

Energy Saving Type 2 Port Solenoid Valve

VXE Series

For Air, Water, Oil



RoHS

*Power
consumption*

(SMC comparison)

1/3



VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

New generation valve corresponding to energy-saving needs

●IP65 ●RoHS compliance

VXE Series

VXE2, VXED2, VXEZ2

2 port solenoid valve for various fluids

Energy saving type of the VX2, VXD2 and VXZ2 series

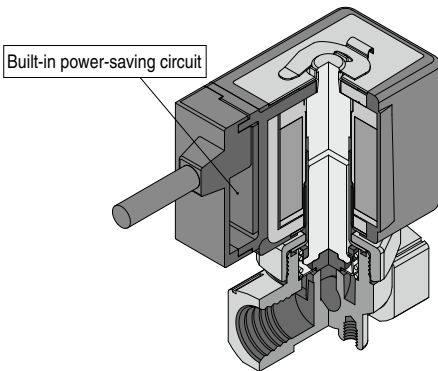
VXE2 Direct Operated

VXED2 Pilot Operated

VXEZ2 Zero Differential Pressure Type Pilot Operated

- The power consumption (when holding) is substantially reduced (approx. 1/3).
- Coil heat reduction

Model	Power consumption (W) (Holding)	Inrush current (A) (Inrush time: 200 ms)		Temperature increase (°C)
		24 VDC	12 VDC	
VXE□21 (VXED2130)	1.5 (1.8)	0.19 (0.23)	0.38 (0.46)	25 (30)
VXE□22	2.3	0.29	0.58	25
VXE□23	3	0.44	0.88	30



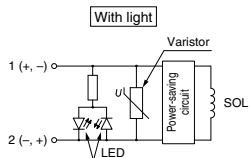
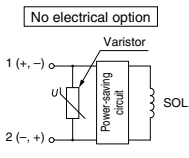
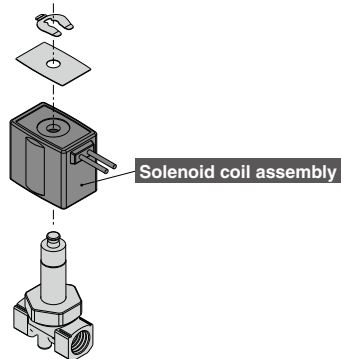
● Interchangeable

The mounting dimensions and its basic specifications are equivalent to those of current models.

● Replaceable coil

Possible to change the solenoid coil assembly for the VX2, VXD and VXZ with the power-saving coil type.

(Restricted for the rated voltage 12, 24 VDC)



Body Size Variations between 1/8" to 2"

Series	Port size	Thread						Flange		
	Orifice diameter	1/8	1/4	3/8	1/2	3/4	1	32A	40A	50A
VXE2 Direct Operated 	2 mm \varnothing	●	●							
	3 mm \varnothing	●	●	●						
	4.5 mm \varnothing	●	●	●						
	6 mm \varnothing		●	●						
	8 mm \varnothing		●	●						
	10 mm \varnothing		●	●	●					
	15 mm \varnothing			●	●					
VXED2 Pilot Operated 	10 mm \varnothing		●	●	●					
	15 mm \varnothing			●	●					
	20 mm \varnothing					●				
	25 mm \varnothing						●			
	35 mm \varnothing							●		
	40 mm \varnothing								●	
	50 mm \varnothing									●
VXEZ2 Zero Differential Pressure Type Pilot Operated 	10 mm \varnothing		●	●						
	15 mm \varnothing				●					
	20 mm \varnothing					●				
	25 mm \varnothing						●			

P.261

P.283

P.297

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE**
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

Energy Saving Type

Direct Operated 2 Port Solenoid Valve

VXE21/22/23 Series

For Air, Water, Oil



Single Unit

Valve

Normally closed (N.C.)

Solenoid Coil

Coil: Class B

Rated Voltage

24 VDC, 12 VDC

Material

Body — Brass (C37), Stainless steel
Seal — NBR, FKM, EPDM, PTFE

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Normally Closed (N.C.)

Model	VXE21	VXE22	VXE23	
Orifice diameter	2 mmφ	●	—	—
	3 mmφ	●	—	—
	4.5 mmφ	●	●	—
	6 mmφ	—	●	●
	8 mmφ	—	●	●
10 mmφ	—	●	●	●
Port size	1/8 1/4	1/4 3/8	1/2	1/4 3/8



Manifold

Valve

Normally closed (N.C.)

Base

Common SUP
Individual SUP (Aluminum base only)

Solenoid Coil

Coil: Class B

Rated Voltage

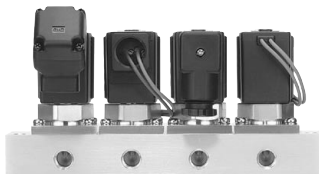
24 VDC, 12 VDC

Material

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

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Manifold

Model	VXE21	VXE22	VXE23	
Orifice diameter	2 mmφ	●	—	—
	3 mmφ	●	●	●
	4.5 mmφ	●	●	●
	6 mmφ	—	●	●
(Common SUP) Port size	3/8			
	1/8, 1/4			

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

VXE21/22/23 Series

Common Specifications

Standard Specifications

Valve specifications	Valve construction	Direct operated poppet
	Valve type	N.C.
	Withstand pressure	5.0 MPa
	Body material	Brass (C37), Stainless steel
	Seal material	NBR, FKM, EPDM, PTFE
	Enclosure	Dusttight, Low jetproof (IP65)
	Environment	Location without corrosive or explosive gases
Coil specifications	Rated voltage	24 VDC, 12 VDC
	Allowable voltage fluctuation	±10% of rated voltage
	Allowable leakage voltage	2% or less of rated voltage
	Coil insulation type	Class B
	Surge voltage suppressor	Built-in surge voltage suppressor

Solenoid Coil Specifications

Normally Closed (N.C.)

DC Specification

Model	Power consumption (W) (Holding)	Inrush current (A) (Inrush time: 200 ms) ^{Note 1)}		Temperature increase (°C) ^{Note 2)}
		24 VDC	12 VDC	
VXE21	1.5	0.19	0.38	25
VXE22	2.3	0.29	0.58	25
VXE23	3	0.44	0.88	30

Note 1) Energizing time should be 200 ms or longer.

Note 2) Value for ambient temperature at 20°C and when the rated voltage is applied.

Contents

For Air /Single Unit	P.264
For Air /Manifold	P.266
For Water /Single Unit	P.268
For Water /Manifold	P.270
For Oil /Single Unit	P.272
For Oil /Manifold	P.274
Construction: Single Unit	P.276
Construction: Manifold	P.277
Dimensions: Single unit	P.278
Dimensions: Manifold	P.280
Replacement Parts	P.308

Energy Saving Type/Direct Operated 2 Port Solenoid Valve VXE21/22/23 Series

Applicable Fluid Check List

All Options (Single Unit)

Refer to page 264 and after for specifications and models.

VXE2 0 - - 1 -

Option symbol



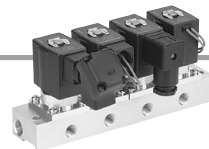
Fluid and application	Option symbol	Seal material	Body material
Air	Nil	NBR	Brass (C37)
	G		Stainless steel
Medium vacuum/Non-leak/ Oil-free <small>Note 1)</small>	V <small>Note 2)</small>	FKM	Brass (C37)
	M <small>Note 2)</small>		Stainless steel
Water	Nil	NBR	Brass (C37)
	G		Stainless steel
Oil <small>Note 3)</small>	A	FKM	Brass (C37)
	H		Stainless steel
High corrosive/Oil-free	L <small>Note 2)</small>	FKM	Stainless steel
Copper-free/Fluorine-free <small>Note 4)</small>	J	EPDM	Stainless steel
Other combination	B	PTFE	Brass (C37)
	C		
	K		

All Options (Manifold)

Refer to page 266 and after for specifications and models.

VXE2 1 - - 1

Option symbol
Base symbol



Fluid and application	Option symbol	Base symbol	Seal material	Body material
Air	Nil	00	NBR	Aluminum
Medium vacuum/Non-leak/Oil-free <small>Note 1)</small>	V <small>Note 2)</small>	00	FKM	Aluminum
Water	Nil	Nil	NBR	Brass (C37)
	G			Stainless steel
Oil <small>Note 3)</small>	A	Nil	FKM	Brass (C37)
	H			Stainless steel
High corrosive/Oil-free	L <small>Note 2)</small>	Nil	FKM	Stainless steel
Non-leak/Copper-free/Oil-free <small>Note 4)</small>	R	00	FKM	Aluminum

Note 1) The leakage amount (10^{-6} Pa·m³/s) of V and M options is value when differential pressure is 0.1 MPa.

Note 2) The V, M and L options are oil-free treatment.

Note 3) The dynamic viscosity of the fluid must not exceed 50 mm²/s or less.

Note 4) The nuts (non-wetted parts) are nickel plated on the C37 material.

* If using for other fluids, please consult with SMC.

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

VXE21/22/23 Series

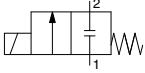
For Air /Single Unit

(Non-leak/Medium vacuum)

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size	Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Flow rate characteristics ^(Note 1)			Max. system pressure (MPa)	Note 2) Weight (g)
				C[dm ³ /(s·bar)]	b	Cv		
1/8 (6A)	2	VXE2110-01	1.5	0.59	0.48	0.18	300	
	3	VXE2120-01	0.6	1.2	0.45	0.33		
	4.5	VXE2130-01	0.2	2.3	0.46	0.61		
1/4 (8A)	2	VXE2110-02	1.5	0.59	0.48	0.18		3.0
		VXE2120-02	0.6					
		VXE2220-02	1.5	1.2	0.45	0.33		
		VXE2320-02	3.0					470
		VXE2130-02	0.2					620
	4.5	VXE2230-02	0.35	2.3	0.46	0.61		300
		VXE2330-02	0.9					470
	6	VXE2240-02	0.15	4.1	0.30	1.10		620
		VXE2340-02	0.35					470
	8	VXE2250-02	0.08	6.4	0.30	1.60	700	
		VXE2350-02	0.2				560	
	10	VXE2260-02	0.03	8.8	0.30	2.00	700	
	VXE2360-02	0.07				700		
3/8 (10A)	3	VXE2220-03	1.5	1.2	0.45	0.33	3.0	
		VXE2320-03	3.0					470
		VXE2230-03	0.35	2.3	0.46	0.61		620
		VXE2330-03	0.9				470	
	6	VXE2240-03	0.15	4.1	0.30	1.10	620	
		VXE2340-03	0.35				470	
	8	VXE2250-03	0.08	6.4	0.30	1.60	700	
		VXE2350-03	0.2				560	
	10	VXE2260-03	0.03	11	0.30	2.20	700	
		VXE2360-03	0.07				700	
1/2 (15A)		VXE2260-04	0.03	11	0.30	2.20	560	
		VXE2360-04	0.07				700	

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

Note 2) Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.

