Rc3/8: Grommet lead wire



■ Discrete manifold model no.
4KA4*9-10-OPTION-VOLTAGE

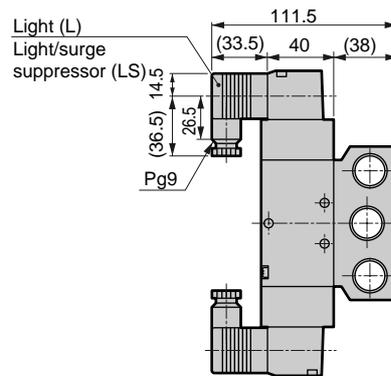
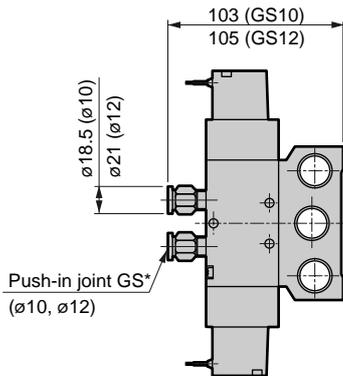
Station number	2	3	4	5	6	7	8	9	10	11	12
A	75	105	135	165	195	225	255	285	315	345	375
B	90	120	150	180	210	240	270	300	330	360	390

Dimensions

M4KA4

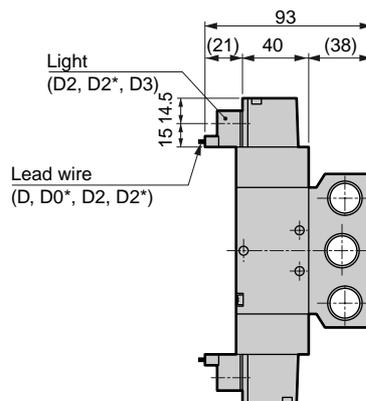
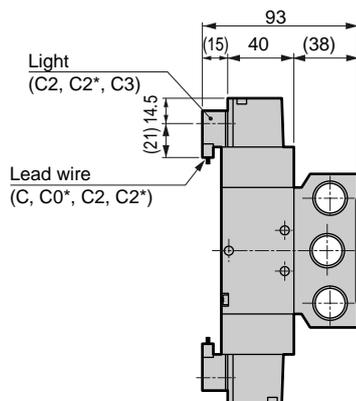
- Push-in joint $\phi 10$, $\phi 12$:
(GS10, GS12)

- Small terminal box:
(B, L, LS)



- C-connector:
(C, C1, C0*, C2, C2*, C3)

- D-connector:
(D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
3, 5 port pilot operated valve

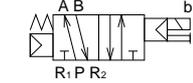


Individual wiring manifold Sub-plate porting 4, 5 port pilot operated valve pneumatic valve **M4KB1/2/3/4 Series**

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$  Refer to Intro 17 for details.  

JIS symbol

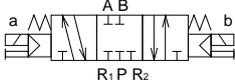
- 5 port valve
2-position single solenoid



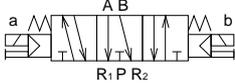
- 5 port valve
2-position double solenoid



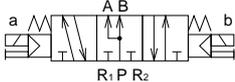
- 5 port valve
3-position all ports closed



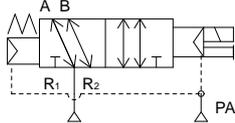
- 5 port valve
3-position A/B/R connection



- 5 port valve
3-position P/A/B connection



- External pilot



(2-position single solenoid)

Common specifications

Descriptions	
Manifold method	Manifold integrated
Manifold type	Common supply, common exhaust
Station number	Note 1 2 to 20 stations
Type of valve/operation method	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to the following individual specifications.
Withstanding pressure MPa	1.05
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Protective structure	Dust proof
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Containing corrosive gas is impermissible.

Note 1: The max. number of stations for 4KB3 is 15 and for 4KB4 is 12.

Note 2: The working pressure range is 0 to 0.7 MPa when the external pilot (option symbol: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electric specifications

Descriptions		4KB1/2	4KB3/4
Rated voltage	AC	100, 200 (50/60 Hz)	
	DC	24	
Rated voltage fluctuation range		±10%	
Starting current	AC 100 V	0.056/0.044	0.046/0.042
	AC 200 V	0.028/0.022	0.023/0.021
	DC 24 V	-	
Holding current	AC 100 V	0.028/0.022	0.023/0.021
	AC 200 V	0.014/0.011	
	DC 24 V	0.075	
Power consumption W Value in () are with indicator light	AC 100 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
	AC 200 V	1.8 / 1.4 (1.8 / 1.5)	1.6 / 1.3 (1.8 / 1.5)
	DC 24 V	1.8 (2.0)	
Heat proof class		B (molded coil)	
Temperature rise °C		43	30

Remarks: The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Individual specifications

Descriptions		4KB1	4KB2	4KB3	4KB4
Min. working pressure MPa	2-position	Single solenoid	0.15	0.15	0.15
		Double solenoid	0.10	0.10	0.10
	3-position	0.20	0.20	0.20	0.20
Port size Note 1	A/B port	M5, Rc1/8 Push-in joint $\varnothing 6$	Rc1/8, Rc1/4 Push-in joint $\varnothing 6, \varnothing 8$	Rc1/4, Rc3/8 Push-in joint $\varnothing 6, \varnothing 10$	Rc3/8, Rc1/2 Push-in joint $\varnothing 10, \varnothing 12$
	P/R1/R2 port	Rc1/8	Rc1/4	Rc3/8	Rc1/2
Response time Note 2 ms	2-position	30 or less	30 or less	30 or less	30 or less
	3-position	60 or less	60 or less	60 or less	60 or less

Note 1: G threads and NPT threads are available for the piping port threads. Contact CKD for information.

Note 2: Response time is the value when supply pressure 0.5 MPa, not lubricated and ON. The value varies depending on pressure and quality of lubricant.

Flow characteristics

Model no.	Solenoid position	C (dm ³ / (s·bar))	b	
4KB1	2-position	0.71	0.25	
	3-position	All ports closed	0.60	0.23
		A/B/R connection	0.81	0.25
		P/A/B connection	0.67	0.32
4KB2	2-position	2.1	0.13	
	3-position	All ports closed	1.8	0.11
		A/B/R connection	2.0	0.17
		P/A/B connection	1.8	0.23
4KB3	2-position	4.5	0.11	
	3-position	All ports closed	4.4	0.21
		A/B/R connection	4.8	0.18
		P/A/B connection	4.3	0.20
4KB4	2-position	8.9	0.22	
	3-position	All ports closed	8.9	0.24
		A/B/R connection	9.4	0.23
		P/A/B connection	8.6	0.20

Note 1: Effective sectional area S and sonic conductance C are converted as $S \div 5.0 \times C$.

Ozone proof specifications (Ending 5)

** -Voltage - P11

Coolant proof specifications

- Special structure with excellent oil proof and water proof properties

** - A - Station number - Voltage

Copper and PTFE free

- Copper and PTFE material not used for flow path

** -Voltage - P6

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/ LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/ CMF
PV5/ CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/ NVP
4F*0E
HMV HSV
2QV 3QV
SKH
PCD/ FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve

M4KB1 to 4 Series

Individual wiring manifold: Sub-plate porting

How to order

● Discrete solenoid valve for manifold



* Gasket and set screw attached

● Manifold

Note 6, 7



When selecting the mixed manifold, indicate the quantity for each valve function. Refer to the following page.

A Model no.				
4KB1	4KB2	4KB3	4KB4	
●	●	●	●	
●	●	●	●	
●	●	●	●	
●	●	●	●	
●	●	●	●	
●	●	●	●	

A Model no.

B Solenoid position

C Port size

D Manual override

E Electric connection

* Refer to page 781 for the circuit diagram of the type with surge suppressor and light.

<Table 1> Small terminal box L/L2/LS table

Symbol	Descriptions	4KB1	4KB2	4KB3	4KB4	Surge suppressor	
L	No lead wire	With light	AC	●	●	●	●
		DC			●	●	
	With surge suppressor/light	AC	●	●			Integrated
		DC	●	●			
L2	With lead wire (300 mm)	With light	AC	●	●		
		DC					
	With surge suppressor/light	AC	●	●			Integrated
		DC	●	●			
LS	No lead wire	With surge suppressor/light	AC	●	●	●	●
		DC			●	●	Integrated

Note on model no. selection

Note 1: If the changeover position class is mixed (8), indicate details of the combination at the end of the model. Refer to the following page.

Note 2: A CE mark indicates common pilot exhaust. (The maximum number of stations is 10.)

Note 3: The max. number of stations for the external pilot (K) is 10. Consult with CKD for vacuum applications.

Note 4: 4KB1 and 4KB2 compact terminal box, L and L2 DC voltage, and LS have a built-in surge absorber.

Note 5: With a 24 VDC or less grommet lead wire, the enclosed surge suppressor is a suppression connector. (Refer to page 780.)

Note 6: When ordering the CE discrete manifold solenoid valve, the port size is "00CE".

Note 7: The port size is "00Y" for the discrete solenoid valve for the 4KB1 back porting manifold.

<Example of model number>

M4KB210-06-M1B-2-AC100V

- A Model : M4KB2
- B Solenoid position : 2-position single solenoid
- C Port size : Rc1/8
- D Manual override : Locking manual override
- E Electric connection : Small terminal box, w/o lead wire
- F Other options : None
- G Station number : 2 stations
- H Voltage : 100 VAC 50/60Hz

Symbol	Descriptions	4KB1	4KB2	4KB3	4KB4
1	2-position single solenoid	●	●	●	●
2	2-position double solenoid	●	●	●	●
3	3-position all ports closed	●	●	●	●
4	3-position A/B/R connection	●	●	●	●
5	3-position P/A/B connection	●	●	●	●
8	Mix manifold	●	●	●	●

C Port size	Port	A/B port	P/R1/R2 port			
			(1)=Rc1/8	(2)=Rc1/4	(3)=Rc3/8	(4)=Rc1/2
B Solenoid position	M5	M5	(1)			
	06	Rc1/8	(1)	(2)		
	08	Rc1/4		(2)	(3)	
	10	Rc3/8			(3)	(4)
	15	Rc1/2				(4)
	M5Y	M5 (Rear)	(1)			
	06Y	Rc1/8 (Rear)		(2)		
	08Y	Rc1/4 (Rear)			(3)	
	10Y	Rc3/8 (Rear)				(4)
	H6	ø6 push-in joint	(1)	(2)		
	H8	ø8 push-in joint		(2)	(3)	
	H10	ø10 push-in joint			(3)	(4)
H12	ø12 push-in joint				(4)	
M5CE	M5	Note 2	(1)			
06CE	Rc1/8	Note 2	(1)			
H6CE	ø6 push-in joint	Note 2	(1)			

D	Blank	Non-locking manual override	4KB1	4KB2	4KB3	4KB4
M1	Locking manual override		●	●	●	●

E Electric connection	Grommet lead wire					
	Blank	Grommet lead wire (300 mm)	●	●	●	●
	Small terminal box					
	B	No lead wire	●	●	●	●
L	No lead wire	Refer to <Table 1> on the left. Note 4				
	L2					Lead wire length (300 mm)
	LS					No lead wire with surge suppressor/light
	LS					No lead wire with surge suppressor/light

C-connector (lead wire lateral)	C-connector (lead wire lateral)					
	C	Lead wire length (300 mm)	●	●	●	●
	C00	Lead wire length (500 mm)	●	●	●	●
	C01	Lead wire length (1000 mm)	●	●	●	●
	C02	Lead wire length (2000 mm)	●	●	●	●
	C03	Lead wire length (3000 mm)	●	●	●	●
	C1	No lead wire	●	●	●	●
	C2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●
	C20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●
	C21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●
	C22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●
	C23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●
	C3	No lead wire with surge suppressor/light	●	●	●	●

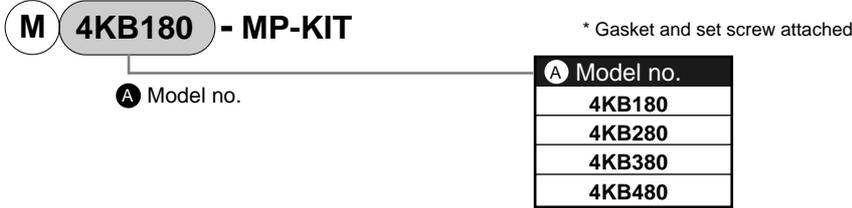
D-d connector (lead wire upward)	D-d connector (lead wire upward)					
	D	Lead wire length (300 mm)	●	●	●	●
	D00	Lead wire length (500 mm)	●	●	●	●
	D01	Lead wire length (1000 mm)	●	●	●	●
	D02	Lead wire length (2000 mm)	●	●	●	●
	D03	Lead wire length (3000 mm)	●	●	●	●
	D1	No lead wire	●	●	●	●
	D2	Lead wire length (300 mm) with surge suppressor/light	●	●	●	●
	D20	Lead wire length (500 mm) with surge suppressor/light	●	●	●	●
	D21	Lead wire length (1000 mm) with surge suppressor/light	●	●	●	●
	D22	Lead wire length (2000 mm) with surge suppressor/light	●	●	●	●
	D23	Lead wire length (3000 mm) with surge suppressor/light	●	●	●	●
	D3	No lead wire with surge suppressor/light	●	●	●	●

F	Other options					
	Blank	No option	●	●	●	●
	K	External pilot (Only if of port size Rc1/8)	Note 3	●		
S	With surge suppressor	Note 5	●	●	●	●

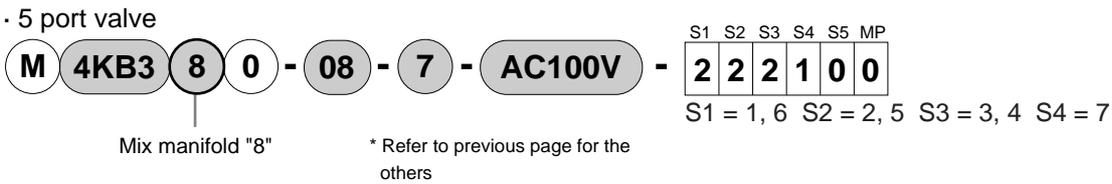
G	Station number					
	2 to 12	2 to 12 stations				●
	2 to 15	2 to 15 stations			●	
2 to 20	2 to 20 stations		●			

H Voltage	Standard					
	AC100V	100 VAC 50/60Hz	●	●	●	●
	AC200V	200 VAC 50/60Hz	●	●	●	●
	DC24V	24 VDC	●	●	●	●
Option	AC110V	110 VAC 50/60Hz	●	●	●	●
	AC220V	220 VAC 50/60Hz	●	●	●	●
	DC12V	12 VDC	●	●	●	●

How to order masking plate kit



How to order mix manifold

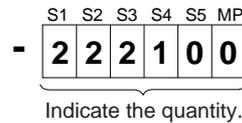


How to Order Mixed Manifold Models

- (1) Indicate the quantity for each function (solenoid position) at the end of the model.
Functions and symbols are indicated below.

Example: 2-position single solenoid → S1

Symbol	Function (solenoid position)
S1	2-position single solenoid
S2	2-position double solenoid
S3	3-position all ports closed
S4	3-position A/B/R connection
S5	3-position P/A/B connection
MP	Masking plate

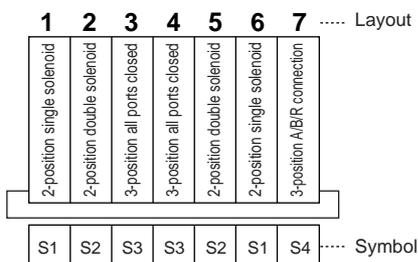


- (2) Indicate the function (solenoid position) and layout position in the Remarks field.

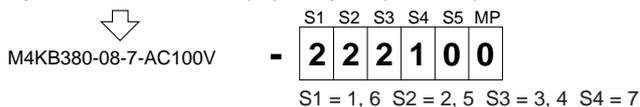
Solenoid position symbol = ○, ○ th station (Facing the piping port. The 1st station is at left.)

Example: S1 = 1, 6 (1st, 6th stations are 5 port valve 2-position single solenoid.)

<Example of model number>
For 7 stations



- 2-position single solenoid (S1) : 2 piece (1st and 6th station)
 2-position double solenoid (S2) : 2 piece (2nd and 5th station)
 3-position all ports closed (S3) : 2 piece (3rd and 4th station)
 3-position A/B/R connection (S4) : 1 piece (7th station)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

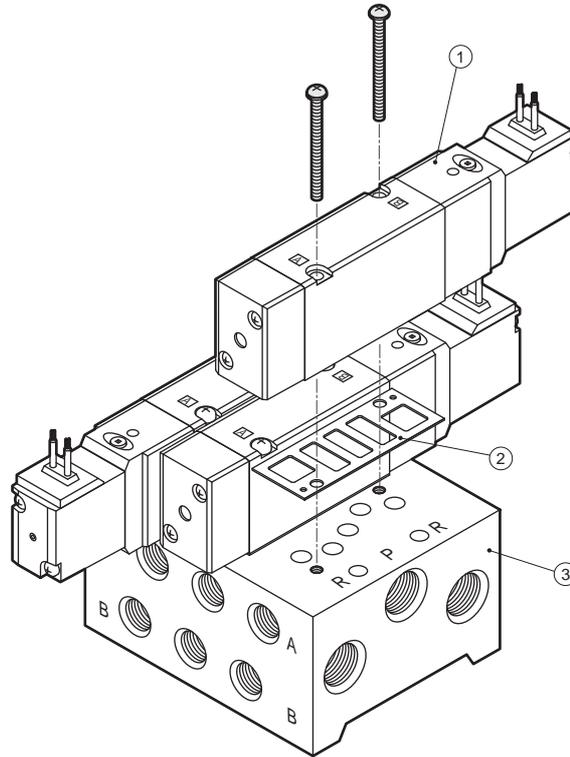
Individual wiring manifold
4, 5 port pilot operated valve

M4KB1 to 4 Series

Individual wiring manifold: Sub-plate porting

Manifold components explanation and parts list

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B
(Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/
LMFO
4SA/B0
4SA/B1
4KA/B



Main parts list

No.	Component name	Model no. (example)	Descriptions
1	Discrete solenoid valve	4KB219-00-DC24V	Discrete solenoid valve 2 set screws Gasket
2	Gasket kit	M4KB210-GASKET-KIT	Gasket 2 set screws
3	Manifold sub-plate kit	M4KB210-06-3-SUB-BASE-KIT	Manifold sub-plate 2 set screws Gasket

Repair parts list

No.	Parts name	Model no.	Applicable model	No.	Parts name	Model no.	Applicable model
-	Coil assembly	4K1L- * -COIL- *	4KB1	-	Piston assembly	4K9- * └ 151	4KB110
		┌ Electric connection Voltage	4KB2			4KB120	
		4K3- * -COIL- *	4KB3			4KB130	
		┌ Electric connection Voltage	4KB4			4KB140	
-	Spool assembly	4K9- * └ 110	4KB110			152	4KB150
		118	4KB120			153	4KB210
		111	4KB130				4KB220
		112	4KB140			154	4KB230
		113	4KB150				4KB240
		150	4KB210			137	4KB250
		126	4KB220				4KB310/4KB320
		127	4KB230			138	4KB330
		128	4KB240				4KB340
		129	4KB250			144	4KB350
		133	4KB310/4KB320			145	4KB410/4KB420
		134	4KB330				4KB430
		135	4KB340		4KB440		
		136	4KB350		4KB450		
		140	4KB410/4KB420				
141	4KB430						
142	4KB440						
143	4KB450						

M4KB1-M5/06 Series

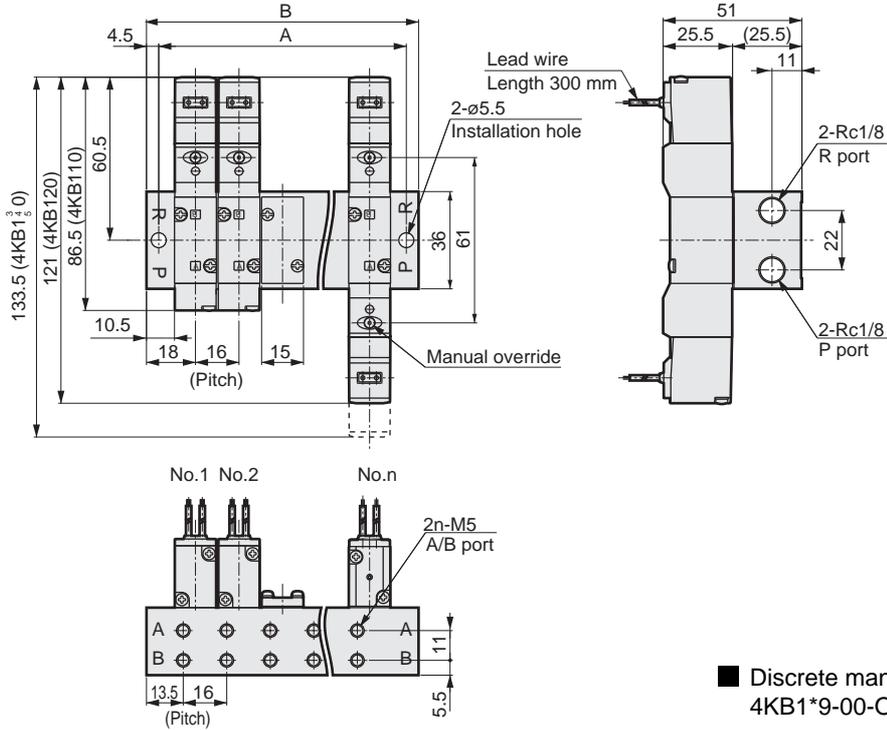
Individual wiring manifold: Sub-plate porting



