

Direct Operated 3 Port Solenoid Valve/Manifold For Air, Gas, Vacuum and Oil

Series VVX31/32/33



■ N.C./N.O. switchover is easy.

(VX31C.O. type, VX32, VX33)

■ 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.

(Not applicable to water or steam.)

Variations

Valve ●

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

Port A

Port P

Port R

Normally closed (N.C.)

Normally open (N.O.)

Rated voltage ●

☐ AC

Standard — 100 V, 200 V

Option — 48 V, 110 V, 220 V, 240 V

☐ DC

Standard — 24 V

Option — 12 V

Manifold ●

Manifold — B mount

Seal — 2 to 10 stations

Electrical entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

Material

Body — Aluminum

Seal — NBR, FKM, EPDM

Model

Model	Port A	Port P	Port R
VVX311-stations	1/8	1/4	1/4
VVX312-stations	1/4		
VVX321-stations	1/8		
VVX322-stations	1/4		
VVX331-stations	1/8		
VVX332-stations	1/4		

VC ☐

VDW

VQ

VX2

VX ☐

VX3

VXA

VN ☐

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

TI/
TIL

PA

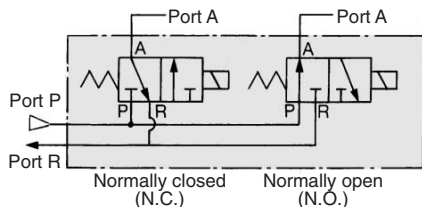
PAX

PB

Series VVX31/32/33

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

JIS Symbol



Solenoid Specifications

Model	Power source	Frequency (Hz)	Apparent power (VA)	Power consumption (W)	Temperature rise (°C)
VX31	AC	50	20 11	5	50
		60	17 7	3.5	45
	AC (Full wave rectification)	50/60	— 7.5	6	55
		—	—	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
		—	—	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
		—	—	11.5	60

- Note) • They are values in an ambient temperature 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

Temp. conditions	Power source	Operating fluid temperature (°C)					Ambient temp. (°C)
		Water (Std.)	Oil (Std.)	High temp. water (X, E, N, P)	Oil (D, N)	Steam (S, Q)	
Maximum	AC	60	60	99	120	183	60
	DC	40	40	—	—	—	40
Minimum	AC, DC	1	-5	—	—	—	-20

Temp. conditions	Power source	Operating fluid temp. (°C)		Ambient temperature (°C)
		Air	Vacuum	
Maximum	AC/DC	60	40	40
Minimum	AC/DC	-10	-10	-20

Tightness of Valve (Leak rate)

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

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

Manifold Specifications

Manifold	B Mount	
Manifold type	Common supply, Common exhaust, Individual out	
Number of valves	2 to 10 stations	
Blanking plate (with gasket, screws)	VVX31	VX011-004
	VVX32/33	VX011-005

Manifold Base and Applicable Solenoid Valve Part No.

Manifold base	A port	Applicable solenoid valve	Base weight (g)
VVX311-stations	Rc 1/8	VX31□ ¹ / ₈ -00-□□	n x 100 + 50
VVX312-stations	Rc 1/4		
VVX321-stations	Rc 1/8	VX32□5-00-□□	n x 160 + 60
VVX322-stations	Rc 1/4		
VVX331-stations	Rc 1/8	VX33□5-00-□□	n x 160 + 60
VVX332-stations	Rc 1/4		

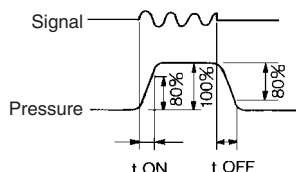
Model/Valve Specifications (Fluids: Oil)

Orifice size (mmø)	Model	Max. operating pressure differential (MPa)		Flow characteristics		Max. system pressure (MPa)	Weight (g)
		N.O., N.C.	C.O.	Oil			
		AC	AC, DC	Av x 10 ⁻⁶ (m ²)	Cv converted		
1.5	VX311 ¹ / ₈ -00	1.0	0.6	1.9	0.08	1.0	220
	VX312 ¹ / ₈ -00	0.5	0.3	3.8	0.16		220
	VX3225-00	—	0.6	4.6	0.19		370
	VX3325-00	—	1.0	—	—		530
	VX313 ¹ / ₈ -00	0.3	0.2	5.8	0.24		220
	VX3235-00	—	0.3	7.9	0.33		370
	VX3335-00	—	0.6	—	—	1.0	530
	VX3245-00	—	0.15	—	—		370
	VX3345-00	—	0.3	12	0.5		530