- Refer to "Glossary of Terms" on page 309 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		
NH, G	V, M	-20 to 60
-10 ^{Note)} to 60	-10 ^{Note)} to 60	

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

Valve Leakage Rate

Internal Leakage

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

External Leakage

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

Note) Value for V and M options (Non-leak/Medium vacuum)



How to Order (Single Unit)

DC VXE 21 2 0 - 01 - 5 G 1

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Suffix

Nil	—
Z	Oil-free

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

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

Bracket

Nil	None
B	With bracket

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

Rated voltage

5	24 VDC
6	12 VDC

 * Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

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, with gasket)

Connector

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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

Solenoid valve model (Port size)			Orifice symbol (Diameter)					
Model	VXE21	VXE22	1 (2 mm)	2 (3 mm)	3 (4.5 mm)	4 (6 mm)	5 (8 mm)	6 (10 mm)
Port symbol (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)	—	—	—	—	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Note
Nil	NBR	Brass (C37)	—
G		Stainless steel	
V	FKM	Brass (C37)	Non-leak (10 ⁻⁶ Pa·m ³ /sec)/Oil-free/ Medium vacuum (0.1 Pa.abs)
M		Stainless steel	

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

Table (4) Bracket Part No.

Model	Part no.
VXE21 ₃ 2 0	VX021N-12A
VXE22 ₄ 2 0	VX022N-12A
VXE23 ₄ 2 0	
VXE22 ₅ 2 0	VX023N-12A-L
VXE23 ₅ 2 0	

Dimensions → page 278 (Single unit)

VXE21/22/23 Series

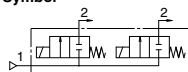
For Air /Manifold

(Non-leak/Medium vacuum)

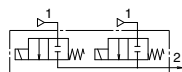
Solenoid Valve for Manifold/Valve Specifications

N.C.

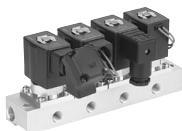
Symbol



Common SUP



Individual SUP



Normally Closed (N.C.)

Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Flow rate characteristics ^{Note 1)}			Max. system pressure (MPa)
			C [dm ³ /(s·bar)]	b	Cv	
2	VXE2111-00	1.5	0.59	0.48	0.18	3.0
	VXE2121-00	0.6				
3	VXE2221-00	1.5	1.2	0.45	0.33	
	VXE2321-00	3.0				
	VXE2131-00	0.2				
4.5	VXE2231-00	0.35	2.3	0.46	0.61	
	VXE2331-00	0.9				
	VXE2241-00	0.15				
6	VXE2341-00	0.35	4.1	0.30	1.10	

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

- Refer to "Glossary of Terms" on page 309 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		
NH, R	V	-20 to 60
-10 ^{Note)} to 60	-10 ^{Note)} to 60	

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

Valve Leakage Rate

Internal Leakage

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

External Leakage

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

Note) Value for V and M options (Non-leak/Medium vacuum)



How to Order (Solenoid Valve for Manifold)

DC **VXE** **21** **2** **1** **1** **1** - **00** - **5** **G** **1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
1 N.C. (for Manifold)

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

Suffix

Nil	—
Z	Oil-free

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

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

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, with gasket)

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

How to Order Manifold Bases

VVX21
VVX22 **1** **1** **1** - **07** - **1**
VVX23

Port size (Individual port)

1	Rc1/8
2	Rc1/4

* Common port sizes are all Rc3/8.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Number of manifolds

02	2 stations
...	...
10	10 stations

Suffix

Nil	—
Z	Oil-free

Base type

Nil	Common SUP
V	Individual SUP

• Blanking plate part no.

For VXE21: VX011-001
For VXE22/23: VX011-006

Seal material

Nil	NBR
F	FKM

Table (1) Model/Orifice Diameter

Solenoid valve model	Orifice symbol (Diameter)			
	1 (2 mmφ)	2 (3 mmφ)	3 (4.5 mmφ)	4 (6 mmφ)
VXE21	●	●	●	—
VXE22	—	●	●	●
VXE23	—	●	●	●

Table (2) Solenoid Valve Option

Option symbol	Body/Base material	Seal material	Note
Nil		NBR	—
V	Aluminum	FKM	Non-leak/Medium vacuum/Oil-free
R			Non-leak/Copper-free/Oil-free ^{Note)}

Note) The nuts (non-wetted parts) are nickel plated on the C37 material.

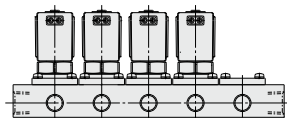
Table (3) Rated Voltage – Electrical Option

Voltage symbol	Rated voltage	
	Voltage	L (With light)
5	24 VDC	●
6	12 VDC	—

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 *" is the symbol for mounting.
 * VXE2111-00-1G1 ... 4 sets Add an "*" in front of the part numbers
 * VX011-001 1 set 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.

Dimensions → page 280 (Manifold)

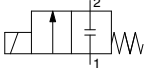
VXE21/22/23 Series

For Water /Single Unit

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size	Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Flow rate characteristics		Max. system pressure (MPa)	Note 2) Weight (g)		
				Kv	Cv converted				
1/8 (6A)	2	VXE2110-01	1.5	0.15	0.17	3.0	300		
	3	VXE2120-01	0.5	0.28	0.33				
	4.5	VXE2130-01	0.2	0.54	0.61				
1/4 (8A)	2	VXE2110-02	1.5	0.15	0.17			3.0	470 620 300 470 620 470 620 560 700 560 700
	3	VXE2120-02	0.5	0.28	0.33				
		VXE2220-02	1.5						
		VXE2320-02	3.0						
	4.5	VXE2130-02	0.2	0.54	0.61				
		VXE2230-02	0.35						
		VXE2330-02	0.9						
	6	VXE2240-02	0.15	0.93	1.10				
		VXE2340-02	0.3						
		VXE2250-02	0.08			1.36	1.60		
	VXE2350-02	0.2							
	10	VXE2260-02	0.03	1.64	1.90				
VXE2360-02		0.07							
3/8 (10A)		3	VXE2220-03			1.5	0.28	0.33	3.0
	VXE2320-03		3.0						
	4.5	VXE2230-03	0.35	0.54	0.61				
		VXE2330-03	0.9						
	6	VXE2240-03	0.15	0.93	1.10				
		VXE2340-03	0.3						
8	VXE2250-03	0.08	1.36	1.60					
	VXE2350-03	0.2							
	VXE2260-03	0.03			1.89	2.20			
10	VXE2360-03	0.07							
	1/2 (15A)	VXE2260-04	0.03	1.89			2.20		
VXE2360-04		0.07							

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

Note 2) Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.

• Refer to "Glossary of Terms" on page 309 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	
NII, G, L	-20 to 60
1 to 60	

Note) With no freezing

Valve Leakage Rate

Internal Leakage

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

External Leakage

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



How to Order (Single Unit)

DC **VXE2120** **01** **5G1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Suffix

Nil	—
Z	Oil-free

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

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

Bracket

Nil	None
B	With bracket

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

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Electrical entry

<p>G-Grommet</p> <p>T - With conduit terminal TL - With conduit terminal and light</p>	<p>C-Conduit</p> <p>D - DIN terminal DL - DIN terminal with light DO - For DIN terminal (without connector, with gasket)</p> <p style="text-align: right;">Connector</p>
-----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE**
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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

Solenoid valve model (Port size)			Orifice symbol (Diameter)						
Model	VXE21	VXE22	VXE23	1 (2 mm)	2 (3 mm)	3 (4.5 mm)	4 (6 mm)	5 (8 mm)	6 (10 mm)
Port symbol (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)	—	—	—	—	—	●	

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Note
Nil	NBR	Brass (C37)	—
G	—	Stainless steel	—
L	FKM	Stainless steel	High corrosive/Oil-free

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

Table (4) Bracket Part No.

Model	Part no.
VXE21 ¹ / ₃ 0	VX021N-12A
VXE22 ² / ₃ 0	VX022N-12A
VXE23 ³ / ₄ 0	VX023N-12A-L

Dimensions → page 278 (Single unit)

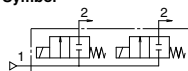
VXE21/22/23 Series

For Water /Manifold

Solenoid Valve for Manifold/Valve Specifications

N.C.

Symbol



Common SUP



Normally Closed (N.C.)

Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Flow rate characteristics ^{Note 1)}		Max. system pressure (MPa)
			Kv	Cv converted	
2	VXE2111	1.5	0.15	0.17	3.0
	VXE2121	0.5			
3	VXE2221	1.5	0.28	0.33	
	VXE2321	3.0			
4.5	VXE2131	0.2	0.54	0.61	
	VXE2231	0.35			
	VXE2331	0.9			
6	VXE2241	0.15	0.93	1.10	
	VXE2341	0.3			

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

- Refer to "Glossary of Terms" on page 309 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	
NII, G, L	-20 to 60
1 to 60	

Note) With no freezing

Valve Leakage Rate

Internal Leakage

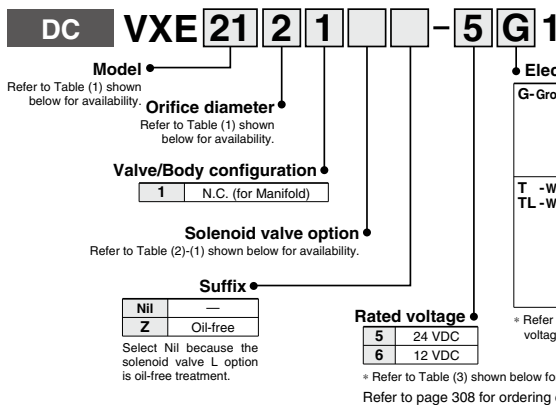
Seal material	Leakage (Water)
NBR, FKM	0.1 cm ³ /min or less

External Leakage

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



How to Order (Solenoid Valve for Manifold)



- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

How to Order Manifold Bases

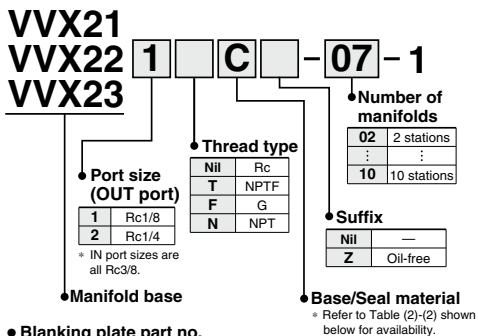


Table (1) Model/Orifice Diameter

Solenoid valve model	Orifice symbol (Diameter)			
	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)
VXE21	●	●	●	—
VXE22	—	●	●	●
VXE23	—	●	●	●

Table (2) Solenoid Valve Option

Solenoid valve option symbol (1)	Base/Seal material symbol (2)	Body/Base material	Seal material	Note
Nil	C	Brass (C37)		
G	S	Stainless steel	NBR	
L	SF	Stainless steel	FKM	High corrosive/ Oil-free

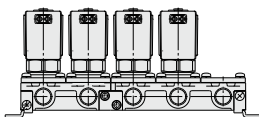
Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

How to Order Manifold Assemblies (Example)

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

Example
 VVX211C-05-1 1 set *" is the symbol for mounting.
 * VXE211-1G1 4 sets Add an "*" in front of the part numbers
 * VVX21-3A 1 set 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.

