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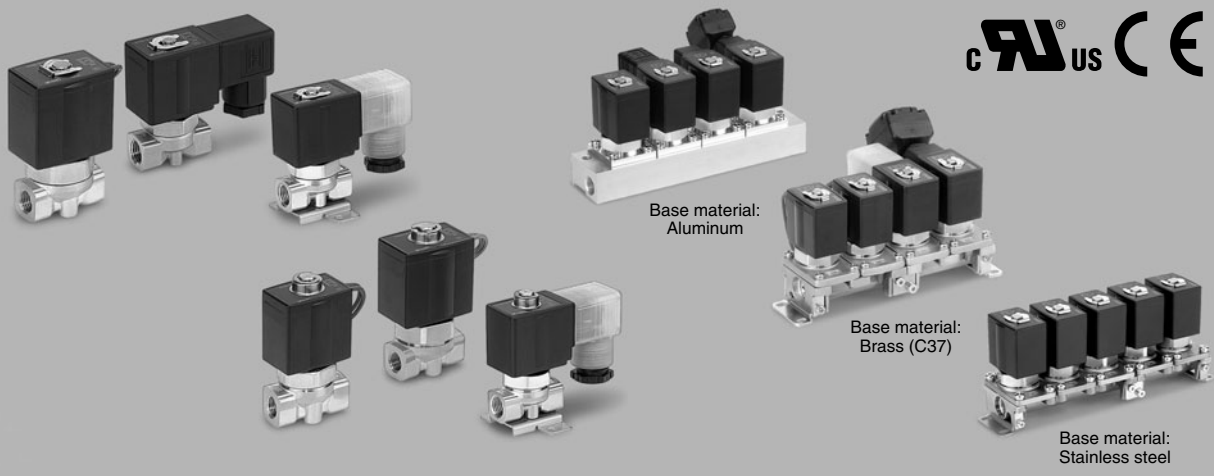
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Direct Operated 2 Port Solenoid Valve

Series VX21/22/23

For Air, Water, Oil, Steam



Solenoid valves for various fluids used in a wide variety of applications

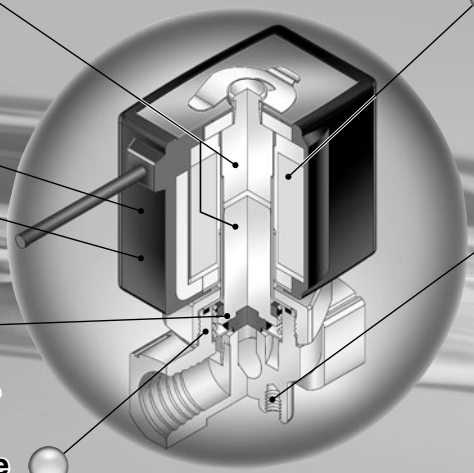
Improved corrosion resistance
Special magnetic material adopted

Enclosure: IP65

Flame resistance UL94V-0 conformed
Flame resistant mold coil material

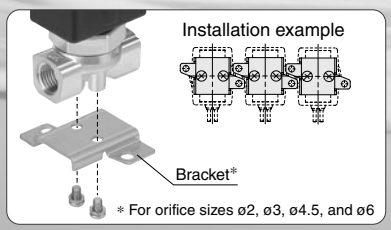
Low-noise construction
Special construction enables to reduce the metal noise. (DC spec.)

Improved maintenance performance
Maintenance is performed easily due to the threaded assembly.



Reduced power consumption (DC spec.)
VX21: 6 W→**4.5** W
VX22: 8 W→**7** W
VX23: 11.5 W→**10.5** W

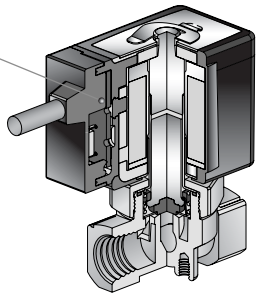
With mounting threads on the bottom
A dedicated bracket is available.



* For orifice sizes ø2, ø3, ø4.5, and ø6

Built-in full-wave rectifier type

Built-in full-wave rectifier



- **Improved durability (SMC comparison: approx. double the service life)**
  Service life is extended by the special construction.
- **Reduced buzz noise**
  Rectified to DC by the full-wave rectifier, resulting in a substantial buzz noise reduction.
- **Reduced apparent power (standard product: comparison with shading coil type)**
  VX21: 10 VA → **7** VA
  VX22: 20 VA → **9.5** VA
  VX23: 32 VA → **12** VA
- **Improved OFF response**
  Specially constructed to improve the OFF response when operated with a higher viscosity fluid such as oil.
- **Low-noise construction**
  Specially constructed to reduce the metal noise during operation.

Direct Operated 2 Port Solenoid Valve

Series VX21/22/23

For Air, Water, Oil, Steam



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 (C37), Stainless steel
Seal — NBR, FKM, EPDM, High-temperature FKM, PTFE

■ Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

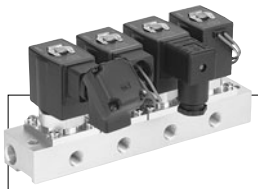


Normally Closed (N.C.)

Model		VX21	VX22		VX23	
Orifice diameter	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 diameter	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

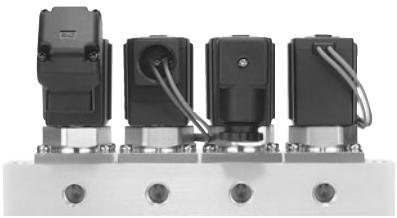
100 VAC, 200 VAC, 110 VAC, 220 VAC,
240 VAC, 230 VAC, 48 VAC
24 VDC, 12 VDC

■ Material

Body — Zn, Brass (C37), Stainless steel
Base — Aluminum, Brass (C37), Stainless steel
Seal — NBR, FKM, EPDM, High-temperature FKM, PTFE

■ Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Manifold

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

Common Specifications

Standard Specifications

Valve specifications	Valve construction		Direct operated poppet
	Withstand pressure	MPa	5.0
	Body material		Brass (C37), Stainless steel
	Seal material		NBR, FKM, EPDM, PTFE
	Enclosure		Dusttight, Low jetproof (equivalent to IP65) Note)
	Environment		Location without corrosive or explosive gases
Coil specifications	Rated voltage	AC	100 VAC, 200 VAC, 110 VAC, 220 VAC, 230 VAC, 240 VAC, 48 VAC
		DC	24 VDC, 12 VDC
	Allowable voltage fluctuation		±10% of rated voltage
	Allowable leakage voltage	AC (Class B coil, Built-in full-wave rectifier type)	10% or less of rated voltage
		AC (Class B coil/H coil)	20% or less of rated voltage
		DC (Class B coil only)	2% or less of rated voltage
	Coil insulation type		Class B, Class H

∗ Electrical entry: Grommet with surge voltage suppressor (GS) has a rating of IP40.

Solenoid Coil Specifications

Normally Closed (N.C.)

DC Specification

Model	Power consumption (W)	Temperature rise (C°) Note)
VX21	4.5	45
VX22	7	45
VX23	10.5	60

AC Specification (Class B coil, Built-in full-wave rectifier type)

Model	Apparent power (VA)∗	Temperature rise (C°) Note)
VX21	7	55
VX22	9.5	60
VX23	12	65

∗ There is no difference in the frequency and the inrush and energized apparent power, since a rectifying circuit is used in the AC (Class B coil, built-in full-wave rectifier type).

Note) The value at ambient temperature of 20°C and when the rated voltage is applied.

AC Specification

Model	Frequency (Hz)	Apparent power (VA) Inrush	Apparent power (VA) Energized	Temperature rise (C°) Note)
VX21	50	19	10	50
	60	16	8	45
VX22	50	43	20	65
	60	35	17	60
VX23	50	62	32	65
	60	52	27	60

Note) The value at ambient temperature of 20°C and when the rated voltage is applied.

Normally Open (N.O.)

DC Specification

Model	Power consumption (W)	Temperature rise (C°) Note)
VX21	4.5	45
VX22	7	45
VX23	10.5	60

AC Specification (Class B coil, Built-in full-wave rectifier type)

Model	Apparent power (VA)∗	Temperature rise (C°) Note)
VX21	7	55
VX22	9.5	60
VX23	12	65

∗ There is no difference in the frequency and the inrush and energized apparent power, since a rectifying circuit is used in the AC (Class B coil, built-in full-wave rectifier type).

Note) The value at ambient temperature of 20°C and when the rated voltage is applied.

AC Specification

Model	Frequency (Hz)	Apparent power (VA) Inrush	Apparent power (VA) Energized	Temperature rise (C°) Note)
VX21	50	22	11	55
	60	18	8	50
VX22	50	46	20	65
	60	38	18	60
VX23	50	64	32	65
	60	54	27	60

Note) The value at ambient temperature of 20°C and when the rated voltage is applied.

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Applicable Fluid Check List

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



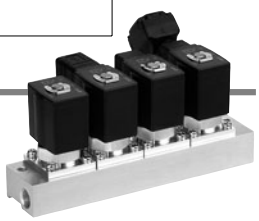
All Options (Single Unit)

Refer to pages 34, 38, 42, and 46 for specifications and models.

VX2□□ 0 2 □□–□□–□□□1–□

Option symbol

Fluid and application	Option symbol	Seal material	Body/Shading coil material Note 6)	Coil insulation type Note 4)	Note
Air	**Nil**	NBR	Brass (C37)/–	B	Select the built-in full-wave rectifier type for the AC spec.
	G		Stainless steel/–		
Medium vacuum, Non-leak, Oil-free Note 1)	**V** Note 2)	FKM	Brass (C37)/–	B	Select the built-in full-wave rectifier type for the AC spec.
	M Note 2)		Stainless steel/–		
Water	**Nil**	NBR	Brass (C37)/Cu	B	
	G		Stainless steel/Ag		
Heated water	**E**	EPDM	Brass (C37)/Cu	H	
	P		Stainless steel/Ag		
Oil Note 3)	**A**	FKM	Brass (C37)/Cu	B	
	H		Stainless steel/Ag		
	D		Brass (C37)/Cu	H	
	N		Stainless steel/Ag		
Steam	**S**	PTFE + High-temperature FKM	Brass (C37)/Cu	H	
	Q		Stainless steel/Ag		
High corrosive spec., Oil-free	**L** Note 2)	FKM	Stainless steel/Ag	B	
Copper-free, Fluorine-free Note 5)	**J**	EPDM	Stainless steel/Ag	B	
	P			H	
Other combinations	**B**	EPDM	Brass (C37)/Cu	B	
	C	PTFE			
	K		Stainless steel/Ag	B	



All Options (Manifold)

Refer to pages 36, 40, 44, and 48 for specifications and models.

VX2□□ 1 3 □□–□□–□□□1

Option symbol **Base symbol**

Fluid and application	Option symbol	Base symbol	Seal material	Body/Shading coil material Note 6)	Coil insulation type Note 4)	Note
Air	**Nil**	**00**	NBR	Zn/–	B	Select the built-in full-wave rectifier type for the AC spec.
Medium vacuum, Non-leak, Oil-free Note 1)	**V** Note 2)	**00**	FKM	Zn/–	B	Select the built-in full-wave rectifier type for the AC spec.
Water	**Nil**	**Nil**	NBR	Brass (C37)/Cu	B	
	G			Stainless steel/Ag		
Heated water	**E**	**Nil**	EPDM	Brass (C37)/Cu	H	
	P			Stainless steel/Ag		
Oil Note 3)	**A**	**Nil**	FKM	Brass (C37)/Cu	B	
	H			Stainless steel/Ag		
	D			Brass (C37)/Cu	H	
	N			Stainless steel/Ag		
Steam	**S**	**Nil**	PTFE + High-temperature FKM	Brass (C37)/Cu	H	
	Q			Stainless steel/Ag		
High corrosive spec., Oil-free	**L** Note 2)	**Nil**	FKM	Stainless steel/Ag	B	
Non-leak, Copper-free, Fluorine-free, Oil-free Note 5)	**R**	**00**	FKM	Zn/Ag	B	

Note 1) The leakage amount (10^{-6} Pa·m³/s) of "V", "M" options are values when the differential pressure is 0.1 MPa.
Note 2) "V", "M", "L" options are for non-lube treatment.
Note 3) The dynamic viscosity of the fluid must not exceed 50 mm²/s.
The special construction of the armature adopted in the built-in full-wave rectifier type gives an improvement in OFF response by providing clearance on the absorbed surface when it is switched ON.
Select the DC spec. or AC spec built-in full-wave rectifier type when the dynamic viscosity is higher than water or when the OFF response is prioritized.
Note 4) Coil insulation type Class H: AC spec. only
Note 5) The nuts (non-wetted parts) are nickel-plated on the C37 material.
Note 6) There is no shading coil attached to the DC spec. or AC spec built-in full-wave rectifier type.

∗ Please contact SMC when fluids other than above are used.

⚠ When the fluid is air.

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.)
When you operate the VX series (AC spec) by air, select the built-in full-wave rectifier type.
- **The special construction of the armature reduces abrasion, resulting in a longer service life.**
- **Reduced buzz noise**
  Best suited for medical equipment, low-noise environments, etc.

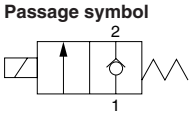
For Air /Single Unit

(Inert gas, Non-leak, Medium vacuum)

Model/Valve Specifications

N.C.

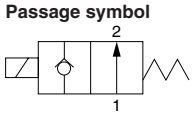
Passage symbol





N.O.

Passage symbol





Normally Closed (N.C.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics			Max. system pressure (MPa)	Note) Mass (g)
				C[dm³/(s·bar)]	b	Cv		
1/8 (6A)	2	**VX2110-01**	1.5	0.59	0.48	0.18	3.0	300
	3	**VX2120-01**	0.6	1.2	0.45	0.33		
	4.5	**VX2130-01**	0.2	2.3	0.46	0.61		
1/4 (8A)	2	**VX2110-02**	1.5	0.59	0.48	0.18		
	3	**VX2120-02**	0.6	1.2	0.45	0.33		470
		VX2220-02	1.5					620
		VX2320-02	3.0					300
	4.5	**VX2130-02**	0.2	2.3	0.46	0.61		470
		VX2230-02	0.35					620
		VX2330-02	0.9					470
	6	**VX2240-02**	0.15	4.1	0.30	1.10		620
		VX2340-02	0.35					560
	8	**VX2250-02**	0.08	6.4	0.30	1.60	1.0	700
		VX2350-02	0.2					560
	10	**VX2260-02**	0.03	8.8	0.30	2.00		700
		VX2360-02	0.07					470
3/8 (10A)	3	**VX2220-03**	1.5	1.2	0.45	0.33	3.0	620
		VX2320-03	3.0					470
	4.5	**VX2230-03**	0.35	2.3	0.46	0.61		620
		VX2330-03	0.9					470
	6	**VX2240-03**	0.15	4.1	0.30	1.10		620
		VX2340-03	0.35					560
	8	**VX2250-03**	0.08	6.4	0.30	1.60	1.0	700
		VX2350-03	0.2					560
	10	**VX2260-03**	0.03	11	0.30	2.20		700
		VX2360-03	0.07					560
1/2 (15A)	10	**VX2260-04**	0.03	11	0.30	2.20		700
		VX2360-04	0.07					

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics			Max. system pressure (MPa)	Note) Mass (g)
				C[dm³/(s·bar)]	b	Cv		
1/8 (6A)	2	**VX2112-01**	1.5	0.59	0.48	0.18	3.0	320
	3	**VX2122-01**	0.7	1.2	0.45	0.33		
	4.5	**VX2132-01**	0.3	2.3	0.46	0.61		
1/4 (8A)	2	**VX2112-02**	1.5	0.59	0.48	0.18		
	3	**VX2122-02**	0.7	1.2	0.45	0.33		500
		VX2222-02	1.0					660
		VX2322-02	1.6					320
	4.5	**VX2132-02**	0.3	2.3	0.46	0.61		500
		VX2232-02	0.45					660
		VX2332-02	0.8					500
	6	**VX2242-02**	0.25	4.1	0.30	1.10		660
		VX2342-02	0.45					500
3/8 (10)	3	**VX2222-03**	1.0	1.2	0.45	0.33		660
		VX2322-03	1.6					500
	4.5	**VX2232-03**	0.45	2.3	0.46	0.61		660
		VX2332-03	0.8					500
	6	**VX2242-03**	0.25	4.1	0.30	1.10		660
		VX2342-03	0.45					

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
Nil, G	**V, M**	
–10 Note) to 60	–10 Note) to 60	–20 to 60

Note) Dew point temperature: –10°C or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate	
	Air	Non-leak, Note) Medium vacuum
NBR, FKM	1 cm³/min or less	10^{-6} Pa·m³/sec or less

External Leakage

Seal material	Leakage rate	
	Air	Non-leak, Note) Medium vacuum
NBR, FKM	1 cm³/min or less	10^{-6} Pa·m³/sec or less

Note) Value for option "V", "M" (Non-leak, Medium vacuum)

Note) Refer to "How to Order" for UL-compliant.

How to Order (Single Unit)

AC **VX** **21** **2** **0** □ □ – **01** □ – **1** **G** **R** **1** – □

DC **VX** **21** **2** **0** □ □ – **01** □ – **5** **G** **1** – □

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

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

Valve/Body configuration

0	N.C. / Single unit
2	N.O. / Single unit

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

Suffix

Nil	—
Z	Oil-free spec.

Select nil because the solenoid valve options "V", "M" are the oil-free treatment.

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Rated voltage

		UL-compliant			UL-compliant
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.
∗ c UL us : DC type only

Refer to page 56 for ordering coil only.

Built-in full-wave rectifier type

Bracket

Nil	None
B	With bracket

∗ VX021N-12A and VX022N-12A are packed in the same container as the main body.
∗ Refer to the table (4) if a bracket is ordered separately.

Electrical entry

Symbol	Electrical entry	UL-compliant	Configuration	Symbol	Electrical entry	UL-compliant	Configuration
G	Grommet	●		**C**	Conduit	●	
GS	With grommet surge voltage suppressor	●					
T	With conduit terminal	—		**D**	DIN terminal	—	 Connector
TS	With conduit terminal and surge voltage suppressor	—		**DS**	DIN terminal with surge voltage suppressor	—	
TL	With conduit terminal and light	—		**DL**	DIN terminal with light	—	
TZ	With conduit terminal, surge voltage suppressor and light	—		**DZ**	DIN terminal with surge voltage suppressor and light	—	
				DO	For DIN terminal (without connector, gasket is included.)	●	

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.
∗ c UL us : Symbols "G", "GS", "C", "DO" only

Table (1) Model/Orifice Diameter/Port Size

Normally Closed (N.C.)

