

2 Port Solenoid Valve/Air Operated Valve For Dust Collector

New
CE
RoHS

New Applicable for
high temperature

Fluid temperature
100 °C

Large port sizes
available.

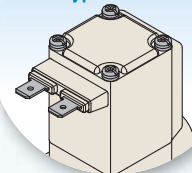
Port size
50A to 100A

Enclosure

IP65*

* Electrical entry
"Flat" type
terminal is IP40.

Faston terminal
type added



Flange type

Mounting can be changed
according to the piping
conditions!



Flange body type

Orifice machining on the outlet is not required,
so, installation time is reduced!



Flange body I type
(Flange mounting type)



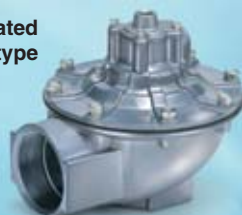
Flange body II type
(Through hole mounting type)

Direct piping type

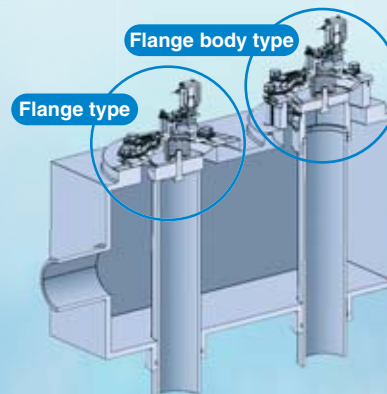
Solenoid valve
type



Air operated
type



Installation Example



Dedicated controller for operation
Series VXFC



Variations

Type	Port size	Piping				Electrical entry*
		Direct piping type	Flange type	Flange body I type Flange mounting type	Flange body II type Through hole mounting type	
Solenoid valve type	20A	●				Grommet DIN terminal Conduit terminal Conduit Faston terminal
	25A	●				
	40A	●				
	50A	●				
Air operated type	65A	●	●			
	80A	●	●	●	●	
	90A		●			
	100A		●			

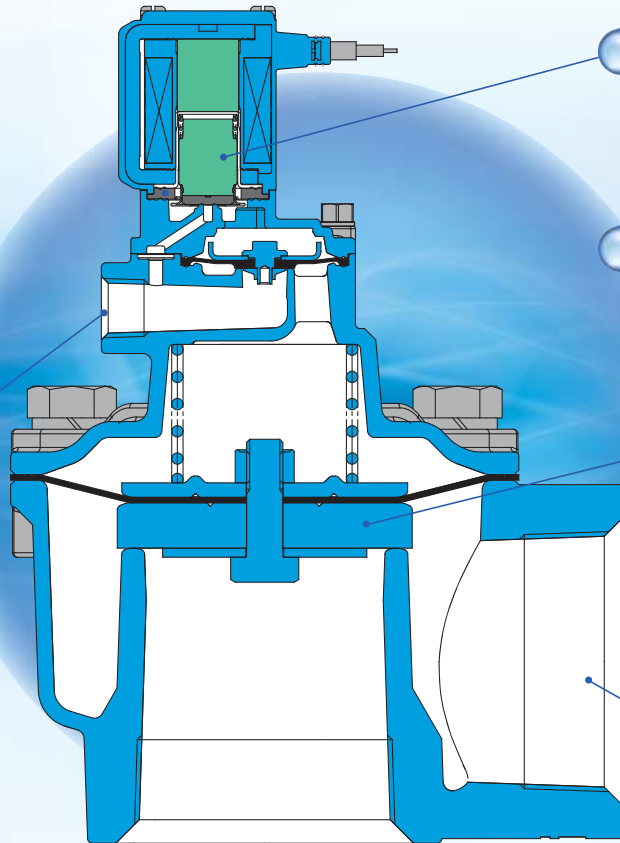
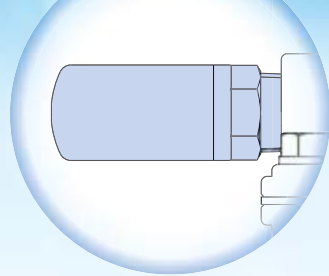
Series VXF2/VXFA2



CAT.EUS70-47B-UK

Enclosure
IP65

**With/without
silencer**
(Can be selected.)



**Improved armature
durability**

**Flame resistant
UL94V-0 conformed**

**Diaphragm
assembly material**

- (Diaphragm/Main valve)
- NBR/POM:
For normal temperature
- FKM/PTFE:
For high temperature

Piping variations

20A, 25A, 40A
50A, 65A, 80A
90A, 100A

Built-in full-wave rectifier type (AC specification)

Improved durability

Service life is extended by the special construction.
(compared with current shading coil)

Reduced apparent power (for normal temperature)