Dimensions → page 281 (Manifold)

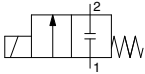
VXE21/22/23 Series

For Oil /Single Unit

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size	Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Note 1) Flow rate characteristics		Max. system pressure (MPa)	Note 2) Weight (g)						
				Kv	Cv converted								
1/8 (6A)	2	VXE2110-01	1.5	0.15	0.17	3.0	300						
	3	VXE2120-01	0.5	0.28	0.33								
	4.5	VXE2130-01	0.15	0.54	0.61								
1/4 (8A)	2	VXE2110-02	1.5	0.15	0.17			1.0	300				
		VXE2120-02	0.5	0.28	0.33								
		VXE2220-02	1.2										
	VXE2320-02	2.0											
	3	VXE2130-02	0.15	0.54	0.61					3.0	470		
		VXE2230-02	0.3										
		VXE2330-02	0.85										
	4.5	VXE2240-02	0.1	0.93	1.10							3.0	470
		VXE2340-02	0.3										
		VXE2250-02	0.08										
	6	VXE2350-02	0.2	1.36	1.60	1.0	700						
		VXE2260-02	0.03										
VXE2360-02		0.07											
3/8 (10A)	3	VXE2220-03	1.2	0.28	0.33			3.0	470				
		VXE2320-03	2.0										
		VXE2230-03	0.3										
	4.5	VXE2330-03	0.85	0.54	0.61					3.0	620		
		VXE2240-03	0.1										
		VXE2340-03	0.3										
	6	VXE2250-03	0.08	0.93	1.10							1.0	560
		VXE2350-03	0.2										
		VXE2260-03	0.03										
	8	VXE2360-03	0.07	1.89	2.20	1.0	700						
		VXE2260-03	0.03										
		VXE2360-03	0.07										
10	VXE2260-03	0.03	1.89	2.20	1.0			560					
	VXE2360-03	0.07											
	VXE2260-04	0.03											
1/2 (15A)	10	VXE2360-04	0.07	1.89					2.20	1.0	700		
		VXE2360-04	0.07										

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

Note 2) Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.

• Refer to "Glossary of Terms" on page 309 for details on the max. operating pressure differential and the max. system pressure.

⚠ When the fluid is oil.

The dynamic viscosity of the fluid must not exceed 50 mm²/s.

Fluid and Ambient Temperature

Fluid temperature (°C)	Ambient temperature (°C)
Solenoid valve option symbol A, H	
-5 ^{Note)} to 60	-20 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Oil)
FKM	0.1 cm ³ /min or less

External Leakage

Seal material	Leakage (Oil)
FKM	0.1 cm ³ /min or less



How to Order (Single Unit)

DC **VXE** **21** **2** **0** **A** **0** - **01** **0** - **5** **G** **1** - **0**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Suffix

Nil	—
Z	Oil-free

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

Bracket

Nil	None
B	With bracket

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

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

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, with gasket)	

Connector

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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

Solenoid valve model (Port size)			Orifice symbol (Diameter)						
Model	VXE21	VXE22	VXE23	1 (2 mmø)	2 (3 mmø)	3 (4.5 mmø)	4 (6 mmø)	5 (8 mmø)	6 (10 mmø)
Port symbol (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)	—	—	—	—	—	●

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material
A	FKM	Brass (C37)
H		Stainless steel

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

Table (4) Bracket Part No.

Model	Part no.
VXE21 $\frac{1}{8}$ 0	VX021N-12A
VXE22 $\frac{3}{4}$ 0	VX022N-12A
VXE23 $\frac{3}{4}$ 0	
VXE22 $\frac{3}{8}$ 0	VX023N-12A-L
VXE23 $\frac{3}{8}$ 0	

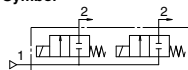
VXE21/22/23 Series

For Oil /Manifold

Solenoid Valve for Manifold/Valve Specifications

N.C.

Symbol



Common SUP



Normally Closed (N.C.)

Orifice dia. (mm)	Model	Max. operating pressure differential (MPa)	Flow rate characteristics ^{Note 1)}		Max. system pressure (MPa)
			Kv	Cv converted	
2	VXE2111	1.5	0.15	0.17	3.0
	VXE2121	0.5			
3	VXE2221	1.2	0.28	0.33	
	VXE2321	2.0			
4.5	VXE2131	0.15	0.54	0.61	
	VXE2231	0.3			
	VXE2331	0.85			
6	VXE2241	0.1	0.93	1.10	
	VXE2341	0.3			

Note 1) The flow rate characteristics of this product have variations.

When the highly precise flow control is required according to the system to be used, select an orifice diameter 1.3 times larger than that shown above and install a restrictor on the downstream side of the solenoid valve to make the adjustment.

- Refer to "Glossary of Terms" on page 309 for details on the max. operating pressure differential and the max. system pressure.

⚠ When the fluid is oil.
The dynamic viscosity of the fluid must not exceed 50 mm²/s.

Fluid and Ambient Temperature

Fluid temperature (°C)	Ambient temperature (°C)
Solenoid valve option symbol	
A, H	
-5 ^{Note)} to 60	-20 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Oil)
FKM	0.1 cm ³ /min or less

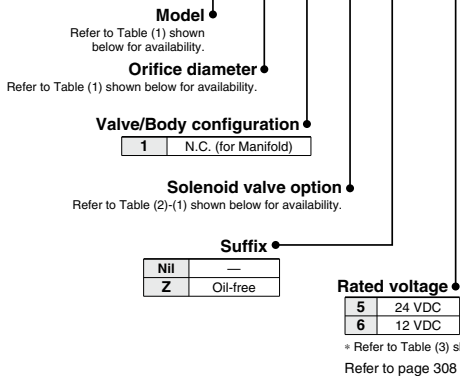
External Leakage

Seal material	Leakage (Oil)
FKM	0.1 cm ³ /min or less



How to Order (Solenoid Valve for Manifold)

DC VXE 21 2 1 A - 5 G 1



● **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, with gasket)

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

How to Order Manifold Bases

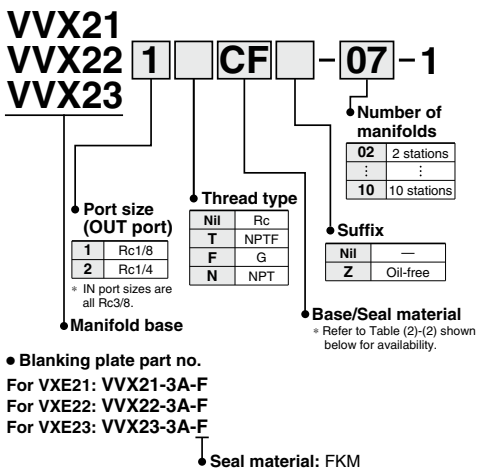


Table (1) Model/Orifice Diameter

Solenoid valve model	Orifice symbol (Diameter)			
	1 (2 mm)	2 (3 mm)	3 (4.5 mm)	4 (6 mm)
VXE21	●	●	●	—
VXE22	—	●	●	●
VXE23	—	●	●	●

Table (2) Solenoid Valve Option

Solenoid valve option symbol (1)	Base/Seal material symbol (2)	Body/Base material	Seal material
A	CF	Brass (C37)	FKM
H	SF	Stainless steel	

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

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

How to Order Manifold Assemblies (Example)

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

Example
 VVX211CF-05-1 1 set *" is the symbol for mounting.
 * VXE2111A-1G1 4 sets Add an "*" in front of the part numbers for solenoid valves, etc. to be mounted.
 * VVX21-3A-F 1 set

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

Dimensions → page 281 (Manifold)

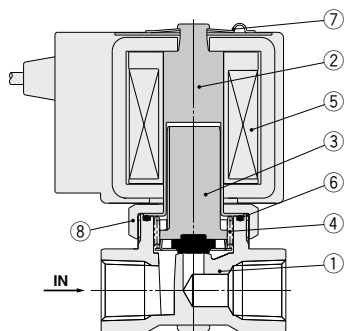
VXE21/22/23 Series

For Air/Water/Oil

Construction: Single Unit

Normally closed (N.C.)

Body material: Brass (C37), Stainless steel



Component Parts

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

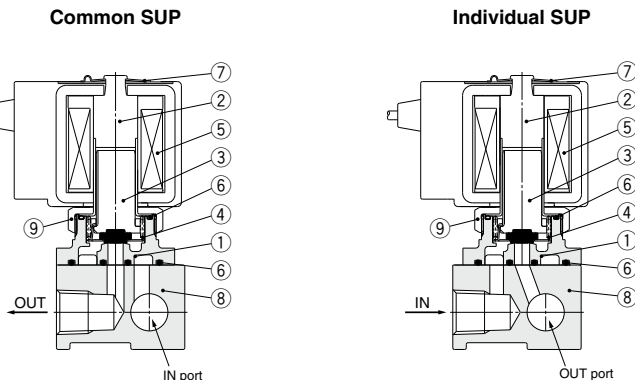
The materials in parentheses are seal materials.

Construction: Manifold

Normally closed (N.C.)

Base material: Aluminum

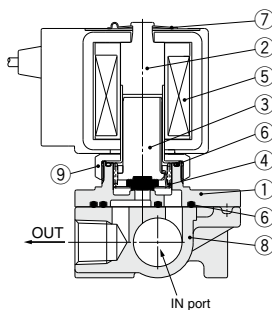
Fluid: Air



Base material: Brass (C37), Stainless steel

Fluid: Water/Oil

Common SUP



Component Parts

No.	Description	Material		
		Aluminum base specification	Brass (C37) base specification	Stainless steel base specification
1	Body	Aluminum	Brass (C37)	Stainless steel
2	Tube assembly	Stainless steel		
3	Armature assembly	(NBR, FKM, EPDM, PTFE) Stainless steel, PPS		
4	Return spring	Stainless steel		
5	Solenoid coil	—		
6	O-ring	(NBR, FKM, EPDM, 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 seal materials.

