

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

For Water, Oil, Steam, Air



Single Unit

Valve

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

Solenoid Coil

Coil: Class B, Class H

Rated Voltage

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

Material

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

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

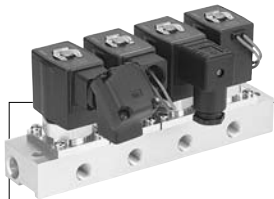


Normally Closed (N.C.)

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

Normally Open (N.O.)

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



Manifold

Valve

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

Base

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

Solenoid Coil

Coil: Class B, Class H

Rated Voltage

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

Material

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

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Manifold

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

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

For Water, Oil, Steam, Air

Standard Specifications

Valve specifications	Valve construction		Direct operated poppet		
	Withstand pressure	MPa	5.0		
	Body material		Brass, Stainless steel		
	Seal material		NBR, FKM, EPDM, PTFE		
	Enclosure		Dusttight, Low jetproof (equivalent to IP65)*		
	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	±20% or less of rated voltage		
		DC	±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°) <small>Note)</small>
VX21	4.5	45
VX22	7	45
VX23	10.5	60

AC Specification

Model	Frequency (Hz)	Apparent power (VA)		Temperature rise (C°) <small>Note)</small>
		Inrush	Holding	
VX21	50	19	9	45
	60	16	7	40
VX22	50	43	19	55
	60	35	16	50
VX23	50	62	30	65
	60	52	25	60

Note) The values are for an ambient temperature of 20°C and at the rated voltage.

Normally Open (N.O.)

DC Specification

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

AC Specification

Model	Frequency (Hz)	Apparent power (VA)		Temperature rise (C°) <small>Note)</small>
		Inrush	Holding	
VX21	50	22	11	50
	60	18	8	45
VX22	50	46	20	55
	60	38	18	50
VX23	50	64	32	65
	60	54	27	60

Note) The values are for an ambient temperature of 20°C and at the of rated voltage.

● How to order solenoid coil assembly

VX02 1 N - 1 G

Series

1	VX21□□
2	VX22□□
3	VX23□□

Valve/Material

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

Rated voltage Note 1)

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

Coil insulation type Note 1)

Nil	Class B
H *	Class H

* DIN terminal or DC not available.

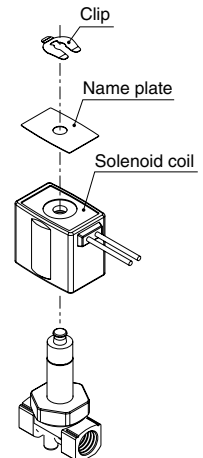
Electrical entry

<p>G - Grommet GS - With grommet surge voltage suppressor</p>	<p>C - Conduit</p>
<p>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</p>	<p>D - DIN DS - DIN with surge voltage suppressor DL - DIN with light DZ - DIN with surge voltage suppressor and light DO - For DIN (without connector)</p> <p><small>* DIN type is available with class B insulation only.</small></p>

● 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

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

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

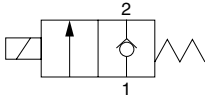
Series VX21/22/23

For Water / Single Unit

Model/Valve Specifications

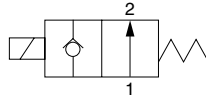
N.C.

Passage symbol



N.O.

Passage symbol



Normally Closed (N.C.)

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

Note) Weight 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 front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

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

Note) Weight 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 front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Operating Fluid and Ambient Temperature

Power source	Operating fluid temperature (°C)		Ambient temperature (°C)
	Nil, G, L	E, P	
AC	1 to 60	1 to 99	-20 to 60
DC	1 to 40	—	-20 to 40

Note) With no freezing

Tightness of Valve (Leakage Rate)

Seal material	Leakage rate (With water pressure)
NBR, FKM, EPDM	0.1 cm ³ /min or less

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

For Water/Single Unit

How to Order (Single Unit)

Normally Closed (N.C.) VX 21 20 [] [] - 01 [] - 1 G 1 - []

Normally Open (N.O.) VX 21 22 [] [] - 01 [] - 1 G 1 - []

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

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

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

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

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

Bracket

Nil	None
B	With bracket

* Refer to the table (4) if a bracket is ordered separately.

