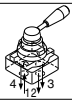
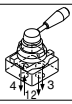
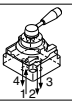
Hand Valve
VH Series

Specifications

Fluid		Air
Proof pressure		1.5 MPa
Max. operating pressure	**VH200/300/400**	1.0 MPa
	VH600	0.7 MPa
Ambient temperature and operating fluid temperature		–5 to 60°C (No freezing)
Operating angle		90°
Lubrication		Not required (Use turbine oil Class 1 ISO VG32, if lubricated.)

Model

The value in brackets refers to the port size.

Series	Port size	Number of positions	Piping direction	Model		Flow rate characteristic						Weight (kg)
				Body mount	Panel mount	1(P)→2(A)/4(B)			2(A)/4(B)→3(R)			
						C[dm³/(s·bar)]	b	Cv	C[dm³/(s·bar)]	b	Cv	
VH2	1/4	3 (Closed center)		VH200-02	VH210-02	1.5	0.25	0.38	1.5	0.25	0.38	0.42
		3 (Exhaust center)		VH201-02	VH211-02							
		2 (Position)		VH202-02	VH212-02							
		3 (Closed center)		VH240-02	VH250-02							
		3 (Exhaust center)		VH241-02	VH251-02							
		2 (Position)		VH242-02	VH252-02							
		3 (Closed center)		VH220-02	VH230-02	1.1	0.2	0.28	1.1	0.2	0.28	
		3 (Exhaust center)		VH221-02	VH231-02							
		2 (Position)		VH222-02	VH232-02							
VH3	1/4, 3/8	3 (Closed center)		VH300-02/03	VH310-02/03	5.4(1/4) 6.4(3/8)	0.25	1.25(1/4) 1.5(3/8)	5.4(1/4) 6.4(3/8)	0.25	1.25(1/4) 1.5(3/8)	0.71
		3 (Exhaust center)		VH301-02/03	VH311-02/03							
		2 (Position)		VH302-02/03	VH312-02/03							
		3 (Closed center)		VH320-02/03	VH330-02/03	4.5(1/4) 5.3(3/8)	0.2	1.1(1/4) 1.3(3/8)	4.5(1/4) 5.3(3/8)	0.2	1.1(1/4) 1.3(3/8)	
		3 (Exhaust center)		VH321-02/03	VH331-02/03							
		2 (Position)		VH322-02/03	VH332-02/03							
VH4	1/4 to 3/4	3 (Closed center)		VH400-02 to 06	VH410-02 to 06	14.3(1/4) 15.6(3/8) 17.5(1/2) 18.4(3/4)	0.25	3.4(1/4) 3.8(3/8) 4.3(1/2) 4.5(3/4)	14.3(1/4) 15.6(3/8) 17.5(1/2) 18.4(3/4)	0.25	3.4(1/4) 3.8(3/8) 4.3(1/2) 4.5(3/4)	1.28
		3 (Exhaust center)		VH401-02 to 06	VH411-02 to 06							
		2 (Position)		VH402-02 to 06	VH412-02 to 06							
		3 (Closed center)		VH420-02 to 06	VH430-02 to 06	11.9(1/4) 13.0(3/8) 14.6(1/2) 15.4(3/4)	0.2	2.9(1/4) 3.1(3/8) 3.5(1/2) 3.7(3/4)	11.9(1/4) 13.0(3/8) 14.6(1/2) 15.4(3/4)	0.2	2.9(1/4) 3.1(3/8) 3.5(1/2) 3.7(3/4)	
		3 (Exhaust center)		VH421-02 to 06	VH431-02 to 06							
		2 (Position)		VH422-02 to 06	VH432-02 to 06							
VH6	3/4, 1	3 (Closed center)		VH600-06/10	—	37(3/4) 38.8(1)	0.25	10.2(3/4) 10.5(1)	37(3/4) 38.8(1)	0.25	10.2(3/4) 10.5(1)	9.7
		3 (Exhaust center)		VH601-06/10								
		2 (Position)		VH602-06/10								

How to Order

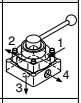
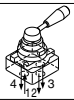
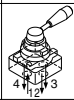
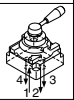
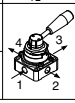
VH 2 4 1 – □ 02 – □ – □

Hand valve

Body size (Base size)

2	1/4 base
3	3/8 base
4	1/2 base
6	1 base

Piping/Mounting

Symbol	Mounting method	Note) Piping VH2	VH3	VH4	VH6
0	Body				
1	Panel mount				
2	Body				—
3	Panel mount				
4	Body		—	—	—
5	Panel mount				

Note) For VH600, 3(R) port is located only on the bottom.