VX2
VXK
VXD
VXZ
VXS
VXB
VXE
VXP
VXR
VXH
VXF
VX3
VXA

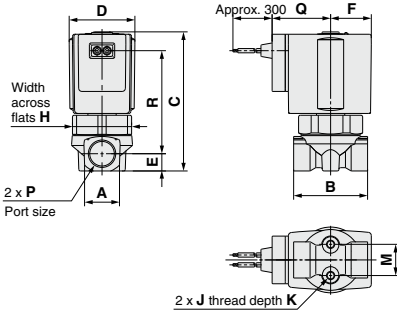
VXE21/22/23 Series

For Air/Water/Oil

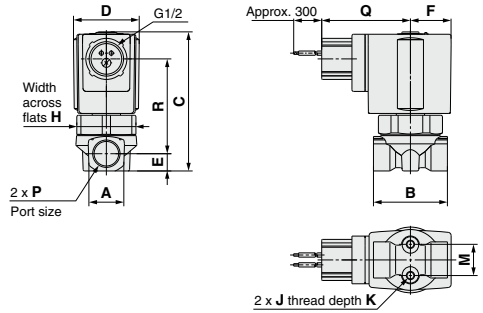
Dimensions: Single Unit/Body Material: Brass (C37), Stainless Steel

VXE21□0/22□0/23□0

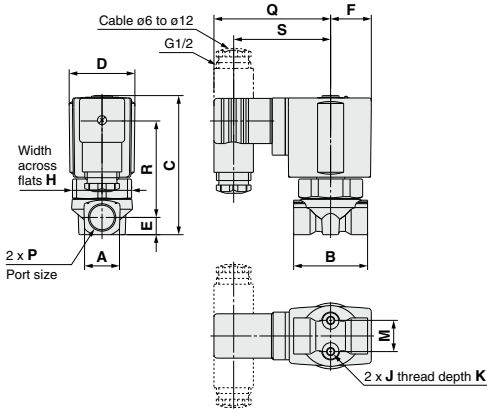
Grommet: G



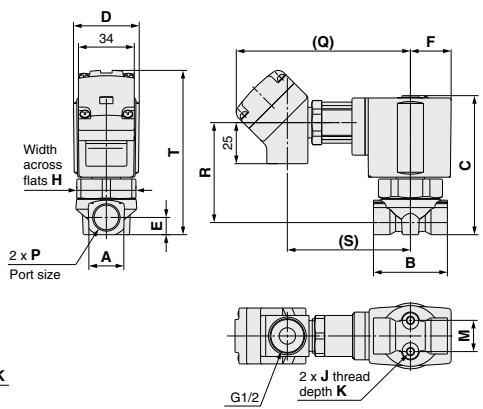
Conduit: C



DIN terminal: D



Conduit terminal: T



(mm)

Model N.C.	Orifice diameter	Port size P	A	B	C	D	E	F	H	Mounting dimension			Electrical entry										
													Grommet		Conduit		DIN terminal				Conduit terminal		
										J	K	M	Q	R	Q	R	Q	R	S	Q	R	S	T
VXE21□0	ø2, ø3, ø4.5	1/8, 1/4	18	40	68	30	9	19.5	27	M4	6	12.8	30	46	48.5	41	65.5	42	53.5	100.5	41	69.5	82
VXE22□0	ø3, ø4.5, ø6	1/4, 3/8	22	45	78	35	10.5	22.5	32	M5	8	19	33	56	51.5	51	68.5	52	56.5	103.5	51	72.5	93.5
VXE22□0	ø8, ø10	1/4, 3/8, 1/2	30	50	85		14			M5	8	23	33	59	51.5	54	68.5	55	56.5	103.5	54	72.5	100
VXE23□0	ø3, ø4.5, ø6	1/4, 3/8	22	45	85.5	40	10.5	25	36	M5	8	19	36	62	54	57	71	58	59	106	57	75	99.5
VXE23□0	ø8, ø10	1/4, 3/8, 1/2	30	50	92		14			M5	8	23	36	65	54	60	71	61	59	106	60	75	106

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

VXE21□0/22□0/23□0

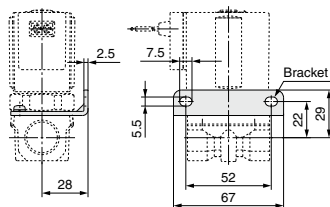
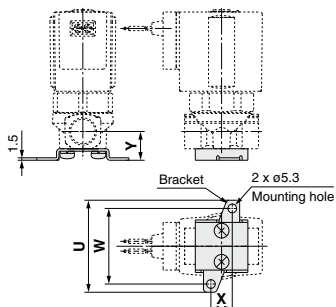
Specifications with bracket

Orifice: $\phi 2$, $\phi 3$, $\phi 4.5$, $\phi 6$

(Packed in the same container)

Orifice: $\phi 8$, $\phi 10$

(Assembled at the shipment)



(mm)

Model N.C.	Orifice diameter	Port size P	Bracket mounting dimension			
			U	W	X	Y
VXE21□0	$\phi 2$, $\phi 3$, $\phi 4.5$	1/8, 1/4	46	36	11	15
VXE22□0	$\phi 3$, $\phi 4.5$, $\phi 6$	1/4, 3/8	56	46	13	17.5
VXE22□0	$\phi 8$, $\phi 10$	1/4, 3/8, 1/2	—	—	—	—
VXE23□0	$\phi 3$, $\phi 4.5$, $\phi 6$	1/4, 3/8	56	46	13	17.5
VXE23□0	$\phi 8$, $\phi 10$	1/4, 3/8, 1/2	—	—	—	—

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

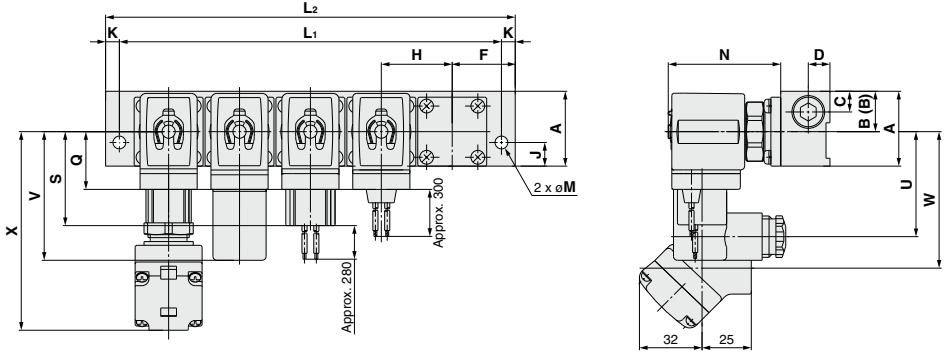
VXA

VXE21/22/23 Series

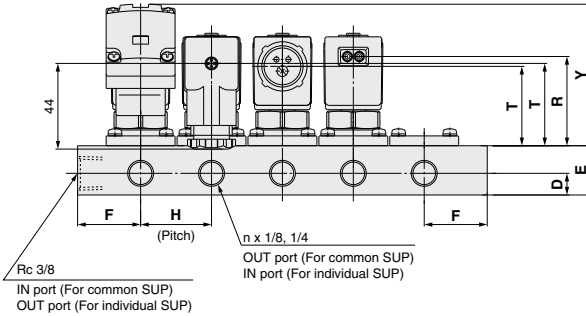
For Air

Dimensions: Manifold/Base Material: Aluminum

Normally closed (N.C.): VXE21/22/23



D side Stations 1 2 3 4 5 n U side



(mm)

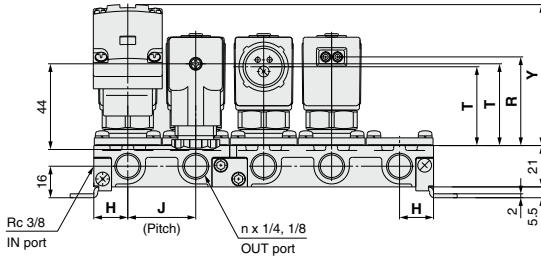
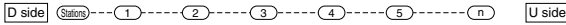
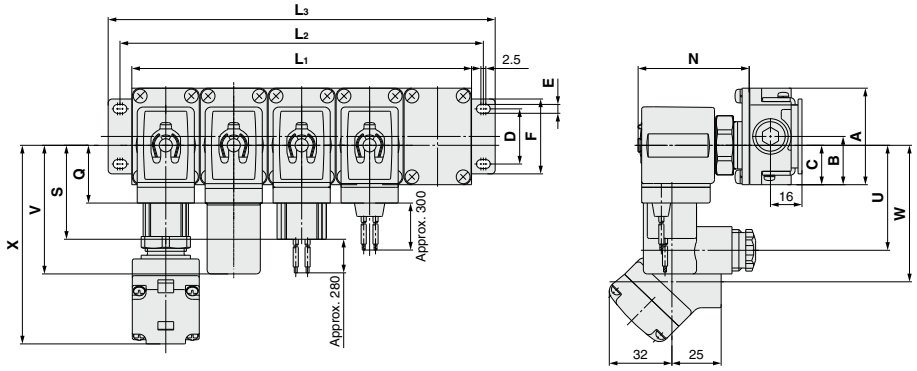
Model	Dimension	n (stations)									
		2	3	4	5	6	7	8	9	10	
VVXE21	L ₁	86	122	158	194	230	266	302	338	374	
	L ₂	100	136	172	208	244	280	316	352	388	
VVXE22	L ₁	108	154	200	246	292	338	384	430	476	
	L ₂	126	172	218	264	310	356	402	448	494	

(mm)

Model	A	B	(B) Individual SUP	C	D	E	F	H	J	K	M	N	Electrical entry											
													Grommet			Conduit			DIN terminal			Conduit terminal		
													Q	R	S	T	U	V	T	W	X	Y		
VVXE21	38	20.5	17.5	10.5	11	25	32	36	12	7	6.5	57.5	30	44.5	48.5	40	53.5	65.5	41	69.5	100.5	72		
VVXE22	49	26.5	22.5	13	13	30	40	46	15	9	8.5	66.5	33	54.5	51.5	50	56.5	68.5	51	72.5	103.5	82		
VVXE23	49	26.5	22.5	13	13	30	40	46	15	9	8.5	71.5	36	59	54	54	59	71	55	75	106	86		

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

VXE21/22/23



- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE**
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

Model	Dimension	n (stations)									
		2	3	4	5	6	7	8	9	10	
VXE21	L ₁	69	103.5	138	172.5	207	241.5	276	310.5	345	
	L ₂	81	115.5	150	184.5	219	253.5	288	322.5	357	
	L ₃	93	127.5	162	196.5	231	265.5	300	334.5	369	
VXE22	L ₁	77	115.5	154	192.5	231	269.5	308	346.5	385	
	L ₂	89	127.5	166	204.5	243	281.5	320	358.5	397	
	L ₃	101	139.5	178	216.5	255	293.5	332	370.5	409	
VXE23	L ₁	83	124.5	166	207.5	249	290.5	332	373.5	415	
	L ₂	95	136.5	178	219.5	261	302.5	344	385.5	427	
	L ₃	107	148.5	190	231.5	273	314.5	356	397.5	439	
Manifold construction	2 stations x 1	3 stations x 1	2 stations x 2	2 stations + 3 stations	3 stations x 2	2 stations x 2 + 3 stations	2 stations + 3 stations x 2	3 stations x 3	2 stations x 2 + 3 stations x 2		

Model	A	B	C	D	E	F	H	J	N	(mm)									
										Electrical entry									
										Grommet				DIN terminal					
Q	R	S	T	U	V	T	W	X	Y										
VXE21	49	24.5	20	28	4.5	38	17.3	34.5	56	30	43	48.5	38	53.5	65.5	39	69.5	100.5	70
VXE22	57	28.5	25.5	30	5.5	42	19.3	38.5	64.5	33	52.5	51.5	47.5	56.5	68.5	48.5	72.5	103.5	80
VXE23	57	28.5	25.5	30	5.5	42	20.8	41.5	72.5	36	60	54	55	59	71	56	75	106	87

Energy Saving Type

Pilot Operated 2 Port Solenoid Valve

VXED21/22/23 Series

For Air, Water, Oil



Valve

Normally closed (N.C.)

