

5 Port Air Operated Valve

RoHS



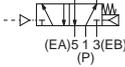
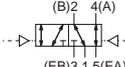
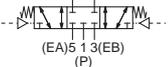
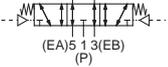
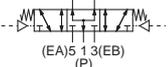
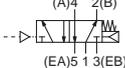
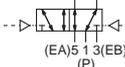
VFA 1000/3000/5000 Series



EMC-VFA 1/3/5000-01A-UK

Model Selection by Operating Conditions ①

Air Operated Valve: Single Unit

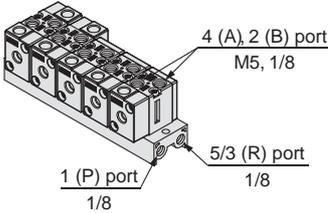
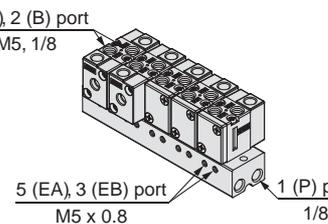
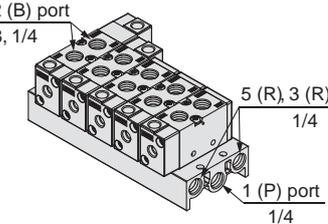
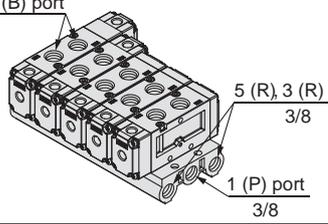
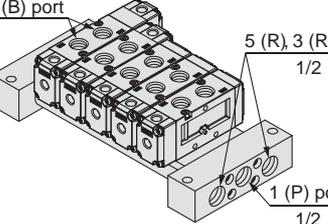
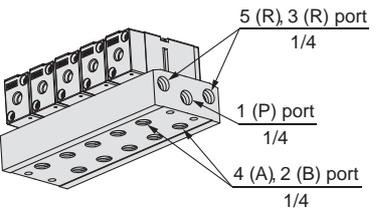
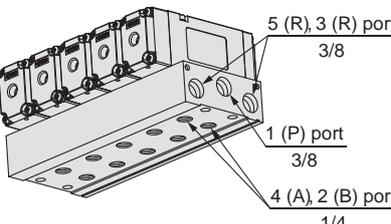
Series	Sonic conductance C[dm ³ /(s·bar)]	Type of actuation	Port size	Pilot port direction
Body ported	VFA1000 	2 position single VFA1000 (B)2 4(A)  (EB)3 1 5(EA) (P)	M5 x 0.8 1/8	
		VFA3000 VFA5000 (A)4 2(B)  (EA)5 1 3(EB) (P)		
	VFA3000 	2 position double VFA1000 (B)2 4(A)  (EB)3 1 5(EA) (P)	1/8 1/4	
VFA5000 	8.8	3 position closed centre (A)4 2(B)  (EA)5 1 3(EB) (P)	1/4 3/8	Upward 
		3 position exhaust centre (A)4 2(B)  (EA)5 1 3(EB) (P)		Lateral 
		3 position pressure centre (A)4 2(B)  (EA)5 1 3(EB) (P)		
Base mounted	VFA3000 	2 position single (A)4 2(B)  (EA)5 1 3(EB) (P)	1/4 3/8	
		2 position double (A)4 2(B)  (EA)5 1 3(EB) (P)		
	VFA5000 	3 position closed centre (A)4 2(B)  (EA)5 1 3(EB) (P)	1/4 3/8 1/2	
9.4	3 position exhaust centre (A)4 2(B)  (EA)5 1 3(EB) (P)			
	3 position pressure centre (A)4 2(B)  (EA)5 1 3(EB) (P)			

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Model Selection by Operating Conditions ②

Air Operated Valve: Manifold

Series	EXH port type	Manifold base model	Applicable valve model	Applicable stations
VFA1000 	Common EXH	VV5FA1-30  <p>4 (A), 2 (B) port M5, 1/8</p> <p>1 (P) port 1/8</p> <p>5/3 (R) port 1/8</p>	VFA1□30	2 to 20 stations
	Individual EXH	VV5FA1-31  <p>4 (A), 2 (B) port M5, 1/8</p> <p>5 (EA), 3 (EB) port M5 x 0.8</p> <p>1 (P) port 1/8</p>		
VFA3000 	Common EXH	VV5FA3-30  <p>4 (A), 2 (B) port 1/8, 1/4</p> <p>5 (R), 3 (R) port 1/4</p> <p>1 (P) port 1/4</p>	VFA3□30	2 to 20 stations
VFA5000 	Common EXH	VV5FA5-20  <p>4 (A), 2 (B) port</p> <p>5 (R), 3 (R) port 3/8</p> <p>1 (P) port 3/8</p>	VFA5□20	2 to 10 stations
	Common EXH	VV5FA5-21  <p>4 (A), 2 (B) port</p> <p>5 (R), 3 (R) port 1/2</p> <p>1 (P) port 1/2</p>		2 to 15 stations
VFA3000 	Common EXH	VV5FA3-40  <p>5 (R), 3 (R) port 1/4</p> <p>1 (P) port 1/4</p> <p>4 (A), 2 (B) port 1/4</p>	VFA3□40	2 to 20 stations
	VFA5000 	Common EXH	VV5FA5-40  <p>5 (R), 3 (R) port 3/8</p> <p>1 (P) port 3/8</p> <p>4 (A), 2 (B) port 1/4</p>	VFA5□44

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5 Port Air Operated Valve

VFA1000/3000/5000 Series

Single Unit

Body Ported

RoHS

How to Order Valve

Body ported VFA 3 1 3 0 - 01 - - -

Series

1	VFA1000
3	VFA3000
5	VFA5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre

* Only 1 and 2 are available with the VFA1000.

Body model

Symbol	VFA1000	VFA3000	VFA5000
2	○	—	○
3	—	○	—

A, B port size

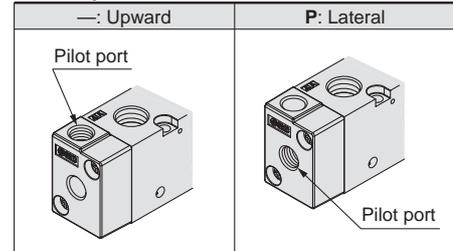
Symbol	Port size	VFA1000	VFA3000	VFA5000
M5	M5 x 0.8	○	—	—
01	1/8	○	○	—
02	1/4	—	○	○
03	3/8	—	—	○

Thread type (Including pilot port)

—	Rc
F	G
N	NPT
T	NPTF

* M5 is available with — only.

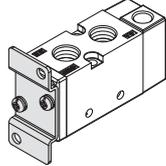
Pilot port direction



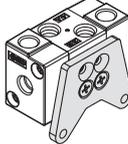
Bracket

—	Without bracket
F	With bracket

VFA1000, 3000
Single type
(The bracket cannot be connected after delivered.)



VFA1000
Double type only



* Not available with the VFA5000.

5 Port Air Operated Valve Body Ported/Single Unit **VFA 1000/3000/5000 Series**

Specifications



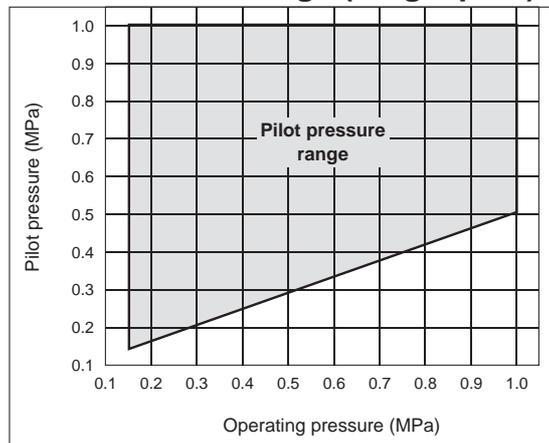
Model		VFA1000	VFA3000	VFA5000
Fluid		Air		
Operating pressure range (MPa)	2 position single	0.15 to 1.0		
	2 position double/3 position ^{Note 2)}	-101.2 kPa to 1.0		
Pilot pressure range (MPa)	2 position single	(0.4 x P + 0.1) to 1.0, P: Operating pressure		
	2 position double	0.1 to 1.0		
	3 position	0.15 to 1.0		
Ambient and fluid temperature (°C)		-10 to 50 (No freezing)		
Lubrication		Not required		
Mounting orientation		Free		
Impact/Vibration resistance (m/s ²) ^{Note 1)}		300/50		

Note 1) Impact resistance: No malfunction to axis and right angle directions of main valve, each one time when pilot signal ON and OFF. (Values at the initial period)

Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Values at the initial period)

Note 2) Except VFA1000

Pilot Pressure Range (Single pilot)



VFA 1000/3000/5000 Series

Flow Rate Characteristics/Weights

Valve model	Type of actuation		Port size		Flow rate characteristics ^{Note 1)}								Weight (g) ^{Note 2)}	
			1, 4, 2 (P, A, B)	5, 3 (EA, EB)	1→4/2 (P→A/B)				4/2→5/3 (A/B→EA/EB)					
					C[dm ³ / (s/bar)]	b	Cv	Q[l/min/ (ANR)] ^{Note 3)}	C[dm ³ / (s/bar)]	b	Cv	Q[l/min/ (ANR)] ^{Note 3)}		
VFA1□20-M5	2 position	Single	M5 x 0.8		0.49	0.40	0.13	133	0.52	0.35	0.13	137	97	
		Double			0.49	0.40	0.13	133	0.52	0.35	0.13	137	120	
VFA1□20-01	2 position	Single	1/8	M5 x 0.8	0.76	0.22	0.17	184	0.53	0.28	0.13	133	93	
		Double			0.76	0.22	0.17	184	0.53	0.28	0.13	133	116	
VFA3□30-01	2 position	Single	1/8		3.0	0.38	0.78	805	2.8	0.30	0.67	712	135	
		Double			3.0	0.38	0.78	805	2.8	0.30	0.67	712	158	
	3 position	Closed centre			2.4	0.31	0.64	614	1.8	0.37	0.46	479	175	
		Exhaust centre			2.6	0.37	0.70	692	3.0	0.32	0.76	773		
		Pressure centre			3.0	0.42	0.83	828	2.4	0.27	0.59	599		
2 position	Single	1/4	1/8	4.0	0.36	1.0	1058	3.1	0.32	0.75	798	131		
	Double			4.0	0.36	1.0	1058	3.1	0.32	0.75	798	154		
VFA3□30-02	3 position	Closed centre	1/4	1/8	2.4	0.45	0.68	678	1.9	0.37	0.47	506	171	
		Exhaust centre			3.0	0.42	0.82	828	3.1	0.36	0.79	820		
	Pressure centre	5.5			0.37	1.4	1465	2.6	0.32	0.64	670			
VFA5□20-02	2 position	Single	1/4		7.1	0.46	1.9	2021	7.7	0.51	2.2	2282		294
		Double			7.1	0.46	1.9	2021	7.7	0.51	2.2	2282		329
	3 position	Closed centre			6.7	0.46	1.8	1907	6.6	0.41	1.8	1808	368	
		Exhaust centre			7.1	0.42	1.9	1960	8.0	0.45	2.2	2259		
		Pressure centre			6.8	0.51	2.0	2016	5.7	0.37	1.4	1518		
VFA5□20-03	2 position	Single	3/8		8.8	0.44	2.4	2466	10.0	0.49	2.9	2915		280
		Double			8.8	0.44	2.4	2466	10.0	0.49	2.9	2915		315
	3 position	Closed centre			7.5	0.43	2.0	2086	7.5	0.38	1.9	2011	354	
		Exhaust centre			8.3	0.40	2.2	2258	10.0	0.48	3.0	2892		
		Pressure centre			9.2	0.50	2.6	2074	6.1	0.35	1.6	1603		

