2/3 Port Valve for Various Fluids Control

■ 2/3 Port Solenoid/Air Operaed Valve for Various Fluids Control
(For Water/Air/Oil/Gas/Vacuum/Steam)

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A.
The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A.
Similar updating for other VX∗ series are scheduled to follow shortly.

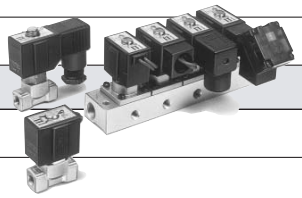
For Fluid Control
2/3 Port Valve
Solenoid Valve/Air Operated Valve
For Water, Air, Oil, Gas, Vacuum and Steam

2 Port, Direct Operated

Series VX21/22/23

N.C., N.O./ Single unit, Manifold

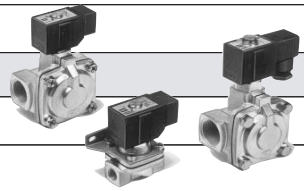
Refer to our catalog “ES70-23A”.

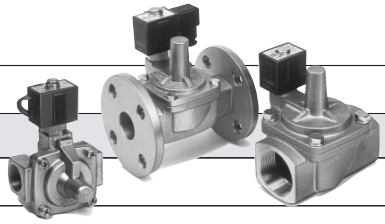


2 Port, Pilot Operated (Diaphragm type)

Series VXD21/22/23

N.C., N.O.





2 Port, Pilot Operated (Disk type)

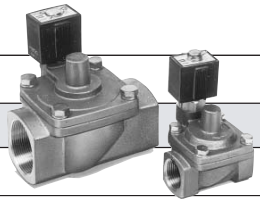
Series VXP21/22/23

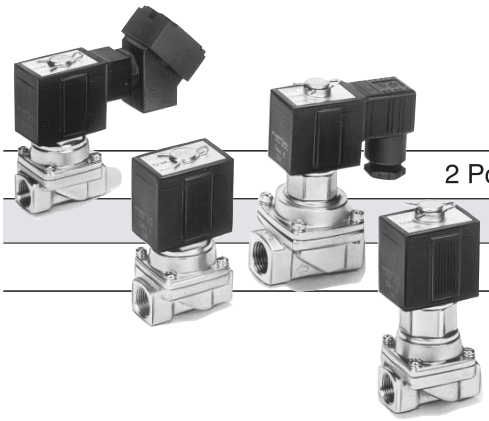
N.C., N.O.

2 Port, Pilot Operated

Series VXR21/22/23

< Water hammer relief > N.C., N.O.





2 Port, Pilot Operated (Diaphragm type, zero pressure differential operation)

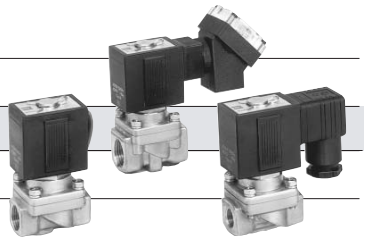
Series VXZ22/23

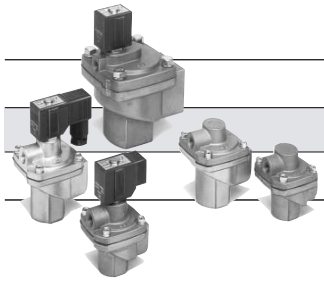
N.C., N.O./ Single unit

2 Port, Pilot Operated

Series *VXH22*

For high pressure control N.C./Single unit

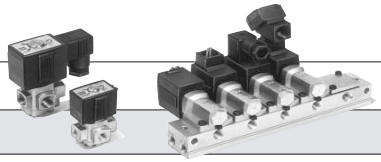




2 Port, Pilot Operated

Series *VXF21/22*

Quick response, Control of instantaneous large flow N.C./Single unit

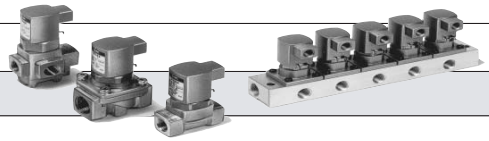


3 Port, Direct Operated

Series *VX31/32/33*

C.O./Single unit, Manifold

Refer to our catalog “ES70-26A”.



Air Operated Valve

2/3 Port, Direct Operated

Series *VXA21/22*

Series *VXA31/32*

Selection Procedure for 2/3 Port Valve for Fluid Control

1. Selection of the series

Select series by referring to the number of ports, valve type (N.C., N.O., C.O.), port size and applied fluid.

2. Check by the applicable fluids check list

Use the tables on pages 17-3-6 to -14 to check the compatibility of the applicable fluid with the solenoid valve.

