

Block manifold sub-plate piping Pilot operated 5-port pneumatic valve

# MN4KB1/2 Series

Cylinder bore size: ø20 to ø80







## JIS symbol

4GB

With sensor

4GD/E

M4GD/E MN4GD/E 4GA4/B4

MN3E MN4E W4GA/B2

W4GB4

MN3S0 MN4S0 4SA/B0

4KA/B

4KA/B (master) 4F

4F

(master)

PV5G **GMF** PV5

**GMF** PV5S-0

3Q

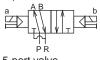
MV3QR 3MA/B0 3PA/B

P/M/B NP/NAP

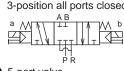
4G\*0EJ 4F\*0EX 4F\*0E 5-port valve 2-position single



5-port valve 2-position double



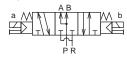
5-port valve 3-position all ports closed



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



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



### Common specifications

ltem	Description
Manifold	Block manifold system
method	(DIN rail mount)
Manifold (*1)	Common air supply (P)
Marillold ( 1)	Common exhaust (R)
Station No.	2 to 25 stations
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.70 (≈100 psi, 7 bar)
Min. working pressure MPa	Refer to Individual specifications listed below
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)
Ambient temperature °C	5 (41°F) to 50 (122°F)
Fluid temperature °C	5 (41°F) to 50 (122°F)
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistance m/s <sup>2</sup>	50 or less
Shock resistance m/s <sup>2</sup>	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

<sup>\*1:</sup> Configured with a pilot common exhaust. (However, with the exception of the pilot exhaust for 3-position.)

## Electrical specifications

Item			4KB1/2	
Rated voltage		AC 100,200 ( 50 / 60 Hz )		
V		DC	24	
Voltage fluctuation range		range	±10%	
Starting current	AC	100 V	0.056/0.044	
Α	AC 200 V		0.028/0.022	
Holding	AC 100 V		0.028/0.022	
current	AC 200 V		0.014/0.011	
A	A DC 24 V		0.075	
Power	AC 100 V		1.8 / 1.4 (1.8 / 1.5)	
consumption	AC	200 V	1.8 / 1.4 (1.8 / 1.5)	
( ): With indicator			1.8 (2.0)	
Thermal of	class	3	B (molded coil)	
Temperati	ure r	ise °C	43	

Reference: Rated 100 VAC 50/60 Hz can be used with 110 VAC 60 Hz and 200 VAC 50/60 Hz can be used with 220 VAC 60 Hz.

## Individual specifications

	Ite	m	4KB1	4KB2	
	2-position	Single	0.15 (≈22 psi, 1.5 bar)	0.15 (≈22 psi, 1.5 bar)	
Min. working	2-005111011	Double	0.13 (~22 psi, 1.3 bai)	0.10 (≈15 psi, 1 bar)	
pressure		All ports closed			
MPa	3-position	A/B/R connection	0.20 (≈29 psi, 2 bar)	0.20 (≈29 psi, 2 bar)	
		P/A/B connection			
	Cylinder port A/B		ø4/ø6/ø8 Push-in fitting	ø6/ø8/ø10 Push-in fitting	
Port size	Supply/exhaust port P/R		ø6/ø8 Push-in fitting	ø8/ø10/ø12 Push-in fitting	
	Pilot ex	haust port PR	ø6/ø8 Push-in fitting	-	

### Performance/characteristics by model

Item	4KB1	4KB2
Response time 2-position	30 or less	30 or less
(*1) ms 3-position	60 or less	60 or less

<sup>\*1:</sup> The response time is the value at 0.5 MPa working pressure, with no lubrication, and with the power ON. It depends on the pressure and the lubricant quality.

