

Made to Order

Air-piloted valves H180 series

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



Specifications

Item	Basic model	For direct piping, F type manifold		For sub-base, A type, AJ type manifolds	
		H180-4A	H180-4A2	HA180-4A	HA180-4A2
Media		Air			
Operation type		Air piloted type			
Number of positions and ports		2 positions, 5 ports			
Effective area (Cv) mm ²		10.2 (0.567) ^{Note 1}			
Port size	Main	NPT1/8 ^{Note 2}			
	Pilot	NPT1/8			
Lubrication		Not required			
Operating pressure range MPa (kgf/cm ²)	Main	0.15~0.7 (1.5~7.1) [22~102]	0~0.7 (0~7.1) [0~102]	0.15~0.7 (1.5~7.1) [22~102]	0~0.7 (0~7.1) [0~102]
	Pilot	See the table "Minimum Pilot Pressure"			
Proof pressure MPa (kgf/cm ²) [psi.]		1.05 (10.7) [152]			
Operating temperature range (atmosphere and media) °C [°F]		5~50 [41~122]			
Shock resistance m/s ² (G)		1373.0 (140.0) (Axial direction 294.2 (30.0))			
Mounting direction		Any			
Maximum operating frequency Hz		5			
Mass g [oz.]		70 [2.47]	80 [2.82]	80 [2.82] (240 [8.47]) ^{Note 3}	90 [3.17] (250 [8.82]) ^{Note 3}

- Notes: 1. For details, see the effective area.
 2. For details, see the port size.
 3. Values in parentheses () are the mass with sub-plate: -25.

Effective Area mm²(Cv)

Specifications	Basic model	For direct piping, F type manifold	For sub-base, A type, AJ type manifolds
		H180-4A, H180-4A2	HA180-4A, HA180-4A2
Single valve		10.2 (0.57)	8.2 (0.46)

Port Size

Specifications	Basic model	For direct piping, F type manifold	For sub-base, A type, AJ type manifolds	Remarks
		H180-4A H180-4A2	HA180-4A HA180-4A2	
Female thread	1(P) 4(A), 2(B) 3(R2), 5(R1)	NPT1/8	—	Standard

Manifold Specifications and Port Size

Manifold model	Specifications	Port	Port size
F type	1(P), 3(R2), 5(R1) manifold piping 4(A), 2(B) valve piping	1(P)	NPT1/4
		4(A), 2(B)	NPT1/8
		3(R2), 5(R1)	NPT1/4
A type	All ports manifold piping	1(P)	NPT1/4
		4(A), 2(B)	NPT1/8
		3(R2), 5(R1)	NPT1/4

Manifold Mass

Manifold model	Mass calculation of each unit (n=number of units)	Mounting valve			
		H180-4A	H180-4A2	HA180-4A	HA180-4A2
F type	(42Xn)+40 [(1.48Xn)+1.41]	70 [2.47]	80 [2.82]	—	—
A type	(120Xn)+120 [(4.23Xn)+4.23]	—	—	120 [4.23]	170 [6.00]

Calculation example: The mass of H180M 10F stn.1~5 H180-4A, stn.6~10
 H180-4A2 becomes (42X10)+40+(110X5)+(90X5)=1310 g [46.21oz.]

Minimum Pilot Pressure

Model	Main pressure	MPa (kgf/cm ²) [psi.]			
		0.15 {1.5} [22]	0.3 {3.0} [44]	0.5 {5.1} [73]	0.7 {7.1} [102]
H180-4A		0.15 {1.5} [22]	0.25 {2.5} [36]	0.34 {3.5} [49]	0.45 {4.5} [65]
H180-4A2		0.08 {0.8} [12]	0.10 {1.0} [15]	0.12 {1.2} [17]	0.14 {1.4} [20]

Time Required for Switching

Model	Operation	Pilot line length L m [ft.]					
		2 [6.6]	6 [19.7]	10 [32.8]	20 [65.6]	50 [163.9]	100 [327.9]
H180-4A	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
H180-4A2	ON	0.09	0.23	0.40	0.83	2.73	7.00
	OFF	0.09	0.23	0.40	0.83	2.73	7.00

Model	Measurement circuit	Measurement conditions
H180-4A		<ul style="list-style-type: none"> ● Pilot valve=050-4E1 (effective area 1.2mm² [Cv: 0.067]) ● Tube inner diameter=4mm [0.16in.] ● Air pressure (both main and pilot) =0.5MPa [73psi.]
H180-4A2		