Suffix

Nil	—
Z	Oil-free specification

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

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 2 for ordering coil only.

Electrical entry

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

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

For Water
For Oil
For Steam
For Air

Table (1) Port/Orifice 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
Nil	NBR	Brass, Copper	B	—
G		Stainless steel, Silver		
E	EPDM	Brass, Copper	H	Heated water (AC only)
P		Stainless steel, Silver		
L	FKM	Stainless steel, Silver	B	High corrosive, Oil-free

Dimensions → page 22 (Single unit)

Table (3) Rated Voltage – Electrical Option

Rated voltage			Class B		
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	●	—	—
DC	J	230 V	●	—	—
	5	24 V	●	●	●
	6	12 V	●	—	—

Rated voltage			Class H		
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	●	—	—
DC	J	230 V	●	—	—
	5	24 V	—	—	—
6	12 V	—	—	—	

Table (4) Bracket Part No.

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

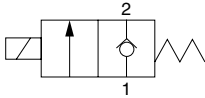
Series VX21/22/23

For Oil/Single Unit

Model/Valve Specifications

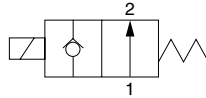
N.C.

Passage symbol



N.O.

Passage symbol



Normally Closed (N.C.)

Port size	Orifice size (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics		Max. system pressure (MPa)	Weight (g)
			AC	DC	Av x 10 ⁻⁶ m ²	Cv converted		
1/8 (6A)		VX2110-01	1.5	1.5	4.1	0.17	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	3.0	
	3	VX2120-02	0.5	0.5	7.9	0.33		
		VX2220-02	1.2	1.2				
		VX2320-02	1.7	2.0				
	4.5	VX2130-02	0.2	0.15	15	0.61	300	
		VX2230-02	0.35	0.3			470	
	6	VX2330-02	0.55	0.85	26	1.1	620	
		VX2240-02	0.2	0.1			470	
	3/8 (10A)	6	VX2340-02	0.35	0.3	38	1.6	620
			VX2250-02	0.1	0.08			560
8		VX2350-02	0.14	0.2	53	2.2	700	
		VX2260-02	0.05	0.03			560	
10		VX2360-02	0.08	0.07	53	2.2	700	
		VX2220-03	1.2	1.2			470	
1/2 (15A)		3	VX2320-03	1.7	2.0	7.9	0.33	620
			VX2230-03	0.35	0.3			470
	4.5	VX2330-03	0.55	0.85	15	0.61	620	
		VX2240-03	0.2	0.1			470	
	6	VX2340-03	0.35	0.3	26	1.1	620	
		VX2250-03	0.1	0.08			560	
	8	VX2350-03	0.14	0.2	53	2.2	700	
		VX2260-03	0.05	0.03			560	
	10	VX2360-03	0.08	0.07	53	2.2	700	
		VX2260-04	0.05	0.03			560	
		VX2360-04	0.08	0.07	53	2.2	700	

Note) Weight 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 front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Port size	Orifice size (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics		Max. system pressure (MPa)	Weight (g)
			AC-DC	Av x 10 ⁻⁶ m ²	Cv converted			
1/8 (6A)	2	VX2112-01	0.8	4.1	0.17	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	3.0		
	3	VX2122-02	0.45	7.9	0.33			
		VX2222-02	0.7					
		VX2322-02	1.0					
	4.5	VX2132-02	0.2	15	0.61	500		
		VX2232-02	0.3			660		
	6	VX2332-02	0.6	26	1.1	320		
		VX2242-02	0.15			500		
	3/8 (10)	3	VX2342-02	0.35	26	1.1	660	
			VX2252-02	0.1			500	
4.5		VX2352-02	0.14	53	2.2	660		
		VX2262-02	0.05			500		
6		VX2362-02	0.08	53	2.2	660		
		VX2222-03	0.7			500		
3		VX2322-03	1.0	7.9	0.33	660		
		VX2232-03	0.3			500		
4.5	VX2332-03	0.6	15	0.61	660			
	VX2242-03	0.15			500			
6	VX2342-03	0.35	26	1.1	660			
	VX2252-03	0.1			500			