11 VA → **7 VA** (Size 21, 22, 24, 25, 26, 27, 28)

18 VA → **10 VA** (Size 23)

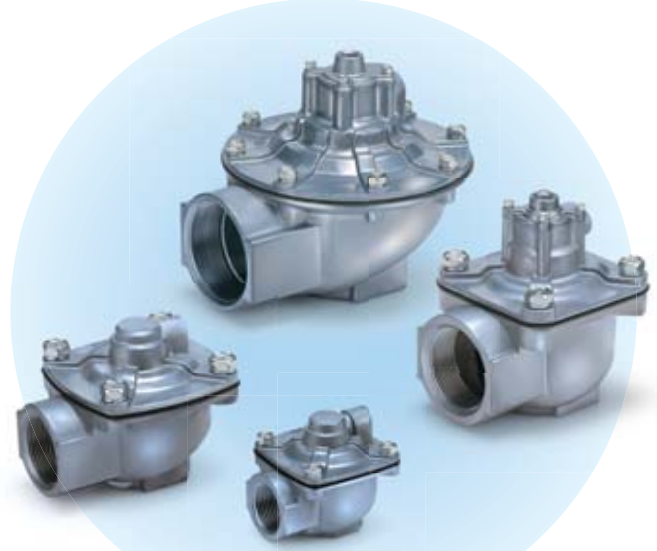
Noise reduction

Rectified to DC by a full-wave rectifier, resulting in a
buzz noise reduction.

Solenoid Valve Type Series VXF2



Air Operated Type Series VXFA2



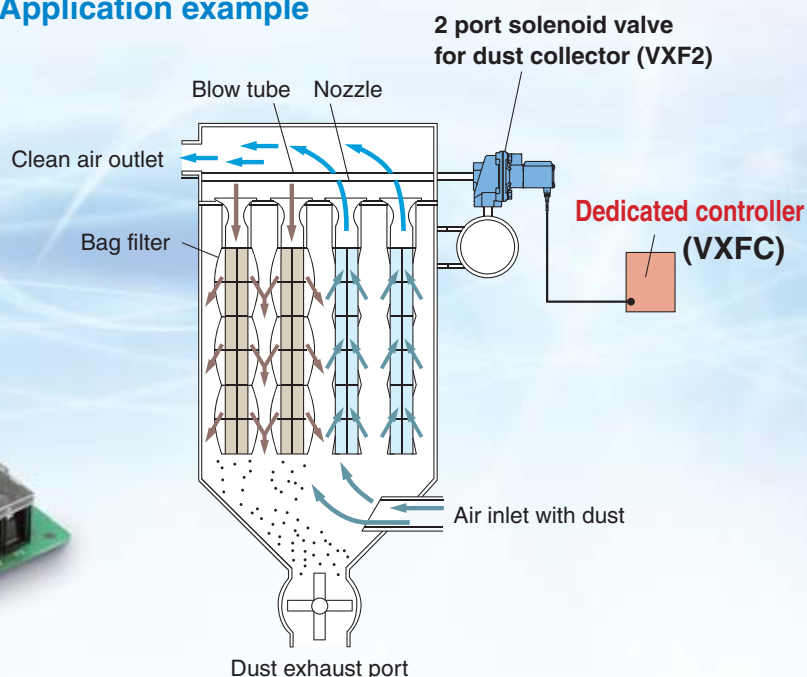
The valve controller turns ON/OFF multiple valves for the dust controller.

Power supply voltage 24 VDC to 48 VDC

Number of outputs 6 outputs,
10 outputs



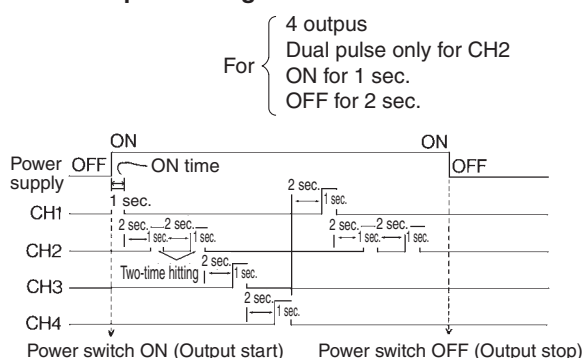
Application example



Dual pulse Function

A dual pulse function is adopted to improve the bag filter dusting efficiency. Turn ON the DIP switch dual pulse (OFF for single pulse). (Setting possible for all channels)

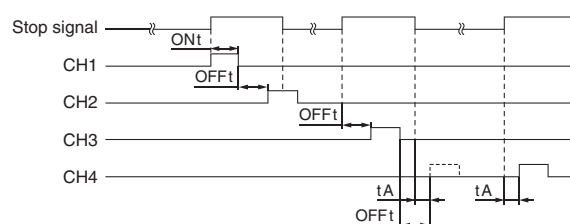
Operation sequence diagram



Interrupt Operation Function

Interrupting an operation from an external switch is possible using input signals.

