Made to Order

Air-piloted valves H240 series

●The optimum air valve for master valves or pilot valves for all-pneumatic control.

Specifications

Item \ Basic model		For direct piping F type manifold		For sub-base For A type and B type manifolds	
		Single pilot	Double pilot	Single pilot	Double pilot
		H240-4A	**H240-4A2**	**HA240-4A**	**HA240-4A2**
Media		Air			
Operation type		Air piloted type			
Number of positions, Number of ports		2 positions, 5 ports			
Effective area〔Cv〕 mm²		16〔0.88〕		11.3〔0.627〕	
Port size	Main	1(P), 4(A), 2(B) : NPT1/4 3(R2), 5(R1) : NPT1/8		1(P), 4(A), 2(B), 3(R2), 5(R1) : NPT1/4 Piston R: NPT1/8Note 1	
	Pilot	NPT1/8			
Lubrication		Not required			
Operating pressure range MPa {kgf/cm²} [psi.]	Main	0.17～0.7 {1.7～7.1} [25～102]			
	Pilot	See the table "Minimum Pilot Pressure"			
Proof pressure MPa {kgf/cm²} [psi.]		1.05 {10.7} [152]			
Operating temperature range (atmosphere and media) °C[°F]		5～60 [41～140]			
Shock resistance m/s²{G}	Lateral direction	1373.0 {140.0}			
	Axial direction	912.0 {93.0}	264.8 {27.0}	912.0 {93.0}	264.8 {27.0}
Mounting direction		Any			
Maximum operating frequency Hz		5			
Mass g [oz.]		110 [3.88]	135 [4.76]	110 [3.88] (300 [10.58]) Note 2	135 [4.76] (325 [11.46]) Note 2

Notes: 1. Port size of sub-base and manifold.
2. Figures in parentheses ( ) are the mass with sub-base.

Minimum Pilot Pressure

MPa {kgf/cm²} [psi.]

Model \ Main pressure	0.15 {1.5} [22]※	0.3 {3.1} [44]	0.5 {5.1} [73]	0.7 {7.1} [102]
H240-4A	0.15 {1.5} [22]	0.22 {2.2} [32]	0.31 {3.2} [45]	0.4 {4.1} [58]
H240-4A2	0.06 {0.6} [9]	0.07 {0.7} [10]	0.09 {0.9} [13]	0.1 {1.0} [15]

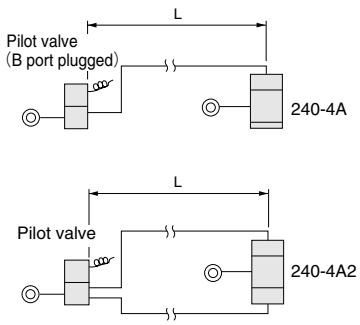
※: Reference value.

Time Required for Switching

s

Model	Operation	Pilot line length L m [ft.]					
		2 [6.6]	6 [19.7]	10 [32.8]	20 [65.6]	50 [164]	100 [328]
H240-4A	ON	0.07	0.18	0.32	0.65	2.10	5.80
	OFF	0.15	0.42	0.72	1.50	4.32	12.20
H240-4A2	ON	0.09	0.23	0.40	0.83	2.73	7.0
	OFF						

Measurement Conditions



●Pilot valve=050-4E1
(effective area 1.2mm²
〔Cv: 0.07〕)
●Tube inner diameter
=4mm [0.16in.]
●Air pressure
(both main and pilot)
=0.5MPa [73psi.]

