

Direct Operated 2 Port Solenoid Valve Series VX21/22/23

For Water, Oil, Steam, Air



Single Unit

Valve

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

Solenoid Coil

Coil: Class B, Class H

Rated Voltage

100 VAC, 200 VAC, 110 VAC,
220 VAC, 240 VAC, 230 VAC,
48 VAC, 24 VDC, 12 VDC

Material

Body — Brass, Stainless steel
Seal — NBR, FKM, EPDM, PTFE

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

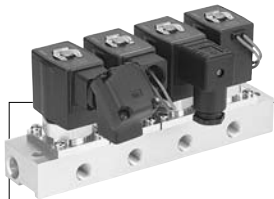


Normally Closed (N.C.)

Model	VX21	VX22	VX23	
Orifice size	2 mmø	—	—	—
	3 mmø	●	—	—
	4.5 mmø	●	●	—
	6 mmø	—	●	—
	8 mmø	—	●	—
	10 mmø	—	●	●
Port size	1/8, 1/4	1/4, 3/8	1/2	1/4, 3/8, 1/2

Normally Open (N.O.)

Model	VX21	VX22	VX23
Orifice size	2 mmø	—	—
	3 mmø	●	●
	4.5 mmø	●	●
	6 mmø	—	●
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8



Manifold

Valve

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

Base

Common SUP type, Individual SUP
type (Base material Aluminum only)

Solenoid Coil

Coil: Class B, Class H

Rated Voltage

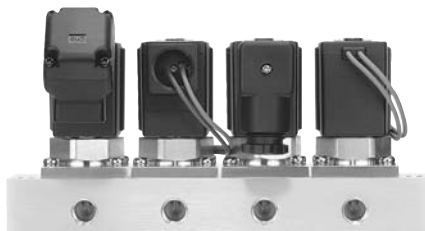
100 VAC, 200 VAC, 110 VAC,
220 VAC, 240 VAC, 230 VAC,
48 VAC, 24 VDC, 12 VDC

Material

Body — Aluminum, Brass, Stainless steel
Base — Aluminum, Brass, Stainless steel
Seal — NBR, FKM, EPDM, PTFE

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Manifold

Model	VX21	VX22	VX23
Orifice size	2 mmø	●	—
	3 mmø	●	●
	4.5 mmø	●	●
	6 mmø	—	●
(Common SUP type) Port size	IN port	3/8	
	OUT port	1/8, 1/4	

How to Order (Solenoid Valve for Manifold)

Normally Closed (N.C.) VX 21 2 1 □ □ — 1 G 1

Normally Open (N.O.) VX 21 2 3 □ □ — 1 G 1

Model Refer to the table (1) shown below for availability.

Orifice size Refer to the table (1) shown below for availability.

Solenoid valve option Refer to the table (2)-1 shown below for availability.

Rated voltage

1	100 VAC 50/60 Hz	6	12 VDC
2	200 VAC 50/60 Hz	7	240 VAC 50/60 Hz
3	110 VAC 50/60 Hz	8	48 VAC 50/60 Hz
4	220 VAC 50/60 Hz	J	230 VAC 50/60 Hz
5	24 VDC		

* Refer to the table (3) shown below for availability.

Suffix

Nil	—
Z	Oil-free specification

Select "Nil" because the solenoid valve option "L" is the oil-free treatment.

Refer to page 2 for ordering coil only.

Electrical entry

G - Grommet
GS - With grommet surge voltage suppressor

C - Conduit

T - With conduit terminal
TS - With conduit terminal and surge voltage suppressor
TL - With conduit terminal and light
TZ - With conduit terminal, surge voltage suppressor and light

D - DIN
DS - DIN with surge voltage suppressor
DL - DIN with light
DZ - DIN with surge voltage suppressor and light
DO - For DIN (without connector)

* DIN type is available with class B insulation only.

* Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.

For Water
For Oil
For Steam
For Air

How to Order Manifold Bases

VVX21
VVX22 1 □ C □ — 07 — 1
VVX23

Number of manifolds

02	2 stations
.	.
.	.
10	10 stations

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Port size (Out port)

1	Rc1/8
2	Rc1/4

* All IN ports are Rc 3/8.