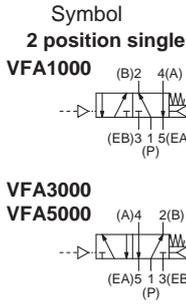
Note 1) []: Normal position

Note 2) Values without bracket

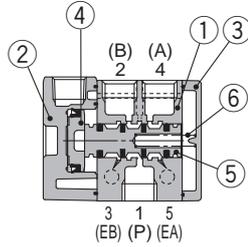
Note 3) These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa

Construction: Body Ported

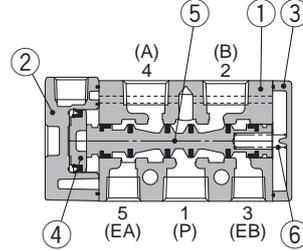
2 position single



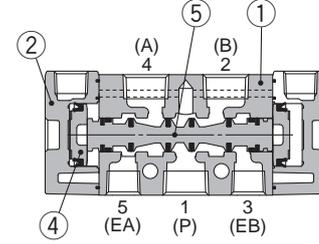
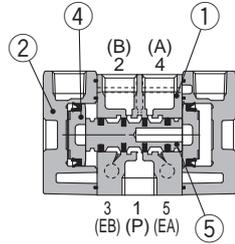
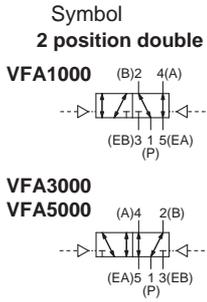
VFA1000



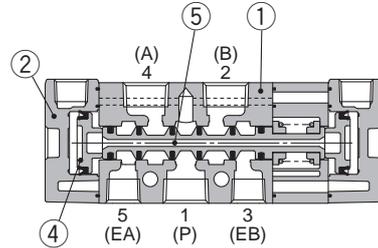
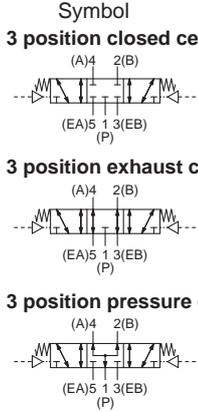
VFA3000, 5000



2 position double



3 position closed centre/exhaust centre/pressure centre



(Drawing shows a closed centre type.)

Component Parts

No.	Description	Material	Note
1	Body	Aluminium die-casted	White
2	Pilot plate	Aluminium die-casted	Grey
3	End plate	Resin (VFA3130-F : Aluminium die-casted) VFA1120-F	White
4	Piston	Resin	
5	Spool valve	Aluminium, HNBR	
6	Spring	Stainless steel	

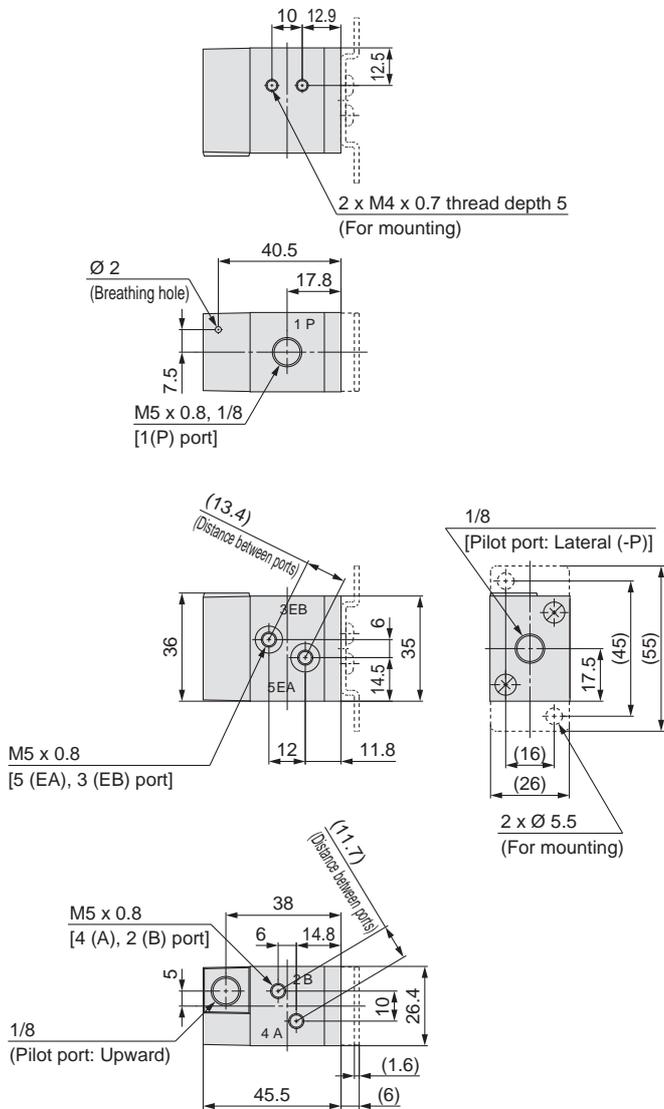
Bracket Assembly Part No.

Description	Part no.
Bracket (for VFA1000 double)	DXT144-8-1A (With 2 mounting screws)

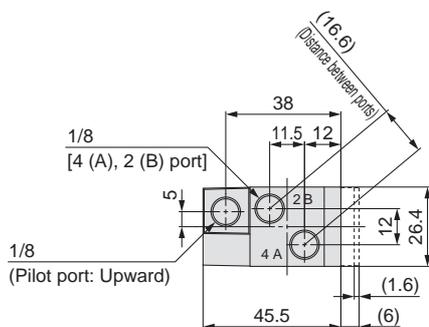
VFA 1000/3000/5000 Series

Dimensions: VFA1000 Series/Body Ported

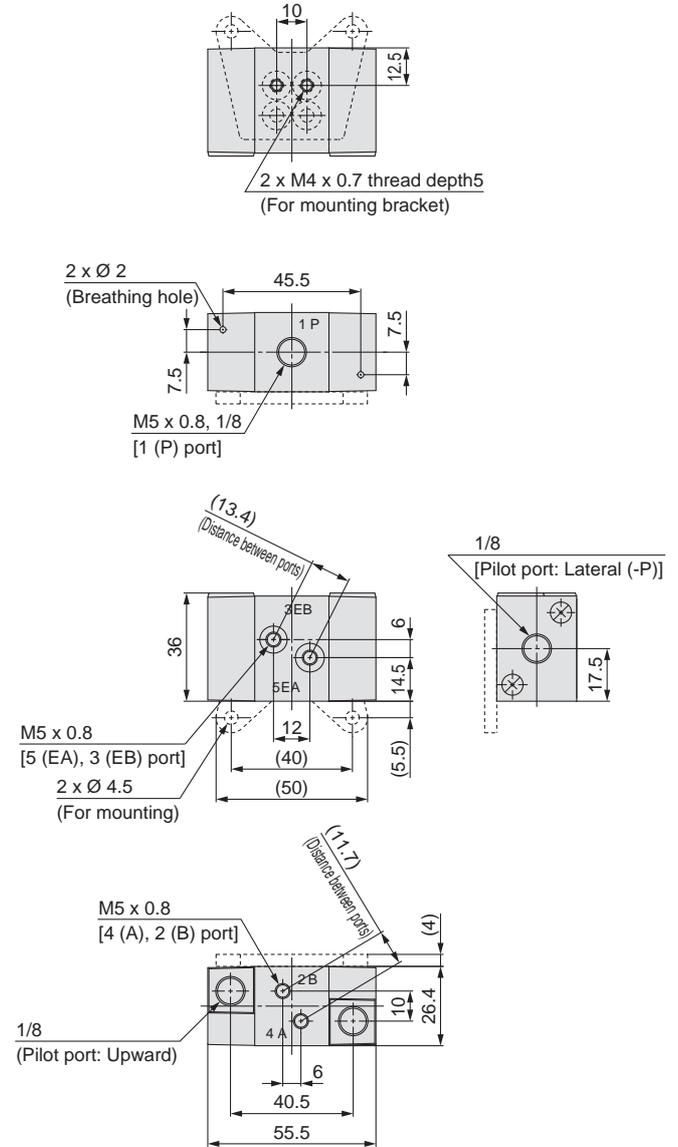
2 position single VFA1120-M5□(-F)(-P)



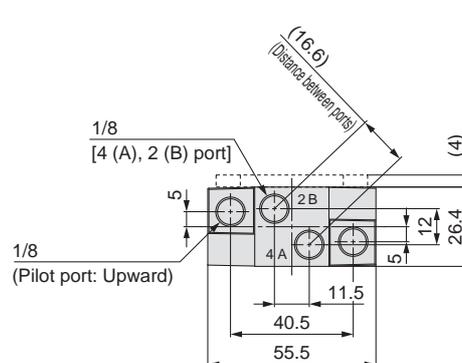
VFA1120-01□(-F)(-P)



2 position double VFA1220-M5□(-F)(-P)



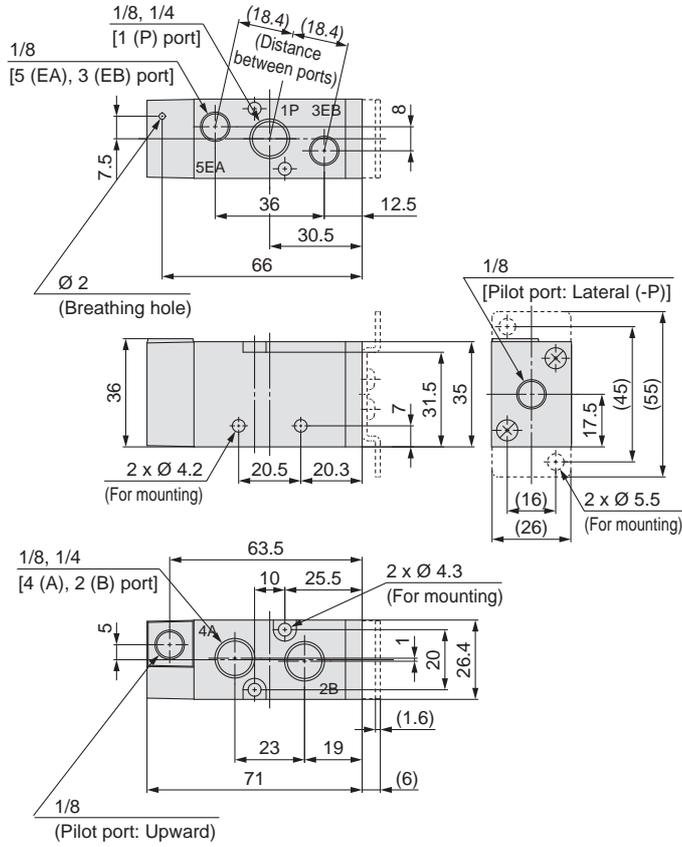
VFA1220-01□(-F)(-P)