Manifold Specifications and Port Size

Manifold model	Specifications	Port size			Applicable valve model	Remarks
H240M□F	1(P), 3(R2), 5(R1) ports manifold piping 4(A), 2(B) ports valve piping	1(P)		NPT1/4	**H240-4A H240-4A2**	———
		4(A), 2(B)				
		3(R2), 5(R1)				
H240M□A	All port manifold piping	1(P)		NPT1/4	**HA240-4A HA240-4A2**	Piston R becomes pilot R when mounting the solenoid valve.
		4(A), 2(B)				
		3(R2), 5(R1)				
		Piston R		NPT1/8		
H240M□B	All port manifold piping Bottom ported	End plate and side port	1(P)	NPT1/4	**HA240-4A HA240-4A2**	By using port isolators, the 1(P), 4(A), 2(B), 3(R2) and 5(R1) ports can be selected on either the end plate, side piping or bottom piping. Piston R becomes pilot R when mounting the solenoid valve.
			4(A), 2(B)			
			3(R2), 5(R1)			
			Piston R	NPT1/8		
		Bottom port	1(P)	NPT1/8		
			4(A), 2(B)			
			3(R2), 5(R1)			

For order codes, see p.638.

Manifold Mass

g [oz.]

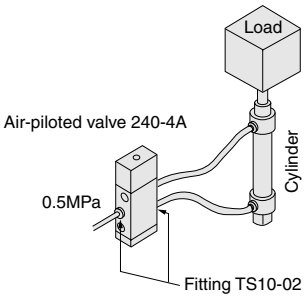
Manifold model	Mass of calculation for each unit (n=number of units)	Mounting valve				Block-off plate
		240-4A	240-4A2	A240-4A	A240-4A2	
H240M□F	(68×n)+69 [(2.40×n)+2.43]	110 [3.88]	135 [4.76]	—	—	30 [1.06]
H240M□A	(167×n)+217 [(5.89×n)+7.65]	—	—	110 [3.88]	135 [4.76]	30 [1.06]
H240M□B	(167×n)+217 [(5.89×n)+7.65]	—	—	110 [3.88]	135 [4.76]	

Calculation example: The mass of H240M10F stn.1～5 H240-4A
stn.6～10 H240-4A2, (68×10)+69+(110×5)+(135×5)=1974g [69.63oz.].

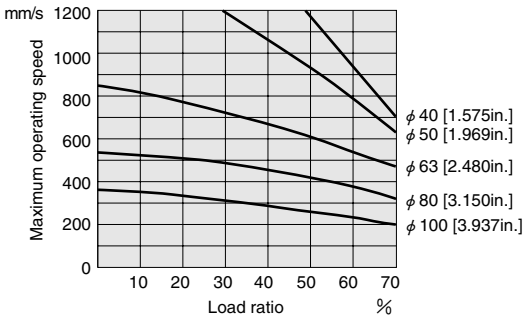
240-4A

Measurement conditions

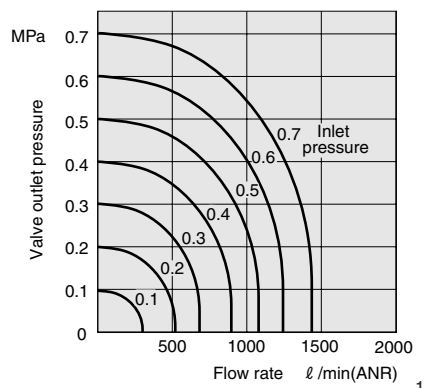
- Air pressure: 0.5MPa {5.1kgf/cm²} [73psi.]
- Piping inner diameter and length: ϕ7.5×1000mm [39in.]
- Fitting: Quick fitting TS10-02
- Load ratio= $\frac{\text{Load}}{\text{Cylinder theoretical thrust}}$ (%)
- Cylinder stroke: 300mm [11.8in.]