3. Confirmation of the working pressure differential

There are two types of pressure differentials. The high pressure differential is the highest pressure difference allowable between the inlet side and the outlet side in an open and closed state. The minimum pressure differential is the lowest pressure required to hold the main valve fully open. Refer to the following pages for each series as the pressure differential varies with the orifice size, power supply, pressure and fluid.

4. Reference to the flow characteristic table

To obtain the flow rate of fluid, refer to the flow characteristic table.

5. Choice of the power supply voltage and electrical entry

Select the AC/DC power source and choose the electrical entry.

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A.
The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A.
Similar updating for other VX∗ series are scheduled to follow shortly.

Solenoid Valves List

Number of ports			2 port										
Action			Direct operated				Pilot operated Diaphragm type		Pilot operated Disk type		Pilot operated <Water hammer relief>		
Series			VX21/22/23				VXD21/22/23		VXP21/22/23		VXR21/22/23		
Body type			Single unit		Manifold		Single unit		Single unit		Single unit		
Valve type			N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	
Applicable fluids	Standard	Water	●		–		●		●		●		
		Air	●		●		●		●		–		
		Oil	●		●		●		●		●		
		Low vacuum (1 Torr)	●		●		–		–		–		
	Option	Steam	●		–		–		●		–		
		Medium vacuum (10^{-3} Torr) Non-leak (10^{-5}atm cc/sec)	●		●		–		–		–		
		High temperature water, High temperature oil	●		–		●		●		●		
Port size	Rc	1/8 (6A)	●	●	–		–	–	–	–	–	–	
		1/4 (8A)	●	●			●	–	●	–	–	–	
		3/8 (10A)	●	●			●	–	●	–	–	–	
		1/2 (15A)	●	–			●	●	●	●	●	●	
		3/4 (20A)	–	–			●	●	●	●	●	●	
		1 (25A)	–	–			●	●	●	●	●	●	
	Flange Rc	11/4 (32A)	–	–			● Flange	● Flange	● Flange Rc	● Flange Rc	● Rc	● Rc	
		11/2 (40A)	–	–			● Flange	● Flange	● Flange Rc	● Flange Rc	● Rc	● Rc	
		2 (50A)	–	–			● Flange	● Flange	● Flange Rc	● Flange Rc	● Rc	● Rc	
Page			Catalog ES70-23A				17-3-17		17-3-27		17-3-37		

∗ An option is available that sets the orifice in the vacuum side to the maximum bore for exclusive use when used in a vacuum pad application. Refer to page 17-3-86 for details.

Air Operated Valves List

Number of ports			2 port				3 port	
Action			Direct operated				Direct operated	
Series			VXA21/22				VXA31/32	
Body type			Single unit		Manifold		Single unit	Manifold
Valve type			N.C.	N.O.	N.C.	N.O.	C.O.	C.O.
Applicable fluids	Standard	Water	●		–		●	–
		Air	●		●		●	●
		Oil	●		●		●	●
		Low vacuum (1 Torr)	●		●		●	●
	Option	Medium vacuum (10^{-3} Torr) Non-leak (10^{-5}atm cc/sec)	●		●		●	●
Port size	Rc	1/8 (6A)	●	●	–		●	–
		1/4 (8A)	●	●			●	
		3/8 (10A)	●	●			●	
		1/2 (15A)	●	●			–	
Page			17-3-45		17-3-49		17-3-53	17-3-57

	2 port				3 port	
	Pilot operated <Zero pressure differential operation>		Pilot operated <High pressure control>	Pilot operated <Quick response, Instantaneous large flow>	Direct operated	
	VXZ22/23		**VXH22**	**VXF21/22**	**VX31/32/33**	
	Single unit		Single unit	Single unit	Single unit	Manifold
	N.C.	N.O.	N.C.	N.C.	N.C. /N.O. /C.O.	N.C. /N.O. /C.O.
	●		●	–	●	–
	●		●	●	●	●
	●		●	–	●	●
	●		–	–	● *	●
	–		–	–	●	–
	–		–	–	●	●
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	●	●	●	–	●	
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	●	●	–	●	–	
	●	●	–	●	–	
	–	–	–	–	–	
	–	–	–	● Rc	–	
	–	–	–	–	–	
	17-3-61		17-3-69	17-3-71	Catalog ES70-26A	

Applicable fluids check list 17-3-6 to 17-3-14

Glossary 17-3-15

How to order Solenoid coil assembly 17-3-16

⚠ Caution

Be sure to read before handling. Refer to pages 17-6-3 to 17-6-10 for Safety Instructions and Solenoid Valve Precautions.

