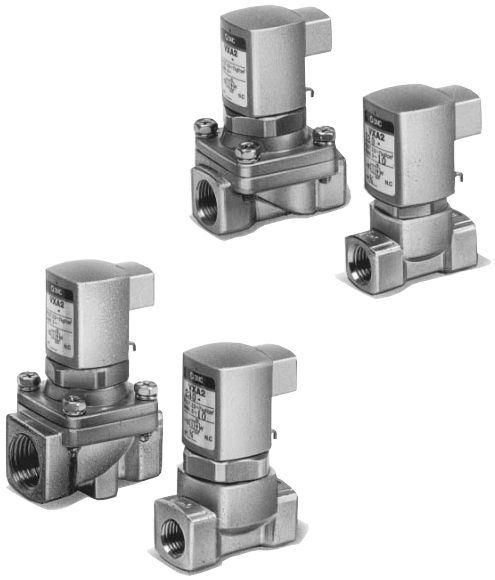
Direct Air Operated 2 Port Valve
For Air, Gas, Vacuum, Water and Oil
Series VXA21/22



■ **Wide variations of combination.**
Able to control a wide variety of fluids.
Application can be matched by simply choosing body material (Brass or Stainless steel) and seal material (NBR, FKM, EPDM).

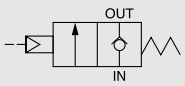
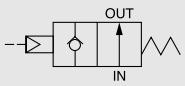
■ **Easy to disassemble and reassemble in a shorttime.**

■ **High viscosity fluids (500 cSt).**

VC□
VDW
VQ
VX2
VX□
VX3
VXA
VN□
LVC
LVA
LVH
LVD
LVQ
LQ
LVN
TI/TIL
PA
PAX
PB

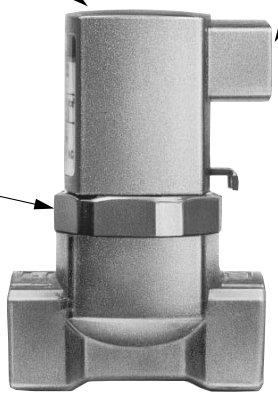
Variations

Valve

Normally closed (N.C.)	
Normally open (N.O.)	

Material

Body	Brass, Stainless steel
Seal	NBR, FKM, EPDM



Pilot port (Free take off direction)

Port size	Rc 1/8
Pilot pressure	0.25 to 0.7 MPa

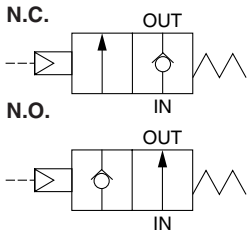
Model

Model	Port size Rc	Orifice size (mmø)
VXA212$^{2}_{0}$	1/8, 1/4	3
VXA213$^{2}_{0}$	1/8, 1/4	4.5
VXA223$^{2}_{0}$	1/4, 3/8	4.5
VXA224$^{2}_{0}$	1/4, 3/8	6
VXA225$^{2}_{0}$	1/4, 3/8	8
VXA226$^{2}_{0}$	1/4, 3/8, 1/2	10

The VX∗ series will be revised shortly.

Normally Closed (N.C.), Normally Open (N.O.)

JIS Symbol



Fluid

Standard specification	Option Note)
Water (Standard, up to 40°C) Air (Standard, Dry) Turbine oil Vacuum (up to 1.3 x10^{2} Pa) Carbon dioxide (CO_2), Nitrogen gas (N_2)	Vacuum (up to 1.3 x10^{-1} Pa) ..... (V, M) Non-leak (10^{-6} Pa· m^3/s or less) ..... (V, M)

Note 1) Refer to page 17-3-13 “Applicable Fluids Check List” for details of special fluids outside of the standard options and specifications.