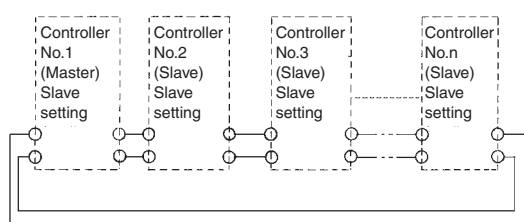
Operation sequence diagram



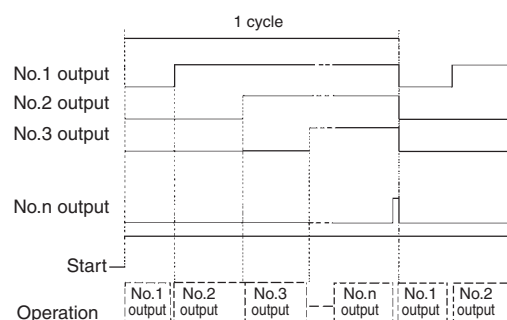
Cascade Connection (Multiple-board connection)

VXFC10: One board has a maximum of 10 outputs. But the outputs can be increased to 20 and 30 by connecting multiple boards (cascades).

Connection



Operation sequence diagram



Series VXF2 Solenoid Valve Type

Common Specifications/Selection Steps

Specifications

Solenoid Valve Type

Model	VXF21A□□	VXF22A□□	VXF23A□□	VXF24A□□	VXF25 ^A _B □□	VXF26 ^A _B □□	VXF27B□□	VXF28B□□
Orifice size [mmø]	22	28	44	53	70	80	90	100
Port size	3/4	1	1 1/2	2	2 1/2	3	3 1/2	4
Fluid	Air							
Min. operating pressure [MPa]	0.03				0.1			
Max. operating pressure [MPa]	0.7							
Fluid temperature (for normal/high temperature) [°C]	-10 (No freezing) to 60/-10 (No freezing) to 100							
Ambient temperature [°C]	5 to 60							
Coil insulation type (for normal/high temperature)	Class B/Class H							
Enclosure	IP65							
Allowable voltage fluctuation [V]	±10 % of rated voltage							
Apparent power (for normal/high temperature) AC (VA)	7/9		10/12		7/9			
Power consumption (for normal temperature) DC (W)	7		8		7			

Solenoid Coil Specifications

Normally Closed (N.C.)

DC Specification

(For normal temperature)

Size	Power consumption [W] Note 1)	Temperature rise [°C] Note 2)
Size 21, 22, 24, 25, 26, 27, 28	7	60
Size 23	8	55

Note 1) Power consumption, Apparent power: The value at ambient temperature of 20 °C and when the rated voltage is applied. (Variation: ±10 %)

Note 2) Value at ambient temperature of 20 °C and when the rated voltage is applied. The value depends on the ambient environment. This is for reference.

AC Specification (Built-in Full-wave Rectifier Type)

(For normal/high temperature)

Size	Apparent power [VA] Note 1) Note 2)	Temperature rise [°C] Note 3)
Size 21, 22, 24, 25, 26, 27, 28	7/9	60/100
Size 23	10/12	70/100

Note 1) Power consumption, Apparent power: The value at ambient temperature of 20 °C and when the rated voltage is applied. (Variation: ±10 %)

Note 2) There is no difference in the frequency and the inrush and energised apparent power because a rectifying circuit is used in the AC (Built-in full-wave rectifier type).

Note 3) Value at ambient temperature of 20 °C and when the rated voltage is applied. The value depends on the ambient environment. This is for reference.

Valve Leakage Rate

	Leakage rate Note)
Internal leakage	1000 cm ³ /min or less
External leakage	100 cm ³ /min or less

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

Selection Steps

Step 1 Select the port size.

Item	Selection item	Symbol
Port size	20A (3/4)	1
	25A (1)	2
	40A (1 1/2)	3
	50A (2)	4
	65A (2 1/2)	5
	80A (3)	6
	90A (3 1/2)	7
	100A (4)	8

VXF2 1 A A A A

Step 2 Select the piping system.

Item	Selection item	Symbol
Piping	Direct piping type	A
	Flange type	B
	Flange body I type	C
	Flange body II type	D

VXF2 1 A A A A

Step 3 Diaphragm/Main valve material, Select whether the silencer is mounted.

Item	Selection item	Symbol
Material With/without silencer	NBR/POM Without silencer	A
	NBR/POM With silencer	B
	FKM/PTFE Without silencer	C
	FKM/PTFE With silencer	D

VXF2 1 A A A A

Step 4 Select electrical specification.

Item	Voltage/Electrical entry	Symbol
Electrical specification	Grommet 24 VDC	A

VXF2 1 A A A A

Step 5 Select the port thread.