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

Orifice size (mmø)	Model	Max. operating pressure differential (MPa)	Flow characteristics			Max. system pressure (MPa)	Weight (g)
		C.O.	Air				
		AC/DC	C [dm³/(s·bar)]	b	Cv		
1.5	VX3115-00	0.6	0.29	0.32	0.08	1.0	220
2.2	VX3125-00	0.3	0.60	0.25	0.15		220
	VX3225-00	0.6	0.64	0.40	0.17		370
	VX3325-00	1.0					530
3	VX3135-00	0.2	0.82	0.20	0.20		220
	VX3235-00	0.3	1.1	0.25	0.27		370
	VX3335-00	0.6					530
4	VX3245-00	0.15	1.6	0.20	0.38		370
	VX3345-00	0.3					530

Response Characteristics



Model	Power source	Response time (msec)	
		ON	OFF
VX31	DC	60 or less	40 or less
	AC	50 or less	40 or less
VX32	DC	40 or less	50 or less
	AC	40 or less	50 or less
VX33	DC	60 or less	60 or less
	AC	40 or less	50 or less

- Note) The value is the case of no grease applied on armature.

Direct Operated 3 Port Solenoid Valve/Manifold

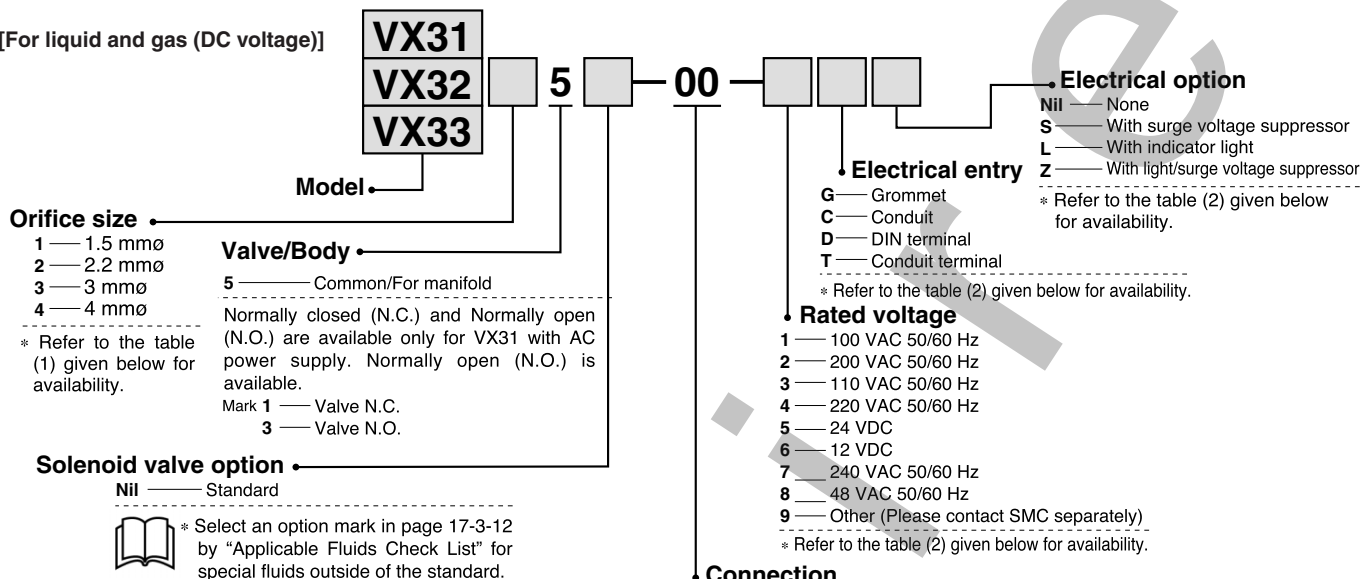
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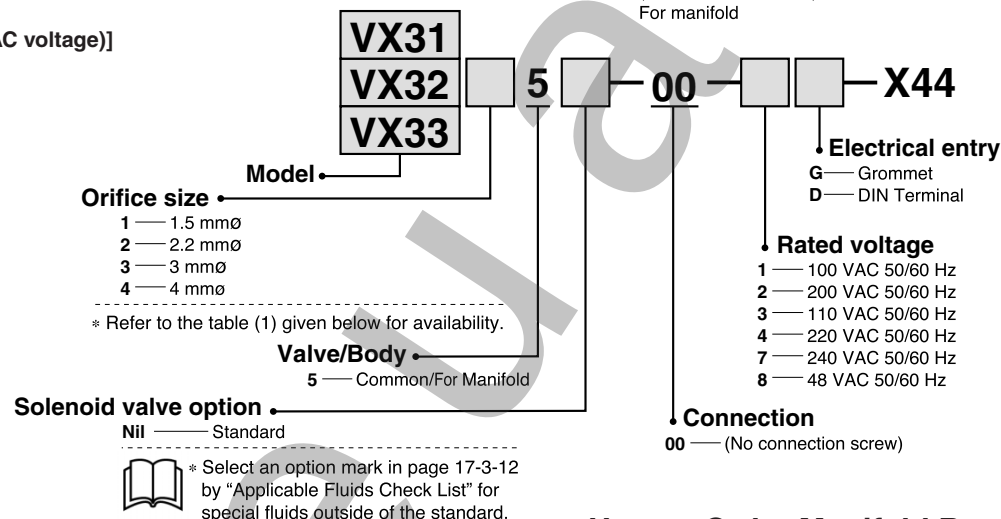
The models VX31/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX series are scheduled to follow shortly.