Dimensions

M4KB1-M5

● Port size M5: Grommet lead wire

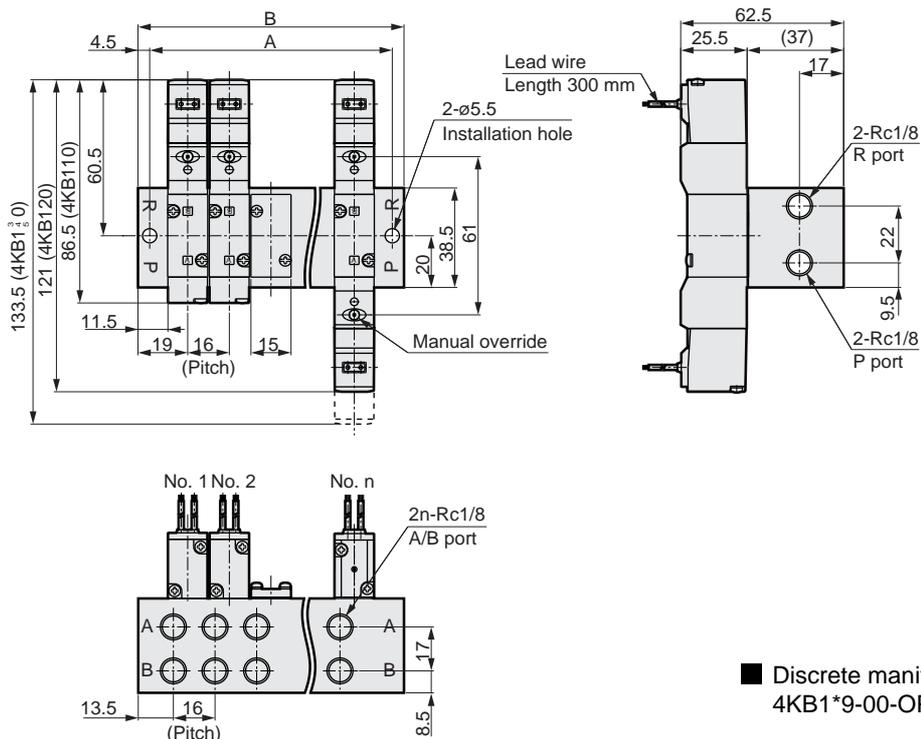


■ Discrete manifold model no.
4KB1*9-00-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	43	59	75	91	107	123	139	155	171	187	203	219	235	251	267	283	299	315	331
B	52	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	340

M4KB1-06

● Port size Rc1/8: Grommet lead wire



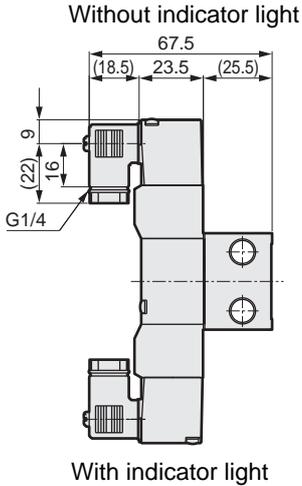
■ Discrete manifold model no.
4KB1*9-00-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	45	61	77	93	109	125	141	157	173	189	205	221	237	253	269	285	301	317	333
B	54	70	86	102	118	134	150	166	182	198	214	230	246	262	278	294	310	326	342

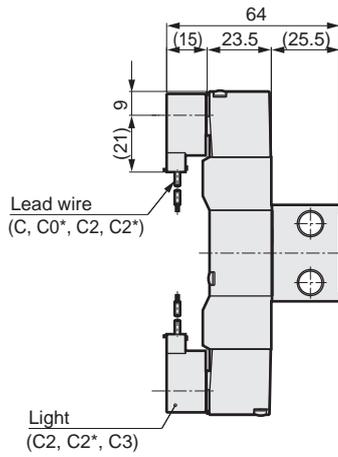
Dimensions

<For port size M5>

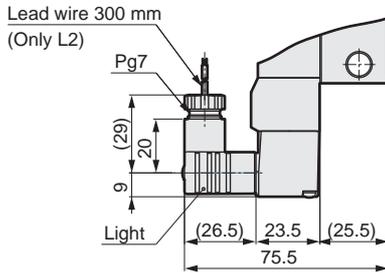
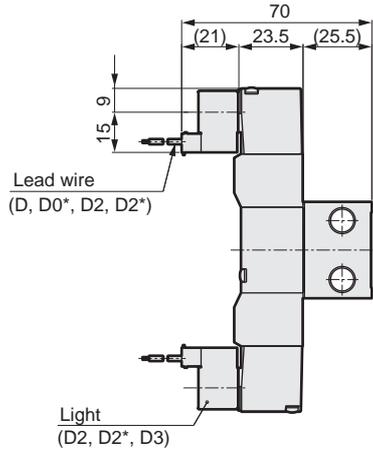
- Small terminal box:
(B, L, L2, LS)



- C-connector:
(C, C1, C0*, C2, C2*, C3)

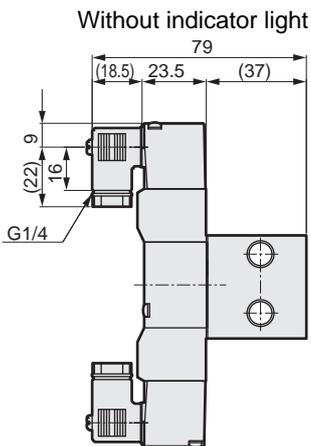


- D-connector:
(D, D1, D0*, D2, D2*, D3)

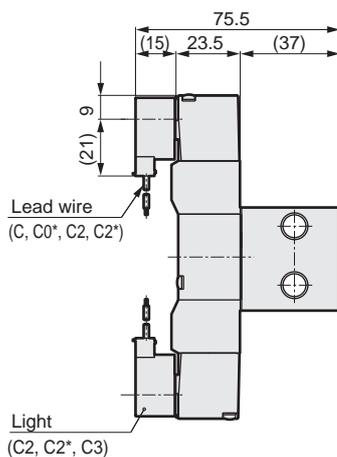


<For port size Rc1/8>

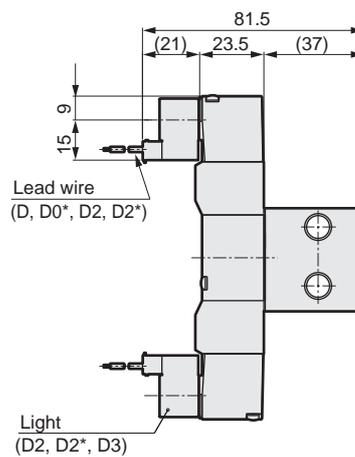
- Small terminal box:
(B, L, L2, LS)



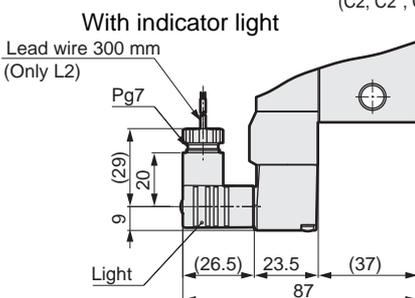
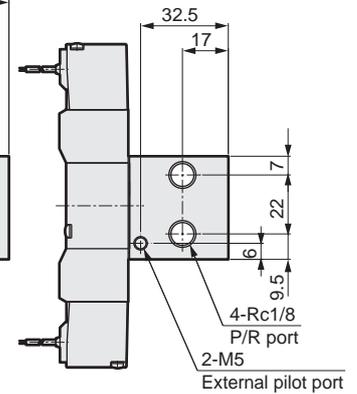
- C-connector:
(C, C1, C0*, C2, C2*, C3)



- D-connector:
(D, D1, D0*, D2, D2*, D3)



- External pilot: (K)
(Port size Rc1/8, up to 10 stations)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve

M4KB1-H6/M5Y Series

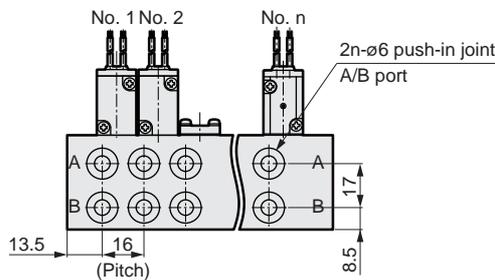
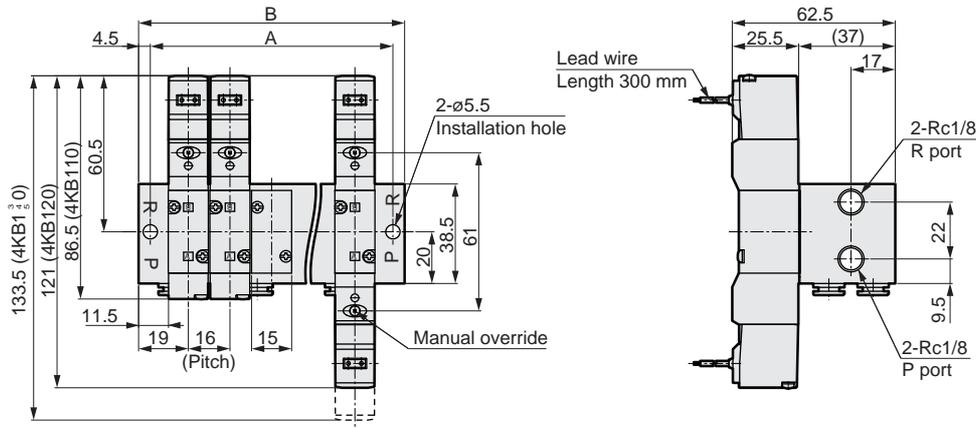
Individual wiring manifold: Sub-plate porting

Dimensions



M4KB1-H6

● Port size $\phi 6$ push-in joint: Grommet lead wire

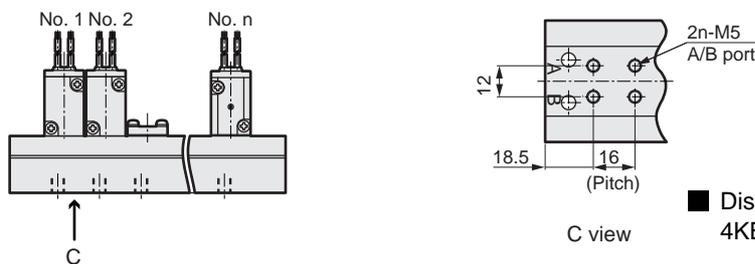
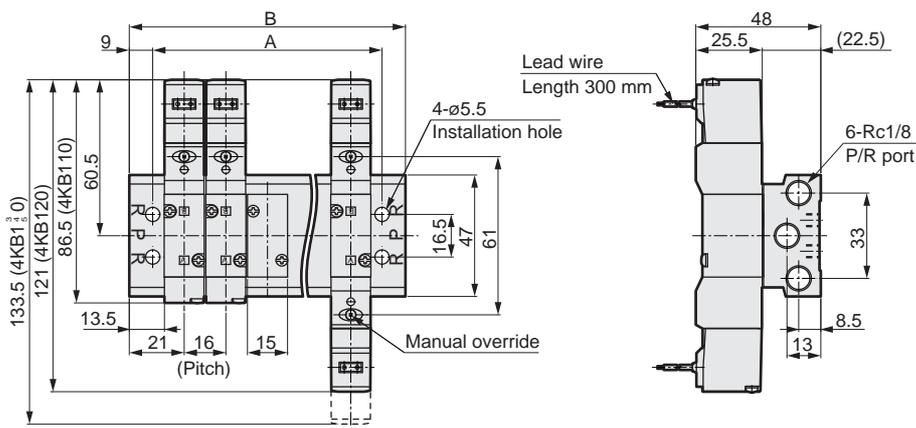


■ Discrete manifold model no.
4KB1*9-00-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	45	61	77	93	109	125	141	157	173	189	205	221	237	253	269	285	301	317	333
B	54	70	86	102	118	134	150	166	182	198	214	230	246	262	278	294	310	326	342

M4KB1-M5Y

● Port size M5 (back porting): Grommet lead wire



■ Discrete manifold model no.
4KB1*9-00Y-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	40	56	72	88	104	120	136	152	168	184	200	216	232	248	264	280	296	312	328
B	58	74	90	106	122	138	154	170	186	202	218	234	250	266	282	298	314	330	346

M4KB1-H6/M5Y Series

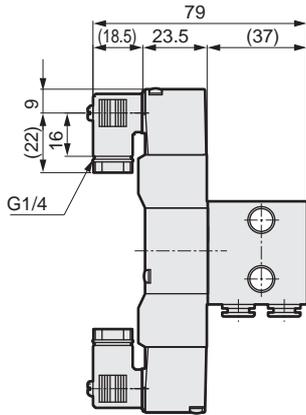
Individual wiring manifold: Sub-plate porting

Dimensions

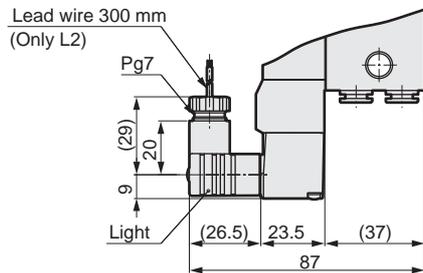
<For port size $\varnothing 6$ push-in joint>

● Small terminal box: (B, L, L2, LS)

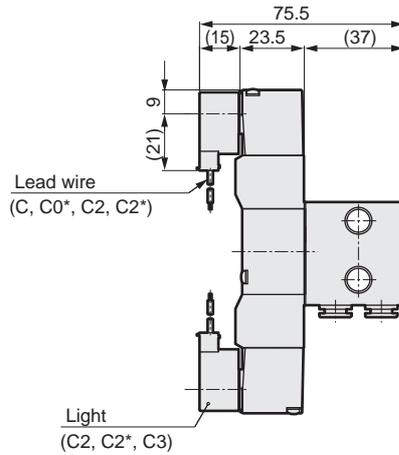
Without indicator light



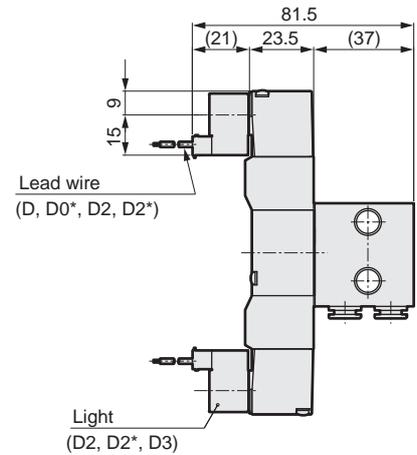
With indicator light



● C-connector:
(C, C1, C0*, C2, C2*, C3)



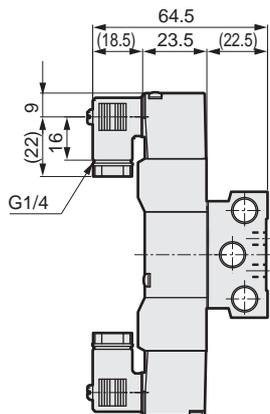
● D-connector:
(D, D1, D0*, D2, D2*, D3)



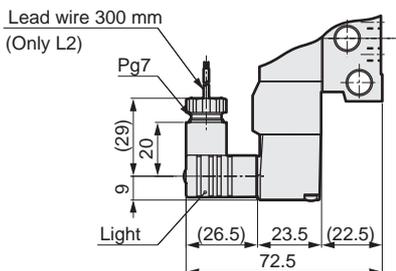
<For port size M5 (back porting)>

● Small terminal box: (B, L, L2, LS)

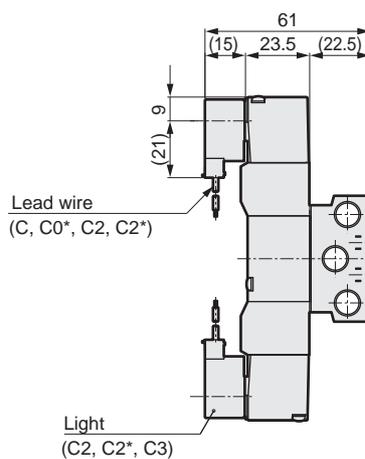
Without indicator light



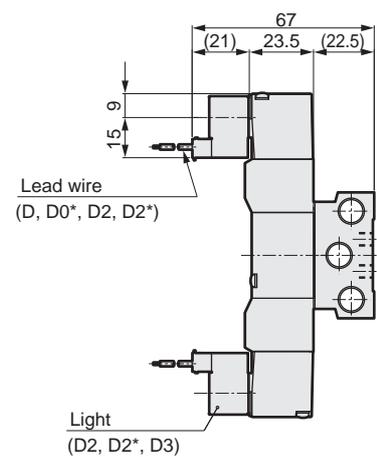
With indicator light



● C-connector:
(C, C1, C0*, C2, C2*, C3)



● D-connector:
(D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve

M4KB1-*CE Series

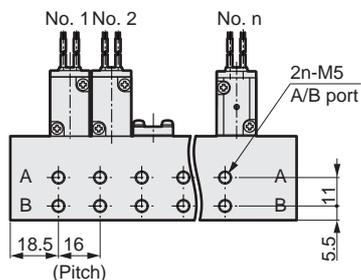
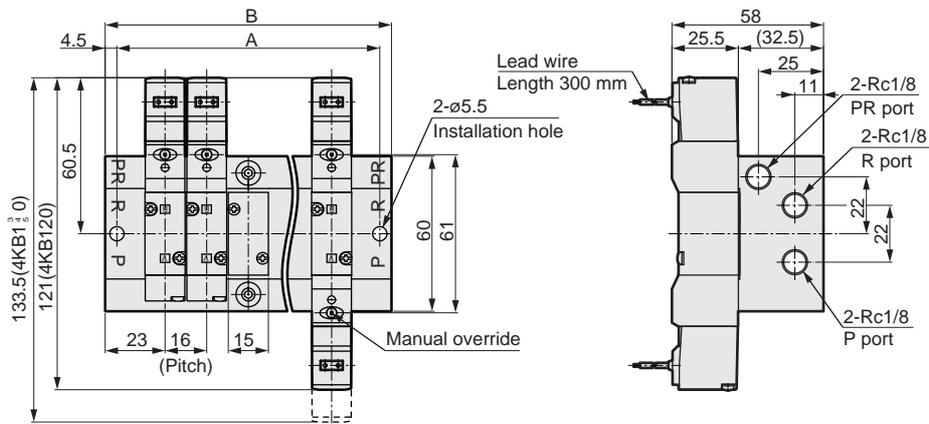
Individual wiring manifold: Sub-plate porting(pilot common exhaust)

Dimensions



M4KB1-M5CE

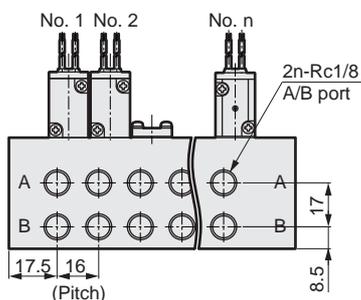
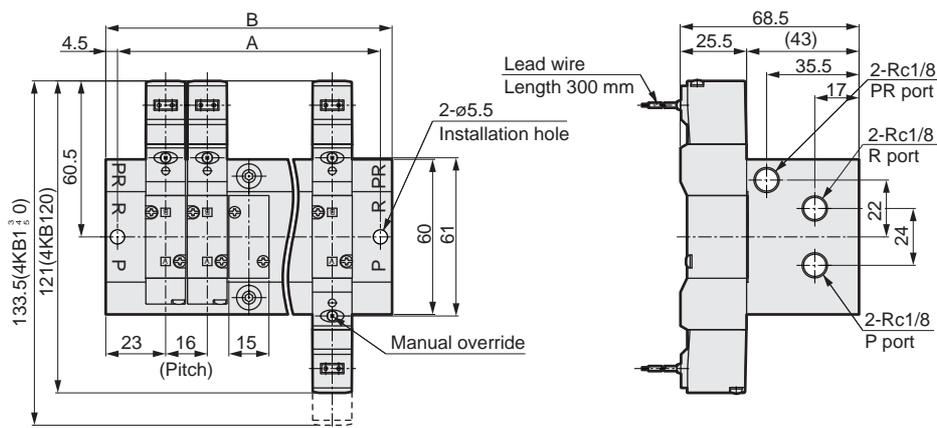
● Port size M5 / pilot common exhaust: Grommet lead wire



■ Discrete manifold model no.
4KB1*9-00CE-OPTION-VOLTAGE

M4KB1-06CE

● Port size Rc1/8 / pilot common exhaust: Grommet lead wire



■ Discrete manifold model no.
4KB1*9-00CE-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10
A	53	69	85	101	117	133	149	165	181
B	62	78	94	110	126	142	158	174	190

M4KB1-*CE Series

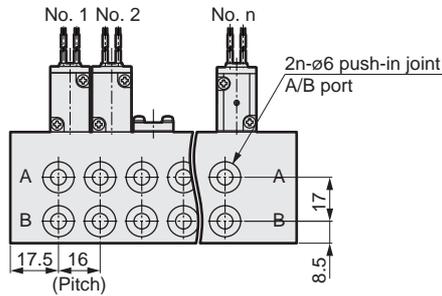
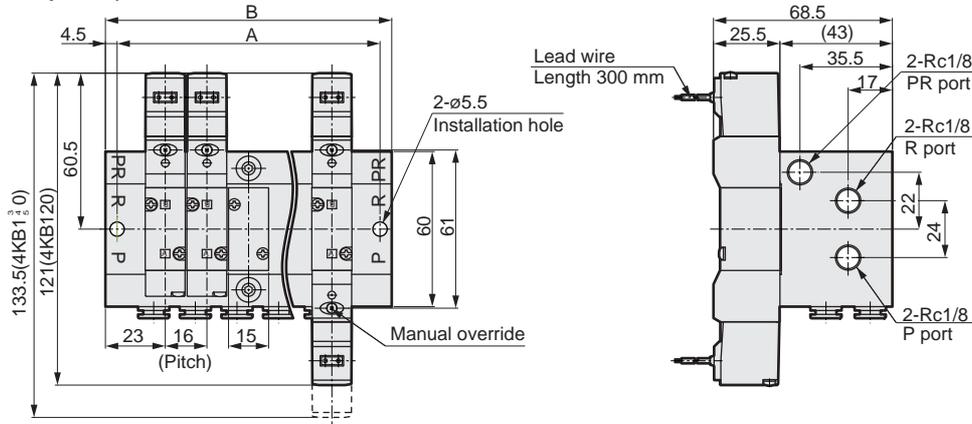
Individual wiring manifold: Sub-plate porting(pilot common exhaust)