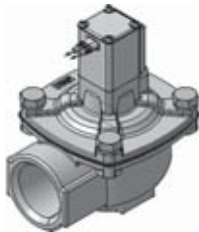
Item	Selection item	Symbol
Port thread	Rc	—
	G	A
	NPT	B

VXF2 1 A A A A

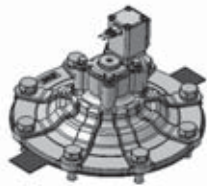
How to Order

Solenoid Valve Type **VXF2 1 A A A A**

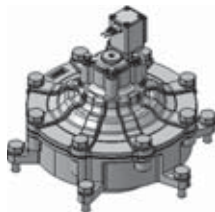
Port size		Piping	
Symbol	Port size	Symbol	Piping
1	20A	A	Direct piping type
2	25A		
3	40A		
4	50A		
5	65A	A	Direct piping type
		B	Flange type
6	80A	A	Direct piping type
		B	Flange type
		C	Flange body I type
		D	Flange body II type
7	90A	B	Flange type
8	100A		



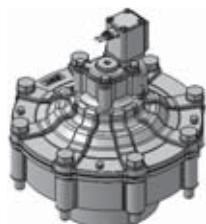
A: Direct piping type



B: Flange type



**C: Flange body I type
(Flange mounting type)**



**D: Flange body II type
(Through hole mounting type)**

Material – With/without silencer, Fluid temperature

Symbol	Diaphragm/ Main valve material	With/without silencer	Fluid temperature
A	NBR/POM	Without	For normal temperature (Max. 60 °C)
B	NBR/POM	With	
C	FKM/PTFE	Without	For high temperature (Max. 100 °C)
D	FKM/PTFE	With	

Note 1) For high temperature type, DC specification, DIN terminal and Flat terminal are not available.

Symbol	Voltage	Electrical entry
A	24 VDC	Grommet
Z1D	12 VDC	
B	100 VAC	Grommet Note 2)
C	110 VAC	(with surge voltage suppressor)
D	200 VAC	
E	230 VAC	
F	24 VDC	
Z1A	48 VAC	
Z1B	220 VAC	
Z1C	240 VAC	
Z1U	24 VAC	
Z1E	12 VDC	
G	24 VDC	DIN terminal
H	100 VAC	(with surge voltage suppressor)
J	110 VAC	
K	200 VAC	
L	230 VAC	
Z1F	48 VAC	
Z1G	220 VAC	
Z1H	240 VAC	
Z1V	24 VAC	
Z1J	12 VDC	
M	24 VDC	Conduit terminal
N	100 VAC	(with surge voltage suppressor)
P	110 VAC	
Q	200 VAC	
R	230 VAC	
Z1K	48 VAC	
Z1L	220 VAC	
Z1M	240 VAC	
Z1W	24 VAC	
Z1N	12 VDC	
S	24 VDC	Conduit Note 2)
T	100 VAC	(with surge voltage suppressor)
U	110 VAC	
V	200 VAC	
W	230 VAC	

Note 1) For high temperature type, DC specification, DIN terminal and Flat terminal are not available.

Note 2) For high temperature type, the surge voltage suppressor for grommet or conduit is attached in the middle of lead wire.

Port thread (Only for direct piping type)

Symbol	Port thread
—	Rc
A	G Note 3)
B	NPT Note 3)

Note 3) For options with silencer, the exhaust port is Rc.

Voltage – Electrical entry

Symbol	Voltage	Electrical entry
Z1P	48 VAC	Conduit Note 2)
Z1Q	220 VAC	(with surge voltage suppressor)
Z1R	240 VAC	
Z1Y	24 VAC	
Z1S	12 VDC	
Y	24 VDC	Flat terminal
Z1T	12 VDC	
Z2A	24 VDC	DIN terminal
Z2B	100 VAC	(with surge voltage suppressor with light)
Z2C	110 VAC	
Z2D	200 VAC	
Z2E	230 VAC	
Z2F	48 VAC	
Z2G	220 VAC	
Z2H	240 VAC	
Z2V	24 VAC	
Z2J	12 VDC	
Z2K	24 VDC	Conduit terminal
Z2L	100 VAC	(with surge voltage suppressor with light)
Z2M	110 VAC	
Z2N	200 VAC	
Z2P	230 VAC	
Z2Q	48 VAC	
Z2R	220 VAC	
Z2S	240 VAC	
Z2W	24 VAC	
Z2T	12 VDC	
Z3A	24 VDC	DIN terminal
Z3B	100 VAC	(with surge voltage suppressor without DIN connector)
Z3C	110 VAC	
Z3D	200 VAC	
Z3E	230 VAC	
Z3F	48 VAC	
Z3G	220 VAC	
Z3H	240 VAC	
Z3V	24 VAC	
Z3J	12 VDC	