Made to Order

Nil	Standard
X116	Handle (Red)

Suffix symbol

Symbol	Description	Body size VH2	VH3	VH4	VH6
Nil	Standard	●	●	●	●
L	Long handle	—	●	●	—
R	Handle position 180° change	●	●	●	●

∗ When specifying more than one option, indicate symbols alphabetically.
∗ Note that 1(P) port of VH600 is located on handle side as standard.

Port size (Nominal size)

Symbol	Port size (Nominal size)	Body size VH2	VH3	VH4	VH6
02	1/4	●	●	●	—
03	3/8	—	●	●	—
04	1/2	—	—	●	—
06	3/4	—	—	●	●
10	1	—	—	—	●

Thread type

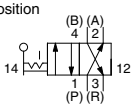
Nil	Rc
N	NPT
F	G

Function

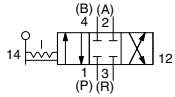
0	3 position closed center
1	3 position exhaust center
2	2 position

Symbol

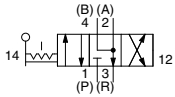
2 position



Closed center

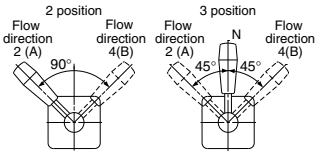


Exhaust center



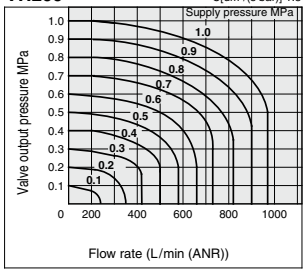
Handle Operation Angle and Air Flow Direction

(Refer to the figures of piping direction to the right.)