Manifold base

Blanking plate part no.

For VX21: VVX21-3A
For VX22: VVX22-3A
For VX23: VVX23-3A

Base, Seal material Refer to the table (2)-(2).

Suffix

Nil	—
Z	Oil-free specification

Seal material

Nil	NBR
F	FKM
E	EPDM

Table (1) Port/Orifice Size

Solenoid valve	Orifice symbol (diameter)			
	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	—
VX22	—	●	●	●
VX23	—	●	●	●

Table (2) Solenoid Valve Option

Solenoid valve option symbol (1)	Base, Seal material symbol (2)	Body, Base material	Seal material	Coil insulation type	Note
Nil	C	Brass	NBR	B	—
G	S	Stainless steel			
E	CE	Brass	EPDM	H	Heated water (AC only)
P	SE	Stainless steel			
L	SF	Stainless steel	FKM	B	High corrosive, Oil-free

Table (3) Rated Voltage – Electrical Option

Rated voltage			Class B			Class H		
AC/DC	Voltage symbol	Voltage	With surge voltage suppressor	With light	With light and surge voltage suppressor	With surge voltage suppressor	With light	With light and surge voltage suppressor
AC	1	100 V	●	●	●	●	●	●
	2	200 V	●	●	●	●	●	●
	3	110 V	●	●	●	●	●	●
	4	220 V	●	●	●	●	●	●
	7	240 V	●	—	—	●	—	—
	8	48 V	●	—	—	●	—	—
DC	J	230 V	●	—	—	●	—	—
	5	24 V	●	●	●	DC spec. is not available.		
	6	12 V	●	—	—	DC spec. is not available.		

How to Order Manifold Assemblies (Example)

Enter the valve and blanking plate to be mounted under the manifold base part number.

Example
VVX211C-05-1 1 set "*" is the symbol for mounting.
* VX2111-1G1 4 sets Add an "*" in front of the part numbers for solenoid valves, etc. to be mounted.
* VVX21-3A 1 set

① — ② — ③ — ④ — ⑤ — ⑥

Enter the product's part number in order, counting the 1st station from the left in the manifold arrangement, when viewing the individual port in front.

Dimensions → page 23 (manifold)

How to Order (Solenoid Valve for Manifold)

Normally Closed (N.C.) VX 21 2 1 □ □ — 1 G 1

Normally Open (N.O.) VX 21 2 3 □ □ — 1 G 1

Model • Refer to the table (1) shown below for availability.

Orifice size • Refer to the table (1) shown below for availability.

Solenoid valve option • Refer to the table (2-1) shown below for availability.

Rated voltage •

1	100 VAC 50/60 Hz	6	12 VDC
2	200 VAC 50/60 Hz	7	240 VAC 50/60 Hz
3	110 VAC 50/60 Hz	8	48 VAC 50/60 Hz
4	220 VAC 50/60 Hz	J	230 VAC 50/60 Hz
5	24 VDC		

Suffix •

Nil	—
Z	Oil-free specification

Electrical entry

G - Grommet
GS - With grommet surge voltage suppressor

C - Conduit

T - With conduit terminal
TS - With conduit terminal and surge voltage suppressor
TL - With conduit terminal and light
TZ - With conduit terminal, surge voltage suppressor and light

D - DIN
DS - DIN with surge voltage suppressor
DL - DIN with light
DZ - DIN with surge voltage suppressor and light
DO - For DIN (without connector)

* DIN type is available with class B insulation only.

* Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.

For Water

For Oil

For Steam

For Air

* Refer to page 2 for ordering coil only.

How to Order Manifold Bases

VVX21 1 □ CF □ — 07 — 1

VVX22

VVX23

Port size (Out port)

1	Rc1/8
2	Rc1/4

* All IN ports are Rc 3/8.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Number of manifolds

02	2 stations
.	.
.	.
10	10 stations

Suffix

Nil	—
Z	Oil-free specification

Base, Seal material
Refer to the table (2)-(2).