Series VXFA2 Air Operated Type

Common Specifications/Selection Steps

Specifications

Air Operated Type

Model	VXFA21AA□	VXFA22AA□	VXFA23AA□	VXFA24A _A □	VXFA25(A,B) _A □	VXFA26(A,B,C,D) _A □	VXFA27B _A □	VXFA28B _A □
Orifice size [mmø]	22	28	44	53	70	80	90	100
Port size	3/4	1	1 1/2	2	2 1/2	3	3 1/2	4
Fluid	Air							
Min. operating pressure [MPa]	0.03			0.1				
Max. operating pressure [MPa]	0.7							
Fluid temperature (for normal/high temperature) [°C]	−10 (No freezing) to 60/−10 (No freezing) to 100							
Ambient temperature [°C]	5 to 60							

Valve Leakage Rate

	Leakage rate ^{Note)}
Internal leakage	1000 cm ³ /min or less
External leakage	100 cm ³ /min or less

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

Selection Steps

Step 1 Select the port size.

Item	Selection item	Symbol
Port size	20A(3/4)	1
	25A(1)	2
	40A(1 1/2)	3
	50A(2)	4
	65A(2 1/2)	5
	80A(3)	6
	90A(2 1/2)	7
	100A(4)	8

VXFA2 ^① 1 A A A

Step 2 Select the piping system.

Item	Selection item	Symbol
Piping	Direct piping type	A
	Flange type	B
	Flange body I type	C
	Flange body II type	D

VXFA2 1 ^② A A A

Step 3 Diaphragm/Main valve material, Select whether the silencer is mounted.

Item	Selection item	Symbol
Material With/without silencer	NBR/POM Without silencer	A
	NBR/POM With silencer	B
	FKM/PTFE Without silencer	C
	FKM/PTFE With silencer	D

VXFA2 1 A ^③ A A

Step 4 Select the port thread.

Item	Selection item	Symbol
Port thread	Rc	—
	G	A
	NPT	B

VXFA2 1 A A ^④ A

How to Order

Air Operated Type

VXFA2

1

A

A

A

Port size

Symbol	Port size	Symbol	Piping
1	20A	A	Direct piping type
2	25A		
3	40A		
4	50A		
5	65A	A	Direct piping type
		B	Flange type
6	80A	A	Direct piping type
		B	Flange type
		C	Flange body I type
		D	Flange body II type
7	90A	B	Flange type
8	100A		

Piping

Port thread

(Only for direct piping type)

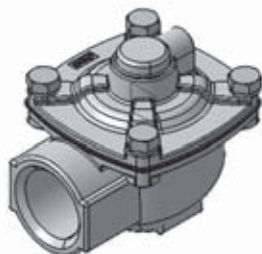
Symbol	Port thread
—	Rc
A	G <small>Note 1)</small>
B	NPT <small>Note 1)</small>

Note 1) For options with silencer, the exhaust port is Rc.

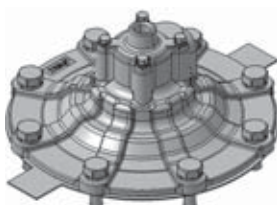
Material – With/without silencer, Fluid temperature

Symbol	Diaphragm/ Main valve material	With/without silencer*	Fluid temperature
A	NBR/POM	Without	For normal temperature (Max. 60 °C)
B	NBR/POM	With	
C	FKM/PTFE	Without	For high temperature (Max. 100 °C)
D	FKM/PTFE	With	

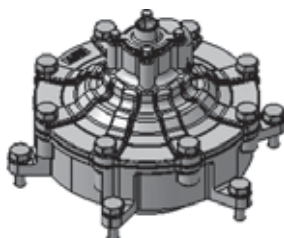
* For 40A or less, silencer cannot be selected.



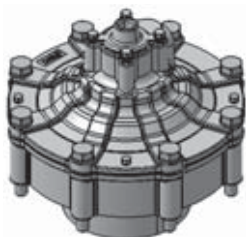
A: Direct piping type



B: Flange type



C: Flange body I type
(Flange mounting type)



D: Flange body II type
(Through hole mounting type)

⚠ Caution Selection of Pilot Valve

When selecting the air operated type VXFA2 series, select a 2 port valve with the stated orifice diameter or more.

VXFA21 to VXFA23: ø 5 mm or more
VXFA24 to VXFA28: ø 4 mm or more

Series VXF2/VXFA2

Valve Characteristics

The valve characteristics data was measured with the stated outlet piping length. The valve characteristics vary depending on the tank capacity, air supply, set pressure, outlet conditions (nozzle size, quantity, piping length), so please use these values as a guideline.

1. Response Time, Start-up Speed

VXF2 Type

Measuring conditions

Test circuit..... Refer to the circuit below.