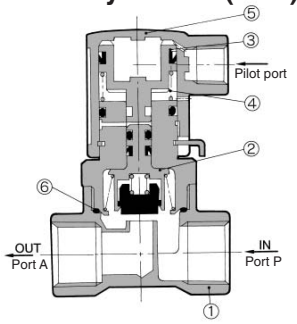
Model/Valve Specifications

Port size	Orifice size (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics					Max. system pressure (MPa)	Proof pressure (MPa)	Weight (g)
				Water, Oil		Air					
				Av x 10^{-6}m^2	Cv converted	C [dm^3/ (s· bar)]	b	Cv			
1/8 (6A)	3	**VXA212**	1.0	7.9	0.33	1.3	0.50	0.38	1.0	1.5	170
	4.5	**VXA213**	0.5	15	0.61	2.3	0.45	0.70			
1/4 (8A)	3	**VXA212**	1.0	7.9	0.33	1.3	0.50	0.38			
	4.5	**VXA213**	0.5	15	0.61	2.5	10.45	0.75			250
		VXA223	1.0								
	6	**VXA224**	0.6	26	1.1	3.3	0.50	1.1			
	8	**VXA225**	0.2	41	1.7	6.4	0.40	1.8	0.4		340
	10	**VXA226**	0.1	46	1.9	8.8	0.40	2.3			
3/8 (10A)	4.5	**VXA223**	1.0	15	0.61	2.5	0.45	0.75	1.0		250
	6	**VXA224**	0.6	26	1.1	3.3	0.50	1.1			
	8	**VXA225**	0.2	41	1.7	6.4	0.40	1.8	0.4		340
	10	**VXA226**	0.1	58	2.4	11	0.38	2.8			
1/2 (15A)	10	**VXA226**	0.1	58	2.4	11	0.38	2.8			420

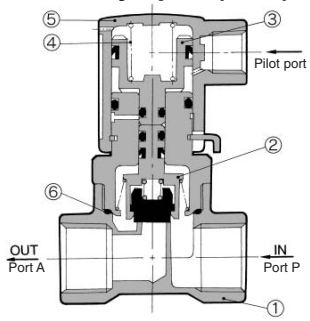
Note) Refer to “Glossary” on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

Construction/ Principal Parts Material

Normally closed (N.C.)



Normally open (N.O.)



No.	Description	Material	
		Standard	Option
①	Body	Brass	Stainless steel
②	Valve assembly	Stainless steel, Brass NBR,Polyacetal	Stainless steel FKM/EPDM
③	Piston assembly	Polyacetal, NBR	—
④	Piston spring	Stainless steel	—
⑤	Pilot cover	Aluminum	—
⑥	O-ring	NBR	FKM/EPDM

Operating Fluid and Ambient Temperature

Temperature conditions	Operating fluid temperature (°C)				Ambient temperature (°C)
	Water (Standard)	Air (Standard)	Oil (Standard)	Vacuum (3) (V, M)	
Maximum	40	60	40	40	40
Minimum	1	–5(1)	–5(2)	–5	–5

Note 1) Dew point: –5°C or less Note 2) 500 cSt or less
Note 3) “V”, “M” in parentheses are option symbols.

Tightness of Valve (Leak rate)

Fluid / Seal material	Air	Liquid	Non-leak, Vacuum V, M (2)
NBR, FKM, EPDM	1 cm^3/min or less	0.1 cm^3/min or less(1)	10^{-6}Pa·m^3/s

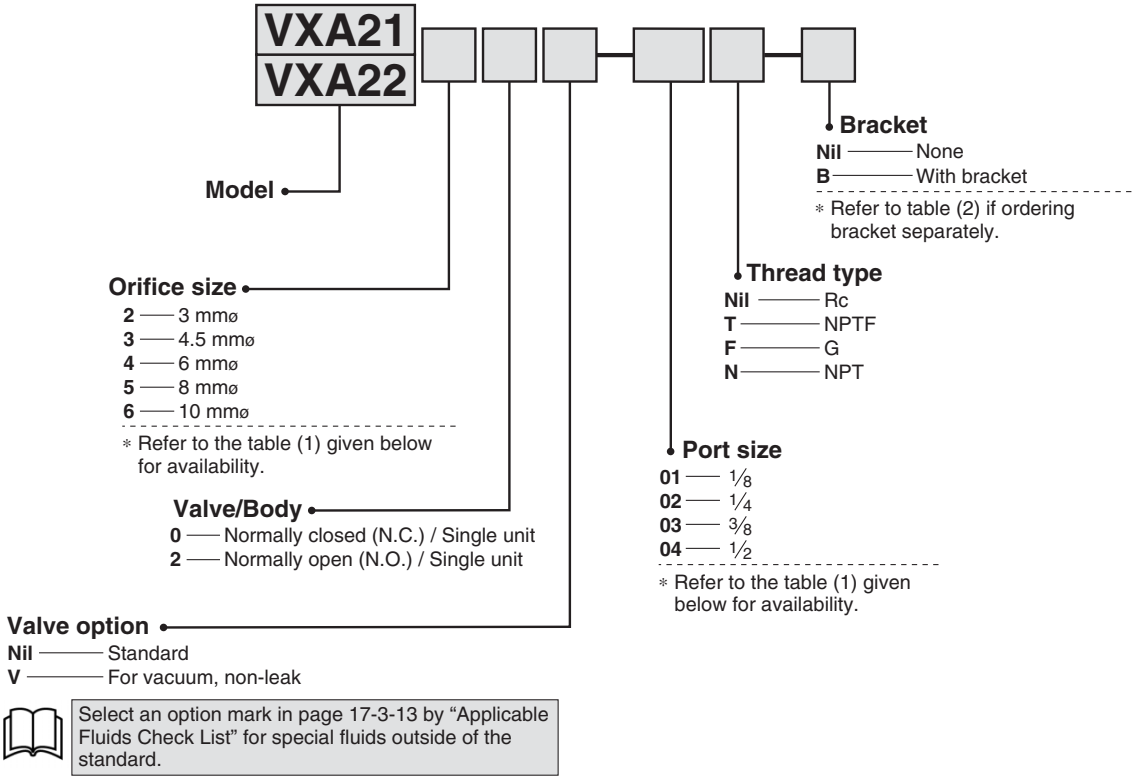
Note 1) Differs depending on the operating conditions such as pressure, etc.
Note 2) Value on option “V”, “M” (Non-leak, Vacuum).