How to Order Solenoid Valves for Manifold

[For liquid and gas (DC voltage)]



[For gas (AC voltage)]



How to Order Manifold Base

Table (1) Orifice Size

Solenoid valve model	Orifice size (No.)			
	1 (1.5 mmø)	2 (2.2 mmø)	3 (3 mmø)	4 (4 mmø)
VX31	●	●	●	—
VX32	—	●	●	●
VX33	—	●	●	●

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

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

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

Symbol	Applicable valve
VVX31	VX31□ $\frac{1}{8}$ -00
VVX32	VX32□ 5-00
VVX33	VX33□ 5-00

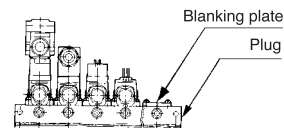
How to Order Manifold

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

(Example) 7 stations of VX31 common SUP, individual port Rc 1/8.

(Base P/N) VVX311-07..... 1 pc.
(Solenoid valve P/N) VX3111-00-1G..... 6 pcs.
(Blanking plate P/N) VX011-004..... 1 pc.

Arrangement of solenoid



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.

VC□

VDW

VQ

VX2

VX□

VX3

VXA

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

LVN

TI/
TIL

PA

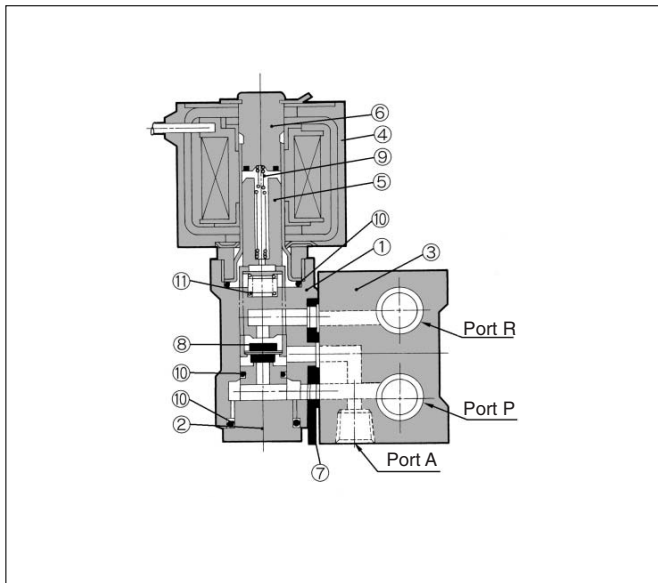
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ORDER ONLINE
 17-3-90/32/33 have been revised. For details, please refer to catalog no. ES70-26A. Similar updating for other VX* series are scheduled to follow shortly.