### Weight

	Ite	n	4KB1	4KB2	
Weight g	2-position	Single	70	115	
(solenoid	2-005111011	Double	110	155	
valve only)	3-position	on	120	170	
End block g		g	54.3	62.3	
Supply and exhaust block g		olock g	59.2	106.6	
Valve block g		g	29.7	51.5	
Partition block g		g	11.6	19.3	

2QV 3QV SKH

HMV HSV

Silencer

TotAirSys (Total Air)

**TotAirSys** (Gammá)

## Block manifold; sub-plate piping

### Flow characteristics

Model No.	;	Solenoid position	C[dm³/(s-bar)]	b	
	2-position	Single	0.70	0.32	
	2-position	Double	0.70		
4KB1		All ports closed	0.60	0.27	
	3-position	A/B/R connection	0.80	0.21	
		P/A/B connection	0.64	0.27	
	2-position	Single	2.6	0.30	
	2-position	Double	2.0	0.30	
4KB2		All ports closed	2.4	0.31	
	3-position	A/B/R connection	3.1	0.27	
		P/A/B connection	2.3	0.25	

<sup>\*1:</sup> Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Ozone-proof specifications (Ending Page 5)

## Copper and PTFE free specifications

Copper- and PTFE-based materials are not used in the flow path.

## CE marking specifications

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

4GA/B

M4GA/B MN4GA/B

4GA/B (master) 4GB With sensor

4GD/E M4GD/E

MN4GD/E

4GA4/B4 MN3E MN4E

W4GA/B2

W4GB4

MN3S0 MN4S0

4SA/B0

4KA/B 4KA/B

(master)

4F (master) PV5G GMF

PV5 **GMF** 

PV5S-0

3Q

MV3QR 3MA/B0

3PA/B

P/M/B NP/NAP NVP

4G\*0EJ

4F\*0EX

4F\*0E

HMV HSV 2QV 3QV

SKH

Silencer

TotAirSys (Total Air) TotAirSys (Gamma)

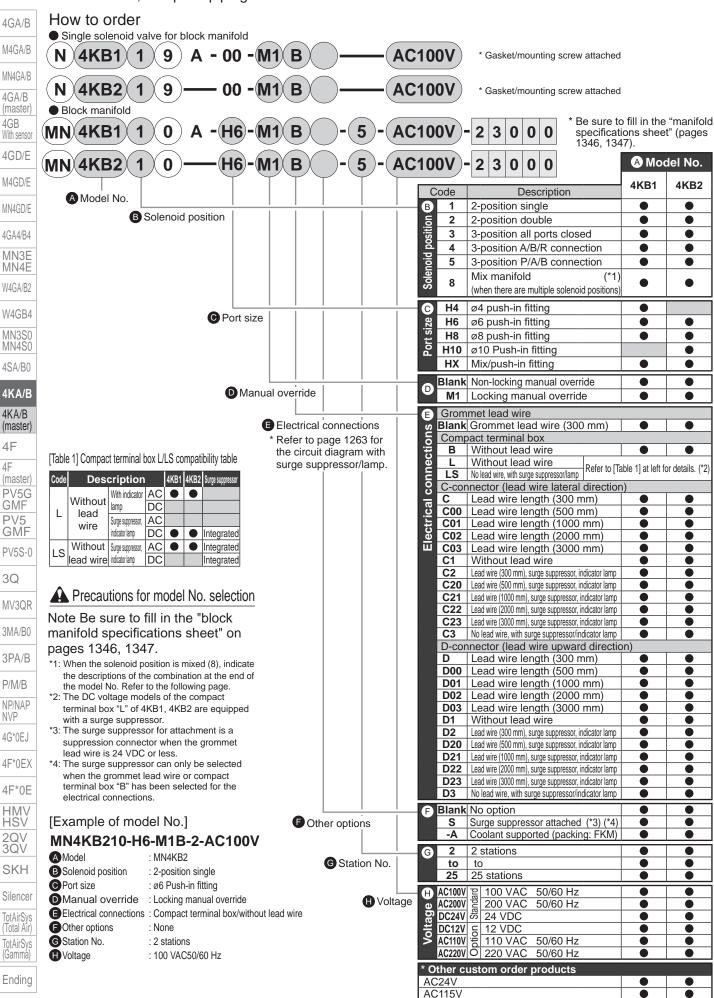
4GB

4F

4F

3Q

Block manifold; sub-plate piping



AC120V

Block manifold; sub-plate piping

### [Mix manifold]

How to list combination contents

When selecting a combination manifold (listing 8 in **B**), list the quantity used for each function of single solenoid valves after the normal model No. display.