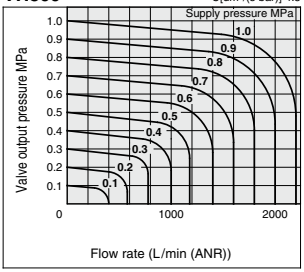


Flow Rate Characteristics

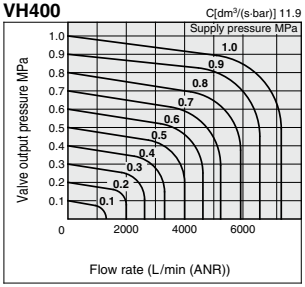
VH200



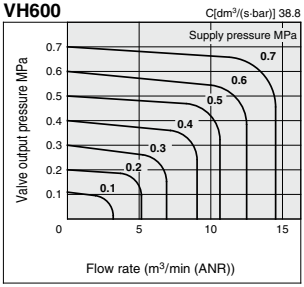
VH300



VH400

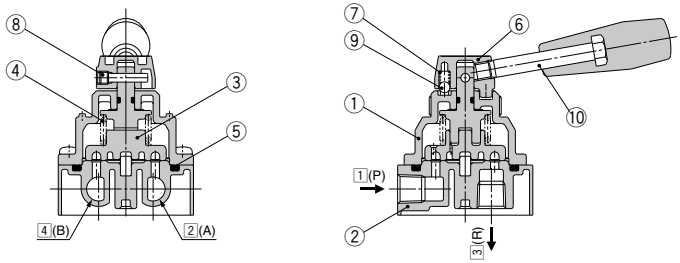


VH600

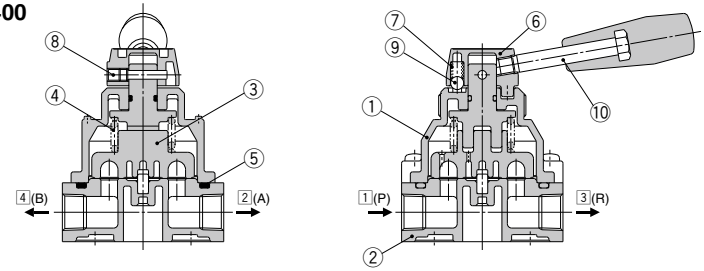


Construction

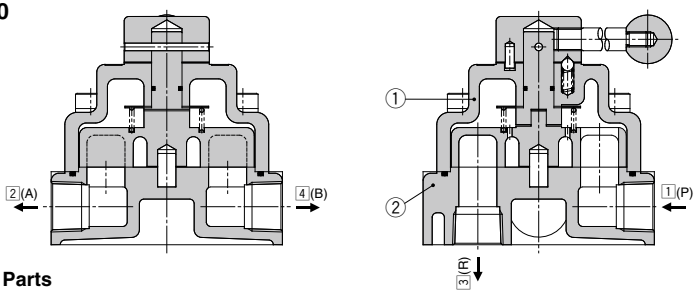
VH200



VH300/400



VH600



Component Parts

No.	Description	Material	
		VH200/300/400	**VH600**
1	**Cover**	Zinc die-casted	Cast iron
2	**Body**	Aluminium die-casted	Cast iron

Replacement Parts

Description	No.	Component parts	Material	Part no.		
				VH200	**VH300**	**VH400**
Maintenance and repair kit *	**3**	**Slide ring**	Resin	KT-VH2□□-N	KT-VH3□□-N	KT-VH4□□-N
	4	**Slide ring spring**	Piano wire			
	5	**O-ring**	NBR			
Handle head assembly *	**6**	**Handle head**	Zinc alloy	24403A	24413A	24413A
	7	**Spring**	Piano wire			
	8	**Pin**	Structural steel			
	9	**Steel ball**	SUJ			
Handle head assembly *	**6**	**Handle head**	Zinc alloy	244036A	244125A	244125A
	7	**Spring**	Piano wire			
	8	**Pin**	Structural steel			
	9	**Steel ball**	SUJ			
	10	**Handle**	—			
Handle	**10**	**Standard**	—	244032	244032	244032
		Long type		—	244127	244223
		Red		244035	244035	244035

Note) Replacement parts for the VH600 series are not available.
* Including grease.

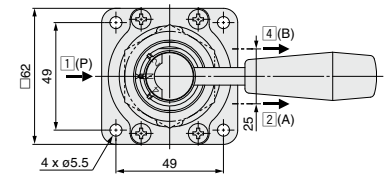
Part No. of Lock Nut for Panel Mount

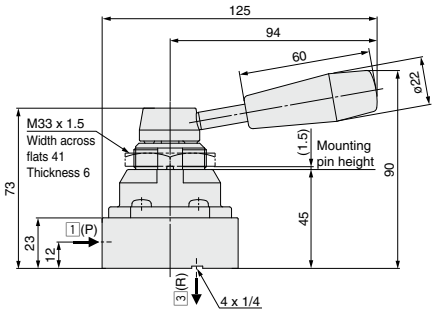
Series	Part no.
VH200	244010
VH300	24418
VH400	240258

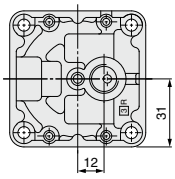
Note) Not applicable to the VH600 series.

Dimensions

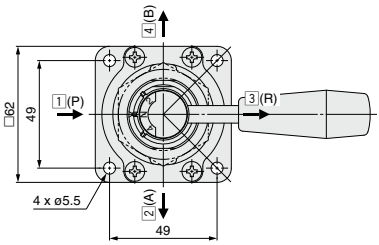
VH20□/21□-02

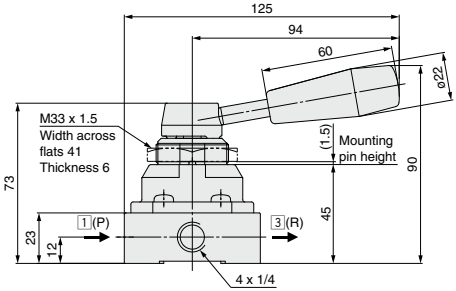




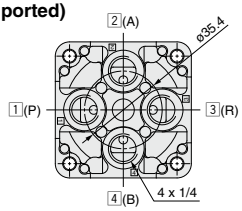


VH24□/25□-02

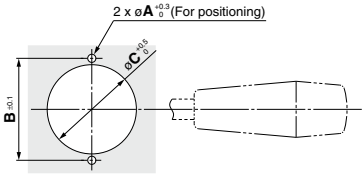




VH22□/23□-02
(Bottom ported)