Maximum operating speed



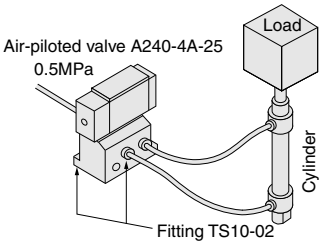
Flow rate



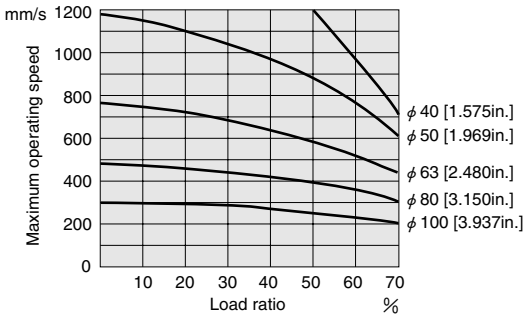
A240-4A-25

Measurement conditions

- Air pressure: 0.5MPa {5.1kgf/cm²} [73psi.]
- Piping inner diameter and length: ϕ7.5×1000mm [39in.]
- Fitting: Quick fitting TS10-02
- Load ratio= $\frac{\text{Load}}{\text{Cylinder theoretical thrust}}$ (%)
- Cylinder stroke: 300mm [11.8in.]

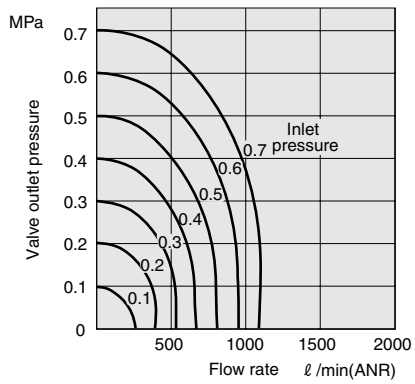


Maximum operating speed



1mm/s=0.0394in./sec.

Flow rate



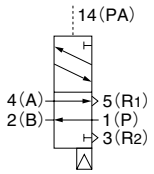
1MPa=145psi.

1 ℓ/min.=0.0353ft³/min.