Table (1) Port/Orifice Size

Solenoid valve	Orifice symbol (diameter)			
	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	—
VX22	—	●	●	●
VX23	—	●	●	●

Table (2) Solenoid Valve Option

Solenoid valve option symbol (1)	Base, Seal material symbol (2)	Body, Base material	Seal material	Coil insulation type	Note
A	CF	Brass	FKM	B	—
H	SF	Stainless steel		H	AC only
D	CF	Brass			
N	SF	Stainless steel			

The additives contained in oil are different depending on the type and manufacturers, so the durability of the seal materials will vary. For details, please consult with SMC.

Blanking plate part no.

For VX21: VVX21-3A-F

For VX22: VVX22-3A-F

For VX23: VVX23-3A-F

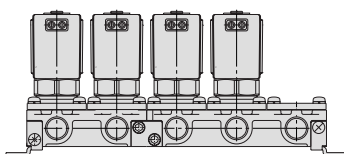
• Seal material: FKM

How to Order Manifold Assemblies (Example)

Enter the valve and blanking plate to be mounted under the manifold base part number.

Example
 VVX211CF-05-1..... 1 set “*” is the symbol for mounting.
 * VX211A-1G1..... 4 sets Add an “*” in front of the part numbers
 * VVX21-3A-F..... 1 set for solenoid valves, etc. to be mounted.

① — ② — ③ — ④ — ⑤ — ⑥



Enter the product's part number in order, counting the 1st station from the left in the manifold arrangement, when viewing the individual port in front.

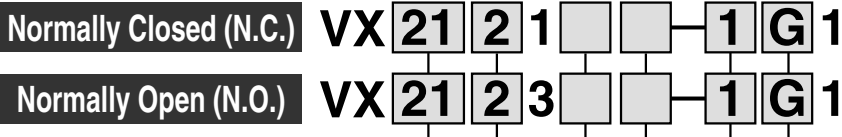
Table (3) Rated Voltage – Electrical Entry – Electrical Option

Rated voltage			Class B			Class H		
AC/DC	Voltage symbol	Voltage	S With surge voltage suppressor	L With light	Z With light and surge voltage suppressor	S With surge voltage suppressor	L With light	Z With light and surge voltage suppressor
AC	1	100 V	●	●	●	●	●	●
	2	200 V	●	●	●	●	●	●
	3	110 V	●	●	●	●	●	●
	4	220 V	●	●	●	●	●	●
	7	240 V	●	—	—	●	—	—
	8	48 V	●	—	—	●	—	—
DC	J	230 V	●	—	—	●	—	—
	5	24 V	●	●	●	DC spec. is not available.		
	6	12 V	●	—	—	DC spec. is not available.		

Dimensions → page 23 (manifold)

How to Order (Solenoid Valve for Manifold)

For Water
For Oil
For Steam
For Air



Model Refer to the table (1) shown below for availability.

Orifice size Refer to the table (1) shown below for availability.

Solenoid valve option Refer to the table (2)-(1) shown below for availability.

Suffix

Nil	—
Z	Oil-free specification

Rated voltage

1	100 VAC 50/60 Hz	7	240 VAC 50/60 Hz
2	200 VAC 50/60 Hz	8	48 VAC 50/60 Hz
3	110 VAC 50/60 Hz	J	230 VAC 50/60 Hz
4	220 VAC 50/60 Hz		

* Refer to the table (3) shown below for availability.

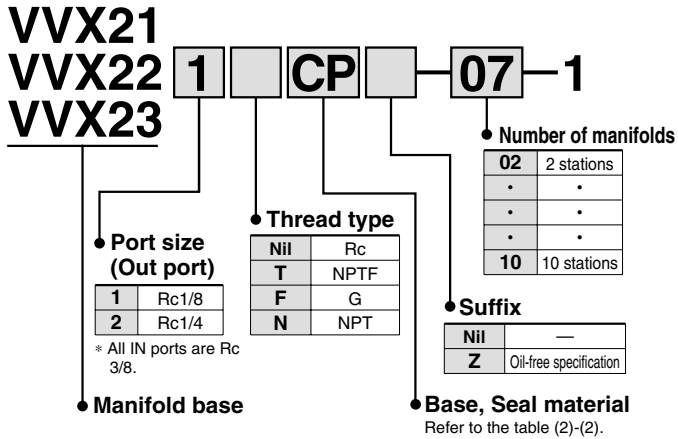
Refer to page 2 for ordering coil only.