Panel cut dimension



Max. panel thickness D

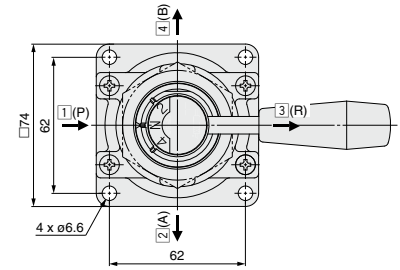
(mm)

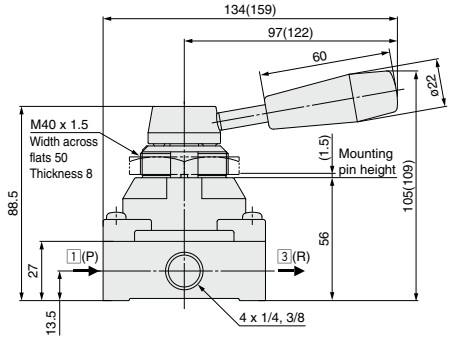
	A	B	C	D
VH200	3.2	40	35	3.5
VH300	3.2	51	41	6
VH400	3.2	64	51	8

Dimensions

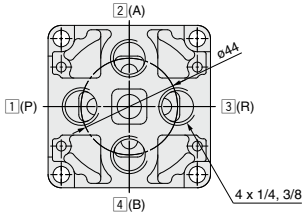
( ): Long handle type

VH30□/31□-02 to 03





VH32□/33□-02 to 03
(Bottom ported)

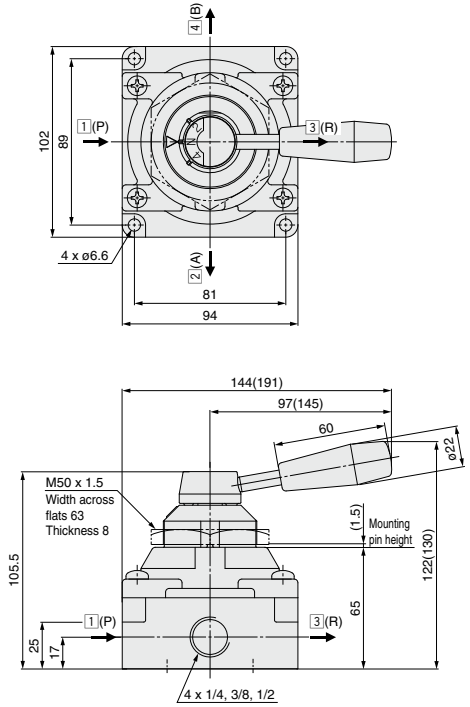


Refer to page 1699 for the panel cut dimension.

Dimensions

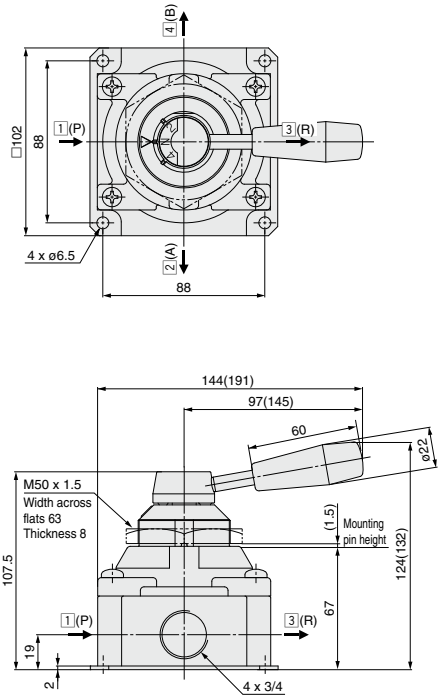
VH40□/41□-02 to 04

( ): Long handle type



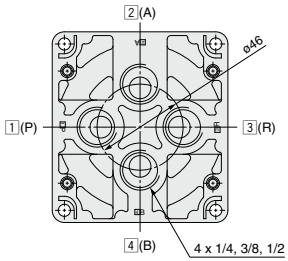
VH40□/41□-06

( ): Long handle type



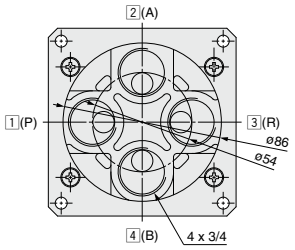
VH42□/43□-02 to 04

(Bottom ported)