Pilot Pressure

Model	Pressure (MPa)
VXA21□□ **VXA22□□**	0.25 to 0.7

The VX∗ series will be revised shortly.

How to Order



Select an option mark in page 17-3-13 by "Applicable Fluids Check List" for special fluids outside of the standard.

Table (1) Port/Orifice Size

Model		Orifice size (No.)				
VXA21	VXA22	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)	5 (8 mmø)	6 (10 mmø)
01 (1/8)	—	●	●	—	—	—
02 (1/4)	—	●	●	—	—	—
—	02 (1/4)	—	●	●	●	●
—	03 (3/8)	—	●	●	●	●
—	04 (1/2)	—	—	—	—	●

Table (2) Bracket Part No.

Model	Part no.
VXA212□ VXA213□	VX070-020
VXA223□ VXA224□	VX070-022
VXA225□ VXA226□	VX070-029

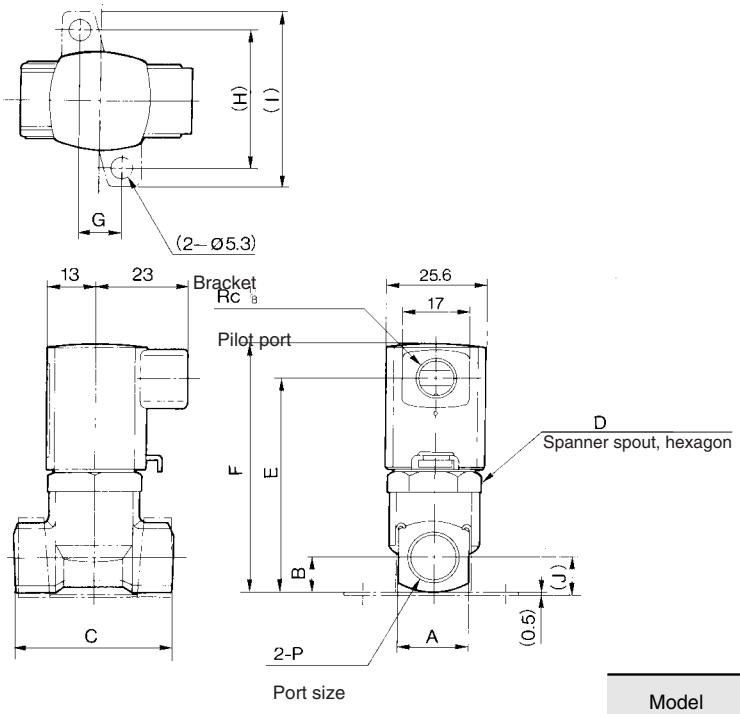
Ordering example

(Example) Series VXA21, Orifice size 4.5 mmø, Normally closed, Rc 1/4
(Part no.) **VXA2130-02**

The VX∗ series will be revised shortly.