Electrical entry

G - Grommet	C - Conduit
GS - With grommet surge voltage suppressor	
T - With conduit terminal	
TS - With conduit terminal and surge voltage suppressor	
TL - With conduit terminal and light	
TZ - With conduit terminal, surge voltage suppressor and light	

* Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.

How to Order Manifold Bases



Blanking plate part no.

For VX21: VVX21-3A-P
For VX22: VVX22-3A-P
For VX23: VVX23-3A-P

Seal material: PTFE

How to Order Manifold Assemblies (Example)

Enter the valve and blanking plate to be mounted under the manifold base part number.

Example

VVX211CP-05-1.....1 set "*" is the symbol for mounting.

* VX211S-1G1.....4 sets Add an "*" in front of the part numbers for solenoid valves, etc. to be mounted.

* VVX21-3A-P.....1 set

Enter the product's part number in order, counting the 1st station from the left in the manifold arrangement, when viewing the individual port in front.

Table (1) Port/Orifice Size

Solenoid valve	Orifice symbol (diameter)			
	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	—
VX22	—	●	●	●
VX23	—	—	●	●

Table (2) Solenoid Valve Option

Solenoid valve option symbol (1)	Base, Seal material symbol (2)	Body, Base material	Seal material	Coil insulation type
S	CP	Brass	PTFE	H
Q	SP	Stainless steel		

Table (3) Rated Voltage – Electrical Option

AC/DC	Rated voltage		Class H		
	Voltage symbol	Voltage	S With surge voltage suppressor	L With light	Z With light and surge voltage suppressor
AC	1	100 V	●	●	●
	2	200 V	●	●	●
	3	110 V	●	●	●
	4	220 V	●	●	●
	7	240 V	●	—	—
	8	48 V	●	—	—
DC	J	230 V	●	—	—
	5	24 V	DC spec. is not available.		
	6	12 V	DC spec. is not available.		

Dimensions → page 23 (manifold)

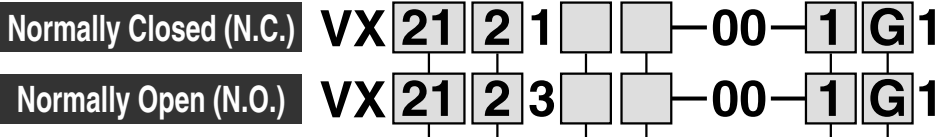
How to Order (Solenoid Valve for Manifold)

For Water

For Oil

For Steam

For Air



Model • Refer to the table (1) shown below for availability.

Orifice size • Refer to the table (1) shown below for availability.

Solenoid valve option • Refer to the table (2) shown below for availability.

Nil	—
Z	Oil-free specification

Select "Nil" because the solenoid valve option "V" is the oil-free treatment.

Rated voltage	
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz
4	220 VAC 50/60 Hz
5	24 VDC
6	12 VDC
7	240 VAC 50/60 Hz
8	48 VAC 50/60 Hz
J	230 VAC 50/60 Hz

* Refer to the table (3) shown below for availability.

Refer to page 2 for ordering coil only.

Electrical entry

G - Grommet GS - With grommet surge voltage suppressor	C - Conduit
T - With conduit terminal TS - With conduit terminal and surge voltage suppressor TL - With conduit terminal and light TZ - With conduit terminal, surge voltage suppressor and light	D - DIN DS - DIN with surge voltage suppressor DL - DIN with light DZ - DIN with surge voltage suppressor and light DO - For DIN (without connector)

* DIN type is available with class B insulation only.

* Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.

How to Order Manifold Bases

VVX21 1 [] [] [] - 07 - 1

VVX22

VVX23

Number of manifolds

02	2 stations
•	•
•	•
•	•
10	10 stations

Port size (Out port)

1	Rc1/8
2	Rc1/4

* All IN ports are Rc 3/8.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Suffix

Nil	—
Z	Oil-free specification

Base

Nil	Common SUP type
V	Individual SUP type

Manifold base

Blanking plate part no.