Solenoid valve (Port size)				Orifice symbol (Diameter)					
Model	**VX21**	**VX22**	**VX23**	**1** (2 mmø)	**2** (3 mmø)	**3** (4.5 mmø)	**4** (6 mmø)	**5** (8 mmø)	**6** (10 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—	—	—
	02 (1/4)	—	—	●	●	●	—	—	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●	●	●
	—	**04** (1/2)	**04** (1/2)	—	—	—	—	—	●

Normally Open (N.O.)

Solenoid valve (Port size)				Orifice symbol (Diameter)			
Model	**VX21**	**VX22**	**VX23**	**1** (2 mmø)	**2** (3 mmø)	**3** (4.5 mmø)	**4** (6 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—
	02 (1/4)	—	—	●	●	●	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Coil insulation type	Note	UL-compliant
Nil	NBR	Brass (C37)	B	—	●
G		Stainless steel			●
V	FKM	Brass (C37)		Non-leak (10^{-6} Pam³/sec), Oil-free, Medium vacuum (0.1 Pa.abs) Note)	—
M		Stainless steel			—

∗ Be careful of the Max. operating pressure differential when using this valve for vacuum applications. (A differential of 0.1 MPa or more is recommended).
∗ c UL us : Option symbols "V" and "M" are not UL-compliant.

Table (3) Rated Voltage – Electrical Option

Rated voltage			Class B		
			S	**L**	**Z**
AC/DC	Voltage symbol	Voltage	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	—	—	—
	J	230 V	—	—	—
DC	**5**	24 V	●	●	●
	6	12 V	●	—	—

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

Table (4) Bracket Part No.

Model	Part no.
VX21$^{1}_{2}$**0**	VX021N-12A
VX22$^{2}_{3}$**0** **VX23**$^{2}_{3}$**0**	VX022N-12A
VX22$^{5}_{6}$**0** **VX23**$^{5}_{6}$**0**	VX023N-12A-L

⚠ When the fluid is air.

When you operate the VX series (AC spec) by air, select the built-in full-wave rectifier type.
- **The special construction of the armature reduces abrasion, resulting in a longer service life.**
- **Reduced buzz noise**

Best suited for medical equipment, low-noise environments, etc.

Dimensions
→ page 52 (Single unit)

For Air /Manifold

(Inert gas, Non-leak, Medium vacuum)

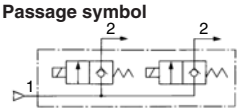
⚠ When the fluid is air.

When you operate the VX series (AC spec) by air, select the built-in full-wave rectifier type.
- **The special construction of the armature reduces abrasion, resulting in a longer service life.**
- **Reduced buzz noise**
  Best suited for medical equipment, low-noise environments, etc.

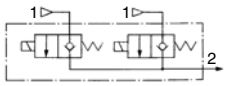
Solenoid Valve for Manifold/Valve Specifications

N.C.

Passage symbol



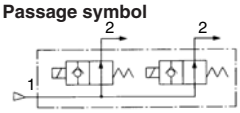
Common SUP type



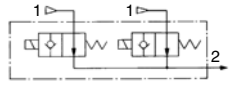
Individual SUP type

N.O.

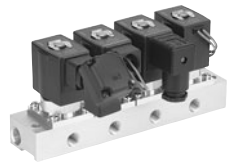
Passage symbol



Common SUP type



Individual SUP type



Normally Closed (N.C.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics			Max. system pressure (MPa)
			C[dm³/(s·bar)]	b	Cv	
2	**VX2111-00**	1.5	0.59	0.48	0.18	3.0
3	**VX2121-00**	0.6	1.2	0.45	0.33	
	VX2221-00	1.5				
	VX2321-00	3.0				
4.5	**VX2131-00**	0.2	2.3	0.46	0.61	
	VX2231-00	0.35				
	VX2331-00	0.9				
6	**VX2241-00**	0.15	4.1	0.30	1.10	
	VX2341-00	0.35				

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.
- If you intend to use any of the solenoid valves at the rated maximum operating pressure for the AC spec with shading coil, please contact us beforehand.

Normally Open (N.O.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics			Max. system pressure (MPa)
		AC, DC	C[dm³/(s·bar)]	b	Cv	
2	**VX2113-00**	1.5	0.59	0.48	0.18	3.0
3	**VX2123-00**	0.7	1.2	0.45	0.33	
	VX2223-00	1.0				
	VX2323-00	1.6				
4.5	**VX2133-00**	0.3	2.3	0.46	0.61	
	VX2233-00	0.45				
	VX2333-00	0.8				
6	**VX2243-00**	0.25	4.1	0.30	1.10	
	VX2343-00	0.45				

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
Nil, R	**V**	
–10 Note) to 60	–10 Note) to 60	–20 to 60

Note) Dew point temperature: –10°C or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate	
	Air	Non-leak, Note) Medium vacuum
NBR, FKM	1 cm³/min or less	10^{-6} Pa·m³/sec or less

External Leakage

Seal material	Leakage rate	
	Air	Non-leak, Note) Medium vacuum
NBR, FKM	1 cm³/min or less	10^{-6} Pa·m³/sec or less

Note) Value for option "V", "M" (Non-leak, Medium vacuum)

How to Order (Solenoid Valve for Manifold)

Note) Not UL-compliant

AC **VX 21 2 1 □ □ – 00 – 1 G R 1**

DC **VX 21 2 1 □ □ – 00 – 5 G 1**

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

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

Valve/Body configuration

1	N.C. (For manifold)
3	N.O. (For manifold)

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

Suffix

Nil	—
Z	Oil-free spec.

Select nil because the solenoid valve options "V", "R" are the oil-free treatment.

Built-in full-wave rectifier type

Rated voltage

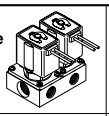
1	100 VAC 50/60 Hz	6	12 VDC
2	200 VAC 50/60 Hz	7	240 VAC 50/60 Hz
3	110 VAC 50/60 Hz	8	48 VAC 50/60 Hz
4	220 VAC 50/60 Hz	J	230 VAC 50/60 Hz
5	24 VDC		

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

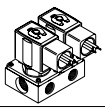
Refer to page 56 for ordering coil only.

Electrical entry

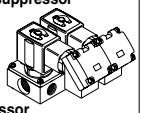
G - Grommet
GS - With grommet surge voltage suppressor



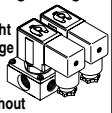
C - Conduit



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 terminal
DS - DIN terminal with surge voltage suppressor
DL - DIN terminal with light
DZ - DIN terminal with surge voltage suppressor and light
DO - For DIN terminal (without connector, gasket is included.)



∗ DIN type is available with class B only.

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

How to Order Manifold Bases

VVX21
VVX22 **1 □ □ □ – 07 – 1**
VVX23

Number of manifolds

02	2 stations
⋮	⋮
10	10 stations

Port size (Out port)

1	Rc 1/8
2	Rc 1/4

∗ All IN ports are Rc 3/8.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Suffix

Nil	—
Z	Oil-free spec.

Manifold base

Base

Nil	Common SUP type
V	Individual SUP type

Blanking plate part no.
For VX21: VX011-001 □
For VX22/23: VX011-006 □

Seal material

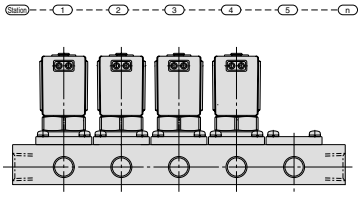
Nil	NBR
F	FKM

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
∗ VX011-001..... 1 set

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



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) Model/Orifice Diameter

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		Non-leak, Medium vacuum, Oil-free
R				Non-leak, Copper-free, Fluorine-free, Oil-free Note)

Note) The nuts (non-wetted parts) are nickel-plated on the C37 material.
∗ Be careful of the Max. operating pressure differential when using this valve for vacuum applications. (A differential of 0.1 MPa or more is recommended).

⚠ When the fluid is air.

When you operate the VX series (AC spec) by air, select the built-in full-wave rectifier type.
- **The special construction of the armature reduces abrasion, resulting in a longer service life.**
- **Reduced buzz noise**
  Best suited for medical equipment, low-noise environments, etc.

Table (3) Rated Voltage – Electrical Option

Rated voltage			Class B S	L	Z
AC/DC	Voltage symbol	Voltage	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	—	—	—
	J	230 V	—	—	—
DC	5	24 V	●	●	●
	6	12 V	●	—	—

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

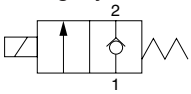
Dimensions
→ page 54 (Manifold)

For Water /Single Unit

Model/Valve Specifications

N.C.

Passage symbol





Normally Closed (N.C.)

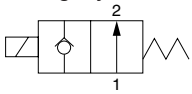
Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa) AC	Max. operating pressure differential (MPa) DC AC (Built-in full-wave rectifier type)	Flow characteristics Av x 10^{-6} m^2	Flow characteristics Cv converted	Max. system pressure (MPa)	Note) Mass (g)
1/8 (6A)	2	**VX2110-01**	2.0	1.5	4.1	0.17	3.0	300
	3	**VX2120-01**	0.9	0.5	7.9	0.33		
	4.5	**VX2130-01**	0.4	0.2	15.0	0.61		
1/4 (8A)	2	**VX2110-02**	2.0	1.5	4.1	0.17		
	3	**VX2120-02**	0.9	0.5	7.9	0.33		
		VX2220-02	1.7	1.5				470
		VX2320-02	2.5	3.0				620
	4.5	**VX2130-02**	0.4	0.2	15.0	0.61		300
		VX2230-02	0.6	0.35				470
		VX2330-02	0.85	0.9				620
	6	**VX2240-02**	0.35	0.15	26.0	1.10		470
		VX2340-02	0.55	0.3				620
	8	**VX2250-02**	0.13	0.08	38.0	1.60	1.0	560
		VX2350-02	0.17	0.2				700
	10	**VX2260-02**	0.08	0.03	46.0	1.90		560
		VX2360-02	0.1	0.07				700
3/8 (10A)	3	**VX2220-03**	1.7	1.5	7.9	0.33	3.0	470
		VX2320-03	2.5	3.0				620
	4.5	**VX2230-03**	0.6	0.35	15.0	0.61		470
		VX2330-03	0.85	0.9				620
	6	**VX2240-03**	0.35	0.15	26.0	1.10		470
		VX2340-03	0.55	0.3				620
	8	**VX2250-03**	0.13	0.08	38.0	1.60	1.0	560
		VX2350-03	0.17	0.2				700
	10	**VX2260-03**	0.08	0.03	53.0	2.20		560
		VX2360-03	0.1	0.07				700
1/2 (15A)	10	**VX2260-04**	0.08	0.03	53.0	2.20		560
		VX2360-04	0.1	0.07				700

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, and 60 g for conduit terminal type respectively.

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

N.O.

Passage symbol





Normally Open (N.O.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics Av x 10^{-6} m^2	Flow characteristics Cv converted	Max. system pressure (MPa)	Note) Mass (g)
1/8 (6A)	2	**VX2112-01**	0.9	4.1	0.17	3.0	320
	3	**VX2122-01**	0.45	7.9	0.33		
	4.5	**VX2132-01**	0.2	15.0	0.61		
1/4 (8A)	2	**VX2112-02**	0.9	4.1	0.17		
	3	**VX2122-02**	0.45	7.9	0.33		
		VX2222-02	0.8				500
		VX2322-02	1.2				660
	4.5	**VX2132-02**	0.2	15.0	0.61		320
		VX2232-02	0.3				500
		VX2332-02	0.6				660
	6	**VX2242-02**	0.15	26.0	1.10		500
		VX2342-02	0.35				660
3/8 (10)	3	**VX2222-03**	0.8	7.9	0.33		500
		VX2322-03	1.2				660
	4.5	**VX2232-03**	0.3	15.0	0.61		500
		VX2332-03	0.6				660
	6	**VX2242-03**	0.15	26.0	1.10		500
		VX2342-03	0.35				660

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, and 60 g for conduit terminal type respectively.

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
Nil, G, L	**E, P**	
1 to 60	1 to 99	–20 to 60

Note) With no freezing

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Water)
NBR, FKM, EPDM	0.1 cm^3/min or less

External Leakage

Seal material	Leakage rate (Water)
NBR, FKM, EPDM	0.1 cm^3/min or less

How to Order (Single Unit)

Note) Refer to "How to Order" for UL-compliant.

AC VX 21 2 0 ☐ ☐ – 01 ☐ – 1 G R 1 – ☐

DC VX 21 2 0 ☐ ☐ – 01 ☐ – 5 G 1 – ☐

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

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

Valve/Body configuration

0	N.C. / Single unit
2	N.O. / Single unit

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

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

Suffix

Nil	—
Z	Oil-free spec.

Select nil because the solenoid valve option "L" is the oil-free treatment.
Class B oil-free AC coils are applicable to the full-wave rectifier type only.
Select the full-wave rectifier type.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

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.

Refer to page 56 for ordering coil only.

Full-wave rectifier

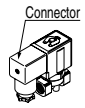
		UL-compliant
Nil	None	●
R	Built-in full-wave rectifier type (Class B only)	—

Bracket

Nil	None
B	With bracket

∗ VX021N-12A and VX022-12A are packed in the same container as the main body.
∗ Refer to the table (4) if a bracket is ordered separately.

Electrical entry

Symbol	Electrical entry	UL-compliant	Configuration	Symbol	Electrical entry	UL-compliant	Configuration
G	Grommet	●		C	Conduit	●	
GS	With grommet surge voltage suppressor	●					
T	With conduit terminal	—		D	DIN terminal	—	 Connector
TS	With conduit terminal and surge voltage suppressor	—		DS	DIN terminal with surge voltage suppressor	—	
TL	With conduit terminal and light	—		DL	DIN terminal with light	—	
TZ	With conduit terminal, surge voltage suppressor and light	—		DZ	DIN terminal with surge voltage suppressor and light	—	
				DO	For DIN terminal (without connector, gasket is included.)	●	∗ DIN type is available with class B only.

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.
∗ c UL us : Symbols "G", "GS", "C", "DO" only

Table (1) Model/Orifice Diameter/Port Size

Normally Closed (N.C.)

Solenoid valve (Port size)				Orifice symbol (Diameter)					
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)	5 (8 mmø)	6 (10 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—	—	—
	02 (1/4)	—	—	●	●	●	—	—	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●	●	●
	—	**04** (1/2)	**04** (1/2)	—	—	—	—	—	●

Normally Open (N.O.)

Solenoid valve (Port size)				Orifice symbol (Diameter)			
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—
	02 (1/4)	—	—	●	●	●	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body/Shading coil material	Coil insulation type	Note	UL-compliant
Nil	NBR	Brass (C37)/Cu	B	—	●
G		Stainless steel/Ag			●
E	EPDM	Brass (C37)/Cu	H	Heated water (AC only)	● Note)
P		Stainless steel/Ag			●
L	FKM	Stainless steel/Ag	B	High corrosive, Oil-free	●

Note) N.O. valve is not UL-compliant.

Table (3) Rated Voltage – Electrical Option

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

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

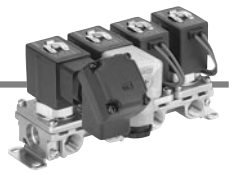
Table (4) Bracket Part No.

Model	Part no.
VX21$^{1}_{3}$0	VX021N-12A
VX22$^{3}_{4}$0 VX23$^{3}_{4}$0	VX022N-12A
VX22$^{5}_{6}$0 VX23$^{5}_{6}$0	VX023N-12A-L

Dimensions → page 52 (Single unit)

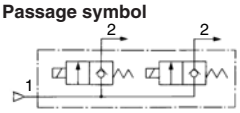
For Water /Manifold

Solenoid Valve for Manifold/Valve Specifications



N.C.

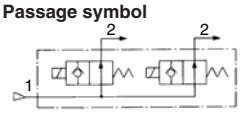
Passage symbol



Common SUP type

N.O.

Passage symbol



Common SUP type

Normally Closed (N.C.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics		Max. system pressure (MPa)
		AC	DC AC (Built-in full-wave rectifier type)	Av x 10^{-6} m^2	Cv converted	
2	**VX2111**	2.0	1.5	4.1	0.17	3.0
3	**VX2121**	0.9	0.5	7.9	0.33	
	VX2221	1.7	1.5			
	VX2321	2.5	3.0			
4.5	**VX2131**	0.4	0.2	15	0.61	
	VX2231	0.6	0.35			
	VX2331	0.85	0.9			
6	**VX2241**	0.35	0.15	26	1.10	
	VX2341	0.55	0.3			

• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)
			Av x 10^{-6} m^2	Cv converted	
2	**VX2113**	0.9	4.1	0.17	3.0
3	**VX2123**	0.45	7.9	0.33	
	VX2223	0.8			
	VX2323	1.2			
4.5	**VX2133**	0.2	15	0.61	
	VX2233	0.3			
	VX2333	0.6			
6	**VX2243**	0.15	26	1.10	
	VX2343	0.35			

• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
Nil, G, L	**E, P**	
1 to 60	1 to 99	–20 to 60

Note) With no freezing

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Water)
NBR, FKM, EPDM	0.1 cm^3/min or less

External Leakage

Seal material	Leakage rate (Water)
NBR, FKM, EPDM	0.1 cm^3/min or less

How to Order (Solenoid Valve for Manifold)

Note) Not UL-compliant

AC VX 21 2 1 ☐ ☐ – 1 G R 1

DC VX 21 2 1 ☐ ☐ – 5 G 1

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

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

Valve/Body configuration

1	N.C. (For manifold)
3	N.O. (For manifold)

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

Suffix

Nil	—
Z	Oil-free spec.

Select nil because the solenoid valve option "L" is the oil-free treatment. Class B oil-free AC coils are applicable to the full-wave rectifier type only. Select the full-wave rectifier type.

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.

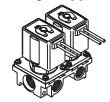
Refer to page 56 for ordering coil only.

Full-wave rectifier

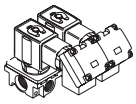
Nil	None
R	Built-in full-wave rectifier type (Class B only)

Electrical entry

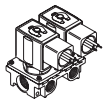
G - Grommet
GS - With grommet surge voltage suppressor



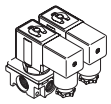
T - With conduit terminal
TS - With conduit terminal and surge voltage suppressor
TL - With conduit terminal and light
TZ - With conduit terminal, surge voltage suppressor and light



C - Conduit



D - DIN terminal
DS - DIN terminal with surge voltage suppressor
DL - DIN terminal with light
DZ - DIN terminal with surge voltage suppressor and light
DO - For DIN terminal (without connector, gasket is included.)



∗ DIN type is available with class B only.

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

How to Order Manifold Bases

VVX21
VVX22 1 ☐ C ☐ – 07 – 1
VVX23

Port size (OUT port)

1	Rc 1/8
2	Rc 1/4

∗ 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 spec.