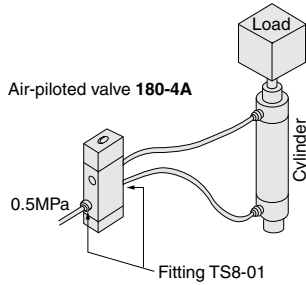
Specifications	Basic model	For direct piping, F type manifold	For sub-base, A type, AJ type manifolds	Remarks
		H180-4A H180-4A2	HA180-4A HA180-4A2	
Sub-base -25	1(P) 4(A), 2(B) 3(R2), 5(R1)	—	NPT1/4	● All ports sub-base piping
F type manifold	1(P) 4(A), 2(B) 3(R2), 5(R1)	NPT1/4	—	● 1(P), 3(R2), 5(R1) manifold, 4(A), 2(B) valve piping
		NPT1/8		
		NPT1/4		
A type manifold	1(P) 4(A), 2(B) 3(R2), 5(R1)	—	NPT1/4	● All ports manifold piping
		—	NPT1/8	
		—	NPT1/4	

Cylinder Operating Speed and Flow Rate

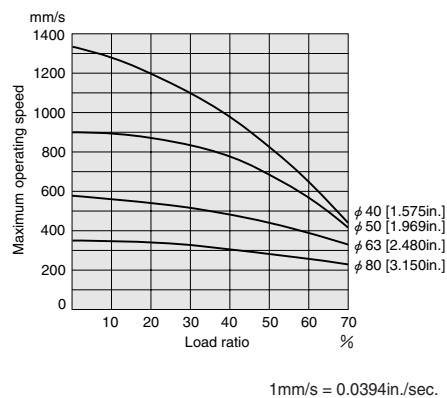
H180-4A

● Measurement conditions

- Air pressure: 0.5MPa {5.1kgf/cm²} [73psi.]
- Piping inner diameter and length: φ 6 [0.24in.]×1000mm [39in.]
- Fitting: Quick fitting TS8-01
- Load ratio = $\frac{\text{Load}}{\text{Cylinder theoretical thrust}}$ (%)
- Cylinder stroke: 150mm [5.91in.]



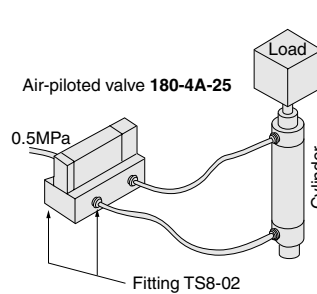
Maximum operating speed



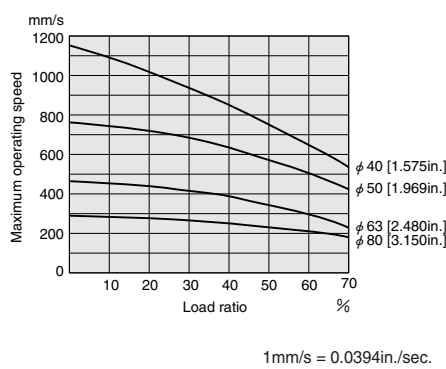
HA180-4A-25

● Measurement conditions

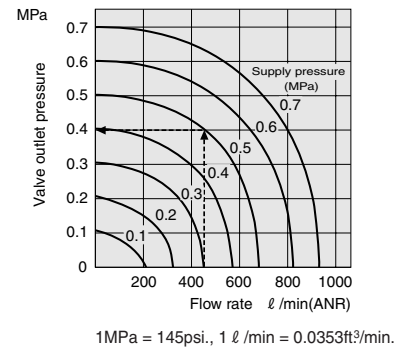
- Air pressure: 0.5MPa {5.1kgf/cm²} [73psi.]
- Piping inner diameter and length: φ 6 [0.24in.]×1000mm [39in.]
- Fitting: Quick fitting TS8-02
- Load ratio = $\frac{\text{Load}}{\text{Cylinder theoretical thrust}}$ (%)
- Cylinder stroke: 150mm [5.91in.]