For VX21: X011-001

For VX22/23: VX011-006

Seal material

Nil	NBR
F	FKM

Table (1) Port/Orifice Size

Solenoid valve	Orifice symbol (diameter)			
	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	—
VX22	—	●	●	●
VX23	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Body, Base material	Seal material	Coil insulation type	Note
Nil	Aluminum	NBR	B	—
V		FKM		

Please select the VCA series when using air because it is specifically designed for it.
(The VCA series is limited to air to improve its function and service life.)

Table (3) Rated Voltage – Electrical Option

AC/DC	Voltage symbol	Voltage	Class B		
			S	L	Z
AC	1	100 V	●	●	●
	2	200 V	●	●	●
	3	110 V	●	●	●
	4	220 V	●	●	●
	7	240 V	●	—	—
	8	48 V	●	—	—
DC	J	230 V	●	—	—
	5	24 V	●	●	—
	6	12 V	●	—	—

How to Order Manifold Assemblies (Example)

Enter the valve and blanking plate to be mounted under the manifold base part number.

Example

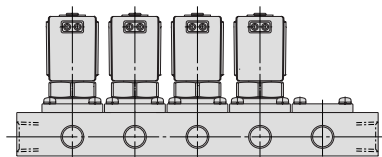
VVX211-05-1 1 set

* VX2111-00-1G1 4 sets

* VV011-001 1 set

"*" is the symbol for mounting. Add an "*" in front of the part numbers for solenoid valves, etc. to be mounted.

①—②—③—④—⑤—⑥



Enter the product's part number in order, counting the 1st station from the left in the manifold arrangement, when viewing the individual port in front.

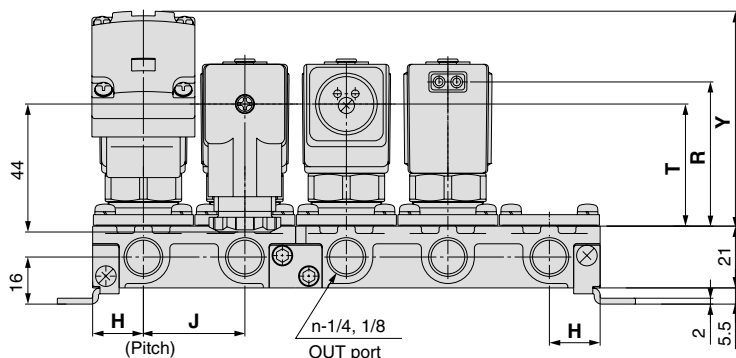
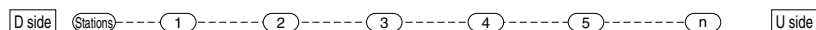
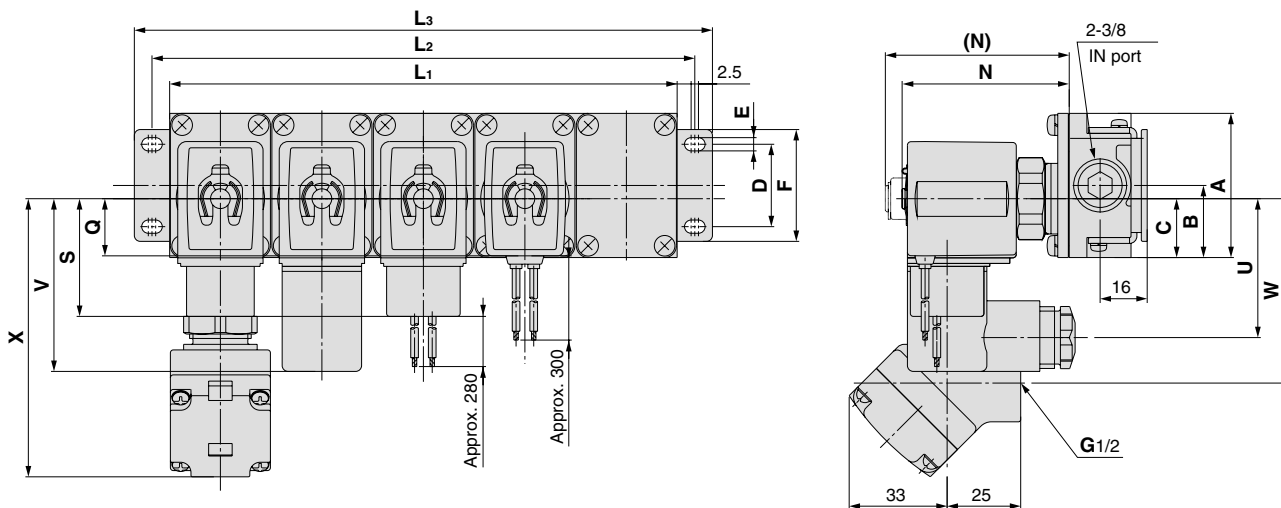
Dimensions → page 24 (manifold)