Dimensions



M4KB1-H6CE

● Port size $\phi 6$ push-in joint / pilot common exhaust: Grommet lead wire



■ Discrete manifold model no. 4KB1*9-00CE-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10
A	53	69	85	101	117	133	149	165	181
B	62	78	94	110	126	142	158	174	190

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve

M4KB2 Series

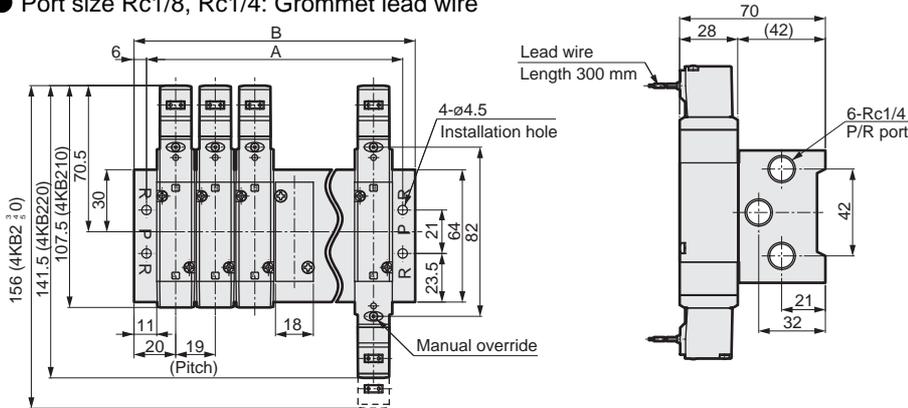
Individual wiring manifold: Sub-plate porting



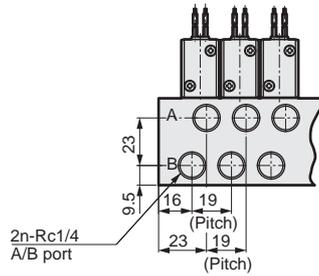
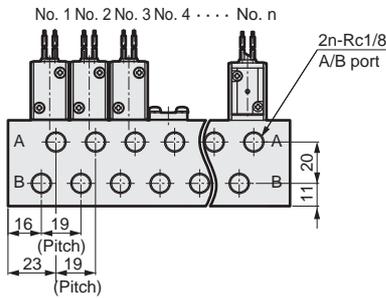
Dimensions

M4KB2-06/08

● Port size Rc1/8, Rc1/4: Grommet lead wire



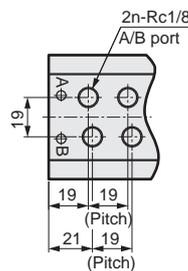
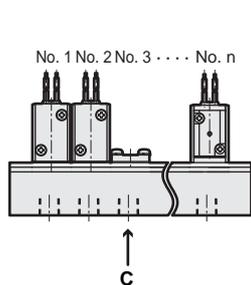
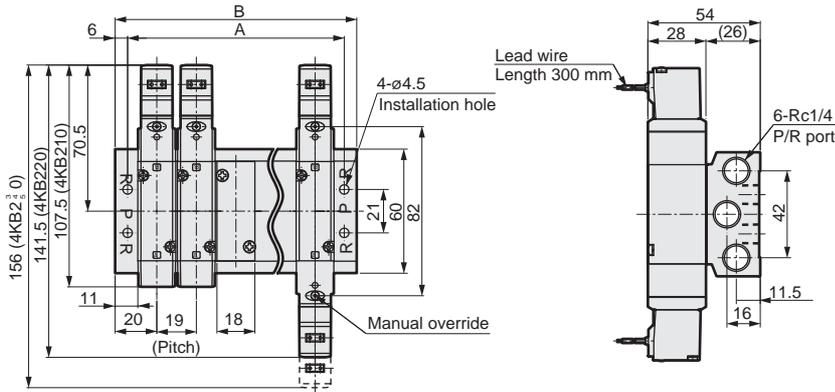
M4KB2-08



■ Discrete manifold model no. 4KB2*9-00-OPTION-VOLTAGE

M4KB2-06Y

● Port size Rc1/8 (back porting): Grommet lead wire



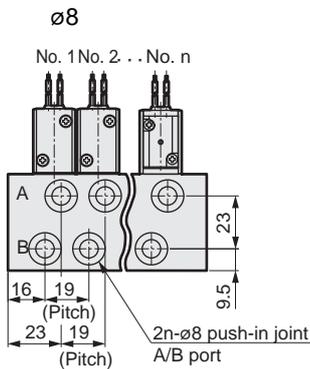
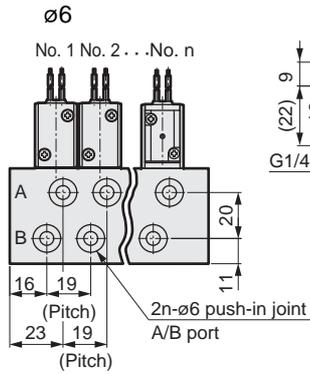
C view

■ Discrete manifold model no. 4KB2*9-00-OPTION-VOLTAGE

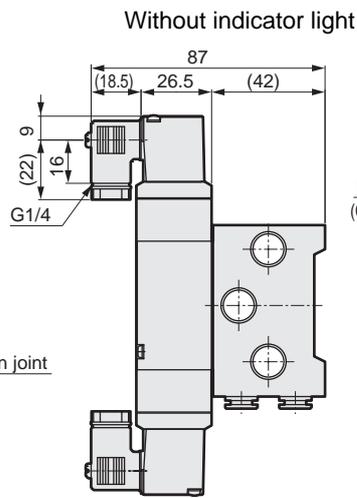
Station number	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	47	66	85	104	123	142	161	180	199	218	237	256	275	294	313	332	351	370	389
B	59	78	97	116	135	154	173	192	211	230	249	268	287	306	325	344	363	382	401

Dimensions

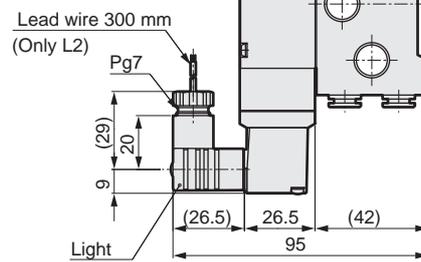
- $\varnothing 6$, $\varnothing 8$ push-in joint: (H6, H8)



- Small terminal box: (B, L, L2, LS)

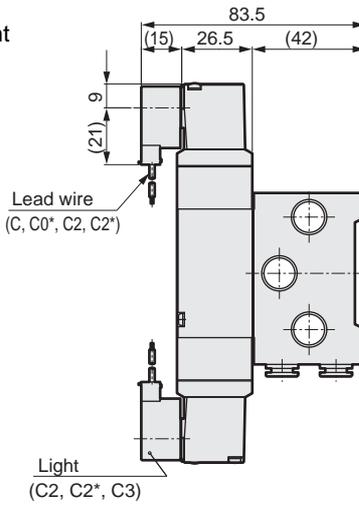


Without indicator light



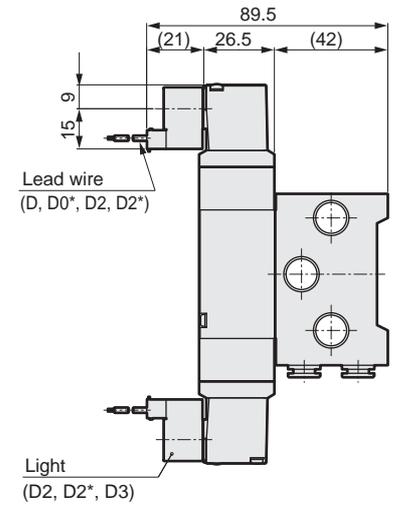
With indicator light

- C-connector: (C, C1, C0*, C2, C2*, C3)



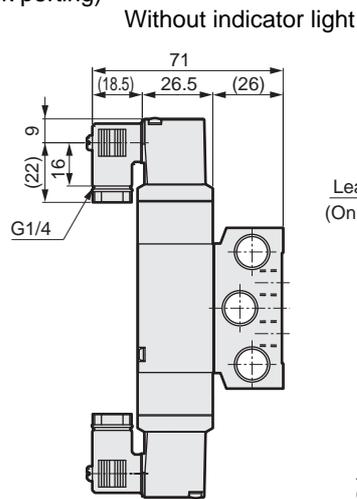
Light (C2, C2*, C3)

- D-connector: (D, D1, D0*, D2, D2*, D3)

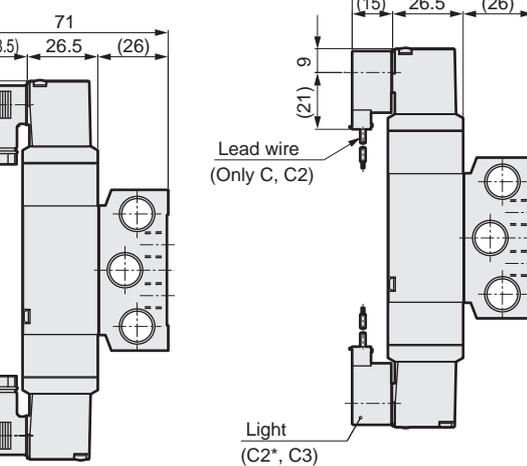


Light (D2, D2*, D3)

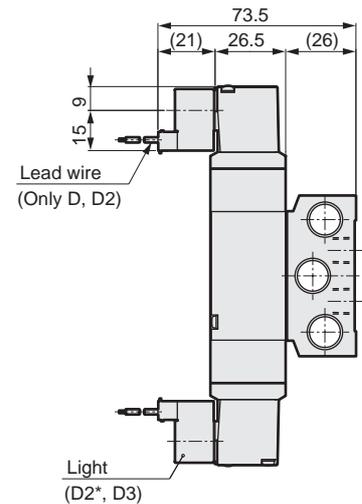
- Port size Rc1/8(back porting)



Without indicator light



With indicator light



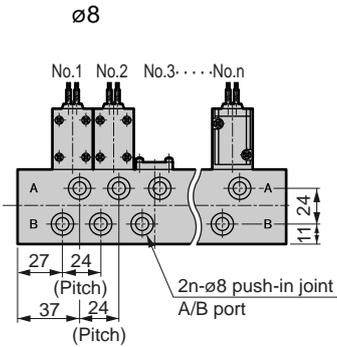
Light (D2*, D3)

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

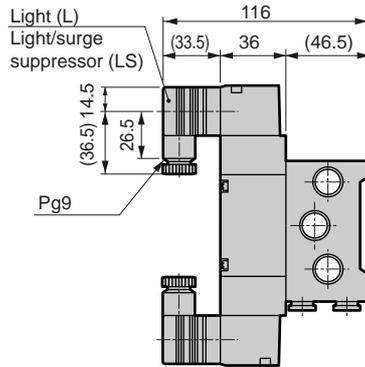
Individual wiring manifold
4, 5 port pilot operated valve

Dimensions

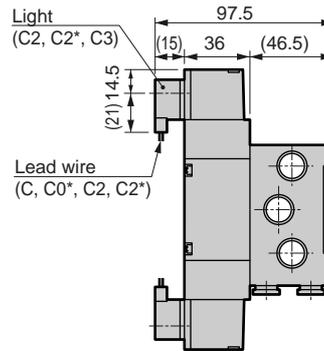
- $\varnothing 8$, $\varnothing 10$ push-in joint: (H8, H10)



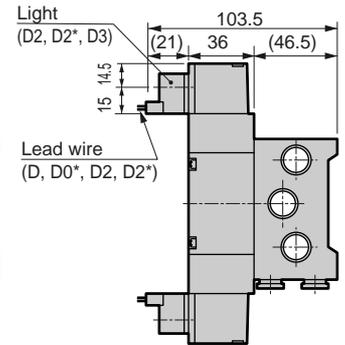
- Terminal box: (B, L, LS)



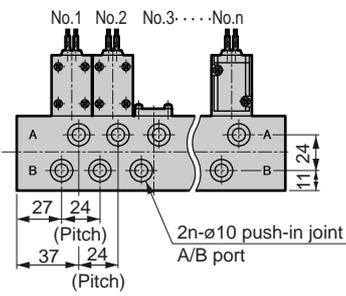
- C-connector: (C, C1, C0*, C2, C2*, C3)



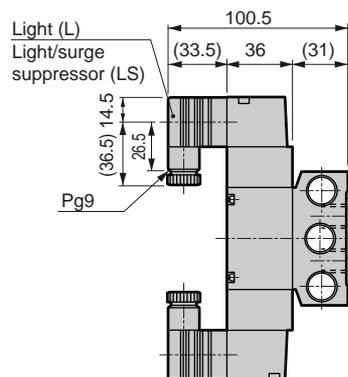
- D-connector: (D, D1, D0*, D2, D2*, D3)



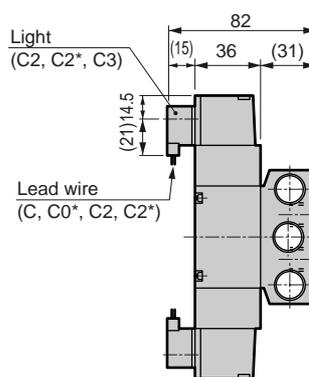
$\varnothing 10$



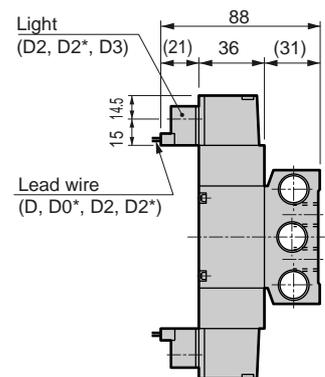
- Terminal box: (B, L, LS)



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve

M4KB4 Series

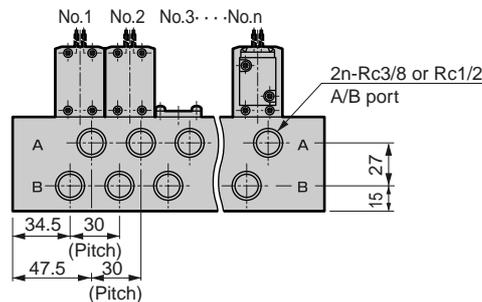
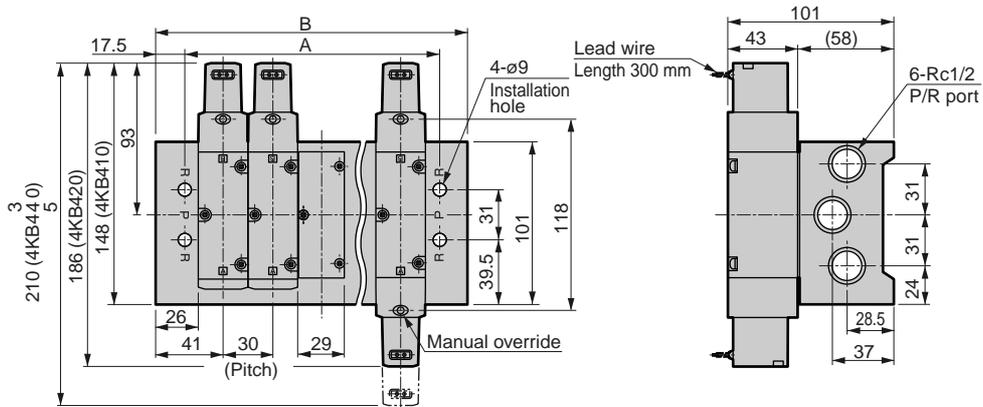
Individual wiring manifold: Sub-plate porting

Dimensions



M4KB4-10/15

● Port size Rc3/8, 1/2: Grommet lead wire

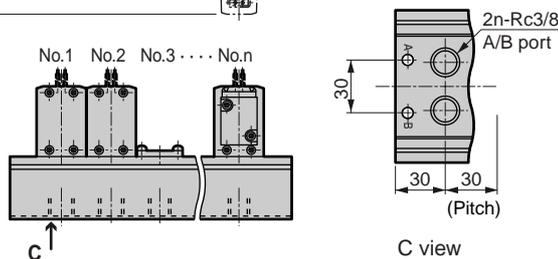
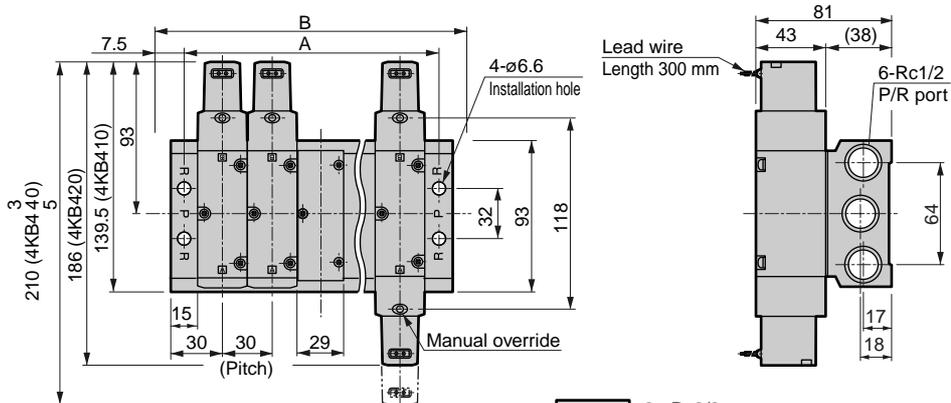


■ Discrete manifold model no. 4KB4*9-00-OPTION-VOLTAGE

Station number	2	3	4	5	6	7	8	9	10	11	12
A	77	107	137	167	197	227	257	287	317	347	377
B	112	142	172	202	232	262	292	322	352	382	412

M4KB4-10Y

● Port size Rc3/8 (back porting): Grommet lead wire

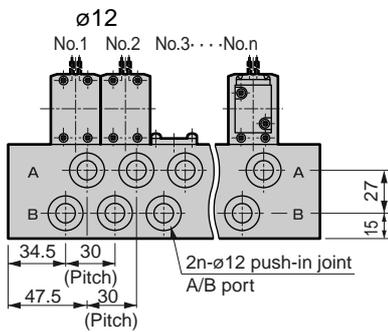
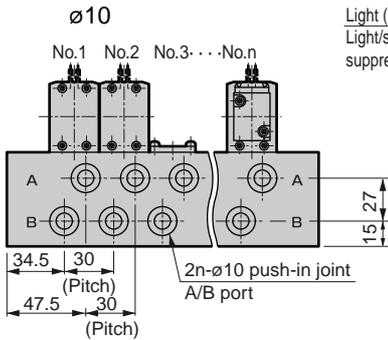


■ Discrete manifold model no. 4KB4*9-00-OPTION-VOLTAGE

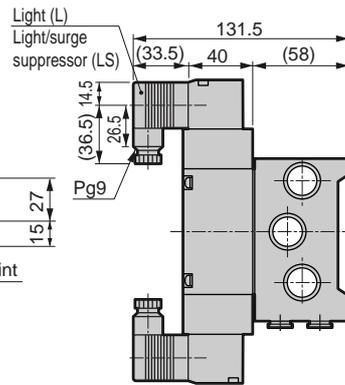
Station number	2	3	4	5	6	7	8	9	10	11	12
A	75	105	135	165	195	225	255	285	315	345	375
B	90	120	150	180	210	240	270	300	330	360	390

Dimensions

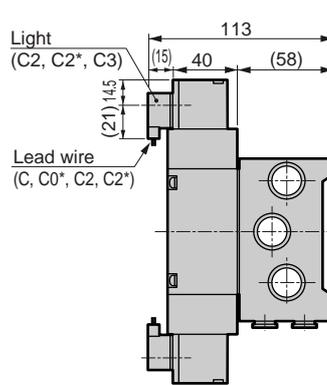
- Push-in joint $\varnothing 10$, $\varnothing 12$: (H10, H12)



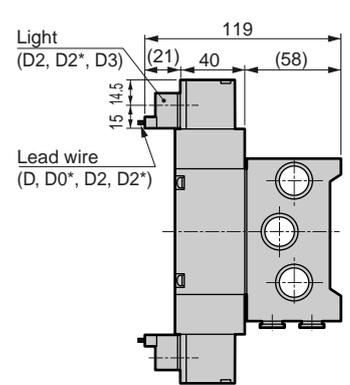
- Terminal box: (B, L, LS)



- C-connector: (C, C1, C0*, C2, C2*, C3)

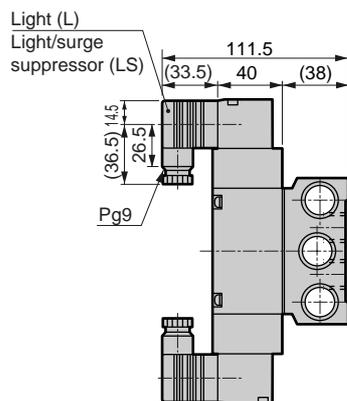


- D-connector: (D, D1, D0*, D2, D2*, D3)

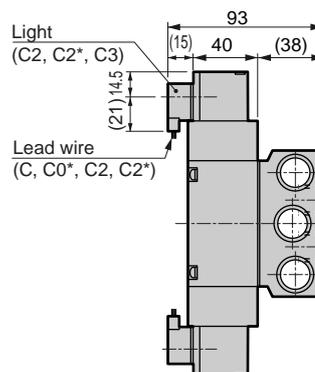


- Port size Rc3/8 (back porting)

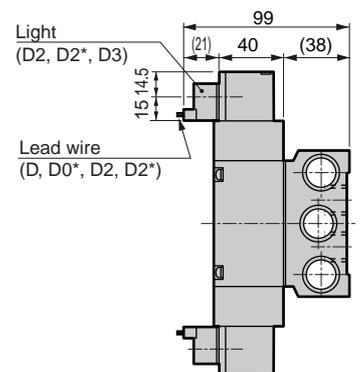
- Terminal box: (B, L, LS)



- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Individual wiring manifold
4, 5 port pilot operated valve



Block manifold Sub-plate porting

5 port pilot operated valve pneumatic valve

MN4KB1/2 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 80$

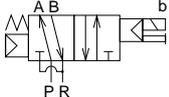


Refer to Intro 17 for details.