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX∗ series are scheduled to follow shortly.

Applicable Fluids Check List

Direct Operated 3 Port Solenoid Valve Series VX31/32/33

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

Refer to our catalog ES70-26A for specifications and models.

Option Symbol and Composition

Option symbol	Seal material	Coil insulation type	Body, Shading coil material	Support material (in valve assembly)
Standard Note 2)	NBR	B	Brass, Copper	Polyacetal
A	FKM			
B	EPDM			
C	PTFE	H		Stainless steel
D Note 2)	FKM			
E	EPDM			
F Note 1)	FKM	B	Stainless steel, Silver	Polyacetal
G	NBR			
H	FKM			
J	EPDM			
K Note 1)	PTFE			Stainless steel
L Note 1)	FKM			Polyacetal
M Note 1) **(Non-leak)**	FKM			
N	FKM	H		Stainless steel
P	EPDM			
Q	PTFE(FKM)			
S	PTFE(FKM)			
T Note 1)	NBR	B	Brass, Copper	Polyacetal
V Note 1) **(Non-leak)**	FKM			
X Note 1)	FKM	H		Stainless steel

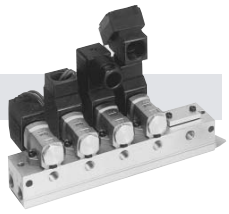
Note 1) Non-lube type. For other options, "-X21" at the end of product number represents the non-lube option.
Note 2) Grease has been applied to the core part.

Fluid Name and Option

Fluid (Application)	Option symbol and body material	
	Brass or BC6	Stainless steel
Caustic soda (25% ≥)	—	J
Gas oil	A	H
Silicon oil	A	H
Vacuum system (for pad)	Standard	—
Vacuum (up to 1.3 x 10^{-1} Pa)	V Note 1)	M Note 1)
Fuel oil (up to 60°C)	A	H
Steam system (Boiler water)	—	G, J
Steam system (Steam)	S	Q
Steam system (Condensate)	E	P
Trichloroethylene	—	K
Trichloroethane	—	K
Parachloroetylene	A	H
Brake oil	B	J
Helium	V Note 1)	M Note 1)
Non-leak (10^{-6} Pa·m³/s)	V Note 1)	M Note 1)
Water (High temperature)	E, X	N, P

∗ If using for other fluids, please contact SMC.
Note 1) The leakage amount (10^{-6} Pa·m³/s) is value when differential pressure is 0.1 MPa.

Manifold Series VVX31/32/33



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

Refer to our catalog ES70-26A for specifications and models.

Option Symbol and Composition

Option symbol	Seal material	Coil insulation type	Body, Shading coil material	Support material (in valve assembly)
Standard Note 2)	NBR	B	Aluminum, Copper	Polyacetal
A	FKM			
B	EPDM			
D Note 2)	FKM	H		Stainless steel
E	EPDM			
F Note 1)	FKM	B	Brass, Silver Note 3)	Polyacetal
R Note 1) **(Non-leak)**	FKM		Aluminum, Copper	
T Note 1)	NBR		Brass, Copper Note 3)	
V Note 1) **(Non-leak)**	FKM			
X Note 1)	FKM	H	Aluminum, Copper	Stainless steel

Note 1) Non-lube type. For other options, "-X21" at the end of product number represents the non-lube option.
Note 2) Grease has been applied to the core part.
Note 3) Manifold base material: Aluminum.

Fluid Name and Option

Fluid (Application)	Option symbol
Gas oil	A
Silicon oil	A
Fuel oil (up to 60°C)	A
Vacuum (for pad)	Standard
Vacuum (up to 1.3 x 10^{-1} Pa)	V Note 1)
Parachloroetylene	A
Brake oil	B
Helium	V Note 1)
Non-leak (10^{-6} Pa·m³/s)	V Note 1)

∗ If using for other fluids, please contact SMC.
Note 1) The leakage amount (10^{-6} Pa·m³/s) is value when differential pressure is 0.1 MPa.

Glossary

Pressure

1. Max. operating pressure differential
This pressure difference is the highest pressure difference allowable to operate (a difference between the pressures in the inlet slide and the outlet side) in an open state and the closed state of valve. A case of 0 kgf/cm^2 in the outlet side results in the highest operating pressure.

2. Min. operating pressure differential
This pressure difference is the lowest pressure difference (a difference between the pressures in the inlet slide and the outlet side) required to hold the main valve fully open.

3. Max. system presure
This pressure is the limit of pressure that can be applied to pipe line. (Line pressure)
[The pressure difference in a solenoid valve must be maintained less than the highest operating pressure difference.]