Dimensions (Orifice Size: 3 mmø, 4.5 mmø, 6 mmø)

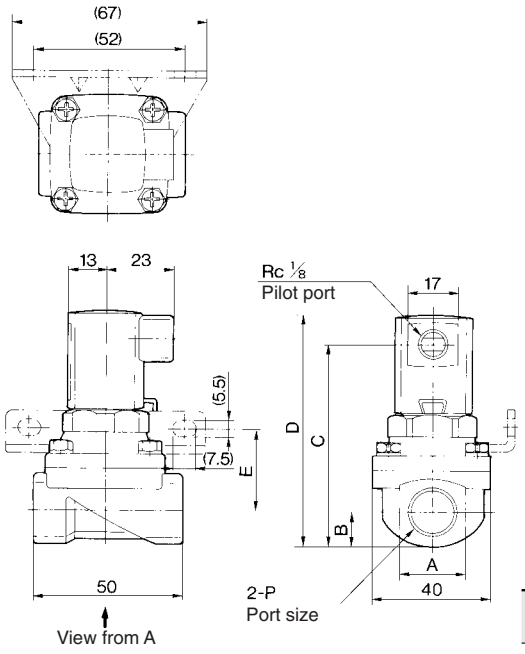
VXA212□/VXA213□/VXA223□/VXA224□



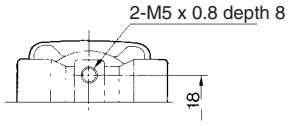
Model	Port size P Rc	A	B	C	D	E	F	With bracket G	H	I	J
VXA21	1/8, 1/4	18	9	40	21	55	64	11	36	46	10
VXA22	1/4, 3/8	21	10.5	45	27	62	71	13	46	56	11.5

Dimensions (Orifice Size: 8 mmø, 10 mmø)

VXA225□/VXA226□



Thread fixed:
(VXA226$^{2}_{0}$-04 only)



Dimension of view from A

Model	Port size P Rc	A	B	C	D	With bracket E
VXA22$^{52}_{60}$-$^{02}_{03}$	1/4, 3/8	22	11	67	77	27
VXA226$^{2}_{0}$-04∗	1/2	28	14.5	73	83	30

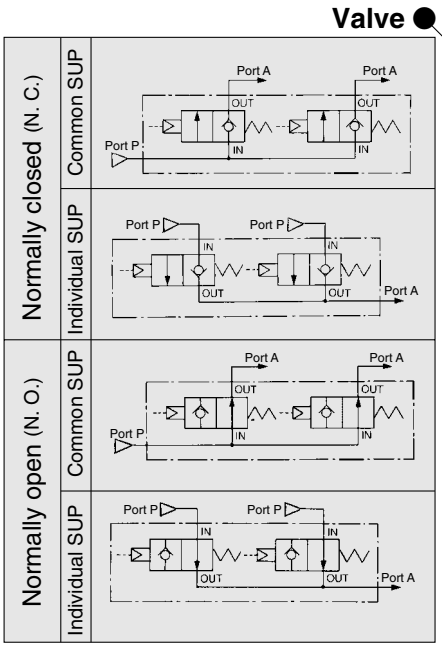
∗ Fixing with thread is also possible.

Direct Air Operated 2 Port Valve/Manifold
For Air, Gas, Vacuum and Oil
Series VVXA21/22

- **Common SUP type and individual SUP type (for vacuum use) standard models**
  Compatible with a wide variety of fluids.
- **A wide variety of applicable fluids.**
  Combination of seal materials (NBR, FKM or EPDM) can be selected freely, depending on the purpose.
- **Able to replace valves with the piping remained uchanged.**
- **Weight-saving aluminum base and body.**
- **Brass base and stainless steel base are available.**
  Please contact SMC for details.

VC□
VDW
VQ
VX2
VX□
VX3
VXA
VN□
LVC
LVA
LVH
LVD
LVQ
LQ
LVN
TI/TIL
PA
PAX
PB

Variations



Valve

Material

Base, Body	Aluminum
Seal	NBR, FKM, EPDM

Manifold

Manifold	B mount
Stations	2 to 10 stations

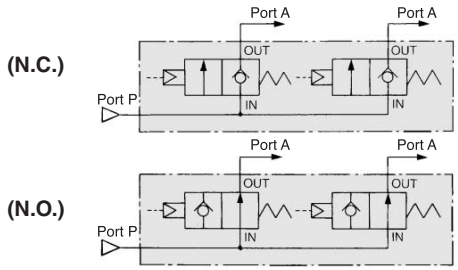
Model

Manifold base model	Individual port Rc	Common port Rc
VVXA211-stations	1/8	3/8
VVXA212-stations	1/4	
VVXA221-stations	1/8	
VVXA222-stations	1/4	