Manifold base

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

Blanking plate part no.
For VX21: VVX21-3A – ☐
For VX22: VVX22-3A – ☐
For VX23: VVX23-3A – ☐

Seal material

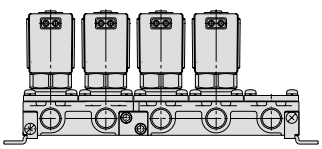
Nil	NBR
F	FKM
E	EPDM

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
∗ VX2111-1G1 ..... 4 sets
∗ VVX21-3A ..... 1 set

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



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) Model/Orifice Diameter

Solenoid valve	Orifice symbol (Diameter)			
	1 (2 mmø)	2 (2 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/ Shading coil material	Seal material	Coil insulation type	Note
Nil	C	Brass(C37)/Cu	NBR	B	—
G	S	Stainless steel/Ag			
E	CE	Brass(C37)/Cu	EPDM	H	Heated water (AC only)
P	SE	Stainless steel/Ag			
L	SF	Stainless steel/Ag	FKM	B	High corrosive, Oil-free

Table (3) Rated Voltage – Electrical Option

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

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

Dimensions → page 55 (Manifold)

⚠ When the fluid is oil.

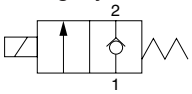
The dynamic viscosity of the fluid must not exceed 50 mm²/s.
The special construction of the armature adopted in the built-in full-wave rectifier type gives an improvement in OFF response by providing clearance on the absorbed surface when it is switched ON.
Select the DC spec. or AC spec. built-in full-wave rectifier type when the dynamic viscosity is higher than water or when the OFF response is prioritized.

For Oil/Single Unit

Model/Valve Specifications

N.C.

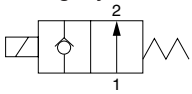
Passage symbol





N.O.

Passage symbol





Normally Closed (N.C.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa) AC	Max. operating pressure differential (MPa) DC AC (Built-in full-wave rectifier type)	Flow characteristics Av x 10^{-6} m²	Flow characteristics Cv converted	Max. system pressure (MPa)	Note) Mass (g)
1/8 (6A)	2	**VX2110-01**	1.5	1.5	4.1	0.17	3.0	300
	3	**VX2120-01**	0.5	0.5	7.9	0.33		
	4.5	**VX2130-01**	0.2	0.15	15	0.61		
1/4 (8A)	2	**VX2110-02**	1.5	1.5	4.1	0.17		300
	3	**VX2120-02**	0.5	0.5	7.9	0.33		
		VX2220-02	1.2	1.2				470
		VX2320-02	1.7	2.0				620
	4.5	**VX2130-02**	0.2	0.15	15	0.61		300
		VX2230-02	0.35	0.3				470
		VX2330-02	0.55	0.85				620
	6	**VX2240-02**	0.2	0.1	26	1.10		470
		VX2340-02	0.35	0.3				620
	8	**VX2250-02**	0.1	0.08	38	1.60	1.0	560
		VX2350-02	0.14	0.2				700
	10	**VX2260-02**	0.05	0.03	46	1.90		560
		VX2360-02	0.08	0.07				700
3/8 (10A)	3	**VX2220-03**	1.2	1.2	7.9	0.33	3.0	470
		VX2320-03	1.7	2.0				620
	4.5	**VX2230-03**	0.35	0.3	15	0.61		470
		VX2330-03	0.55	0.85				620
	6	**VX2240-03**	0.2	0.1	26	1.10		470
		VX2340-03	0.35	0.3				620
	8	**VX2250-03**	0.1	0.08	38	1.60	1.0	560
		VX2350-03	0.14	0.2				700
	10	**VX2260-03**	0.05	0.03	53	2.20		560
		VX2360-03	0.08	0.07				700
1/2 (15A)	10	**VX2260-04**	0.05	0.03	53	2.20		560
		VX2360-04	0.08	0.07				700

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, and 60 g for conduit terminal type respectively.

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Closed (N.C.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa) AC, DC	Flow characteristics Av x 10^{-6} m²	Flow characteristics Cv converted	Max. system pressure (MPa)	Note) Mass (g)
1/8 (6A)	2	**VX2112-01**	0.8	4.1	0.17	3.0	320
	3	**VX2122-01**	0.45	7.9	0.33		
	4.5	**VX2132-01**	0.2	15	0.61		
1/4 (8A)	2	**VX2112-02**	0.8	4.1	0.17		320
	3	**VX2122-02**	0.45	7.9	0.33		
		VX2222-02	0.7				500
		VX2322-02	1.0				660
	4.5	**VX2132-02**	0.2	15	0.61		320
		VX2232-02	0.3				500
		VX2332-02	0.6				660
	6	**VX2242-02**	0.15	26	1.10		500
		VX2342-02	0.35				660
3/8 (10)	3	**VX2222-03**	0.7	7.9	0.33		500
		VX2322-03	1.0				660
	4.5	**VX2232-03**	0.3	15	0.61		500
		VX2332-03	0.6				660
	6	**VX2242-03**	0.15	26	1.10		500
		VX2342-03	0.35				660

Note) Mass of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, and 60 g for conduit terminal type respectively.

- Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
A, H	**D, N**	
–5 Note) to 60	–5 Note) to 120	–20 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Oil)
FKM	0.1 cm³/min or less

External Leakage

Seal material	Leakage rate (Oil)
FKM	0.1 cm³/min or less

How to Order (Single Unit)

Note) Refer to "How to Order" for UL-compliant.

AC VX 21 2 0 A ☐ – 01 ☐ – 1 G R 1 – ☐

DC VX 21 2 0 A ☐ – 01 ☐ – 5 G 1 – ☐

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

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

Valve/Body configuration

0	N.C. / Single unit
2	N.O. / Single unit

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

Suffix

Nil	—
Z	Oil-free spec.

Class B oil-free AC coils are applicable to the full-wave rectifier type only.
Select the full-wave rectifier type.

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

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.

Refer to page 56 for ordering coil only.

Full-wave rectifier

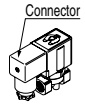
		UL-compliant
Nil	None	●
R	Built-in full-wave rectifier type (Class B only)	—

Bracket

Nil	None
B	With bracket

∗ VX021N-12A and VX022N-12A are packed in the same container as the main body.
∗ Refer to the table (4) if a bracket is ordered separately.

Electrical entry

Symbol	Electrical entry	UL-compliant	Configuration	Symbol	Electrical entry	UL-compliant	Configuration
G	Grommet	●		C	Conduit	●	
GS	With grommet surge voltage suppressor	●					
T	With conduit terminal	—		D	DIN terminal	—	 Connector
TS	With conduit terminal and surge voltage suppressor	—		DS	DIN terminal with surge voltage suppressor	—	
TL	With conduit terminal and light	—		DL	DIN terminal with light	—	
TZ	With conduit terminal, surge voltage suppressor and light	—		DZ	DIN terminal with surge voltage suppressor and light	—	
				DO	For DIN terminal (without connector, gasket is included.)	●	∗ DIN type is available with class B only.

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.
∗ c UL us : Symbols "G", "GS", "C", "DO" only

Table (1) Model/Orifice Diameter/Port Size

Normally Closed (N.C.)

Solenoid valve (Port size)				Orifice symbol (Diameter)					
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)	5 (8 mmø)	6 (10 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—	—	—
	02 (1/4)	—	—	●	●	●	—	—	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●	●	●
	—	**04** (1/2)	**04** (1/2)	—	—	—	—	—	●

Normally Open (N.O.)

Solenoid valve (Port size)				Orifice symbol (Diameter)			
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—
	02 (1/4)	—	—	●	●	●	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body/Shading coil material	Coil insulation type	UL-compliant
A	FKM	Brass (C37)/Cu	B	●
H		Stainless steel/Ag		—
D		Brass (C37)/Cu	H	—
N		Stainless steel/Ag		—

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.
∗ c UL us : Option symbol "A" only

Table (3) Rated Voltage – Electrical Option

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

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

Table (4) Bracket Part No.

Model	Part no.
VX21$^{1}_{3}$0	VX021N-12A
VX22$^{2}_{4}$0 VX23$^{2}_{4}$0	VX022N-12A
VX22$^{5}_{6}$0 VX23$^{5}_{6}$0	VX023N-12A-L

Dimensions → page 52 (Single unit)

⚠ When the fluid is oil.

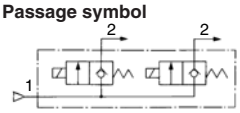
The dynamic viscosity of the fluid must not exceed 50 mm²/s.
The special construction of the armature adopted in the built-in full-wave rectifier type gives an improvement in OFF response by providing clearance on the absorbed surface when it is switched ON.
Select the DC spec. or AC spec. built-in full-wave rectifier type when the dynamic viscosity is higher than water or when the OFF response is prioritized.

For Oil/Manifold

Solenoid Valve for Manifold/Valve Specifications

N.C.

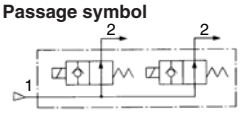
Passage symbol



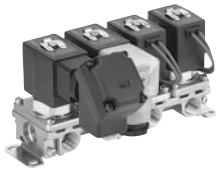
Common SUP type

N.O.

Passage symbol



Common SUP type



Normally Closed (N.C.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics		Max. system pressure (MPa)
		AC	DC AC (Built-in full-wave rectifier type)	Av x 10^{-6} m²	Cv converted	
2	**VX2111**	1.5	1.5	4.1	0.17	3.0
3	**VX2121**	0.5	0.5	7.9	0.33	
	VX2221	1.2	1.2			
	VX2321	1.7	2.0			
4.5	**VX2131**	0.2	0.15	15	0.61	
	VX2231	0.35	0.3			
	VX2331	0.55	0.85			
6	**VX2241**	0.2	0.1	26	1.10	
	VX2341	0.35	0.3			

• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)
		AC, DC	Av x 10^{-6} m²	Cv converted	
2	**VX2113**	0.8	4.1	0.17	3.0
3	**VX2123**	0.45	7.9	0.33	
	VX2223	0.7			
	VX2323	1.0			
4.5	**VX2133**	0.2	15	0.61	
	VX2233	0.3			
	VX2333	0.6			
6	**VX2243**	0.15	26	1.10	
	VX2343	0.35			

• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Fluid temperature (°C)		Ambient temperature (°C)
Solenoid valve option symbol		
A, H	**D, N**	
–5 Note) to 60	–5 Note) to 120	–20 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Oil)
FKM	0.1 cm³/min or less

External Leakage

Seal material	Leakage rate (Oil)
FKM	0.1 cm³/min or less

How to Order (Solenoid Valve for Manifold)

Note) Not UL-compliant

AC VX 21 2 1 A □ – 1 G R 1

DC VX 21 2 1 A □ – 5 G 1

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

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

Valve/Body configuration

1	N.C. (For manifold)
3	N.O. (For manifold)

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

Suffix

Nil	—
Z	Oil-free spec.

Class B oil-free AC coils are applicable to the full-wave rectifier type only. Select the full-wave rectifier type.

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.

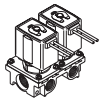
Refer to page 56 for ordering coil only.

Full-wave rectifier

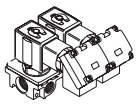
Nil	None
R	Built-in full-wave rectifier type (Class B only)

Electrical entry

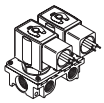
G - Grommet
GS - With grommet surge voltage suppressor



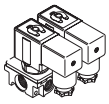
T - With conduit terminal
TS - With conduit terminal and surge voltage suppressor
TL - With conduit terminal and light
TZ - With conduit terminal, surge voltage suppressor and light



C - Conduit



D - DIN terminal
DS - DIN terminal with surge voltage suppressor
DL - DIN terminal with light
DZ - DIN terminal with surge voltage suppressor and light
DO - For DIN terminal (without connector, gasket is included.)



∗ DIN type is available with class B only.

∗ Refer to the table (3) for the available combinations between each electrical option (S, L, Z) and rated voltage.
∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

How to Order Manifold Bases

VVX21
VVX22 1 □ **CF** □ – **07** – 1
VVX23

Number of manifolds

02	2 stations
⋮	⋮
10	10 stations

Port size (OUT port)

1	Rc 1/8
2	Rc 1/4

∗ All IN ports are Rc 3/8.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Suffix

Nil	—
Z	Oil-free spec.

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

Manifold base

● **Blanking plate part no.**
For VX21: VVX21-3A-F
For VX22: VVX22-3A-F
For VX23: VVX23-3A-F

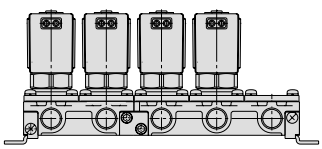
Seal material: FKM

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
∗ VX2111A-1G1 ..... 4 sets
∗ VVX21-3A-F ..... 1 set

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



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) Model/Orifice Diameter

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/ Shading coil material	Seal material	Coil insulation type	Note
A	CF	Brass (C37)/Cu	FKM	B	—
H	SF	Stainless steel/Ag			
D	CF	Brass (C37)/Cu		H	AC only
N	SF	Stainless steel/Ag			

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.

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

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

∗ Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.

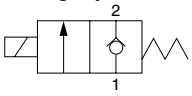
Dimensions → page 55 (Manifold)

For Steam /Single Unit

Model/Valve Specifications

N.C.

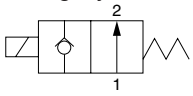
Passage symbol





N.O.

Passage symbol





Normally Closed (N.C.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)	Note) Weight (g)
			AC	Av x 10^{-6} m^2	Cv converted		
1/8 (6A)	2	**VX2110-01**	1.0	4.1	0.17	1.0	300
	3	**VX2120-01**	1.0	7.9	0.33		
	4.5	**VX2130-01**	0.45	15	0.61		
1/4 (8A)	2	**VX2110-02**	1.0	4.1	0.17		
	3	**VX2120-02**	1.0	7.9	0.33		
	4.5	**VX2130-02**	0.45	15	0.61		470
		VX2230-02	0.75				620
		VX2330-02	1.0				470
	6	**VX2240-02**	0.4	26	1.10		620
		VX2340-02	0.5				560
	8	**VX2250-02**	0.15	38	1.60	0.5	700
		VX2350-02	0.2				560
	10	**VX2260-02**	0.08	46	1.90		700
		VX2360-02	0.1				470
3/8 (10A)	3	**VX2220-03**	1.0	7.9	0.33	1.0	470
	4.5	**VX2230-03**	0.75	15	0.61		620
		VX2330-03	1.0				470
	6	**VX2240-03**	0.4	26	1.10		620
		VX2340-03	0.5				560
	8	**VX2250-03**	0.15	38	1.60	0.5	700
		VX2350-03	0.2				560
	10	**VX2260-03**	0.08	53	2.20		700
		VX2360-03	0.1				560
1/2 (15A)	10	**VX2260-04**	0.08	53	2.20		700
		VX2360-04	0.1				

Note) Mass of grommet type. Add 60 g for conduit terminal type.
• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Port size	Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)	Note) Weight (g)
			AC	Av x 10^{-6} m^2	Cv converted		
1/8 (6A)	2	**VX2112-01**	1.0	4.1	0.17	1.0	320
	3	**VX2122-01**	0.7	7.9	0.33		
	4.5	**VX2132-01**	0.3	15	0.61		
1/4 (8A)	2	**VX2112-02**	1.0	4.1	0.17		
	3	**VX2122-02**	0.7	7.9	0.33		
		VX2222-02	1.0				500
	4.5	**VX2132-02**	0.3	15	0.61		320
		VX2232-02	0.45				500
		VX2332-02	0.8				660
	6	**VX2242-02**	0.25	26	1.10		500
		VX2342-02	0.45				660
3/8 (10)	3	**VX2222-03**	1.0	7.9	0.33		500
	4.5	**VX2232-03**	0.45	15	0.61		
		VX2332-03	0.8				660
	6	**VX2242-03**	0.25	26	1.10		500
		VX2342-03	0.45				660

Note) Mass of grommet type. Add 60 g for conduit terminal type.
• Refer to "Glossary of Terms" on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Max. fluid temperature (°C)	Ambient temperature (°C)
Solenoid valve option symbol	
S, Q	
183	–20 to 60

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Air)
PTFE	300 cm^3/min or less

External Leakage

Seal material	Leakage rate (Air)
High-temperature FKM	1 cm^3/min or less

How to Order (Single Unit)

Note) Not UL-compliant

AC **VX** [21] [2] [0] [S] [ ] – [01] [ ] – [1] [G] 1 – [ ]

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

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

Valve/Body configuration

0	N.C. / Single unit
2	N.O. / Single unit

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

Suffix

Nil	—
Z	Oil-free spec.

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Rated voltage

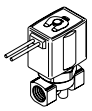
1	100 VAC 50/60 Hz	**7**	240 VAC 50/60 Hz
2	200 VAC 50/60 Hz	**8**	48 VAC 50/60 Hz
3	110 VAC 50/60 Hz	**J**	230 VAC 50/60 Hz
4	220 VAC 50/60 Hz		

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

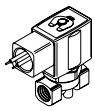
Refer to page 56 for ordering coil only.

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



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

Bracket

Nil	None
B	With bracket

∗ VX021N-12A and VX022N-12A are packed in the same container as the main body.
∗ Refer to the table (4) if a bracket is ordered separately.

Table (1) Model/Orifice Diameter/Port size

Normally Closed (N.C.)

Solenoid valve (Port size)				Orifice symbol (Diameter)					
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)	5 (8 mmø)	6 (10 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—	—	—
	02 (1/4)	—	—	●	●	●	—	—	—
	—	**02** (1/4)	**02** (1/4)	—	—	●	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	● (VX22)	●	●	●	●
	—	**04** (1/2)	**04** (1/2)	—	—	—	—	—	●

Normally Open (N.O.)

Solenoid valve (Port size)				Orifice symbol (Diameter)			
Model	VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
Port no. (Port size)	**01** (1/8)	—	—	●	●	●	—
	02 (1/4)	—	—	●	●	●	—
	—	**02** (1/4)	**02** (1/4)	—	●	●	●
	—	**03** (3/8)	**03** (3/8)	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body/Shading coil material	Coil insulation type
S	PTFE + High-temperature FKM	Brass (C37)/Cu	H
Q		Stainless steel/Ag	

Solenoid coil: AC/Class H only

Table (3) Rated Voltage – Electrical Option

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

Table (4) Bracket Part No.

Model	Part no.
VX21$\frac{1}{3}$**0**	VX021N-12A
VX22$\frac{2}{4}$**0** **VX23**$\frac{2}{4}$**0**	VX022N-12A
VX22$\frac{5}{6}$**0** **VX23**$\frac{5}{6}$**0**	VX023N-12A-L

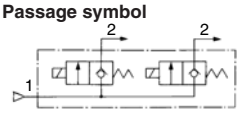
Dimensions → page 52 (Single unit)

For Steam /Manifold

Solenoid Valve for Manifold/Valve Specifications

N.C.