Series VX21/22/23

For Water, Oil, Steam/Manifold

Dimensions: Manifold/Base Material: Brass, Stainless Steel

Normally closed (N.C.): VVX21/VVX22/VVX23
 Normally open (N.O.): VVX21/VVX22/VVX23



(mm)

Model	Dimension	n (stations)								
		2	3	4	5	6	7	8	9	10
VVX21	L1	69	103.5	138	172.5	207	241.5	276	310.5	345
	L2	81	115.5	150	184.5	219	253.5	288	322.5	357
	L3	93	127.5	162	196.5	231	265.5	300	334.5	369
VVX22 VVX23	L1	77	115.5	154	192.5	231	269.5	308	346.5	385
	L2	89	127.5	166	204.5	243	281.5	320	358.5	397
	L3	101	139.5	178	216.5	255	293.5	332	370.5	409
	L1	83	124.5	166	207.5	249	290.5	332	373.5	415
	L2	95	136.5	178	219.5	261	302.5	344	385.5	427
	L3	107	148.5	190	231.5	273	314.5	356	397.5	439
Manifold composition		2 stns. x 1	3 stns. x 1	2 stns. x 2	2 stns. + 3 stns.	3 stns. x 2	2 stns. x 2 + 3 stns.	2 stns. + 3 stns. x 2	3 stns. x 3	2 stns. x 2 + 3 stns. x 2

(mm)

Model	A	B	C	D	E	F	H	J	N	Electrical entry								
										Grommet		Conduit		DIN terminal		Conduit terminal		
										Q	R	S	T	U	V	W	X	Y
VVX21	49	24.5	20	28	4.5	38	17.3	34.5	57 (65)	19.5	49	40	41.5	46	58	63	94.5	73
VVX22	57	28.5	25.5	30	5.5	42	19.3	38.5	70 (78)	22.5	62	43	54	50	62	66	97.5	86
VVX23	57	28.5	25.5	30	5.5	42	20.8	41.5	74 (82)	25	66.5	46	59	53	64.5	68	100	90.5