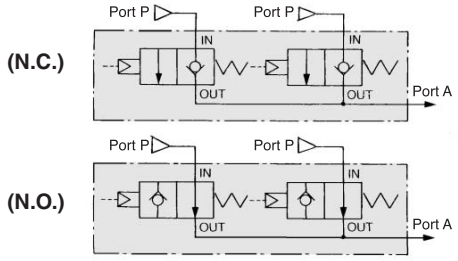
The VX∗ series will be revised shortly.

Normally Closed (N.C.), Normally Open (N.O.)

JIS Symbol
Common SUP type

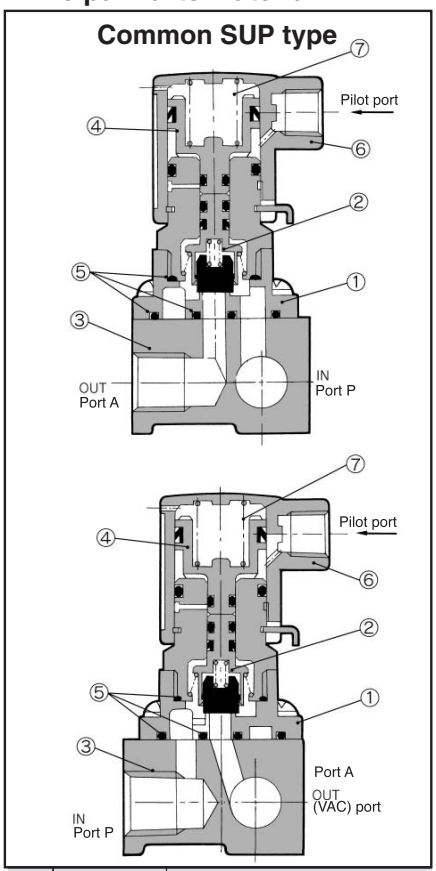


Indivisual SUP type



Construction/ Principal Parts Material

Common SUP type



No.	Description	Material	
		Standard	Option
①	Body	Aluminum	—
②	Valve assembly	NBR, Stainless steel Brass, Polyacetal	FKM/EPDM
③	Base	Aluminum	—
④	Piston assembly	Polyacetal, NBR	—
⑤	O-ring	NBR	FKM/EPDM
⑥	Pilot cover	Aluminum	—
⑦	Piston spring	Stainless steel	—

Fluid

Standard specifications	Option
Air (Standard, Dry) Vacuum (up to 1.3 x10^2 Pa) Turbine oil Carbon dioxide (CO_2), Nitrogen gas (N_2)	Vacuum (up to 1.3 x10^2 Pa) ····· (V) Non-leak (10^{-6} Pa·m^3/s or less) ····· (V)

Note) Refer to page 17-3-13 “Applicable Fluids Check List” for details of special fluids outside of the standard options and specifications.

Manifold Specifications

Manifold	B Mount	
Manifold type	Common pressure supply, individual pressure supply (For vacuum)	
Number of valves	2 to 10 stations	
Blanking plate (With O-rings, screws)	VVXA21	VX011-001
	VVXA22	VX011-006

Note) Common port is placed on vacuum side.

Manifold Base and Applicable Valve Part No.

Manifold base	Individual port Rc	Applicable valve	Weight per one station (g)
VVXA211-stations	1/8	**VXA21□$^3_1$-00**	n x 70 + 50
VVXA212-stations	1/4		
VVXA221-stations	1/8	**VXA22□$^3_1$-00**	n x 130 + 110
VVXA222-stations	1/4		

Solenoid Valve for Manifold

Orifice size (mmø)	Model	Max.operating pressure differential (MPa)	Flow characteristics					Max. system pressure (MPa)	Proof pressure (MPa)	Weight (g)
			Oil		Air					
			Av x 10^{-6}m^2	Cv converted	C [dm^3/(s·bar)]	b	Cv			
3	**VXA212-00**	1.0	7.9	0.33	1.3	0.50	0.38	1.0	1.5	120
4.5	**VXA213-00**	0.5	15	0.61	2.3	0.45	0.70			
	VXA223-00	1.0								160
6	**VXA224-00**	0.6	26	1.1	3.3	0.50	1.1			

Note) Refer to “Glossary” on page 17-3-15 for details of max. operating pressure differential

Operating Fluid and Ambient Temperature

Temperature conditions	Operating fluid temperature (°C)			Ambient temperature (°C)
	Air (Standard)	Oil (Standard)	Vacuum (3) (V)	
Maximum	60	40	40	40
Minimum	–5(1)	–5 (2)	–5	–5

Note 1) Dew point: –5°C or less Note 2) 500 cSt or less
Note 3) “V” in parentheses is option symbol.