Note) Weight 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 front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Operating Fluid and Ambient Temperature

Power source	Operating fluid temperature (°C)		Ambient temperature (°C)
	Solenoid valve option (symbol)		
	A, H	D, N	
AC	-5 Note) to 60	-5 Note) to 120	-20 to 60
DC	-5 Note) to 40	—	-20 to 40

Note) Dynamic viscosity: 50 mm²/s or less

Tightness of Valve (Leakage Rate)

Seal material	Leakage rate (With oil pressure)
FKM	0.1 cm ³ /min or less

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

For Oil/Single Unit

Normally Closed (N.C.) VX **21** **20** □ □ — **01** □ — **1** **G** **1** — □

Normally Open (N.O.) VX **21** **22** □ □ — **01** □ — **1** **G** **1** — □

Nil None	B With bracket
-----------------	-----------------------

* Refer to the table (4) if a bracket is ordered separately.

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

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

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

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

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

Suffix •

Nil	—
Z	Oil-free specification

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 2 for ordering coil only.

Electrical entry •

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

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

For Water

For Oil

For Steam

For Air

Table (1) Port/Orifice 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
A	FKM	Brass, Copper	B
H		Stainless steel, Silver	
D		Brass, Copper	H
N		Stainless steel, Silver	

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.

Dimensions → page 22 (Single unit)

Table (3) Rated Voltage – Electrical Option

Rated voltage			Class B		
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	●	—	—
DC	J	230 V	●	—	—
	5	24 V	●	●	●
	6	12 V	●	—	—

Rated voltage			Class H		
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	●	—	—
DC	J	230 V	●	—	—
	5	24 V	DC spec. is not available.		
6	12 V	DC spec. is not available.			

Table (4) Bracket Part No.

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

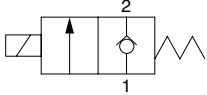
Series VX21/22/23

For Steam /Single Unit

Model/Valve Specifications

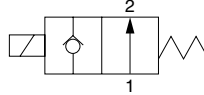
N.C.

Passage symbol



N.O.

Passage symbol



Normally Closed (N.C.)

Port size	Orifice size (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			
		VX2130-02	0.45	15	0.61			
	4.5	VX2230-02	0.75					
		VX2330-02	1.0					
		VX2240-02	0.4	26	1.1			
6	VX2340-02	0.5						
8	VX2250-02	0.15	38				1.6	
	VX2350-02	0.2						
10	VX2260-02	0.08						
3/8 (10A)		VX2360-02	0.1			46	1.9	0.5
	3	VX2220-03	1.0	7.9	0.33			
	4.5	VX2230-03	0.75	15	0.61			
		VX2330-03	1.0					
	6	VX2240-03	0.4					
		VX2340-03	0.5	26	1.1			
	8	VX2250-03	0.15					
		VX2350-03	0.2					
	10	VX2260-03	0.08					
	1/2 (15A)		VX2360-03	0.1	53	2.2	0.5	560
3		VX2220-03	1.0	7.9	0.33			
4.5		VX2230-03	0.75	15	0.61			
6		VX2240-03	0.45					
	VX2342-03	0.25	26	1.1				
10	VX2260-04	0.08						
	VX2360-04	0.1	53	2.2	700			



Note) Weight of grommet type. Add 60 g for conduit terminal type.
 • Refer to "Glossary of Terms" on front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Port size	Orifice size (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					
	4.5	VX2132-02	0.3	15	0.61			
		VX2232-02	0.45					
		VX2332-02	0.8					
6	VX2242-02	0.25	26	1.1				
	VX2342-02	0.45						
3/8 (10)	3	VX2222-03	1.0	7.9	0.33		1.0	500
	4.5	VX2232-03	0.45	15	0.61			
		VX2332-03	0.8					
	6	VX2242-03	0.25	26	1.1			
		VX2342-03	0.45					
		VX2242-03	0.25					
	VX2342-03	0.45	26	1.1				
10	VX2260-03	0.1						
	VX2360-03	0.1	53	2.2	700			



Note) Weight of grommet type. Add 60 g for conduit terminal type.
 • Refer to "Glossary of Terms" on front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Operating Fluid and Ambient Temperature