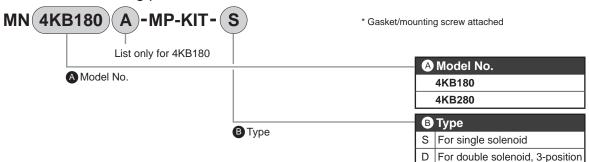
In addition, list the code for required functions (refer to table below) and the arrangement No. (numbering up to specified station No. with left side as 1) after the model No. as shown in the example.

Code	Function			
S1	2-position single			
S2	2-position double			
S3	3-position all ports closed			
S4	3-position A/B/R connection			
S5	3-position P/A/B connection			

With a mix manifold, when using 10 or more actuators of the same model No., specify using the codes in the table below.

Actuator quantity	10	11	12	13	14	15	16	17	18	19
Code	Α	В	С	D	E	F	G	Н	1	J

How to order masking plate kit



4GA/B

M4GA/B

MN4GA/B

4GA/B (master)

4GB With sensor

4GD/E

M4GD/E

MN4GD/E

4GA4/B4

MN3E MN4E

W4GA/B2

W4GB4

MN3S0 MN4S0

4SA/B0

4KA/B 4KA/B (master)

4F

4F (master) PV5G GMF

PV5 GMF

PV5S-0

3Q

MV3QR 3MA/B0

3PA/B

P/M/B

NP/NAP NVP

4G\*0EJ

4F\*0EX

4F\*0E

HMV HSV 2QV 3QV

SKH

Silencer

TotAirSys (Total Air) TotAirSys (Gamma)

# MN4KB1/MN4KB2 Series

Block manifold; sub-plate piping





M4GA/B MN4KB1

4GA/B

MN4GA/B 4GA/B

(master)

With sensor 4GD/E M4GD/E

MN4GD/E

4GA4/B4

MN3E MN4E W4GA/B2

W4GB4 MN3S0 MN4S0

4SA/B0 4KA/B 4KA/B

(master)

PV5G

GMF PV5

GMF

PV5S-0

3Q

MV3QR 3MA/B0 3PA/B

P/M/B

NP/NAP

4G\*0EJ 4F\*0EX

4F\*0E HMV HSV

2QV 3QV

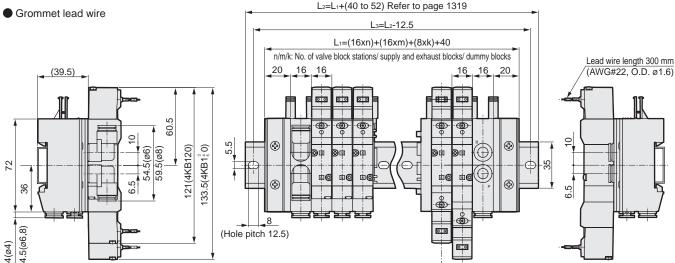
SKH

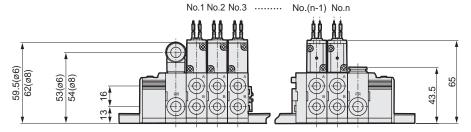
Silencer

TotAirSys (Total Air)

4F 4F (master)

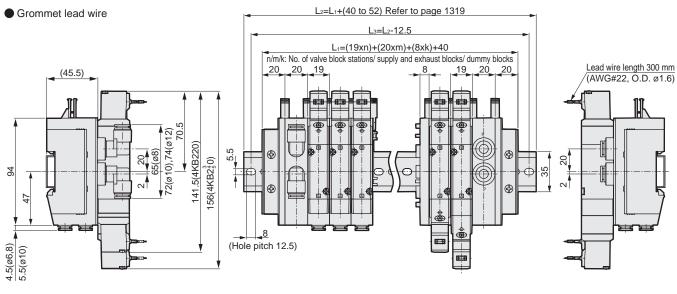
4GB

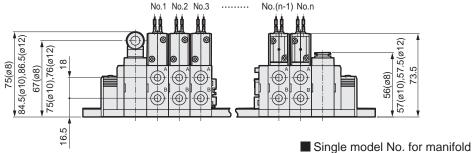




■ Single model No. for manifold N4KB1\*9A-00- option - voltage

## MN4KB2





N4KB2\*9-00-option - voltage

**TotAirSys** (Gamma)

# MN4KB1/MN4KB2 Series

Block manifold; sub-plate piping

4GA/B

M4GA/B

MN4GA/B

4GA/B

(master)