Solenoid Coil

Coil: Class B

Rated Voltage

24 VDC, 12 VDC

Material

Body — Brass (C37)/CAC408,
Stainless steel
Seal — NBR, FKM, EPDM

Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal



Model	VXED2130	VXED2140	VXED2150	VXED2260
Orifice diameter	●	—	—	—
10 mmø	—	●	—	—
15 mmø	—	—	●	—
20 mmø	—	—	—	●
25 mmø	—	—	—	—
Port size (Thread)	1/4 3/8 1/2	3/8 1/2	3/4	1

Model	VXED2270	VXED2380	VXED2390
Orifice diameter	●	—	—
35 mmø	—	●	—
40 mmø	—	—	●
50 mmø	—	—	—
Port size (Flange)	32A	40A	50A

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

Common Specifications

Standard Specifications

Valve specifications	Valve construction	Pilot operated 2 port diaphragm type
	Valve type	N.C.
	Withstand pressure	8A to 25A: 5.0 MPa, 32A to 50A: 2.0 MPa
	Body material	Brass (C37), Stainless steel, CAC408
	Seal material	NBR, FKM, EPDM
	Enclosure	Dusttight, Low jetproof (IP65)
	Environment	Location without corrosive or explosive gases
Coil specifications	Rated voltage	24 VDC, 12 VDC
	Allowable voltage fluctuation	±10% of rated voltage
	Allowable leakage voltage	2% or less of rated voltage
	Coil insulation type	Class B
	Surge voltage suppressor	Built-in surge voltage suppressor

⚠ Be sure to read “Specific Product Precautions.”

Solenoid Coil Specifications

Normally Closed (N.C.)

DC Specification

Model	Power consumption (W) (Holding)	Inrush current (A) (Inrush time: 200 ms) ^{Note 1)}		Temperature increase (°C) ^{Note 2)}
		24 VDC	12 VDC	
VXED2130	1.8	0.23	0.46	30
VXED2140/2150	1.5	0.19	0.38	25
VXED2260/2270	2.3	0.29	0.58	25
VXED2380/2390	3	0.44	0.88	30

Note 1) Energizing time should be 200 ms or longer.

Note 2) Value for ambient temperature at 20°C and when the rated voltage is applied.

Contents

For Air	P.286
For Water	P.288
For Oil	P.290
Construction	P.292
Dimensions	P.293
Replacement Parts	P.308

Applicable Fluid Check List

Energy Saving Type / Pilot Operated 2 Port Solenoid Valve VXED21/22/23 Series

All Options (8A to 25A)

Refer to page 286 and after for specifications and models.



VXED2 ³1 ⁴4 ⁵0 - - 1 -
⁶ ↓ Option symbol

Fluid and application	Option symbol	Seal material	Body material
Air	Nil	NBR	Brass (C37)
	G		Stainless steel
Water	Nil	NBR	Brass (C37)
	G		Stainless steel
Oil ^{Note 2)}	A	FKM	Brass (C37)
	H		Stainless steel
High corrosive/Oil-free	L ^{Note 1)}	FKM	Stainless steel
Copper-free/Fluorine-free ^{Note 3)}	J	EPDM	Stainless steel
Other combination	B	EPDM	Brass (C37)

Note 1) The L option is oil-free treatment.

Note 2) The dynamic viscosity of the fluid must not exceed 50 mm²/s or less.

Note 3) The nuts (non-wetted parts) are nickel plated on the C37 material.

* If using for other fluids, please consult with SMC.

All Options (32A to 50A)

Refer to page 286 and after for specifications and models.

VXED2 ²3 ⁷8 ⁹0 - - 1 -
 ↓ Option symbol

Fluid and application	Option symbol	Seal material	Body material
Air	Nil	NBR	CAC408
Water	Nil	NBR	
Oil ^{Note)}	A	FKM	
Other combination	B	EPDM	

Note) The dynamic viscosity of the fluid must not exceed 50 mm²/s or less.

* If using for other fluids, please consult with SMC.



VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

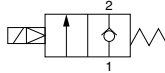
VXED21/22/23 Series

For Air

Model/Valve Specifications

N.C.

Symbol



Port size		Orifice diameter (mm)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics			Max. system pressure (MPa)	Weight (g) ^{Note)}	
						C	b	Cv			
Thread (Nominal size)	1/4 (8A)	10	VXED2130-02	0.02	0.7	8.5	0.35	2.0	1.5	420	
		10	VXED2130-03			9.2		2.4			
	3/8 (10A)	15	VXED2140-03		1.0	18.0		5.0			670
		10	VXED2130-04		0.7	9.2		2.4			500
	1/2 (15A)	15	VXED2140-04		1.0	20.0		5.5			670
		20	VXED2150-06			38.0		0.30			9.5

Port size		Orifice diameter (mm)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics	Max. system pressure (MPa)	Weight (g) ^{Note)}
						Effective area (mm ²)		
Thread (Nominal size)	1 (25A)	25	VXED2260-10	0.02	1.0	225	1.5	1650
Flange	32A	35	VXED2270-32	0.03		415		5400
	40A	40	VXED2380-40			560		6800
	50A	50	VXED2390-50			880		8400

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

• Refer to "Glossary of Terms" on page 309 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	
NII, G	
-10 to 60	-10 to 60

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

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Air) ^{Note 1)}	
	1/4 to 1	32A to 50A
NBR	2 cm ³ /min or less	10 cm ³ /min or less

External Leakage

Seal material	Leakage (Air) ^{Note 1)}	
	1/4 to 1	32A to 50A
NBR	1 cm ³ /min or less	1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.



How to Order

DC **VXED** **21** **3** **0** **02** **5** **G** **1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Suffix	Nil	—
	Z	Oil-free

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Bracket

Nil	None
B	With bracket

* Removal of bracket is not possible.

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

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, with gasket)	

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

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

Solenoid valve model (Port size)				Orifice diameter								Material	
Model	VXED21	VXED22	VXED23	3 (10 mm)	4 (15 mm)	5 (20 mm)	6 (25 mm)	7 (35 mm)	8 (40 mm)	9 (50 mm)	Body	Seal	
Port symbol (Port size)	Thread	02 (1/4)	—	—	●	—	—	—	—	—	Brass (C37) Stainless steel	NBR	
		03 (3/8)	—	—	●	●	—	—	—	—			
		04 (1/2)	—	—	●	●	—	—	—	—			
		06 (3/4)	—	—	—	—	●	—	—	—			
		—	10 (1)	—	—	—	—	●	—	—			
	Flange	—	32 (32A)	—	—	—	—	—	●	—	—		
		—	—	40 (40A)	—	—	—	—	—	●	—		
		—	—	50 (50A)	—	—	—	—	—	—	●		
		—	—	—	—	—	—	—	—	—	—		
		—	—	—	—	—	—	—	—	—	—		

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material
Nil	NBR	Brass (C37), CAC408
G ^{Note}	—	Stainless steel

Note 1) The G option (stainless steel specification) is for port size 1/4 to 1 only.

Note 2) Select nil because the L option is the oil-free treatment.

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

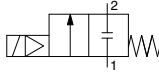
VXED21/22/23 Series

For Water

Model/Valve Specifications

N.C.

Symbol



Port size	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics		Max. system pressure (MPa)	Weight (g) ^(Note)	
					Kv	Cv converted			
Thread (Nominal size)	1/4 (8A)	10	0.02	0.5	1.6	1.9	1.5	420	
	3/8 (10A)	10			VXED2130-03	2.0		2.4	670
		15		VXED2140-03	3.9	4.5		500	
	1/2 (15A)	10		VXED2130-04	0.5	2.0		2.4	670
		15		VXED2140-04		4.6		5.5	1150
	3/4 (20A)	20		VXED2150-06	0.03	1.0		8.2	9.5
1 (25A)		25	VXED2260-10	11.0			13	5400	
Flange	32A	35	VXED2270-32	19.6		23	6800		
	40A	40	VXED2380-40	26.4		31	8400		
	50A	50	VXED2390-50	42.8		49	8400		

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

• Refer to "Glossary of Terms" on page 309 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	
NII, G, L	
1 to 60	-10 to 60

Note) With no freezing

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Water) ^{Note 1)}	
	1/4 to 1	32A to 50A
NBR, FKM	0.2 cm ³ /min or less	1 cm ³ /min or less

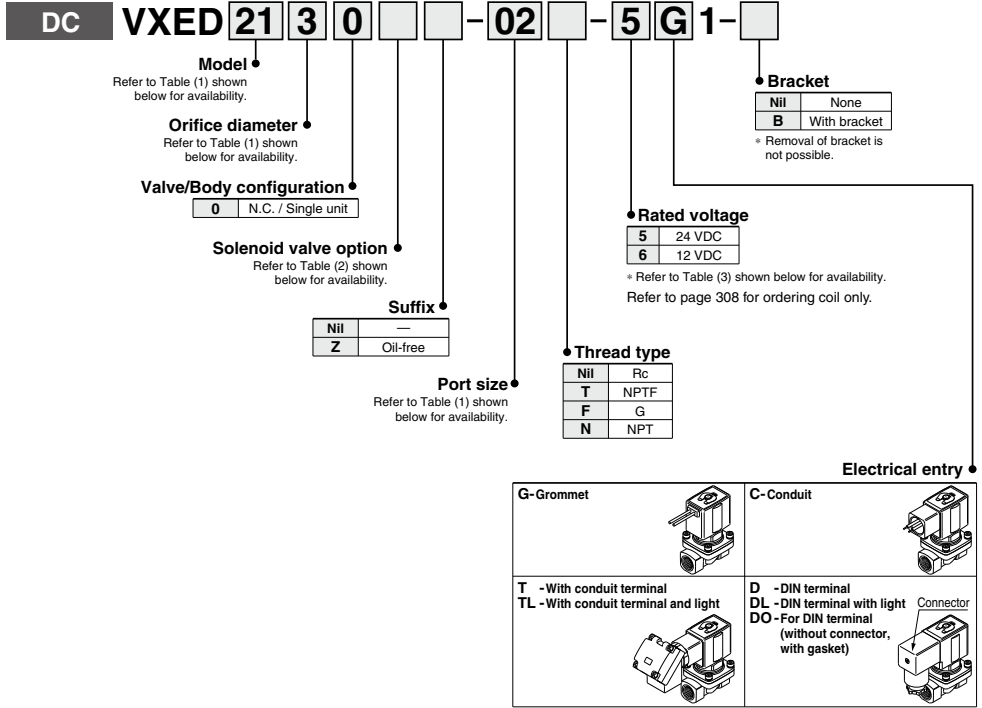
External Leakage

Seal material	Leakage (Water) ^{Note 1)}	
	1/4 to 1	32A to 50A
NBR, FKM	0.1 cm ³ /min or less	0.1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.