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

Tightness of Valve (Leakage Rate)

Seal material	Leakage rate (With air pressure)
PTFE	300 cm ³ /min or less

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

For Steam/Single Unit

How to Order (Single Unit)

Normally Closed (N.C.) VX 21 20 [] [] - 01 [] - 1 G 1 - []

Normally Open (N.O.) VX 21 22 [] [] - 01 [] - 1 G 1 - []

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

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

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

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

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

Suffix •

Nil	—
Z	Oil-free specification

Rated voltage •

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

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

Bracket

Nil	None
B	With bracket

* Refer to the table (4) if a bracket is ordered separately.

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

For Water
For Oil
For Steam
For Air

Table (1) Port/Orifice Size
Normally Closed (N.C.)

Model	Solenoid valve (Port size)			Orifice symbol (diameter)					
	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.)

Model	Solenoid valve (Port size)			Orifice symbol (diameter)			
	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
S	PTFE	Brass	H
Q		Stainless steel	

Solenoid coil: AC, Class H only

Table (3) Rated Voltage – Electrical Option

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

Table (4) Bracket Part No.

Model	Part no.
VX21 ¹ ₂ 0	VX021N-12A
VX22 ² ₃ 0	VX022N-12A
VX23 ² ₃ 0	
VX22 ⁵ ₆ 0	VX023N-12A-L
VX23 ⁵ ₆ 0	

Dimensions → page 22 (Single unit)

Series VX21/22/23

For Air /Single Unit

(Inert gas, Non-leak, Medium vacuum)

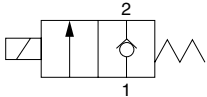
When the fluid is air.

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.)

Model/Valve Specifications

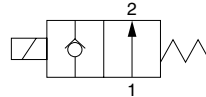
N.C.

Passage symbol



N.O.

Passage symbol



Normally Closed (N.C.)

Port size	Orifice size (mm)	Model	Max. operating pressure differential (MPa)		Flow characteristics			Max. system pressure (MPa)	Weight (g)	Note)				
			AC	DC	C _d (dm ³ /(s·bar))	b	C _v							
1/8 (6A)	2	VX2110-01	2.0	1.5	0.59	0.48	0.18	3.0	300					
	3	VX2120-01	1.1	0.6	1.2	0.45	0.33							
	4.5	VX2130-01	0.45	0.2	2.4	0.44	0.61							
1/4 (8A)	2	VX2110-02	2.0	1.5	0.59	0.48	0.18	3.0	470					
		VX2120-02	1.1	0.6										
		VX2220-02	2.0	1.5	1.2	0.45	0.33							
		VX2320-02	3.0	3.0				1.0	300	620				
		VX2130-02	0.45	0.2	2.3	0.46	0.61							
		VX2230-02	0.75	0.35	2.3	0.46	0.61							
		VX2330-02	1.0	0.9				1.0	470	620				
		VX2240-02	0.4	0.15	4.1	0.3	1.1							
		VX2340-02	0.5	0.35	4.1	0.3	1.1							
		VX2250-02	0.15	0.08	6.4	0.3	1.6	1.0	560	700				
		VX2350-02	0.2	0.2	6.4	0.3	1.6							
		VX2260-02	0.08	0.03	8.8	0.3	2.0							
	VX2360-02	0.1	0.07	8.8	0.3	2.0	1.0	560	700					
3/8 (10A)	3	VX2220-03	2.0	1.5	1.2	0.45				0.33	3.0	470		
		VX2320-03	3.0	3.0										
		VX2230-03	0.75	0.35	2.3	0.46	0.61							
		VX2330-03	1.0	0.9				1.0	620	470				
		VX2240-03	0.4	0.15	4.1	0.3	1.1							
		VX2340-03	0.5	0.35	4.1	0.3	1.1							
		VX2250-03	0.15	0.08	6.4	0.3	1.6	1.0	560	700				
		VX2350-03	0.2	0.2	6.4	0.3	1.6							
		VX2260-03	0.08	0.03	11	0.3	2.2							
		VX2360-03	0.1	0.07	11	0.3	2.2	1.0	560	700				
	1/2 (15A)	10	VX2260-04	0.08	0.03	11	0.3				2.2	1.0	560	700
			VX2360-04	0.1	0.07	11	0.3				2.2			

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 of Terms" on front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Normally Open (N.O.)