4GD/E

M4GD/E

MN4GD/E 4GA4/B4

MN3E MN4E W4GA/B2

W4GB4

MN3S0 MN4S0

4SA/B0 4KA/B

4KA/B (master)

4F

4F (master) PV5G GMF

PV5

**GMF** 

PV5S-0

3Q

MV3QR

3MA/B0

3PA/B

P/M/B NP/NAP NVP 4G\*0EJ

4F\*0EX

4F\*0E

HMV HSV 2QV 3QV

SKH

Silencer TotAirSys (Total Air)

TotAirSys (Gamma)

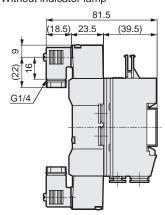
**Ending** 

4GB With sensor

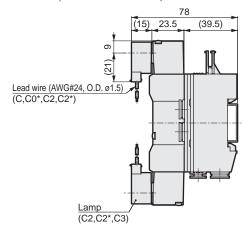
### **Dimensions**

### MN4KB1

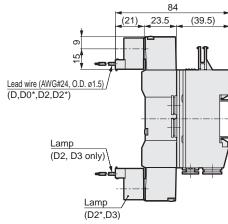
Compact terminal box: (B/L/LS) Without indicator lamp



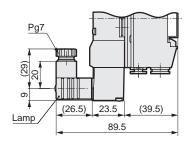
C-connector: (C/C1/C0\*/C2/C2\*/C3)



D-connector: (D/D1/D0\*/D2/D2\*/D3)



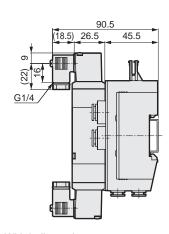
With indicator lamp



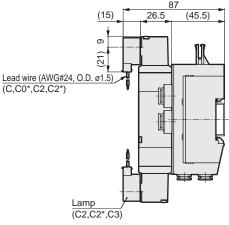
## MN4KB2

Compact terminal box: (B/L/LS)

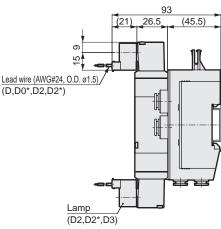
Without indicator lamp



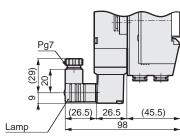
C-connector: (C/C1/C0\*/C2/C2\*/C3)

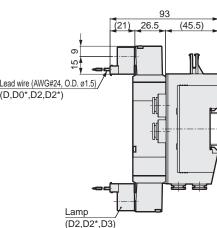


D-connector: (D/D1/D0\*/D2/D2\*/D3)



With indicator lamp





**CKD** 

1335

Block manifold: Block configuration

4GA/B

M4GA/B

MN4GA/B

4GA/B (master) 4GB With sensor

4GD/E

M4GD/E MN4GD/E

4GA4/B4 MN3E

MN4E

W4GA/B2 W4GB4

MN3S0 MN4S0 4SA/B0

4KA/B 4KA/B (master)

4F (master) PV5G GMF PV5 GMF

PV5S-0 3Q

MV3QR 3MA/B0

3PA/B P/M/B

NP/NAP NVP 4G\*0EJ

4F\*0EX

4F\*0E HMV HSV 2QV 3QV

SKH

TotAirSys (Total Air) TotAirSys (Gamma)

Ending

As units can be freely assembled, it is easy to change the number of stations, perform maintenance, etc.

### Valve block with solenoid valve

The types of solenoid valve required will be arranged on a DIN rail at the number of stations required.

#### Supply and exhaust/supply/exhaust blocks

Units can be freely arranged at the adjacent parts of each valve block. However, the supply and exhaust block is basically arranged on the right side of the valve block when the A/B ports are facing forward.

In addition the supply and exhaust/exhaust block H12 alone cannot be arranged between valve blocks.

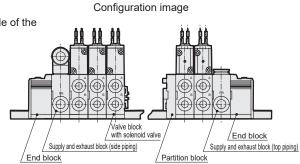
Supply/exhaust blocks can be added as necessary.