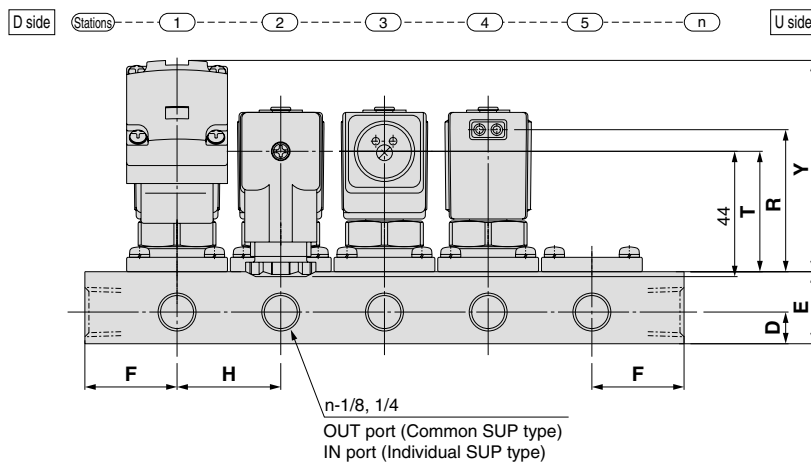
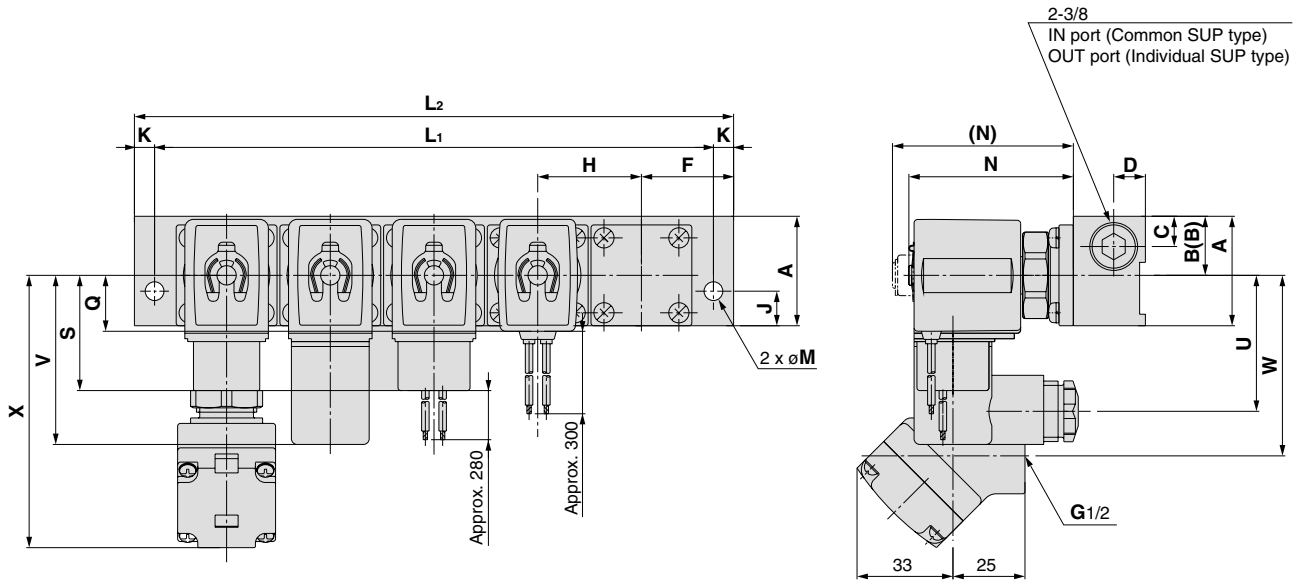
The figures in parentheses are the normally open type.

Direct Operated 2 Port Solenoid Valve *Series VX21/22/23*

For Air/Manifold

Dimensions: Manifold/Base Material: Aluminum

Normally closed (N.C.): VVX21/VVX22/VVX23
 Normally open (N.O.): VVX21/VVX22/VVX23



(mm)

Model	Dimension	n (stations)								
		2	3	4	5	6	7	8	9	10
VVX21	L1	86	122	158	194	230	266	302	338	374
	L2	100	136	172	208	244	280	316	352	388
VVX22	L1	108	154	200	246	292	338	384	430	476
	L2	126	172	218	264	310	356	402	448	494

(mm)

Model	A	B	(B) Individual SUP type	C	D	E	F	H	J	K	M	N	Electrical entry								
													Grommet		Conduit		DIN terminal		Conduit terminal		
													Q	R	S	T	U	V	W	X	Y
VVX21	38	20.5	17.5	10.5	11	25	32	36	12	7	6.5	57 (65)	19.5	49	40	42	46	58	62	95	73.5
VVX22	49	26.5	22.5	13	13	30	40	46	15	9	8.5	66 (74)	22.5	58	43	51	50	62	65	98	82
VVX23	49	26.5	22.5	13	13	30	40	46	15	9	8.5	71 (79)	25	63	46	56	53	64.5	68	101	87

The figures in parentheses are the normally open type.