4. Proof pressure
This is the pressure that can be withstood without deterioration of the performance when valve returns within the range of the operating pressure. (A value under a specified condition.)

Electricity

1. Apparent power (VA)
Volt-ampere is the product of voltage (V) and current (A). Power dissipation (W): For AC , W = V/A cosθ. For DC, W = V/A (Note) cosθ shows power factor.

2. Surge voltage
The surge voltage is a high voltage generated momentarily when cutting the power supply.

3. Hum sound
The hum sound is a noise generated through repeated adsorption and releasing on an armature adsorption surface.
For an AC solenoid, no shading coil releases the spring reaction because of the existance of a 0 point (twice per frequency) of the suction force.

Others

1. Material
NBR: Nitrile rubber
FKM: Fluoro rubber—Trade names: Vitron®, Dai-el®, etc.
EPDM: Ethylene propylene rubber
PTFE: Polytetrafluoroethylene resin—Trade names: Teflon®, Polyflon®, etc.
Polyacetal (POM)—Trade names: Duracon®, Derlin®, etc.

2. Oil preserve treatment
After assembly, valve is put through a parts washer to remove any oil used during assembly.

3. Symbol
The JIS symbol is ( ): this designates the valve to be normally closed.
However, in situations where the secondary pressure exceeds the primary side pressure, the resulting back pressure will cause back flow through the valve.

⚠ Caution

Refer to page 17-6-3 for Safety Instructions and Solenoid Valve Precautions.

The models VX21/22/23 have been revised. For details, please refer to catalog no. ES70-23A.
The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A.
Similar updating for other VX∗ series are scheduled to follow shortly.

Solenoid Coil Assembly

How to Order

VX021 — 001 C B [ ] [ ] — 01

VX solenoid coil assembly

Application

Size part no.		Applicable series
001	No.1 Solenoid	Series VX□21
002	No.2 Solenoid	Series VX□22
003	No.3 Solenoid	Series VX□23

Electrical entry

G	Grommet
C	Conduit
D	DIN terminal

Coil insulation type

B	Class B insulation
H ∗	Class H insulation

∗ DIN terminal or DC not available.

Terminal box

Nil	None
T	With terminal box

Electrical option

Nil	None
S	With surge voltage suppressor
L	With indicator light
Z	With light/ surge voltage suppressor

Rated voltage (1)

01	100 VAC 50/60 Hz
02	200 VAC 50/60 Hz
03	110 VAC 50/60 Hz
04	220 VAC 50/60 Hz
05	24 VDC
06	12 VDC
07	240 VAC 50/60 Hz
08	48 VAC 50/60 Hz
13	24 VAC 50/60 Hz
23	440 VAC 50/60 Hz
51	6 VDC
53	48 VDC
55	100 VDC
56	110 VDC

Note 1) The voltage codes of 01 to 08 when the suffix "0" is removed, are the same as the solenoid valve model codes.

Ordering example

Ex.) Series VX21, 100 VAC, Class B insulation, Grommet
Part no.: "**VX021-001GB-01**"
Ex.) Series VX22, 220 VAC, Class B insulation, DIN terminal with terminal box
Part no.: "**VX021-002DBT-04**"
Ex.) Series VX23, 24 VDC, Conduit terminal, with light/surge voltage surpressor
Part no.: "**VX021-003BTZ-05**"

Coil Combination

("Electrical Entry"-"Coil Insulation"-"Electrical Option")

Electrical entry	Without electrical option	With electrical option		
		With surge voltage suppressor	With indicator light	With light/ surge voltage suppressor
Grommet	GB	GBS	–	–
	GH	—	–	–
Conduit	CB	—	–	–
	CH	—	–	–
	CBT	CBTS	CBTL	CBTZ
	CHT	CHTS	CHTL	CHTZ
DIN terminal	DB	–	–	–
	DBT	DBTS	DBTL	DBTZ

∗ Applicable voltages with light/surge voltage suppressor are as follows; 100 VAC, 200 VAC, 110 VAC, 220 VAC and 24 VDC.
∗ Applicable voltages for "CHTL" and "CHTZ" are as follows; 100 VAC, 200 VAC, 110 VAC, 220 VAC.

Made to Order Specifications

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

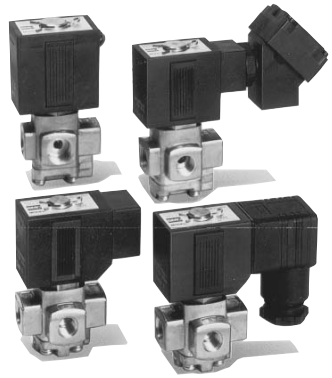
Suffix "-X36" to the end of solenoid coil part number.