Dimensions: VFA3000 Series/Body Ported

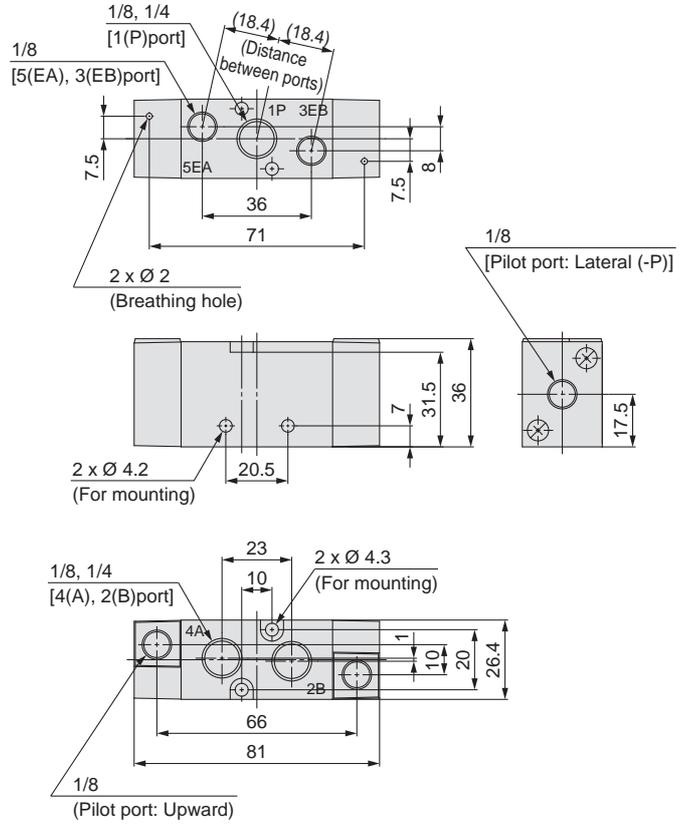
2 position single

VFA3130-01□(-F)(-P)



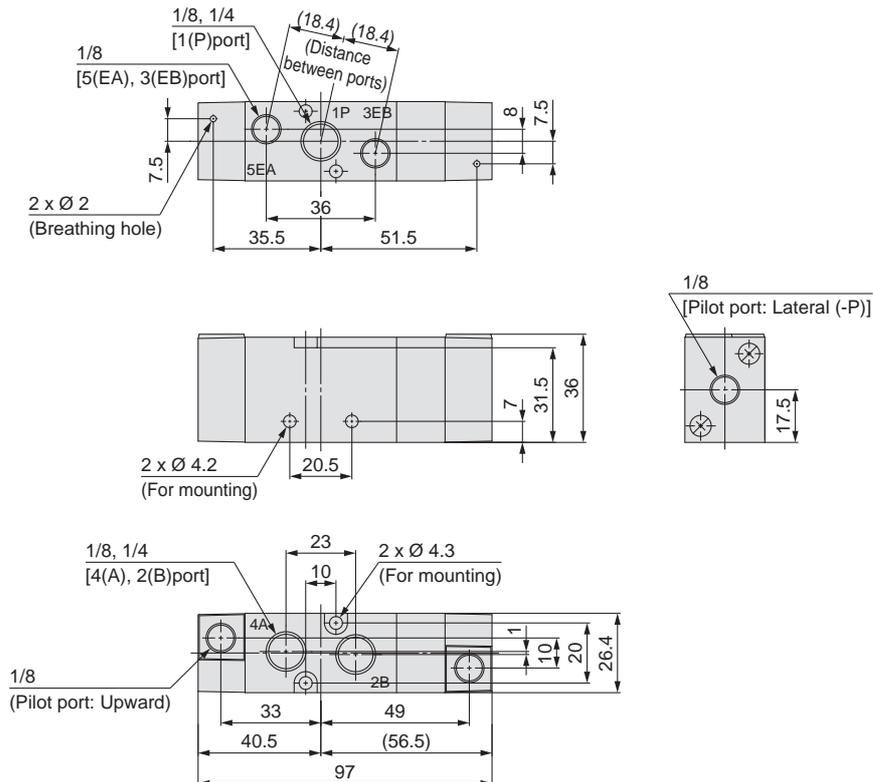
2 position double

VFA3230-01□(-P)



3 position closed centre/exhaust centre/pressure centre

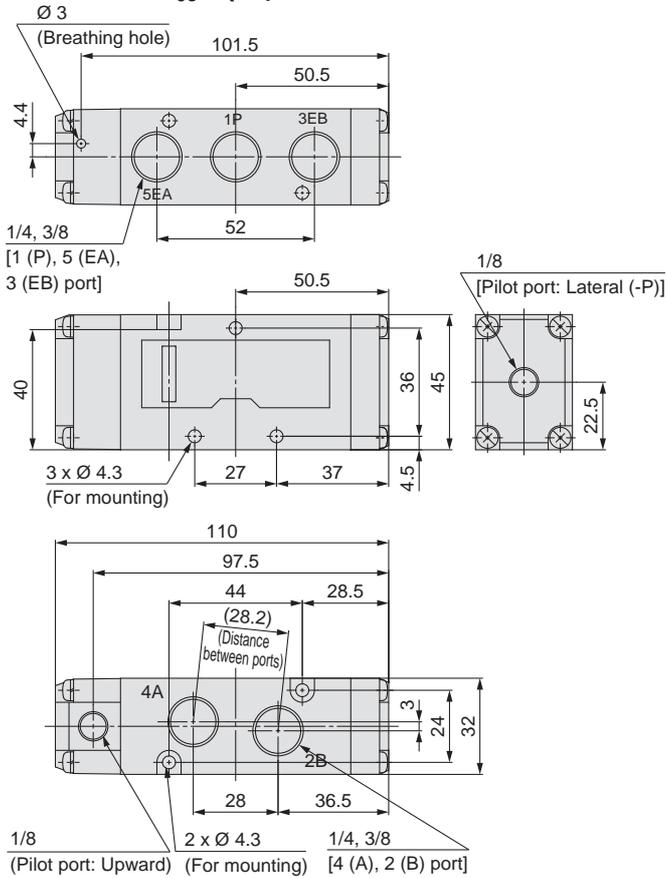
VFA3430-01□(-P)



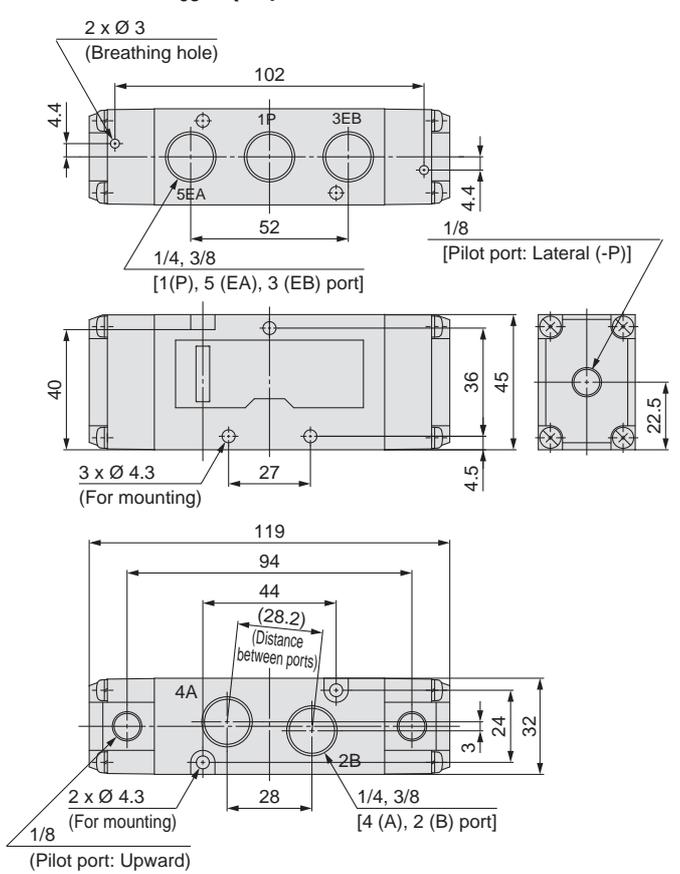
VFA 1000/3000/5000 Series

Dimensions: VFA5000 Series/Body Ported

2 position single VFA5120-02-03□(-P)

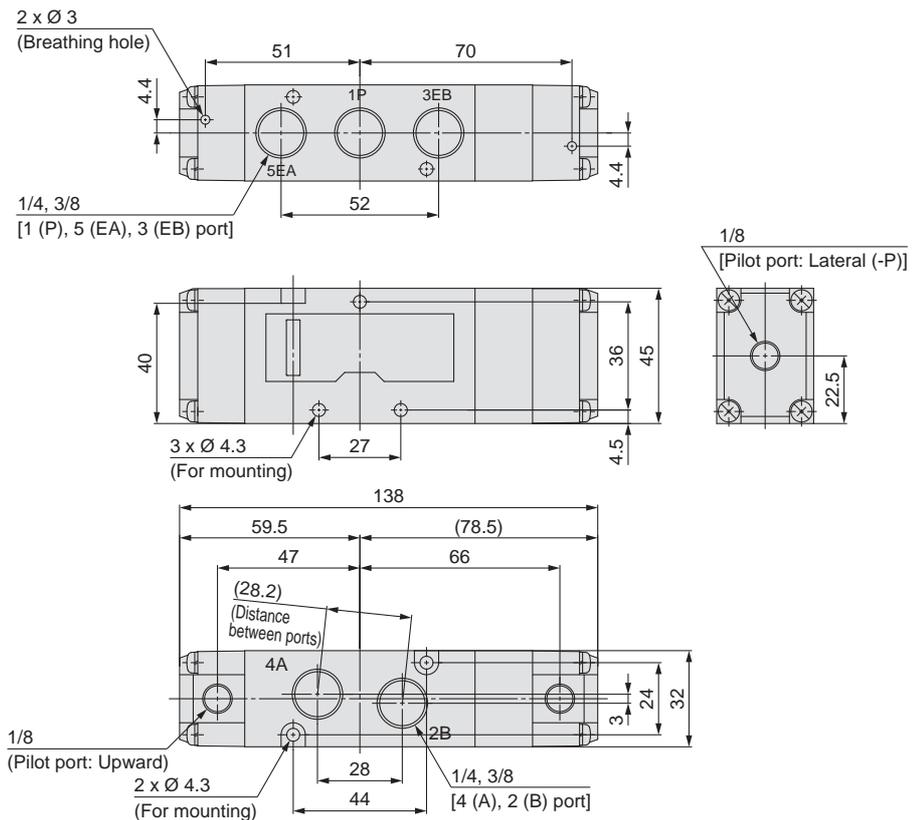


2 position double VFA5220-02-03□(-P)



3 position closed centre/exhaust centre/pressure centre

VFA5³₄20-02-03□(-P)



5 Port Air Operated Valve

VFA3000/5000 Series

Single Unit

Base Mounted

RoHS

How to Order Valve

Base mounted
(VFA1000: Not available)

VFA 3 1 4 0 - 02 - -

Series

3	VFA3000
5	VFA5000

* Not available with the VFA1000.