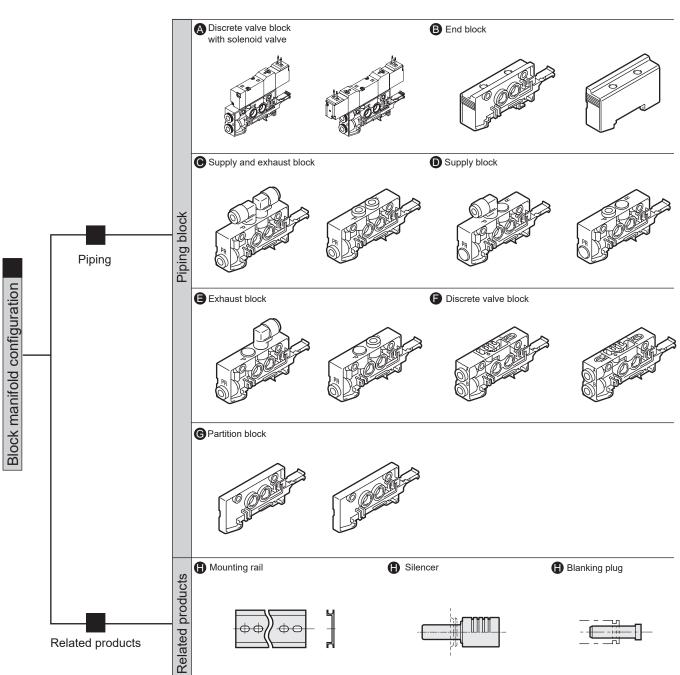
#### End block

One each must be arranged on both sides of the valve block and supply and exhaust block.

#### Mounting rail

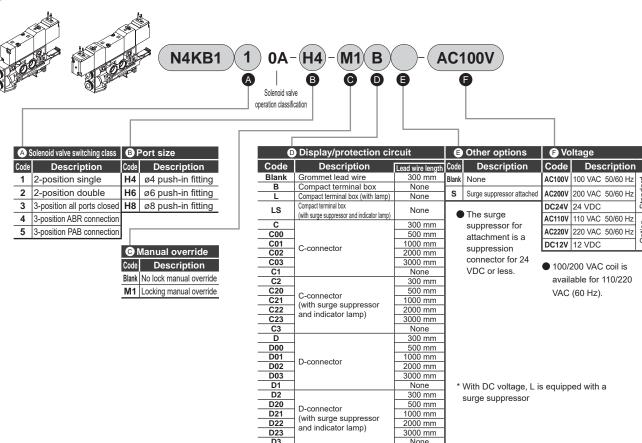
The mounting rail will require 40 to 52.5 mm space for installation.



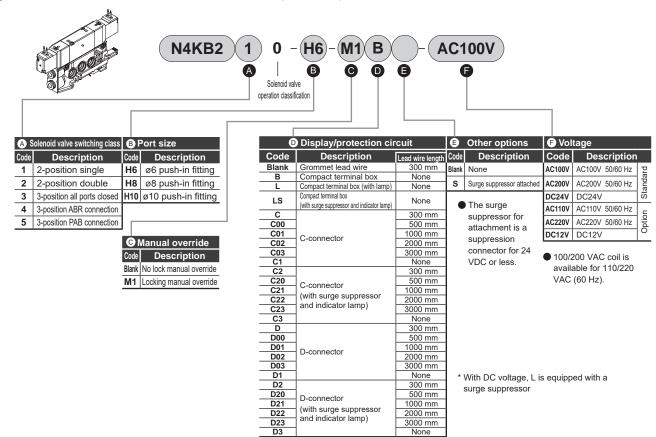


### Block manifold; piping block

A Discrete valve block with solenoid valve (N4KB1) This type is a set version of the solenoid valve 4KB1 Series.



A Discrete valve block with solenoid valve ( N4KB2 ) This type is a set version of the solenoid valve 4KB2 Series.