VH42□/43□-06

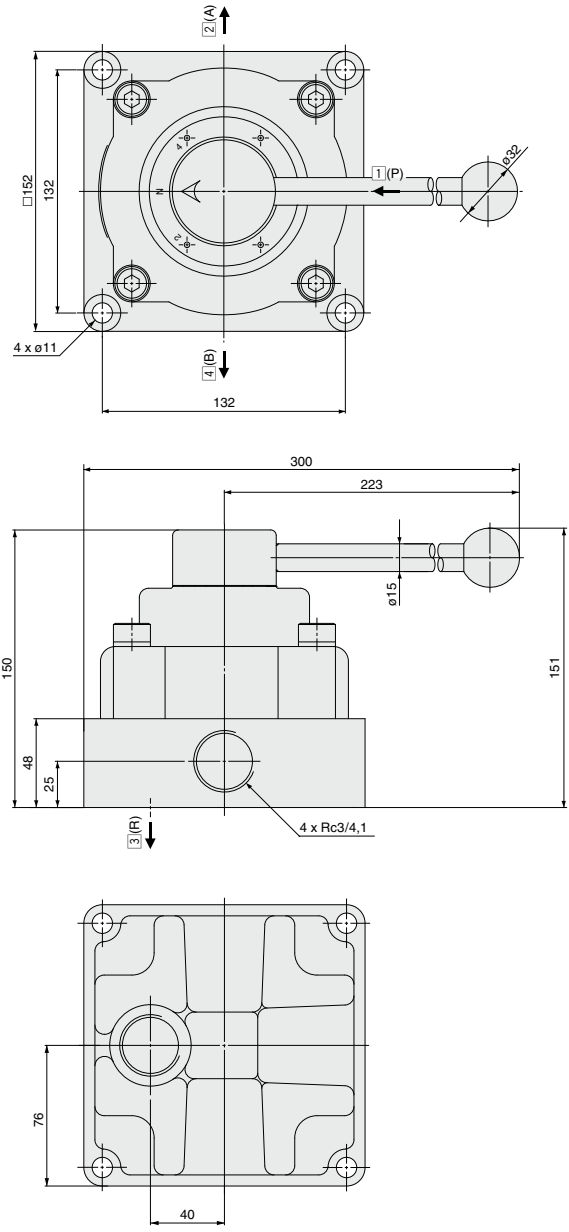
(Bottom ported)



Refer to page 1699 for the panel cut dimension.

Dimensions: Body Mount

VH600-06/10



VH Series
Specific Product Precautions

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 3 to 9 for 3/4/5 Port Solenoid Valve Precautions.

Design

⚠Warning

1. Not suitable for use as a selector valve or a divider valve.
The valve can malfunction due to air leakage.

2. Not suitable for negative pressure.
The valve can malfunction due to air leakage.

3. Do not supply air pressure from other ports than 1(P) port.
Air leakage may occur when the pressure is supplied from other ports.

Selection

⚠Warning

1. Intermediate stop
When stopping the cylinder piston in the middle using the 3 position closed center valve, it is not possible to stop it correctly and precisely as the hydraulic equipment due to the air compressibility. Do not use this valve because it has slight air leakage and can not hold a stopping position. When it is necessary to hold a stopping position, select an equipment to prevent displacement and design the circuit.

⚠Caution

1. Use in low temperature environments
The valve can be used at a temperature down to –5°C. Take appropriate measures to avoid freezing of drainage, moisture, etc.

2. Operation method
The valve must be switched to each position instantly and securely. Stopping the handle halfway between the extreme positions may cause malfunction.

3. Switch the valve by hand
If a hammer or other tools are used, or it is operated mechanically through the use of a cylinder or the like, damage could result.

Piping

⚠Caution

1. Ensure connection so that air is supplied to the port "1(P)" port.
Air leakage may occur when the pressure is supplied from other ports.

