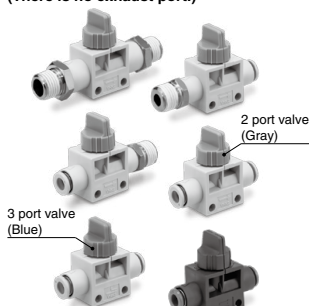


Finger Valve VHK Series

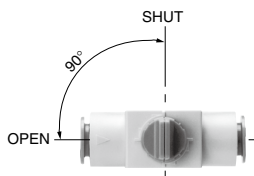
RoHS

Large effective area: 2.0 to 17.5 mm²
 Light operating force
 Poppet valve construction seldom suffers seal deflection.
 The series begins with the min. tubing O.D. of $\phi 4$.
 Selection from four types in accordance with the piping specifications
 The 3 port valve discharges residual pressure from 2(A) with the handle set at SHUT.
 (There is no exhaust port.)

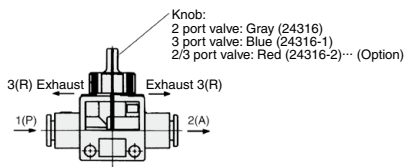


Flame resistant type

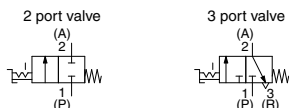
The valve direction clearly indicates whether the valve is open or closed. (SHUT-OPEN: Counterclockwise)



2 port valves and 3 port valves can be distinguished by the color of their knobs.



Symbol



Specifications

Valve	2/3 port valves
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure ⁽¹⁾	1.0 MPa
Operating vacuum pressure *	-100 kPa
Ambient temperature and operating fluid temperature	0 to 60°C
Applicable tubing material ⁽²⁾	Nylon, Soft nylon, Polyurethane
Accessory (Option)	Bracket

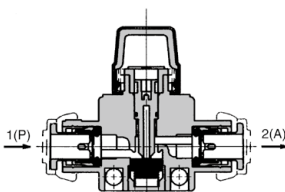
Note 1) Please note that when the valve is used at micro pressures of 0.1 MPa or less, valve leakage may be more than the standard value (5 cm³/min).

Note 2) Use caution about the maximum operating pressure when soft nylon or polyurethane tubing is used. (Refer to Best Pneumatics No. 7 for details.)

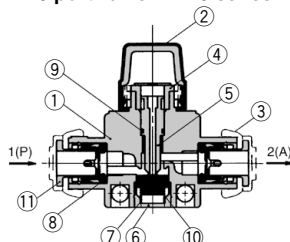
* Use VHK2 (2 port valve) for vacuum application.

Construction

2 port valve: VHK2 series



3 port valve: VHK3 series



Component Parts

No.	Description	Material	Note
1	Body	Standard type: PBT Flame resistant type: Flame resistant PBT (UL standard V-0)	
2	Knob	Standard type: POM Flame resistant type: Flame resistant PBT (UL standard V-0)	
3	Cover	Flame resistant CR (UL standard V-0)	Applicable to the flame-resistant cover only.
4	Cam ring	POM	
5	Stem	POM	
6	Spring guide	Brass	
7	Spring	Electroless nickel plated	
8	Seal	Stainless steel	
9	O-ring	NBR	
10	Valve	NBR	
11	Cassette	Standard type: POM Flame resistant type: Flame resistant PBT (UL standard V-0)	

Replacement Parts

Description	Model	
	• One-touch fitting Applicable tubing O.D. $\phi 8$ or less	• One-touch fitting Applicable tubing O.D. $\phi 10$ or more • 1(P)-Male thread • 2(A)-Male thread Port size R3/8 or more
Knob	Part no.	
	Standard type	Gray: 24316 Blue: 24316-1 Red: 24316-2
	Flame resistant type	Gray: 24316-3 Blue: 24316-4 Red: 24316-5
	Bracket assembly ^{Note 2)}	
	VHK-B1A ^{Note 1)}	VHK-B2A ^{Note 1)}

Note 1) For details on selection of each bracket assembly part no., refer to the tables on page 1690.

Note 2) The bracket, bolts, nuts, and washers are supplied with the bracket assembly.

How to Order

Standard type VHK **2** — **02S** — **02S** — — —

Flame resistant type VHK **2** **R** — **04F** — **04F** — — —

Valve model

2	2 port valve
3	3 port valve

Flame resistant type

1(P) port size

04F	ø4
06F	ø6
08F	ø8
10F	ø10
12F	ø12
M5	M5 x 0.8
01S	R 1/8
02S	R 1/4
03S	R 3/8
04S	R 1/2

2(A) port size

04F	ø4
06F	ø6
08F	ø8
10F	ø10
12F	ø12
M5	M5 x 0.8
01S	R 1/8
02S	R 1/4
03S	R 3/8
04S	R 1/2

Made to Order
Refer to page 1694 for details

Flame resistant cover

Nil	No
C	With cover (For One-touch fitting only)

Bracket

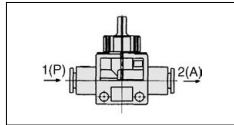
Nil	None
L	With L-bracket

* Bracket and screws are attached.

Knob color

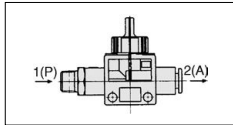
Nil (Standard)	2 port valve	Gray
R (Option)	3 port valve	Blue
	3 port valve	Red

Standard Type



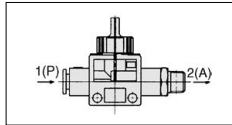
1(P): One-touch fitting
2(A): One-touch fitting

		2(A) Applicable tubing O.D. (mm)					
1(P)	Applicable tubing O.D. (mm)	ø4	ø6	ø8	ø10	ø12	
		ø4	•				
	ø6	•	•				
	ø8			•			
	ø10				•		
	ø12					•	•



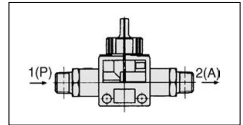
1(P): Male thread
2(A): One-touch fitting

		2(A) Applicable tubing O.D. (mm)					
1(P)	Port size R	ø4	ø6	ø8	ø10	ø12	
		M5	•	•			
	1/8	•	•	•			
	1/4			•	•		
	3/8			•	•	•	
	1/2				•	•	•



1(P): One-touch fitting
2(A): Male thread

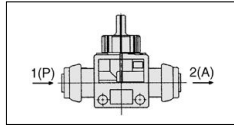
		2(A) Port size R					
1(P)	Applicable tubing O.D. (mm)	M5	1/8	1/4	3/8	1/2	
		ø4	•	•	•	•	
	ø6	•	•	•	•	•	
	ø8			•	•	•	
	ø10				•	•	•
	ø12				•	•	•



1(P): Male thread
2(A): Male thread

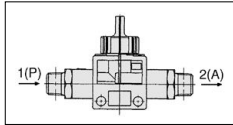
		2(A) Port size R					
1(P)	Port size R	M5	1/8	1/4	3/8	1/2	
		M5	•				
	1/8	•	•				
	1/4			•			
	3/8				•	•	
	1/2					•	•

Flame Resistant Type (UL-94 Standard V-0 equivalent)



1(P): One-touch fitting
2(A): One-touch fitting

		2(A) Applicable tubing O.D. (mm)					
1(P)	Applicable tubing O.D. (mm)	ø4	ø6	ø8	ø10	ø12	
		ø4	•				
	ø6		•				
	ø8			•			
	ø10				•		
	ø12					•	•



1(P): Male thread
2(A): Male thread

		2(A) Port size R				
1(P)	Port size R	1/8	1/4	3/8	1/2	
		1/8	•			
	1/4		•			
	3/8			•		
	1/2				•	

VM

VMG

VR

VR51

VHK

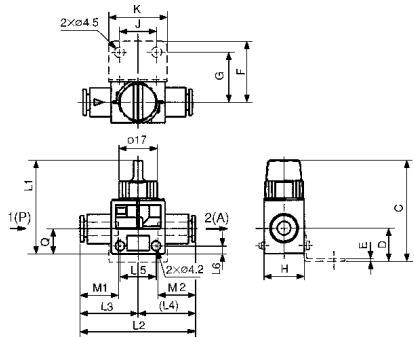
VH

VHS□

VHS

VHK Series

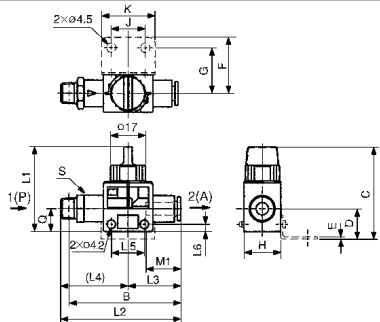
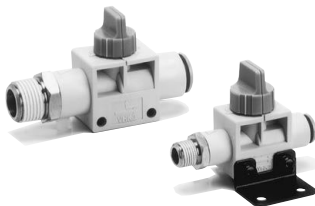
1(P)/2(A): One-touch Fitting



Applicable tubing O.D. (mm)		Model	H	L1	L2	L3	L4	L5	L6	M1	M2	Q	Flow rate characteristics						Weight (g)	Bracket mounting dimensions											
													1(P)→2(A)			2(A)→3(R) ^(Note)				Bracket assembly no.		C	D	E	F	G	J	K			
1(P)	2(A)												Q _{min} (l/min)	b	Cv	Q _{min} (l/min)	b	Cv													
4	4	VHK□-04F-04F	18	41	47.6	23.8	23.8	16.5	3.5	15.8	15.8	11	0.7	0.15	0.14	0.25	0.6	0.06	15	VHK-B1A	44.5	14.5	1	27	22	16.5	26				
6	4	VHK□-06F-04F	18	41	48	24.3	23.7	16.5	3.5	16.8	16.8	11	1.0	0.15	0.21	0.25	0.6	0.06	15	VHK-B1A	44.5	14.5	1	27	22	16.5	26				
	6	VHK□-06F-06F			48.6	24.3	24.3						1.4	0.15	0.35	0.25	0.6	0.06	16												
8	6	VHK□-08F-06F	18	41	50.5	24.3	24.3	16.5	3.5	18.7	18.7	11	2	0.15	0.36	0.25	0.6	0.06	16	VHK-B1A	44.5	14.5	1	27	22	16.5	26				
	8	VHK□-08F-08F			52.4	26.2	26.2						1.9	0.15	0.39	0.25	0.6	0.06	17												
10	8	VHK□-10F-08F	22	46	58.5	28	28	21.5	4	20.8	20.8	14	2.7	0.15	0.55	0.67	0.6	0.16	28	VHK-B2A	49	17	1	30	25	21.5	31				
	10	VHK□-10F-10F			61	30.5	30.5						3.1	0.15	0.65	0.67	0.6	0.16	29												
12	10	VHK□-12F-10F	22	46	62	31.5	30.5	21.5	4	21.8	20.8	14	3.3	0.15	0.68	0.67	0.6	0.16	31	VHK-B2A	49	17	1	30	25	21.5	31				
	12	VHK□-12F-12F			63	31.5	31.5						3.4	0.15	0.70	0.67	0.6	0.16	32												