MN4GA/B 4GA/B (master)

4GA/B

M4GA/B

4GB With sensor

4GD/E M4GD/E

MN4GD/E

MN4GD/E

4GA4/B4 MN3E

MN4E W4GA/B2

W4GB4

MN3S0 MN4S0

4SA/B0

4KA/B

(master) 4F

4F (master) PV5G

GMF PV5 GMF

PV5S-0

3Q

MV3QR

3MA/B0 3PA/B

P/M/B

NP/NAP NVP

4G\*0EJ 4F\*0EX

4F\*0E

HMV HSV

2QV 3QV

SKH Silencer

TotAirSys (Total Air) TotAirSys (Gamma)

Block manifold; block

B End block (NE)

4GA/B M4GA/B MN4GA/B

4GA/B

(master) 4GB With sensor

4GD/E M4GD/E MN4GD/E

4GA4/B4 MN3E MN4E

W4GA/B2

W4GB4

MN3S0 MN4S0 4SA/B0 4KA/B

4KA/B (master)

4F (master)

PV5G GMF

PV5 GMF

PV5S-0

MV3QR

3MA/B0 3PA/B

P/M/B

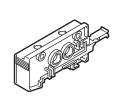
NP/NAP NVP

4G\*0EJ 4F\*0EX 4F\*0E HMV HSV

2QV 3QV SKH

3Q

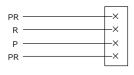
4F





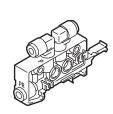
Model No.	Description
N4KB1A-NE1	End block on left side with the A/B port of the manifold facing forward

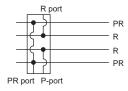




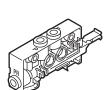
Model No.	Description
N4KB1A-NE2	End block on right side with the A/B port of the manifold facing forward

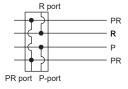
C Supply and exhaust block (NQ)





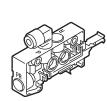
Model No.	P-port	R port	PR port
N4KB1A-NQSH8	ø8	ø8	ø8
N4KB1A-NQSH886	ø8	ø8	ø6
N4KB1A-NQSH686	ø6	ø8	ø6
N4KB1A-NQSH6	ø6	ø6	ø6

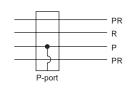




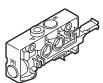
Model No.	P-port	R port	PR port
N4KB1A-NQUH8	ø8	ø8	ø8
N4KB1A-NQUH886	ø8	ø8	ø6
N4KB1A-NQUH686	ø6	ø8	ø6
N4KB1A-NQUH6	ø6	ø6	ø6

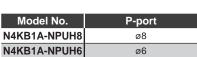
D Supply block (NP)





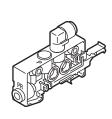
Model No.	P-port
N4KB1A-NPSH8	ø8
N4KB1A-NPSH6	ø6

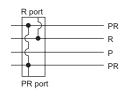




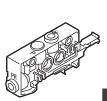
P-port

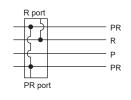
**E** Exhaust block (NR)





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





R

PR

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

TotAirSys (Total Air) TotAirSys (Gamma)

Silencer

## Block manifold; block

4GA/B

M4GA/B

MN4GA/B

4GA/B

(master 4GB With sensor 4GD/E M4GD/E MN4GD/E

4GA4/B4 MN3E MN4E

W4GA/B2 W4GB4 MN3S0 MN4S0

4SA/B0 4KA/B 4KA/B

(master)

PV5 GMF PV5S-0

3Q

MV3QR

3MA/B0 3PA/B

P/M/B NP/NAP NVP

4G\*0EJ 4F\*0EX 4F\*0E

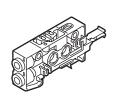
HMV HSV

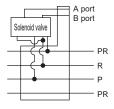
2QV 3QV

4F (master) PV5G GMF



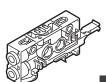
● For **N4KB110A** 

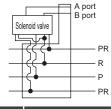




Model No.	A/B port
N4KB1A-NS1SH8	ø8
N4KB1A-NS1SH6	
N4KB1A-NS1SH4	ø4

#### ● For N4KB120A to N4KB150A

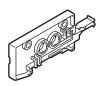


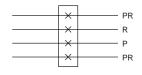


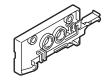
Model No.	A/B port
N4KB1A-NS2SH8	ø8
N4KB1A-NS2SH6	ø6
N4KB1A-NS2SH4	ø4

• As the NS is dedicated for each solenoid position (A), exchange the NS when changing the solenoid positions.