How to Order



- VX2
- VXX
- VXD
- VXZ
- VXS
- VXB
- VXE**
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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

Solenoid valve model (Port size)			Orifice diameter							Material		
Model	VXED21	VXED22	VXED23	3 (10 mm)	4 (15 mm)	5 (20 mm)	6 (25 mm)	7 (35 mm)	8 (40 mm)	9 (50 mm)	Body	Seal
Port symbol (Port size)	Thread	02 (1/4)	—	—	●	—	—	—	—	—	Brass (C37) Stainless steel	NBR FKM
		03 (3/8)	—	—	●	●	—	—	—	—		
		04 (1/2)	—	—	●	●	—	—	—	—		
		06 (3/4)	—	—	—	—	●	—	—	—		
	Flange	—	10 (1)	—	—	—	—	●	—	—	CAC408	
		—	32 (32A)	—	—	—	—	—	●	—		
		—	—	40 (40A)	—	—	—	—	—	●		
		—	—	50 (50A)	—	—	—	—	—	—		

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Note
Nil	NBR	Brass (C37), CAC408	—
G (Note)		Stainless steel	
L (Note)	FKM	Stainless steel	High corrosive/Oil-free

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

Note) The G and L options (stainless steel specification) are for port size 1/4 to 1 only.

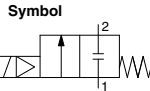
VXED21/22/23 Series

For Oil

⚠ When the fluid is oil.
The dynamic viscosity of the fluid must not exceed 50 mm²/s.

Model/Valve Specifications

N.C.



Port size	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics		Max. system pressure (MPa)	Weight (g) ^{Note)}	
					Kv	Cv converted			
Thread (Nominal size)	1/4 (8A)	10	VXED2130-02	0.4	1.6	1.9	1.5	420	
	3/8 (10A)	10	VXED2130-03		2.0	2.4		670	
		15	VXED2140-03		3.9	4.5		500	
	1/2 (15A)	10	VXED2130-04		0.4	2.0		2.4	670
		15	VXED2140-04		4.6	5.5		1150	
	3/4 (20A)	20	VXED2150-06		0.7	8.2		9.5	1650
Flange	1 (25A)	25	VXED2260-10	0.7	11.0	13	5400		
	32A	35	VXED2270-32		19.6	23	6800		
	40A	40	VXED2380-40		26.4	31	8400		
	50A	50	VXED2390-50		42.8	49			

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

• Refer to "Glossary of Terms" on page 309 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	
-5 to 60	-10 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Oil) ^{Note 1)}	
	1/4 to 1	32A to 50A
FKM	0.2 cm ³ /min or less	1 cm ³ /min or less

External Leakage

Seal material	Leakage (Oil) ^{Note 1)}	
	1/4 to 1	32A to 50A
FKM	0.1 cm ³ /min or less	0.1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.



How to Order

DC **VXED** **21** **3** **0** **02** **5** **G** **1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Nil	—
Z	Oil-free

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Bracket

Nil	None
B	With bracket

* Removal of bracket is not possible.

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

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, with gasket)

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

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

Solenoid valve model (Port size)			Orifice diameter							Material		
Model	VXED21	VXED22	VXED23	3 (10 mm)	4 (15 mm)	5 (20 mm)	6 (25 mm)	7 (35 mm)	8 (40 mm)	9 (50 mm)	Body	Seal
Port symbol (Port size)	Thread	02 (1/4)	—	—	●	—	—	—	—	—	Brass (C37) Stainless steel	FKM
		03 (3/8)	—	—	●	●	—	—	—	—		
		04 (1/2)	—	—	—	●	●	—	—	—		
		06 (3/4)	—	—	—	—	●	—	—	—		
		—	10 (1)	—	—	—	—	●	—	—		
	Flange	—	32 (32A)	—	—	—	—	—	●	—	—	
		—	—	40 (40A)	—	—	—	—	—	●	—	
		—	—	50 (50A)	—	—	—	—	—	—	●	
		—	—	—	—	—	—	—	—	—	—	
		—	—	—	—	—	—	—	—	—	—	

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material
A	FKM	Brass (C37), CAC408
H (Note)		Stainless steel

Note) The H option (stainless steel specification) is for port size 1/4 to 1 only.

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

VXED21/22/23 Series

For Air/Water/Oil

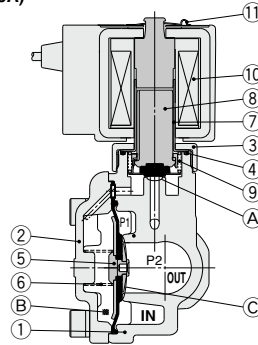
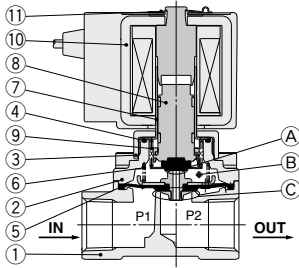
Construction

Normally closed (N.C.)

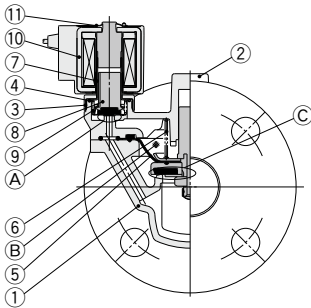
Body material: Brass (C37) (32A or more: CAC408), Stainless steel (32A or more: not available)

VXED2130 (8A/10A)

VXED2140/2150/2260
(10A to 25A)



VXED2270/2380/2390 (32A to 50A)



Working principle

<Valve opened>

When the coil 10 is energized, the armature assembly 8 is attracted into the core of the tube assembly 7 and the pilot valve A opens. Then the pressure in the pressure action chamber B falls to open the main valve C.

<Valve closed>

When the coil 10 is not energized, the pilot valve A is closed and the pressure in the pressure action chamber B rises and the main valve C closes.

Component Parts

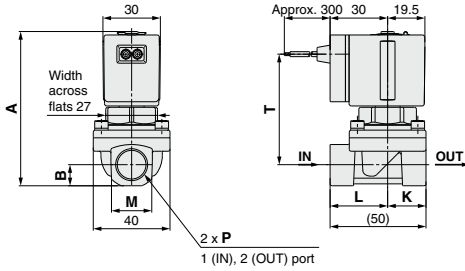
No.	Description	Size	Material	
			Brass (C37) (CAC408) body specification	Stainless steel body specification
1	Body	8A to 25A	Brass (C37)	Stainless steel
		32A to 50A	CAC408	—
2	Bonnet	8A to 25A	Brass (C37)	Stainless steel
		32A to 50A	CAC408	—
3	Nut	8A to 50A	Brass (C37)	Brass (C37), Ni plated
4	O-ring	8A to 50A	(NBR, FKM, EPDM)	
5	Diaphragm assembly	8A to 25A	(NBR, FKM, EPDM) Stainless steel	
		32A to 50A	(NBR, FKM, EPDM) Stainless steel, Brass (C37)	(NBR, FKM, EPDM) Stainless steel
6	Valve spring	8A to 50A	Stainless steel	
7	Tube assembly	8A to 50A	Stainless steel	
8	Armature assembly	8A to 50A	(NBR, FKM, EPDM) Stainless steel, PPS	
9	Return spring	8A to 50A	Stainless steel	
10	Solenoid coil	8A to 50A	—	
11	Clip	8A to 50A	SK	

The materials in parentheses are seal materials.

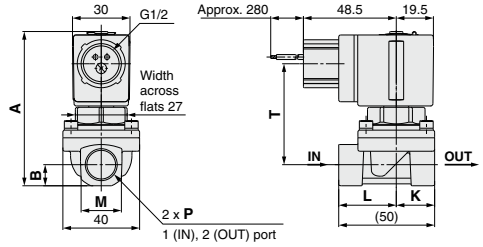
Dimensions: Body Material: Brass (C37), Stainless Steel

VXED2130

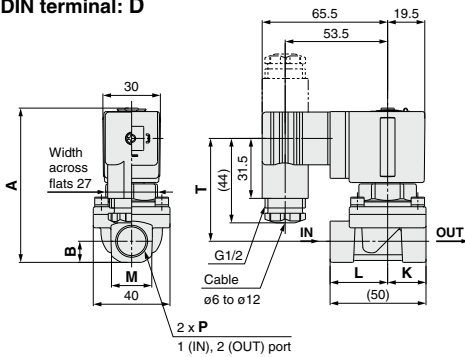
Grommet: G



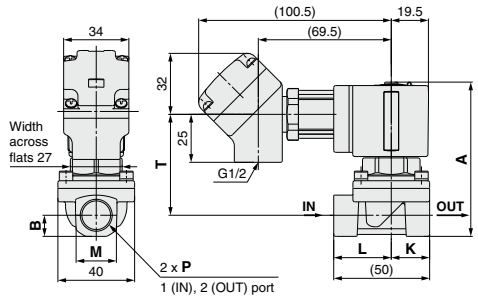
Conduit: C



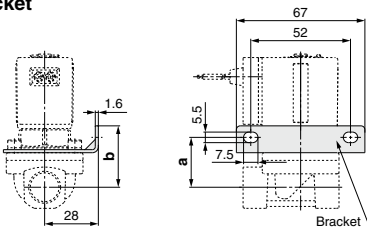
DIN terminal: D



Conduit terminal: T



With bracket



VXED2130□□-04□-□□□□
 Note) A thread is drilled on the bottom of the body of the VXED2130 with port size 04 (1/2).
 2 x M5 x 8 thread depth 8

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

Model	Port size P	A	B	K	L	M	Electrical entry								Bracket mounting dimension			
							Grommet		Conduit		DIN terminal		Conduit terminal		a	b		
							T	U	T	U	T	U	T	U				
VXED2130	1/4, 3/8	80.5	11	20	30	22	58	30	53	48.5	54	65.5	53.5	53	100.5	69.5	26	32
	1/2	86	14.5	24	26	28	60	30	55	48.5	56	65.5	53.5	55	100.5	69.5	28	34

Energy Saving Type

Zero Differential Pressure Type Pilot Operated 2 Port Solenoid Valve

VXEZ22/23 Series

For Air, Water, Oil



■ Valve

Normally closed (N.C.)

■ Solenoid Coil

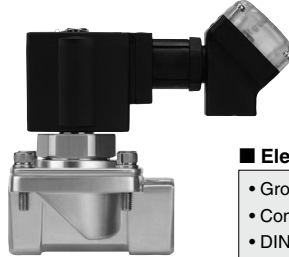
Coil: Class B

■ Rated Voltage

24 VDC, 12 VDC

■ Material

Body — Brass (C37), Stainless steel
Seal — NBR, FKM, EPDM



■ Electrical Entry

- Grommet
- Conduit
- DIN terminal
- Conduit terminal

Model	VXEZ2230	VXEZ2240	VXEZ2350	VXEZ2360
Orifice diameter				
10 mmø	●	—	—	—
15 mmø	—	●	—	—
20 mmø	—	—	●	—
25 mmø	—	—	—	●
Port size (Nominal size)	1/4 (8A) 3/8 (10A)	1/2 (15A)	3/4 (20A)	1 (25A)

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

VXEZ22/23 Series

Common Specifications

Standard Specifications

Valve specifications	Valve construction	Zero differential pressure type pilot operated 2 port diaphragm type
	Valve type	N.C.
	Withstand pressure	5.0 MPa
	Body material	Brass (C37), Stainless steel
	Seal material	NBR, FKM, EPDM
	Enclosure	Dusttight, Low jetproof (IP65)*
	Environment	Location without corrosive or explosive gases
Coil specifications	Rated voltage	24 VDC, 12 VDC
	Allowable voltage fluctuation	±10% of rated voltage
	Allowable leakage voltage	2% or less of rated voltage
	Coil insulation type	Class B
	Surge voltage suppressor	Built-in surge voltage suppressor

⚠ Be sure to read “Specific Product Precautions.”