Note) 3 port valve

1(P): Male Thread, 2 (A): One-touch Fitting

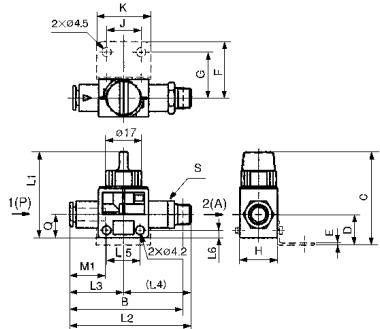


Connection thread R	Applicable tubing O.D. (mm)	Model	H	L1	L2	L3	L4	L5	L6	M1	Q	Flow rate characteristics						Weight (g)	B ²⁾	S (Width across flats)	Bracket mounting dimensions															
												1(P)→2(A)			2(A)→3(R) ⁽¹⁾						Bracket assembly no.	C	D	E	F	G	J	K								
												Q _{min} (l/min)	b	Cv	Q _{min} (l/min)	b	Cv												Q _{min} (l/min)	b	Cv					
M5	4	VHK□-M5-04F	18	41	52.9	23.8	29.1	16.5	3.5	15.8	11	0.4	0.15	0.10	0.25	0.6	0.06	19	49	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26								
	6	VHK□-M5-06F			53.9	24.3	29.6					0.4	0.15	0.10	0.25	0.6	0.06	21	50	13																
1/8	4	VHK□-01S-04F	18	41	55.4	23.8	31.6	16.5	3.5	15.8	11	0.7	0.15	0.17	0.25	0.6	0.06	21	51	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26								
	6	VHK□-01S-06F			56.9	24.3	32.6					1.4	0.15	0.35	0.25	0.6	0.06	23	53	13																
	8	VHK□-01S-08F			62.2	26.2	36					1.9	0.15	0.47	0.25	0.6	0.06	31	54	14																
	10	VHK□-02S-06F			60.4	24.3	36.1					1.4	0.15	0.35	0.25	0.6	0.06	31	54	14																
1/4	8	VHK□-02S-08F	18	41	65.2	26.2	39	16.5	3.5	18.7	11	1.9	0.15	0.47	0.25	0.6	0.06	32	59	17	VHK-B1A	44.5	14.5	1	27	22	16.5	26								
	10	VHK□-02S-10F			73.8	30.5	43.3					3.1	0.15	0.78	0.67	0.6	0.16	49	68	19																
	12	VHK□-02S-12F			76.3	31.5	44.8					3.4	0.15	0.85	0.67	0.6	0.16	63	70	22									VHK-B2A	49	17	1	30	25	21.5	31
	6	VHK□-03S-06F			62.4	24.3	38.1					1.4	0.15	0.35	0.25	0.6	0.06	41	56	17																
3/8	8	VHK□-03S-08F	18	41	66.2	26.2	40	16.5	3.5	18.7	11	1.9	0.15	0.47	0.25	0.6	0.06	40	60	19	VHK-B1A	44.5	11.5	1	27	22	16.5	26								
	10	VHK□-03S-10F			74.8	30.5	44.3					3.1	0.15	0.78	0.67	0.6	0.16	51	68	19																
	12	VHK□-03S-12F			77.3	31.5	45.8					3.4	0.15	0.85	0.67	0.6	0.16	64	71	22									VHK-B2A	49	17	1	30	25	21.5	31
	6	VHK□-04S-06F			78.2	30.5	47.7					3.1	0.15	0.78	0.67	0.6	0.16	72	70	22																
1/2	10	VHK□-04S-10F	22	46	80.2	31.5	48.7	21.5	4	20.8	14	3.4	0.15	0.85	0.67	0.6	0.16	70	72	22	VHK-B2A	49	17	1	30	25	21.5	31								
	12	VHK□-04S-12F																																		

Note 1) 3 port valve

Note 2) Reference dimensions after insertion of R thread.

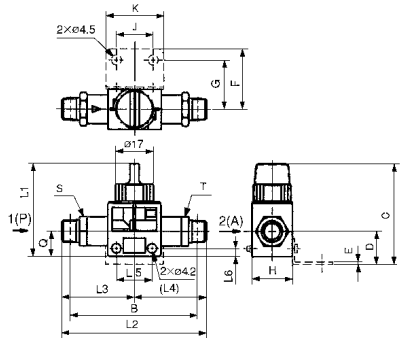
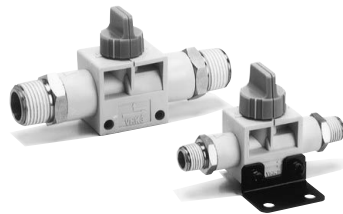
1(P): One-touch Fitting, 2(A): Male Thread



Applicable tubing O.D. (mm)	Connection thread R	Model	H	L1	L2	L3	L4	L5	L6	M1	Q	Flow rate characteristics						Weight (g)	B ⁽²⁾	S (Width across flats)	Bracket mounting dimensions									
												1(P)→2(A)			2(A)→3(R) ⁽¹⁾						Bracket assembly no.	C	D	E	F	G	J	K		
												Q _{min} (bar)	b	Cv	Q _{min} (bar)	b	Cv													
1(P)	2(A)																													
4	M5	VHK□-04F-M5	18	41	52.9	23.6	29.1	16.5	3.5	15.8	11	0.4	0.15	0.08	0.25	0.6	0.08	19	49	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	1/8	VHK□-04F-01S			55.4	31.6	36.1					0.7	0.15	0.14	0.25	0.6	0.08	21	51	11										
	M5	VHK□-06F-M5			53.9		29.6					0.4	0.15	0.08	0.25	0.6	0.08	21	50	13										
6	1/8	VHK□-06F-01S	18	41	56.9	24.3	32.6	16.5	3.5	16.8	11	1.4	0.15	0.35	0.25	0.6	0.08	23	53	13	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	1/4	VHK□-06F-02S			60.4		36.1					1.4	0.15	0.29	0.25	0.6	0.08	31	54	14										
	3/8	VHK□-06F-03S			62.4		38.1					1.4	0.15	0.29	0.25	0.6	0.08	41	56	17										
8	1/8	VHK□-08F-01S			62.2		36					1.9	0.15	0.39	0.25	0.6	0.08	31	58		VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	1/4	VHK□-08F-02S	18	41	65.2	26.2	39	16.5	3.5	18.7	11	1.9	0.15	0.39	0.25	0.6	0.08	32	59	17										
	3/8	VHK□-08F-03S			66.2		40					1.9	0.15	0.39	0.25	0.6	0.08	40	60											
10	1/4	VHK□-10F-02S			73.8		43.3					3.1	0.15	0.65	0.67	0.6	0.21	49		68	VHK-B2A	49	17	1	30	25	21.5	31		
	3/8	VHK□-10F-03S	22	46	74.8	30.5	44.3	21.5	4	20.8	14	3.1	0.15	0.65	0.67	0.6	0.21	51		70										
	1/2	VHK□-10F-04S			78.2		47.7					3.1	0.15	0.65	0.67	0.6	0.21	72	70	22										
12	1/4	VHK□-12F-02S			76.3		44.8					3.4	0.15	0.70	0.67	0.6	0.21	63	70		VHK-B2A	49	17	1	30	25	21.5	31		
	3/8	VHK□-12F-03S	22	46	77.3	31.5	45.8	21.5	4	21.8	14	3.4	0.15	0.70	0.67	0.6	0.21	64	71	22										
	1/2	VHK□-12F-04S			80.2		48.7					3.4	0.15	0.70	0.67	0.6	0.21	70	72											

Note 1) 3 port valve
Note 2) Reference dimensions after insertion of R thread.

1(P)/2(A): Male Thread



Connection thread		Model	H	L1	L2	L3	L4	L5	L6	Q	Flow rate characteristics						Weight (g)	B ⁽²⁾	S (Width across flats)	T (Width across flats)	Bracket mounting dimensions									
1(P)	2(A)										1(P)→2(A)			2(A)→3(R) ⁽¹⁾							Bracket assembly no.	C	D	E	F	G	J	K		
											Q _{min}	b	Cv	Q _{min}	b	Cv														
M5	M5	VHK□-M5-M5	18	41	58.2	29.1	29.1	16.5	3.5	11	0.4	0.15	0.08	0.25	0.6	0.06	23	51	11	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
1/8	M5	VHK□-01S-M5	18	41	61.6	32.6	29				0.4	0.15	0.08	0.25	0.6	0.06	26	54	13	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	1/8	VHK□-01S-01S			65.2		32.6				1.6	0.15	0.35	0.25	0.6	0.06	30	57	13	13										
1/4	1/8	VHK□-02S-01S	18	41	71.6	39	32.6	16.5	3.5	11	1.8	0.15	0.37	0.25	0.6	0.06	39	62	17	13	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	1/4	VHK□-02S-02S			78		39				1.9	0.15	0.39	0.25	0.6	0.06	47	66	17	17										
3/8	1/4	VHK□-03S-02S	22	46	85.1	40.8	44.3	21.5	4	14	2.7	0.15	0.56	0.67	0.6	0.16	65	73	17	19	VHK-B2A	49	17	1	30	25	21.5	31		
	3/8	VHK□-03S-03S			88.6		44.3				3.1	0.15	0.66	0.67	0.6	0.16	72	76	19	19										
1/2	3/8	VHK□-04S-03S	22	46	93	48.7	44.3	21.5	4	14	2.8	0.15	0.61	0.67	0.6	0.16	90	79	19	19	VHK-B2A	49	17	1	30	25	21.5	31		
	1/2	VHK□-04S-04S			97.4		48.7				3.4	0.15	0.71	0.67	0.6	0.16	101	81	22	22										

Note 1) 3 port valve
Note 2) Reference dimensions after insertion of R thread.



VHK Series/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. Please contact SMC when fluids other than air are used.
2. Do not supply air pressure from 2(A) port. The air will leak out from 1(P) port.
3. Since the valve allows a small volume of air leakage, it may not be suitable for holding pressure in a pressure vessel.

Selection

⚠ Caution

Operation method:

The valve must be switched to OPEN or SHUT instantly and securely. Stopping the handle halfway between the extreme positions may cause malfunction.

Mounting

⚠ Caution

L type bracket mounting:

Apply a tightening torque of 0.5 to 0.6 N·m to the bolts when the bracket is mounted on the body.

Piping

⚠ Caution

Precautions for handling the male threads of the R pipe fitting with seal

1. Use a wrench to secure the hexagon portion to screw in the fitting. If the size of the wrench is not appropriate it will be stripped.
2. To screw in the fitting, first hand-tighten; then, use a tool to rotate it 2 to 3 turns. If it is tightened excessively, more sealing agent will be forced out. Therefore, make sure to remove the extra sealing agent.
3. Re-use of fittings:
 - 1) Ordinarily, the fitting can be reused 2 to 3 times.
 - 2) Before reusing the fitting, clear off the sealing agent that remains on the removed pipe fitting using an air blower. If the sealing agent is peeled off and enters the peripheral equipment, it can cause air leakage.
 - 3) If the sealing effect has been lost, wrap a seal tape over the sealing agent to reuse the fitting. Do not use any sealing agent other than seal tape.

One-touch Fitting

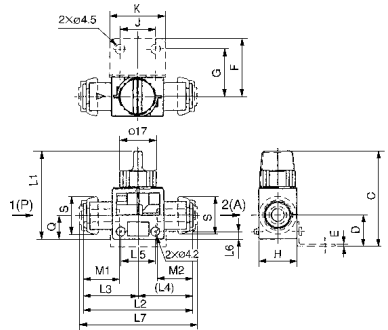
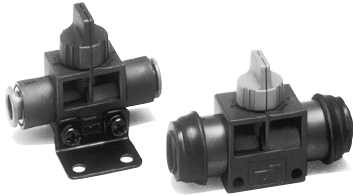
⚠ Caution

1. When tubing of brands other than SMC's are used, verify that the tubing O.D. satisfies the following accuracy;

- Nylon tubing Within ± 0.1 mm
- Soft nylon tubing Within ± 0.1 mm
- Polyurethane tubing Within $+0.1$ mm, -0.2 mm

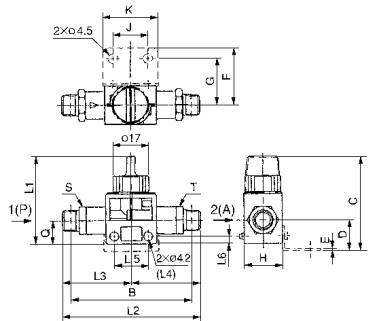
If the tube's external accuracy is not satisfied, it may not be possible to connect the tube. Even if it is connected, air leakage or tube disconnection may result.