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. 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 3 Port Solenoid Valve
For Air, Gas, Vacuum, Water, Steam and Oil
Series VX31/32/33



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

Valve can be matched to a particular application though selection of body material (Brass or Stainless steel), seal material (NBR, EPDM, FKM or PTFE) and solenoid coil (Class B or H).

■ Easy to disassemble and reassemble in a short time.

Variations

Valve

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

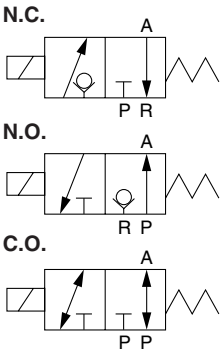
Model

Model	Port size Rc	Orifice size (mmø)
VX311$^{0}_{2}$$^{}_{4}$	1/8, 1/4	1.5
VX312$^{0}_{2}$$^{}_{4}$	1/8, 1/4	2.2
VX313$^{0}_{2}$$^{}_{4}$	1/8, 1/4	3
VX3224	1/4, 3/8	2.2
VX3234	1/4, 3/8	3
VX3244	1/4, 3/8	4
VX3324	1/4, 3/8	2.2
VX3334	1/4, 3/8	3
VX3344	1/4, 3/8	4

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX* series are scheduled to follow shortly.

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

JIS Symbol



Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA) Inrush	Apparent power (VA) Holding	Power consumption (W) (Holding)	Temperature rise (°C) (Rated voltage)
VX31	AC	50	20	11	5	50
		60	17	7	3.5	45
	AC (Full wave rectification)	50/60	–	7.5	6	55
	DC	–	–	–	6	55
VX32	AC	50	42	18	7.5	55
		60	37	12	6	45
	AC (Full wave rectification)	50/60	–	10	8.5	60
	DC	–	–	–	8.5	60
VX33	AC	50	55	22	11	60
		60	47	18	9.5	50
	AC (Full wave rectification)	50/60	–	14	11.5	60
	DC	–	–	–	11.5	60

Note) • They are values in an ambient temperatue of 20°C ± 5°C and application of rated voltage.
• AC coil for air (-X44) comes with full wave rectifier.
• Changing coils from AC to DC and vice versa is impossible, because of different core shapes.
• 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) Water (Std.)	Oil (Std.)	High temperature water (X, E, N, P)	Oil (D. N)	Steam (S,Q)	Ambient temperature (°C)
Maximum	AC	60	60	99	120	183	60
	DC	40	40	–	–	–	40
Minimum	AC/DC	1	–5	–	–	–	–20

Temperature conditions	Power source	Operating fluid temperature (°C) Air	Vacuum	Ambient temperature (°C)
Maximum	AC/DC	60	40	40
Minimum	AC/DC	–10	–10	–20

Tightness of Valve (Leak rate)

Fluid / Seal material	Air	Liquid	Non-leak (3) Vacuum	Steam
NBR, FPM EPR	1 cm³/min or less	0.1 cm³/min or less(1)	10^{-6} Pa·m³/s or less	–
PTFE	150 cm³/min or less(1)	5 cm³/min or less (1)	–	50 cm³/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) Value on option "V", "M", "Y" (Non-leak, Vacuum).

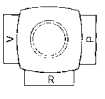
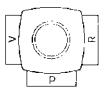
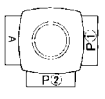
Model/Valve Specifications (Fluid: Water, Oil, Steam)

Port size	Orifice size (mmø)	Model	Max. operating pressure differential (MPa) N.O/N.C. AC	C.O. AC DC	Flow characteristics Water, Oil, Steam Av x 10^{-6} (m^2)	Cv converted	Max. system pressure (MPa)	Weight (g)
1/8 (6A)	1.5	VX311$^{0}_{2}{}^{2}_{4}$-01	1.0	0.6	1.9	0.08	Water, Oil 2.0 Steam 1.0	330
	2.2	VX312$^{0}_{2}{}^{2}_{4}$-01	0.5	0.3	3.8	0.16		
	3	VX313$^{0}_{2}{}^{2}_{4}$-01	0.3	0.2	5.8	0.24		
1/4A (8A)	1.5	VX311$^{0}_{2}{}^{2}_{4}$-02	1.0	0.6	1.9	0.08		
	2.2	VX312$^{0}_{2}{}^{2}_{4}$-02	0.5	0.3	3.8	0.16		
		VX3224-02	–	0.6	4.6	0.19		550
		VX3324-02	–	1.0				700
	3	VX313$^{0}_{2}{}^{2}_{4}$-02	0.3	0.2	5.8	0.24		330
		VX3234-02	–	0.3	7.9	0.33		550
		VX3334-02	–	0.6				700
	4	VX3244-02	–	0.15	12	0.50		550
		VX3344-03	–	0.3				700
3/8 (10A)	2.2	VX3224-03	–	0.6	4.6	0.19		550
		VX3334-03	–	1.0				700
	3	VX3234-03	–	0.3	7.9	0.33		550
		VX3334-03	–	0.6				700
	4	VX3244-03	–	0.15	12	0.50		550
		VX3344-03	–	0.3				700