Solenoid Coil Specifications

DC Specification (Class B coil only)

Model	Power consumption (W) (Holding)	Inrush current (A) (Inrush time: 200 ms) ^{Note 1)}		Temperature increase (°C) ^{Note 2)}
		24 VDC	12 VDC	
VXEZ22	2.3	0.29	0.58	25
VXEZ23	3	0.44	0.88	30

Note 1) Energizing time should be 200 ms or longer.

Note 2) Value for ambient temperature at 20°C and when the rated voltage is applied.

Contents

For Air	P.300
For Water	P.302
For Oil	P.304
Construction	P.306
Dimensions	P.307
Replacement Parts	P.308

VXEZ22/23 Series

Applicable Fluid Check List

All Options

Refer to page 300 or later for specifications and models.

VXEZ2 0 - - 1 -

• Option symbol



Fluid and application	Option symbol	Seal material	Body material
Air	Nil	NBR	Brass (C37)
	G		Stainless steel
Water	Nil	NBR	Brass (C37)
	G		Stainless steel
Oil <small>Note 2)</small>	A	FKM	Brass (C37)
	H		Stainless steel
High corrosive/Oil-free	L <small>Note 1)</small>	FKM	Stainless steel
Copper-free/Fluorine-free <small>Note 3)</small>	J	EPDM	Stainless steel
Other combination	B	EPDM	Brass (C37)

Note 1) The L option is oil-free treatment.

Note 2) The dynamic viscosity of the fluid must not exceed 50 mm²/s or less.

Note 3) The nuts (non-wetted parts) are nickel plated on the C37 material.

* If using for other fluids, please consult with SMC.

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA

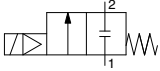
VXEZ22/23 Series

For Air

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size (Nominal size)	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics			Max. system pressure (MPa)	Weight (g)
					C	b	Cv		
1/4 (8A)	10	VXEZ2230-02	0	0.7	8.5	0.44	2.4	1.5	550
3/8 (10A)		VXEZ2230-03			11.0	0.42	2.8		
1/2 (15A)	VXEZ2240-04	23.0			0.34	6.0			
3/4 (20A)	VXEZ2350-06	38.0		0.20	9.5	1300			

Port size (Nominal size)	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics	Max. system pressure (MPa)	Weight (g)
					Effective area (mm ²)		
1 (25A)	25	VXEZ2360-10	0	1.0	215	1.5	1480

* Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.

• Refer to "Glossary of Terms" on page 309 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	
NII, G	-10 to 60
-10 to 60 <small>Note</small>	-10 to 60

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

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Air) <small>Note 1) 2)</small>
NBR	1 cm ³ /min or less

External Leakage

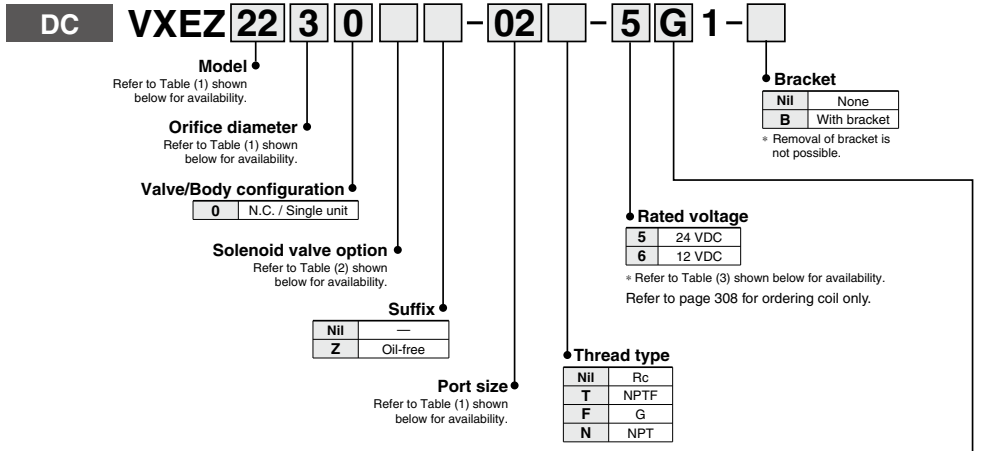
Seal material	Leakage (Air) <small>Note 1)</small>
NBR	1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.

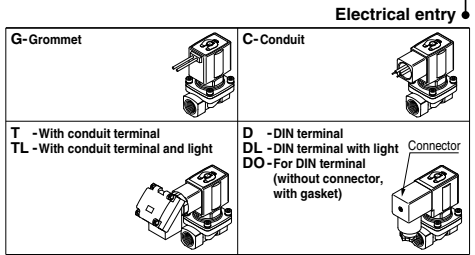
Note 2) Leakage is the value when the pressure differential ranges from 0.02 MPa to the maximum operating pressure differential.



How to Order



- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE**
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA



* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

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

Model	Solenoid valve model (Port size)		Orifice symbol (Diameter)			
	VXEZ22	VXEZ23	3 (10 mmø)	4 (15 mmø)	5 (20 mmø)	6 (25 mmø)
Port symbol (Port size)	02 (1/4)	—	●	—	—	—
	03 (3/8)	—	●	—	—	—
	04 (1/2)	—	—	●	—	—
	—	06 (3/4)	—	—	●	—
	—	10 (1)	—	—	—	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Note
Nil	NBR	Brass (C37)	—
G		Stainless steel	

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

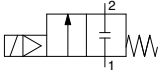
VXEZ22/23 Series

For Water

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size (Nominal size)	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics		Max. system pressure (MPa)	Weight (g)
					Kv	Cv converted		
1/4 (8A)	10	VXEZ2230-02	0	0.7	1.6	1.9	1.5	550
3/8 (10A)		VXEZ2230-03			2.0	2.4		
1/2 (15A)	15	VXEZ2240-04		4.6	5.3			
3/4 (20A)		VXEZ2350-06		7.8	9.2			
1 (25A)	25	VXEZ2360-10	1.0	10.3	12.0	1480		

* Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.

• Refer to "Glossary of Terms" on page 309 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	
NII, G, L	
1 to 60	-10 to 60

* With no freezing

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Water) ^{Note 1) 2)}
NBR, FKM	0.1 cm ³ /min or less

External Leakage

Seal material	Leakage (Water) ^{Note 1)}
NBR, FKM	0.1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.

Note 2) Leakage is the value when the pressure differential ranges from 0.02 MPa to the maximum operating pressure differential.



How to Order

DC **VXEZ2230** **02** **5G1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 N.C. / Single unit

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

Suffix

Nil	—
Z	Oil-free

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

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

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Bracket

Nil	None
B	With bracket

* Removal of bracket is not possible.

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, with gasket)

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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

Model	Solenoid valve model (Port size)		Orifice symbol (Diameter)			
	VXEZ22	VXEZ23	3 (10 mmø)	4 (15 mmø)	5 (20 mmø)	6 (25 mmø)
Port symbol (Port size)	02 (1/4)	—	●	—	—	—
	03 (3/8)	—	●	—	—	—
	04 (1/2)	—	—	●	—	—
	—	06 (3/4)	—	—	●	—
	—	10 (1)	—	—	—	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material	Note
Nil	NBR	Brass (C37)	—
G		Stainless steel	
L	FKM	Stainless steel	High corrosive/Oil-free

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

VXEZ22/23 Series

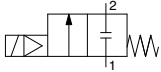
For Oil

⚠ When the fluid is oil.
The dynamic viscosity of the fluid must not exceed 50 mm²/s.

Model/Valve Specifications

N.C.

Symbol



Normally Closed (N.C.)

Port size (Nominal size)	Orifice diameter (mmø)	Model	Min. operating pressure differential (MPa)	Max. operating pressure differential (MPa)	Flow rate characteristics		Max. system pressure (MPa)	Weight (g)
					Kv	Cv converted		
1/4 (8A)	10	VXEZ2230-02	0	0.7	1.6	1.9	1.5	550
3/8 (10A)		VXEZ2230-03			2.0	2.4		
1/2 (15A)	VXEZ2240-04	4.6			5.3			
3/4 (20A)	VXEZ2350-06	7.8			9.2			
1 (25A)	VXEZ2360-10	10.3			12.0			

* Weight of grommet type. Add 10 g for conduit, 30 g for DIN terminal, and 60 g for conduit terminal type respectively.
* Refer to "Glossary of Terms" on page 309 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	
-5 to 60	-10 to 60

Note) Dynamic viscosity: 50 mm²/s or less

Valve Leakage Rate

Internal Leakage

Seal material	Leakage (Oil) ^{Note 1) 2)}
FKM	0.1 cm ³ /min or less

External Leakage

Seal material	Leakage (Oil) ^{Note 1)}
FKM	0.1 cm ³ /min or less

Note 1) Leakage is the value at ambient temperature 20°C.

Note 2) Leakage is the value when the pressure differential ranges from 0.02 MPa to the maximum operating pressure differential.



How to Order

DC **VXEZ** **22** **3** **0** **02** **5** **G** **1**

Model
Refer to Table (1) shown below for availability.

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

Valve/Body configuration
0 | N.C. / Single unit

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

Suffix

Nil	—
Z	Oil-free

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

Thread type

Nil	Rc
T	NPTF
F	G
N	NPT

Rated voltage

5	24 VDC
6	12 VDC

* Refer to Table (3) shown below for availability.
Refer to page 308 for ordering coil only.

Bracket

Nil	None
B	With bracket

* Removal of bracket is not possible.

- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

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, with gasket)

* Refer to Table (3) for available combinations between electrical option (L) and rated voltage.