Type of actuation

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre

Body model

Body option

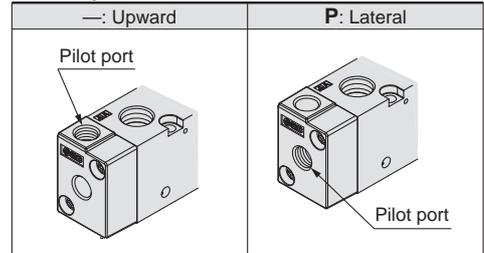
Symbol	VFA3000	VFA5000
0	○	—
4	—	○

Port size (Sub-plate)

Symbol	Port size	VFA3000	VFA5000
—	Without sub-plate (Pilot port: Rc)		
00	Without sub-plate (Pilot port: Other than Rc)		
02	1/4	○	○
03	3/8	○	○
04	1/2	—	○

* Without the sub-plate, two mounting screws and a gasket are included.

Pilot port direction



Thread type (Including pilot port)

—	Rc
F	G
N	NPT
T	NPTF

Specifications



VFA3000 series



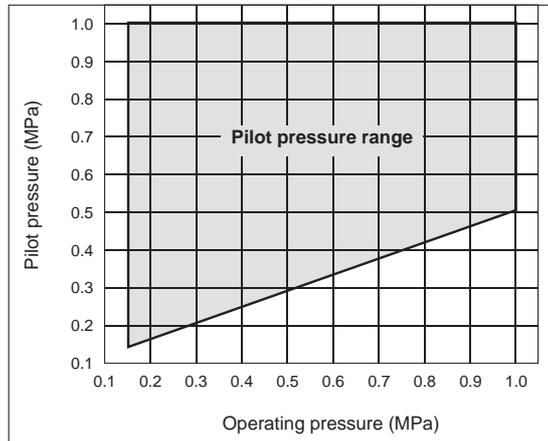
VFA5000 series

Model		VFA3000	VFA5000
Fluid		Air	
Operating pressure range (MPa)	2 position single	0.15 to 1.0	
	2 position double/3 position	-101.2 kPa to 1.0	
Pilot pressure range (MPa)	2 position single	(0.4 x P + 0.1) to 1.0, P: Operating pressure	
	2 position double	0.1 to 1.0	
	3 position	0.15 to 1.0	
Ambient and fluid temperature (°C)		-10 to 50 (No freezing)	
Lubrication		Not required	
Mounting orientation		Free	
Impact/Vibration resistance (m/s ²) <small>Note 1)</small>		300/50	

Note 1) Impact resistance: No malfunction to axis and right angle directions of main valve, each one time when pilot signal ON and OFF. (Values at the initial period)

Vibration resistance: No malfunction from test with 45 to 2000 Hz one sweep, to axis and right angle direction of main valve, each one time when pilot signal ON and OFF. (Values at the initial period)

Pilot Pressure Range (Single pilot)



VFA3000/5000 Series

Flow Rate Characteristics/Weights

Valve model	Type of actuation		Port size	Flow rate characteristics ^{Note 1)}								Weight (g) ^{Note 2)}
				1→4/2 (P→A/B)				4/2→5/3 (A/B→EA/EB)				
				C [dm ³ / (s/bar)]	b	Cv	Q[l/min/ (ANR)] ^{Note 3)}	C [dm ³ / (s/bar)]	b	Cv	Q[l/min/ (ANR)] ^{Note 3)}	
VFA3□40-02	2 position	Single	1/4	2.8	0.14	0.64	649	2.5	0.18	0.57	592	295 (143)
		Double		2.8	0.14	0.64	649	2.5	0.18	0.57	592	318 (166)
	3 position	Closed centre		2.1	0.22	0.49	509	1.6	0.26	0.41	397	335 (183)
		Exhaust centre		2.3	0.21	0.53	554	2.8 [2.1]	0.23 [0.26]	0.66 [0.50]	682 [521]	
		Pressure centre		2.9 [1.1]	0.16 [0.45]	0.67 [0.32]	679 [311]	2.1	0.23	0.49	512	
VFA3□40-03	2 position	Single	3/8	3.1	0.24	0.76	760	2.6	0.23	0.62	634	278 (143)
		Double		3.1	0.24	0.76	760	2.6	0.23	0.62	634	301 (166)
	3 position	Closed centre		2.2	0.33	0.57	570	1.6	0.34	0.40	418	318 (183)
		Exhaust centre		2.6	0.27	0.61	649	2.8 [2.3]	0.30 [0.28]	0.68 [0.55]	712 [578]	
		Pressure centre		3.4 [1.3]	0.29 [0.48]	0.80 [0.38]	859 [376]	2.2	0.31	0.52	563	
VFA5□44-02	2 position	Single	1/4	7.3	0.49	2.1	2128	7.3	0.50	2.0	2146	467 (278)
		Double		7.3	0.49	2.1	2128	7.3	0.50	2.0	2146	502 (313)
	3 position	Closed centre		6.6	0.35	1.7	1734	6.3	0.31	1.6	1612	541 (352)
		Exhaust centre		7.4	0.33	1.9	1918	8.1 [7.4]	0.35 [0.34]	2.1 [1.9]	2391 [1931]	
		Pressure centre		8.0 [2.9]	0.35 [0.48]	2.1 [0.85]	2102 [839]	5.6	0.31	1.5	1433	
VFA5□44-03	2 position	Single	3/8	8.4	0.34	2.2	2192	8.9	0.29	2.3	2249	454 (278)
		Double		8.4	0.34	2.2	2192	8.9	0.29	2.3	2249	489 (313)
	3 position	Closed centre		7.3	0.34	2.0	1905	7.1	0.28	1.8	1783	528 (352)
		Exhaust centre		8.1	0.27	2.0	2022	14.0 [8.3]	0.26 [0.31]	3.4 [2.2]	3473 [2124]	
		Pressure centre		8.1 [2.5]	0.33 [0.48]	2.0 [0.74]	2100 [723]	5.7	0.31	1.4	1459	
VFA5□44-04	2 position	Single	1/2	9.4	0.43	2.7	2614	12.0	0.32	3.0	3091	526 (278)
		Double		9.4	0.43	2.7	2614	12.0	0.32	3.0	3091	561 (313)
	3 position	Closed centre		7.1	0.41	2.1	1945	7.4	0.32	2.0	1906	600 (352)
		Exhaust centre		8.6	0.39	2.4	2323	13.0 [8.9]	0.21 [0.40]	3.1 [2.5]	3132 [2421]	
		Pressure centre		11.0 [2.6]	0.18 [0.47]	2.6 [0.78]	2606 [746]	6.1	0.35	1.6	1603	

Note 1) []: Normal position

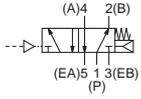
Note 2) (): Values without sub-plate

Note 3) These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa

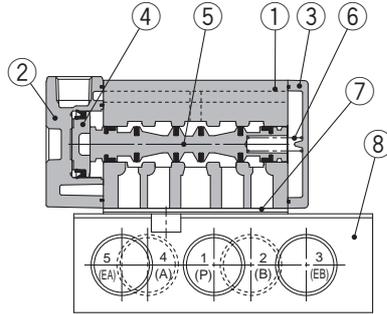
Construction: Base Mounted

VFA3000, 5000

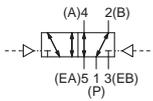
Symbol
2 position single



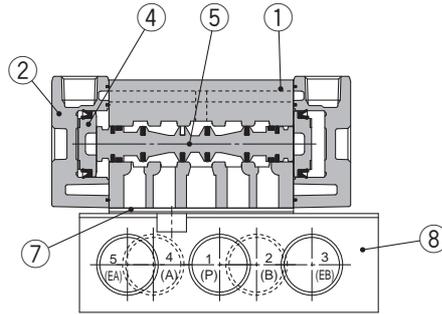
2 position single



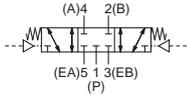
Symbol
2 position double



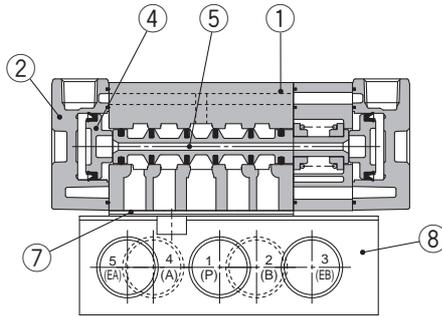
2 position double



Symbol
3 position closed centre

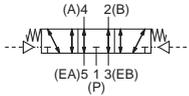


3 position closed centre/exhaust centre/pressure centre

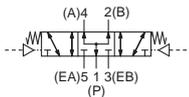


(Drawing shows a closed centre type.)

3 position exhaust centre



3 position pressure centre



Sub-plate part no.

VF 3 000-71-1

Series

3	VFA3000
5	VFA5000

Thread type

—	Rc
F	G
N	NPT
T	NPTF

Port size

Symbol	Port size	VFA3000	VFA5000
1	1/4	○	○
2	3/8	○	○
3	1/2	—	○

Component Parts

No.	Description	Material	Note
1	Body	Aluminium die-casted	White
2	Pilot plate	Aluminium die-casted	Grey
3	End plate	Resin	White
4	Piston	Resin	
5	Spool valve	Aluminium, HNBR	
6	Spring	Stainless steel	

Replacement Parts

No.	Description	Part no.		Note
		VFA3000	VFA5000	
7	Gasket	DXT031-30-11	DXT156-9-8	HNBR
8	Sub-plate	1/4: VF3000-71-1□ 3/8: VF3000-71-2□	1/4: VF5000-71-1□ 3/8: VF5000-71-2□ 1/2: VF5000-71-3□	Aluminium die-casted
—	Round head combination screw (1 pc.)	DXT031-44-1 (M4 x 39.5, With spring washer)	—	For mounting valve
—	Hexagon socket head cap screw (1 pc.)	—	AXT620-32-1 (M4 x 48, With spring washer)	For mounting valve