Port size	Orifice size (mm)	Model	Max. operating pressure differential (MPa)		Flow characteristics			Max. system pressure (MPa)	Weight (g)	Note)
			AC	DC	C _d (dm ³ /(s·bar))	b	C _v			
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	3.0	470		
		VX2122-02	0.7							
		VX2222-02	1.0	1.2	0.45	0.33				
		VX2322-02	1.6				1.0	300	620	
		VX2132-02	0.3	2.3	0.46	0.61				
		VX2232-02	0.45	2.3	0.46	0.61				
		VX2332-02	0.8				1.0	470	620	
		VX2242-02	0.25	4.1	0.3	1.1				
		VX2342-02	0.45	4.1	0.3	1.1				
	3/8 (10)	3	VX2222-03	1.0	1.2	0.45	0.33	3.0	500	
			VX2322-03	1.6						
			VX2232-03	0.45	2.3	0.46	0.61			
		VX2332-03	0.8				1.0	660	320	
		VX2242-03	0.25	4.1	0.3	1.1				
		VX2342-03	0.45	4.1	0.3	1.1				

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 of Terms" on front matter 10 for details on the max. operating pressure differential and the max. system pressure.

Operating Fluid and Ambient Temperature

Power source	Operating fluid temperature (°C)		Ambient temperature (°C)
	Solenoid valve option (symbol)		
	Ni, G	V, M	
AC	-10 Note) to 80	-10 Note) to 60	-20 to 60
DC	-10 Note) to 60	-10 Note) to 40	-20 to 40

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

Tightness of Valve (Leakage Rate)

Seal material	Leakage rate	
	Air	Note) Non-leak, Medium vacuum
NBR, FKM	1 cm ³ /min or less	10 ⁻⁶ Pa·m ³ /sec or less

Note) Value on option "V", "M" (non-leak, medium vacuum)

How to Order (Single Unit)

Normally Closed (N.C.) VX 21 20 [] [] - 01 [] - 1 G 1 - []

Normally Open (N.O.) VX 21 22 [] [] - 01 [] - 1 G 1 - []

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

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

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

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

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

Bracket

Nil	None
B	With bracket

* Refer to the table (4) if a bracket is ordered separately.

Suffix

Nil	—
Z	Oil-free specification

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

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.

Electrical entry

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

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

For Water

For Oil

For Steam

For Air

Table (1) Port/Orifice 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
Nil	NBR	Brass	B	—
G		Stainless steel		
V	FKM	Brass		
M		Stainless steel		

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

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

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

Table (4) Bracket Part No.

Model	Part no.
VX21 ¹ ₂ 0	VX021N-12A
VX22 ² ₃ 0	VX022N-12A
VX23 ² ₃ 0	
VX22 ⁵ ₆ 0	VX023N-12A-L
VX23 ⁵ ₆ 0	

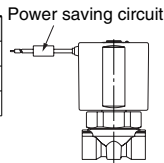
Dimensions → page 22 (Single unit)

Low Power Consumption Type Series VX21/22/23 For Water, Air

Solenoid Coil Electricity Specifications

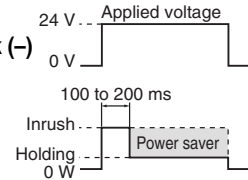
Model	VX21	VX22	VX23
Rated voltage (V)	24 DC		
Power consumption (W)	Inrush	3	4
	Holding	0.8	0.8

(Equivalent to IP40 enclosure)



Electric Circuit Diagram

With power saving circuit
(There is the polarity. Red (+), Black (-))
Energy saving type/
Electrical power waveform
(Rated voltage 24 VDC)



Model/Valve Specifications

N.C.

Normally Open (N.C.)