Flame Resistant Type: 1(P)/2(A): One-touch Fitting



Applicable tubing O.D. (mm)		Flow rate characteristics												Weight (g)	S	Bracket mounting dimensions													
Model		H	L1	L2	L3	L4	L5	L6	L7	Q	M1	M2	1(P)→2(A)			2(A)→3(R)		Bracket assembly no.	C	D	E	F	G	J	K				
1(P)	2(A)												Cm	Cv	Cm	Cv													
4	4	VHK□R-04F-04F	18	41	47.6	23.8	23.8	16.5	3.5	5.6	11	15.8	15.8	0.4	0.15	0.14	0.25	0.6	0.08	15	ø14.4	VHK-B1A	44.5	14.5	1	27	22	16.5	26
6	6	VHK□R-06F-06F	18	41	48.6	24.3	24.3	16.5	3.5	5.6	11	16.8	16.8	1.4	0.15	0.35	0.25	0.6	0.08	16	ø16.8	VHK-B1A	44.5	14.5	1	27	22	16.5	26
8	8	VHK□R-08F-08F	18	41	52.4	26.2	26.2	16.5	3.5	5.6	11	18.7	18.7	1.9	0.15	0.39	0.25	0.6	0.08	17	ø19.2	VHK-B1A	44.5	14.5	1	27	22	16.5	26
10	10	VHK□R-10F-10F	22	46	61	30.5	30.5	21.5	4	65	14	20.8	20.8	3.1	0.15	0.65	0.67	0.6	0.21	29	ø23.3	VHK-B2A	49	17	1	30	25	21.5	31
12	12	VHK□R-12F-12F	22	46	63	31.5	31.5	21.5	4	67	14	21.8	21.8	3.4	0.15	0.70	0.67	0.6	0.21	32	ø25.7	VHK-B2A	49	17	1	30	25	21.5	31

Flame Resistant Type: 1(P)/2(A): Male Thread



Connection thread R		Model	H	L1	L2	L3	L4	L5	L6	Q	B*	Flow rate characteristics				Weight (g)	Bracket mounting dimensions											
												(1P)→2(A)		2(A)→3(R)			S (Width across flats)		T (Width across thread)		Bracket assembly no.							
												Cv	Cv	Cv	Cv		S	T	C	D	E	F	G	J	K			
1/8	1/4	VHKC-R-01S-01F	18	41	65.2	32.6	32.6	16.5	3.5	11	57	1.6	0.15	0.35	0.25	0.6	0.08	30	13	13	VHK-B1A	44.5	14.5	1	27	22	16.5	26
1/8	1/4	VHKC-R-02S-02F	18	41	78	39	39	16.5	3.5	11	66	1.9	0.15	0.39	0.25	0.6	0.08	30	17	17	VHK-B1A	44.5	14.5	1	27	22	16.5	26
3/8	3/8	VHKC-R-03S-03S	22	46	88.6	44.3	44.3	21.5	4	14	76	3.1	0.15	0.66	0.67	0.6	0.21	72	19	19	VHK-B2A	49	17	1	30	25	21.5	31
1/2	1/2	VHKC-R-04S-04S	22	46	97.4	48.7	48.7	21.5	4	14	81	3.4	0.15	0.71	0.67	0.6	0.21	101	22	22	VHK-B2A	49	17	1	30	25	21.5	31

VHK Series

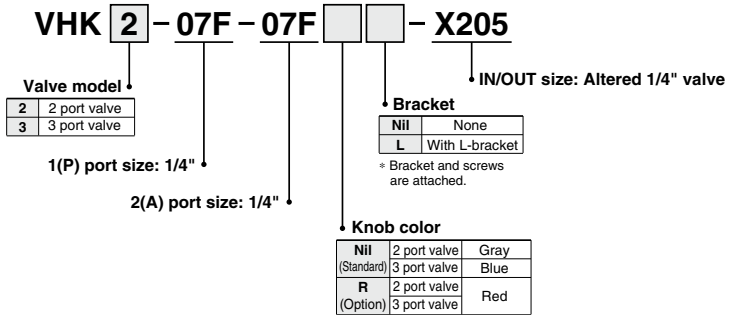
Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.



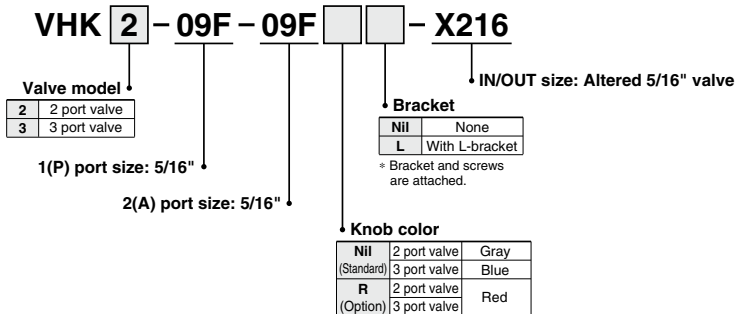
1 IN/OUT Size: Altered 1/4" Valve

X205



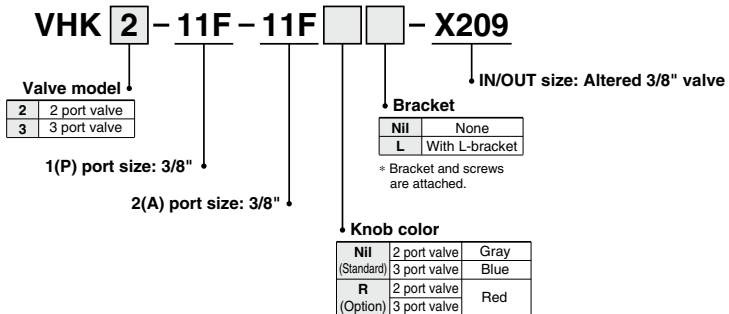
2 IN/OUT Size: Altered 5/16" Valve

X216



3 IN/OUT Size: Altered 3/8" Valve

X209



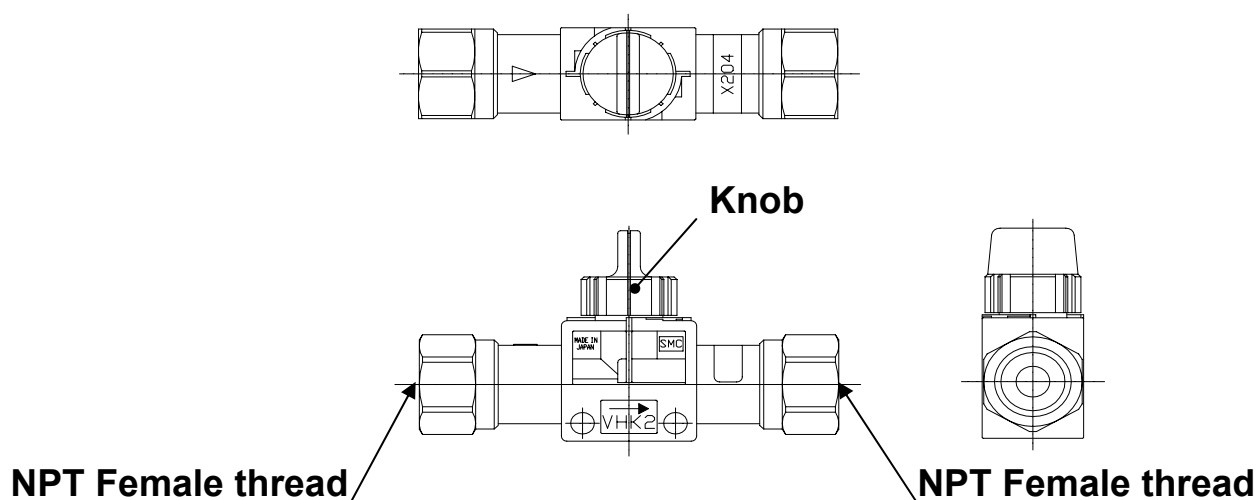
NPT Female thread Finger Valve

VHK***-X204、226

SMC CORPORATION
1-16-4 Shimbashi, Minato-ku
Tokyo 105-0004, JAPAN
URL: <http://www.smcworld.com>

Feature : NPT Female thread

NPT1/4、NPT3/8



Specifications

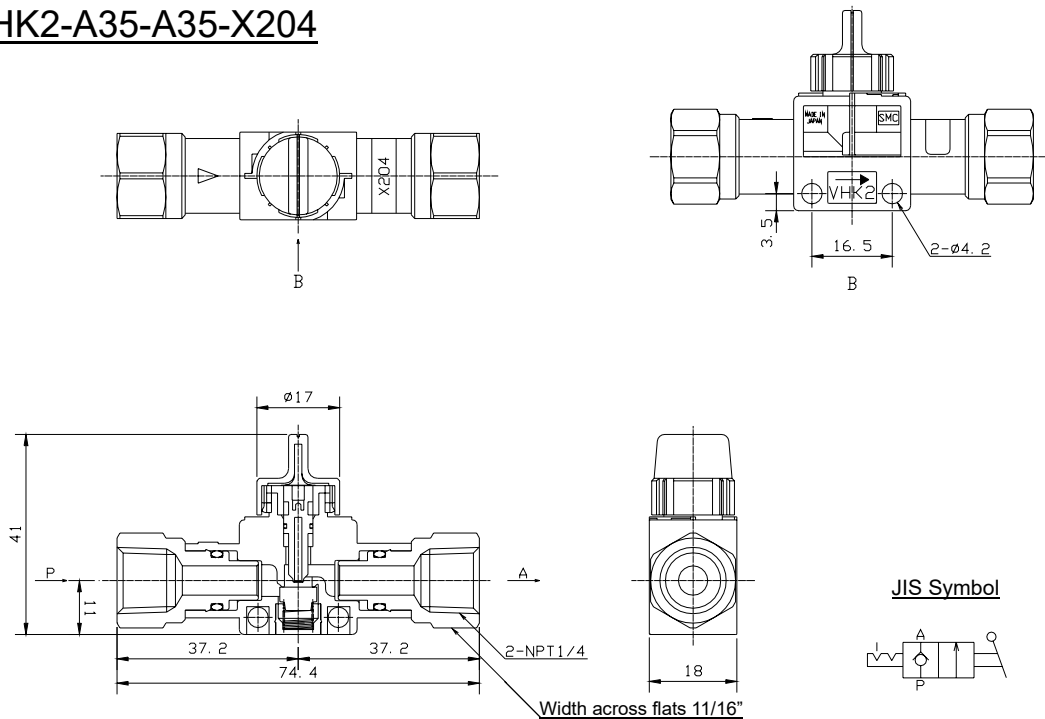
Valve	2 port valve
Fluid	Air
Proof pressure	1.5MPa
Maximum operating pressure	1.0MPa
Operating vacume pressure	-100kPa
Ambient and fluid temperature	- 5 to 60°C (No freezing)