Test sample...VXF21A (Port size 3/4) VXF22A (Port size 1)
 VXF23A (Port size 1 1/2) VXF24A (Port size 2)
 VXF25A, B (Port size 2 1/2) VXF26A, B, C, D (Port size 3)
 VXF27B (Port size 3 1/2) VXF28B (Port size 4)

Air tank capacity...VXF21 to VXF22: 100 L
 VXF23 to VXF24: 200 L
 VXF25 to VXF28: 1000 L

Energising time.....150 msec

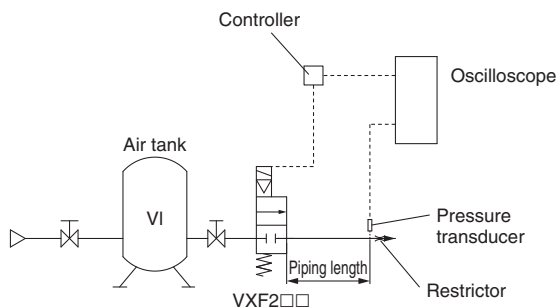
Rated voltage.....24 VDC

Outlet piping length.....500 mm

Thread size of outlet piping...VXF21: Rc3/8 VXF22: Rc1/2
 VXF23: Rc3/4 VXF24: Rc1
 VXF25: Rc1 1/2 VXF26: Rc2
 VXF27: Rc2 1/2 VXF28: Rc3

How to calculate

1. Set the tank pressure to 0.5 MPa.
2. Close the stop valve on the inlet of the tank.
3. Energise the valve and read the pressure wave on the outlet.



VXF2□ Test circuit

VXFA2 Type

Measuring conditions

Test circuit..... Refer to the circuit below.

Test sample...VXFA21A (Port size 3/4) VXFA22A (Port size 1)
 VXFA23A (Port size 1 1/2) VXFA24A (Port size 2)
 VXFA25A, B (Port size 2 1/2) VXFA26A, B, C, D (Port size 3)
 VXFA27B (Port size 3 1/2) VXFA28B (Port size 4)

Air tank capacity...VXFA21 to VXFA22: 100 L
 VXFA23 to VXFA24: 200 L
 VXFA25 to VXFA28: 1000 L

Energising time.....150 msec

Pilot valve

VX232AA (Orifice, ø5, Rated voltage 24 VDC)

Piping length to the pilot valve

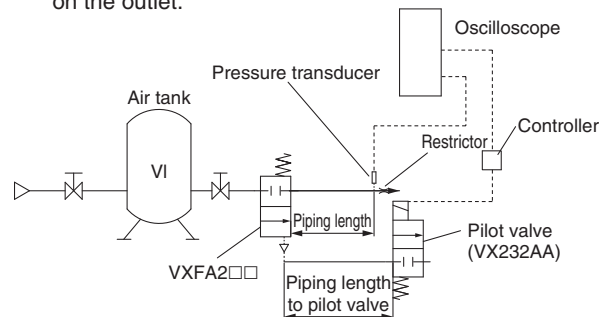
500 mm, 1000 mm, 1500 mm (ø10, t = 1.5)

Outlet piping length.....500 mm

Thread size of outlet piping...VXFA21: Rc3/8 VXFA22: Rc1/2
 VXFA23: Rc3/4 VXFA24: Rc1
 VXFA25: Rc1 1/2 VXFA26: Rc2
 VXFA27: Rc2 1/2 VXFA28: Rc3

How to calculate

1. Set the tank pressure to 0.5 MPa.
2. Close the stop valve on the inlet of the tank.
3. Energise the pilot valve and read the pressure wave on the outlet.



VXFA2□ Test circuit

ON response time

Time required until the valve is switched after it is energised
 (Time required until pressure is released to the outlet)

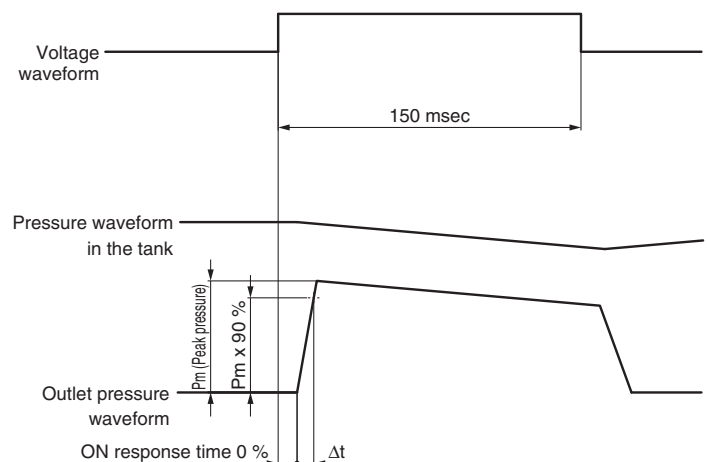
Start-up speed

Speed until the valve is switched after being energised and the pressure released to the outlet reaches 90 % of the peak pressure

$$\text{Start-up speed} = (P_m \times 0.9) / \Delta t \quad [\text{MPa/msec}]$$

Note) For air operated type, the longer the piping length to the pilot valve, the longer the ON response time will be. If the piping length is increase even more, the valve may not open due to piping capacity and resistance in the piping, so keep the piping length to the pilot valve as short as possible.