Model/Valve Specifications (Fluid: Air, Vacuum, Inert gas)

Port size	Orifice size (mmø)	Model	Maximum operating pressure differential C.O. AC/DC	Flow characteristics Air C [dm³/(s·bar)]	b	Cv	Max. system pressure (MPa)	Weight (g)
1/8 (6A)	1.5	VX3114-01	0.6	0.29	0.32	0.08	1.0	330
	2.2	VX3124-01	0.3	0.60	0.25	0.15		
	3	VX3134-01	0.2	0.82	0.20	0.20		
1/4A (8A)	1.5	VX3114-02	0.6	0.29	0.32	0.08		
	2.2	VX3124-02	0.3	0.60	0.25	0.15		
		VX3224-02	0.6	0.64	0.40	0.17		550
		VX3324-02	1.0					700
	3	VX3134-02	0.2	0.82	0.20	0.20		330
		VX3234-02	0.3	1.1	0.25	0.27		550
		VX3334-02	0.6					700
	4	VX3244-02	0.15	1.6	0.20	0.38		550
		VX3344-02	0.3					700
3/8 (10A)	2.2	VX3224-03	0.6	0.64	0.40	0.20		550
		VX3324-03	1.0					700
	3	VX3234-03	0.3	1.1	0.25	0.27		550
		VX3334-03	0.6					700
	4	VX3244-03	0.15	1.6	0.20	0.38		550
		VX3344-03	0.3					700

Application Example

Model		N.C. (VX31)		N.O. (VX31)		C.O. (VX31, 32, 33)	
Sketch							
Position		ON	OFF	ON	OFF	ON	OFF
Application example	Selector	X	X	X	X	P① → A	P② → A
	Divider	X	X	X	X	A → P①	A → P②
	Vacuum pad (1)	P → A	A → R (VP)	A → R (VP)	P → A	P① → A	P② → A
	Cylinder exhaust valve: Energizing pressure	P → A	A → R	X	X	P① → A	A → P②
	Cylinder exhaust valve: Energizing exhaust	X	X	A → R	P ← A	A → P①	P② → A

Note 1) An exclusive type set with the maximum bore to only the orifice in the vacuum side can be supplied for use in applications of high pressure air to the vacuum break port side such as in the use of vacuum pads. Refer to page 17-3-86.

Response Characteristics

Refer to page 17-3-88 for the response characteristics.

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX∗ series are scheduled to follow shortly.

How to Order

[For liquid and gas (DC voltage)]

VX31 / VX32 / VX33 □ **4** □ □ □ □ □ □ □ □

Model
VX31
VX32
VX33

Orifice size
1 — 1.5 mmø
2 — 2.2 mmø
3 — 3 mmø
4 — 4 mmø
∗ Refer to the table (1) given below for availability.

Valve/Body
4 — Common/Single unit
Normally closed (N.C.) and Normally open (N.O.) are available only for VX31 with AC power supply.
Mark **0** — Valve N.C.
2 — Valve N.O.

Solenoid valve option
Nil — Standard Specifications
Select an option mark in page 17-3-12 by "Applicable Fluid 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.

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
∗ Stainless steel body model is supplied with bracket.

[For gas (AC voltage)]

VX31 / VX32 / VX33 □ **4** □ □ □ □ □ □ □ **X44**

Model
VX31
VX32
VX33

Orifice size
1 — 1.5 mmø
2 — 2.2 mmø
3 — 3 mmø
4 — 4 mmø
∗ Refer to the table (1) given below for availability.

Valve/Body
4 — Common/Single unit

Solenoid valve option
Nil — Standard
Select an option mark in page 17-3-12 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
7 — 240 VAC 50/60 Hz
8 — 48 VAC 50/60 Hz

Electrical entry
G — Grommet
D — DIN terminal

Bracket
Nil — None
B ∗ — With bracket
∗ Stainless steel body model is supplied with bracket.