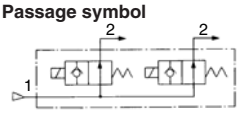
Passage symbol



Common SUP type

N.O.

Passage symbol



Common SUP type

Normally Closed (N.C.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)
		AC	Av x 10^{-6} m^2	Cv converted	
2	**VX2111**	1.0	4.1	0.17	3.0
3	**VX2121**	1.0	7.9	0.33	
4.5	**VX2131**	0.45	15	0.61	
	VX2231	0.75			
	VX2331	1.0			
6	**VX2241**	0.4	26	1.10	
	VX2341	0.5			

• Refer to “Glossary of Terms” on page 26 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Orifice dia. (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics		Max. system pressure (MPa)
		AC	Av x 10^{-6} m^2	Cv converted	
2	**VX2113**	1.0	4.1	0.17	3.0
3	**VX2123**	0.7	7.9	0.33	
	VX2223	1.0			
4.5	**VX2133**	0.3	15	0.61	
	VX2233	0.45			
	VX2333	0.8			
6	**VX2243**	0.25	26	1.10	
	VX2343	0.45			

• Refer to “Glossary of Terms” on page 26 for details on the max. operating pressure differential and the max. system pressure.

Fluid and Ambient Temperature

Power source	Max. fluid temperature (°C)	Ambient temperature (°C)
	Solenoid valve option symbol	
	S, Q	
AC	183	–20 to 60

Valve Leakage Rate

Internal Leakage

Seal material	Leakage rate (Air)
PTFE	300 cm^3/min or less

External Leakage

Seal material	Leakage rate (Air)
High-temperature FKM	1 cm^3/min or less

How to Order (Solenoid Valve for Manifold)

Note) Not UL-compliant

AC **VX** **21** **2** **3** **S** **□** – **1** **G** **1**

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

Orifice diameter
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 spec.

Rated voltage

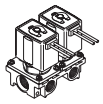
1	100 VAC 50/60 Hz	**7**	240 VAC 50/60 Hz
2	200 VAC 50/60 Hz	**8**	48 VAC 50/60 Hz
3	110 VAC 50/60 Hz	**J**	230 VAC 50/60 Hz
4	220 VAC 50/60 Hz		

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

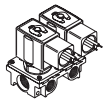
Refer to page 56 for ordering coil only.

Electrical entry

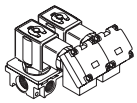
G - Grommet
GS - With grommet surge voltage suppressor



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



∗ 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
VVX22 **1** **□** **CP** **□** – **07** – **1**
VVX23

Port size (OUT port)

1	Rc 1/8
2	Rc 1/4

∗ 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 spec.

Manifold base

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

● **Blanking plate part no.**

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

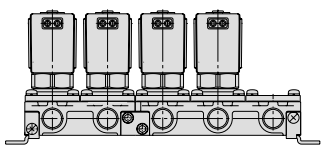
Seal material: High-temperature FKM

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
∗ VX2111S-1G1 ..... 4 sets
∗ VVX21-3A-P ..... 1 set

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



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) Model/Orifice Diameter

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/ Shading coil material	Seal material	Coil insulation type
S	**CP**	Brass(C37)/Cu	High-temperature FKM	H
Q	**SP**	Stainless steel/Ag		

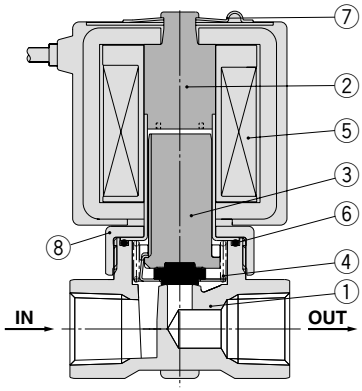
Table (3) Rated Voltage – Electrical Option

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

Dimensions → page 55 (Manifold)

Construction: Single Unit

Normally closed (N.C.)
Body material: Brass (C37), Stainless steel

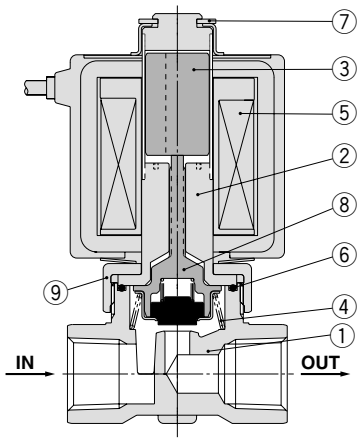


Component Parts

No.	Description	Material	
		Body material Brass (C37) specification	Body material stainless steel specification
1	**Body**	Brass (C37)	Stainless steel
2	**Tube assembly** Note)	Stainless steel, Cu	Stainless steel, Ag
3	**Armature assembly**	(NBR, FKM, EPDM, High-temperature FKM) Stainless steel, PPS	
4	**Return spring**	Stainless steel	
5	**Solenoid coil**	—	
6	**O-ring**	(NBR, FKM, EPDM, High-temperature FKM, PTFE)	
7	**Clip**	SK	
8	**Nut**	Brass (C37)	Brass (C37), Ni plated

The materials in parentheses are the seal materials.
Note) Cu and Ag are inapplicable to the DC spec and to the AC spec with built-in full-wave rectifier.

Normally open (N.O.)
Body material: Brass (C37), Stainless steel



Component Parts

No.	Description	Material	
		Body material Brass (C37) specification	Body material stainless steel specification
1	**Body**	Brass (C37)	Stainless steel
2	**Tube assembly** Note)	Stainless steel, Cu	Stainless steel, Ag
3	**Armature assembly**	Stainless steel	
4	**Return spring**	Stainless steel	
5	**Solenoid coil**	—	
6	**O-ring**	(NBR, FKM, EPDM, High-temperature FKM, PTFE)	
7	**Clip**	SK	
8	**Push rod assembly**	(NBR, FKM, EPDM, High-temperature FKM) Stainless steel, PPS	
9	**Nut**	Brass (C37)	Brass (C37), Ni plated

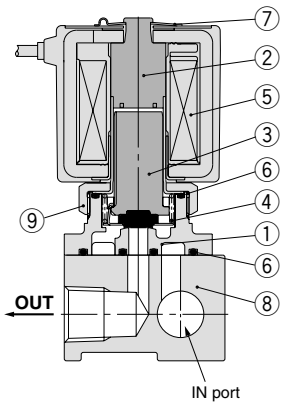
The materials in parentheses are the seal materials.
Note) Cu and Ag are inapplicable to the DC spec and to the AC spec with built-in full-wave rectifier.

Construction: Manifold

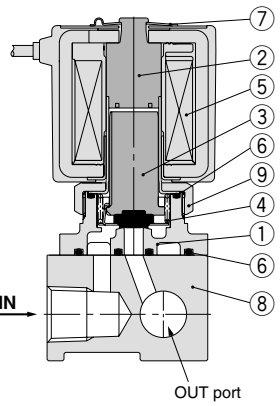
Normally closed (N.C.)

Base material: Aluminum
Body material: Zn
Fluid: Air

Common SUP type

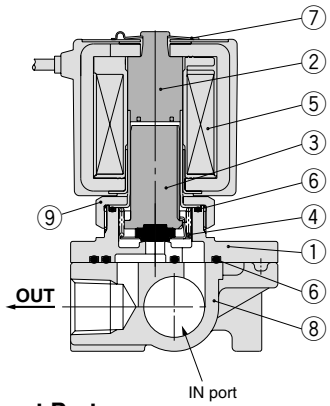


Individual SUP type



Base material: Brass (C37), Stainless steel
Body material: Brass (C37), Stainless steel
Fluid: Water, Oil, Steam

Common SUP type



Component Parts

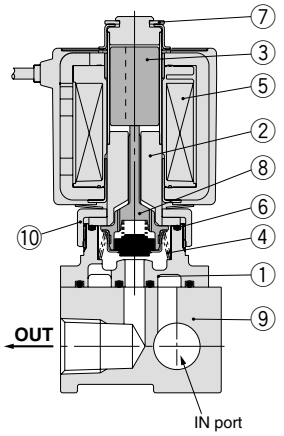
No.	Description	Material		
		Base material aluminum specification	Base material Brass (C37) specification	Base material stainless steel specification
1	**Body**	Zn	Brass (C37)	Stainless steel
2	**Tube assembly** Note)	Stainless steel, Cu		Stainless steel, Ag
3	**Armature assembly**	(NBR, FKM, EPDM, High-temperature FKM)		Stainless steel, PPS
4	**Return spring**	Stainless steel		
5	**Solenoid coil**	—		
6	**O-ring**	(NBR, FKM, EPDM, High-temperature FKM, PTFE)		
7	**Clip**	SK		
8	**Base**	Aluminum	Brass (C37)	Stainless steel
9	**Nut**	Brass (C37) (Ni plated)	Brass (C37)	Brass (C37), Ni plated

The materials in parentheses are the seal materials.
Note) Cu and Ag are inapplicable to the DC spec and to the AC spec with built-in full-wave rectifier.

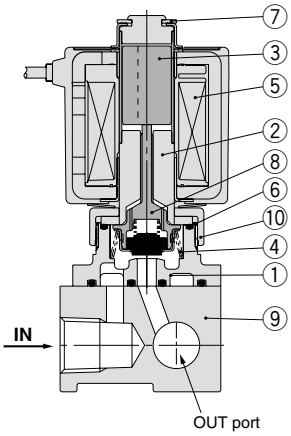
Normally open (N.O.)

Base material: Aluminum
Body material: Zn
Fluid: Air

Common SUP type

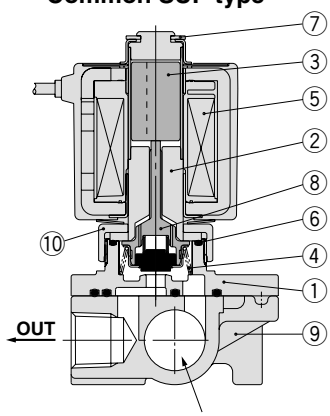


Individual SUP type



Base material: Brass (C37), Stainless steel
Body material: Brass (C37), Stainless steel
Fluid: Water, Oil, Steam

Common SUP type



Component Parts

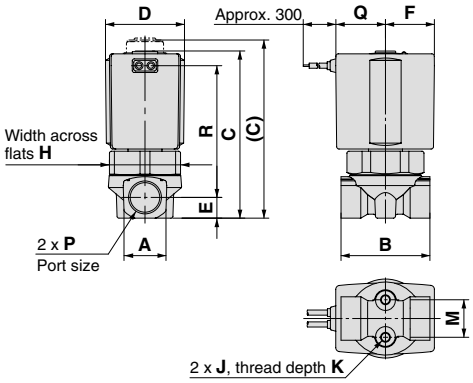
No.	Description	Material		
		Base material aluminum specification	Base material Brass (C37) specification	Base material stainless steel specification
1	**Body**	Zn	Brass (C37)	Stainless steel
2	**Tube assembly** Note)	Stainless steel, Cu		Stainless steel, Ag
3	**Armature assembly**	Stainless steel		
4	**Return spring**	Stainless steel		
5	**Solenoid coil**	—		
6	**O-ring**	(NBR, FKM, EPDM, High-temperature FKM, PTFE)		
7	**Clip**	SK		
8	**Push rod assembly**	(NBR, FKM, EPDM, High-temperature FKM)		Stainless steel, PPS
9	**Base**	Aluminum	Brass (C37)	Stainless steel
10	**Nut**	Brass (C37) (Ni plated)	Brass (C37)	Brass (C37), Ni plated

The materials in parentheses are the seal materials.
Note) Cu and Ag are inapplicable to the DC spec and to the AC spec with built-in full-wave rectifier.

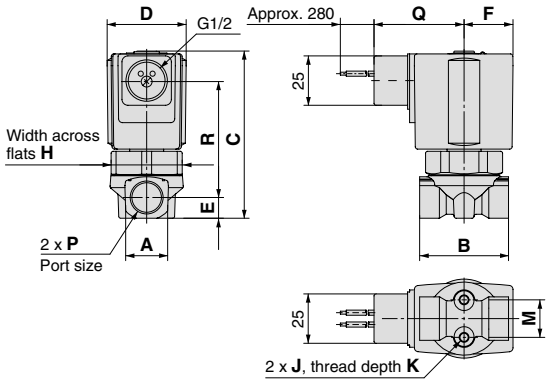
Dimensions: Single Unit/Body Material: Brass (C37), Stainless Steel

Normally closed (N.C.): VX21□0/VX22□0/VX23□0
Normally open (N.O.): VX21□2/VX22□2/VX23□2

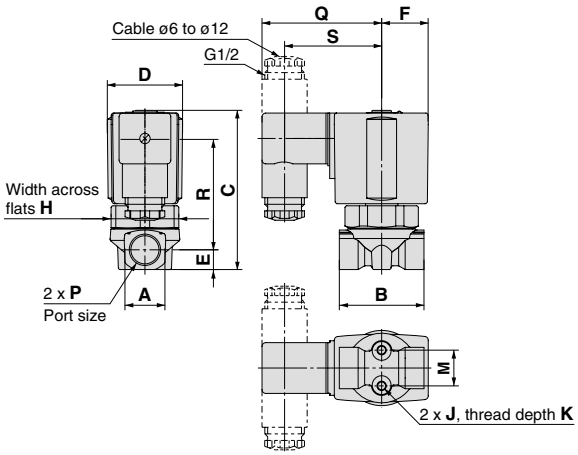
Grommet: G



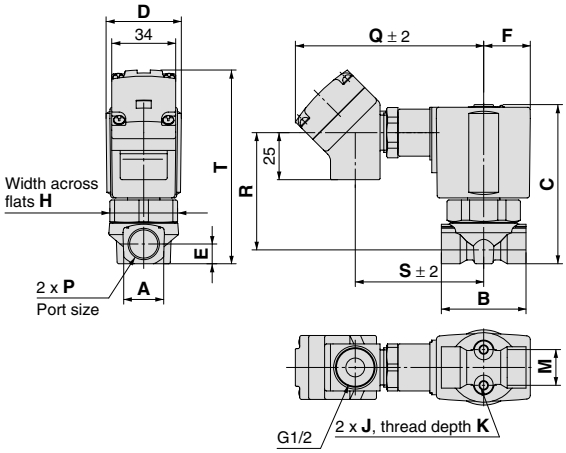
Conduit: C



DIN terminal: D



Conduit terminal: T



(mm)

Model		Orifice diameter	Port size P	A	B	C		D	E	F	H	Bracket mounting		
N.C.	N.O.						Note 1)					J	K	M
VX21□0	**VX21□2**	ø2, ø3, ø4.5	1/8, 1/4	18	40	68	(76)	30	9	19.5	27	M4	6	12.8
VX22□0	**VX22□2**	ø3, ø4.5, ø6	1/4, 3/8	22	45	78	(86)	35	10.5	22.5	32	M5	8	19
VX22□0	—	ø8, ø10	1/4, 3/8, 1/2	30	50	85	—		14			M5	8	23
VX23□0	**VX23□2**	ø3, ø4.5, ø6	1/4, 3/8	22	45	85.5	(93)	40	10.5	25	36	M5	8	19
VX23□0	—	ø8, ø10	1/4, 3/8, 1/2	30	50	92	—		14			M5	8	23

(mm)

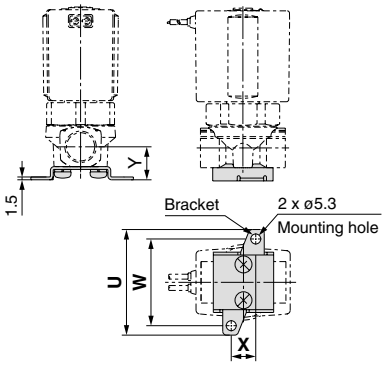
Model		Orifice diameter	Port size P	Electrical entry Note 2)											Electrical entry (Built-in full-wave rectifier type) Note 2)									
				Grommet		Conduit		DIN terminal			Conduit terminal				Grommet		Conduit		DIN terminal			Conduit terminal			
N.C.	N.O.			Q	R	Q	R	Q	R	S	Q	R	S	T	Q	R	Q	R	Q	R	S	Q	R	S	T
VX21□0	**VX21□2**	ø2, ø3, ø4.5	1/8, 1/4	19.5	50	40	42.5	58.5	42	46.5	92	42.5	61	83.5	30	46	48.5	41	65.5	42	53.5	100.5	41	69.5	82
VX22□0	**VX22□2**	ø3, ø4.5, ø6	1/4, 3/8	22.5	60	43	52.5	61.5	52	49.5	95	52.5	64	95	33	56	51.5	51	68.5	52	56.5	103.5	51	72.5	93.5
VX22□0	—	ø8, ø10	1/4, 3/8, 1/2		63		55.5		55			55.5		101.5	33	59	51.5	54	68.5	55	56.5	103.5	54	72.5	100
VX23□0	**VX23□2**	ø3, ø4.5, ø6	1/4, 3/8	25.5	66	46	58.5	64	58	52	98	58.5	66.5	101	36	62	54	57	71	58	59	106	57	75	99.5
VX23□0	—	ø8, ø10	1/4, 3/8, 1/2		69		61.5		61			61.5		107.5	36	65	54	60	71	61	59	106	60	75	106

Note 1) The figures in parentheses are the normally open (N.O.) type dimensions.
Note 2) Add 1.5 mm to "R" and "T" dimensions for the N.O. spec.