Caution

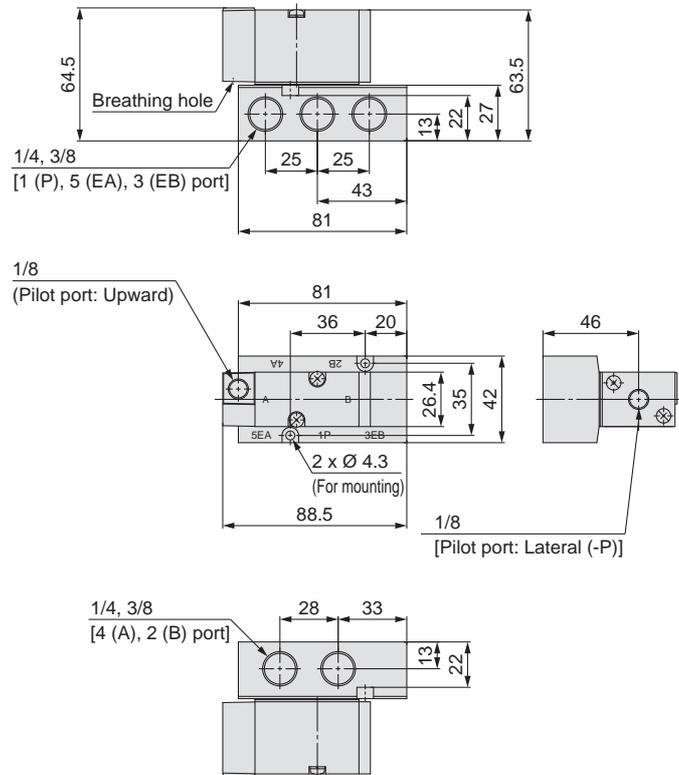
Tightening Torque for Mounting Valve

M4: 1.4 N-m

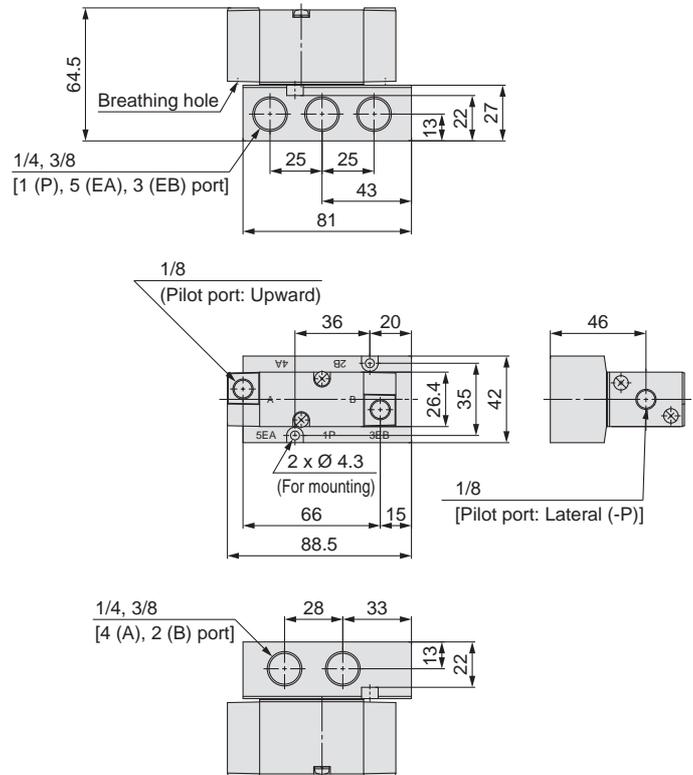
VFA3000/5000 Series

Dimensions: VFA3000 Series/Base Mounted

2 position single VFA3140-02⁰²₀₃□(-P)

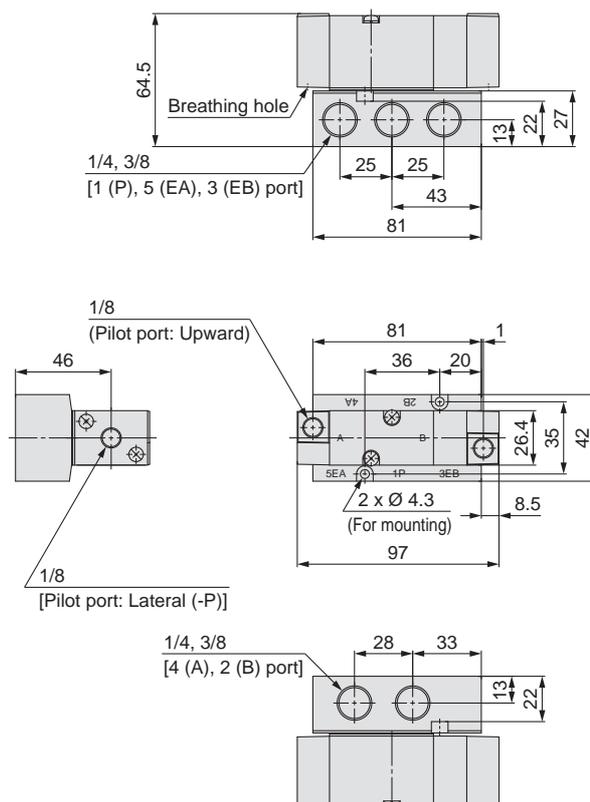


2 position double VFA3240-02⁰²₀₃□(-P)



3 position closed centre/exhaust centre/pressure centre

VFA3³₄40-02⁰²₀₃□(-P)

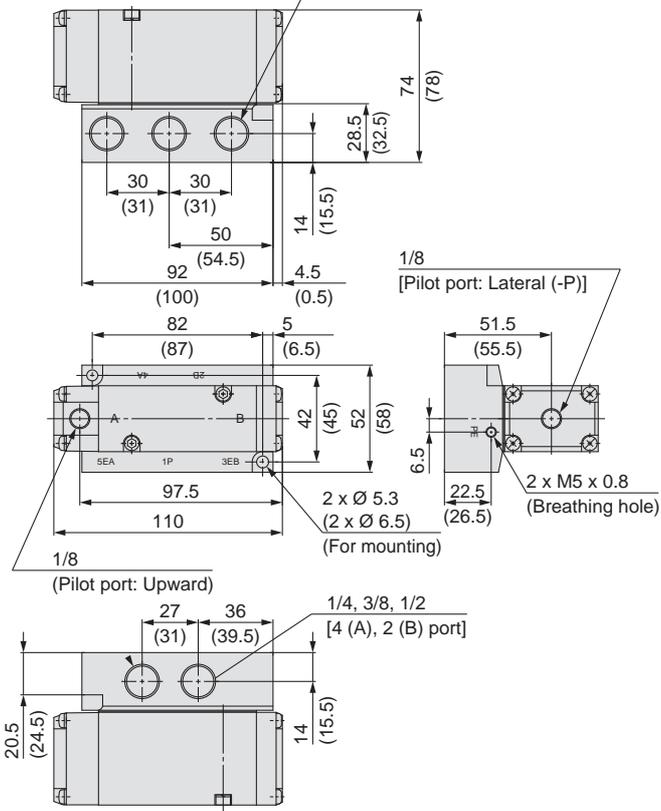


Dimensions: VFA5000 Series/Base Mounted

2 position single

VFA5144-⁰²03□(-P)₀₄

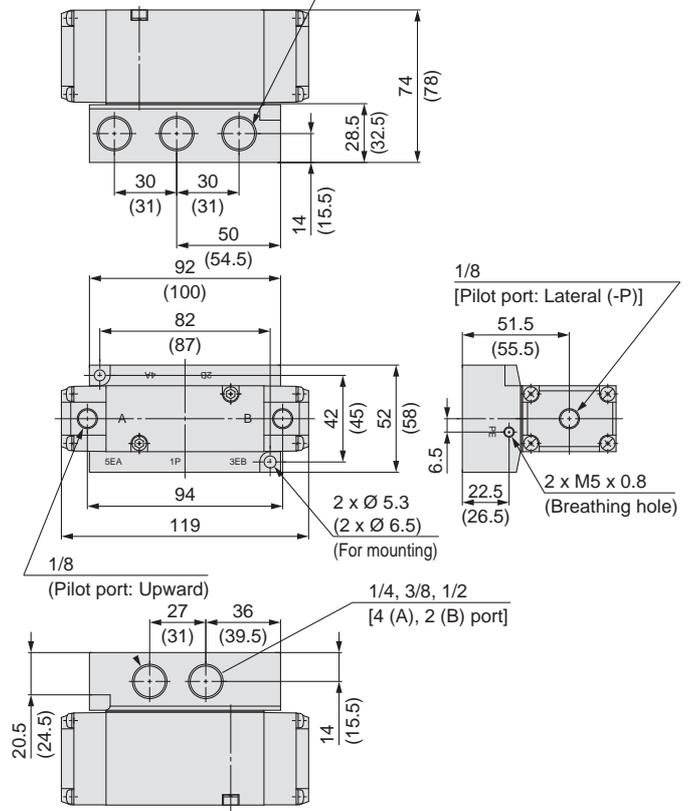
1/4, 3/8, 1/2
[1 (P), 5 (EA), 3 (EB) port]



2 position double

VFA5244-⁰²03□(-P)₀₄

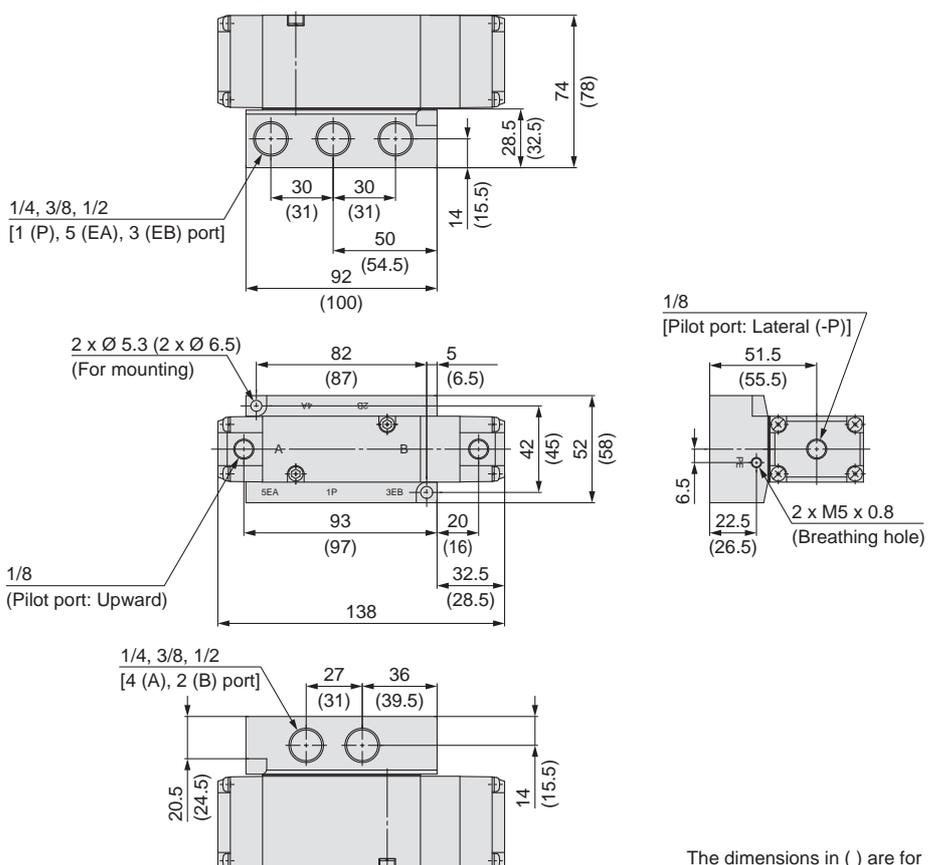
1/4, 3/8, 1/2
[1 (P), 5 (EA), 3 (EB) port]



3 position closed centre/exhaust centre/pressure centre

VFA5³444-⁰²03□(-P)₅₀₄

1/4, 3/8, 1/2
[1 (P), 5 (EA), 3 (EB) port]



The dimensions in () are for 1/2 piping port size.

5 Port Air Operated Valve VFA 1000/3000/5000 Series Manifold

Body Ported

How to Order Manifold

Common exhaust

VV5FA 1 - 30 - 04 1 - □

Series

1	VFA1000
3	VFA3000
5	VFA5000

Thread type

—	Rc
00F	G
00N	NPT
00T	NPTF

Stations

02	2 stations
⋮	⋮
20	20 stations

* Up to 10 stations for VV5FA5-20, and up to 15 stations for VV5FA5-21.