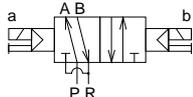


JIS symbol

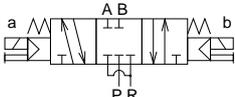
- 5 port valve
2-position single solenoid



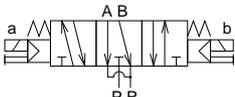
- 5 port valve
2-position double solenoid



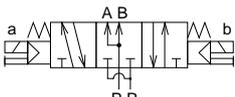
- 5 port valve
3-position all ports closed



- 5 port valve
3-position A/B/R connection



- 5 port valve
3-position P/A/B connection



Common specifications

Descriptions	
Manifold method	Block manifold method (DIN rail mount)
Manifold type	Common supply (P) Common exhaust (R)
Note 1	Common exhaust (R)
Station number	2 to 25 stations
Type of valve/operation method	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to the following individual specifications.
Withstanding pressure MPa	1.05
Ambient temperature °C	5 to 50
Fluid temperature °C	5 to 50
Lubrication	Not required
Protective structure	Dust proof
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Containing corrosive gas is impermissible.

Note 1: Common pilot exhaust. (Excluding the 3 position pilot exhaust.)

Electric specifications

Descriptions	4KB1/2	
Rated voltage V	AC	100, 200 (50/60 Hz)
	DC	24
Rated voltage fluctuation range	±10%	
Starting current A	AC 100 V	0.056/0.044
	AC 200 V	0.028/0.022
Holding current A	AC 100 V	0.028/0.022
	AC 200 V	0.014/0.011
Power consumption W Value in () are with indicator light	AC 100 V	1.8 / 1.4 (1.8 / 1.5)
	AC 200 V	1.8 / 1.4 (1.8 / 1.5)
	DC 24 V	1.8 (2.0)
Heat proof class	B (molded coil)	
Temperature rise °C	43	

Remarks: The 100 VAC 50/60 Hz rated voltage can be used at 110 VAC 60 Hz, and 200 VAC 50/60 Hz can be used at 220 VAC 60 Hz.

Applicable solenoid valve individual specifications

Descriptions		4KB1	4KB2	
Min. working pressure MPa	2-position	Single solenoid	0.15	
		Double solenoid	0.10	
	3-position	All ports closed	0.20	0.20
		A/B/R connection P/A/B connection		
Port size	Cylinder port A/B	$\varnothing 4, \varnothing 6, \varnothing 8$ push-in joint	$\varnothing 6, \varnothing 8, \varnothing 10$ push-in joint	
	Air supply/exhaust port P/R	$\varnothing 6, \varnothing 8$ push-in joint	$\varnothing 8, \varnothing 10, \varnothing 12$ push-in joint	
	Pilot exhaust port P/R	$\varnothing 6, \varnothing 8$ push-in joint	-	
Response time ms	2-position	30 or less	30 or less	
	3-position	60 or less	60 or less	

Note 2: Response time is the value when supply pressure 0.5 MPa, not lubricated and ON. The value varies depending on pressure and quality of lubricant.

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMFO

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*0E

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

Flow characteristics

Model no.	Solenoid position		C (dm ³ / (s·bar))	b
4KB1	2-position	Single solenoid	0.70	0.32
		Double solenoid		
	3-position	All ports closed	0.60	0.27
		A/B/R connection	0.80	0.21
		P/A/B connection	0.64	0.27
4KB2	2-position	Single solenoid	2.6	0.30
		Double solenoid		
	3-position	All ports closed	2.4	0.31
		A/B/R connection	3.1	0.27
		P/A/B connection	2.3	0.25

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

Ozone proof specifications (Ending 5)

** - Voltage - P11

Coolant proof specifications

- Special structure with excellent oil proof and waterproof properties

** - A - Station number - Voltage

Copper and PTFE free

- Flow path free of copper-based and PTFE-based materials

** - Voltage - P6

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Block manifold
5 port pilot operated valve

MN4KB1/2 Series

Block manifold: Sub-plate porting

How to order

● Discrete solenoid valve for block manifold

N **4KB1** **1** **9** **A** - **00** - **M1** **B** ——— **AC100V**

* Gasket and set screw attached

N **4KB2** **1** **9** ——— **00** - **M1** **B** ——— **AC100V**

* Gasket and set screw attached

● Block manifold

MN **4KB1** **1** **0** **A** - **H6** - **M1** **B** ——— **5** - **AC100V** - **2** **3** **0** **0** **0**

MN **4KB2** **1** **0** ——— **H6** - **M1** **B** ——— **5** - **AC100V** - **2** **3** **0** **0** **0**

Complete manifold specifications (page 862) when selecting the mixed manifold.

A Model no.

B Solenoid position

C Port size

D Manual override

E Electric connection

* Refer to page 781 for the circuit diagram of the type with surge suppressor and light.

<Table 1> Small terminal box L/L2/LS table

Symbol	Descriptions		4KB1	4KB2	Surge suppressor
L	No lead wire	With light	AC	●	●
		DC			
	With surge suppressor/light	AC			
		DC	●	●	Integrated
L2	With lead wire (300 mm)	With light	AC	●	●
		DC			
	With surge suppressor/light	AC			
		DC	●	●	Integrated
LS	No lead wire	With surge suppressor/light	AC	●	●
		DC			Integrated

Note on model no. selection

Note: Complete "Block manifold specifications" on pages 864 and 65.

Note 1: If the solenoid position is mixed (8), indicate details of the combination at the end of the model. Refer to the following page.

Note 2: 4KB1 and 4KB2 compact terminal box, L and L2 DC voltage, and LS have a built-in surge absorber.

Note 3: With 24 VDC or less grommet lead wire, the enclosed surge suppressor is a suppression connector.

<Example of model number>

MN4KB210-H6-M1B-2-AC100V

- A** Model : MN4KB2
- B** Solenoid position : 2-position single solenoid
- C** Port size : ø6 push-in joint
- D** Manual override : Locking manual override
- E** Electric connection : Small terminal box, w/o lead wire
- F** Other options : None
- G** Station number : 2 stations
- H** Voltage : 100 VAC 50/60Hz

		A Model no.			
		4KB1	4KB2		
B Solenoid position	1	2-position single solenoid	●	●	
	2	2-position double solenoid	●	●	
	3	3-position all ports closed	●	●	
	4	3-position A/B/R connection	●	●	
	5	3-position P/A/B connection	●	●	
	8	Mix manifold Note 1	●	●	
	C Port size	H4	ø4 push-in joint	●	
		H6	ø6 push-in joint	●	●
H8		ø8 push-in joint	●	●	
H10		ø10 push-in joint			
HX		Mix / push-in joint	●	●	
D Manual override	Blank	Non-locking manual override	●	●	
	M1	Locking manual override	●	●	
E Electric connection	Grommet lead wire				
	Blank	Grommet lead wire (300 mm)	●	●	
	Small terminal box				
	B	No lead wire	●	●	
	L	No lead wire			
	L2	Lead wire length (300 mm)			
	LS	No lead wire with surge suppressor/light			
	C-connector (lead wire lateral)				
	C	Lead wire length (300 mm)	●	●	
	C00	Lead wire length (500 mm)	●	●	
	C01	Lead wire length (1000 mm)	●	●	
	C02	Lead wire length (2000 mm)	●	●	
	C03	Lead wire length (3000 mm)	●	●	
	C1	No lead wire	●	●	
	C2	Lead wire length (300 mm) with surge suppressor/light	●	●	
	C20	Lead wire length (500 mm) with surge suppressor/light	●	●	
	C21	Lead wire length (1000 mm) with surge suppressor/light	●	●	
	C22	Lead wire length (2000 mm) with surge suppressor/light	●	●	
	C23	Lead wire length (3000 mm) with surge suppressor/light	●	●	
	C3	No lead wire with surge suppressor/light	●	●	
D-connector (lead wire upward)					
D	Lead wire length (300 mm)	●	●		
D00	Lead wire length (500 mm)	●	●		
D01	Lead wire length (1000 mm)	●	●		
D02	Lead wire length (2000 mm)	●	●		
D03	Lead wire length (3000 mm)	●	●		
D1	No lead wire	●	●		
D2	Lead wire length (300 mm) with surge suppressor/light	●	●		
D20	Lead wire length (500 mm) with surge suppressor/light	●	●		
D21	Lead wire length (1000 mm) with surge suppressor/light	●	●		
D22	Lead wire length (2000 mm) with surge suppressor/light	●	●		
D23	Lead wire length (3000 mm) with surge suppressor/light	●	●		
D3	No lead wire with surge suppressor/light	●	●		
F Other options	Blank	No option	●	●	
	S	Surge suppressor attached Note 3	●	●	
G Station number	2	2 stations	●	●	
	to	to	●	●	
	25	25 stations	●	●	
H Voltage	Standard	AC100V	100 VAC 50/60Hz	●	●
		AC200V	200 VAC 50/60Hz	●	●
		DC24V	24 VDC	●	●
	Option	AC110V	110 VAC 50/60Hz	●	●
		DC12V	12 VDC	●	●

F Other options

G Station number

H Voltage

MN4KB1/2 Series

Block manifold: Sub-plate porting

How to order masking plate kit

MN **4KB180** **A** - MP-KIT - **S**

A Model no.

Indicate only for 4KB180

B Type

* Gasket and set screw attached

A Model no.	
	4KB180
	4KB280
B Type	
S	For single solenoid
D	For double solenoid, 3-position

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMF0

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*0E

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

Block manifold
5 port pilot operated valve

MN4KB1/MN4KB2 Series

Block manifold: Sub-plate porting

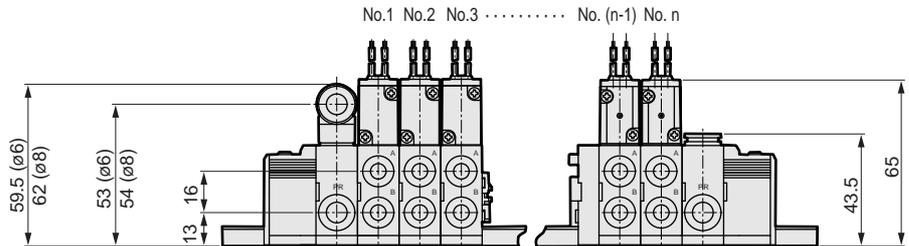
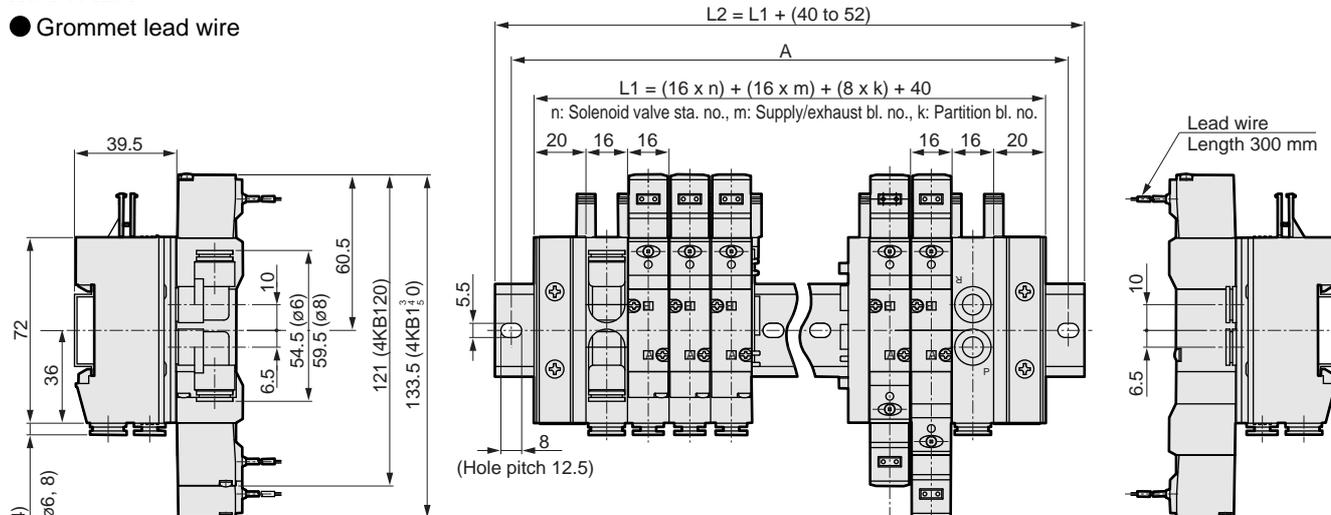
Dimensions



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

MN4KB1

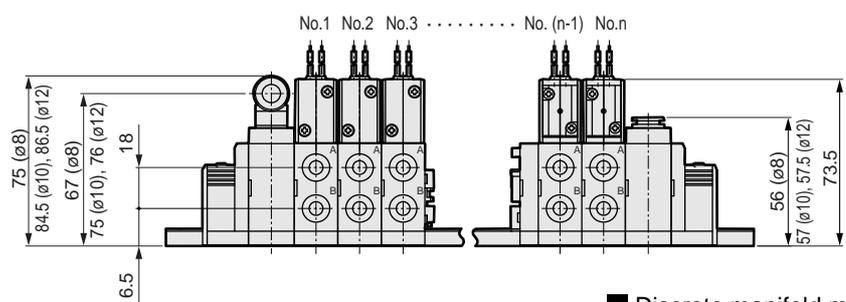
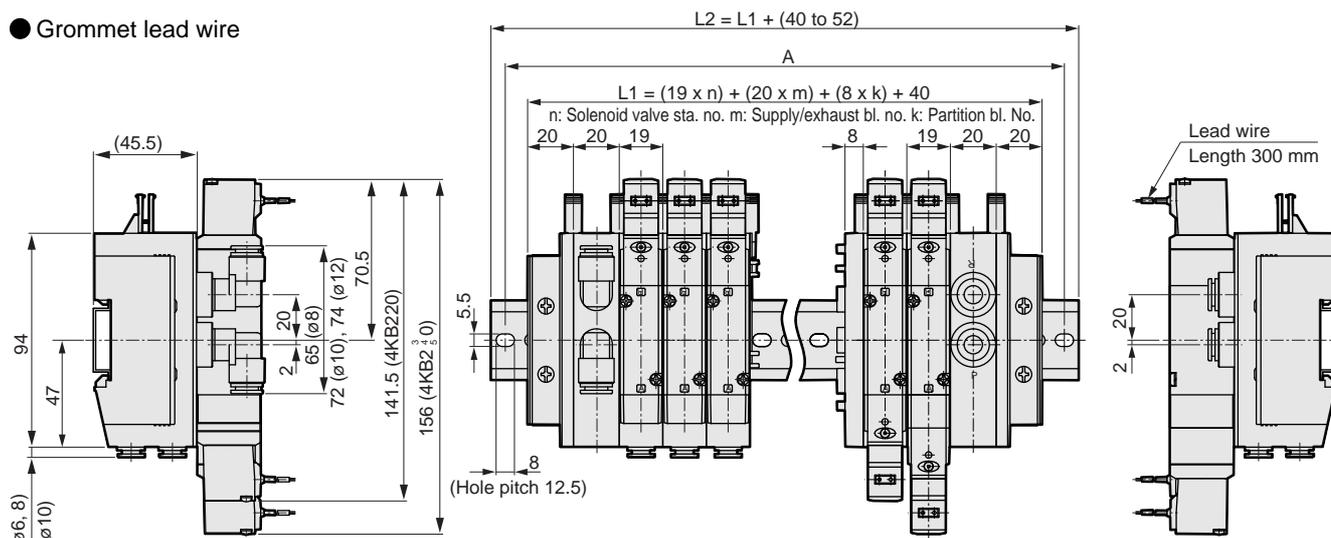
● Grommet lead wire



■ Discrete manifold model no. N4KB1*9A-00-OPTION-VOLTAGE

MN4KB2

● Grommet lead wire



■ Discrete manifold model no. N4KB2*9-00-OPTION-VOLTAGE

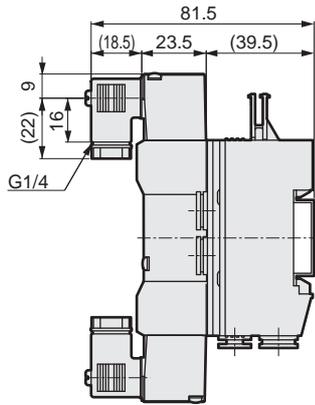
MN4KB1/MN4KB2 Series

Block manifold: Sub-plate porting

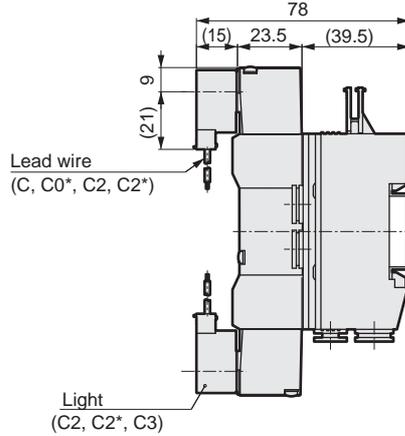
Dimensions

MN4KB1

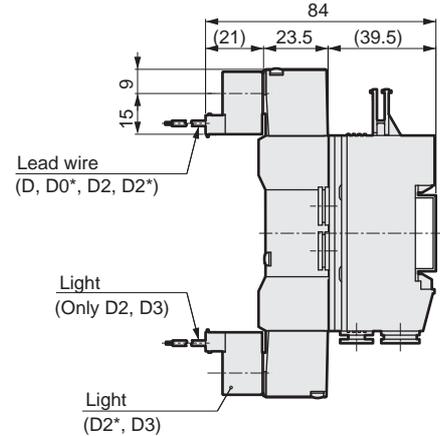
- Small terminal box: (B, L, L2, LS)
Without indicator light



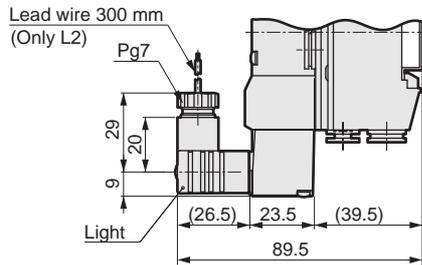
- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)

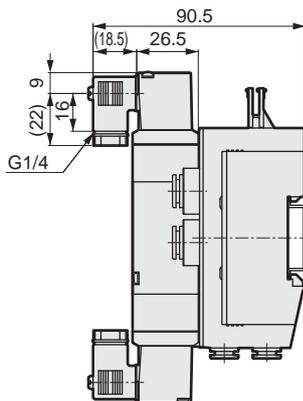


With indicator light

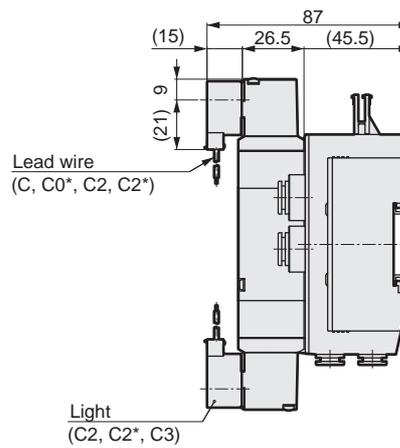


MN4KB2

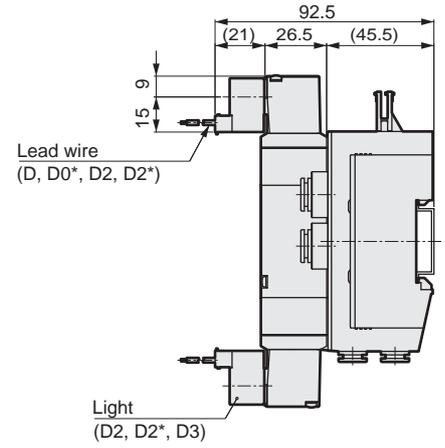
- Small terminal box: (B, L, L2, LS)
Without indicator light



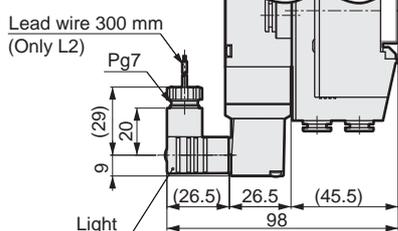
- C-connector: (C, C1, C0*, C2, C2*, C3)



- D-connector: (D, D1, D0*, D2, D2*, D3)



With indicator light



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

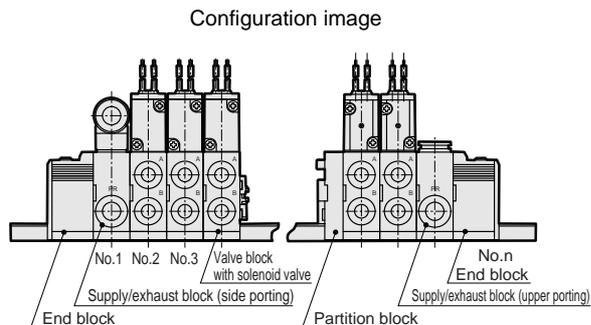
Block manifold
5 port pilot operated valve

MN4KB1/2 Series

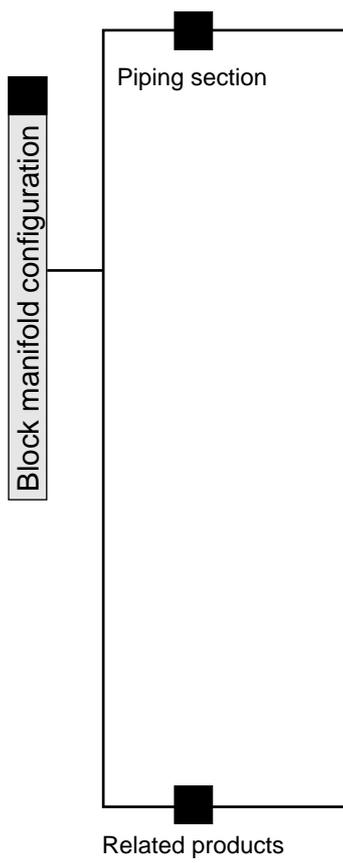
Block manifold: Block configurations

Flexible mix manifold enables easy increase/decrease of station and maintenance.