Environment

⚠Warning

1. When the valve is exposed to a large amount of dust, install a silencer into the port "3(R)". When dust enters the valve from the port "3(R)", it may cause air leakage.

Contact our sales office for delivery dates and prices as this is a special model.

Specialized Product P.G. Point to Group information

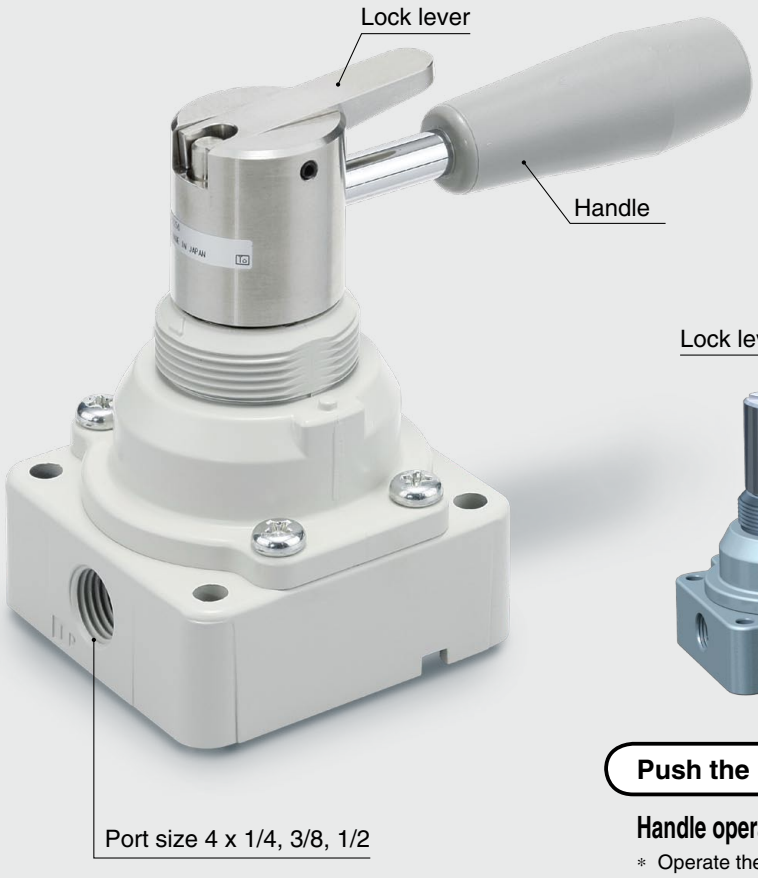
Hand Valve with Lock Mechanism

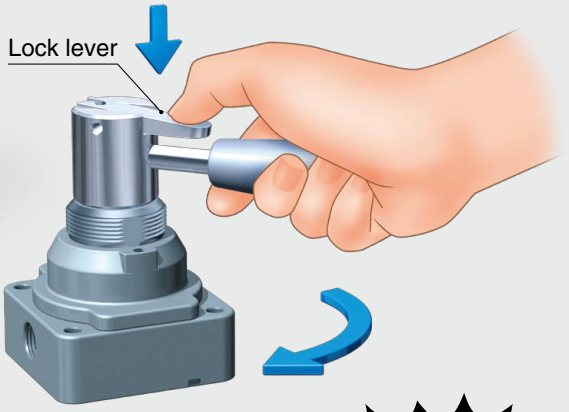
VH2□□/3□□/4□□-□-X256

Features

Provided with handle lock mechanism.

Hand valve has a structure in which the handle does not move without pushing the lock lever. This prevents change-over due to accidental operation.





Push the lock lever and... **Unlocked**

Handle operation becomes possible!

* Operate the handle with the lock lever pushed.

Specifications

The flow rate characteristics are the same as the standard product. Refer to the **Web Catalog**.

Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure	1.0 MPa
Ambient temperature and operating fluid temperature	–5 to 60°C (No freezing)
Operating angle	90°

⚠ Caution To ensure the safest possible operation of this product, please be sure to thoroughly read the "Safety Instructions" in our "Best Pneumatics" catalog before use.