Tightness of Valve (Leak rate)

Fluid / Seal material	Air	Liquid	Non-leak, Vacuum (2)
NBR, FKM, EPDM	1 cm^3/min or less	0.1 cm^3/min or less (1)	10^{-6}Pa·m^3/s or less

Note 1) Differs depending on the operating conditions such as pressure, etc.
Note 2) Value on option “V” (Non-leak, Vacuum).

Pilot Pressure

Model	Pressure (MPa)
VXA21□□ **VXA22□□**	0.25 to 0.7

The VX∗ series will be revised shortly.

How to Order

VXA21
VXA22

Model

Orifice size
2 — 3 mmø
3 — 4.5 mmø
4 — 6 mmø
∗ Refer to the table (1) given below for availability.

Valve/Body
1 — Normally closed (N.C.)/Manifold
3 — Normally open (N.O.)/Manifold

Valve option
Select an option mark in page 17-3-13 by "Applicable Fluids Check List" for special fluids outside of the standard.

00

Connection
00 — (No connection screw)

Table (1) Orifice Size

Model	Orifice size (No.)		
	2 (3 mmø)	**3 (4.5 mmø)**	**4 (6 mmø)**
VXA21	●	●	—
VXA22	—	●	●

How to Order Manifold Base

VVXA21
VVXA22

Manifold base

Symbol	Applicable valve
VVXA21	VXA21□[3]-00
VVXA22	VXA22□[3]-00

Port size (Individual port)
1 — Rc 1/8
2 — Rc 1/4
∗ All common ports are Rc 3/8
Common SUP model has the indication of "P" and individual SUP has the indication of "VAC". at the common port.

Manifold type
Nil — Common SUP
V — Individual pressure

Number of stations
02 — 2 stations
⋮
10 — 10 stations

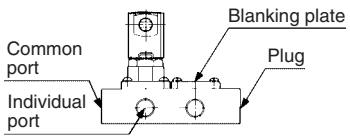
How to Order Manifold

■ **Write both the base part number and the solenoid valve to be mounted or blanking plate part number.**

(Example) 7 stations of VXA21 common pressure, individual port Rc 1/8.

(Base) VVXA211-07····· 1 pc.
(Valve) VXA2121-00····· 6 pcs.
(Blanking plate) VX011-001····· 1 pc.