5-port, 2-position

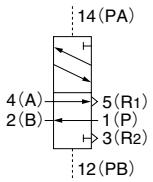
Single pilot

H240-4A

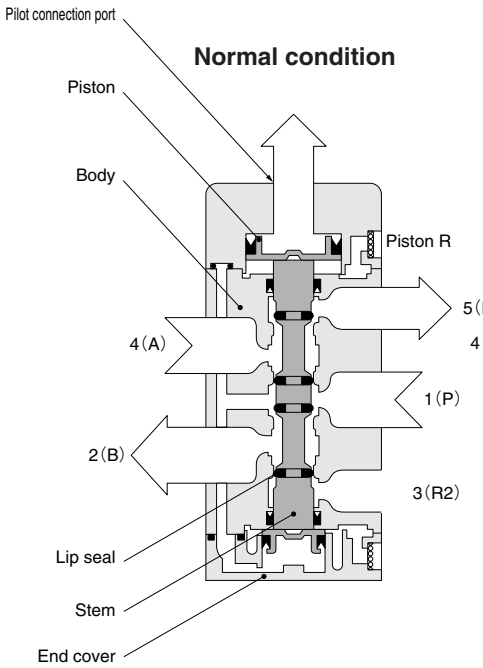


Double pilot

H240-4A2

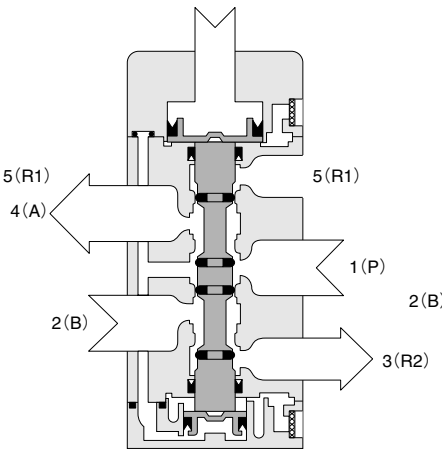


H240-4A



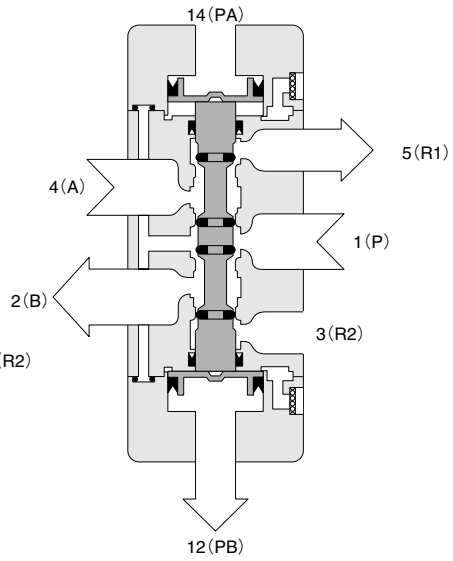
Normal condition

Actuated condition



H240-4A2

(Condition with pilot air applied to 12(PB), and then released)



Major Parts and Materials

Parts		Materials
Valve	Body	Aluminum alloy (anodized)
	Stem	
	Lip seal	Synthetic rubber
	Mounting base	Mild steel (zinc plated)
	Sub-base	Aluminum alloy (anodized)
Manifold	Body	Aluminum alloy (anodized)
	Block-off plate	Mild steel (zinc plated)
	Seal	Synthetic rubber

H240 Series Solenoid Valve, Air-piloted Valve Order Codes

Mounting base

Without mounting base

With mounting base

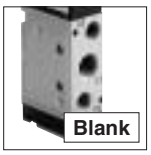
Sub-base

Side piping standard type

Side and bottom piping standard type

Speed controller

Without speed controller



With speed controller

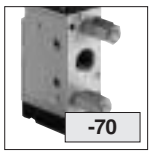
		Basic model	-21	-25 / -27	-70	-70 Note 1
Direct piping air-piloted valves (made to order)	Single pilot	H240-4A	●		●	
	Double pilot	H240-4A2	●		●	
Sub-base piping air-piloted valves (made to order)	Single pilot	HA240-4A		●		●
	Double pilot	HA240-4A2		●		●

Notes: 1. Attached to the sub-base.

Options

Mounting base

Speed controller



●Attached to the sub-base in the case of sub-base type.