- Valve block with solenoid valve
Required types and quantities of solenoid valves are arranged on the DIN rail.
- Supply/exhaust, supply, exhaust block
These blocks can be arranged freely next to each valve block.
Note that if A and B ports are facing front, the supply/exhaust block must be arranged to the right of the valve block.
Supply and exhaust/exhaust block H12 type cannot be inserted between valve blocks.
Supply and exhaust blocks can be added as necessary.
- End block
One end block is arranged on either side of the valve block and supply/exhaust block.
- Mounting rail
Installation rails take up 40 to 52.5 mm for installation.



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/MB
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

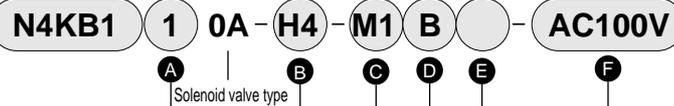
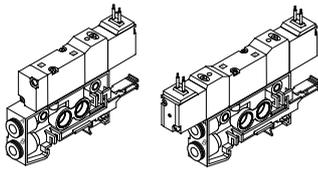


Piping block	A Discrete valve block with solenoid valve 	B End block 	
	C Supply/exhaust block 	D Air supply block 	
	E Exhaust block 	F Discrete valve block 	
	G Partition block 		
	Related products	H Mounting rail 	H Silencer
			H Blanking plug

MN4KB1/2 Series

Block manifold: Piping block

A Discrete valve block with solenoid valve (N4KB1) Solenoid valve 4KB1 series installed on valve block.



A Solenoid type		B Port size	
Symbol	Descriptions	Symbol	Descriptions
1	2-position single solenoid	H4	ø4 push-in joint
2	2-position double solenoid	H6	ø6 push-in joint
3	3-position all ports closed	H8	ø8 push-in joint
4	3-position A/B/R connection		
5	3-position P/A/B connection		

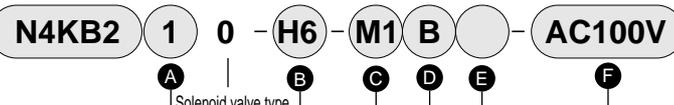
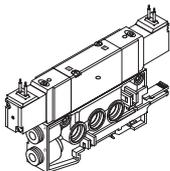
C Manual override	
Symbol	Descriptions
Blank	Non-locking manual override
M1	Locking manual override

D Display and protective circuit		
Symbol	Descriptions	Lead wire length
Blank	Grommet lead wire	300 mm
B	Small terminal box	None
L	Small terminal box	None
L2	Small terminal box (with indicator light)	300 mm
LS	Small terminal box (with light/surge suppressor)	None
C	C-connector	300 mm
C00		500 mm
C01		1000 mm
C02		2000 mm
C03		3000 mm
C1	C-connector (with light/surge suppressor)	None
C2		300 mm
C20		500 mm
C21		1000 mm
C22		2000 mm
C23	3000 mm	
C3	None	
D	D-connector	300 mm
D00		500 mm
D01		1000 mm
D02		2000 mm
D03		3000 mm
D1	D-connector (with light/surge suppressor)	None
D2		300 mm
D20		500 mm
D21		1000 mm
D22		2000 mm
D23	3000 mm	
D3	None	

E Other options		F Voltage	
Symbol	Descriptions	Symbol	Descriptions
Blank	None	AC100V	100 VAC 50/60Hz
S	With surge suppressor	AC200V	200 VAC 50/60Hz
		DC24V	24 VDC
		AC110V	110 VAC 50/60Hz
		AC220V	220 VAC 50/60Hz
		DC12V	12 VDC

- A suppression connector surge suppressor is enclosed when 24 VDC or less is selected.
- 100 and 200 VAC coil can be used with 110 VAC (60 Hz) and 220 VAC (60 Hz).
- L and L2 have built-in surge suppressor when DC voltage is selected.

A Discrete valve block with solenoid valve (N4KB2) Solenoid valve 4KB2 Series installed on valve block.



A Solenoid type		B Port size	
Symbol	Descriptions	Symbol	Descriptions
1	2-position single solenoid	H6	ø6 push-in joint
2	2-position double solenoid	H8	ø8 push-in joint
3	3-position all ports closed	H10	ø10 push-in joint
4	3-position A/B/R connection		
5	3-position P/A/B connection		

C Manual override	
Symbol	Descriptions
Blank	Non-locking manual override
M1	Locking manual override

D Display and protective circuit		
Symbol	Descriptions	Lead wire length
Blank	Grommet lead wire	300 mm
B	Small terminal box	None
L	Small terminal box	None
L2	Small terminal box (with indicator light)	300 mm
LS	Small terminal box (with light/surge suppressor)	None
C	C-connector	300 mm
C00		500 mm
C01		1000 mm
C02		2000 mm
C03		3000 mm
C1	C-connector (with light/surge suppressor)	None
C2		300 mm
C20		500 mm
C21		1000 mm
C22		2000 mm
C23	3000 mm	
C3	None	
D	D-connector	300 mm
D00		500 mm
D01		1000 mm
D02		2000 mm
D03		3000 mm
D1	D-connector (with light/surge suppressor)	None
D2		300 mm
D20		500 mm
D21		1000 mm
D22		2000 mm
D23	3000 mm	
D3	None	

E Other options		F Voltage	
Symbol	Descriptions	Symbol	Descriptions
Blank	None	AC100V	100 VAC 50/60Hz
S	With surge suppressor	AC200V	200 VAC 50/60Hz
		DC24V	24 VDC
		AC110V	110 VAC 50/60Hz
		AC220V	220 VAC 50/60Hz
		DC12V	12 VDC

- A suppression connector surge suppressor is enclosed when 24 VDC or less is selected.
- 100 and 200 VAC coil can be used with 110 VAC (60 Hz) and 220 VAC (60 Hz).
- L and L2 have built-in surge suppressor when DC voltage is selected.

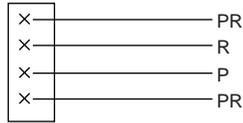
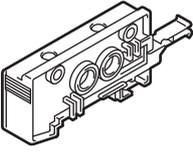
MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Block manifold
5 port pilot operated valve

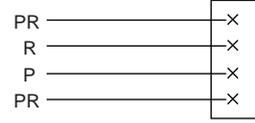
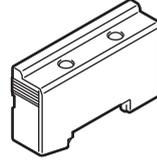
MN4KB1 Series

Block manifold: Block

B End block (NE)

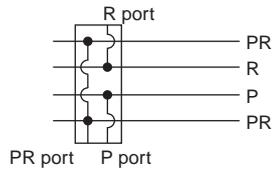
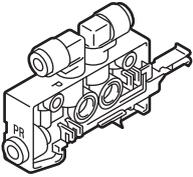


Model no.	Descriptions
N4KB1A-NE1	End block on the left with the manifold's A/B ports facing forward.

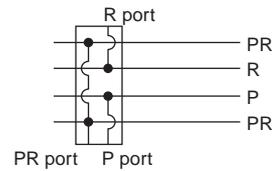
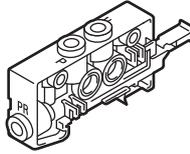


Model no.	Descriptions
N4KB1A-NE2	End block on the right with the manifold's A/B ports facing forward.

C Supply/exhaust block (NQ)

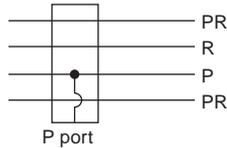
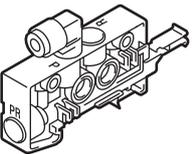


Model no.	P port	R port	PR port
N4KB1A-NQSH8	ø8	ø8	ø8
N4KB1A-NQSH886	ø8	ø8	ø6
N4KB1A-NQSH686	ø6	ø8	ø6
N4KB1A-NQSH6	ø6	ø6	ø6

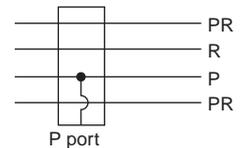
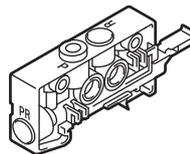


Model no.	P port	R port	PR port
N4KB1A-NQUH8	ø8	ø8	ø8
N4KB1A-NQUH886	ø8	ø8	ø6
N4KB1A-NQUH686	ø6	ø8	ø6
N4KB1A-NQUH6	ø6	ø6	ø6

D Air supply block (NP)

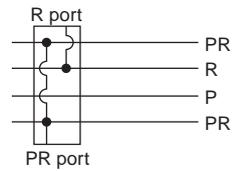
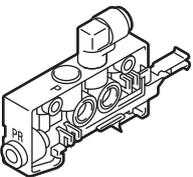


Model no.	P port
N4KB1A-NPSH8	ø8
N4KB1A-NPSH6	ø6

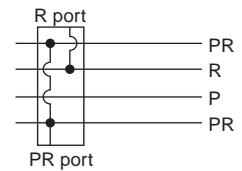
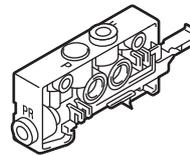


Model no.	P port
N4KB1A-NPUH8	ø8
N4KB1A-NPUH6	ø6

E Exhaust block (NR)



Model no.	R port	PR port
N4KB1A-NRSH8	ø8	ø8
N4KB1A-NRSH86	ø8	ø6
N4KB1A-NRSH6	ø6	ø6



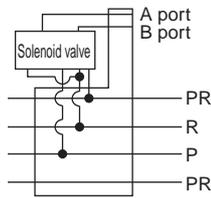
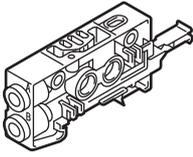
Model no.	R port	PR port
N4KB1A-NRUH8	ø8	ø8
N4KB1A-NRUH86	ø8	ø6
N4KB1A-NRUH6	ø6	ø6

MN4KB1 Series

Block manifold: Block

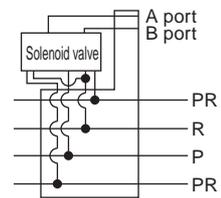
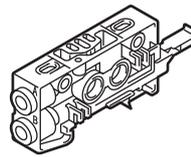
F Discrete valve block (NS)

● N4KB110A



Model no.	A/B port
N4KB1A-NS1SH8	ø8
N4KB1A-NS1SH6	ø6
N4KB1A-NS1SH4	ø4

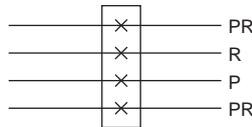
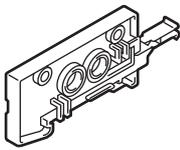
● N4KB120A to N4KB150A



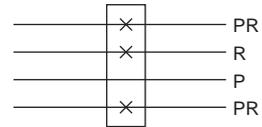
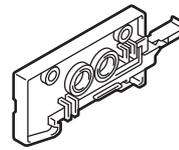
Model no.	A/B port
N4KB1A-NS2SH8	ø8
N4KB1A-NS2SH6	ø6
N4KB1A-NS2SH4	ø4

G Partition block (NC)

● NS is dedicated for each "B" solenoid position, so NS must be changed when changing the solenoid position.



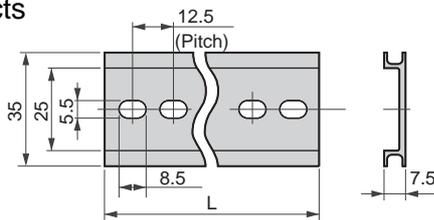
Model no.	Descriptions
N4KB1A-NC1	All passages closed



Model no.	Descriptions
N4KB1A-NC2	Exhaust passage closed

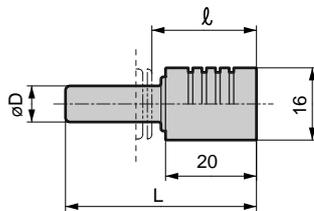
H Related products

● Mounting rail



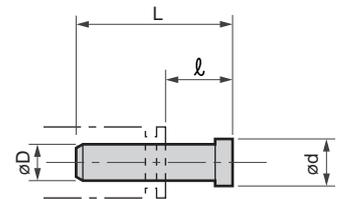
Model no.	L
BAA 500	500
BAA1000	1000

● Silencer



Model no.	D	L	ℓ
SLW-H6	ø6	41	23.5
SLW-H8	ø8	42	23

● Blanking plug



Model no.	D	L	ℓ	d
Joint GWP4-B	ø4	27	11	6
Joint GWP6-B	ø6	29	11.5	8
Joint GWP8-B	ø8	33	14	10

● New urethane tube

NU-04

● Soft nylon tube

F-15-04

● Urethane tube

U-95-04

A Applicable tube outer diameter	
04	ø4
06	ø6
08	ø8

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

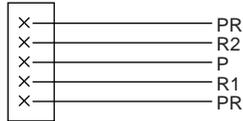
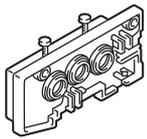
Block manifold
5 port pilot operated valve

MN4KB2 Series

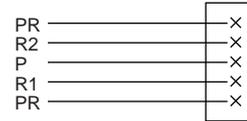
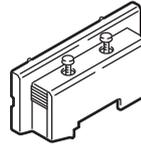
Block manifold: Block

B End block (NE)

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV/HSV
2QV/3QV
SKH
PCD/FS/FD
Ending

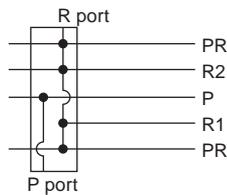
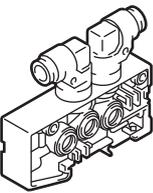


Model no.	Descriptions
N4KB2-2NE1	End block on the left with the manifold's A/B ports facing forward.

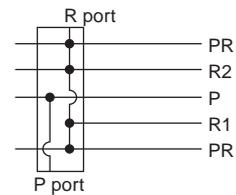
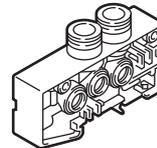


Model no.	Descriptions
N4KB2-2NE2	End block on the right with the manifold's A/B ports facing forward.

C Supply/exhaust block (NQ)

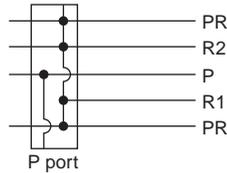
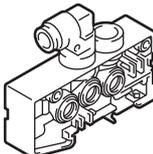


Model no.	P port	R port
N4KB2-2NQSH12	ø12	ø12
N4KB2-2NQSH10	ø10	ø10
N4KB2-2NQSH8	ø8	ø8

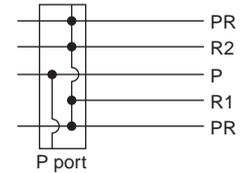
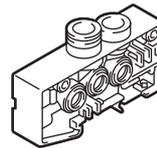


Model no.	P port	R port
N4KB2-2NQUH12	ø12	ø12
N4KB2-2NQUH10	ø10	ø10
N4KB2-2NQUH8	ø8	ø8

D Air supply block (NP)

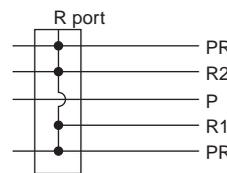
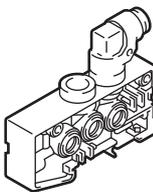


Model no.	P port
N4KB2-2NPSH12	ø12
N4KB2-2NPSH10	ø10
N4KB2-2NPSH8	ø8

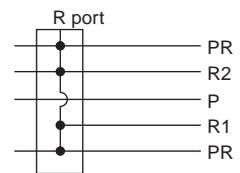
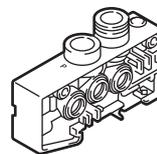


Model no.	P port
N4KB2-2NPUH12	ø12
N4KB2-2NPUH10	ø10
N4KB2-2NPUH8	ø8

E Exhaust block (NR)



Model no.	R port
N4KB2-2NRSH12	ø12
N4KB2-2NRSH10	ø10
N4KB2-2NRSH8	ø8



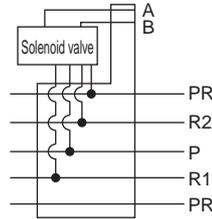
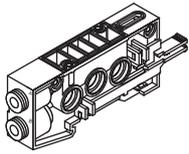
Model no.	R port
N4KB2-2NRUH12	ø12
N4KB2-2NRUH10	ø10
N4KB2-2NRUH8	ø8

MN4KB2 Series

Block manifold: Block

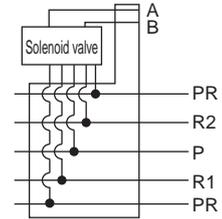
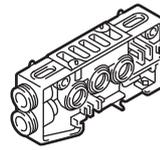
F Discrete valve block (NS)

● N4KB210



Model no.	A/B port
N4KB2-2NS1SH10	ø10
N4KB2-2NS1SH8	ø8
N4KB2-2NS1SH6	ø6

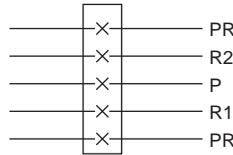
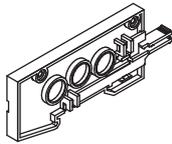
● N4KB220 to N4KB250



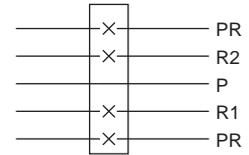
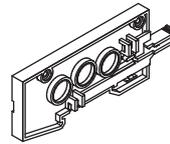
Model no.	A/B port
N4KB2-2NS2SH10	ø10
N4KB2-2NS2SH8	ø8
N4KB2-2NS2SH6	ø6

G Partition block (NC)

● NS is dedicated for each "B" solenoid position, so NS must be changed when changing the solenoid position.



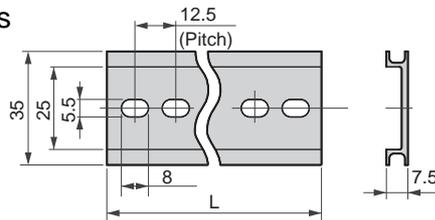
Model no.	Descriptions
N4KB2-2NC1	All passages closed



Model no.	Descriptions
N4KB2-2NC2	Exhaust passage closed

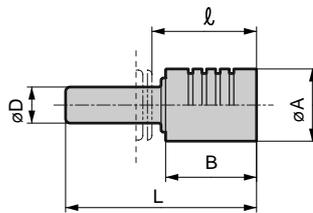
H Related products

● Mounting rail



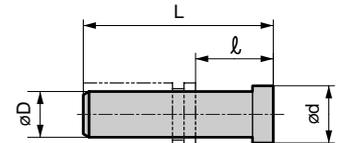
Model no.	L
BAA 500	500
BAA1000	1000

● Silencer



Model no.	D	L	l	B	A
SLW-H8	ø8	42	23	20	16
SLW-H10	ø10	53	31.5	27	20
SLW-H12	ø12	66	43	37	25

● Blanking plug



Model no.	D	L	l	d
GWP6-B	ø6	29	11.5	8
GWP8-B	ø8	33	14	10
GWP10-B	ø10	40	18.5	12
GWP12-B	ø12	43	20	14

● New urethane tube

NU-06

● Soft nylon tube

F-15-06

● Urethane tube

U-95-06

A	Applicable tube outer diameter
06	ø6
08	ø8
10	ø10
12	ø12

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMF0

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*0E

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

Block manifold
5 port pilot operated valve

MN4KB1/2 Series

Block manifold: Assembling & disassembling method

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Assembling & disassembling method

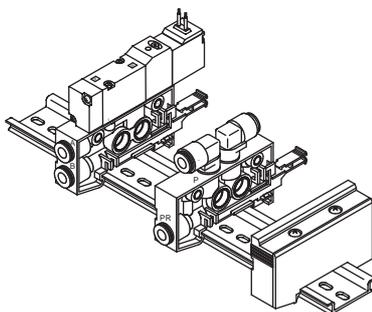


CAUTION

Turn power OFF and release pressure before increasing or decreasing manifolds.

Assembling the block manifold

- (1) Fix the DIN rail.
- (2) Install the required number of end blocks, supply/exhaust blocks, and valve blocks onto the rail, and connect blocks with connection keys.
- (3) Tighten screws of end blocks on each side, and fix onto the rail.
- (4) Install the solenoid valve onto the valve block. (The solenoid valve is installed at shipment.)
- (5) Pipe the tube and connect the wires to complete the process.

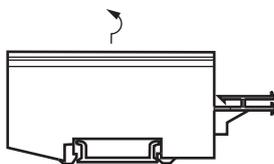


Installing the end block

- (1) Confirm that the set screw is loose, and then press in from the top. Catch the movable jaws onto the rail.
- (2) Lift the block and check that the jaws are caught.
- (3) After installing all blocks, tighten two screws. Tightening torque is 1.4 N·m.

Removing the end block

- (1) Loosen the screw by 6 to 7 rotations, and pullout the connection key.
- (2) Shift the end block 4 mm or more, and pull it in the direction shown below to remove it.

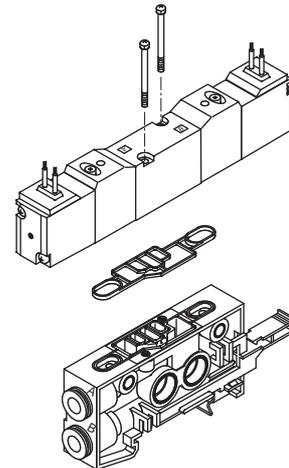


Installing the supply/exhaust block and valve block

- (1) First, catch the fixed jaw onto the rail, and press the movable jaw from above.
- (2) Slide blocks until there is no gap between them, and press in the connection key.

Installing the solenoid valve

- (1) Fit the dedicated gasket onto the valve block.
- (2) Tighten the solenoid valve with 2 screws. The optimum tightening torque is 0.32 N·m for N4KB1 and 0.6 N·m for N4KB2.