How to Order

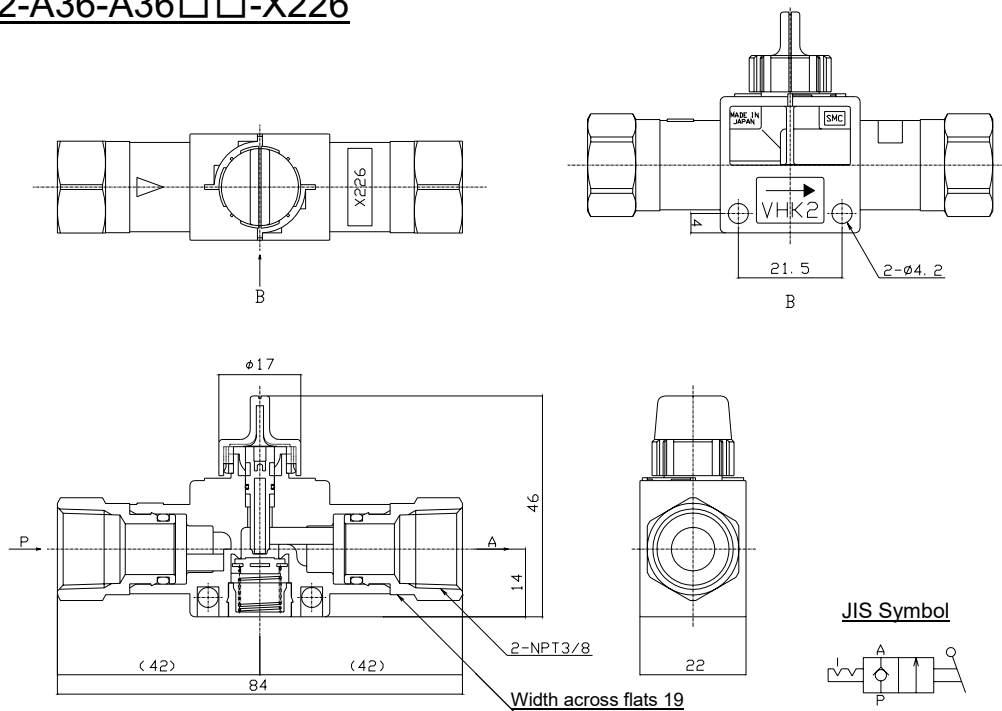
Thread	Valve model	Knob color	Bracket	Model
NPT1/4"	2ポート	Gray(Standard)	—	VHK2-A35-A35-X204
NPT3/8"	2ポート	Gray(Standard)	—	VHK2-A36-A36-X226
		Red (R)	—	VHK2-A36-A36R-X226
		Gray(Standard)	Addition	VHK2-A36-A36L-X226
		Red (R)	Addition	VHK2-A36-A36RL-X226

Dimensions: mm

VHK2-A35-A35-X204



VHK2-A36-A36□□-X226



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

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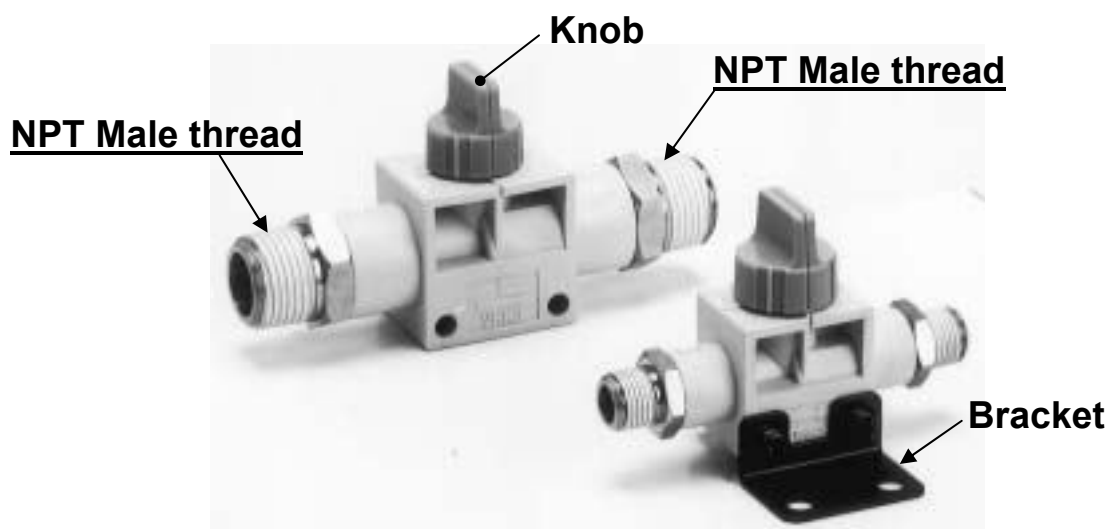
NPT Male thread Finger Valve

VHK***-X204、226、233

SMC CORPORATION
1-16-4 Shimbashi, Minato-ku
Tokyo 105-0004, JAPAN
URL: <http://www.smcworld.com>

Feature : NPT Male thread

NPT1/8, NPT1/4, NPT3/8



Specifications

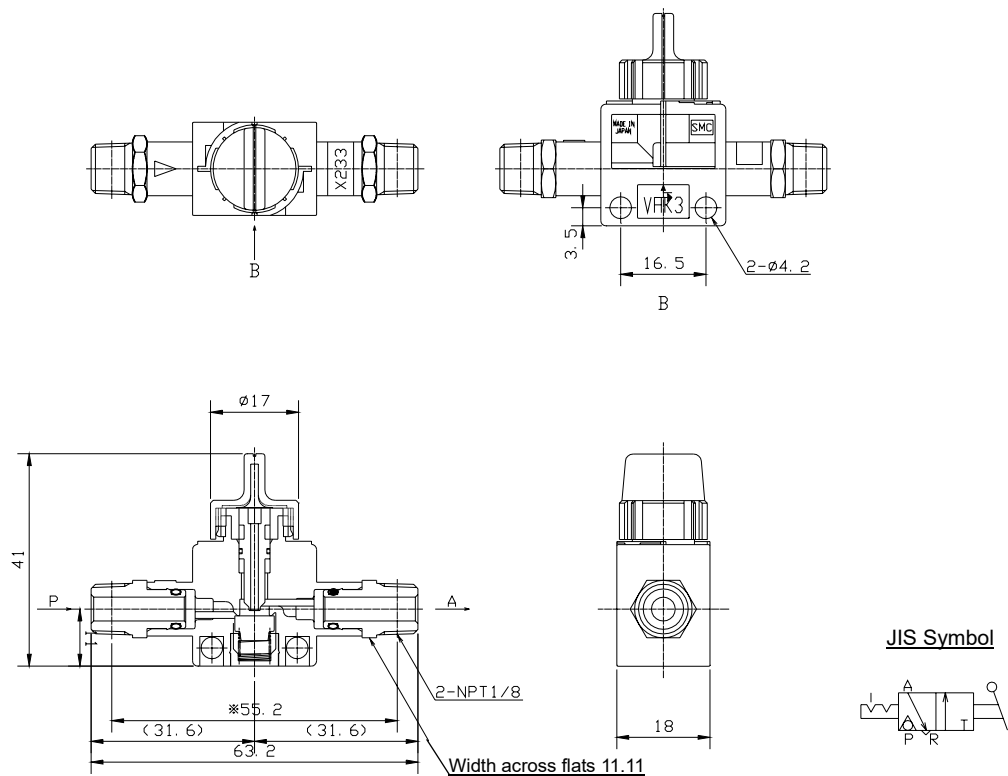
Valve	2/3 port valve
Fluid	Air
Proof pressure	1.5MPa
Maximum operating pressure	1.0MPa
Minimum operating pressure	0.1MPa
Operating vacume pressure	-100kPa (2port valve)
Ambient and fluid temperature	– 5 to 60°C (No freezing)

How to Order

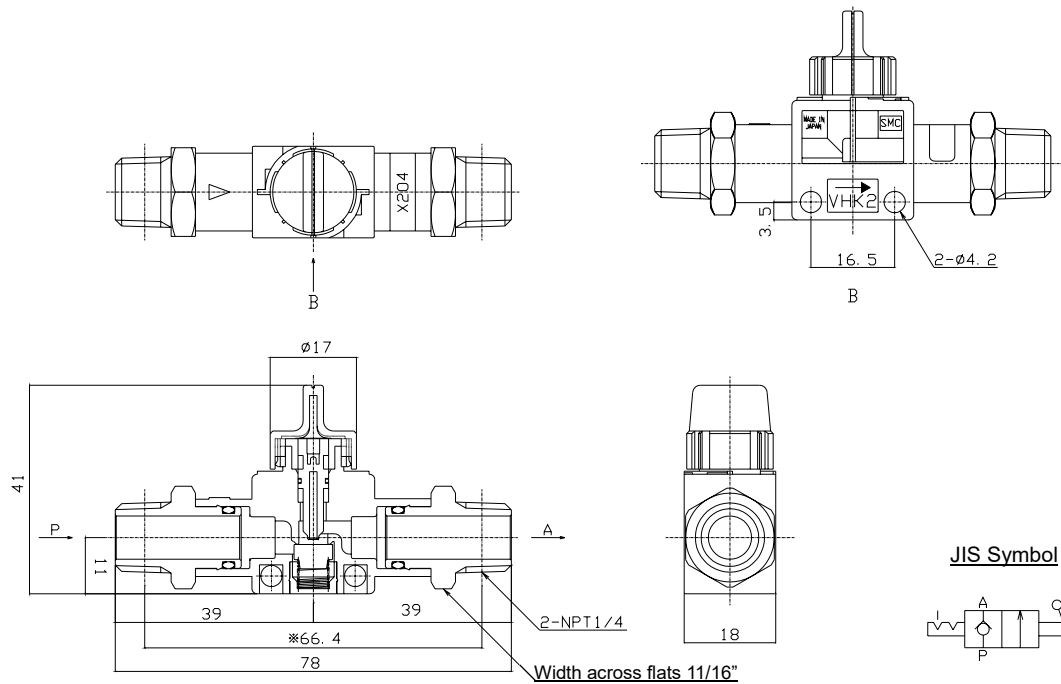
Thread	Valve model	Knob color	Bracket	Model
NPT1/8"	3ポート	Blue(Standard)	—	VHK3-34S-34S-X233
		Red (R)	—	VHK3-34S-34SR-X233
		Blue(Standard)	Addition	VHK3-34S-34SL-X233
		Red (R)	Addition	VHK3-34S-34SRL-X233
NPT1/4"	2ポート	Gray(Standard)	—	VHK2-35S-35S-X204
		Red (R)	—	VHK2-35S-35SR-X204
NPT3/8"	2ポート	Gray(Standard)		VHK2-36S-36S-X226
		Red (R)		VHK2-36S-36SR-X226
		Gray(Standard)	Addition	VHK2-36S-36SL-X226
		Red (R)	Addition	VHK2-36S-36SRL-X226
	3ポート	Blue(Standard)	—	VHK3-36S-36S-X226
		Red (R)	—	VHK3-36S-36SR-X226
		Blue(Standard)	Addition	VHK3-36S-36SL-X226
		Red (R)	Addition	VHK3-36S-36SRL-X226