Table (1) Port/Orifice Size

Solenoid			Orifice size (No.)			
VX31	VX32	VX33	1 (1.5 mmø)	2 (2.2 mmø)	3 (3 mmø)	4 (4 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 VX31, Common, Orifice size 1.5 mmø, Rc 1/8, 24 VDC, DIN terminal/with indicator light
(Part no.) **VX3114-01-5DL**

Made to Order Specifications

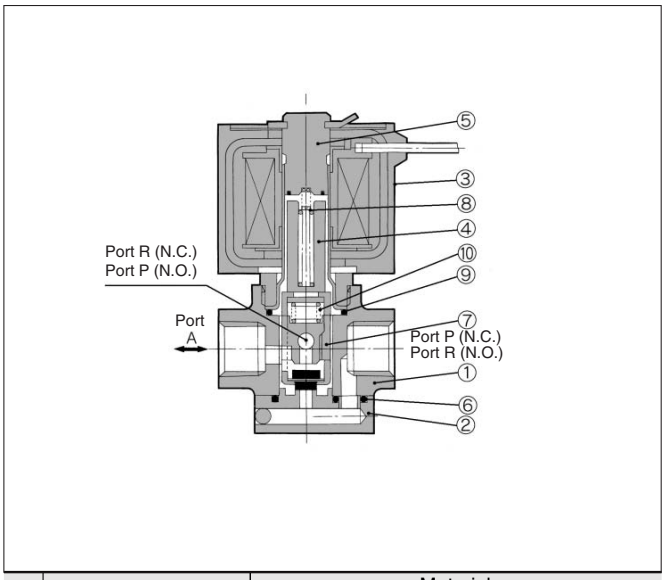
Splashproof Specifications (Based on JIS C 0920 / Based on IEC529IP-X4)

VX3 Model — Port size — Electrical entry - X36

DIN terminal or class H coil not available.

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX* series are scheduled to follow shortly.

Construction/Principal Parts Material



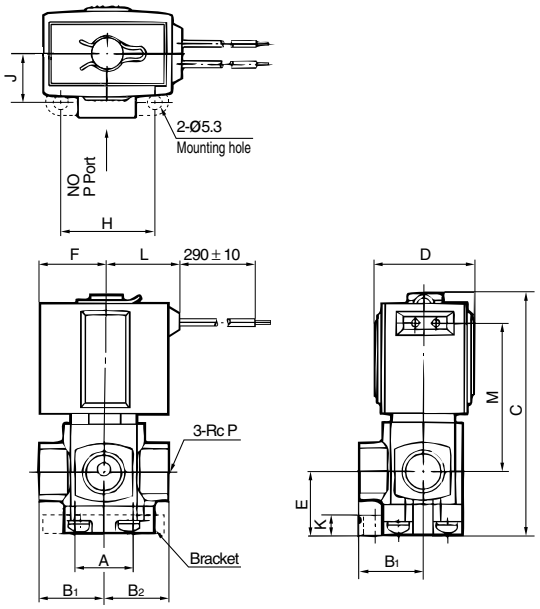
No.	Description	Material	
		Standard	Option
①	Body	Brass	Stainless steel
②	Retainer assembly	Brass	Stainless steel
③	Coil assembly	Class B molded	Class H molded
④	Armature	Stainless steel	–
⑤	Core assembly	Stainless steel, Copper	Stainless steel, Silver
⑥	O-ring	NBR	FKM/EPDM/PTFE
⑦	Valve assembly	Polyacetal, NBR	Stainless steel, FKM/ EPDM/PTFE
⑧	Return spring	Stainless steel	–
⑨	O-ring	NBR	FKM/EPDM/PTFE
⑩	Support spring	Stainless steel	–

The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX* series are scheduled to follow shortly.

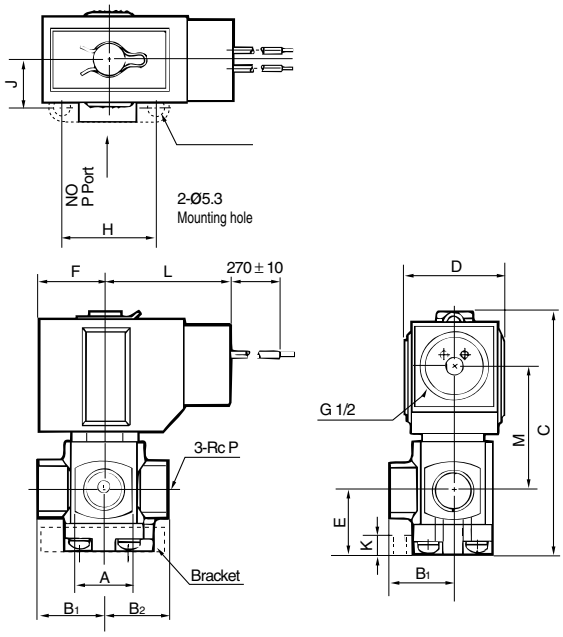
Dimensions (Orifice Size: 1.5 mmø, 2.2 mmø, 3 mmø, 4 mmø)