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

Solenoid valve model (Port size)		Orifice symbol (Diameter)				
Model	VXEZ22	VXEZ23	3 (10 mmø)	4 (15 mmø)	5 (20 mmø)	6 (25 mmø)
Port symbol (Port size)	02 (1/4)	—	●	—	—	—
	03 (3/8)	—	●	—	—	—
	04 (1/2)	—	—	●	—	—
	—	06 (3/4)	—	—	●	—
	—	10 (1)	—	—	—	●

Table (2) Solenoid Valve Option

Option symbol	Seal material	Body material
A	FKM	Brass (C37)
H		Stainless steel

Table (3) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

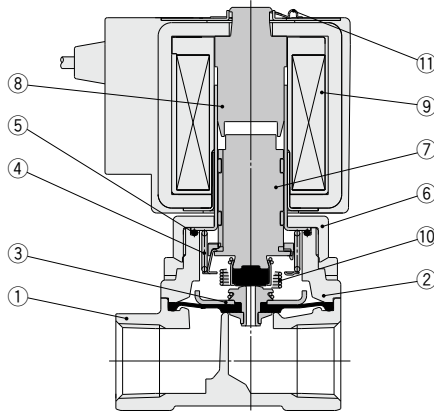
VXEZ22/23 Series

For Air/Water/Oil

Construction

Normally closed (N.C.)

Body material: Brass (C37), Stainless steel



Working principle

<Valve opened – when there is pressure>

When the coil (9) is energized, the armature assembly (7) is attracted into the core of the tube assembly (8) and the pilot valve (A) is opened.

When the pilot valve is opened and the pressure inside the pilot chamber (B) decreases, resulting in the pressure difference from the inlet pressure. Then the diaphragm assembly (3) is lifted and the main valve (C) is opened.

<Valve opened – when there is no pressure or under low minute pressure>

The armature assembly (7) and the diaphragm assembly (3) are connected with each other with the lift spring (10). When the armature assembly is attracted, the diaphragm assembly is pulled up and the main valve (C) is opened.

<Valve closed>

When the coil (9) is de-energized, the armature assembly (7) returns by the reacting force of the return spring (4) and the pilot valve (A) is closed.

When the pilot valve is closed, the pressure inside the pilot chamber (B) increases, resulting that the pressure difference from the inlet pressure is lost and the main valve (C) is closed.

Component Parts

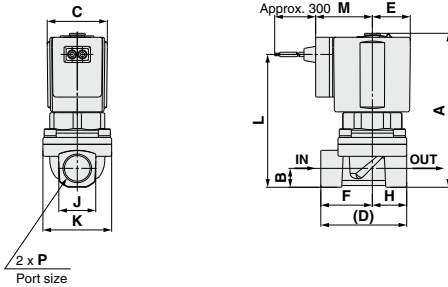
No.	Description	Material	
		Brass (C37) body specification	Stainless steel body specification
1	Body	Brass (C37)	Stainless steel
2	Bonnet	Brass (C37)	Stainless steel
3	Diaphragm assembly	(NBR, FKM, EPDM) Stainless steel	
4	Return spring	Stainless steel	
5	O-ring	(NBR, FKM, EPDM)	
6	Nut	Brass (C37)	Brass (C37), Ni plated
7	Armature assembly	(NBR, FKM, EPDM) Stainless steel, PPS	
8	Tube assembly	Stainless steel	
9	Solenoid coil	—	
10	Lift spring	Stainless steel	
11	Clip	SK	

The materials in parentheses are seal materials.

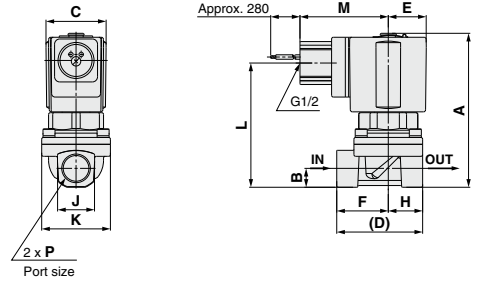
Dimensions: Body Material: Brass (C37), Stainless Steel

VXEZ22□0/23□0

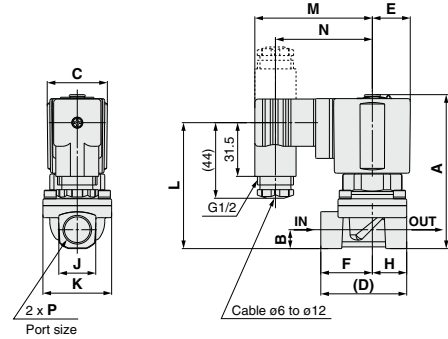
Grommet: G



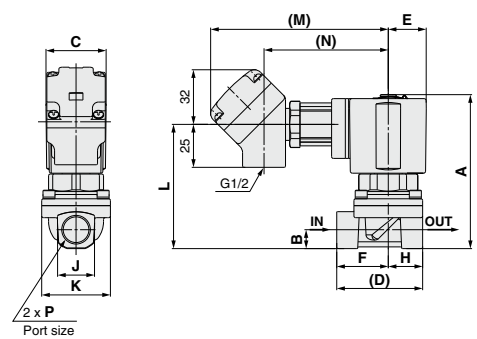
Conduit: C



DIN terminal: D

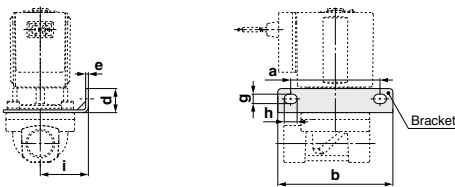


Conduit terminal: T



- VX2
- VXK
- VXD
- VXZ
- VXS
- VXB
- VXE
- VXP
- VXR
- VXH
- VXF
- VX3
- VXA

With bracket



(mm)

Model	Port size P	A	B	C	D	E	F	H	J	K
N.C.										
VXEZ2230	1/4, 3/8	89	11	35	50	22.5	30	20	22	40
VXEZ2240	1/2	97	14	35	63	22.5	37	26	29.5	52
VXEZ2350	3/4	111	18	40	80	25	47.5	32.5	36	65
VXEZ2360	1/1	118.5	21	40	90	25	55	35	40.5	70

(mm)

Model	Port size P	a	b	d	e	f	g	h	i	Electrical entry										
										Grommet		Conduit		DIN terminal		Conduit terminal				
										L	M	L	M	L	M	L	M	N		
N.C.																				
VXEZ2230	1/4, 3/8	52	67	14	1.6	26	5.5	7.5	28	77	33	72	51.5	73	68.5	56.5	72	103.5	72.5	
VXEZ2240	1/2	60	75	17	2.3	33	6.5	8.5	35	84.5	33	80	51.5	81	68.5	56.5	80	103.5	72.5	
VXEZ2350	3/4	68	87	22	2.6	40	6.5	9	43	99.5	36	94.5	54	95.5	71	59	94.5	106	75	
VXEZ2360	1/1	73	92	22	2.6	45.5	6.5	9	45	107	36	102	54	103	71	59	102	106	75	

VXE□21/22/23 Series

For Air/Water/Oil

Replacement Parts

● Solenoid coil assembly part no.

VXE02 **1** N - **1** G E - □

Series ●

1	VXE□21
2	VXE□22□□
3	VXE□23□□

Valve



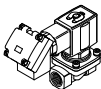

Symbol	Model
Z	VXED2130
Nil	Others

Rated voltage (Note) ●

5	24 VDC
6	12 VDC

Note) Refer to Table (1) for available combinations.

Electrical entry ●

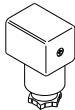
G-Grommet 	C-Conduit 
T - With conduit terminal TL - With conduit terminal and light 	D - DIN terminal DL - DIN terminal with light DO - For DIN terminal (without connector, with gasket) 

* Refer to Table (1) for available combinations between electrical option and rated voltage.

● DIN connector part no.

Without electrical option **GDM2A**

With electrical option **GDM2A** - □ □



Electrical option ●

L With light

* Refer to Table (1) for available combinations between electrical option (L) and rated voltage.

Rated voltage ●

5	24 VDC
6	12 VDC

● Clip part no.

For VXE□21: **VX021N-10**

For VXE□22: **VX022N-10**

For VXE□23: **VX023N-10**

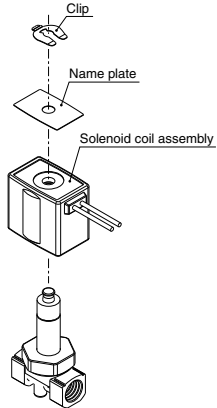


Table (1) Rated Voltage – Electrical Option

Rated voltage		L (With light)
Voltage symbol	Voltage	
5	24 VDC	●
6	12 VDC	—

● Gasket part no. for DIN connector **VCW20-1-29-1**

● Name plate part no.

AZ-T **Valve model**

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

Glossary of Terms

Pressure Terminology

1. Maximum operating pressure differential

The maximum pressure differential (the difference between the inlet and outlet pressure) which is allowed for operation. When the outlet pressure is 0 MPa, this becomes the maximum operating pressure.

2. Minimum operating pressure differential

The minimum pressure differential (the difference between the inlet pressure and outlet pressure) required to keep the main valve fully opened.

3. Maximum system pressure

The maximum pressure that can be applied inside the pipelines (line pressure).

(The pressure differential of the solenoid valve portion must be less than the maximum operating pressure differential.)

4. Proof pressure

The pressure in which the valve must be withstood without a drop in performance after holding for one minute under prescribed pressure and returning to the operating pressure range. (value under the prescribed conditions)

Electrical Terminology

1. Apparent power (VA)

Volt-ampere is the product of voltage (V) and current (A). Power consumption (W); For AC, $W = V \cdot A \cdot \cos\theta$. For DC, $W = V \cdot A$. Note) $\cos\theta$ shows power factor. $\cos\theta = 0.6$

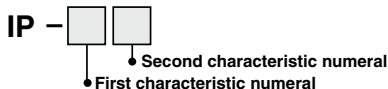
2. Surge voltage

A high voltage which is momentarily generated by shutting off the power in the shut-off area.

3. Enclosure

A degree of protection defined in the "JIS C 0920: Waterproof test of electric machinery/appliance and the degree of protection against the intrusion of solid foreign objects".

Verify the degree of protection for each product.



● First Characteristics:

Degrees of protection against solid foreign objects

0	Non-protected
1	Protected against solid foreign objects of 50 mm ϕ and greater
2	Protected against solid foreign objects of 12 mm ϕ and greater
3	Protected against solid foreign objects of 2.5 mm ϕ and greater
4	Protected against solid foreign objects of 1.0 mm ϕ and greater
5	Dust-protected
6	Dusttight

● Second Characteristics:

Degrees of protection against water

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Low jetproof type
6	Protected against powerful water jets	Strong jetproof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) IP65: Dusttight, Low jetproof type

"Low jetproof type" means that no water intrudes inside an equipment that could hinder from operating normally by means of applying water for 3 minutes in the prescribed manner. Take appropriate protection measures, since a device is not usable in an environment where a droplet of water is splashed constantly.

Others

1. Material

NBR: Nitrile rubber
FKM: Fluororubber
EPDM: Ethylene propylene rubber
PTFE: Polytetrafluoroethylene resin
FFKM: Perfluoroelastomer

2. Oil-free treatment

The degreasing and washing of wetted parts.

3. Passage symbol

In the symbol ($\frac{\text{Port 1 (IN)}}{\text{Port 2 (OUT)}}$), but it is not possible to use the valve in cases of reverse pressure, where the Port 2 pressure is higher than the Port 1 pressure.

VX2

VXK

VXD

VXZ

VXS

VXB

VXE

VXP

VXR

VXH

VXF

VX3

VXA