Dimensions: mm

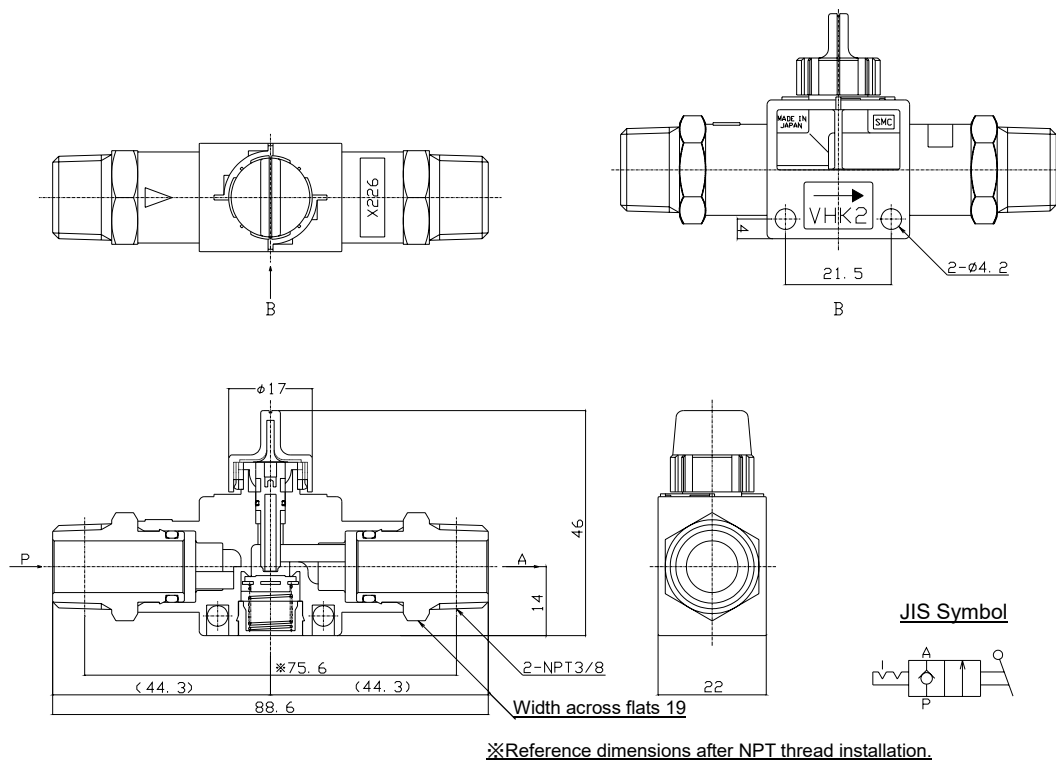
VHK3-34S-34S□□-X233



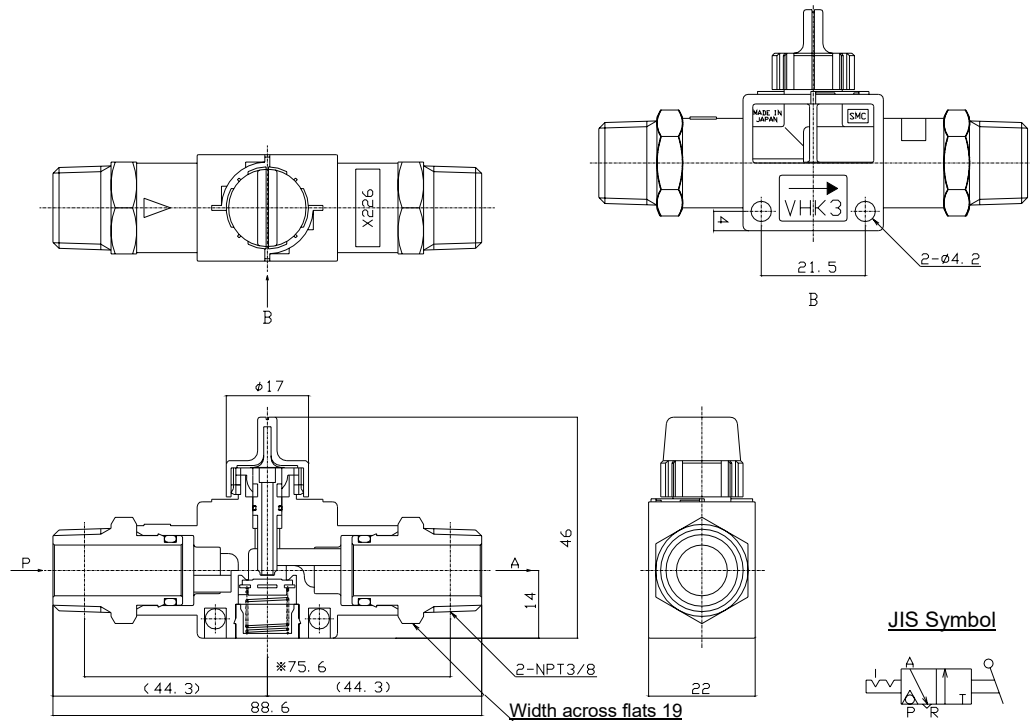
VHK2-35S-35S□□-X204



VHK2-36S-36S□□-X226



VHK3-36S-36S□□-X226



※Reference dimensions after NPT thread installation.



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

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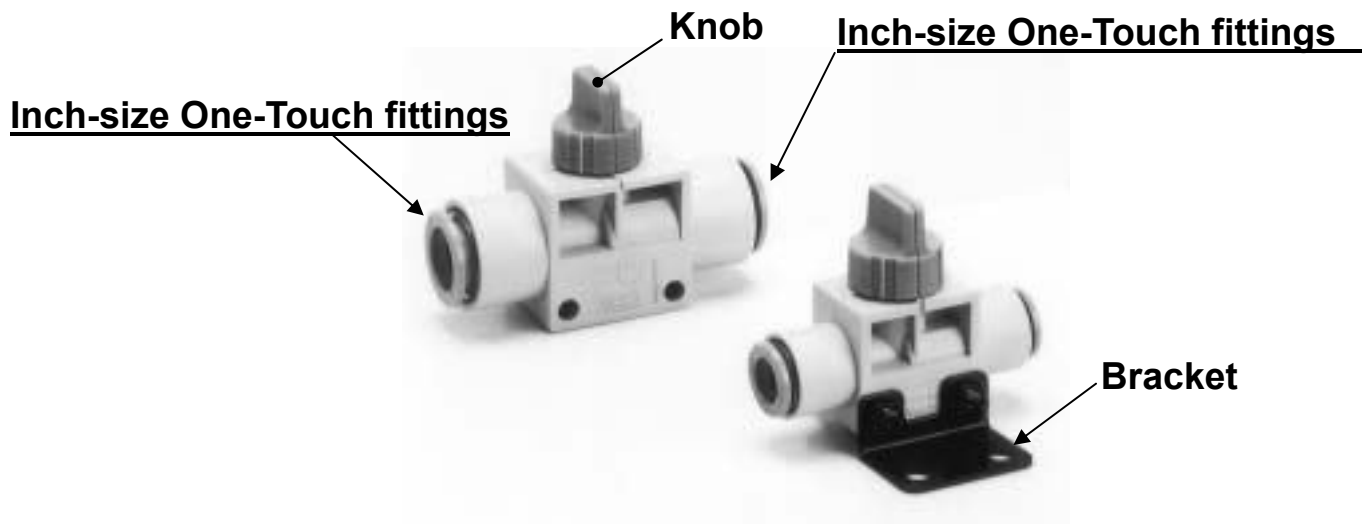
Finger Valve with Inch-size One-touch Fittings

VHK***-X205、209、216

SMC CORPORATION
1-16-4 Shimbashi, Minato-ku
Tokyo 105-0004, JAPAN
URL: <http://www.smcworld.com>

Feature : applicable tube diameter of inch size

$\phi 1/4$ 、 $\phi 3/8$ 、 $\phi 5/16$



Specifications

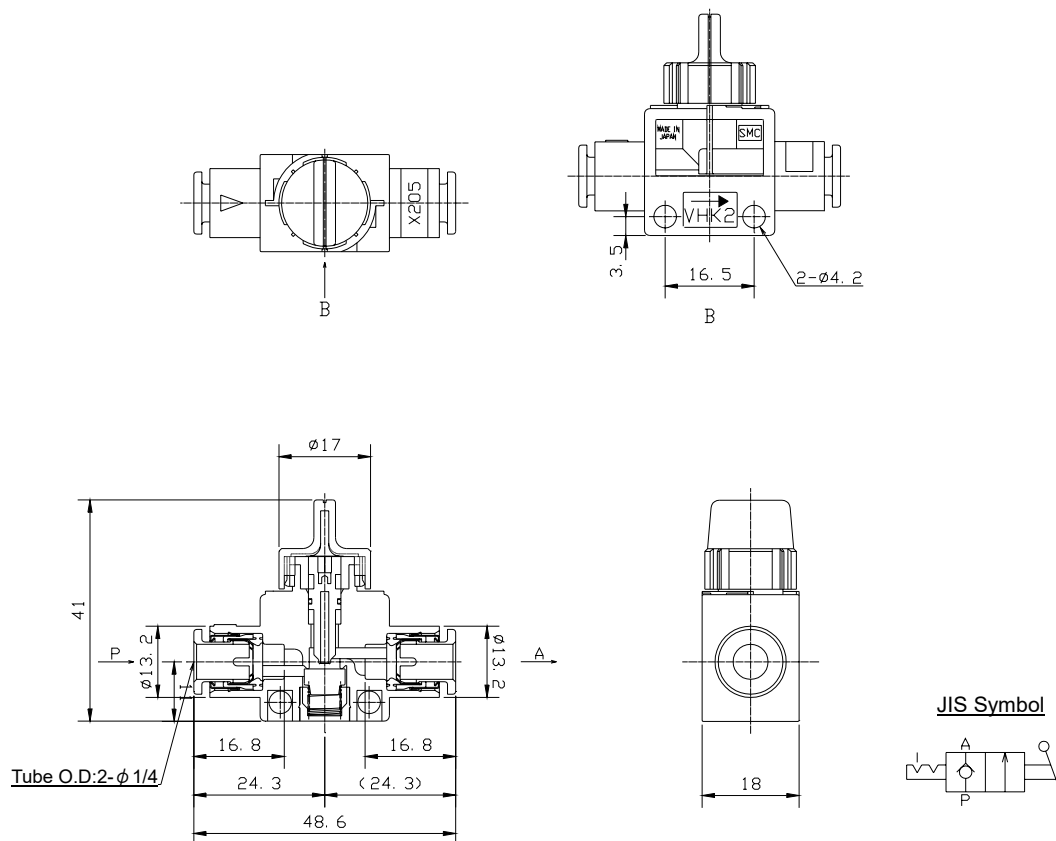
Valve	2/3 port valve
Fluid	Air
Proof pressure	1.5MPa
Maximum operating pressure	1.0MPa
Minimum operating pressure	0.1MPa
Operating vacume pressure	-100kPa (2port valve)
Ambient and fluid temperature	- 5 to 60°C (No freezing)
Applicable tube material	Nylon, Soft nylon, Polyurethane