■ **Arrangement of solenoid valves**

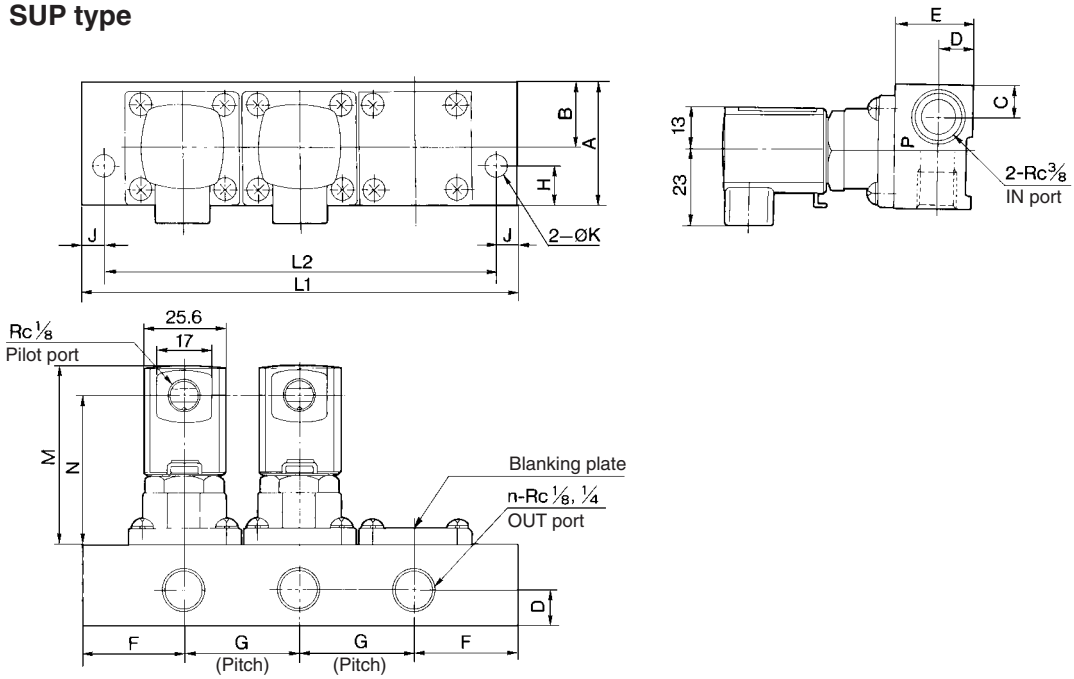


The standard arrangement of manifolds should be placed on an individual port on this side, each solenoid valve from the left side and a blank plate in the right side. The right side of the common port provides plug.

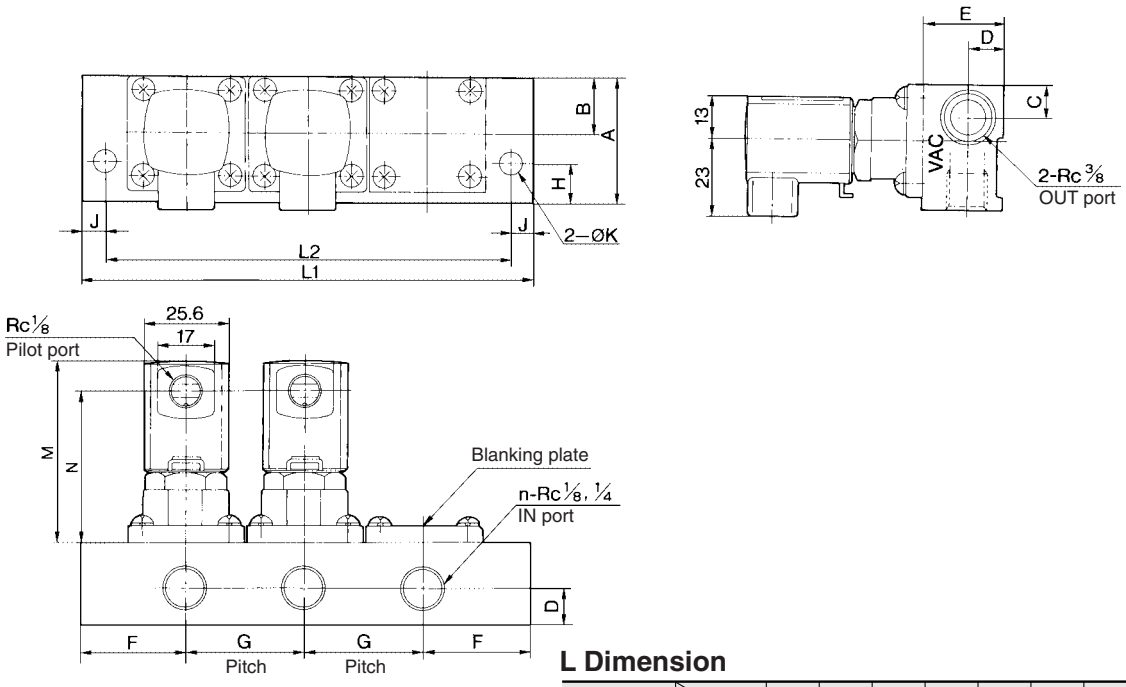
The VX∗ series will be revised shortly.

Dimensions/Manifold

Common SUP type



Individual SUP type



L Dimension

Model	Stations / Symbol	2	3	4	5	6	7	8	9	10
VVXA21□	L_1	100	136	172	208	244	280	316	352	388
	L_2	86	122	158	194	230	266	302	338	374
VVXA22□	L_1	126	172	218	264	310	356	402	448	494
	L_2	108	154	200	246	292	338	384	430	476

Model	A	B	C	D	E	F	G	H	J	K	M	N
VVXA21□	38	20.5 [17.5]	10.5	11	25	32	36	12	7	6.5	54	45
VVXA22□	49	26.5 [22.5]	13	13	30	40	46	15	9	8.5	58	49

[ ]: Individual pressure type