Construction/Principal Parts Material



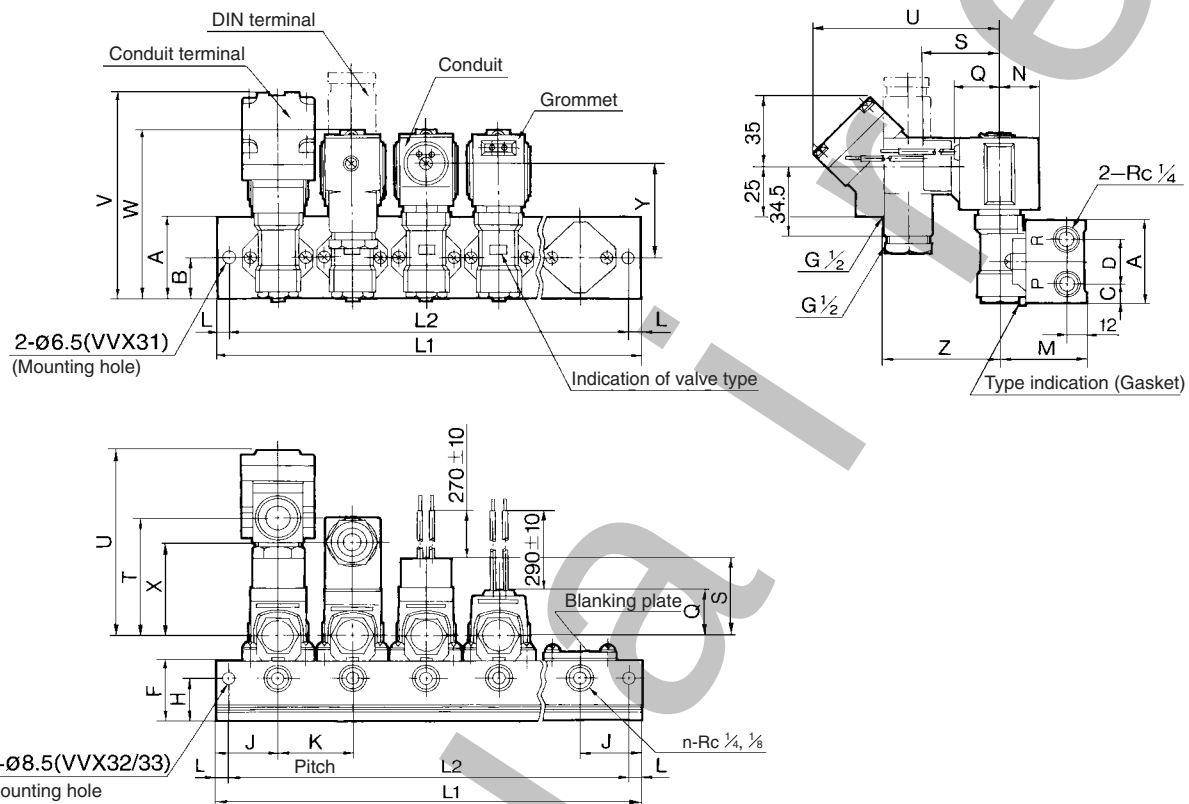
No.	Description	Material	
		Standard	Option
①	Manifold body	Aluminum	Brass
②	Retainer	Aluminum	Brass
③	Manifold base	Aluminum	—
④	Coil assembly	Class B molded	Class H molded
⑤	Armature	Stainless steel	—
⑥	Core assembly	Stainless steel, Copper	Stainless steel, Silver
⑦	Gasket	NBR	FKM/EPDM
⑧	Valve assembly	Polyacetal, NBR	Stainless steel FKM/EPDM
⑨	Return spring	Stainless steel	—
⑩	O-ring	NBR	FKM/EPDM
⑪	Support spring	Stainless steel	—

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Dimensions



Model	Symbol	Stations	2	3	4	5	6	7	8	9	10
VVX31	L ₁		96	132	168	204	240	276	312	348	384
	L ₂		84	120	156	192	228	264	300	336	372
VVX32 VVX33	L ₁		126	172	218	264	310	356	402	448	494
	L ₂		108	154	200	246	292	338	384	430	476

Model	A	B	C	D	F	H	J	K	L	M	N	Q	S	T	U	V	W	X	Y	Z
VVX31	40	20	9	22	33	24	30	36	6	45.5	20	23	39	59	92	102	83	47	47	59
VVX32	44	22	10	24	34	25	40	46	9	50.5	23	25	41	62	95	114	99	48	58	62
VVX33	44	22	10	24	34	25	40	46	9	50.5	25.5	28	44	64	97	123	106	51	67	64

VC□

VDW

VQ

VX2

VX□

VX3

VXA

VN□

LVC

LVA

LVH

LVD

LVQ

LQ

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