How to Order

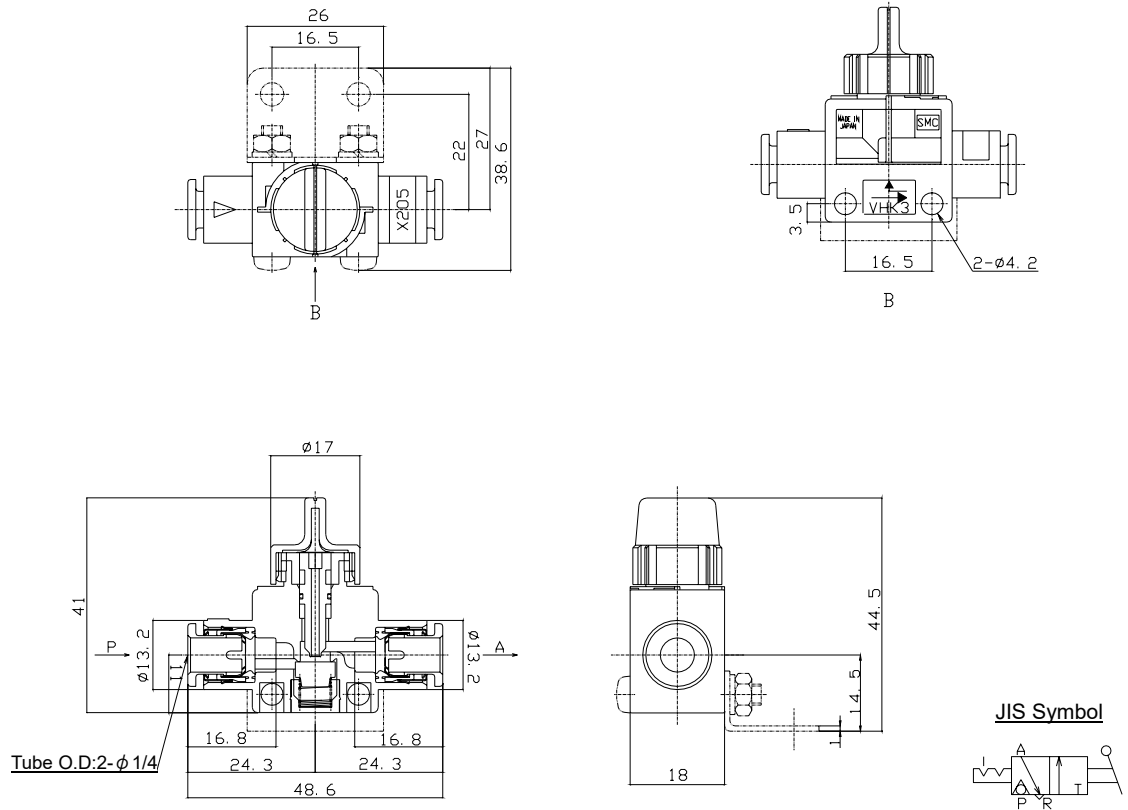
Tube O.D(inch)	Valve model	Knob color	Bracket	Model
1/4"	2ポート	Gray(Standard)	—	VHK2-07F-07F-X205
		Red (R)	—	VHK2-07F-07FR-X205
	3ポート	Blue(Standard)	—	VHK3-07F-07F-X205
		Red (R)	—	VHK3-07F-07FR-X205
		Blue(Standard)	Addition	VHK3-07F-07FL-X205
		Red (R)	Addition	VHK3-07F-07FRL-X205
3/8"	2ポート	Gray(Standard)	—	VHK2-11F-11F-X209
		Red (R)	—	VHK2-11F-11FR-X209
5/16"	2ポート	Gray(Standard)	—	VHK2-09F-09F-X216
		Red (R)	—	VHK2-09F-09FR-X216
	3ポート	Blue(Standard)	—	VHK3-09F-09F-X216
		Red (R)	—	VHK3-09F-09FR-X216

Dimensions: mm

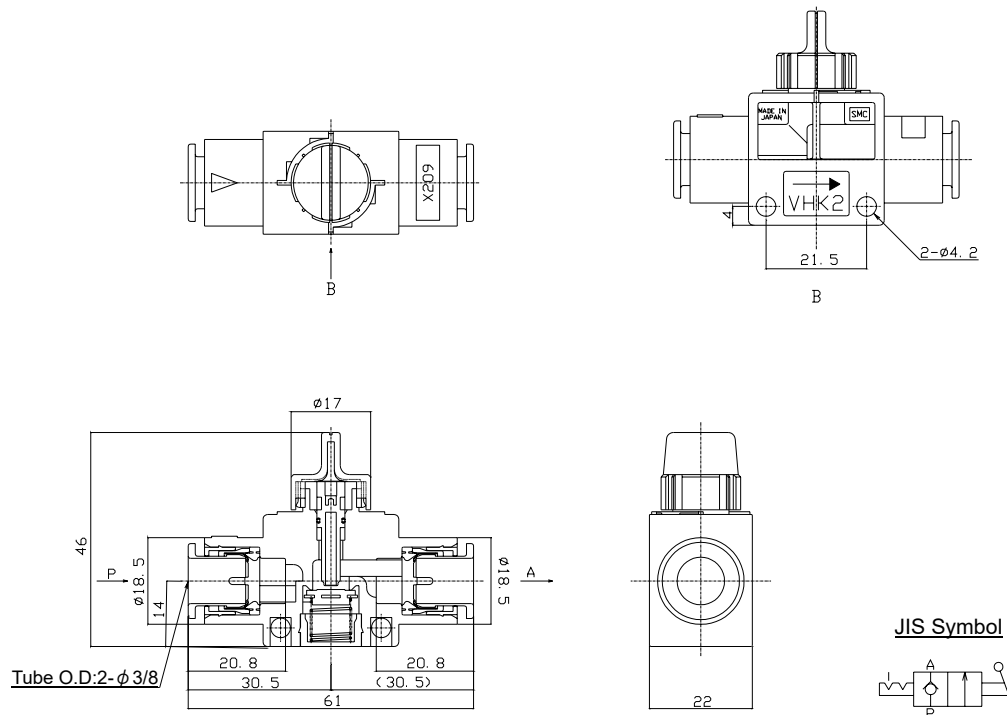
VHK2-07F-07F□-X205



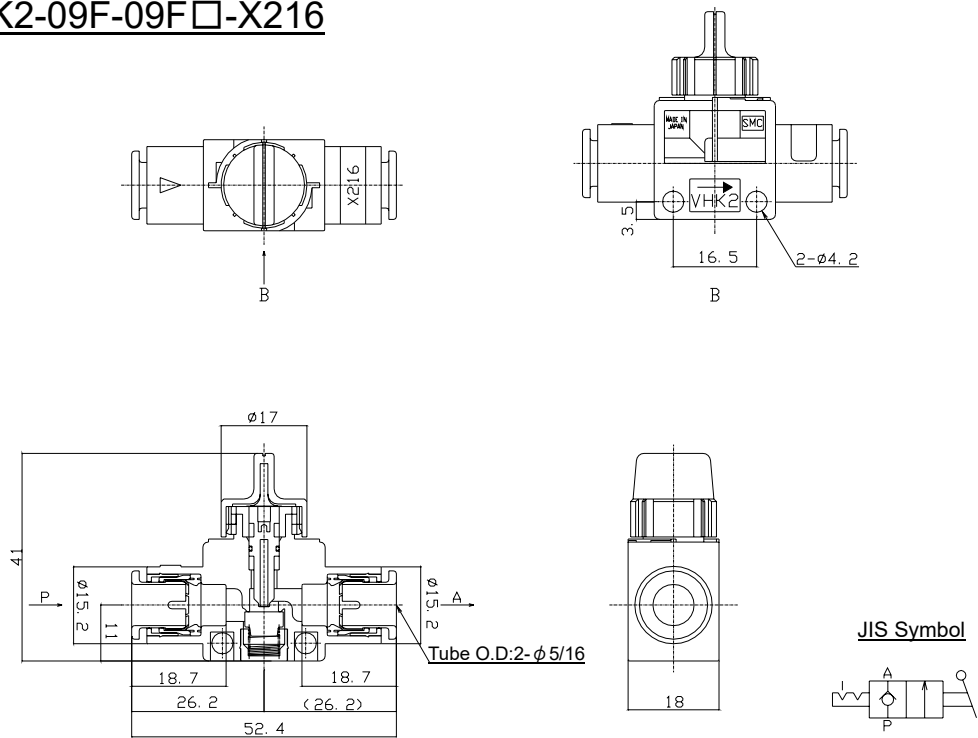
VHK3-07F-07F□□-X205



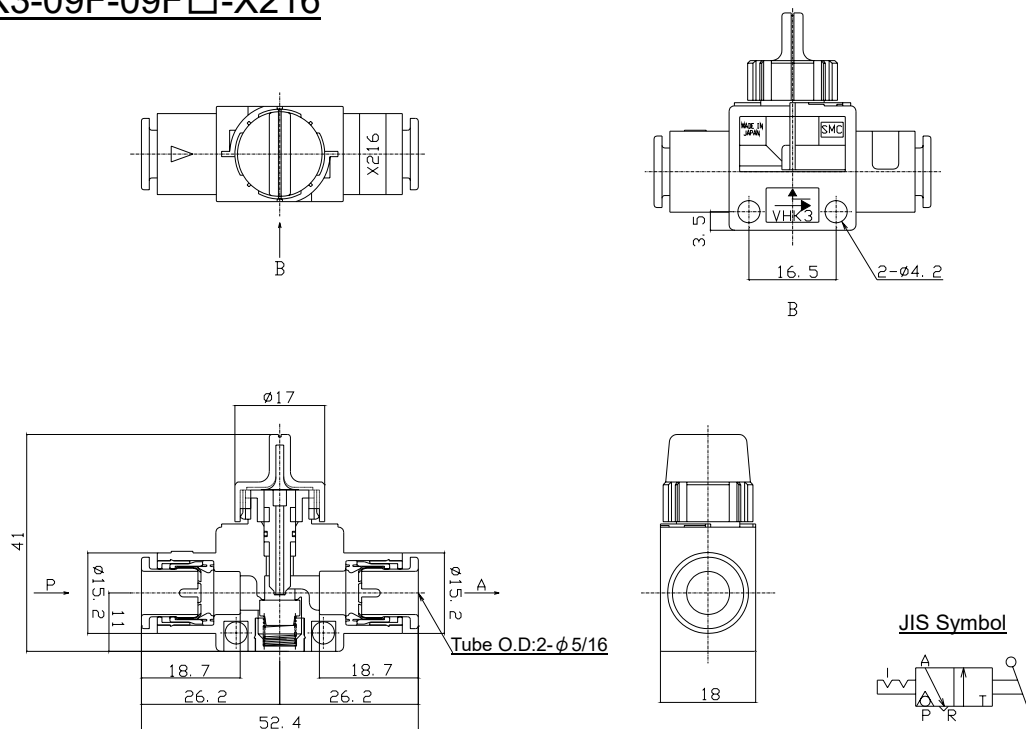
VHK2-11F-11F□□-X209



VHK2-09F-09F□-X216



VHK3-09F-09F□-X216



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

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HOW TO ORDER

1
2
3
4
 VHK3-11F-11F□-X202

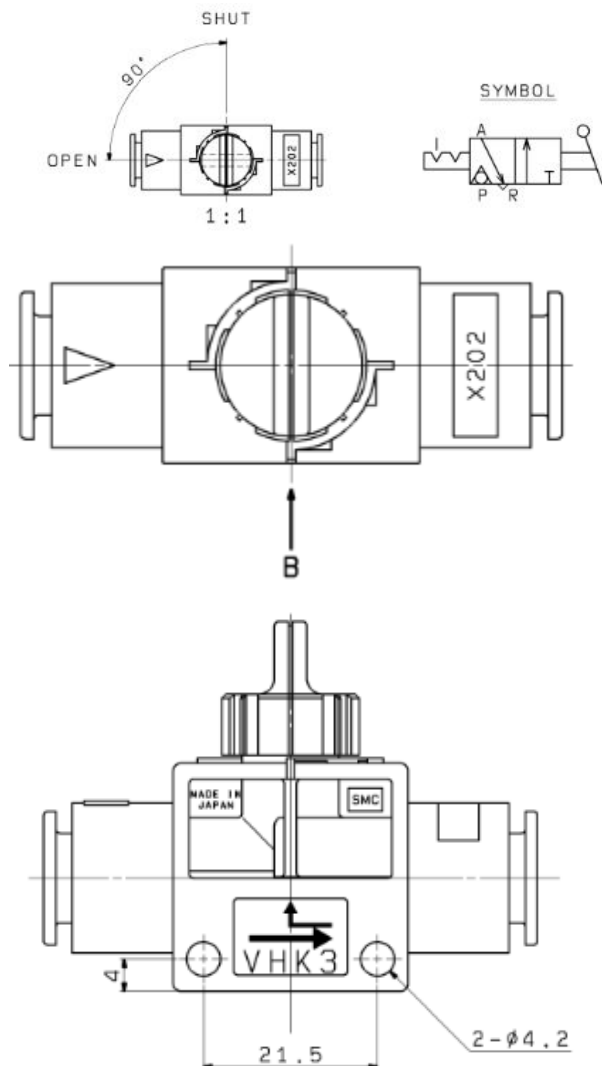
1 P-PORT SIZE		2 A-PORT SIZE		3 COLOR OF KNOB		4 Content of Special Order	
Symbol	Size	Symbol	Size	Symbol	Mark Color	Symbol	Special Order
11	3/8 Inches	11	3/8 Inches	Nil	Gray	X202	Guide for fitting Cassette and spring guide are different
				BU	Blue		
				R	Red		
				G	Green		