Normally Closed: VX31$\frac{1}{3}$0, Normally Open: VX31$\frac{1}{3}$2, Common: VX31$\frac{1}{3}$4/32$\frac{2}{4}$4/33$\frac{2}{4}$4

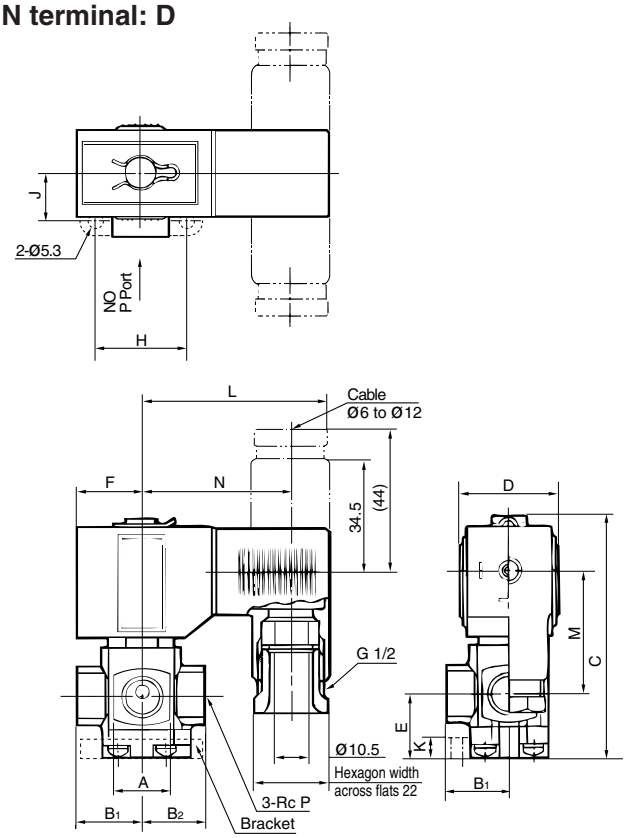
Grommet: G



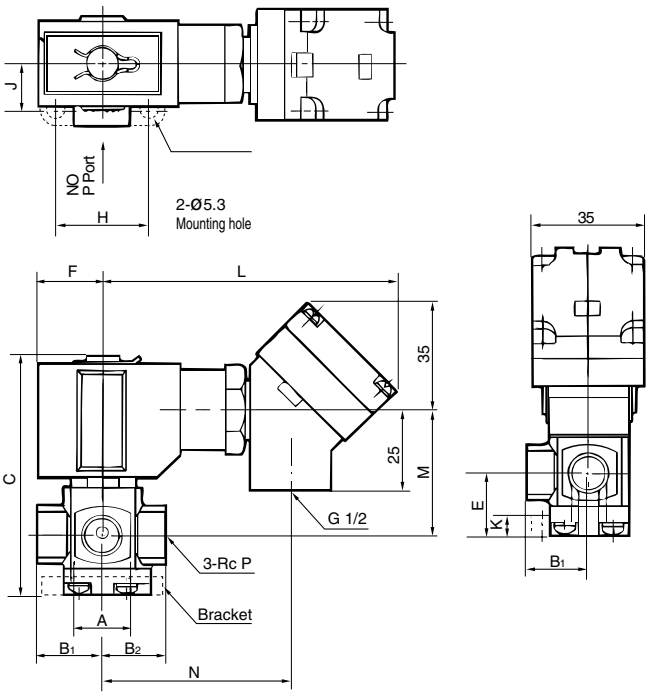
Conduit: C



DIN terminal: D



Conduit terminal: T



Model	Port size P Rc	A	B		C	D	E	F	Mounting			Electrical entry									
												Grommet		Conduit		DIN terminal			Conduit terminal		
			B1	B2					H	J	K	L	M	L	M	L	M	N	L	M	N
VX31	1/8 , 1/4	18	20	22.5	74.5	30	19	20	29	14.5	6	23	46.5	39	38.5	59	38.5	47	92	38.5	59
VX32	1/4 , 3/8	21	20	27.5	90	35	25	23	32	17	7.5	25.5	55	41.5	47	60	47	48	95	47	62
VX33	1/4 , 3/8	21	20	27.5	98	40	25	25.5	32	17	7.5	28	62	44.2	55	62	54	50	97	55	64