Manifold model

Symbol	P, R Port size	VFA1000	VFA3000	VFA5000
30	1/8	○	—	—
	1/4	—	○	—
20	3/8	—	—	○
21	1/2	—	—	○

* The A and B ports are made on the top.

Individual exhaust
(VFA1000 only)

VV5FA1 - 31 - 04 3 - □

Manifold model

Symbol	P, R Port size	EA, EB Port size
31	1/8	M5

Stations

02	2 stations
⋮	⋮
20	20 stations

Thread type

—	Rc
00F	G
00N	NPT
00T	NPTF

How to Order Valve

Note) When placing an order for body ported valve as a single unit, mounting screws for manifold and gasket are not attached. Order them separately, if necessary.

VFA 3 1 3 0 - 01 □ - □

Series

1	VFA1000
3	VFA3000
5	VFA5000

Type of actuation

1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre

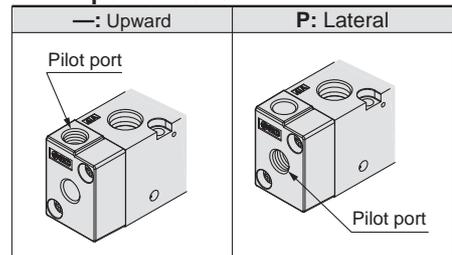
* Only 1 and 2 are available with the VFA1000.

Body model

Symbol	VFA1000	VFA3000	VFA5000
2	—	—	○
3	○ (Note)	○	—

Note) Manifold only

Pilot port direction



Thread type
(Including pilot port)

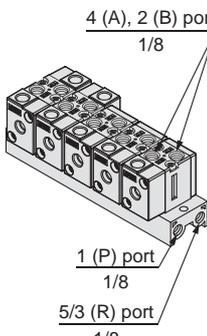
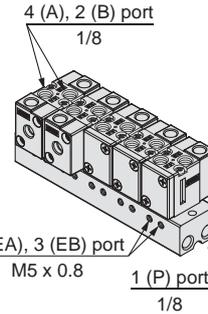
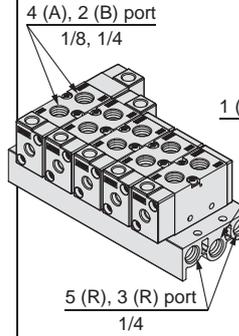
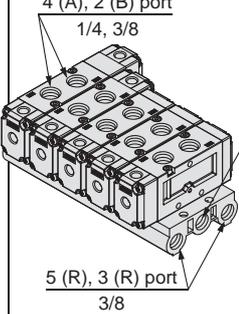
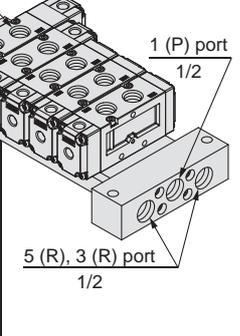
—	Rc
F	G
N	NPT
T	NPTF

* M5 is available with — only.

A, B port size

Symbol	Port size	VFA1000	VFA3000	VFA5000
M5	M5 x 0.8	○	—	—
01	1/8	○	○	—
02	1/4	—	○	○
03	3/8	—	—	○

Manifold Specifications

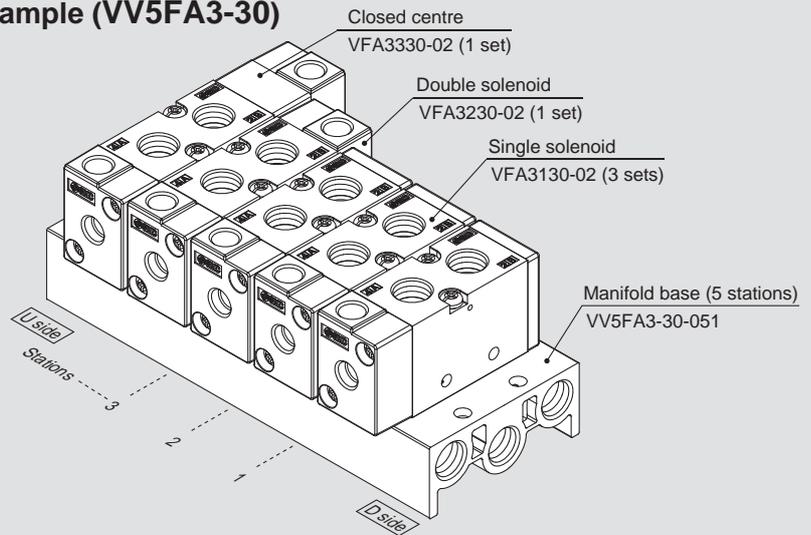
Series	VFA1000		VFA3000	VFA5000	
Manifold base model	VV5FA1-30 	VV5FA1-31 	VV5FA3-30 	VV5FA5-20 	VV5FA5-21 
	Common EXH	Individual EXH	Common EXH	Common EXH	Common EXH
Applicable valve model	VFA1□30		VFA3□30	VFA5□20	
Applicable stations	2 to 20 stations		2 to 20 stations	2 to 10 stations	2 to 15 stations
Manifold base Weight: W[g] Stations: n	$W = 29n + 21$	$W = 51n + 35$	$W = 63n + 64$	$W = 97n + 80$	$W = 139n + 550$

Note) Supply pressure to 1(P) ports and exhaust pressure from R ports on both sides for 10 stations or more (5 stations or more for the VFA5000).

How to Order Manifold Assembly



Example (VV5FA3-30)



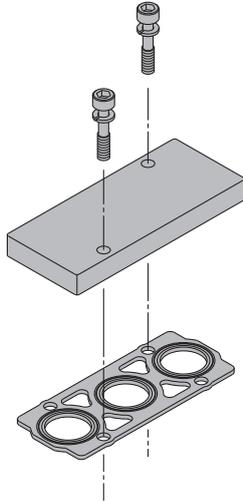
VV5FA3-30-051.....1 set (Type 30, 5-station manifold base part no.)
*** VFA3130-02.....3 sets (Single part no.)**
*** VFA3230-02.....1 set (Double part no.)**
*** VFA3330-02.....1 set (Closed centre part no.)**
 ↳ * The asterisk denotes the symbol for assembly. Prefix it to the part no. of the valve etc.

- The valve arrangement is numbered as the 1st station from D side.
- Under the manifold base part number, state the valves to be mounted in order from the 1st station as shown in the figure above.

VFA1000/3000/5000 Series

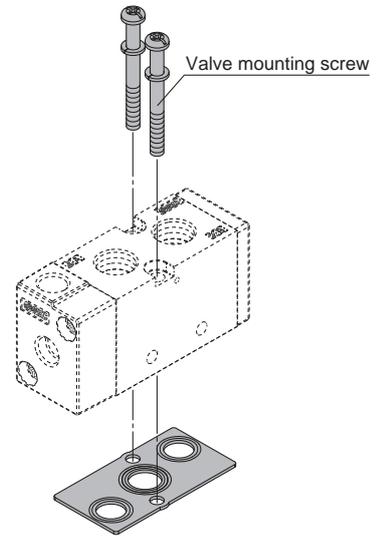
Manifold Options

■ For body ported Blanking plate assembly



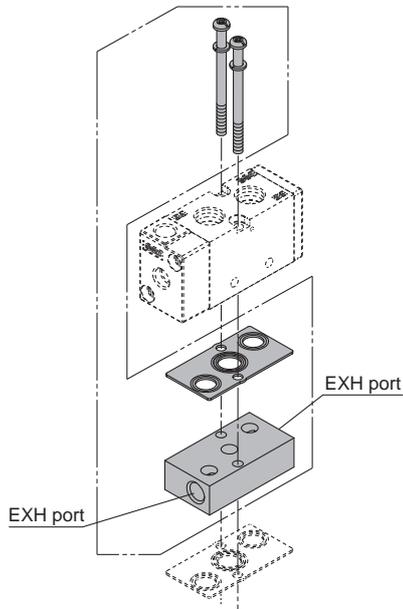
Series	Blanking plate assembly part no.
VFA1000	DXT144-13-3A
VFA3000	DXT031-38-5A
VFA5000	VF5000-70-1A

■ Mounting screw, gasket part no.



Series	Valve mounting screw (1 pc.)	Gasket
VFA1000	Round head combination screw DXT031-44-1 (M4 x 39.5, With spring washer)	DXT144-12-2
VFA3000		DXT155-25-7
VFA5000	Hexagon socket head cap screw AXT620-32-1 (M4 x 48, With spring washer)	DXT156-9-6

■ Individual EXH spacer assembly



⚠ Caution

Tightening Torque for Mounting Screw

M4: 1.4N·m

⚠ Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., the mounting orientation is already decided. If mounted in a wrong direction, the equipment to be connected may result in a malfunction. Refer to the dimensions for mounting.

VF **3** 000-75-1 **A**

• Series

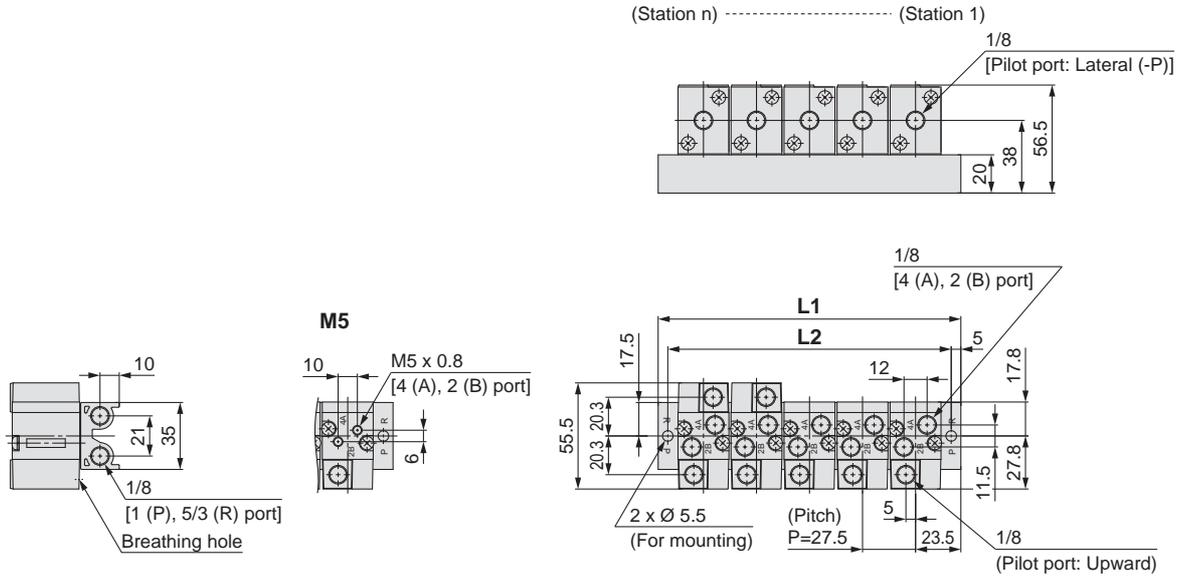
Symbol	Series	Port size
3	VFA3000	1/8
5	VFA5000	1/4