SMC Corporation 4-14-1, SOTO-KANDA, CHIYODA-KU, TOKYO 101-0021, JAPAN **URL: http://www.smcworld.com**

SP163X-005E
P: UX

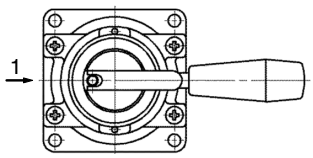
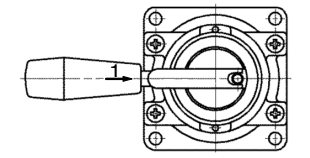
How to Order

VH 2 0 1 – □ 02 – □ – X256

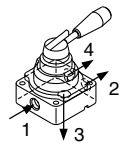
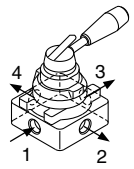
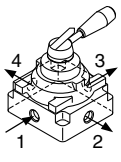
Body size

2	1/4 base
3	3/8 base
4	1/2 base

Handle position

Nil	
R	

Piping/Mounting

Symbol	Mounting method	Piping		
		VH2	VH3	VH4
0	Body			
1	Panel mount			

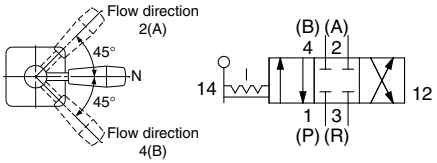
∗ For VH2□□, 3(R) port is located on the bottom.

Port size

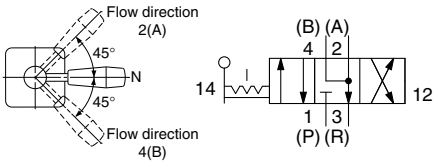
Symbol	Port size	Body size		
		VH2	VH3	VH4
02	1/4	●	●	●
03	3/8	—	●	●
04	1/2	—	—	●

Switching method

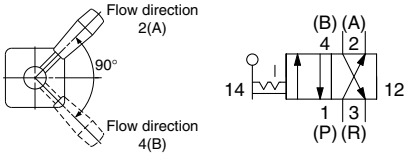
0 **3-position closed center**



1 **3-position exhaust center**



2 **2-position**



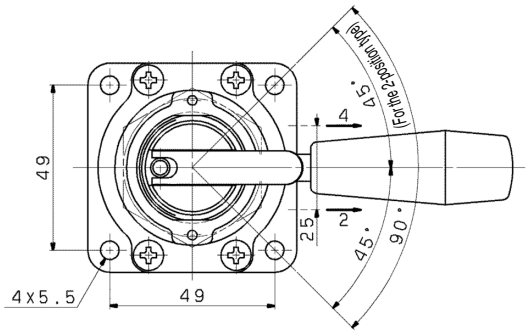
Thread type

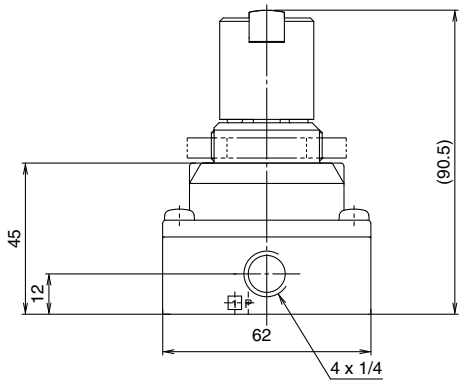
Nil	Rc
N	NPT
F	G

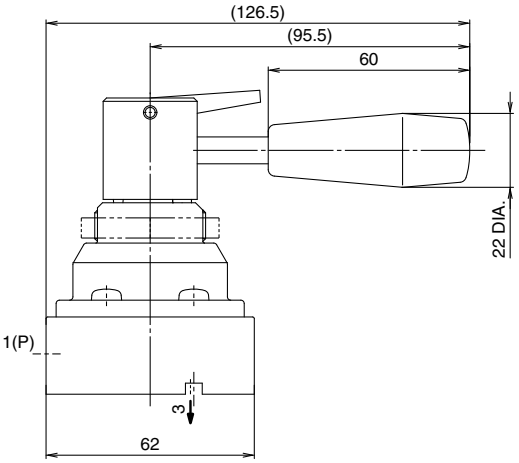
Dimensions

[mm]

VH2□□-02







VH3□□-02 to 03