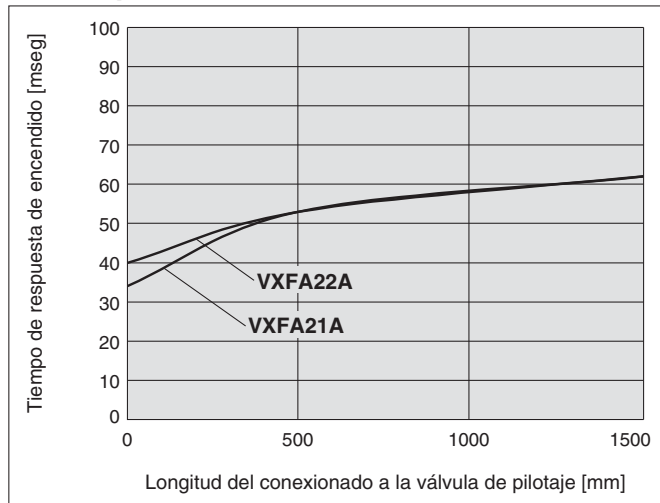
How to Read the Data



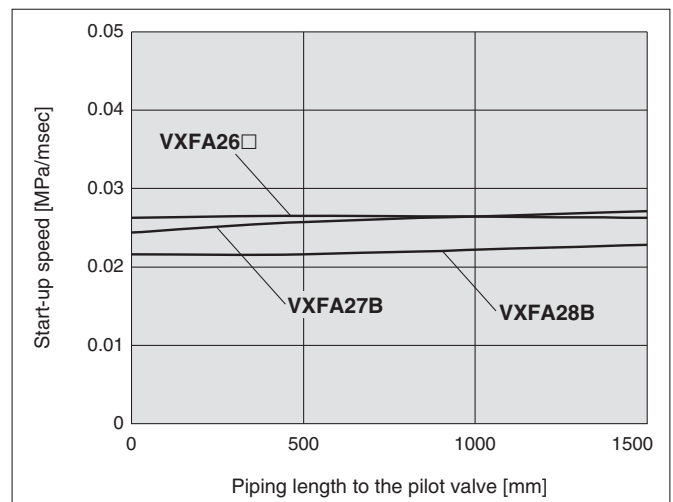
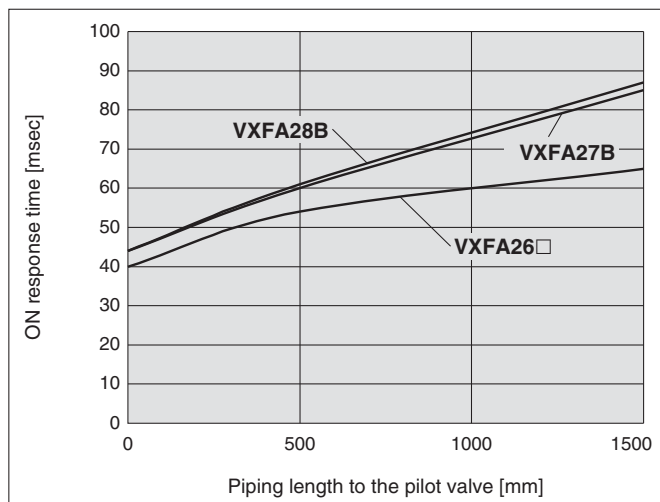
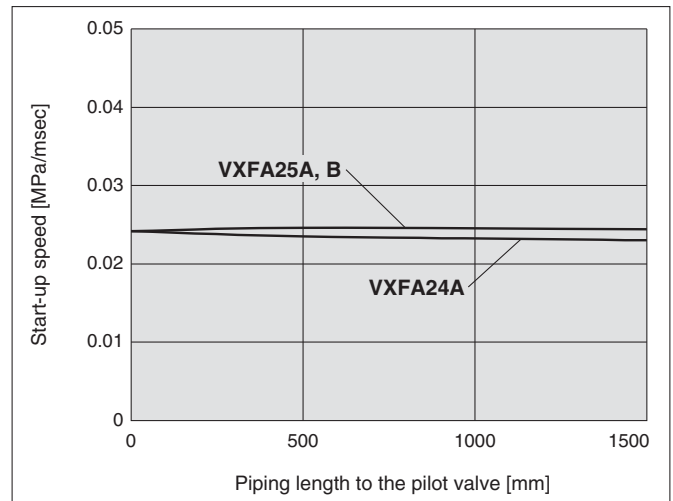
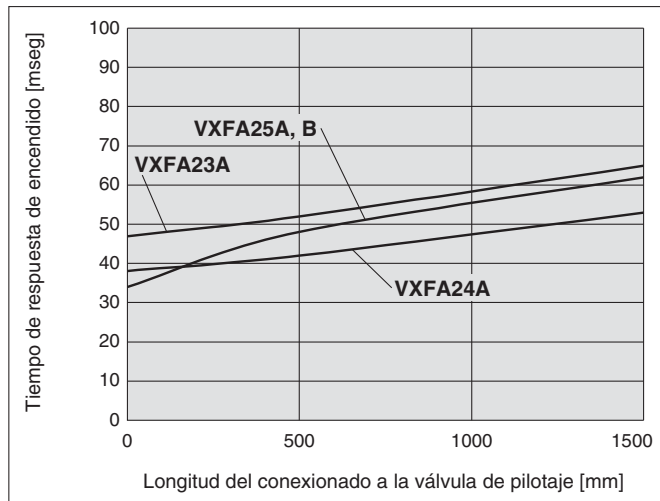
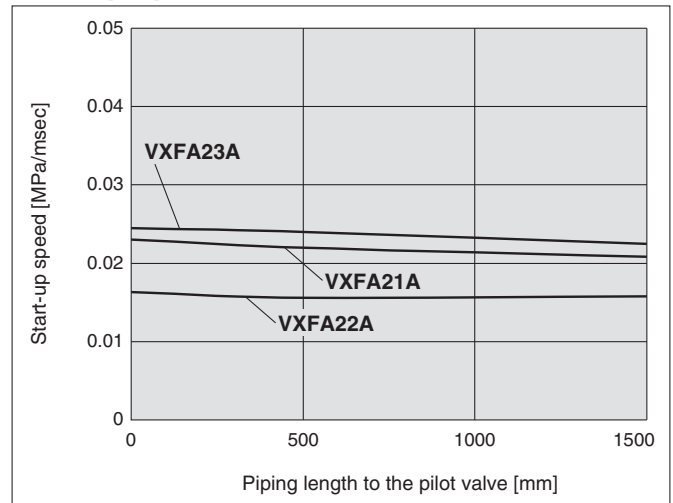
1. Response Time, Start-up Speed