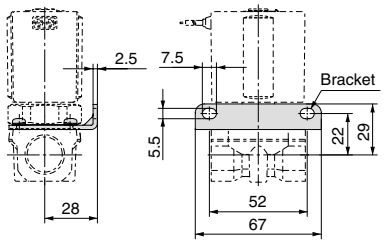
Dimensions: Single Unit/Body Material: Brass (C37), Stainless Steel

Normally closed (N.C.): VX21□0/VX22□0/VX23□0
Normally open (N.O.): VX21□2/VX22□2/VX23□2

Specifications with bracket
Orifice ø2, ø3, ø4.5, ø6
(Packed in the same container)



Orifice ø8, ø10
(Assembled at the time of shipment)

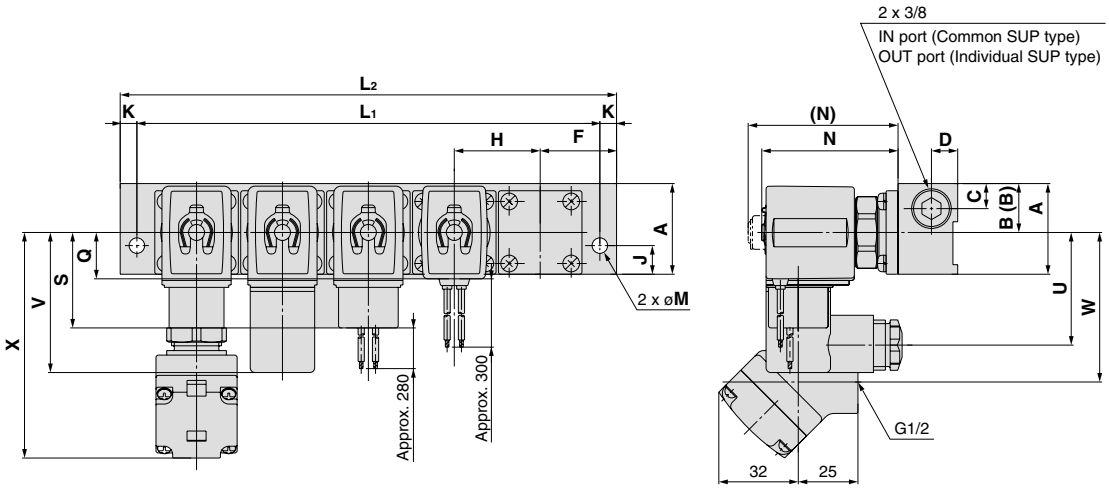


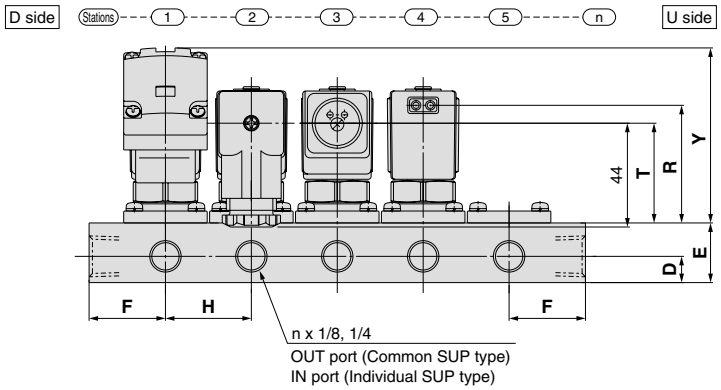
(mm)

Model		Orifice diameter	Port size P	Bracket mounting			
N.C.	N.O.			U	W	X	Y
VX21□0	**VX21□2**	ø2, ø3, ø4.5	1/8, 1/4	46	36	11	15
VX22□0	**VX22□2**	ø3, ø4.5, ø6	1/4, 3/8	56	46	13	17.5
VX22□0	—	ø8, ø10	1/4, 3/8, 1/2	—	—	—	—
VX23□0	**VX23□2**	ø3, ø4.5, ø6	1/4, 3/8	56	46	13	17.5
VX23□0	—	ø8, ø10	1/4, 3/8, 1/2	—	—	—	—

Dimensions: Manifold/Base Material: Aluminum

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





(mm)

Model	Dimension	n (Stations)								
		2	3	4	5	6	7	8	9	10
VVX21	L_1	86	122	158	194	230	266	302	338	374
	L_2	100	136	172	208	244	280	316	352	388
VVX22	L_1	108	154	200	246	292	338	384	430	476
VVX23	L_2	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 Note 1)	
VVX21	38	20.5	17.5	10.5	11	25	32	36	12	7	6.5	57.5	(65.5)
VVX22	49	26.5	22.5	13	13	30	40	46	15	9	8.5	66.5	(74.5)
VVX23	49	26.5	22.5	13	13	30	40	46	15	9	8.5	71.5	(80)

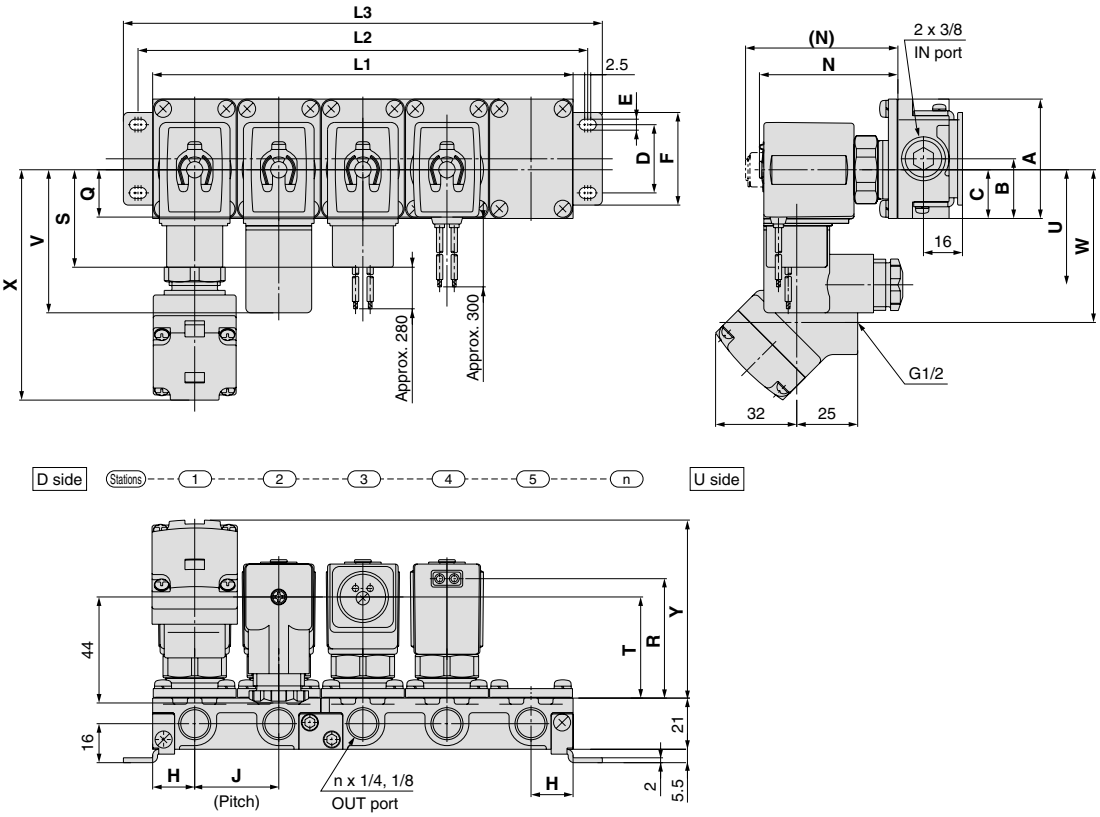
(mm)

Model	Electrical entry										Electrical entry (Built-in full-wave rectifier type) Note 2)									
	Grommet		Conduit		DIN terminal			Conduit terminal			Grommet		Conduit		DIN terminal			Conduit terminal		
	Q	R	S	T	U	V	T	W	X	Y	Q	R	S	T	U	V	T	W	X	Y
VVX21	19.5	48.5	40	41	46.5	58.5	40.5	61	92	73	30	44.5	48.5	40	53.5	65.5	41	69.5	100.5	72
VVX22	22.5	58.5	43	51	49.5	61.5	50.5	64	95	83	33	54.5	51.5	50	56.5	68.5	51	72.5	103.5	82
VVX23	25.5	63	46	55.5	52	64	55	66.5	98	87.5	36	59	54	54	59	71	55	75	106	86

Note 1) The figures in parentheses are the normally open (N.O.) type dimensions.
Note 2) Add 1.5 mm to "R", "T" and "Y" dimensions for the N.O. spec.

Dimensions: Manifold/Base Material: Brass (C37), Stainless Steel

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



(mm)

Model	Dimension	n (Stations)								
		2	3	4	5	6	7	8	9	10
VVX21	L_1	70	105	140	175	210	245	280	315	350
	L_2	82	117	152	187	222	257	292	327	362
	L_3	94	129	164	199	234	269	304	339	374
VVX22	L_1	78	117	156	195	234	273	312	351	390
	L_2	90	129	168	207	246	285	324	363	402
	L_3	102	141	180	219	258	297	336	375	414
VVX23	L_1	84	126	168	210	252	294	336	378	420
	L_2	96	138	180	222	264	306	348	390	432
	L_3	108	150	192	234	276	318	360	402	444
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 Note 1)	
VVX21	49	24.5	20	28	4.5	38	17.3	34.5	56	(64)
VVX22	57	28.5	25.5	30	5.5	42	19.3	38.5	64.5	(72.5)
VVX23	57	28.5	25.5	30	5.5	42	20.8	41.5	72.5	(81)

(mm)

Model	Electrical entry Note 2)										Electrical entry (Built-in full-wave rectifier type) Note 2)									
	Grommet		Conduit		DIN terminal			Conduit terminal			Grommet		Conduit		DIN terminal			Conduit terminal		
	Q	R	S	T	U	V	T	W	X	Y	Q	R	S	T	U	V	T	W	X	Y
VVX21	19.5	47	40	39.5	46.5	58.5	39	61	92	71.5	30	43	48.5	38	53.5	65.5	39	69.5	100.5	70
VVX22	22.5	56.5	43	49	49.5	61.5	48.5	64	95	81	33	52.5	51.5	47.5	56.5	68.5	48.5	72.5	103.5	80
VVX23	25.5	64	46	56.5	52	64	56	66.5	98	88.5	36	60	54	55	59	71	56	75	106	87

Note 1) The figures in parentheses are the normally open (N.O.) type dimensions.
Note 2) Add 1.5 mm to "R", "T" and "Y" dimensions for the N.O. spec.

Replacement Parts

● Solenoid coil assembly part no.

VX02 [1] N – [1] [G] – [ ] – [ ]

Series

1	VX21□□
2	VX22□□
3	VX23□□

Valve

Symbol	Valve
Nil	N.C.
2	N.O.

Rated voltage Note)

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

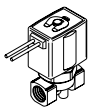
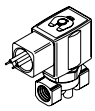
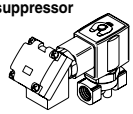
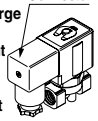
Note) Refer to the table (1) for the available combinations.

Coil insulation type Note)

Nil	Class B
H*	Class H

* DIN terminal and DC spec are not available.

Electrical entry

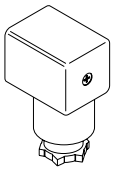
G - Grommet **GS** - With grommet surge voltage suppressor	
C - Conduit	
T - With conduit terminal **TS** - With conduit terminal and surge voltage suppressor **TL** - With conduit terminal and light **TZ** - With conduit terminal, surge voltage suppressor and light	
D - DIN terminal **DS** - DIN terminal with surge voltage suppressor **DL** - DIN terminal with light **DZ** - DIN terminal with surge voltage suppressor and light **DO** - For DIN terminal (without connector) * DIN type is available with class B only.	Connector 

* Refer to the table (1) for the available combinations between each electrical option (S, L, Z) and rated voltage.

● DIN connector part no.

Without electrical option **GDM2A**

With electrical option **GDM2A – [ ] [ ]**



Electrical option

S	With surge voltage suppressor
L	With light
Z	With light/surge voltage suppressor

* Refer to the table (1) for the available combinations between each electrical option (S, L, Z) and rated voltage.

Rated voltage

1	100 VAC, 110 VAC
2	200 VAC, 220 VAC, 230 VAC, 240 VAC
5	24 VDC
6	12 VDC
15	48 VAC

● Gasket part no. for DIN connector

VCW20-1-29-1

AC/Class B coil (Built-in full-wave rectifier)

VX02 [1] N – [1] [G] R – [ ]

Series

1	VX21□□
2	VX22□□
3	VX23□□

Rated voltage Note)

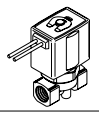
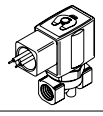
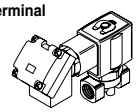
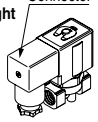
1	100 VAC 50/60 Hz
2	200 VAC 50/60 Hz
3	110 VAC 50/60 Hz
4	220 VAC 50/60 Hz
7	240 VAC 50/60 Hz
8	48 VAC 50/60 Hz
J	230 VAC 50/60 Hz

Note) Refer to the table (1) for the available combinations.

Valve

Symbol	Valve
Nil	N.C.
2	N.O.

Electrical entry

G - Grommet	
C - Conduit	
T - With conduit terminal **TL** - With conduit terminal and light	
D - DIN terminal **DL** - DIN terminal with light **DO** - For DIN terminal (without connector, gasket is included.)	Connector 

* Refer to the table (1) for the available combinations between each electrical option and rated voltage.
* Surge voltage suppressor is integrated into the AC/Class B coil, as a standard.

Table (1) Rated Voltage – Electrical Option

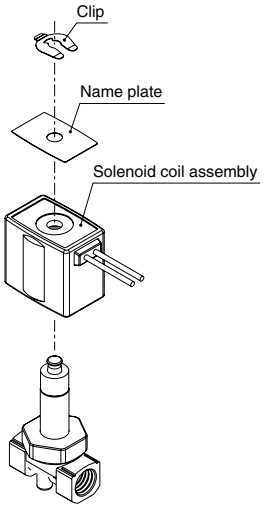
Rated voltage			Class B			Class H		
			S	L	Z	S	L	Z
AC/DC	Voltage symbol	Voltage	With surge voltage suppressor	With light	With light/surge voltage suppressor	With surge voltage suppressor	With light	With light/surge voltage suppressor
AC	1	100 V	●	●	●	●	●	●
	2	200 V	●	●	●	●	●	●
	3	110 V	●	●	●	●	●	●
	4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

* Option "S", "Z" are not available as surge voltage suppressor is integrated into the AC/Class B, as a standard.
* Replacement of solenoid coils:
  - DC and AC coils cannot be interchanged in order to change the voltage.
  - DC and AC (built-in full-wave rectifier type) coils can be interchanged in order to change the voltage.
  - All DC coil voltages are interchangeable.
  - All AC coil voltages are interchangeable.

- **Name plate part no.**

  AZ-T-VX **Valve model**

  ↑ Enter by referring to "How to Order" (Single Unit).



- **Clip part no. (For N.C.)**

  For VX21: VX021N-10
  For VX22: VX022N-10
  For VX23: VX023N-10

- **Clip part no. (For N.O.)**

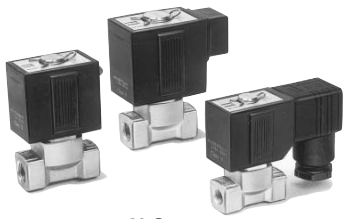
  For VX21: ETW-7
  For VX22: ETW-8
  For VX23: ETW-9

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

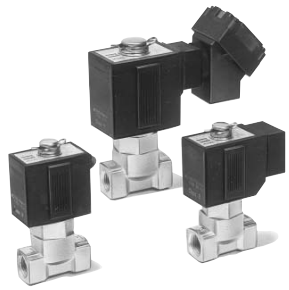
NRTL /C

For details about certified products conforming to international standards, visit us at www.smcworld.com.

Direct Operated 2 Port Solenoid Valve
For Air, Gas, Vacuum, Water, Steam and Oil
Series VX21/22/23



N.C.



N.O.

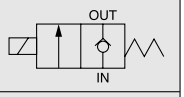
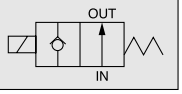
■ **Wide variations of combination.**
Able to control a wide variety of fluids.

Application can be matched by simply choosing body materials (Brass, Stainless steel), seal material (NBR, EPDM, FKM, PTFE) and solenoid coil (Class B, Class H).

■ **Easy to disassemble and reassemble in a short time.**

Variations

Valve

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

Solenoid coil

Coil: Class B, Class H

Rated voltage

□AC
Standard — 100 V, 200 V
Option — 48 V, 110 V, 220 V, 240 V

□DC
Standard — 24 V
Option — 12 V

Material

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



Electrical entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

Model

Model	Port size Rc	Orifice size (mmø)
VX211$^{2}_{0}$	1/8, 1/4	2
VX212$^{2}_{0}$	1/8, 1/4	3
VX213$^{2}_{0}$	1/8, 1/4	4.5
VX222$^{2}_{0}$	1/4, 3/8	3
VX223$^{2}_{0}$	1/4, 3/8	4.5
VX224$^{2}_{0}$	1/4, 3/8	6
VX2250	1/4, 3/8	8
VX2260	1/4, 3/8, 1/2	10
VX232$^{2}_{0}$	1/4, 3/8	3
VX233$^{2}_{0}$	1/4, 3/8	4.5
VX234$^{2}_{0}$	1/4, 3/8	6
VX2350	1/4, 3/8	8
VX2360	1/4, 3/8, 1/2	10

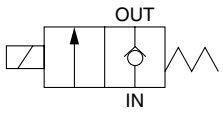
The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

Normally Closed (N.C.)

Fluid

Standard specifications	Option (1)	Made to Order (2)
Water (Standard) Turbine oil	High temperature water ··· (D, E, N, P) High temperature oil ····· (D, N) Steam ····· (S, Q)	Air ····· X44 Vacuum (up to 1.3 x 10^2 Pa) ····· X44

JIS Symbol



Note 1) Refer to page 17-3-6 "Applicable Fluids Check List" for details of special fluids outside of the standard options and specifications.
Note 2) Please contact SMC for details.