Maximum operating speed



Flow rate H180 series

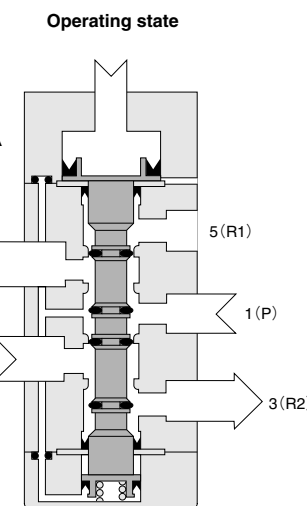
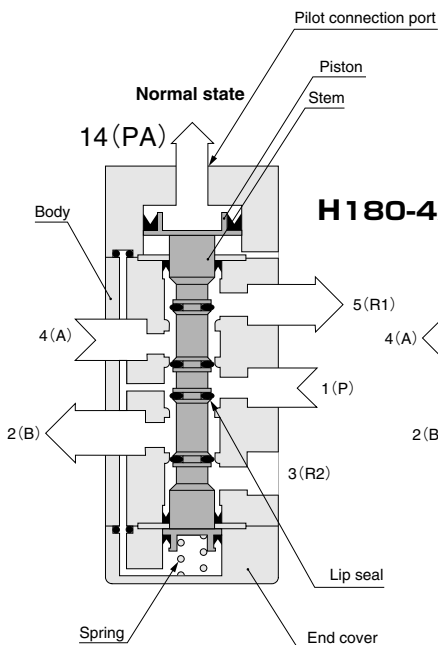


How to read the graph

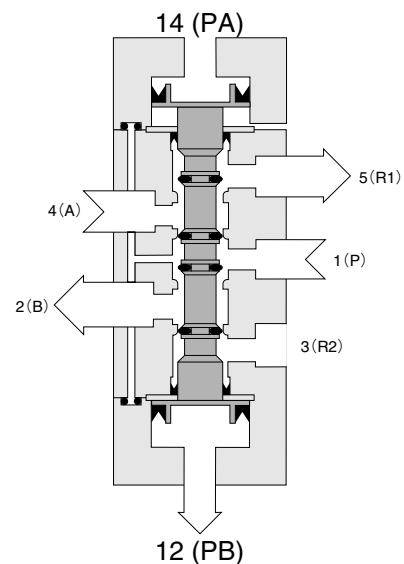
When the supply pressure is 0.5MPa [73psi.] and the flow rate is 460 l/min [16.2ft³/min.] (ANR), the valve outlet pressure becomes 0.4MPa [58psi.]

Operating Principles, and Major Parts and Materials

5-port, 2-position



H180-4A2 (Condition with pilot air applied to 12(PB), and then released)



Major Parts and Materials

Parts	Materials
Body	Aluminum alloy (anodized)
Stem	
Lip seal	Synthetic rubber
Mounting base	Mild steel (zinc plated)
Sub-base	Aluminum alloy (anodized)

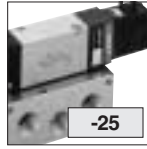
H180 Series Air-piloted Valve Order Codes

Sub-base

Without sub-base



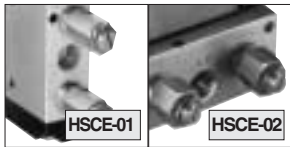
With sub-base



		Basic model	
Direct piping air-piloted valve (made to order)	5-port single pilot	H180-4A	
	5-port double pilot	H180-4A2	
Sub-base piping air-piloted valve (made to order)	5-port single pilot	HA180-4A	-25
	5-port double pilot	HA180-4A2	

Additional Parts (To be ordered separately)

Speed controller



- For direct piping
- For sub-base piping

Mounting base



- For direct piping
- For 2-, 3-port and 5-port single solenoids

Block-off plate



- M -BP
- 181—For 181M
- 180—For 180M
- F —For F type manifold
- FE—For FE type manifold
- A —For A type, AJ type manifolds