• Thread type

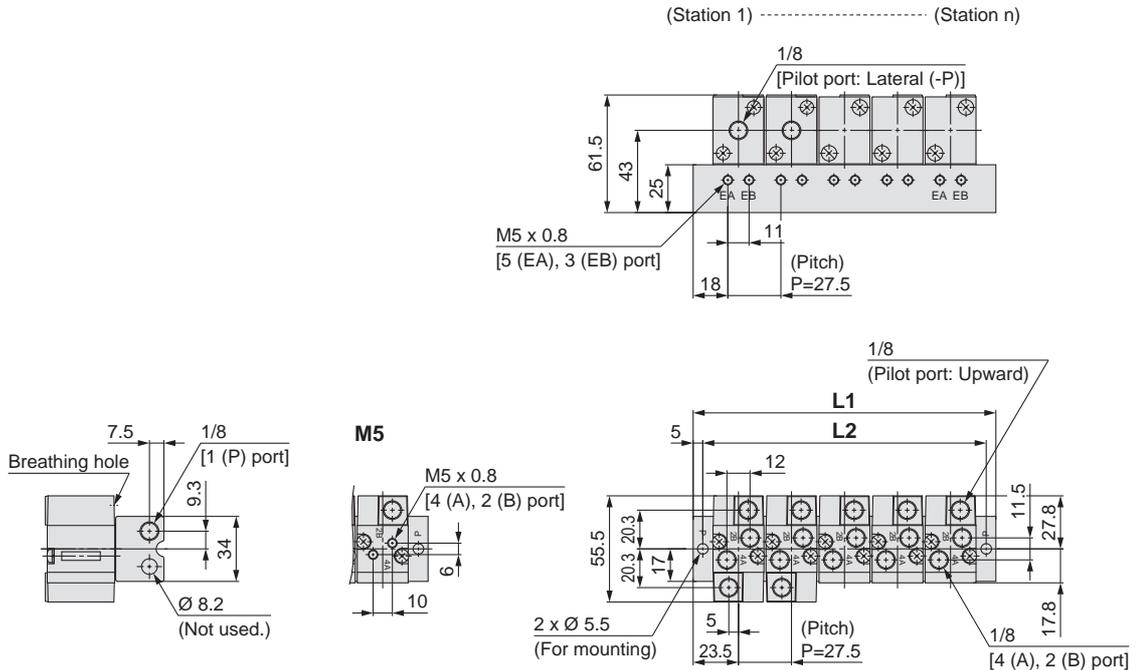
—	Rc
F	G
N	NPT
T	NPTF

Dimensions: VFA1000 Series

Type 30: VV5FA1-30-□□1-□: Common exhaust



Type 31: VV5FA1-31-□□3-□: Individual exhaust



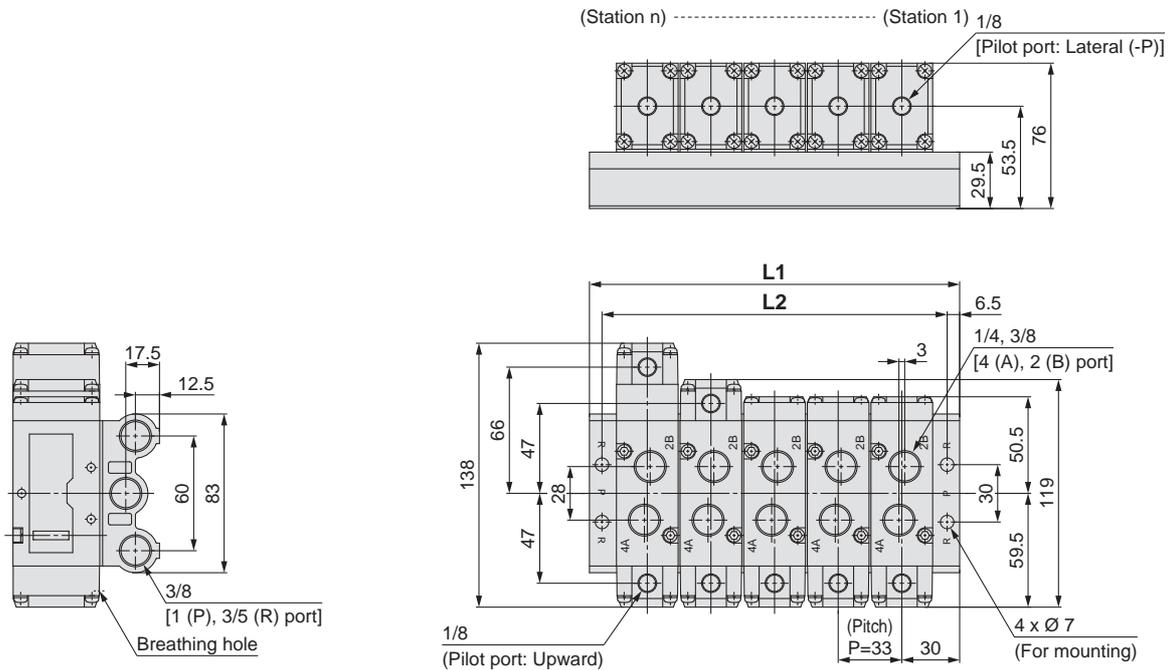
Dimensions (Common to Type 30 and Type 31)

L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	74.5	102	129.5	157	184.5	212	239.5	267	294.5	322	349.5	377	404.5	432	459.5	487	514.5	542	569.5
L2	64.5	92	119.5	147	174.5	202	229.5	257	284.5	312	339.5	367	394.5	422	449.5	477	504.5	532	559.5

n: Stations

Dimensions: VFA5000 Series

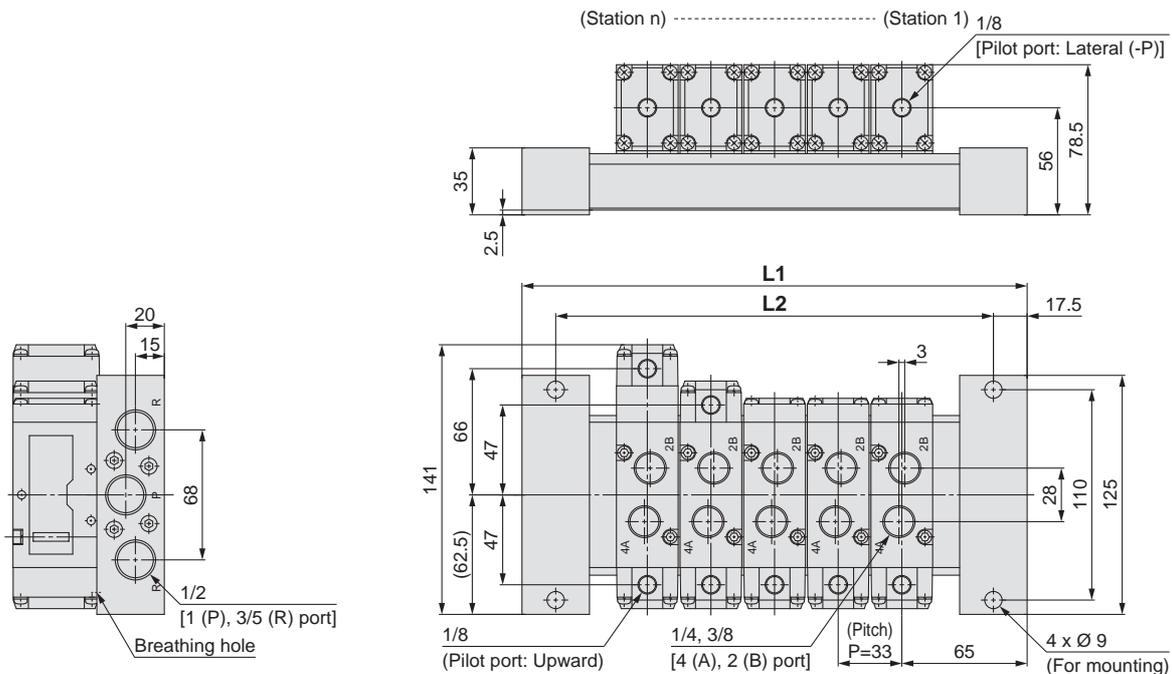
Type 20: VV5FA5-20-□□1-□: Common exhaust



Dimensions

L \ n	n: Stations									
	2	3	4	5	6	7	8	9	10	
L1	93	126	159	192	225	258	291	324	357	
L2	80	113	146	179	212	245	278	311	344	

Type 21: VV5FA5-21-□□1-□: Common exhaust



Dimensions

L \ n	n: Stations														
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
L1	163	196	229	262	295	328	361	394	427	460	493	526	559	592	
L2	128	161	194	227	260	293	326	359	392	425	458	491	524	557	

5 Port Air Operated Valve VFA3000/5000 Series Manifold

Base Mounted

How to Order Manifold

Common exhaust VV5FA **3** - 40 - **05** 2 - 02 **F**

Series			
Symbol	Series	P, R Port size	A, B Port size
3	VFA3000	1/4	1/4
5	VFA5000	3/8	1/4

* The A and B ports are made on the bottom.

Stations	
02	2 stations
⋮	⋮
20	20 stations

* Up to 10 stations for VV5FA5

Thread type	
—	Rc
F	G
N	NPT
T	NPTF

How to Order Valve (With a gasket and two mounting screws)

VFA **3** **1** **4** **0** - □ - □

Series	
3	VFA3000
5	VFA5000

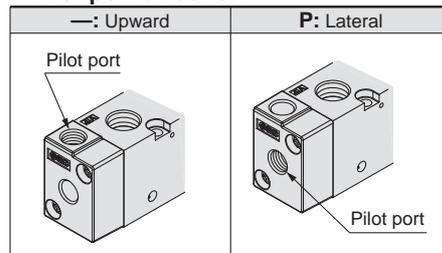
* Not available with the VFA1000.