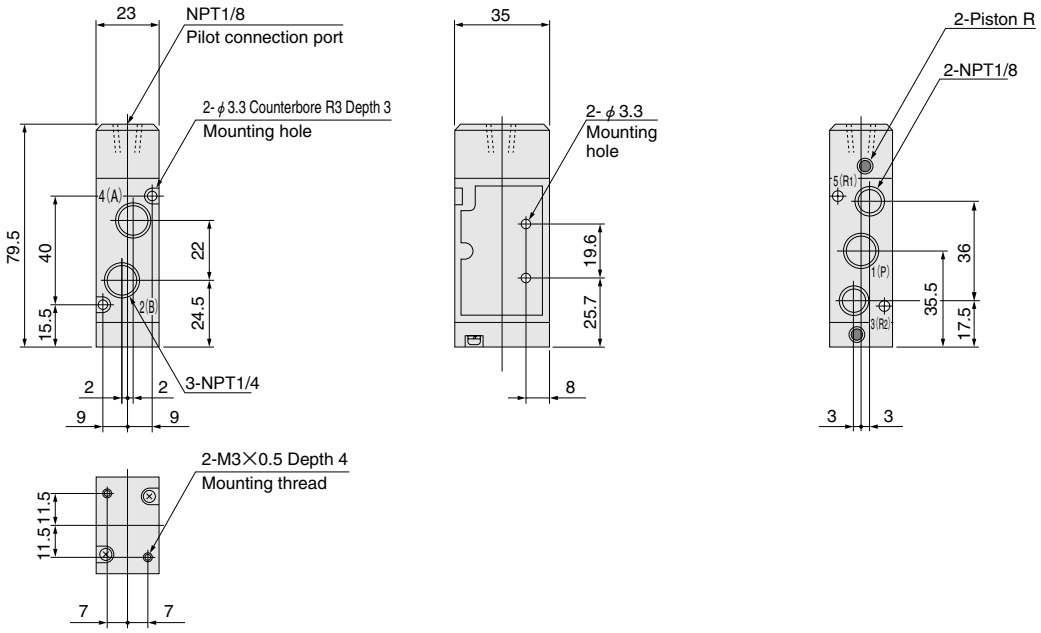
240 Series Manifold Order Codes

	Manifold model	Number of units	Station	Basic model
Manifold for mounting 5-port valves (made to order)	H240M	2 ⋮ 10	F: stn.□ ⋮ stn.□	H240-4A
			F: stn.□ ⋮ stn.□	H240-4A2
			A, B: stn.□ ⋮ stn.□	HA240-4A
			A, B: stn.□ ⋮ stn.□	HA240-4A2

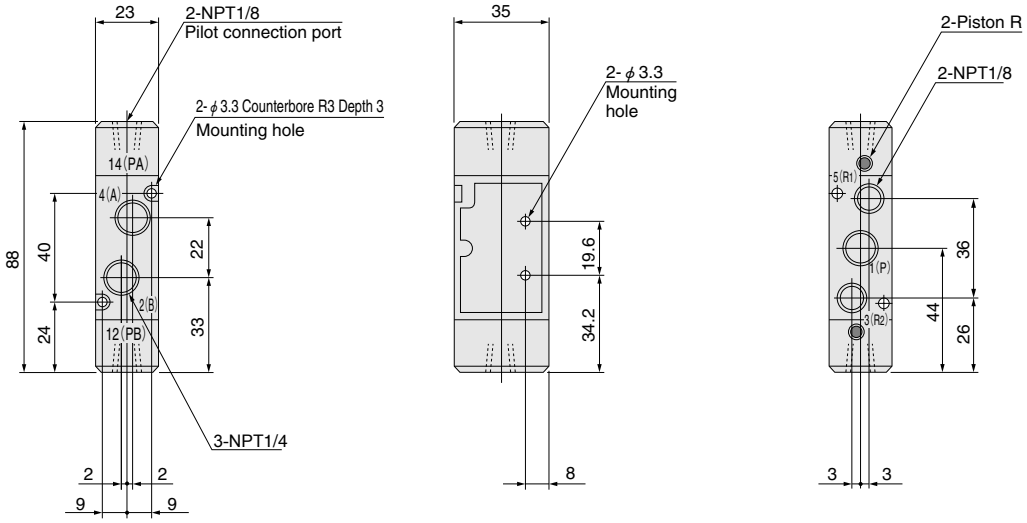
●Valve mounting location from the left-hand side when facing the 4(A), 2(B) ports.

●Specify the valve model for each station.
●Enter **-BP** when closing a station with a block-off plate without mounting a valve.