Port size	Orifice size (mm)	Model	Max. operating pressure differential (MPa)	Flow characteristics					Max. system pressure (MPa)
				DC	Av x 10 ⁻⁶ m ²	Cv converted	Cj [dm ³ /(s·bar)]	b	
1/8 (6A)	2	VX2110-01	1.0	4.1	0.17	0.59	0.48	0.18	3.0
	3	VX2120-01	0.3	7.9	0.33	1.2	0.45	0.33	
	4.5	VX2130-01	0.1	15.0	0.61	2.4	0.44	0.61	
1/4 (8A)	2	VX2110-02	1.0	4.1	0.17	0.59	0.48	0.18	3.0
	3	VX2120-02	0.3	7.9	0.33	1.2	0.45	0.33	
		VX2220-02	0.8						
	4.5	VX2230-02	0.1	15.0	0.61	2.3	0.46	0.61	
		VX2330-02	0.2						
	6	VX2240-02	0.05	26.0	1.10	4.1	0.3	1.1	1.0
		VX2340-02	0.1						
		VX2250-02	0.03						
		VX2350-02	0.05						
	10	VX2360-02	0.02	46.0	1.90	8.8	0.3	2.0	

Port size	Orifice size (mm)	Model	Max. operating pressure differential (MPa)	Flow characteristics					Max. system pressure (MPa)
				DC	Av x 10 ⁻⁶ m ²	Cv converted	Cj [dm ³ /(s·bar)]	b	
3/8 (10A)	3	VX2220-03	0.8	7.9	0.33	1.2	0.45	0.33	3.0
	VX2320-03	1.0							
	4.5	VX2230-03	0.5	15.0	0.61	2.3	0.46	0.61	
		VX2330-03	0.2						
	6	VX2240-03	0.05	26.0	1.10	4.1	0.3	1.1	
		VX2340-03	0.1						
8	VX2250-03	0.03	38.0	1.60	6.4	0.3	1.6		
	VX2350-03	0.05							
10	VX2360-03	0.02	53.0	2.20	11	0.3	2.2		
1/2 (15A)	10	VX2360-04	0.02	53.0	2.20	11	0.3	2.2	1.0

Operating Fluid and Ambient Temperature

Power source	Operating fluid temperature (°C)	Ambient temperature (°C)
	Solenoid valve option (symbol)	
DC	Nil, G	-20 to 40
	1 to 40	

Tightness of Valve (Leakage Rate)

Seal material	Leakage rate
NBR	0.1 cm ³ /min or less (With water pressure) 1 cm ³ /min or less (Air)

Note) With no condensation

How to Order (Single Unit)

Normally Closed (N.C.) VX 21 2 0 01 5 GY1

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

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

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

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

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

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

Rated voltage 5 24 VDC

Bracket

Nil	None
B	With bracket

* Refer to the table (3) if bracket is separately ordered.

Electrical entry

GY-Conduit (With power saving circuit)

Table (1) Port/Orifice Size
Normally Closed (N.C.)

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

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Coil insulation type	Operating fluid
Nil	NBR	Brass	B	Water, Air
G		Stainless steel		

Table (3) Bracket Part No.

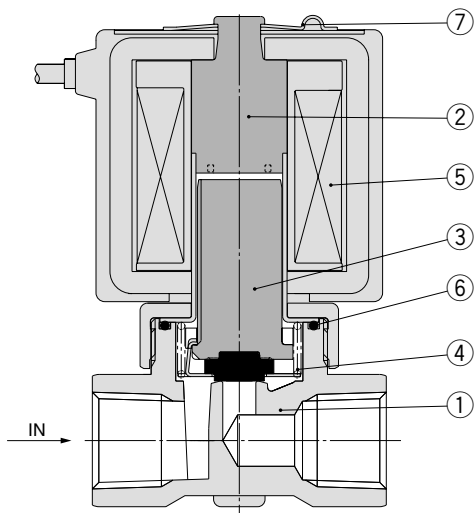
Model	Part no.
VX21 ¹ / ₈ 0	VX021N-12A
VX22 ² / ₄ 0	VX022N-12A
VX23 ³ / ₄ 0	
VX22 ⁵ / ₈ 0	VX023N-12A-L
VX23 ⁵ / ₈ 0	