## G Partition block (NC)







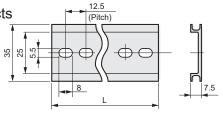
	×	PR R
	×	P PR

Model No.	Description
N4KB1A-NC1	All passages closed

Model No.	Description
N4KB1A-NC2	Exhaust passages closed

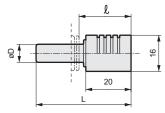
Related products

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

NU-04

Soft nylon tube

F-15 04

Urethane tube

**U-95** 04

A Compatible tube O.D. size	
04	ø4
06	ø6
08	ø8

Blanking plu	ıg	
	<del>- L</del> →	-
	· ·	-
Ø		_ \bigg\{

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

SKH Silencer

TotAirSys (Total Air) TotAirSys (Gamma)

**Ending** 

1339

Block manifold; block

**B** End block (NE)

4GA/B

M4GA/B MN4GA/B

4GA/B (master) 4GB With sensor

4GD/E M4GD/E MN4GD/E

4GA4/B4

MN3E MN4E

W4GA/B2

W4GB4 MN3S0 MN4S0 4SA/B0 4KA/B 4KA/B (master)

4F

4F (master)

PV5G GMF

PV5 GMF

PV5S-0

MV3QR

3MA/B0

3PA/B

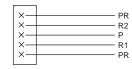
P/M/B

NP/NAP NVP

4G\*0EJ 4F\*0EX 4F\*0E HMV HSV

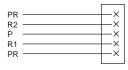
3Q





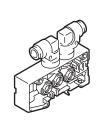
Model No.	Description
N4KB2-2NE1	End block on left side with the A/B port of the manifold facing forward

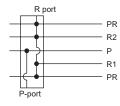




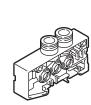
Model No.	Description
N4KB2-2NE2	End block on right side with the A/B port of the manifold facing forward

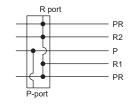
© Supply and exhaust block (NQ)





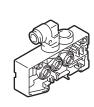
Model No.	P-port	R port
N4KB2-2NQSH12	ø12	ø12
N4KB2-2NQSH10	ø10	ø10
N4KB2-2NQSH8	ø 8	ø 8

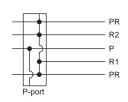




Model No.	P-port	R port
N4KB2-2NQUH12	ø12	ø12
N4KB2-2NQUH10	ø10	ø10
N4KB2-2NQUH8	ø 8	ø 8

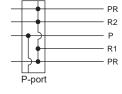
D Supply block (NP)





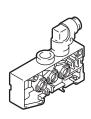
Model No.	P-port
N4KB2-2NPSH12	
N4KB2-2NPSH10	ø10
N4KB2-2NPSH8	ø 8

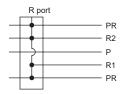




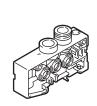
Model No.	P-port
N4KB2-2NPUH12	ø12
N4KB2-2NPUH10	ø10
N4KB2-2NPUH8	ø 8

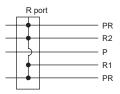
**E** Exhaust block (NR)





Model No.	R port
N4KB2-2NRSH12	ø12
N4KB2-2NRSH10	ø10
N4KB2-2NRSH8	ø 8





Model No.	R port
N4KB2-2NRUH12	ø12
N4KB2-2NRUH10	ø10
N4KB2-2NRUH8	ø 8

TotAirSys (Total Air) TotAirSys (Gamma)

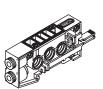
Silencer

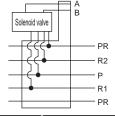
2QV 3QV SKH

## Block manifold; block



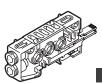
For N4KB210

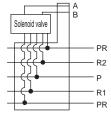




Model No.	A/B port
N4KB2-2NS1SH10	
N4KB2-2NS1SH8	
N4KB2-2NS1SH6	ø 6

#### ● N4KB220 to N4KB250



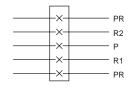


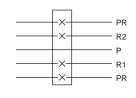
Model No.	A/B port
N4KB2-2NS2SH10	
N4KB2-2NS2SH8	
N4KB2-2NS2SH6	ø 6

● As the NS is dedicated for each solenoid position (A), exchange the NS when changing the solenoid positions.