●H240-4A

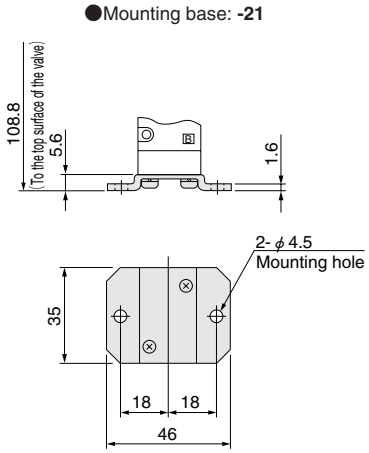


●H240-4A2

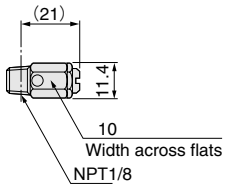


Options

●Mounting base: **-21**

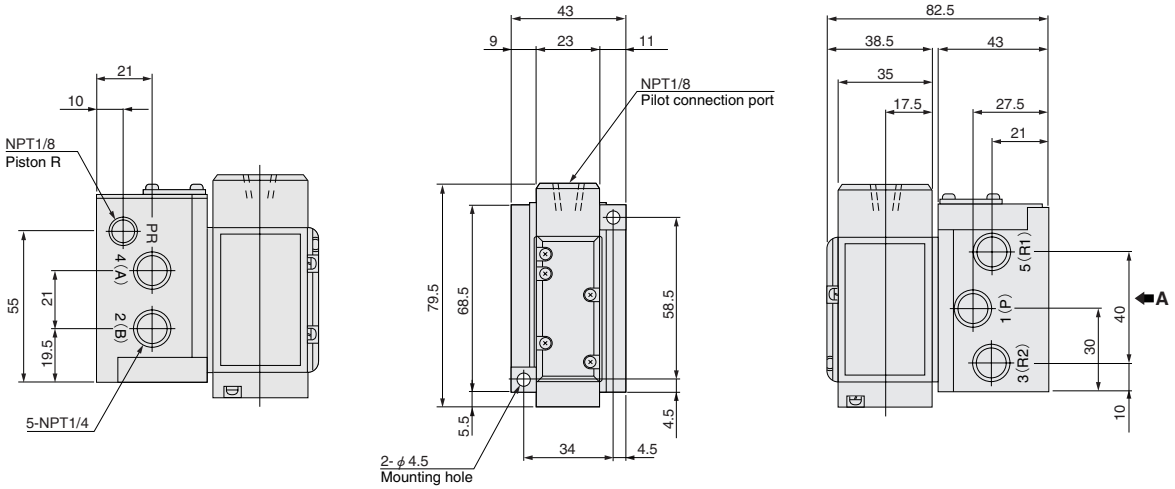


●Speed controller: **-70**

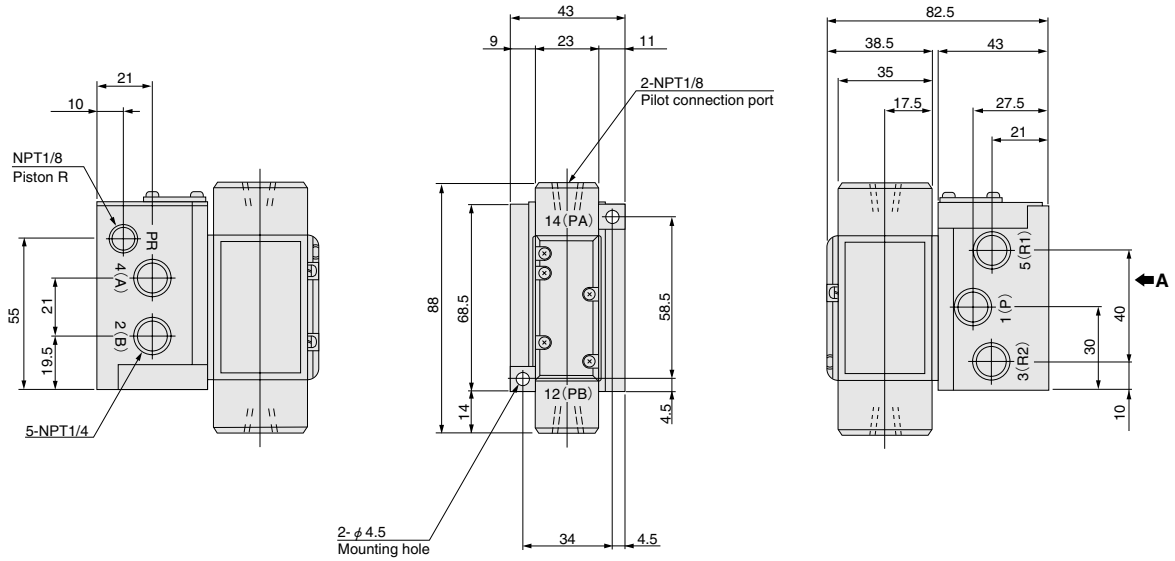


Dimensions of Air-piloted Valves (mm)