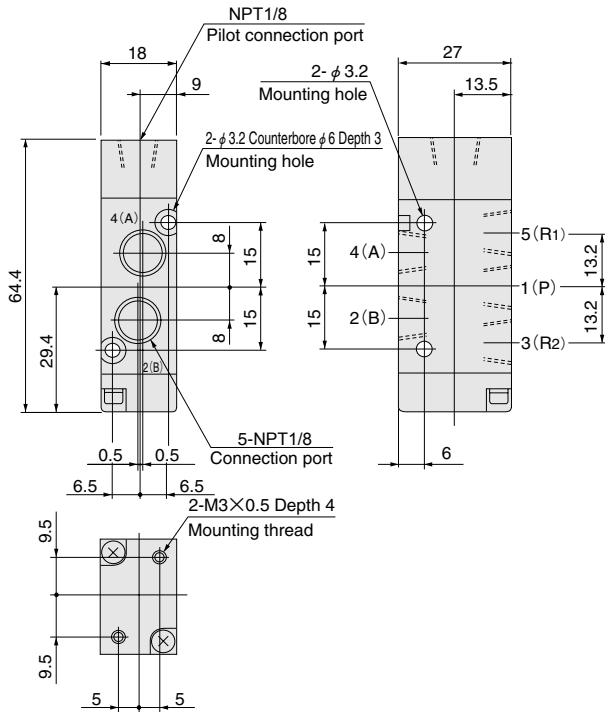
H180 Series Manifold Order Codes

Manifold model		Station	Basic model
Number of units			
Manifold for mounting 5-port (made to order)	H180M	F	stn. <input type="checkbox"/> H180-4A
			stn. <input type="checkbox"/> H180-4A2
		A	stn. <input type="checkbox"/> HA180-4A
			stn. <input type="checkbox"/> HA180-4A2

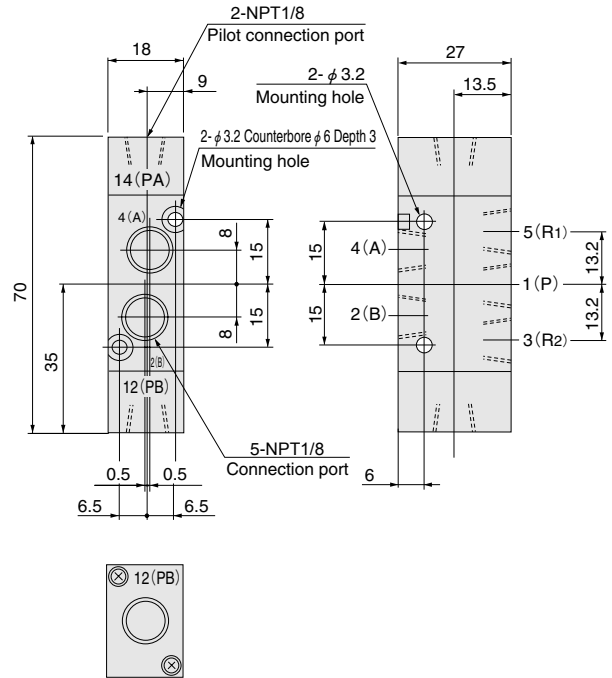
- Specify the valve model for each station.
- Enter -BP when closing a station with a block-off plate without mounting a valve.
- Valve mounting location from the left-hand side when facing the 4(A), 2(B) ports.
- Since a twin solenoid valve requires 2 stations per valve to mount, the second station (solenoid 12(S1) side) should be blank.

Dimensions of Air-piloted 5-port, 2-position Valve (mm)