SPECIFICATIONS

PROOF PRESS.	1.5	MPa
MAX. WORKING PRESS.	1.0	MPa
AMBIENT TEMP. AND WORKING FLUID TEMP.	0~60 °C	
WORKING FLUID	AIR	

CAUTIONS CONCERNING SPECIFICATIONS, ASSEMBLY, AND INSPECTION OF CUSTOM-MADE PRODUCTS

- *DIFFERENCE FROM THE STANDARD TYPE, (VHK3-10F-10F)
1. PARTS IN THE TITLE COLUMN DIFFER FROM STANDARD.
 2. THE MATERIAL OF A GUIDE FOR A FITTING CASSETTE, AND A SPRING GUIDE IS STAINLESS STEEL.



VHK3-**-**-X202

HOW TO ORDER

VHK3-^①11F-^②36S^③☐^④☐-X202

① P-PORT SIZE	
Symbol	Size
11	3/8 Inches

② A-PORT SIZE	
Symbol	Size
36S	NPT 3/8 Inches

③ COLOR OF KNOB	
Symbol	Mark Color
Nil	Gray
BU	Blue
R	Red
G	Green

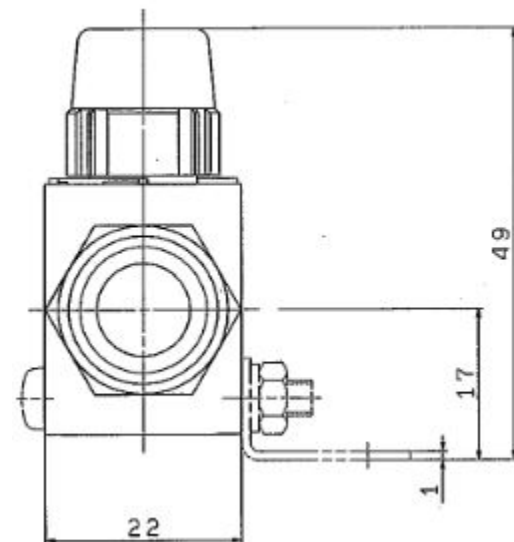
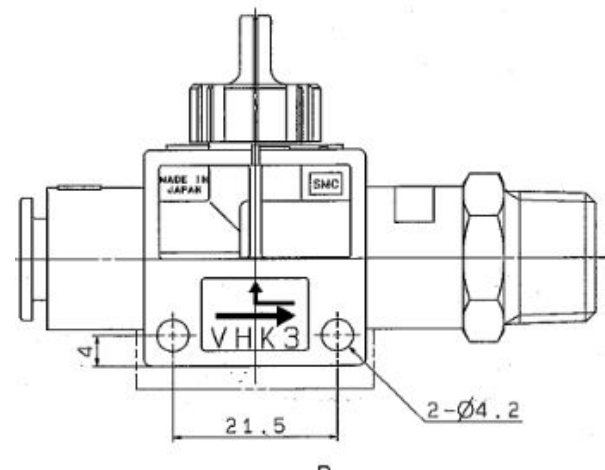
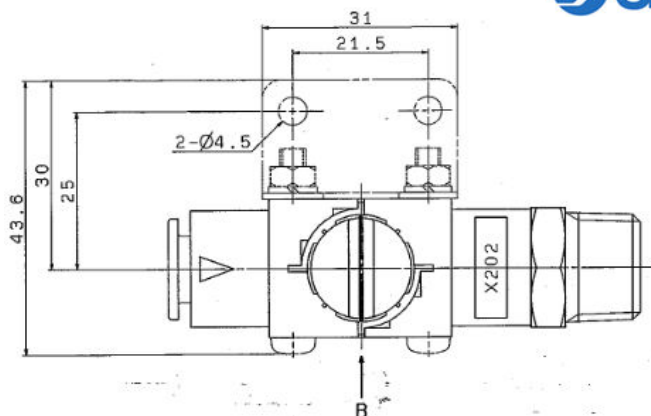
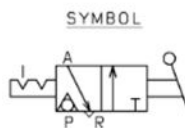
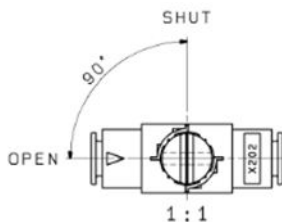
④ Bracket	
Symbol	Type
Nil	None
L	L-Type

SPECIFICATIONS

PROOF PRESS.	1.5	MPa
MAX. WORKING PRESS.	1.0	MPa
OPERATING VACUUM PRESS.	-100kPa(10 Torr)	
AMBIENT TEMP. AND WORKING FLUID TEMP.	0~60°C	
WORKING FLUID	AIR	

CAUTIONS CONCERNING SPECIFICATIONS, ASSEMBLY, AND INSPECTION OF CUSTOM-MADE PRODUCTS

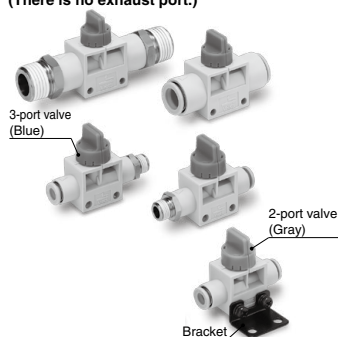
- *DIFFERENCE FROM THE STANDARD TYPE, (VHK3-10F-03S00)
- 1. PARTS IN THE TITLE COLUMN DIFFER FROM STANDARD.
- 2. THE MATERIAL OF A GUID FOR A FITTING CASSETTE, AND A SPRING GUIDE IS STAINLESS STEEL.



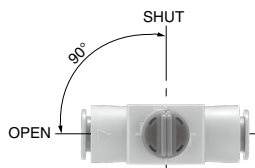
Finger Valve VHK-A Series

RoHS

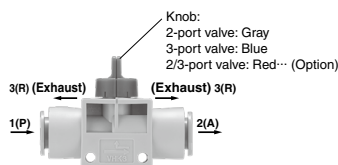
With a function to prevent the nob from coming out
Large effective area: 2.0 to 17.5 mm²
Reduced operating force
Poppet valve construction seldom suffers seal deflection.
The series begins with the min. tubing O.D. of $\phi 4$.
Selection from four types in accordance with the piping specifications
The 3-port valve discharges residual pressure from 2(A) with the handle set at SHUT.
(There is no exhaust port.)



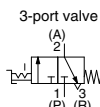
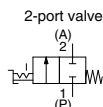
The valve direction clearly indicates whether the valve is open or closed.
(SHUT-OPEN: Counterclockwise)



2-port valves and 3-port valves can be distinguished by the color of their knobs.



Symbol



Specifications

Valve	2/3-port valves
Fluid	Air
Proof pressure	1.5 MPa
Max. operating pressure ^{Note 1)}	1.0 MPa
Operating vacuum pressure*	-100 kPa
Ambient temperature and operating fluid temperatures	0 to 60°C
Applicable tubing material ^{Note 2)}	Nylon, Soft nylon, Polyurethane
Accessory (Option)	Bracket

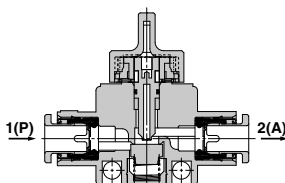
Note 1) Please note that when the valve is used at micro pressures of 0.1 MPa or less, valve leakage may be more than the standard value (5 cm³/min).

Note 2) Use caution about the maximum operating pressure when soft nylon or polyurethane tubing is used. (Refer to Best Pneumatics No. 7 for details.)

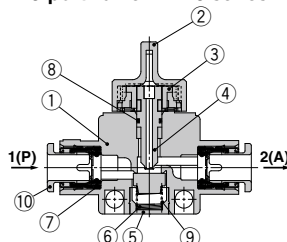
* Use VHK2 (2-port valve) for vacuum application.

Construction

2-port valve: VHK2 series



3-port valve: VHK3 series



Component Parts

No.	Description	Material	Note
1	Body	PBT	
2	Knob	POM	
3	Cam ring	POM	
4	Stem	POM	
5	Spring guide	Brass	Electroless nickel plated
6	Spring	Stainless steel	
7	Seal	NBR	
8	O-ring	NBR	
9	Valve	NBR	
10	Cassette	—	

How to Order

VHK **2** A - **04F** - **04F**

Valve model

2	2-port valve
3	3-port valve

1(P) port size

04F	ø4
06F	ø6
08F	ø8
10F	ø10
12F	ø12
M5	M5 x 0.8
01S	R 1/8
02S	R 1/4
03S	R 3/8
04S	R 1/2

2(A) port size

04F	ø4
06F	ø6
08F	ø8
10F	ø10
12F	ø12
M5	M5 x 0.8
01S	R 1/8
02S	R 1/4
03S	R 3/8
04S	R 1/2

Bracket

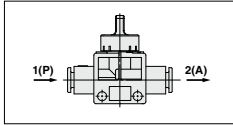
Nil	None
L	With L-bracket

* Bracket and screws are attached.