Type of actuation	
1	2 position single
2	2 position double
3	3 position closed centre
4	3 position exhaust centre
5	3 position pressure centre

Body model

Body option		
Symbol	VFA3000	VFA5000
0	○	—
4	—	○

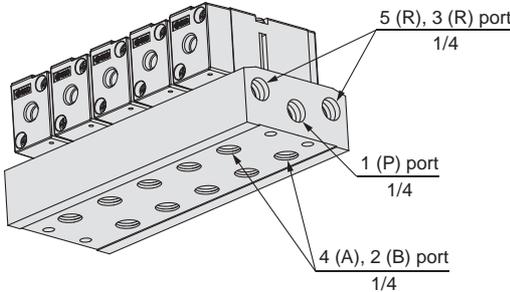
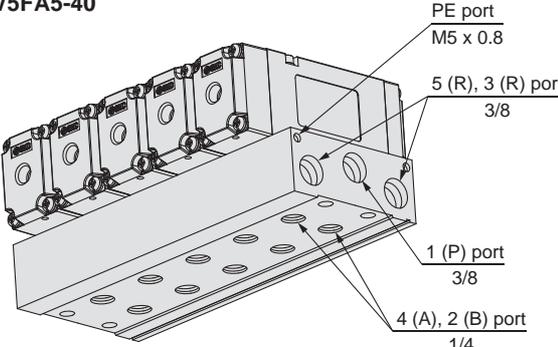
Pilot port direction



Pilot port thread type

—	Rc
00F	G
00N	NPT
00T	NPTF

Manifold Specifications

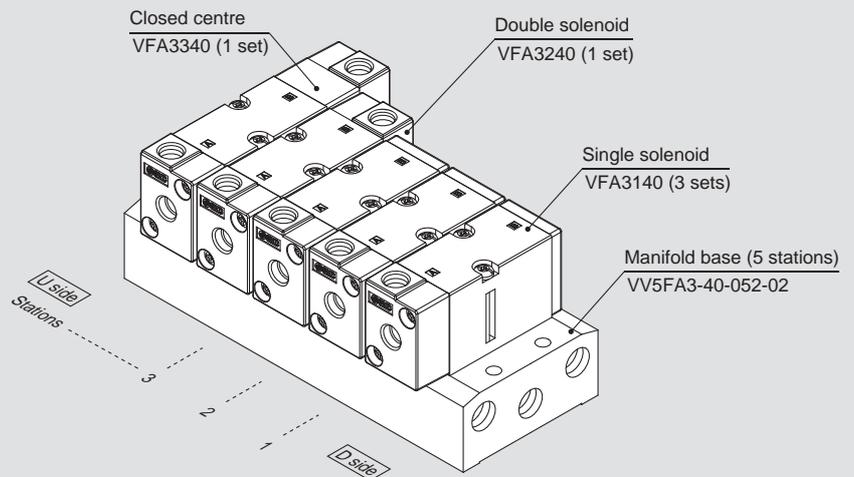
Series	Manifold base model	EXH port type	Applicable valve model	Applicable stations	Manifold base Weight: W[g] Stations: n
VFA3000	VV5FA3-40 	Common EXH	VFA3□40	2 to 20 stations	W = 110n + 116
VFA5000	VV5FA5-40 	Common EXH	VFA5□44	2 to 10 stations	W = 161n + 128

Note) Supply pressure to 1(P) ports and exhaust pressure from R ports on both sides for 10 stations or more (5 stations or more for the VFA5000).

How to Order Manifold Assembly



Example (VV5FA3-40)



VV5FA3-40-052-02...1 set (Type 40, 5-station manifold base part no.)
 * VFA3140.....3 sets (Single part no.)
 * VFA3240.....1 set (Double part no.)
 * VFA3340.....1 set (Closed centre part no.)
 * The asterisk denotes the symbol for assembly. Prefix it to the part no. of the valve etc.

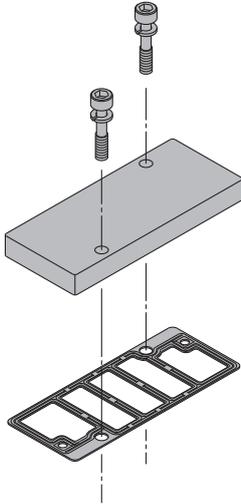
Refer to page 25 for manifold options.

- The valve arrangement is numbered as the 1st station from D side.
- Under the manifold base part number, state the valves to be mounted in order from the 1st station as shown in the figure above.

VFA3000/5000 Series

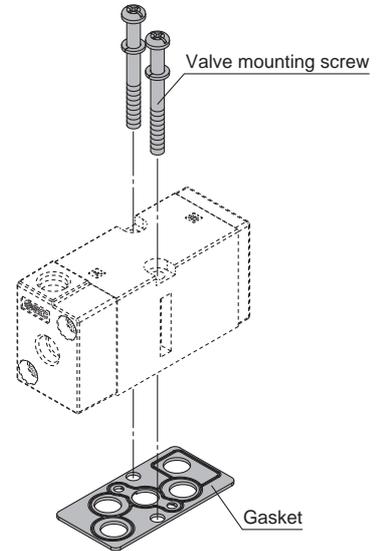
Manifold Options

■ For base mounted Blanking plate assembly



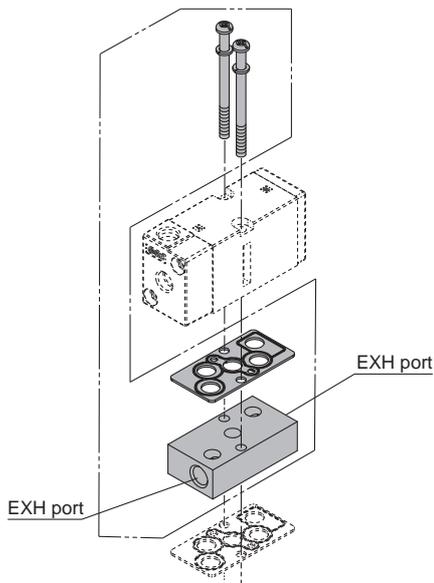
Series	Blanking plate assembly part no.
VFA3000	DXT031-38-5A
VFA5000	VF5000-70-2A

■ Mounting screw, gasket part no.



Series	Valve mounting screw (1 pc.)	Gasket
VFA3000	Round head combination screw DXT031-44-1 (M4 x 39.5, With spring washer)	DXT031-30-11
VFA5000	Hexagon socket head cap screw AXT620-32-1 (M4 x 48, With spring washer)	DXT156-9-8

■ Individual EXH spacer assembly



⚠ Caution

Tightening Torque for Mounting Screw

M4: 1.4N·m

⚠ Warning

When mounting a valve or spacer on the manifold base or sub-plate, etc., the mounting orientation is already decided. If mounted in a wrong direction, the equipment to be connected may result in a malfunction. Refer to the dimensions for mounting.

VF 3 000-75-2 A

• Series

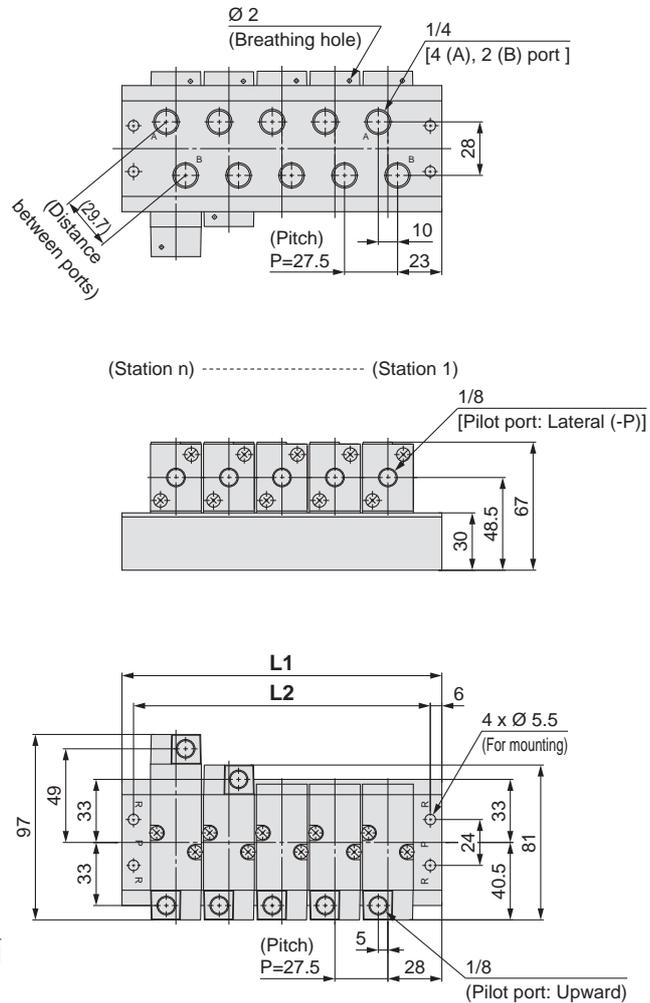
Symbol	Series	Port size
3	VFA3000	1/8
5	VFA5000	1/4

• Thread type

—	Rc
F	G
N	NPT
T	NPTF

Dimensions: VFA3000 Series

Type 40: VV5FA3-40-□□2-02□: Common exhaust



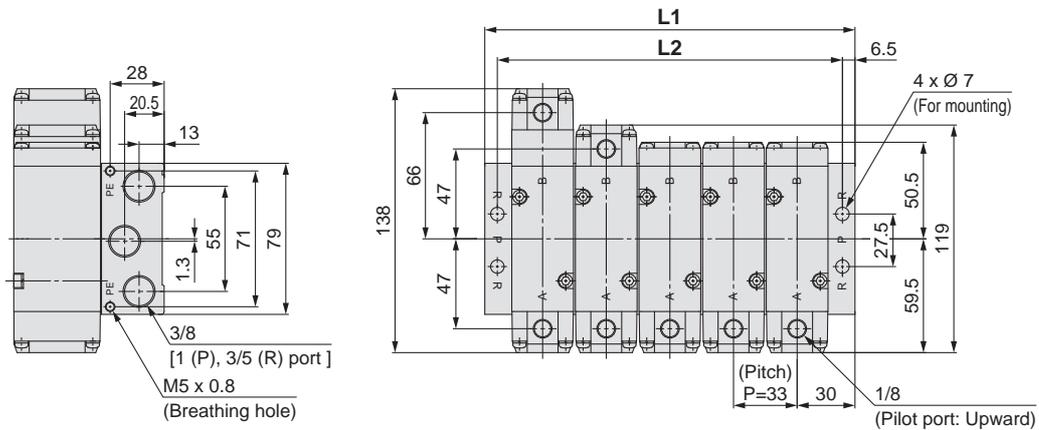
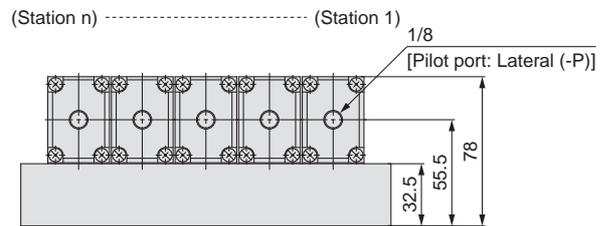
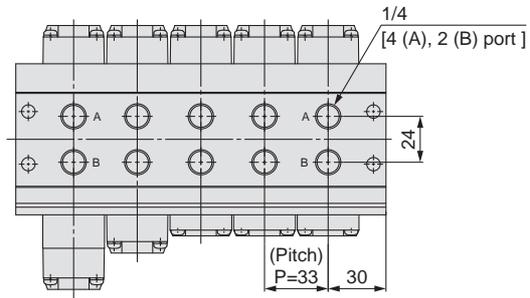
Dimensions

		n: Stations																	
L \ n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L1	83.5	111	138.5	166	193.5	221	248.5	276	303.5	331	358.5	386	413.5	441	468.5	496	523.5	551	578.5
L2	71.5	99	126.5	154	181.5	209	236.5	264	291.5	319	346.5	374	401.5	429	456.5	484	511.5	539	566.5

VFA3000/5000 Series

Dimensions: VFA5000 Series

Type 40: VV5FA5-40-□□2-02□: Common exhaust



Dimensions

n: Stations

L \ n	2	3	4	5	6	7	8	9	10
L1	93	126	159	192	225	258	291	324	357
L2	80	113	146	179	212	245	278	311	344

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)¹⁾, and other safety regulations.

-  **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
-  **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
-  **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

- 1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.²⁾ Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
 2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
 3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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