Model/Valve Specifications <Normally Closed>

Port size	Orifice size (mmø)	Model	Maximum operating pressure differential (MPa) Water AC	Water DC	Air AC	Air DC	Oil AC	Oil DC	Steam AC	Flow characteristics Water, Oil, Steam Av x 10^{-6} (m^2)	Water, Oil, Steam Cv converted	Air C[dm^3/(s·bar)]	Air b	Air Cv	Max. system pressure (MPa)	Proof pressure (MPa)	Note) Weight (g)
1/8(6A)	2	VX2110-01	2.0	1.5	2.0	1.5	1.5	1.5	1.0	4.1	0.17	0.58	0.57	0.19	Water, Air, Oil 3.0 Steam 1.0	5.0	260
	3	VX2120-01	0.9	0.5	1.1	0.6	0.5	0.5	1.0	7.9	0.33	1.3	0.50	0.38			
	4.5	VX2130-01	0.4	0.2	0.45	0.2	0.2	0.15	0.45	15	0.61	2.5	0.45	0.65			
1/4(8A)	2	VX2110-02	2.0	1.5	2.0	1.5	1.5	1.5	1.0	4.1	0.17	0.58	0.57	0.19			
	3	VX2120-02	0.9	0.5	1.1	0.6	0.5	0.5	1.0	7.9	0.33	1.3	0.50	0.38			400
		VX2220-02	1.7	1.5	2.0	1.5	1.2	1.2	1.0								540
		VX2320-02	2.5	3.0	3.0	3.0	1.7	2.0	—								
	4.5	VX2130-02	0.4	0.2	0.45	0.2	0.2	0.15	0.45	15	0.61	2.6	0.50	0.75			260
		VX2230-02	0.6	0.35	0.75	0.35	0.35	0.3	0.75								400
		VX2330-02	0.85	0.9	1.0	0.9	0.55	0.85	1.0								540
	6	VX2240-02	0.35	0.15	0.4	0.15	0.2	0.1	0.4	26	1.1	4.3	0.40	1.2			400
		VX2340-02	0.55	0.3	0.5	0.35	0.35	0.3	0.5								540
	8	VX2250-02	0.13	0.08	0.15	0.08	0.1	0.08	0.15	41	1.7	6.4	0.40	1.8	Water, Air, Oil 1.0 Steam 0.5	3.0	510
		VX2350-02	0.17	0.2	0.2	0.2	0.14	0.2	0.2								650
	10	VX2260-02	0.08	0.03	0.08	0.03	0.05	0.03	0.08	46	1.9	8.8	0.40	2.3			510
		VX2360-02	0.1	0.07	0.1	0.07	0.08	0.07	0.1								650
3/8(10A)	3	VX2220-03	1.7	1.5	2.0	1.5	1.2	1.2	1.0	7.9	0.33	1.3	0.50	0.38	Water, Air, Oil 3.0 Steam 1.0	5.0	400
		VX2320-03	2.5	3.0	3.0	3.0	1.7	2.0	—								540
	4.5	VX2230-03	0.6	0.35	0.75	0.35	0.35	0.3	0.75	15	0.61	2.6	0.50	0.75			400
		VX2330-03	0.85	0.9	1.0	0.9	0.55	0.85	1.0								540
	6	VX2240-03	0.35	0.15	0.4	0.15	0.2	0.1	0.4	26	1.1	4.3	0.40	1.2			400
		VX2340-03	0.55	0.3	0.5	0.35	0.35	0.3	0.5								540
	8	VX2250-03	0.13	0.08	0.15	0.08	0.1	0.08	0.15	41	1.7	6.4	0.40	1.8	Water, Air, Oil 1.0 Steam 0.5	3.0	510
		VX2350-03	0.17	0.2	0.2	0.2	0.14	0.2	0.2								650
	10	VX2260-03	0.08	0.03	0.08	0.03	0.05	0.03	0.08	58	2.4	11	0.38	2.8			510
		VX2360-03	0.1	0.07	0.1	0.07	0.08	0.07	0.1								650
1/2(15A)	10	VX2260-04	0.08	0.03	0.08	0.03	0.05	0.03	0.08	58	2.4	11	0.38	2.8			590
		VX2360-04	0.1	0.07	0.1	0.07	0.08	0.07	0.1								730

Note) Weight of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
• Refer to "Glossary" on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA) Inrush	Apparent power (VA) Holding	Power consumption (W) (Holding)	Temperature rise (°C) (Rated voltage)
VX21	AC	50	20	11	4.5	45
		60	17	7	3.2	35
	DC	–	–	–	6	55
VX22	AC	50	40	18	7.5	60
		60	35	12	6	50
	DC	–	–	–	8	60
VX23	AC	50	50	21	11	65
		60	45	17	9.5	60
	DC	–	–	–	11.5	65

Note) • They are values in an ambient temperature of 20°C ± 5°C and application of rated voltage.
• Changing a coil from AC to DC is possible, but it's impossible to change from DC to AC. (Hum sound may generate, because of no shading coil for DC.)
• Return voltage is 20% or more of the rated value at AC power and 2% or more at the DC power.
• Allowable voltage fluctuation is ±10% of the rated voltage.

Operating Fluid and Ambient Temperature

Temperature condition	Power source	Operating fluid temperature (°C) Water (Std.)	Air (Std.)	Oil (Std.)	High temperature water(3) (D,E,N,P)	Oil(3) (D,N)	Steam(3) (S,Q)	Vacuum(3) (V, M)	Ambient temperature (°C)
Maximum	AC	60	80	60	99	120	183	60	60
	DC	40	60	40	–	–	–	40	40
Minimum	AC/DC	1	–10(1)	–5(2)	–	–	–	–10	–20

Note 1) Dew point: –10°C or less
Note 2) 50 cSt or less
Note 3) "D", "E", "N", "P" etc. in parentheses are option symbols.

Tightness of Valve (Leak rate)

Fluid / Seal material	Air	Liquid	Non-leak(3) Vacuum	Steam
NBR, FKM EPDM	1 cm^3/min or less	0.1 cm^3/ min or less (1)	10^{-6} Pa·m^3/s sec or less	—
PTFE	150 cm^3/min or less (1)	5 cm^3/min or less (1)	—	50 cm^3/min or less (2)

Note 1) Differs depending on the operating conditions such as pressure, etc.
Note 2) Heat loss at 0.5 MPA is about 5 kcal/h.
Note 3) Valve on option "V", "M", "Y" (Non- leak, Vacuum).

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX∗ series are scheduled to follow shortly.

How to Order (Normally Closed)

VX21 / VX22 / VX23 — **0** — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ]

Model
VX21
VX22
VX23

Orifice size.
1 — 2 mmø
2 — 3 mmø
3 — 4.5 mmø
4 — 6 mmø
5 — 8 mmø
6 — 10 mmø
∗ Refer to the table (1) given below for availability.

Valve/Body
0 — Normally Closed/Single unit

Solenoid valve option
Nil — Standard
V — For vacuum, non-leak
S — For steam
Select an option mark in page 17-3-6 by "Applicable Fluids Check List" for special fluids outside of the standard.

Port size
01 — 1/8
02 — 1/4
03 — 3/8
04 — 1/2
∗ Refer to the table (1) given below for availability.

Thread type
Nil — Rc
T — NPTF
F — G
N — NPT

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
9 — Other (Please contact SMC separately)
∗ Refer to the table (2) given below for availability.
Refer to page 17-3-16 for ordering coil only.

Electrical entry
G — Grommet
C — Conduit
D — DIN terminal
T — Conduit terminal
∗ Refer to the table (2) given below for availability.

Electrical option
Nil — None
S — With surge voltage suppressor
L — With indicator light
Z — With light/surge voltage suppressor
∗ Refer to the table (2) given below for availability.

Bracket
Nil — None
B — With bracket
∗ Refer to table (3) if bracket is separately ordered.

Table (1) Port/Orifice Size

Solenoid valve (Port size)			Orifice size (No.)					
VX21	VX22	VX23	1 (2 mmø)	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)	02 (1/4)	—	●	●	●	●	●
—	03 (3/8)	03 (3/8)	—	●	●	●	●	●
—	04 (1/2)	04 (1/2)	—	—	—	—	—	●

Ordering example

(Example) Series VX21, Orifice size 2 mmø, Rc 1/8, 100 VAC, Grommet
(Part no.) **"VX2110-01-1G"**

Made to Order Specifications

Splashproof Specifications (Based on JIS C 0920 / Based on IEC529IP-X4)

VX2 Model — Port size — Electrical entry - X36

DIN terminal or class H coil not available.

Table(2) Rated Voltage-Electrical Entry-Electrical Option

Insulation type		Class B				Class H		
Electrical entry		G	C	D, T		G, C	T	
Electrical option		S[Note]	—	S	L, Z	—	S	L, Z
AC	1 (100 V)	●	●	●	●	●	●	●
	2 (200 V)	●	●	●	●	●	●	●
	3 (110 V)	●	●	●	●	●	●	●
	4 (220 V)	●	●	●	●	●	●	●
	7 (240 V)	●	●	●	–	●	●	–
	8 (48 V)	●	●	●	–	–	●	–
DC	5 (24 V)	●	●	●	●	–	–	–
	6 (12 V)	●	●	●	–	–	–	–

Note) Surge voltage suppressor is attached in the middle of lead wire.

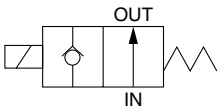
Table (3) Bracket Part No.

Model	Part no.
VX21$^{1}_{2}$$^{}_{3}$0	VX070-020
VX22$^{2}_{3}$$^{}_{4}$0 VX23$^{2}_{3}$$^{}_{4}$0	VX070-022
VX22$^{5}_{6}$0 VX22$^{5}_{6}$0	VX070-029

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

Nomally Open (N.O.)

JIS Symbol



Fluid

Standard specifications	Option (1)	Made to Order (2)
Water (Standard) Turbine oil	High temperature water ··· (D, E, N, P) High temperature oil ····· (D, N) Steam ····· (S, Q)	Air ····· X44 Vacuum (up to 1.3 x 10^2 Pa) ····· X44

Note 1) Refer to page 17-3-7 "Applicable Fluids Check List" for details of special fluids outside of the standard options and specifications.
Note 2) Please contact SMC for details.

Model/Valve Specifications <Nomally Open>

Port size	Orifice size (mmø)	Model	Maximum operating pressure differential				Flow characteristics					Max. system pressure (MPa)	Proof pressure (MPa)	Note) Weight (g)
			Water	Air	Oil	Steam	Water, Oil, Steam		Air					
							Av x 10^{-6} (m^2)	Cv converted	C [dm^3/(s·bar)]	b	Cv			
1/8 (6A)	2	**VX2112-01**	0.9	1.5	0.8	1.0	4.1	0.17	0.58	0.57	0.19	Water, Air, Oil 3.0 Steam 1.0	5.0	
	3	**VX2122-01**	0.45	0.7	0.45	0.7	7.9	0.33	1.3	0.50	0.38			
	4.5	**VX2132-01**	0.2	0.3	0.2	0.3	15	0.61	2.3	0.45	0.70			280
1/4 (8A)	2	**VX2112-02**	0.9	1.5	0.8	1.0	4.1	0.17	0.58	0.57	0.19			
	3	**VX2122-02**	0.45	0.7	0.45	0.7	7.9	0.33	1.3	0.52	0.38			
		VX2222-02	0.8	1.0	0.7	1.0								440
		VX2322-02	1.2	1.6	1.0	—								580
	4.5	**VX2132-02**	0.2	0.3	0.2	0.3	15	0.61	2.5	0.45	0.75			280
		VX2232-02	0.3	0.45	0.3	0.45								440
		VX2332-02	0.6	0.8	0.6	0.8								580
	6	**VX2242-02**	0.15	0.25	0.15	0.25	26	1.1	3.3	0.50	1.1			440
		VX2342-02	0.35	0.45	0.35	0.45								580
3/8 (10)	3	**VX2222-03**	0.8	1.0	0.7	1.0	7.9	0.33	1.3	0.52	0.38			440
		VX2322-03	1.2	1.6	1.0	—								580
	4.5	**VX2232-03**	0.3	0.45	0.3	0.45	15	0.61	2.5	0.45	0.75			440
		VX2332-03	0.6	0.8	0.6	0.8								580
	6	**VX2242-03**	0.15	0.25	0.15	0.25	26	1.1	3.3	0.50	1.1			440
		VX2342-03	0.35	0.45	0.35	0.45								580

Note) Weight of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
• Refer to "Glossary" on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA)		Power consumption (W) (Holding)	Temperature rise (°C) (Rated voltage)
			Inrush	Holding		
VX21	AC	50	25	12	5	50
		60	20	8	3.5	35
	DC	–	–	–	6	50
VX22	AC	50	45	20	8	55
		60	40	15	6.5	45
	DC	–	–	–	8	50
VX23	AC	50	60	25	10.5	60
		60	50	20	9.5	50
	DC	–	–	–	11.5	55

Note) • They are values in an ambient temperature of 20°C ± 5°C and application of rated voltage.
• Changing a coil from AC to DC is possible, but it's impossible to change from DC to AC.
• Return voltage is 20% or more of the rated value at AC power and 5% or more at the DC power.
• Allowable voltage fluctuation is ±10% of the rated voltage.

Operating Fluid and Ambient Temperature

Temperature conditions	Power source	Operating fluid temperature (°C)							Ambient temperature (°C)
		Water (Std.)	Air (Std.)	Oil (Std.)	High temperature water(3) (D,E,N,P)	Oil(3) (D,N)	Steam(3) (S,Q)	Vacuum(3) (V, M)	
Maximum	AC	60	80	60	99	120	183	60	60
	DC	40	60	40	–	–	–	40	40
Minimum	AC/ DC	1	–10(1)	–5(2)	–	–	–	–10	–20

Note 1) Dew point: –10°C or less
Note 2) 50 cSt or less
Note 3) "X", "E", "N", "P" etc. in parentheses are option symbols.

Tightness of Valve (Leak rate)

Seal material \ Fluid	Air	Liquid	Non-leak(3) Vacuum	Steam
NBR, FKM EPDM	1 cm^3/min or less	0.1 cm^3/ min or less (1)	10^{-6} Pa·m^3/s sec or less	—
PTFE	150 cm^3/min or less (1)	5 cm^3/min or less (1)	—	50 cm^3/min or less (2)

Note 1) Differs depending on the operating conditions such as pressure, etc.
Note 2) Heat loss at 0.5 MPA is about 5 kcal/h.
Note 3) Valve on option "V", "M" (Non- leak, Vacuum).

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX∗ series are scheduled to follow shortly.

How to Order (Normally Closed)

VX21 / VX22 / VX23 □ **2** □ — □ □ □ □ □ □ □

Model

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

Valve/Body
2 — Normally closed/Single unit

Solenoid valve option
Nil — Standard
V — For vacuum, non-leak
S — For steam
Select an option mark in page 17-3-7 by "Applicable Fluids Check List" for special fluids outside of the standard.

Port size
01 — 1/8
02 — 1/4
03 — 3/8
∗ Refer to the table (1) given below for availability.

Thread type
Nil — Rc
T — NPTF
F — G
N — NPT

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
9 — Other (Please contact SMC separately)
∗ Refer to the table (2) given below for availability.
Refer to page 17-3-16 for ordering coil only.

Electrical entry
G — Grommet
C — Conduit
D — DIN terminal
T — Conduit terminal
∗ Refer to the table (2) given below for availability.

Electrical option
Nil — None
S — With surge voltage suppressor
L — With indicator light
Z — With light/surge voltage suppressor
∗ Refer to the table (2) given below for availability.

Bracket
Nil — None
B — With bracket
∗ Refer to table (3) if bracket is separately ordered.

Table (1) Port/Orifice Size

Solenoid valve (Port size)			Orifice size (No.)			
VX21	VX22	VX23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
01 (1/8)	–	–	●	●	●	–
02 (1/4)	–	–	●	●	●	–
–	02 (1/4)	02 (1/4)	–	●	●	●
–	03 (3/8)	03 (3/8)	–	●	●	●

Table (2) Rated Voltage-Electrical Entry-Electrical Option

Insulation type		Class B				Class H		
Electrical entry		G	C	D, T		G, C	T	
Electrical option		S[Note]	—	S	L, Z	—	S	L, Z
AC	1 (100 V)	●	●	●	●	●	●	●
	2 (200 V)	●	●	●	●	●	●	●
	3 (110 V)	●	●	●	●	●	●	●
	4 (220 V)	●	●	●	●	●	●	●
	7 (240 V)	●	●	●	–	●	●	–
	8 (48 V)	●	●	●	–	–	●	–
DC	5 (24 V)	●	●	●	●	–	–	–
	6 (12 V)	●	●	●	–	–	–	–

Note) Surge voltage suppressor is attached in the middle of lead wire.

Ordering example

(Example) Series VX22, Orifice size 4.5 mmø, Rc 1/8, 100 VAC Grommet
(Part no.) **"VX2232-02-1C"**

Made to Order Specifications

Splashproof Specifications (Based on JIS C 0920 / Based on IEC529IP-X4)

VX2 Model — Port size — Electrical entry - X36

DIN terminal or class H coil not available.

Table (3) Bracket Part No.

Model	Part no.
VX21$^{1}_{3}$0	VX070-020
VX22$^{2}_{4}$0 VX23$^{2}_{4}$0	VX070-022

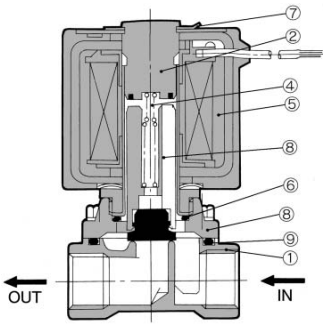
The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

Construction/Principal Parts Material

Normally Closed (N.C.)

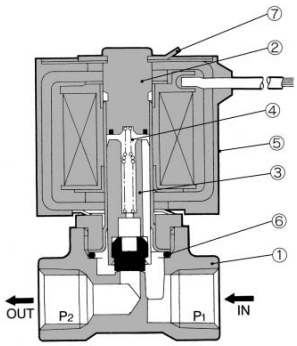
VX21/22/23

(Orifice size 2, 3, 4.5, 6 mmø)



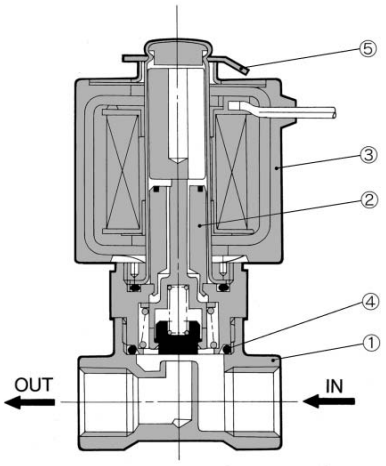
VX22/23

(Orifice size 8, 10 mmø)



No.	Description	Material	
		Standard	Option
①	Body	Brass	Stainless steel
②	Core assembly	Stainless steel, Copper	Stainless steel/Silver
③	Armature assembly	Stainless steel, NBR	Stainless steel, FKM/ Stainless steel, PTFE/ Stainless steel, EPDM
④	Return spring	Stainless steel	—
⑤	Coil assembly	Class B molded	Class H molded
⑥	O-ring	NBR	FKM/EPDM/PTFE
⑦	Retainer	Stainless steel	—
⑧	Bonnet	Brass	Stainless steel
⑨	O-ring	NBR	FKM/EPDM/PTFE

Normally Open (N.O.)