●HA240-4A-25
●HA240-4A-27

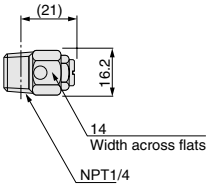


●HA240-4A2-25
●HA240-4A2-27



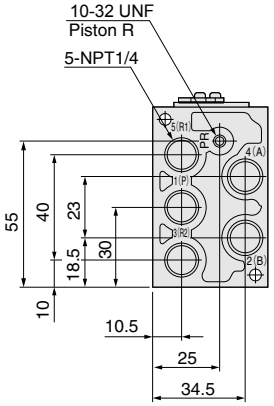
Options

●Speed controller: **-70**

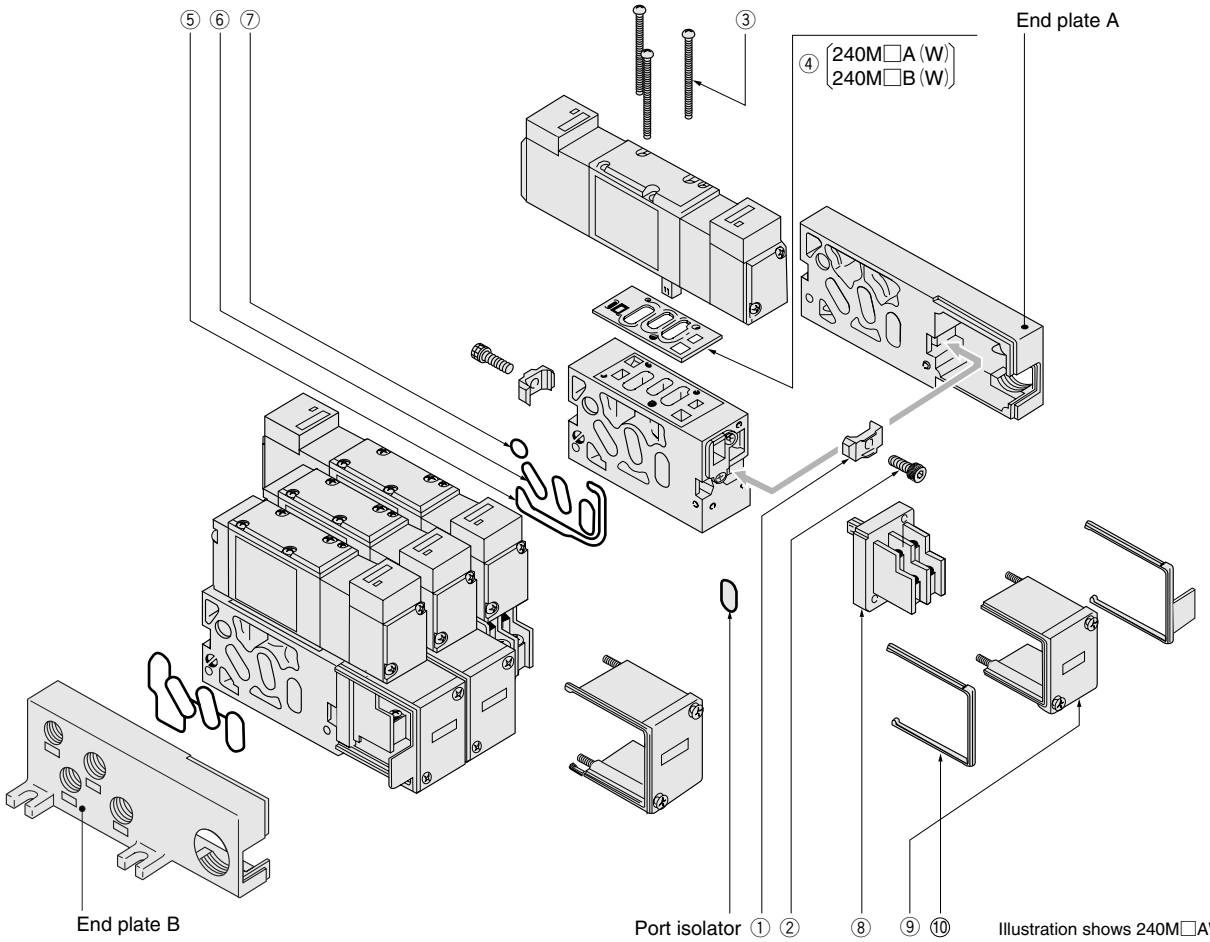


〈Viewed from **A**〉

-27: Bottom port



Manifold



Piping

The 1(P) port, 3(R2) port, 5(R1) port and PR port are on both ends of the manifold, and piping direction can be selected depending on the mounting location. At shipping, the ports on one side are plugged. Remove the plugs and then use sealing tape or another sealing agent to tighten in place.

Cautions: 1. For the 1(P) port piping, use a size that matches the manifold's piping connection port. Insufficient flow rate or pressure could result in defective valve operation or in insufficient actuator output.

2. When installing piping or mufflers to the 3(R2) and 5(R1) ports, ensure there will be minimum exhaust resistance. On rare occasions, exhaust from valves can interference with other valves and actuators.

3. When a multiple number of valves operate simultaneously on a multi-unit manifold, or when the manifold with valves is used at high frequency, supply air from the 1(P) ports on both ends, and exhaust air from the 3(R2), 5(R1) ports on both ends.

4. In bottom ported manifolds (B type and BW type), use of the bottom 1(P), 3(R2) and 5(R1) ports can prevent flow rate or pressure shortages, or exhaust interference.

Stacking unit order

If stacking part is required due to the addition or replacement of manifold units, use the following order codes to place orders.

No.	Parts	Order codes	Parts lists (quantities)
—	Stacking unit for 240M□A	CR016	A type stacking unit (1): ① joints (2), ② joint mounting bolts (2), ③ valve mounting screws (3), ④ gasket (1), ⑤ gasket (1), ⑥ O-rings (3)