## G Partition block (NC)





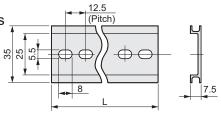


Model No.	Description			
N4KB2-2NC1	All passages closed			

Model No.	Description
N4KB2-2NC2	Exhaust passages closed

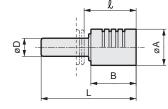
Related products

Mounting rail



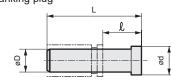
Model No.	L		
BAA 500	500		
BAA1000	1000		

Silencer



Model No.	D	L	l	В	Α
SLW-H8	ø 8	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	ø 6	29	11.5	8
GWP8-B	ø 8	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

A Compatible tube O.D. size		
06	ø 6	
08	ø 8	
10	ø10	
12	ø12	

**CKD** 

4GA/B M4GA/B

MN4GA/B 4GA/B

(master 4GB With sensor

4GD/E M4GD/E

MN4GD/E

4GA4/B4 MN3E MN4E

W4GA/B2

W4GB4 MN3S0

MN4S0 4SA/B0

4KA/B 4KA/B (master)

4F (master) PV5G GMF

PV5 GMF PV5S-0

3Q

MV3QR 3MA/B0

3PA/B

P/M/B NP/NAP NVP

4G\*0EJ 4F\*0EX

4F\*0E

HMV HSV

2QV 3QV

SKH

Silencer TotAirSys (Total Air) TotAirSys (Gamma)

Block manifold; how to disassemble/assemble

4GA/B

M4GA/B

MN4GA/B

4GA/B (master) 4GB With sensor

4GD/E

M4GD/E MN4GD/E

4GA4/B4 MN3E

MN4E W4GA/B2

W4GB4 MN3S0

MN4S0 4SA/B0

4KA/B 4KA/B (master)

4F 4F

(master) PV5G GMF P\/5 GMF

PV5S-0

3Q MV3QR

3MA/B0

3PA/B

P/M/B NP/NAP

4G\*0EJ

4F\*0EX

4F\*0E

HΜV HSV 2QV 3QV

SKH

Silencer

TotAirSys (Total Air) TotAirSys (Gamma)

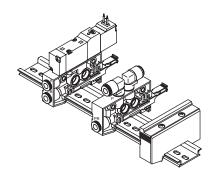
**Ending** 



How to disassemble/assemble A CAUTION: Be sure to turn power OFF and release pressure before increasing or decreasing the number of manifold stations

### Assembling the block manifold

- (1) Fix the DIN rail.
- (2) Mount the necessary number of stations of end blocks, supply and exhaust blocks, and valve blocks in order on the rail and connect between the blocks with the connecting key.
- (3) Fasten the screws on the end blocks on both sides and fix onto the rail.
- (4) Mount the solenoid valve on the valve block. (The solenoid valve is mounted on the valve block at shipment)
- (5) Perform piping of tubes and wiring to complete the task.

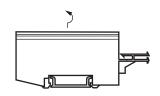


### Mounting the end block

- (1) Upon confirming that the mounting screws have been loosened, press from the top and hook the movable claws onto the rail.
- (2) Lift the block to confirm that the claws have been secured.
- (3) After mounting all of the blocks, fasten with the two screws. The appropriate tightening torque is 1.4 N·m.

### Removing the end block

- (1) Loosen the screws 6 or 7 turns to pinch and pull out the connecting key.
- (2) Shift the end block by 4 mm or more and pull in the direction of the arrow in the following drawing to remove.

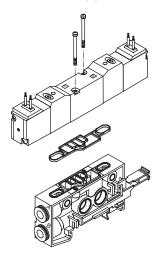


### Mounting the supply and exhaust block and valve block

- (1) Hook the fixation claws on the rail first and press down on the movable claws from the top.
- (2) Slide until there are no gaps between the blocks and push in the connecting key.

### Mounting the solenoid valve

- (1) Fit the dedicated gasket in the valve block.
- (2) Fasten the solenoid valve with 2 screws. The appropriate tightening torque is 0.6 N·m for N4KB1 and 0.8 N·m for N4KB2.



### Removing the supply and exhaust block and valve block

- (1) Remove the end block.
- (2) Pinch and pull out the connecting
- (3) Shift the blocks by 4 mm or more and then pull up on the side with the movable claws to remove.