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

Construction: Single Unit

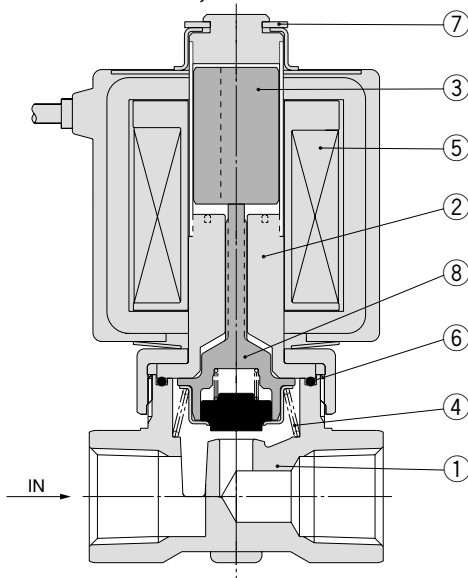
Normally closed (N.C.)

Body material: Brass, Stainless Steel



Normally open (N.O.)

Body material: Brass, Stainless Steel



Component Parts

No.	Description	Material	
		Body material Brass specification	Body material stainless steel specification
1	Body	Brass	Stainless steel
2	Tube assembly	Stainless steel, Copper	Stainless steel, Silver
3	Armature assembly	(NBR, FKM, EPDM, PTFE) Stainless steel, PPS	
4	Return spring	Stainless steel	
5	Solenoid coil	Class B/H molded	
6	O-ring	(NBR, FKM, EPDM, PTFE)	
7	Clip	SK	

The materials in parentheses are the seal materials.

Component Parts

No.	Description	Material	
		Body material Brass specification	Body material stainless steel specification
1	Body	Brass	Stainless steel
2	Tube assembly	Stainless steel, Copper	Stainless steel, Silver
3	Armature assembly	Stainless steel	
4	Return spring	Stainless steel	
5	Solenoid coil	Class B/H molded	
6	O-ring	(NBR, FKM, EPDM, PTFE)	
7	Clip	SK	
8	Push rod assembly	(NBR, FKM, EPDM, PTFE) Stainless steel, PPS	

The materials in parentheses are the seal materials.

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

For Water, Oil, Steam

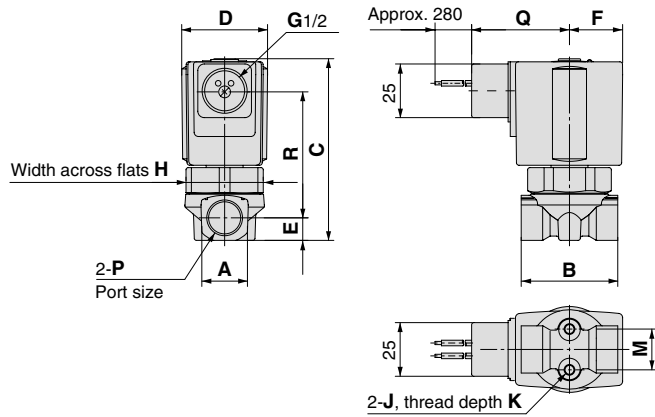
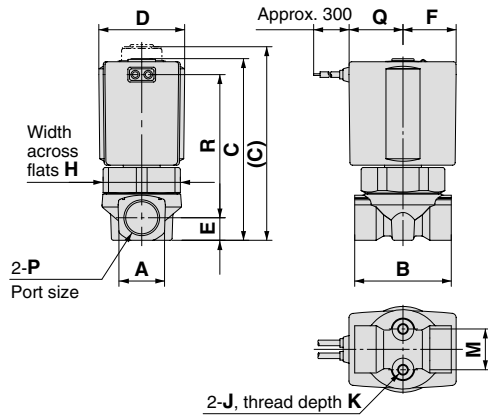
Dimensions: Single Unit/Body Material: Brass, Stainless Steel