Removing the supply/exhaust block and valve block

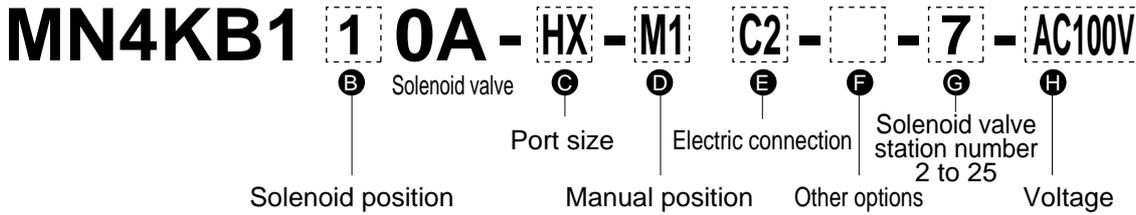
- (1) Remove the end block.
- (2) Pullout the connection key.
- (3) Shift blocks by 4 mm, and lift up the movable jaw side to remove.

MN4KB1/2 Series

Block manifold specifications

How to fill out block manifold specifications sheet

● Manifold model no. (example)



Part name	Model no.	Installation position No.																									Quantity
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
End block (1)	NE1	○																									1
End block (2)	NE2									○																	1
Supply/exhaust block	NQSH : 8	○																								1	
	NQUH																										
Air supply block	NPSH																										
	NPUH																										
Exhaust block	NRSH																										
	NRUH																										
Valve block with solenoid valve	N4KB1 : 1 0A H 4				○	○	○	○																		4	
	N4KB1 : 1 0A H 6								○	○	○															3	
Partition block (1) (all passage closed)	NC1																										
Partition block (2) (exhaust passage closed)	NC2																										
Silencer (ø6 push-in)	SLW-H6																										
Silencer (ø8 push-in)	SLW-H8																										
Plug (ø4 push-in)	GWP4-B																										
Plug (ø6 push-in)	GWP6-B																										
Plug (ø8 push-in)	GWP8-B																										
Mounting rail length	L2 = 	Indicate L2 according to the table on the next page when a length other than standard length is required.																									

* The circuit diagrams of the example above is shown on the following page. Use this for reference.

Preparing the manifold specifications

- Complete from the left end, with the piping port facing forward.
(Indicate the block type selected from the block part components (pages 854 to 859) and the layout instructions.)
- Indicate the total number of blocks designated in the required quantity on the right of the table.
- Indicate the length of mounting rail.
(Indicate only when a length other than the standard length is required.)
- Manifold specifications are available for individual series, so fill out corresponding specifications.
 - MN4KB1 Page 864
 - MN4KB2 Page 865

How to calculate manifold length

● How to calculate manifold length

$$\text{Manifold length (L}_1\text{)} = (\text{A} \times \text{n}) + (\text{B} \times \text{m}) + (\text{C} \times \text{l}) + 40$$

Valve block
Supply/exhaust block
Partition block

$$\text{Mounting rail length (L}_2\text{)} = \text{L}_1' \times 12.5$$

$$\text{L}_2': \frac{\text{L}_1 + 40}{12.5} \rightarrow \text{round up at the decimal point}$$

$$\text{Rail mount pitch (L}_3\text{)} = \text{L}_2 - 12.5$$

n, m and l shows usage of each block.

n: Valve block m: Supply/exhaust block l: Partition block

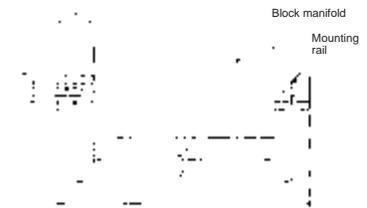
A/B/C indicates length (depth) of each block.

Block length (depth) dimensions table (mm)

		MN4KB1	MN4KB2
A	Valve block	16	19
B	Supply/exhaust block	16	20
C	Partition block	8	8

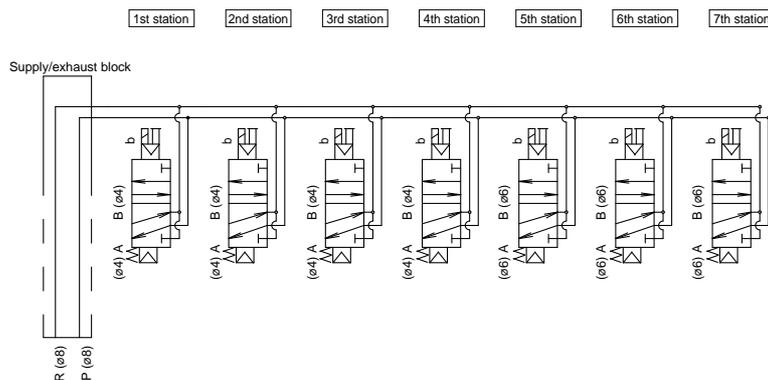
L1: Manifold length	L2: Rail length	A: Mounting pitch	L1: Manifold length	L2: Rail length	A: Mounting pitch
72.5 or less	112.5	110	over 285	297.5 or less	337.5
over 72.5	85 or less	125	297.5	310	350
85	97.5	137.5	310	322.5	362.5
97.5	110	150	322.5	335	375
110	122.5	162.5	335	347.5	387.5
122.5	135	175	347.5	360	400
135	147.5	187.5	360	372.5	412.5
147.5	160	200	372.5	385	425
160	172.5	212.5	385	397.5	437.5
172.5	185	225	397.5	410	450
185	197.5	237.5	410	422.5	462.5
197.5	210	250	422.5	435	475
210	222.5	262.5	435	447.5	487.5
222.5	235	275	447.5	460	500
235	247.5	287.5	460	472.5	512.5
247.5	260	300	472.5	485	525
260	272.5	312.5	485	497.5	537.5
272.5	285	325	497.5	510 *	550

* When more than 510, round the value with multiple of 12.5.



References circuit diagram

This is the circuit diagram from the manifold (example) on the previous page.



- Manifold station numbers are set in order from the left facing the piping port. (Supply/exhaust block, partition block, end block are not included in manifold stations.)
- Select the model from the block configurations (pages 854 to 859) and specifications/model no. pages.

MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMF0

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*OE

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

Block manifold
5 port pilot operated valve

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/MB
NP/NAP/NVP
4F*0E
HNV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

4KB1 block manifold specifications

Issue _____
 Your company name _____
 Contact _____
 Order No. _____

● Contact ● Quantity set ● Request date

Slip No. _____ Order No. _____

● Manifold model no.

MN4KB1 **0A** - - - - - - -

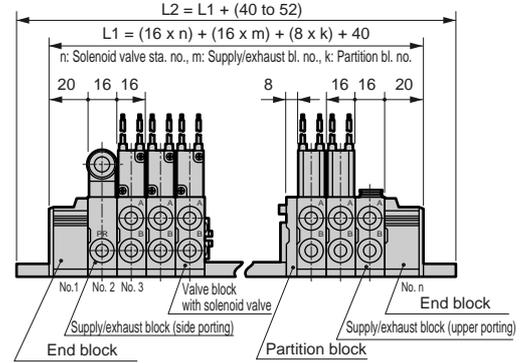
B Solenoid valve **C** **D** **E** **F** **G** **H**
 Solenoid position Port size Manual position Other options Solenoid valve station number Voltage
 2 to 25

H Voltage		Standard
Symbol	Descriptions	
AC100V	100 VAC 50/60Hz	Option
AC200V	200 VAC 50/60Hz	
DC24V	24 VDC	
AC110V	110 VAC 50/60Hz	
AC220V	220 VAC 50/60Hz	
DC12V	12 VDC	

B Solenoid position		C Port size	
Symbol	Descriptions	Symbol	Descriptions
1	2-position single solenoid	H4	ø4 push-in joint
2	2-position double solenoid	H6	ø6 push-in joint
3	3-position all ports closed	H8	ø8 push-in joint
4	3-position A/B/R connection	HX	Mix/push-in joint
5	3-position P/A/B connection		
8	Mix manifold		

D Manual override	
Symbol	Descriptions
Blank	Non-locking manual override
M1	Locking manual override

E Electric connection			F Other options	
Symbol	Descriptions	Lead wire length	Symbol	Descriptions
Blank	Grommet lead wire	300 mm	Blank	None
B	Small terminal box	None	S	with Surge suppressor (Only grommet lead wire)
L	Small terminal box * Surge suppressor integrated for DC voltage	None		
L2	(with indicator light)	300 mm		
LS	Small terminal box (with light and surge suppressor)	None		
C		300 mm		
C00		500 mm		
C01		1000 mm		
C02		2000 mm		
C03		3000 mm		
C1		None		
C2		300 mm		
C20		500 mm		
C21		1000 mm		
C22		2000 mm		
C23		3000 mm		
C3		None		
D		300 mm		
D00		500 mm		
D01		1000 mm		
D02		2000 mm		
D03		3000 mm		
D1		None		
D2		300 mm		
D20		500 mm		
D21		1000 mm		
D22		2000 mm		
D23		3000 mm		
D3		None		



Select the model from "Block parts configuration" (pages 854 to 857), and designate in dotted boxes. Refer to the upper right drawing and indicate the installation position No. from the left. Indicate with a circle in the dotted box.

Part name	(Page)	Model no.	Installation position No.																									Quantity
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
End block (1)	(Page 856)	NE1	○																									
End block (2)	(Page 856)	NE2																										
Supply/exhaust block	(Page 856)	NQSH																										
		NQUH																										
Air supply block	(Page 856)	NPSH																										
		NPUH																										
Exhaust block	(Page 856)	NRSH																										
		NRUH																										
Valve block with solenoid valve	(Page 855)	N4KB1 :0A- H																										
		N4KB1 :0A- H																										
Partition block (1) (all passage closed)	(Page 857)	NC1																										
Partition block (2) (exhaust passage closed)	(Page 857)	NC2																										
Silencer (ø6 push-in)	(Page 857)	SLW-H6																										
Silencer (ø8 push-in)	(Page 857)	SLW-H8																										
Plug (ø4 push-in)	(Page 857)	GWP4-B																										
Plug (ø6 push-in)	(Page 857)	GWP6-B																										
Plug (ø8 push-in)	(Page 857)	GWP8-B																										
Mounting rail length (How to calculate length: page 863)		L2 =																										

Indicate the quantity on the left.
 Indicate the quantity on the left.

Indicate L2 according to the table on page 863.

Complete the dotted box.

4KB2 block manifold specifications

Issue _____

Your company name _____

Contact _____

Order No. _____

● Contact ● Quantity set ● Request date

Slip No. _____	Order No. _____
----------------	-----------------

● Manifold model no.

MN4KB2 **0** - - - - - -

B Solenoid valve position
C Port size
D Manual position
E Electric connection
F Other options
G Solenoid valve station number
H Voltage

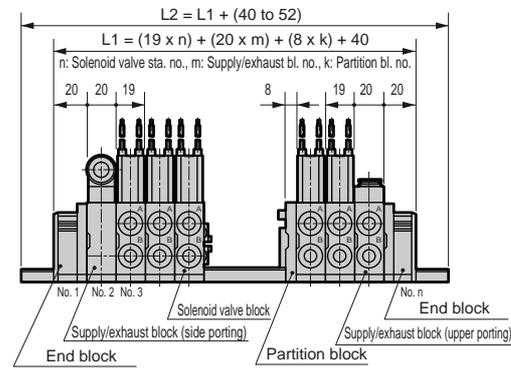
B Solenoid position		C Port size	
Symbol	Descriptions	Symbol	Descriptions
1	2-position single solenoid	H6	ø6 push-in joint
2	2-position double solenoid	H8	ø8 push-in joint
3	3-position all ports closed	H10	ø10 push-in joint
4	3-position A/B/R connection	HX	Mix/push-in joint
5	3-position P/A/B connection		
8	Mix manifold		

D Manual override	
Symbol	Descriptions
Blank	Non-locking manual override
M1	Locking manual override

E Electric connection		
Symbol	Descriptions	Lead wire length
Blank	Grommet lead wire	300 mm
B	Small terminal box	None
L	Small terminal box * Surge suppressor	None
L2	(with indicator light) Integrated for DC voltage	300 mm
LS	Small terminal box (with light and surge suppressor)	None
C	C-connector	300 mm
C00		500 mm
C01		1000 mm
C02		2000 mm
C03		3000 mm
C1	C-connector (with light and surge suppressor)	None
C2		300 mm
C20		500 mm
C21		1000 mm
C22		2000 mm
C23	3000 mm	
C3	D-connector	None
D		300 mm
D00		500 mm
D01		1000 mm
D02		2000 mm
D03	3000 mm	
D1	D-connector (with light and surge suppressor)	None
D2		300 mm
D20		500 mm
D21		1000 mm
D22		2000 mm
D23	3000 mm	
D3	None	

F Other options	
Symbol	Descriptions
Blank	None
S	with Surge suppressor (Only grommet lead wire)

H Voltage	
Symbol	Descriptions
AC100V	100 VAC 50/60Hz
AC200V	200 VAC 50/60Hz
DC24V	24 VDC
AC110V	110 VAC 50/60Hz
AC220V	220 VAC 50/60Hz
DC12V	12 VDC



Select the model from "Block parts configuration" (pages 854, 855, 858, 859), and designate in dotted boxes.

Refer to the upper right drawing and indicate the installation position No. from the left. Indicate with a circle in the dotted box.

Part name	(Page)	Model no.	Installation position No.																									Quantity
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
End block (1)	(Page 858)	2NE1	○																									
End block (2)	(Page 858)	2NE2																										
Supply/exhaust block	(Page 858)	2NQSH																										
		2NQUH																										
Air supply block	(Page 858)	2NPSH																										
		2NPUH																										
Exhaust block	(Page 858)	2NRSH																										
		2NRUH																										
Valve block with solenoid valve	(Page 855)	N4KB2	0	H																								
		N4KB2	0	H																								
Partition block (1) (all passage closed)	(Page 859)	2NC1																										
Partition block (2) (exhaust passage closed)	(Page 859)	2NC2																										
Silencer (ø8 push-in)	(Page 859)	SLW-H8																										
Silencer (ø10 push-in)	(Page 859)	SLW-H10																										
Silencer (ø12 push-in)	(Page 859)	SLW-H12																										
Plug (ø6 push-in)	(Page 859)	GWP6-B																										
Plug (ø8 push-in)	(Page 859)	GWP8-B																										
Plug (ø10 push-in)	(Page 859)	GWP10-B																										
Plug (ø12 push-in)	(Page 859)	GWP12-B																										
Mounting rail length (How to calculate length: page 863)		L2 = 	Indicate L2 according to the table on page 863.																									

Complete the dotted box.

- MN3E0
- MN4E0
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (Master)
- W4GA/B2
- W4GB4
- MN3S0
- MN4S0
- 4TB
- 4L2-4/LMF0
- 4SA/B0
- 4SA/B1
- 4KA/B**
- 4F
- PV5G/CMF
- PV5/CMF
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F*OE
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD/FS/FD
- Ending



Master valve Body porting

3, 5 port pilot operated pneumatic valve

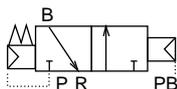
3KA1, 4KA1/2/3/4 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$

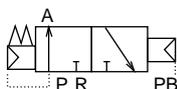


JIS symbol

- 3-port valve
- 2-position N.C. type single



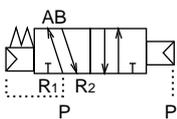
- 2-position N.O. type single



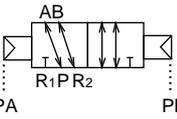
- 2-position double solenoid



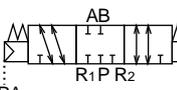
- 5 port valve
- 2-position single solenoid



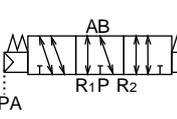
- 2-position double solenoid



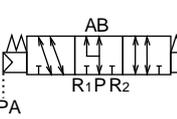
- 3-position all ports closed



- 3-position A/B/R connection



- 3-position P/A/B connection



Common specifications

Descriptions	
Valve type / operation method	Pilot operated soft spool
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to main pressure in the table below.
Withstanding pressure MPa	1.05
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Vibration/impact m/s ²	50 / 300 or less
Working environment	Containing corrosive gas is impermissible.

Individual specifications: Body porting (discrete valve, manifold)

No. of solenoid, position	No. of solenoid, position							Model no.	Specifications						
	2-position single sol. N.C.	2-position single sol. N.O.	2-position single solenoid	2-position double solenoid	3-position all ports closed	3-position A/B/R connection	3-position P/A/B connection		*1 Port size				Main pressure MPa	Pilot signal pressure MPa	
									Supply port P	Cylinder port A/B	Exhaust port R1/R2	Pilot port PA/PB			
Series model no.	Series model no.														
●								3KA1 Series	3KA111	M5	M5	M5	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●							M3KA111		Rc1/8	Rc1/8					
	●						3KA111		M5	M5					
		●					M3KA111		Rc1/8	Rc1/8					
			●				3KA121		M5	M5					
				●			M3KA121		Rc1/8	Rc1/8					
					●		4KA1 Series	4KA111	M5	M5	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7		
								M4KA111	Rc1/8		Rc1/8				
								4KA121	M5		M5				
								M4KA121	Rc1/8		Rc1/8				
								4KA131	M5		M5				
								M4KA131	Rc1/8		Rc1/8				
								4KA141	M5		M5				
								M4KA141	Rc1/8		Rc1/8				
								4KA151	M5		M5				
								M4KA151	Rc1/8		Rc1/8				
							4KA2 Series	4KA211	Rc1/8	Rc1/8	Rc1/8	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7		
								M4KA211	Rc1/4		Rc1/4				
								4KA221	Rc1/8		Rc1/8				
								M4KA221	Rc1/4		Rc1/4				
								4KA231	Rc1/8		Rc1/8				
								M4KA231	Rc1/4		Rc1/4				
								4KA241	Rc1/8		Rc1/8				
								M4KA241	Rc1/4		Rc1/4				
								4KA251	Rc1/8		Rc1/8				
								M4KA251	Rc1/4		Rc1/4				
							4KA3 Series	4KA311	Rc1/4	Rc1/4	Rc1/4	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7		
								M4KA311	Rc3/8		Rc3/8				
								4KA321	Rc1/4		Rc1/4				
								M4KA321	Rc3/8		Rc3/8				
								4KA331	Rc1/4		Rc1/4				
								M4KA331	Rc3/8		Rc3/8				
								4KA341	Rc1/4		Rc1/4				
								M4KA341	Rc3/8		Rc3/8				
								4KA351	Rc1/4		Rc1/4				
								M4KA351	Rc3/8		Rc3/8				
							4KA4 Series	4KA411	Rc3/8	Rc3/8	Rc3/8	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7		
								M4KA411	Rc1/2		Rc1/2				
								4KA421	Rc3/8		Rc3/8				
								M4KA421	Rc1/2		Rc1/2				
								4KA431	Rc3/8		Rc3/8				
								M4KA431	Rc1/2		Rc1/2				
								4KA441	Rc3/8		Rc3/8				
								M4KA441	Rc1/2		Rc1/2				
								4KA451	Rc3/8		Rc3/8				
								M4KA451	Rc1/2		Rc1/2				

*1: Optional port size other than above table are available. Refer to model no. on page 870.

3KA1/4KA1 to 4 Series

Master valve: Body porting

Flow characteristics

Series	Model no.	Port size	C (dm ³ / (s·bar))	b
3KA1	3KA111	M5	0.65	0.37
	M3KA111		0.69	0.29
	3KA1111		0.65	0.37
	M3KA1111		0.69	0.29
	3KA121		0.65	0.37
	M3KA121		0.69	0.29
4KA1	4KA111	M5	0.65	0.37
	M4KA111		0.69	0.29
	4KA121		0.65	0.37
	M4KA121		0.69	0.29
	4KA131		0.60	0.32
	M4KA131		0.69	0.29
	4KA141		0.68	0.39
	M4KA141		0.97	0.31
	4KA151		0.61	0.36
	M4KA151		0.73	0.30
4KA2	4KA211	RC1/8	2.6	0.43
	M4KA211		2.6	0.25
	4KA221		2.6	0.43
	M4KA221		2.6	0.25
	4KA231		2.3	0.43
	M4KA231		2.4	0.32
	4KA241		2.9	0.34
	M4KA241		3.0	0.16
	4KA251		2.3	0.42
	M4KA251		2.4	0.31
4KA3	4KA311	RC1/4	5.6	0.49
	M4KA311		5.6	0.39
	4KA321		5.6	0.49
	M4KA321		5.6	0.39
	4KA331		4.1	0.60
	M4KA331		4.1	0.51
	4KA341		4.1	0.62
	M4KA341		5.9	0.37
	4KA351		4.2	0.68
	M4KA351		4.1	0.56
4KA4	4KA411	RC3/8	9.8	0.49
	M4KA411		9.7	0.29
	4KA421		9.8	0.49
	M4KA421		9.7	0.29
	4KA431		8.2	0.54
	M4KA431		8.3	0.40
	4KA441		11	0.50
	M4KA441		11	0.30
	4KA451		8.4	0.54
	M4KA451		8.7	0.46

Note 1: Effective sectional area S and sonic conductance C are converted as $S \doteq 5.0 \times C$.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Master valve
3, 5 port pilot operated valve

3KA1/4KA1 to 4 Series

Master valve: Body porting

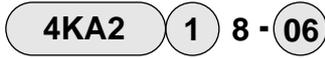
- MN3E0
- MN4E0
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (Master)
- W4GA/B2
- W4GB4
- MN3S0
- MN4S0
- 4TB
- 4L2-4/LMFO
- 4SA/B0
- 4SA/B1
- 4KA/B**
- 4F
- PV5G/CMF
- PV5/CMF
- 3MA/B0
- 3PA/B
- P/M/B
- NP/NAP/NVP
- 4F*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD/FS/FD
- Ending

How to order

● Discrete master valve



● Discrete master valve for manifold (gasket and set screw attached)



● Manifold



Solenoid valve type master valve

● Solenoid position

● Model no.