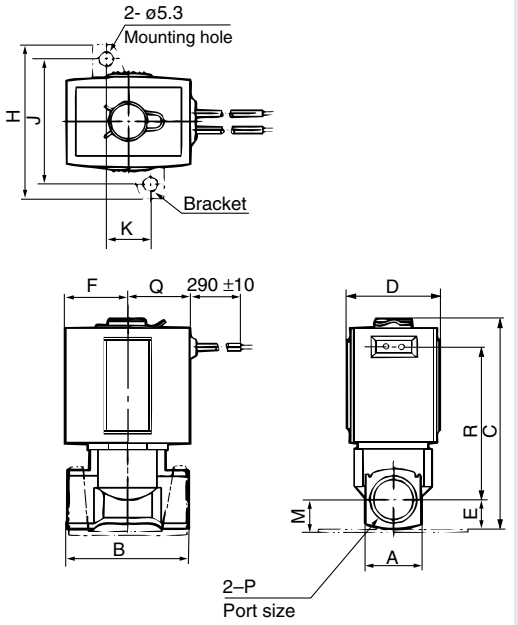
No.	Description	Material	
		Standard	Option
①	Body	Brass	Stainless steel
②	Core assembly	Stainless steel, Copper, Polyacetal NBR PTFE	Stainless steel, Silver, EPDM, FKM, PTFE
③	Coil assembly	Class B molded	Class H molded
④	O-ring	NBR	EPDM/FKM/PTFE
⑤	Retainer	Stainless steel	—

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX∗ series are scheduled to follow shortly.

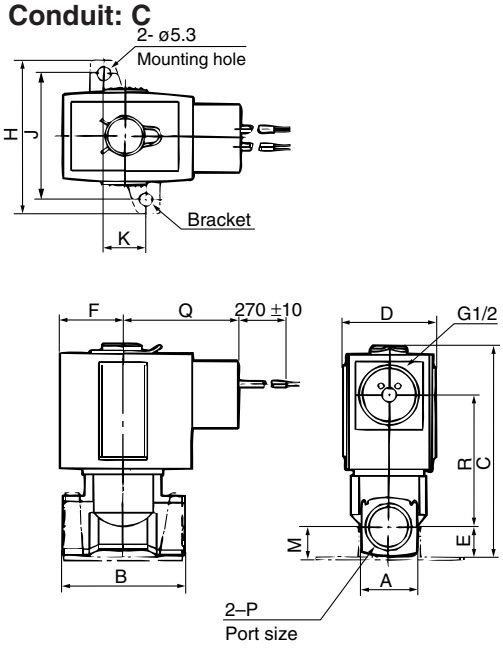
Dimensions (Orifice Size: 2 mmø, 3 mmø, 4.5 mmø, 6 mmø)

Normally closed: VX21$^{1}_{3}$0, 22$^{2}_{4}$0, 23$^{2}_{4}$0, Normally open: VX2$^{1}_{3}$2, 22$^{2}_{4}$2, 23$^{2}_{4}$2

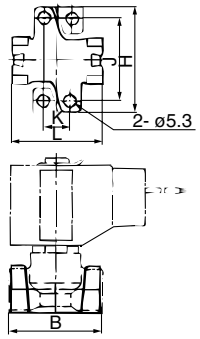
Grommet: G



Conduit: C

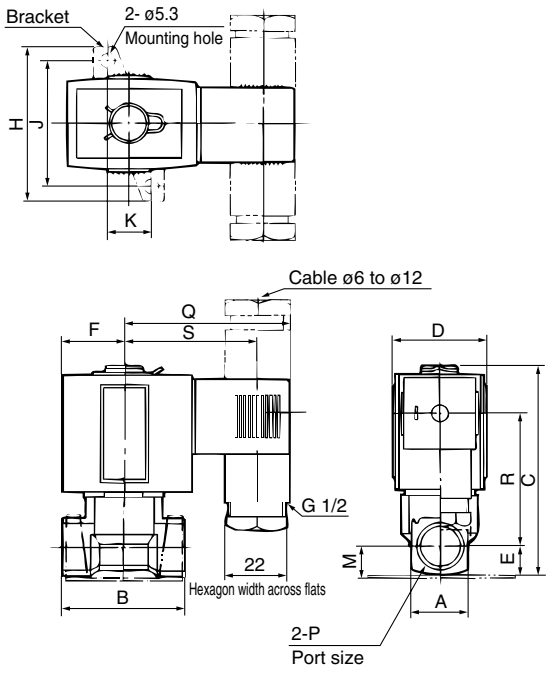


Option (Bracket)

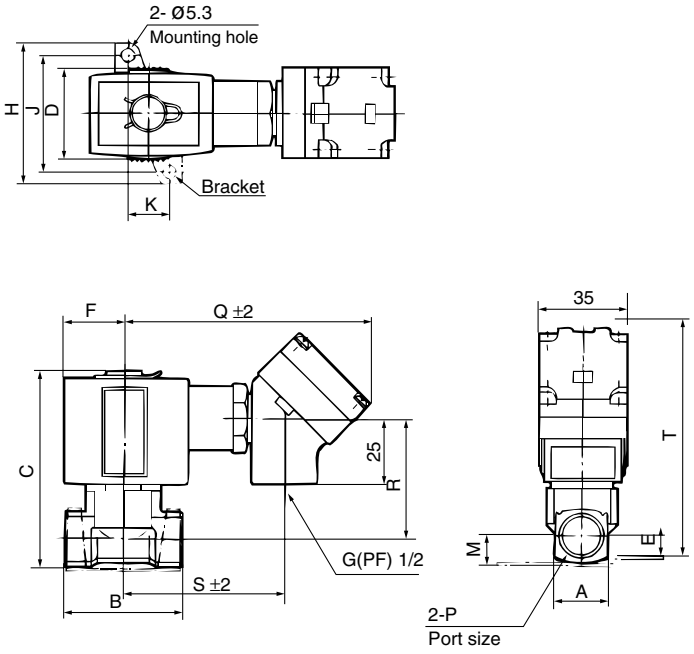


∗ Min. pitch for bracket is "H" mm.

DIN terminal: D



Conduit terminal: T



Model		P Port size	A	B	C	D	E	F	Dimensions related to mounting					Electrical entry									
														Grommet		Conduit		DIN terminal			Conduit terminal			
Normally closed	Normally open	Rc							H	J	K	L	M	Q	R	Q	R	Q	R	S	Q	R	S	T
VX21□0	**VX21□2**	1/8, 1/4	18	40	68(78)	30	9	20	46	36	11	39	10	23	48(55)	39	40(47)	59	40(47)	47	92	40(47)	59	84 (91)
VX22□0	**VX22□2**	1/4, 3/8	21	45	76(93)	35	10.5	23	56	46	13	44	11.5	25	56(66)	41	47(57)	60	47(57)	48	95	47(57)	62	94(104)
VX23□0	**VX23□2**	1/4, 3/8	21	45	84(99)	40	10.5	25.5	56	46	13	44	11.5	28	63(73)	44	55(65)	62	55(65)	50	97	55(65)	64	101(111)

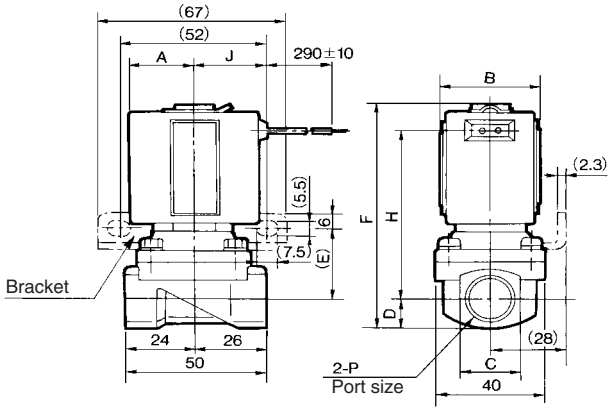
The figures in parentheses are when closed at energizing.

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

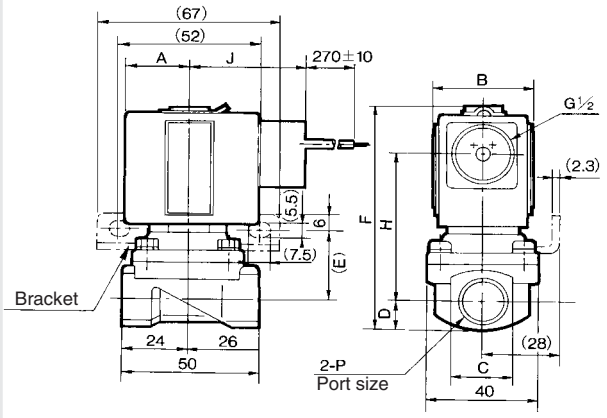
Dimensions (Orifice Size: 8 mmø, 10 mmø)

Normally Closed: VX2250/2260/2350,

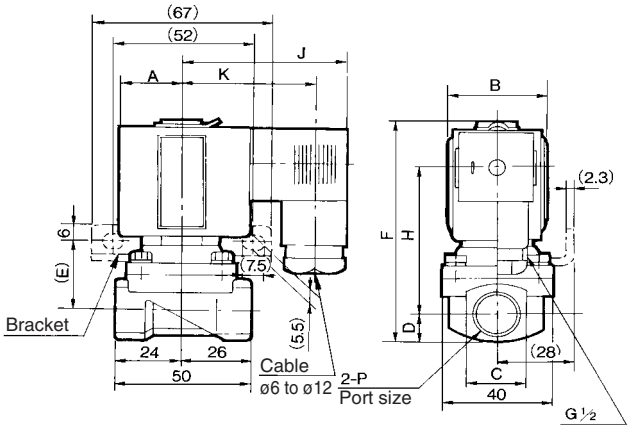
Grommet: G



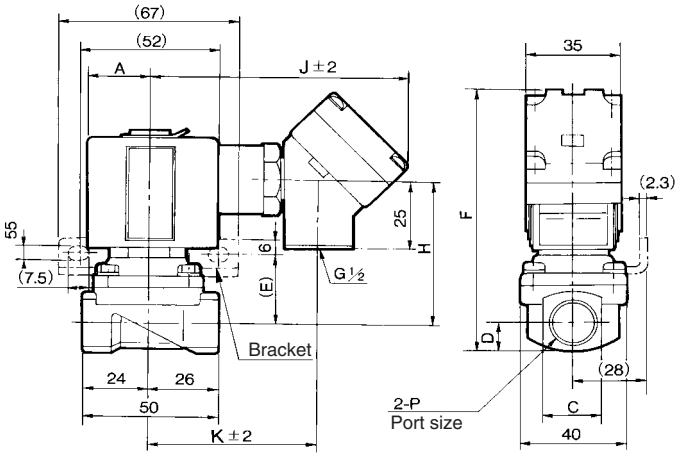
Conduit: C



DIN terminal: D



Conduit terminal: T

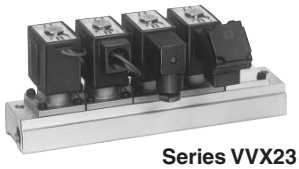


Model	P Port size	A	B	C	D	E	Electrical entry												
							Grommet			Conduit			DIN terminal				Conduit terminal			
Normally closed	Rc						F	H	J	F	H	J	F	H	J	K	F	H	J	K
VX22$^{02}_{03}$0-$^{02}_{03}$	1/4	23	35	22	11	27	83	62	25.5	83	54	41	83	54	60	48	100	54	95	62
VX23$^{02}_{03}$0-$^{02}_{03}$	3/8	25.5	40				91	69	28	91	62	44	91	62	62	50	108	62	97	64
VX2260-04	1/2	23	35	28	14.5	30	89	65	25.5	89	57	41	89	57	60	48	106	57	95	62
VX2360-04		25.5	40				97	72	28	97	65	44	97	65	62	50	114	65	97	64

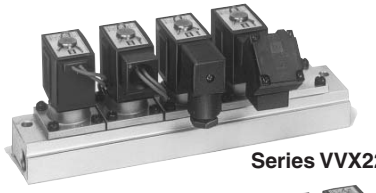
The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX⊛ series are scheduled to follow shortly.

Direct Operated 2 Port Solenoid Valve/Manifold For Air, Gas, Vacuum and Oil

Series VVX21/22/23



Series VVX23



Series VVX22

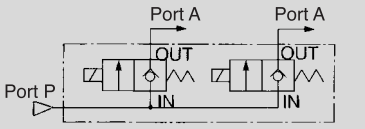
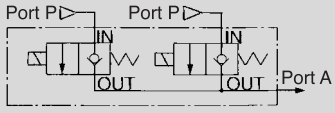
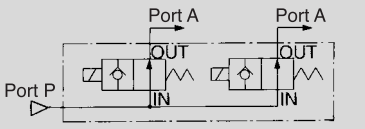
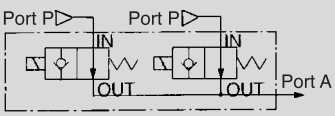


Series VVX21

- **Common SUP type and individual SUP type (for vacuum use) are standardized.**
- **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 unchanged.**
- **Weight-saving aluminum base and body.**
- **Brass base and stainless steel base are available.**
  Please contact SMC for details.

Variations

Valve

Normally closed (N.C.)	Common SUP	
	Individual SUP	
Normally open (N.O.)	Common SUP	
	Individual SUP	

Electrical entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Voltage

□AC
Standard — 100 V, 200 V
Option — 48 V, 110 V, 220 V, 240 V

□DC
Standard — 24 V
Option — 12 V

Material

Body — Aluminum
Seal — NBR, FPM, EPR

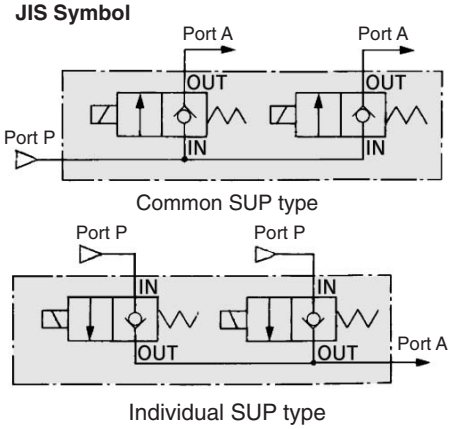
Model

Manifold base model	Individual port Rc	Common port Rc
VVX211-stations	1/8	3/8
VVX212-stations	1/4	
VVX221-stations	1/8	
VVX222-stations	1/4	
VVX231-stations	1/8	
VVX232-stations	1/4	

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

Normally Closed (N.C.)

JIS Symbol



Fluid

Standard	Option (1)	Made to Order (2)
Turbine oil	High temperature oil ····· (D, N)	Air ····· X44 Vacuum (up to 1.3 x 10^2 Pa)····· X44

Note 1) Refer to page 17-3-8 "Applicable Fluids Check List" for details of special fluids outside of the standard options and specifications.
Note 2) Please contact SMC for details.

Manifold Specifications

Manifold	B Mount
Manifold type	Common pressure supply, Individual pressure supply Note)
Number of valves	2 to 10 stations
Blanking plate (with O-rings, screws)	VVX21···VX011-001, VVX22/23···VX011-006

Note) Common port is placed on vacuum side.

Manifold Base and Applicable Solenoid Valve Part No.

n: Stations

Manifold base	Individual port Rc	Applicable solenoid valve	Base weight (g)
VVX211-stations	1/8	**VX21□1-00-□□**	n x 70 + 50
VVX212-stations	1/4		
VVX221-stations	1/8	**VX22□1-00-□□**	n x 130 + 110
VVX222-stations	1/4		
VVX231-stations	1/8	**VX23□1-00-□□**	n x 130 + 110
VVX232-stations	1/4		

Solenoid Valve for Manifold/Valve Specifications <Normally Closed>

Orifice size (mmø)	Model	Max. operating pressure differential (MPa)				Flow characteristics					Max. system pressure (MPa)	Proof pressure (MPa)	Weight (g)
		Water	Air	Oil	Steam	Water, Oil, Steam		Air					
		AC	DC	AC	DC	Av x 10^{-6} (m^2)	Cv converted	C[dm^3/(s·bar)]	b	Cv			
2	**VX2111-00**	2.0	1.5	1.5	1.5	4.1	0.17	0.58	0.57	0.19	3.0	5.0	220
3	**VX2121-00**	1.1	0.6	0.5	0.5	7.9	0.33	1.3	0.50	0.38			220
	VX2221-00	2.0	1.5	1.2	1.2								350
	VX2321-00	3.0	3.0	1.7	2.0								490
4.5	**VX2131-00**	0.45	0.2	0.2	0.15	15	0.61	2.6	0.50	0.75			220
	VX2231-00	0.75	0.35	0.35	0.3								350
	VX2331-00	1.0	0.9	0.55	0.85								490
6	**VX2241-00**	0.4	0.15	0.2	0.1	26	1.1	4.3	0.40	1.2			350
	VX2341-00	0.5	0.35	0.35	0.3								490

Note) Weight of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
• Refer to "Glossary" on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA)		Power consumption (W) (Holding)	Temperature rise (°C) (Rated voltage)
			Inrush	Holding		
VX21	AC	50	20	11	4.5	45
		60	17	7	3.2	35
	DC	–	–	–	6	55
VX22	AC	50	40	18	7.5	60
		60	35	12	6	50
	DC	–	–	–	8	60
VX23	AC	50	50	21	11	65
		60	45	17	9.5	60
	DC	–	–	–	11.5	65

Note) • They are values in an ambient temperature of 20°C ± 5°C and application of rated voltage.
• Changing a coil from AC to DC is possible, but it's impossible to change from DC to AC. (Hum sound may generate, because of no shading coil for DC.)
• Return voltage is 20% or more of the rated value at AC power and 2% or more at the DC power.
• Allowable voltage fluctuation is ±10% of the rated voltage.

Operating Fluid and Ambient Temperature

Temperature conditions	Power source	Operating fluid temperature (°C)				Ambient temperature (°C)
		Air (Std.)	Oil (Std.)	Oil(3) (D,N)	Vacuum(3) (V, R, Y)	
Maximum	AC	80	60	120	60	60
	DC	60	40	–	40	40
Minimum	AC DC	–10(1)	–5(2)	–	–10	–20

Note 1) Dew point: –10°C or less
Note 2) 50 cSt or less
Note 3) "D", "N", etc. in parentheses are option symbols.

Tightness of Valve (Leak rate)

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

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

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX∗ series are scheduled to follow shortly.

How to Order Solenoid Valves for Manifold (Normally Closed)

VX21 / VX22 / VX23 □ **1** □ — **00** — □ □ □

Model

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

Valve/Body
1 — Normally closed/For manifold

Solenoid valve option
Nil — Standard
V, R — For vacuum, non-leak

Select an option mark in page 17-3-8 by "Applicable Fluids Check List" for special fluids outside of the standard.

Connection
00 — (No connection screw) For manifold

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
9 — Other (Please contact SMC separately.)

Refer to page 17-3-16 for ordering coil only.

Electrical entry
G — Grommet
C — Conduit
D — DIN terminal
T — Conduit terminal
∗ Refer to the table (2) given below for availability.

Electrical option
Nil — None
S — With surge voltage suppressor
L — With indicator light
Z — With light/surge voltage suppressor
∗ Refer to the table (2) given below for availability.