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

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

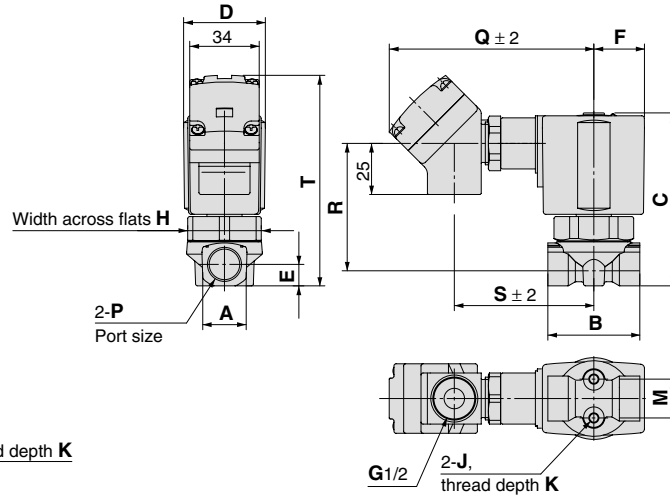
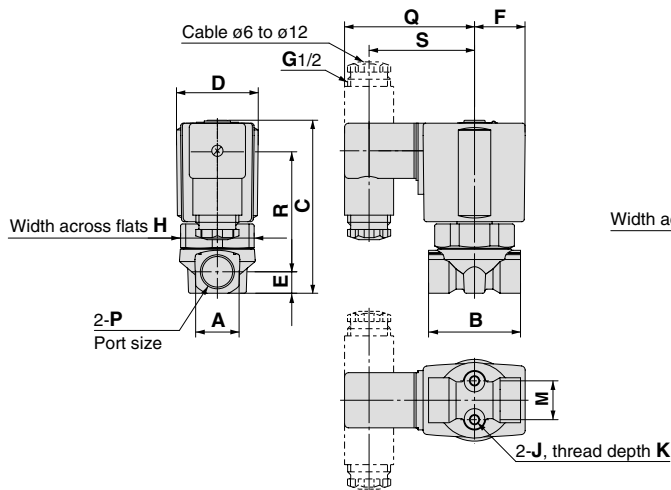
Grommet: G

Conduit: C

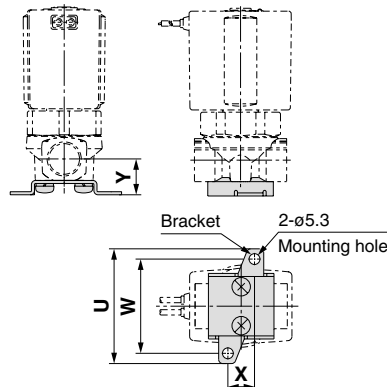


DIN terminal: D

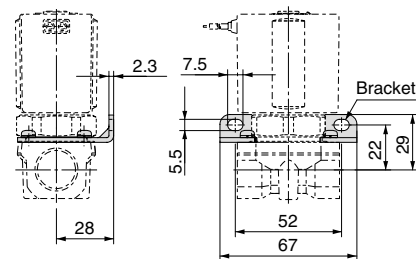
Conduit terminal: T



Specifications with bracket
Orifice ø2, ø3, ø4.5, ø6



Orifice ø8, ø10



(mm)

Model	Orifice size	Port size P	A	B	C	D	E	F	H	Mounting dimensions			Electrical entry								Bracket mounting							
										J	K	M	Grommet		Conduit		DIN terminal		Conduit terminal		U	W	X	Y				
Normally closed VX21□0	Normally open VX21□2	ø2, ø3, ø4.5	1/8, 1/4	18	40	68 (76)	30	9	19.5	27	M4	6	12.8	19.5	50	40	42.5	58	42.5	46	95	42.5	62	85	46	36	11	15
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	22.5	60	43	52	61	52	49	98	55	65	96.5	56	46	13	17.5
VX22□0	—	ø8, ø10	1/4, 3/8, 1/2	30	50	85	—	14	—	—	M5	8	23	22.5	63	43	55	61	55	49	98	55	65	103.5	—	—	—	—
VX23□0	VX23□2	ø3, ø4.5, ø6	1/4, 3/8	22	45	85 (93)	40	10.5	25	36	M5	8	19	25	66	46	58	63	58	50	101	58	68	103	56	46	13	17.5
VX23□0	—	ø8, ø10	1/4, 3/8, 1/2	30	50	92	—	14	—	—	M5	8	23	25	70	46	61	63	61	50	101	61	68	111	—	—	—	—

The figures in parentheses are the normally open type.