● Port size

● Other options

● Station number

A Model no.				
3	4	4	4	4
K	K	K	K	K
A	A	A	A	A
1	1	2	3	4

Symbol	Descriptions	3KA1	4KA1	4KA2	4KA3	4KA4
B Solenoid position						
1	2-position single solenoid N.C. type	●				
11	2-position single solenoid N.O. type	●				
1	2-position single solenoid		●	●	●	●
2	2-position double solenoid	●	●	●	●	●
3	3-position all ports closed		●	●	●	●
4	3-position A/B/R connection		●	●	●	●
5	3-position P/A/B connection		●	●	●	●
8	2/3-position mix manifold Note 1		●	●	●	●
C Port size						
P/A/B port						
M5	M5	●	●			
06	Rc1/8			●		
08	Rc1/4				●	
10	Rc3/8					●
GS4	ø4 push-in joint	●	●			
GS6	ø6 push-in joint	●	●	●		
GS8	ø8 push-in joint			●	●	
GS10	ø10 push-in joint				●	●
GS12	ø12 push-in joint					●
D Other options						
Blank	None	●	●	●	●	●
P	Mounting plate (discrete master valve, 2-position single dedicated)	●	●	●	●	●
E Station number						
2 to 15	2 to 15 stations				●	●
2 to 20	2 to 20 stations	●	●	●		

<Example of model number>

4KA311-08-P

- A Model : 4KA3
- B Solenoid position: 2-position single solenoid
- C Port size : Rc1/4
- D Other options: Mounting plate

⚠ Note on model no. selection

Note 1: 8 is suitable for the manifold combination.
Refer to the section below for details on indicating the combination.

<Mix manifold>

● How to indicate mix manifold

When selecting a mixed manifold (8 for "B"), clearly indicate the required function symbol (refer to Table 1) and layout No. (assign numbers to designated number of stations starting with 1 on left side) in the Remarks field under the normal model indication as shown with the example below.

(Table 1)

Symbol	Function
S1	2-position single solenoid
S2	2-position double solenoid
S3	3-position all ports closed
S4	3-position A/B/R connection
S5	2-position P/A/B connection
MP	Masking plate

1	2	3	4	5	6	7
2-position single (S1)	2-position double (S2)	3-position all ports closed (S3)	3-position all ports closed (S3)	2-position double (S2)	2-position single (S1)	3-position A/B/R connection (S4)

S1 S2 S3 S4 S5 MP

2 2 2 1 0 0

Example

The model for the mixed manifold (7 stations) with layout as shown at left, 4KA3, A/B port: Rc1/8, and upper piping is as follows:

M4KA381-06-7- 2 2 2 1 0 0

S1=1, 6 S2=2, 5 S3=3, 4 S4=7

Symbol Position

3KA1/4KA1 Series

Master valve: Body porting

Dimensions

3 port valve

3KA111

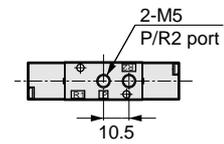
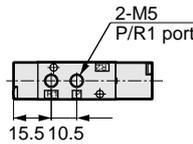
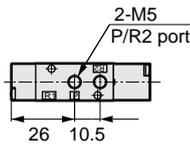
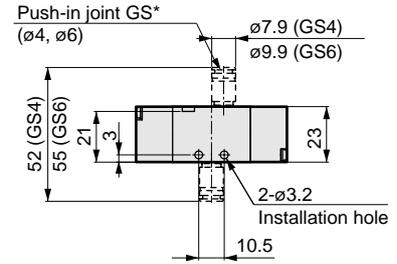
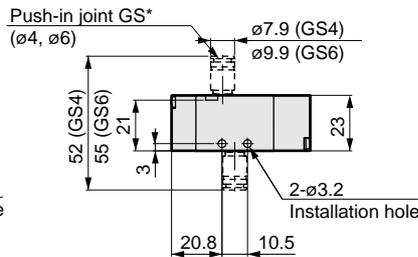
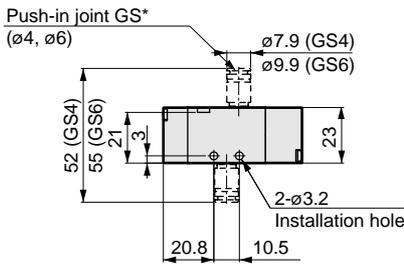
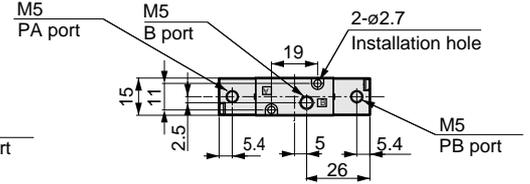
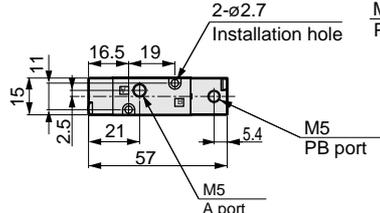
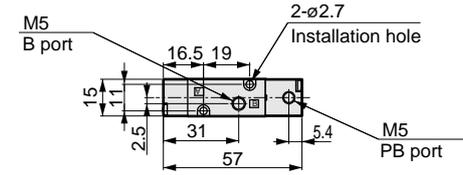
● 2-position single solenoid N.C. type

3KA1111

● 2-position single solenoid N.O. type

3KA121

● 2-position double solenoid



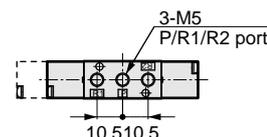
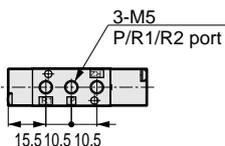
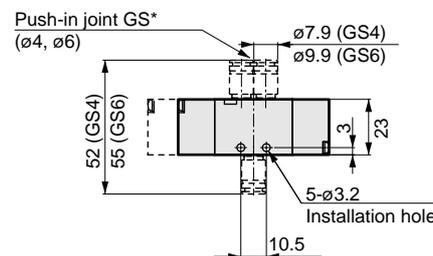
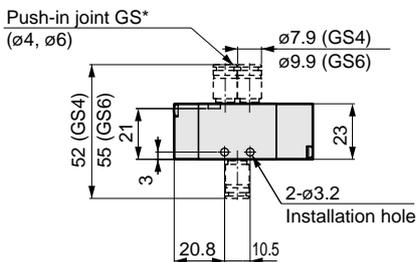
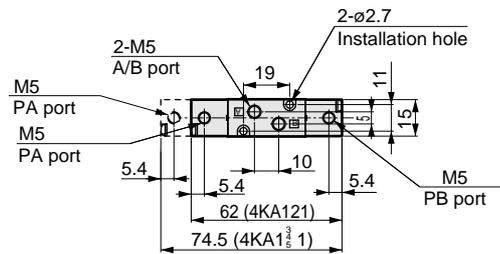
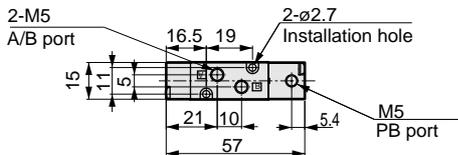
5 port valve

4KA111

● 2-position single solenoid

4KA1²₃⁴₅1

● 2-position double solenoid / 3-position



MN3E0
MN4E0

4GA/B

M4GA/B

MN4GA/B

4GA/B
(Master)

W4GA/B2

W4GB4

MN3S0
MN4S0

4TB

4L2-4/
LMF0

4SA/B0

4SA/B1

4KA/B

4F

PV5G/
CMF

PV5/
CMF

3MA/B0

3PA/B

P/M/B

NP/NAP/
NVP

4F*0E

HMV
HSV

2QV
3QV

SKH

PCD/
FS/FD

Ending

Master valve
3, 5 port pilot operated valve

4KA2/3 Series

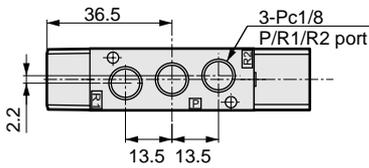
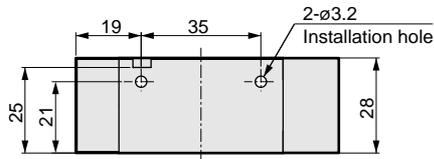
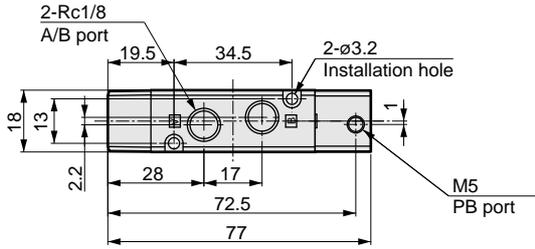
Master valve: Body porting

Dimensions

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

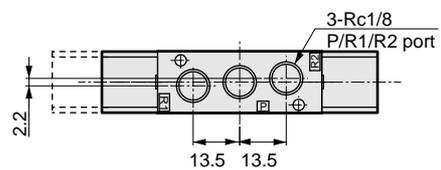
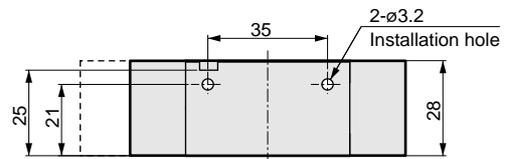
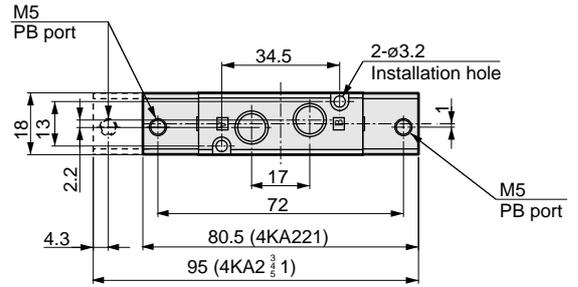
4KA211

● 2-position single solenoid



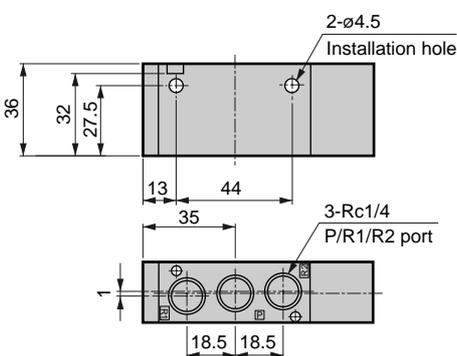
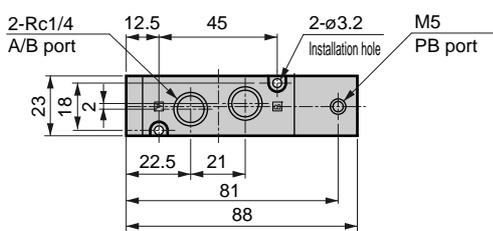
4KA2²/₃4¹/₅

● 2-position double solenoid / 3-position



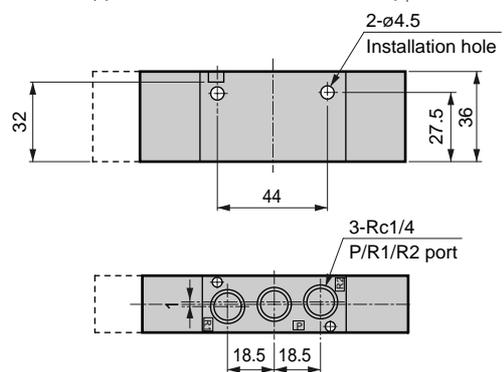
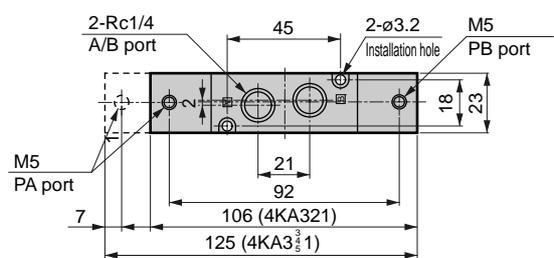
4KA311

● 2-position single solenoid



4KA3²/₃4¹/₅

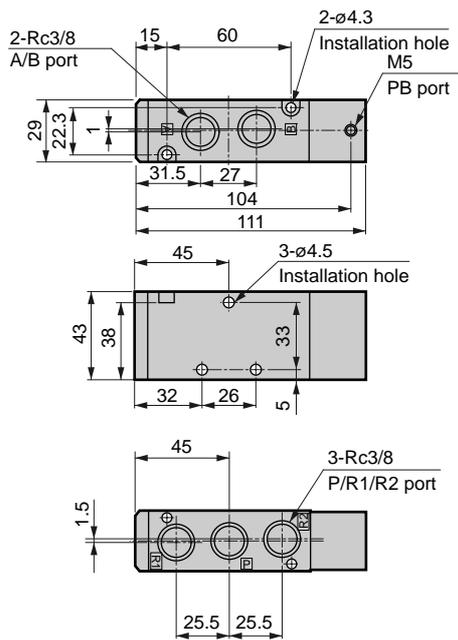
● 2-position double solenoid / 3-position



Dimensions

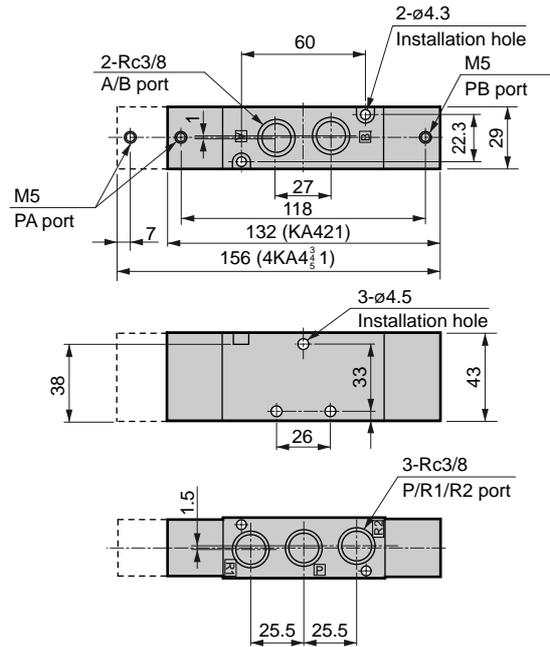
4KA411

- 2-position single solenoid



4KA4²₃⁴₅

- 2-position double solenoid / 3-position



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Master valve
3, 5 port pilot operated valve



Master valve Sub-plate porting

3, 5 port pilot operated pneumatic valve

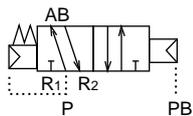
4KB1/2/3/4 Series

● Applicable cylinder bore size: $\varnothing 20$ to $\varnothing 160$

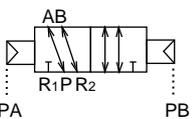


JIS symbol

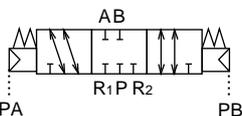
- 5 port valve
- 2-position single solenoid



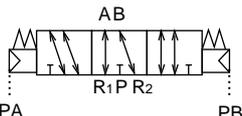
- 2-position double solenoid



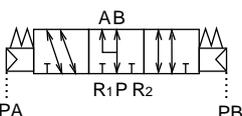
- 3-position all ports closed



- 3-position A/B/R connection



- 3-position P/A/B connection



R1 and R2 are common exhaust only for 4KB1

Common specifications

Descriptions	
Valve type / operation method	Pilot operated soft spool
Working fluid	Compressed air
Max. working pressure MPa	0.70
Min. working pressure MPa	Refer to main pressure in the table below.
Ambient temperature °C	-5 to 50
Fluid temperature °C	5 to 50
Lubrication	Not required
Vibration/impact m/s ²	50 or less / 300 or less
Working environment	Corrosion-free environment

Individual specifications: Sub-plate porting (discrete valve, manifold)

No. of solenoid, position	Model no.	Specifications					
		*1 Port size				Main pressure MPa	Pilot signal pressure MPa
		Supply port P	Cylinder port A/B	Exhaust port R1/R2	Pilot port PA/PB		
2-position single solenoid	Series model no.						
2-position double solenoid							
3-position all ports closed							
3-position A/B/R connection							
3-position P/A/B connection							
●	4KB1 Series	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB111	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB111	M5, Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB121	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB121	M5, Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB131	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB131	M5, Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB141	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB141	M5, Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB151	Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB151	M5, Rc1/8		Rc1/8	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB2 Series	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB211	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB211	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB221	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB221	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB231	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB231	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB241	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB241	Rc1/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB251	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB251	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB3 Series	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB311	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB311	Rc3/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB321	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB321	Rc3/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB331	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB331	Rc3/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB341	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB341	Rc3/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB351	Rc1/4		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB351	Rc3/8		Rc1/4	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB4 Series	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB411	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB411	Rc1/2		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB421	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB421	Rc1/2		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB431	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB431	Rc1/2		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB441	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB441	Rc1/2		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	4KB451	Rc3/8		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7
●	M4KB451	Rc1/2		Rc1/2	M5	0.15 to 0.7	(0.6 x main pressure + 0.06) to 0.7

*1: Optional port size other than above table are available. Refer to a model no. on page 876.

Flow characteristics

Series	Model no.	Port size	C (dm ³ / (s·bar))	b
4KB1	4KB111	Rc1/8	0.89	0.44
	M4KB111	M5, Rc1/8	0.71	0.25
	4KB121	Rc1/8	0.89	0.44
	M4KB121	M5, Rc1/8	0.71	0.25
	4KB131	Rc1/8	0.63	0.50
	M4KB131	M5, Rc1/8	0.60	0.23
	4KB141	Rc1/8	1.2	0.29
	M4KB141	M5, Rc1/8	0.81	0.25
	4KB151	Rc1/8	0.75	0.39
	M4KB151	M5, Rc1/8	0.67	0.32
4KB2	4KB211	Rc1/8	2.7	0.24
	M4KB211		2.1	0.13
	4KB221		2.7	0.24
	M4KB221		2.1	0.13
	4KB231		2.4	0.29
	M4KB231		1.8	0.11
	4KB241		3	0.27
	M4KB241		2	0.17
	4KB251		2.4	0.34
	M4KB251		1.8	0.23
4KB3	4KB311	Rc1/4	6.3	0.26
	M4KB311		4.5	0.11
	4KB321		6.3	0.26
	M4KB321		4.5	0.11
	4KB331		5.6	0.27
	M4KB331		4.4	0.21
	4KB341		6.6	0.20
	M4KB341		4.8	0.18
	4KB351		5.9	0.27
	M4KB351		4.3	0.20
4KB4	4KB411	Rc3/8	12	0.24
	M4KB411		8.9	0.22
	4KB421		12	0.24
	M4KB421		8.9	0.22
	4KB431		11	0.27
	M4KB431		8.9	0.24
	4KB441		13	0.21
	M4KB441		9.4	0.23
	4KB451		10	0.22
	M4KB451		8.6	0.20

Note 1: Effective sectional area S and sonic conductance C are converted as $S \cong 5.0 \times C$.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Master valve
3, 5 port pilot operated valve

4KB1 to 4 Series

Master valve: Sub-plate porting

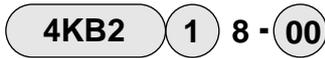
- MN3E0
- MN4E0
- 4GA/B
- M4GA/B
- MN4GA/B
- 4GA/B (Master)
- W4GA/B2
- W4GB4
- MN3S0
- MN4S0
- 4TB
- 4L2-4/LMFO
- 4SA/B0
- 4SA/B1
- 4KA/B**
- 4F
- PV5G/CMF
- PV5/CMF
- 3MA/B0
- 3PA/B
- P/MB
- NP/NAP/NVP
- 4F*0E
- HMV
- HSV
- 2QV
- 3QV
- SKH
- PCD/FS/FD
- Ending

How to order

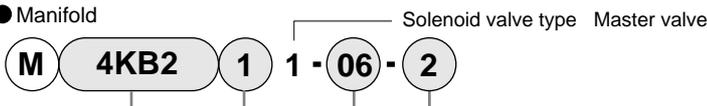
● Discrete master valve



● Discrete master valve for manifold (gasket and set screw attached)



● Manifold



Ⓐ Model no.

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Station number

Symbol	Descriptions	Ⓐ Model no.			
		4KB1	4KB2	4KB3	4KB4
Ⓑ Solenoid position					
1	2-position single solenoid	●	●	●	●
2	2-position double solenoid	●	●	●	●
3	3-position all ports closed	●	●	●	●
4	3-position A/B/R connection	●	●	●	●
5	3-position P/A/B connection	●	●	●	●
8	2/3-position mix manifold Note 1	●	●	●	●
Ⓒ Port size					
P/A/B port					
M5	M5 Note 2	●			
06	Rc1/8	●	●		
08	Rc1/4		●	●	
10	Rc3/8			●	●
15	Rc 1 / 2				●
M5Y	M5 (back porting) Note 2	●			
06Y	Rc1/8 (back porting) Note 2		●		
08Y	Rc1/4 (back porting) Note 2			●	
10Y	Rc3/8 (back porting) Note 2				●
H 6	ø6 push-in joint Note 2, 3	●	●		
H 8	ø8 push-in joint Note 2, 3		●	●	
H 10	ø10 push-in joint Note 2			●	●
H 12	ø12 push-in joint Note 2				●
Ⓓ Station number					
2 to 12	2 to 12 stations				●
2 to 15	2 to 15 stations			●	
2 to 20	2 to 20 stations	●	●		

<Example of model number>

4KB311-08

Ⓐ Model: 4KB3

Ⓑ Solenoid position: 2-position single solenoid

Ⓒ Port size : Rc1/4

⚠ Note on model no. selection

Note 1: 8 is suitable for the manifold combination.

Refer to the section below for details on indicating the combination.

Note 2: M5 and *Y/H* can be selected for the manifold. These are not available as discrete parts.

Note 3: H6 and H8 can be manufactured up to 10 stations.

<Mix manifold>

● How to indicate mix manifold

When selecting a mixed manifold (8 for "B"), clearly indicate the required function symbol (refer to Table 1) and layout No. (assign numbers to designated number of stations starting with 1 on left side) in the Remarks field under the normal model indication as shown with the example below.