Knob color

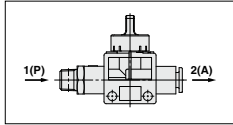
Nil	2-port valve	Gray
(Standard)	3-port valve	Blue
R	2-port valve	Red
(Option)	3-port valve	Red

Piping Variations



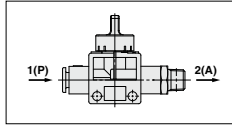
1(P): One-touch fitting
2(A): One-touch fitting

1(P)	2(A) Applicable tubing O.D. (mm)				
	ø4	ø6	ø8	ø10	ø12
ø4	●				
ø6	●	●			
ø8		●	●		
ø10			●	●	
ø12				●	●



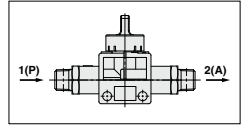
1(P): Male thread
2(A): One-touch fitting

1(P)	2(A) Applicable tubing O.D. (mm)				
	ø4	ø6	ø8	ø10	ø12
M5	●	●			
1/8	●	●	●		
1/4		●	●	●	
3/8		●	●	●	●
1/2				●	●



1(P): One-touch fitting
2(A): Male thread

1(P)	2(A) Port size R				
	M5	1/8	1/4	3/8	1/2
ø4	●	●			
ø6	●	●	●	●	
ø8		●	●	●	
ø10			●	●	●
ø12			●	●	●



1(P): Male thread
2(A): Male thread

1(P)	2(A) Port size R				
	M5	1/8	1/4	3/8	1/2
M5	●				
1/8	●	●			
1/4		●	●		
3/8			●	●	
1/2				●	●

VM

VMG

VR

VR51

VHK

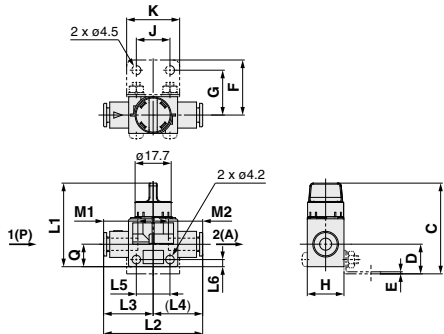
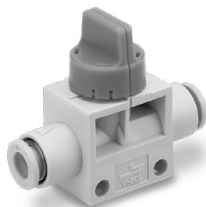
VH

VHS ☐

VHS

VHK-A Series

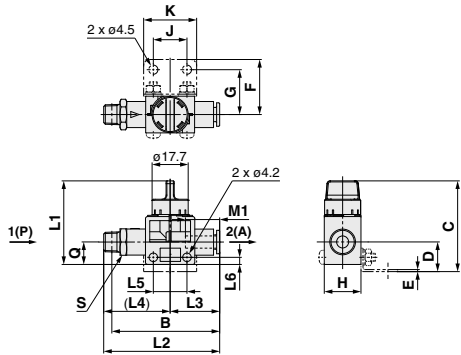
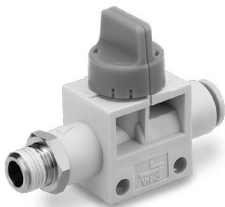
1(P)/2(A): One-touch Fitting



Applicable tubing O.D. (mm)		Model	H	L1	L2	L3	L4	L5	L6	M1	M2	Q	Flow rate characteristics						Weight (g)	Bracket mounting dimensions										
													1(P)→2(A)			2(A)→3(R) ^{*1}				Bracket assembly no.				C	D	E	F	G	J	K
													Q(m³/min)	b	Cv	Q(m³/min)	b	Cv												
4	4	VHK□A-04F-04F	18	41	47.6	23.8	23.8	16.5	3.5	15.8	15.8	11	0.7	0.15	0.14	0.25	0.6	0.06	15	VHK-B1A	44.5	14.5	1	27	22	16.5	26			
6	4	VHK□A-06F-04F	18	41	48	24.3	23.7	16.5	3.5	16.8	15.8	11	1.0	0.15	0.21	0.25	0.6	0.06	15	VHK-B1A	44.5	14.5	1	27	22	16.5	26			
	6	VHK□A-06F-06F	18	41	48.6	24.3	24.3	16.5	3.5	16.8	16.8	11	1.4	0.15	0.35	0.25	0.6	0.06	16											
8	6	VHK□A-08F-06F	18	41	50.5	26.2	24.3	16.5	3.5	18.7	16.8	11	2	0.15	0.36	0.25	0.6	0.06	16	VHK-B1A	44.5	14.5	1	27	22	16.5	26			
	8	VHK□A-08F-08F	18	41	52.4	26.2	26.2	16.5	3.5	18.7	18.7	11	1.9	0.15	0.39	0.25	0.6	0.06	17											
10	8	VHK□A-10F-08F	22	46	58.5	30.5	28	21.5	4	20.8	18.7	14	2.7	0.15	0.55	0.67	0.6	0.16	28	VHK-B2A	49	17	1	30	25	21.5	31			
	10	VHK□A-10F-10F	22	46	61	30.5	30.5	21.5	4	20.8	20.8	14	3.1	0.15	0.65	0.67	0.6	0.16	29											
12	10	VHK□A-12F-10F	22	46	62	31.5	30.5	21.5	4	21.8	20.8	14	3.3	0.15	0.68	0.67	0.6	0.16	31	VHK-B2A	49	17	1	30	25	21.5	31			
	12	VHK□A-12F-12F	22	46	63	31.5	31.5	21.5	4	21.8	21.8	14	3.4	0.15	0.70	0.67	0.6	0.16	32											

*1 3-port valve

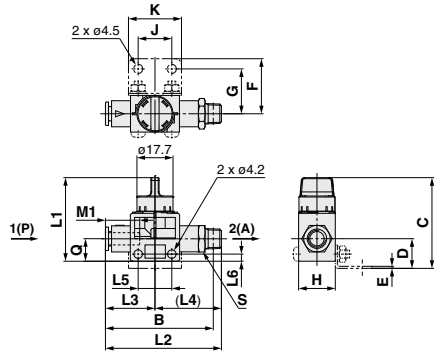
1(P): Male Thread, 2 (A): One-touch Fitting



Connection thread R	Applicable tubing O.D. (mm)		Model	H	L1	L2	L3	L4	L5	L6	M1	Q	Flow rate characteristics						Weight (g)	ø2 B	S (With gasket face)	Bracket mounting dimensions									
	1(P)	2(A)											1(P)→2(A)			2(A)→3(R)*1						Bracket assembly no.	C	D	E	F	G	J	K		
													Q ₁ (l/min)	b	Cv	Q ₂ (l/min)	b	Cv													
M5	4	VHK□A-M5-04F	18	41	52.9	23.8	29.1		16.5	3.5	15.8	11	0.4	0.15	0.10	0.25	0.6	0.06	19	49	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	6	VHK□A-M5-06F	18	41	53.9	24.3	29.6		16.8		0.4	0.15	0.10	0.25	0.6	0.06	21	50	13												
1/8	4	VHK□A-01S-04F	18	41	55.4	23.8	31.6		16.5	3.5	15.8	11	0.7	0.15	0.17	0.25	0.6	0.06	21	51	11	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	6	VHK□A-01S-06F	18	41	56.9	24.3	32.6		16.5	3.5	16.8	11	1.4	0.15	0.35	0.25	0.6	0.06	23	53	13										
1/4	8	VHK□A-01S-08F	18	41	62.2	26.2	36		16.5	3.5	18.7	11	1.9	0.15	0.47	0.25	0.6	0.06	31	58	17	VHK-B1A	44.5	14.5	1	27	22	16.5	26		
	6	VHK□A-02S-06F	18	41	60.4	24.3	36.1		16.8		1.4	0.15	0.35	0.25	0.6	0.06	31	54	14												
	8	VHK□A-02S-08F	18	41	65.2	26.2	39		16.5	3.5	18.7	11	1.9	0.15	0.47	0.25	0.6	0.06	32	59	17	VHK-B2A	49	17	1	30	25	21.5	31		
	10	VHK□A-02S-10F	22	46	73.8	30.5	43.3		20.8		3.1	0.15	0.78	0.67	0.6	0.16	49	68	19												
	12	VHK□A-02S-12F	22	46	76.3	31.5	44.8		21.5	4	21.8	14	3.4	0.15	0.85	0.67	0.6	0.16	63	70	22	VHK-B2A	49	17	1	30	25	21.5	31		
	6	VHK□A-03S-06F	18	41	62.4	24.3	38.1		16.5	3.5	16.8	11	1.4	0.15	0.35	0.25	0.6	0.06	41	56	17										
3/8	8	VHK□A-03S-08F	18	41	66.2	26.2	40		16.5	3.5	18.7	11	1.9	0.15	0.47	0.25	0.6	0.06	40	60	17	VHK-B1A	44.5	11.5	1	27	22	16.5	26		
	10	VHK□A-03S-10F	22	46	74.8	30.5	44.3		21.5	4	20.8	14	3.1	0.15	0.78	0.67	0.6	0.16	51	68	19										
1/2	12	VHK□A-03S-12F	22	46	77.3	31.5	45.8		21.5	4	21.8	14	3.4	0.15	0.85	0.67	0.6	0.16	64	71	22	VHK-B2A	49	17	1	30	25	21.5	31		
	10	VHK□A-04S-10F	22	46	78.2	30.5	47.7		21.5	4	20.8	14	3.1	0.15	0.78	0.67	0.6	0.16	72	70	22										
	12	VHK□A-04S-12F	22	46	80.2	31.5	48.7		21.5	4	21.8	14	3.4	0.15	0.85	0.67	0.6	0.16	70	72	22										

*1 3-port valve *2 Reference dimensions after insertion of R thread.

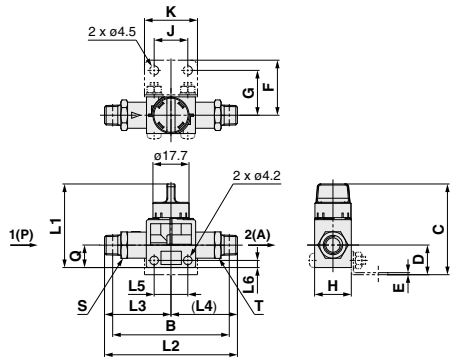
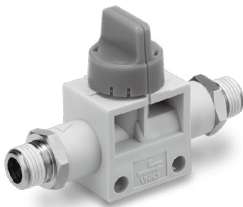
1(P): One-touch Fitting, 2(A): Male Thread



Applicable tubing O.D. (mm)	Connection thread R	Model	H	L1	L2	L3	L4	L5	L6	M1	Q	Flow rate characteristics						Weight (g)	+2 B	S (Width across flats)	Bracket mounting dimensions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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*1 3-port valve *2 Reference dimensions after insertion of R thread.

1(P)/2(A): Male Thread



Connection thread R		Model	H	L1	L2	L3	L4	L5	L6	Q	Flow rate characteristics						Weight (g)	+2 B	S (Width across flats)	T (Width across flats)	Bracket mounting dimensions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
											1(P)→2(A)		2(A)→3(R)*1		Cv						Cv		Bracket assembly no.	C	D	E	F	G	J	K																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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*1 3-port valve *2 Reference dimensions after insertion of R thread.



VHK-A Series/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. Please contact SMC when fluids other than air are used.
2. Do not supply air pressure from 2(A) port. The air will leak out from 1(P) port.
3. Since the valve allows a small volume of air leakage, it may not be suitable for holding pressure in a pressure vessel.

Selection

⚠ Caution

Operation method:

The valve must be switched to OPEN or SHUT instantly and securely. Stopping the handle halfway between the extreme positions may cause malfunction.

Mounting

⚠ Caution

L type bracket mounting:

Apply a tightening torque of 0.5 to 0.6 N·m to the bolts when the bracket is mounted on the body.

Piping

⚠ Caution

Precautions for handling the male threads of the R pipe fitting with seal

1. Use a wrench to secure the hexagon portion to screw in the fitting. If the size of the wrench is not appropriate it will be stripped.
2. To screw in the fitting, first hand-tighten; then, use a tool to rotate it 2 to 3 turns. If it is tightened excessively, more sealing agent will be forced out. Therefore, make sure to remove the extra sealing agent.
3. Re-use of fittings:
 - 1) Ordinarily, the fitting can be reused 2 to 3 times.
 - 2) Before reusing the fitting, clear off the sealing agent that remains on the removed pipe fitting using an air blower. If the sealing agent is peeled off and enters the peripheral equipment, it can cause air leakage.
 - 3) If the sealing effect has been lost, wrap a seal tape over the sealing agent to reuse the fitting. Do not use any sealing agent other than seal tape.

One-touch Fitting

⚠ Caution

1. When tubing of brands other than SMC's are used, verify that the tubing O.D. satisfies the following accuracy;

- Nylon tubing Within ± 0.1 mm
- Soft nylon tubing Within ± 0.1 mm
- Polyurethane tubing Within $+0.1$ mm, -0.2 mm

If the tube's external accuracy is not satisfied, it may not be possible to connect the tube. Even if it is connected, air leakage or tube disconnection may result.