H180-4A

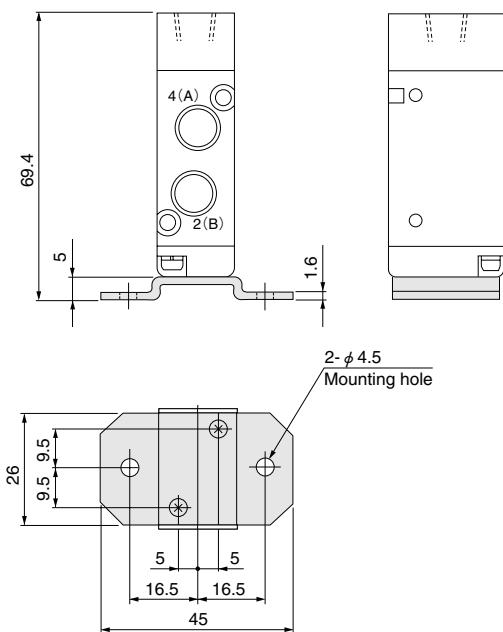


H180-4A2

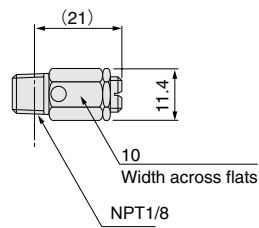


Options

● Mounting base: -21

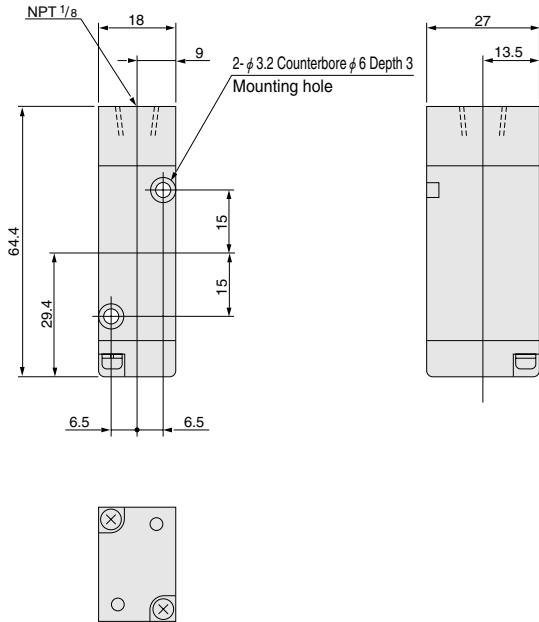


● Speed controller: -70

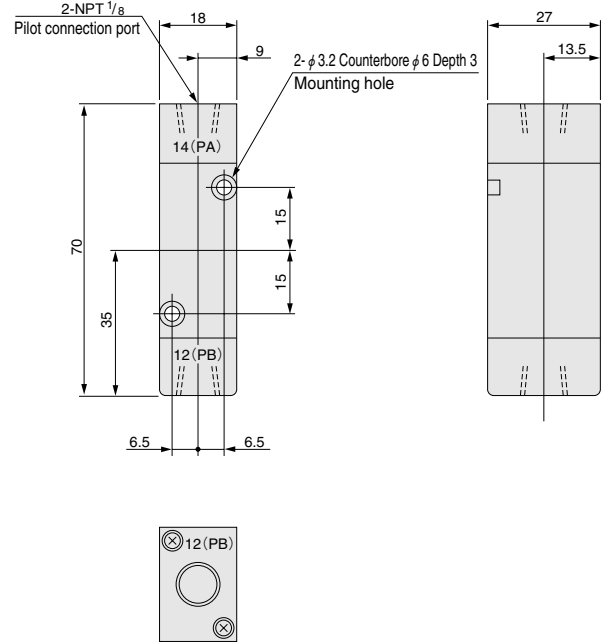


Dimensions of Air-piloted 5-port, 2-position Valve (mm)

HA180-4A



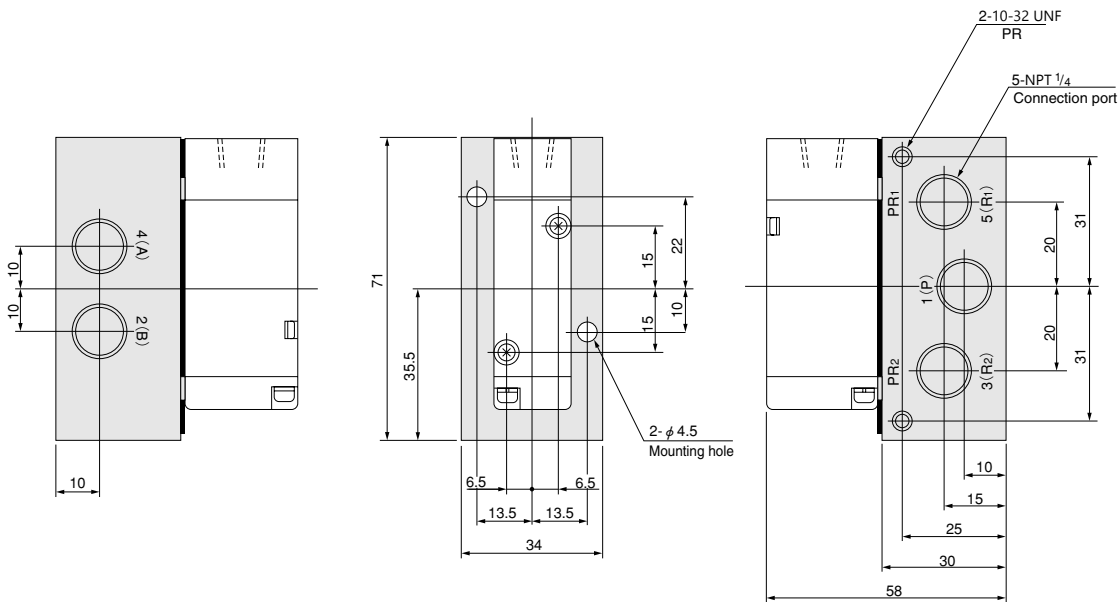
HA180-4A2



SOLENOID VALVES 180 SERIES

Options

● Sub-base: -25



● Speed controller: -70
(for sub-base only)