—	Stacking unit for 240M□B	CR017	B type stacking unit (1): ① joints (2), ② joint mounting bolts (2), ③ valve mounting screws (3), ④ gasket (1), ⑤ gasket (1), ⑥ O-rings (3), ⑦ O-ring (1), Rc1/8 plugs (5), Rc1/4 plugs (2)

Stacking

The A Type, and B Type manifolds are the stacking type, for flexible addition or reduction of units.

●Assembly instructions

H240M□A and H240M□B

Loosening the joint mounting bolts (hexagon socket head bolts) ② on both ends and removing the joint ① lets the stations be separated.

To add units, position the O-rings ⑥ and ⑦ and gasket ⑤ in the stacking unit stations, install the joint, and tighten the joint mounting bolts.

Bottom port

Since the B Type manifolds have piping ports on the bottom of the manifold, both the bottom and side ports can be used as required.

●Piping port location

With the 1(P) port on both ends and the bottom surface, the 4(A) and 2(B) ports on the side and bottom surfaces, and the 3(R2) and 5(R1) ports on both ends and the bottom surface, piping is allowed in any location. Use the plugs provided with the manifold, with sealing tape or another sealing agent, to block off the unused ports.

Port isolator

Port isolators on the 1(P), 3(R2) and 5(R1) ports can be used to separate them from adjacent stations, to allow supply of different pressures, or to prevent exhaust interference.

Port isolators can be fitted and assembled between stations in place of the O-rings ⑥ to separate the 1(P), 3(R2) and 5(R1) ports from adjacent stations. For stations split by port isolators, plumb the 1(P), 3(R2) and 5(R1) ports on the bottom.

Block-off plate

To close up the unused stations, use a block-off plate (order code: **-BP**).