(Table 1)

Symbol	Function
S1	2-position single solenoid
S2	2-position double solenoid
S3	3-position all ports closed
S4	3-position A/B/R connection
S5	2-position P/A/B connection
MP	Masking plate

1	2	3	4	5	6	7
2-position single (S1)	2-position double (S2)	3-position all ports closed (S3)	3-position all ports closed (S3)	2-position double (S2)	2-position single (S1)	3-position A/B/R connection (S4)

S1 S2 S3 S4 S5 MP

2 2 2 1 0 0

Example

The model for the mixed manifold (7 stations) with layout as shown at left, 4KB3, A/B port: Rc1/8, and radial piping is as follows:

M4KB381-06-7- 2 2 2 1 0 0

S1=1, 6 S2=2, 5 S3=3, 4 S4=7

Symbol Position

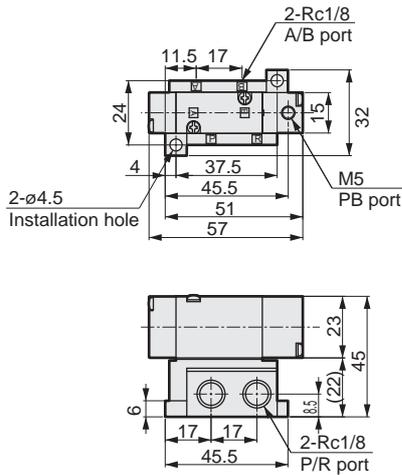
4KB1/2 Series

Master valve: Sub-plate porting

Dimensions

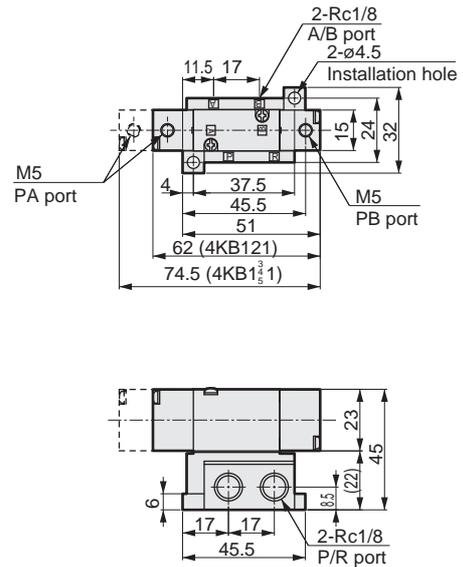
4KB111

- 2-position single solenoid



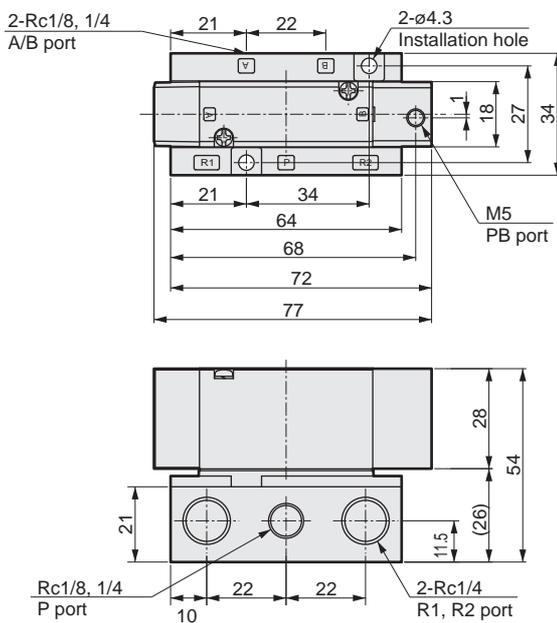
4KB1²/₄³1₅

- 2-position double solenoid / 3-position



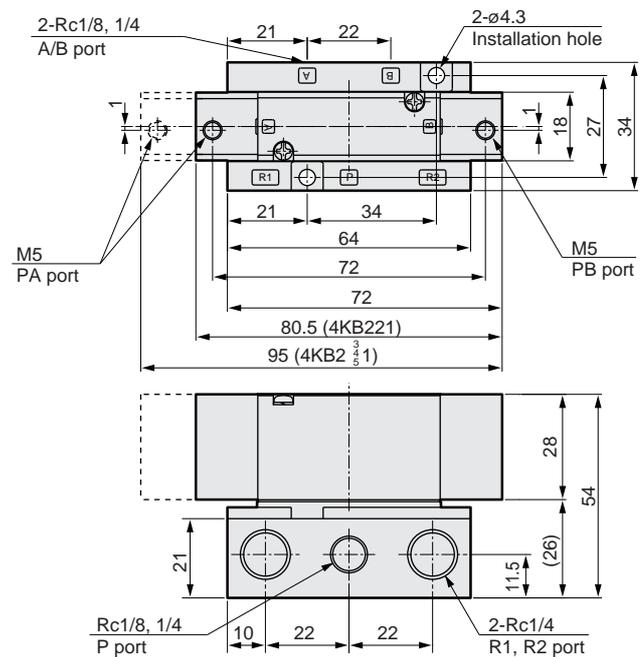
4KB211

- 2-position single solenoid



4KB2²/₄³1₅

- 2-position double solenoid / 3-position



MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*OE
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Master valve
3, 5 port pilot operated valve

4KB3/4 Series

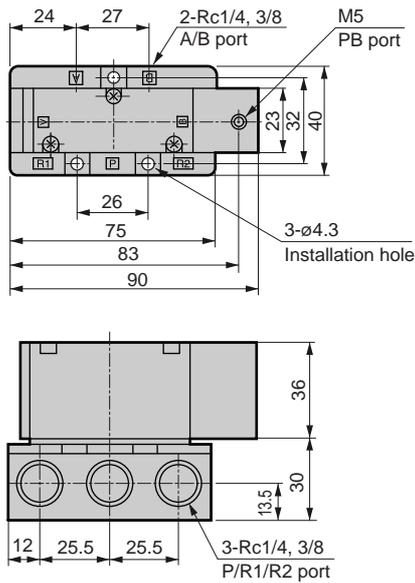
Master valve: Sub-plate porting

Dimensions

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMFO
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HMV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

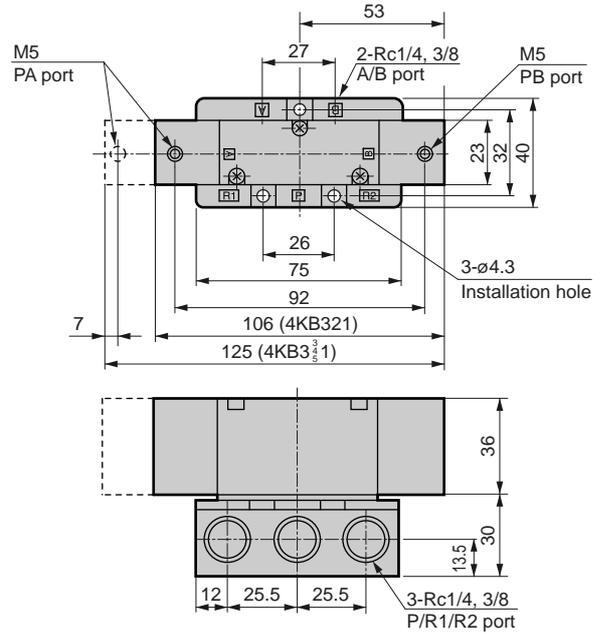
4KB311

● 2-position single solenoid



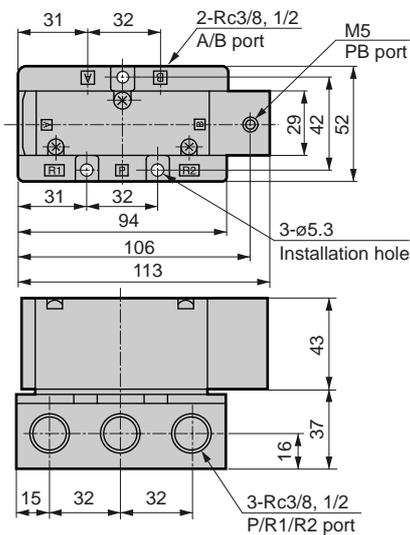
4KB3²/₃/₅1

● 2-position double solenoid / 3-position



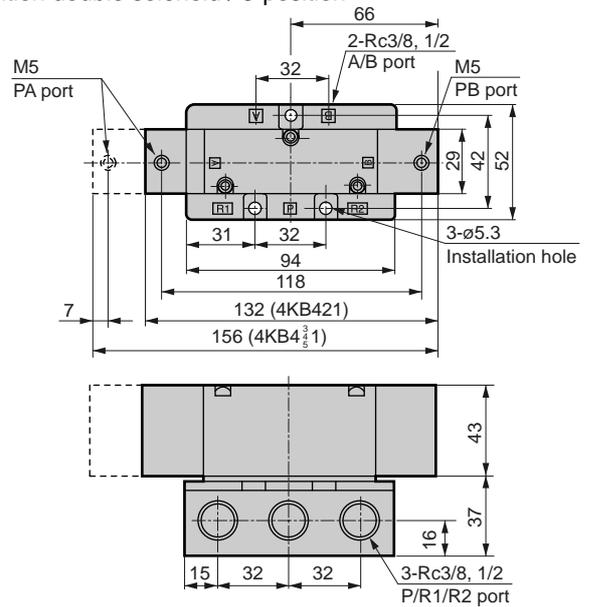
4KB411

● 2-position single solenoid



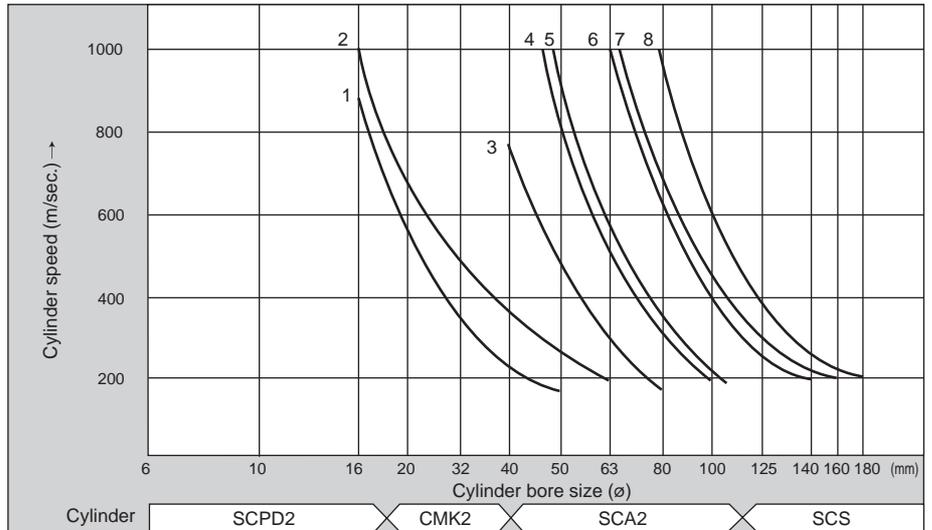
4KB4²/₃/₅1

● 2-position double solenoid / 3-position



The air cylinder's average speed is calculated with the 4K_s Series and piping system combination.

Example: For a system to move SCA2-63 at 500 mm/s, the system "4" device can be selected. For clean air system devices, select devices that enable air flow 520 ℓ/min. or more required for system "4".



Standard system table

System No.	Valve	Flow control valve	Silencer	Piping (1 m)	Composite effective sectional area(mm ²)	Required flow (ℓ/min.)
1	4KA1 ¹ 0-M5	SC-M5-S	SL-M5	ø4 x ø2.5	1.6	115
2	4KB1 ¹ 0-06	SC1-6	SLW-6S	ø6 x ø4	3.2	215
3	4KA2 ¹ 0-06	SC1-6	SLW-6S	ø6 x ø4	4.8	346
4	4KB2 ² 0-08	SC1-8	SLW-8S	ø8 x ø5.7	8	581
5	4KA3 ¹ 0-08	SC1-8	SLW-8S	ø8 x ø5.7	9.1	660
6	4KB3 ¹ 0-10	SC1-10	SLW-10L	ø10 x ø7.2	16.5	1285
7	4KA4 ¹ 0-10	SC1-10	SLW-10L	ø10 x ø7.2	19	1289
8	4KB4 ¹ 0-15	SC1-15	SLW-15A	ø12 x ø8.9	25.8	1749

Note 1: The required flow rate is the condition when pressure is 0.5 MPa.

Note 2: Effective sectional area S and sonic conductance C are converted as $S \doteq 5.0 \times C$.

Clean air system components

Part name	Model no.	Port size	Maximum flow rate ℓ/min. (ANR)
F.R.L. combination	C1000-6	Rc 1/8	450
	C1000-8	Rc 1/4	630
	C3000-8	Rc 1/4	1280
	C3000-10	Rc 3/8	1750
	C4000-8	Rc 1/4	1430
	C4000-10	Rc 3/8	2400
	C4000-15	Rc 1/2	3000
	C8000-20	Rc 3/4	7000
	C8000-25 (-A32)	Rc1 (Rc1 1/4)	7500
F.R. unit	W1000-6	Rc 1/8	830
	W1000-8	Rc 1/4	1150
	W3000-8	Rc 1/4	2150
	W3000-10	Rc 3/8	2430
	W4000-8	Rc 1/4	2500
	W4000-10	Rc 3/8	4350
	W4000-15 (-A20)	Rc 1/2, Rc 3/4	4750
	W8000-20	Rc 3/4	10000
	W8000-25 (-A32)	Rc1 (Rc1 1/4)	10000
Air filter (F)	F1000-6	Rc 1/8	460
	F1000-8	Rc 1/4	610
	F3000-8	Rc 1/4	1230
	F3000-10	Rc 3/8	1500
	F4000-8	Rc 1/4	1320
	F4000-10	Rc 3/8	2140
	F4000-15 (-A20)	Rc 1/2 (Rc 3/4)	3000
	F8000-20	Rc 3/4	6400
F8000-25 (-A32)	Rc1 (Rc1 1/4)	6800	

Part name	Model no.	Port size	Maximum flow rate ℓ/min. (ANR)
Regulator (R)	R1000-6	Rc 1/8	770
	R1000-8	Rc 1/4	1350
	R3000-8	Rc 1/4	2000
	R3000-10	Rc 3/8	2600
	R4000-8	Rc 1/4	2500
	R4000-10	Rc 3/8	4400
	R4000-15	Rc 1/2 (Rc 3/4)	5000
	R8000-20	Rc 3/4	14000
	R8000-25 (-A32)	Rc1 (Rc1 1/4)	11000
Lubricator (L)	L1000-6	Rc 1/8	550
	L1000-8	Rc 1/4	700
	L3000-8	Rc 1/4	1100
	L3000-10	Rc 3/8	2250
	L4000-8	Rc 1/4	1000
	L4000-10	Rc 3/8	1700
	L4000-15 (-A20)	Rc 1/2 (Rc 3/4)	2700
	L8000-20	Rc 3/4	6300
L8000-25 (-A32)	Rc1 (Rc1 1/4)	10000	

(Note)

Max. flow rate: For FRL, FR and R, the flow rate at a 0.7 MPa primary pressure, 0.5 MPa setting pressure, and 0.1 MPa pressure drop. For F, the flow rate at 0.7 MPa primary pressure and 0.02 MPa pressure drop. For L, the flow rate at 0.5 MPa primary pressure and 0.03 MPa pressure drop.

MN3E0
MN4E0
4GA/B
M4GA/B
MN4GA/B
4GA/B (Master)
W4GA/B2
W4GB4
MN3S0
MN4S0
4TB
4L2-4/LMF0
4SA/B0
4SA/B1
4KA/B
4F
PV5G/CMF
PV5/CMF
3MA/B0
3PA/B
P/M/B
NP/NAP/NVP
4F*0E
HNV
HSV
2QV
3QV
SKH
PCD/FS/FD
Ending

Master valve
3, 5 port pilot operated valve

3KA/4KA/4KB Series

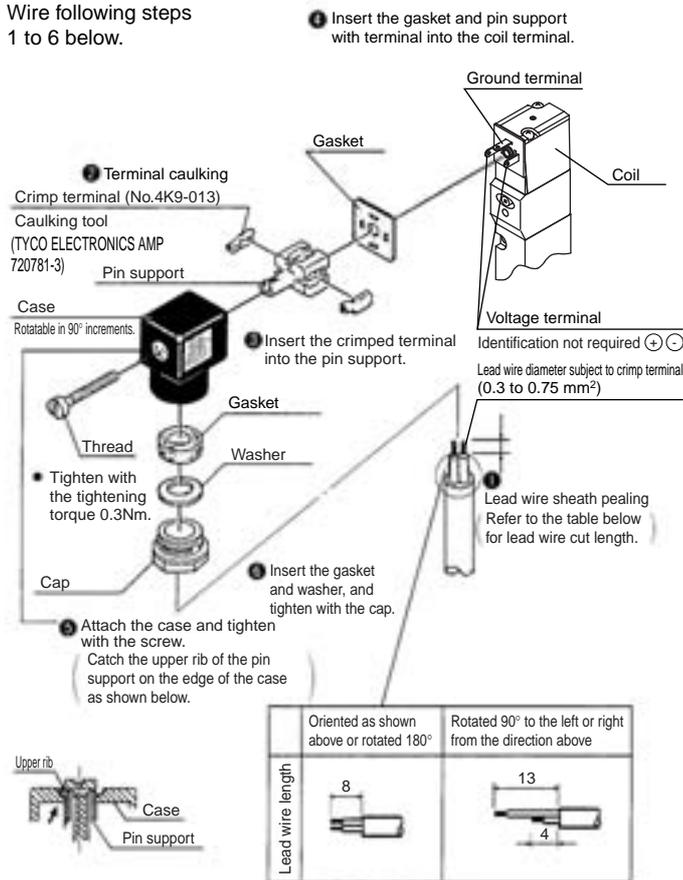
Technical data ② How to wire terminal box and connector

How to wire terminal box and connector

Refer to the following drawings for terminal block wiring and for C and D connector connection.

Small terminal box wiring methods (applicable model 3KA1, 4KA¹, 4KA²)

Wire following steps 1 to 6 below.

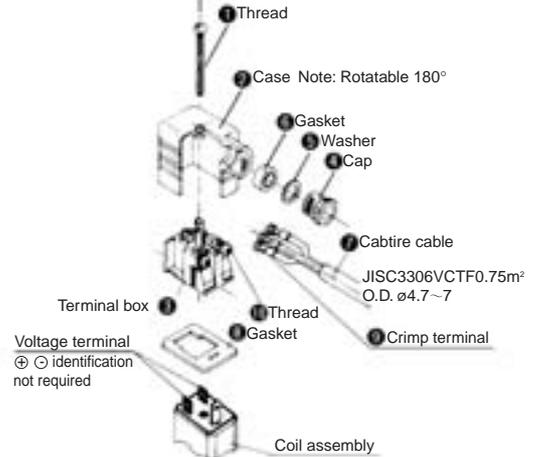


Terminal box wiring methods (applicable model 4KA², 4KA⁴)

Refer to the following drawing, and wire the terminal box following steps 1 to 3 below.

- 1) Pass the cap (4), washer (5), and gasket (6) in order through the cabtire cable (7), and insert in case (2).
- 2) When using a crimp terminal, treat the cabtire cable (7) at an appropriate length as shown in the figure, and crimp the crimp terminal (9) onto the end.
- 3) Remove screw (10) from terminal gland (3), and pass through crimp terminal (9). (When using the Y type terminal, loosen and sandwich the terminal.) Then, tighten screw (10) again.

Note: Tighten at a torque of 5kgf-cm ±15%.



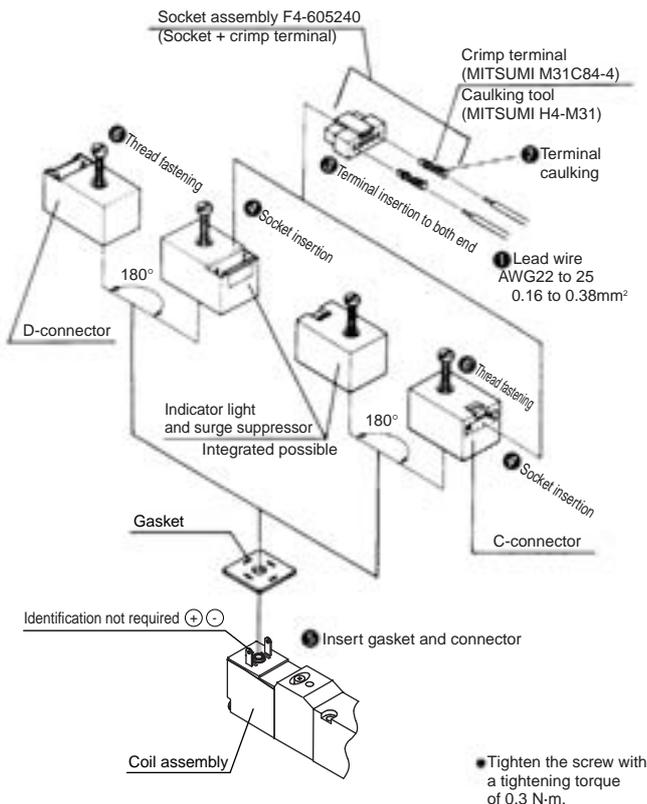
Remarks: Bare wires can be wired. In this case, loosen screw (10), and insert leads into the fitting, then tighten again. The cord's direction can be changed by pulling the gland out of the case, rotating it 180°, then pressing it into the case again. The following crimp terminals (8) can be used.

NICHIFU TERMINAL		FUJI TERMINAL		JST Mfg.	
O terminal	Y terminal	O terminal	Y terminal	O terminal	Y terminal
0.3-3	0.3-3	1.25-3		0.5-3	0.25-B3A
1.25-3	1.25Y-3			1.25-3	1.25-C3A
1.25-3S	1.25Y-3.5				

Use equivalent products when using other brands.

C/D-connector wiring method (applicable model 3KA1, 4KA¹ Series)

Wire following steps ① to ⑥ below.



Small terminal box with indicator light wiring methods (applicable model 3KA1, 4KA¹, 4KA²)

Wire following steps ① to ⑤ below.