Table (1) Orifice Size

Solenoid valve model	Orifice size (No.) 1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	–
VX22	–	●	●	●
VX23	–	●	●	●

Table(2)
Rated Voltage-Electrical Entry-Electrical Option

Insulation type		Class B				Class H		
Electrical entry		G	C	D, T		G, C	T	
Electrical option		S[Note]	–	S	L, Z	–	S	L, Z
AC	1 (100 V)	●	●	●	●	●	●	●
	2 (200 V)	●	●	●	●	●	●	●
	3 (110 V)	●	●	●	●	●	●	●
	4 (220 V)	●	●	●	●	●	●	●
	7 (240 V)	●	●	●	–	●	●	–
	8 (48 V)	●	●	●	–	–	●	–
DC	5 (24 V)	●	●	●	●	–	–	–
	6 (12 V)	●	●	●	–	–	–	–

Note) Surge voltage suppressor is attached in the middle of lead wire.

How to Order Manifold Base

VVX21 / VVX22 / VVX23 □ □ — □

Manifold base

Symbol	Applicable valve
VVX21	VX21□1-00
VVX22	VX22□1-00
VVX23	VX23□1-00

Manifold type
Nil — Common SUP
V — Individual SUP (for vacuum)

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

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.

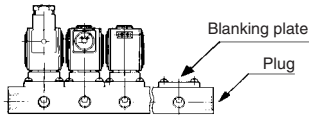
How to Order Manifold

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

(Example) 7 stations of VX21 common SUP, Individual port Rc 1/8.

(Base P/N) VVX211-07····· 1 pc.
(Solenoid valve P/N) VVX2111-00-1G····· 6 pcs.
(Blanking plate P/N) VVX011-001····· 1 pc.

■ **Arrangement of solenoid valves**

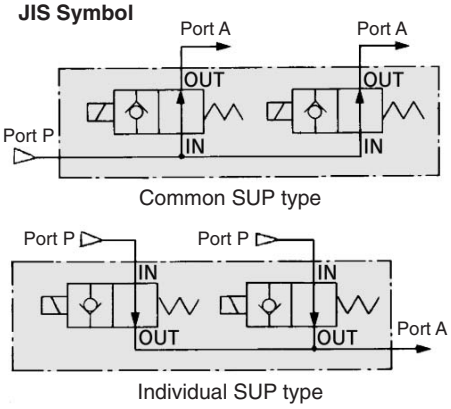


The standard arrangements of manifolds should be placed on an individual port on this side, each solenoid valve from the left side and a blank plate in the right side. The right side of the common port provides plug.

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

Normally Open (N.O.)

JIS Symbol



Fluid

Standard specifications	Option (1)	Made to Order (2)
Turbine oil	High temperature oil ····· (D, N)	Air ····· X44 Vacuum (up to 1.3 x 10^2 Pa)····· X44

Note 1) Refer to page 17-3-8 "Applicable Fluids Check List" for details of special fluids outside of the standard options and specifications.
Note 2) Please contact SMC for details.

Manifold Specifications

Manifold	B mount
Manifold type	Common pressure supply, Individual pressure supply Note)
Number of valves	2 to 10 stations
Blanking plate (with O-rings, screws)	VVX21···VX011-001, VVX22/23···VX011-006

Note) Common port is placed on vacuum side.

Manifold Base and Applicable Solenoid Valve Part No.

n: Stations

Manifold base	Individual port Rc	Applicable solenoid valve	Base weight (g)
VVX211-stations	1/8	**VX21□3-00-□□**	n x 70 + 50
VVX212-stations	1/4		
VVX221-stations	1/8	**VX22□3-00-□□**	n x 130 + 110
VVX222-stations	1/4		
VVX231-stations	1/8	**VX23□3-00-□□**	n x 130 + 110
VVX232-stations	1/4		

Solenoid Valves for Manifold/Valve Specifications <Normally Open>

Orifice size (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics					Max. system pressure (MPa)	Proof pressure (MPa)	Weight (g)
				Oil		Air					
		Air	Oil	Av x 10^{-6} (m^2)	Cv converted	C[dm^3/ (s·bar)]	b	Cv			
2	**VX2113-00**	1.5	0.8	4.1	0.17	0.58	0.57	0.19	3.0	5.0	240
3	**VX2123-00**	0.7	0.45	7.9	0.33	1.3	0.52	0.38			240
	VX2223-00	1.0	0.7								390
	VX2323-00	1.6	1.0								530
4.5	**VX2133-00**	0.3	0.2	15	0.61	2.5	0.45	0.75			240
	VX2233-00	0.45	0.3								390
	VX2333-00	0.8	0.6								530
6	**VX2243-00**	0.25	0.15	26	1.1	3.3	0.50	1.1			390
	VX2343-00	0.45	0.35								530

Note) Weight of grommet type. Add 10 g for conduit type, 30 g for DIN terminal type, 60 g for conduit terminal type respectively.
• Refer to "Glossary" on page 17-3-15 for details of max. operating pressure differential and max. system pressure.

Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA)		Power consumption (W) (Holding)	Temperature rise (°C) (Rated voltage)
			Inrush	Holding		
VX21	AC	50	25	12	5	50
		60	20	8	3.5	35
	DC	–	–	–	6	50
VX22	AC	50	45	20	8	55
		60	40	15	6.5	45
	DC	–	–	–	8	50
VX23	AC	50	60	25	10.5	60
		60	50	20	9.5	50
	DC	–	–	–	11.5	55

Note) • They are values in an ambient temperature of 20°C ± 5°C and application of rated voltage.
• Changing a coil from AC to DC is possible, but it's impossible to change from DC to AC.
• Return voltage is 20% or more of the rated value at AC power and 2% or more at the DC power.
• Allowable voltage fluctuation is ±10% of the rated voltage.

Operating Fluid and Ambient Temperature

Temperature conditions	Power source	Operating fluid temperature (°C)				Ambient temperature (°C)
		Air (Std.)	Oil (Std.)	Oil(3) (D,N)	Vacuum(3) (V, R, Y)	
Maximum	AC	80	60	100	60	60
	DC	60	40	–	40	40
Minimum	AC DC	–10(1)	–5(2)	–	–10	–20

Note 1) Dew point: –10°C or less
Note 2) 50 cSt or less
Note 3) "D", "N", etc. in parentheses are option symbols.

Tightness of Valve (Leak rate)

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

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

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX∗ series are scheduled to follow shortly.

How to Order Solenoid Valves for Manifold (Normally Open)

VX21 / VX22 / VX23 □ **3** □ — **00** — □ □ □

Model

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

Valve/Body
3 — Normally open/For manifold

Solenoid valve option
Nil — Standard specifications
V, R — For vacuum, non-leak

Select an option mark in page 17-3-8 by "Applicable Fluids Check List" for special fluids outside of the standard.

Connection
00 — (No connection screw) For manifold

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
9 — Other (Please contact SMC separately.)

Refer to page 17-3-16 for ordering coil only.

Electrical entry
G — Grommet
C — Conduit
D — DIN terminal
T — Conduit terminal
∗ Refer to the table (2) given below for availability.

Electrical option
Nil — None
S — With surge voltage suppressor
L — With indicator light
Z — With light/surge voltage suppressor
∗ Refer to the table (2) given below for availability.

Table (1) Orifice Size

Solenoid valve model	Orifice size (No.) 1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VX21	●	●	●	–
VX22	–	●	●	●
VX23	–	●	●	●

Table (2)
Rated Voltage-Electrical Entry-Electrical Option

Insulation type		Class B				Class H		
Electrical entry		G	C	D, T		G, C	T	
Electrical option		S[Note]	–	S	L, Z	–	S	L, Z
AC	1 (100 V)	●	●	●	●	●	●	●
	2 (200 V)	●	●	●	●	●	●	●
	3 (110 V)	●	●	●	●	●	●	●
	4 (220 V)	●	●	●	●	●	●	●
	7 (240 V)	●	●	●	–	●	●	–
	8 (48 V)	●	●	●	–	–	●	–
DC	5 (24 V)	●	●	●	●	–	–	–
	6 (12 V)	●	●	●	–	–	–	–

Note) Surge voltage suppressor is attached in the middle of lead wire.

How to Order Manifold Base

VVX21 / VVX22 / VVX23 □ □ — □

Manifold base

Symbol	Applicable valve
VVX21	VX21□3 -00
VVX22	VX22□3 -00
VVX23	VX23□3 -00

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

Manifold type
Nil — Common SUP
V — Individual SUP (for vacuum)

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.

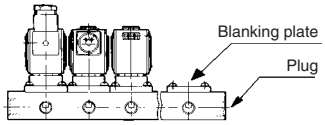
How to Order Manifold

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

(Example) 7 stations of VX21 common SUP, Individual port Rc1/8.

(Base P/N) VVX211-07····· 1 pc
(Solenoid valve P/N) VX2113-00-1G····· 6 pc
(Blanking plate P/N) VVX2111-00····· 1 pc

■ **Arrangement of solenoid valves**

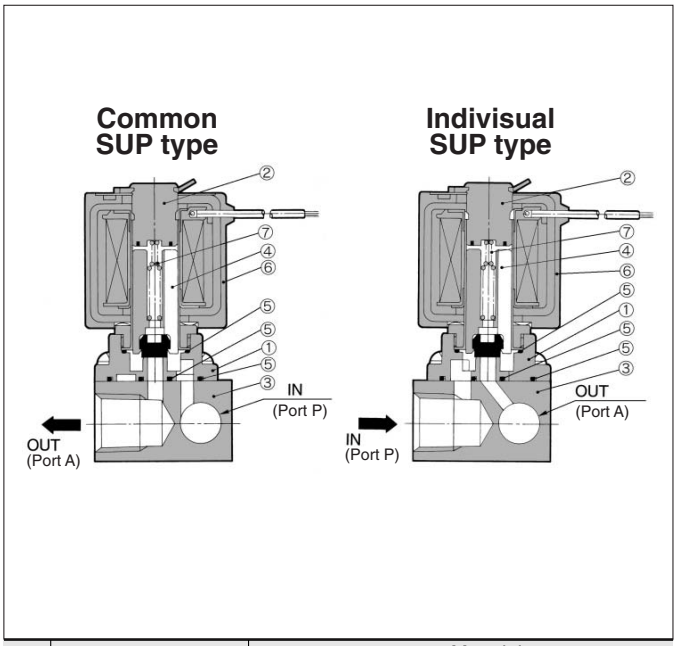


The standard arrangements of manifolds should be placed on an individual port on this side, each solenoid valve from the left side and a blank plate in the right side. The right side of the common port provides plug.

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX* series are scheduled to follow shortly.

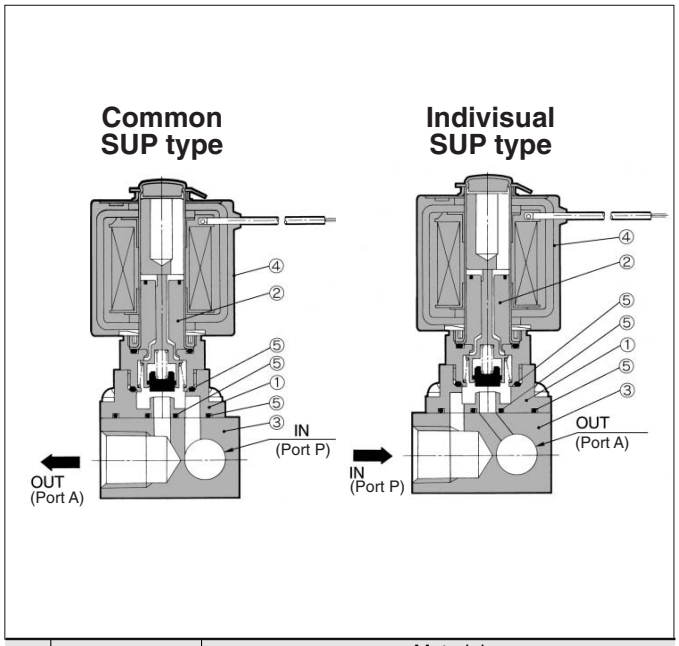
Construction/Principal Parts Material

Normally Closed (N.C.)



No.	Description	Material	
		Standard	Option
①	Body	Aluminum	—
②	Core assembly	Stainless steel, Copper	Stainless steel, Silver
③	Base	Aluminum	—
④	Armature assembly	Stainless steel, NBR	Stainless steel, FKM/ Stainless steel, EPDM
⑤	O-ring	NBR	FKM/EPDM
⑥	Coil assembly	Class B molded	Class H molded
⑦	Return spring	Stainless steel	—

Normally Open (N.O.)

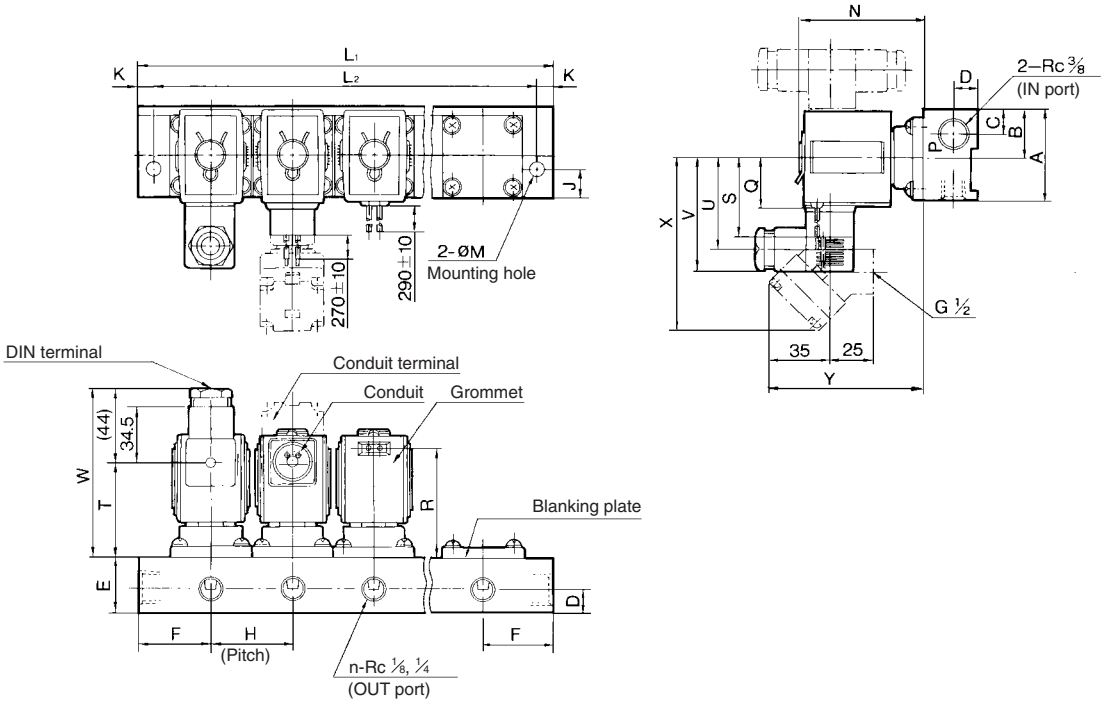


No.	Description	Material	
		Standard	Option
①	Body	Aluminum	—
②	Core assembly	Stainless steel, Copper, Polyacetal, NBR, PTFE	Stainless steel, Silver, EPDM, PTFE, FKM
③	Base	Aluminum	—
④	Coil assembly	Class B molded	Class H molded
⑤	O-ring	NBR	FKM/EPDM

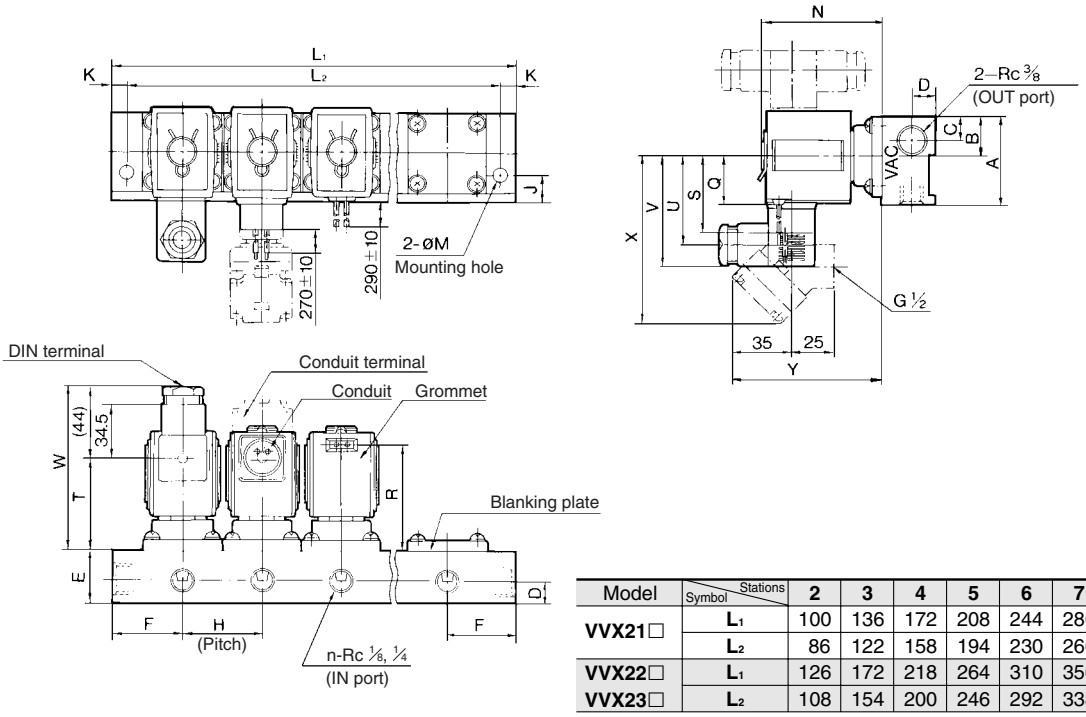
The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A. Similar updating for other VX⊛ series are scheduled to follow shortly.

Dimensions

Common SUP type



Individual SUP type



Model	Symbol \ Stations	2	3	4	5	6	7	8	9	10
VVX21□	L_1	100	136	172	208	244	280	316	352	388
	L_2	86	122	158	194	230	266	302	338	374
VVX22□	L_1	126	172	218	264	310	356	402	448	494
VVX23□	L_2	108	154	200	246	292	338	384	430	476

Model	A	B	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	56 (67)	23	47 (54)	39	40 (47)	47	59	84 (91)	92	74 (81)
VVX22□	49	26.5 (22.5)	13	13	30	40	46	15	9	8.5	64 (81)	25.5	54 (64)	41.5	46 (56)	48	60	90 (100)	94	81 (91)
VVX23□	49	26.5 (22.5)	13	13	30	40	46	15	9	8.5	72 (87)	28	61 (71)	44	54 (64)	51	63	98 (108)	97	88 (98)

The figures in parentheses are a closed type at energizing ( ): Individual pressure

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