For VXF2/solenoid valve type, the piping length to the pilot valve should be 0 mm.

ON Response Time



Start-up Speed



2. Discharge Volume

For VXF2/solenoid valve type, the piping length to the pilot valve should be 0 mm.

VXF2 Type

Measuring conditions

Test circuit Refer to the circuit below.

Test sample... VXF21A (Port size 3/4) VXF22A (Port size 1)
 VXF23A (Port size 1 1/2) VXF24A (Port size 2)
 VXF25A, B (Port size 2 1/2) VXF26A, B, C, D (Port size 3)
 VXF27B (Port size 3 1/2) VXF28B (Port size 4)

Air tank capacity... VXF21 to VXF22: 100 L
 VXF23 to VXF24: 200 L
 VXF25 to VXF28: 1000 L

Energising time 150 msec

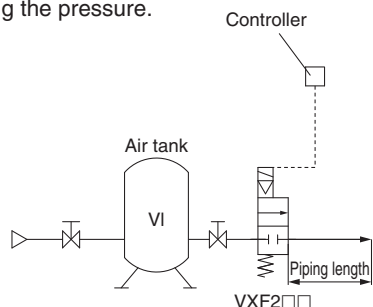
Rated voltage 24 VDC

Outlet piping length 500 mm

Thread size of outlet piping Open

How to calculate

1. Set the tank pressure to 0.5 MPa.
2. Close the stop valve on the inlet of the tank.
3. Energise the valve and read the tank pressure after releasing the pressure.



VXF2 Test circuit

Discharge volume: Valve discharge volume per energising time

Conversion of the discharge volume

Calculate the discharge volume by reading the tank pressure after the valve starts the operation.

Conversion equation

$$V_0 = (P_1 \times V_1 - P_2 \times V_1) / P_0$$

V_0 : Discharge volume [L]

P_1 : Tank initial pressure [MPa] (Absolute pressure)

V_1 : Tank capacity [L]

P_2 : Tank pressure after release [MPa] (Absolute pressure)

P_0 : Atmospheric pressure [MPa] (Absolute pressure)

VXFA2 Type

Measuring conditions

Test circuit Refer to the circuit below.

Test sample... VXFA21A (Port size 3/4) VXFA22A (Port size 1)
 VXFA23A (Port size 1 1/2) VXFA24A (Port size 2)
 VXFA25A, B (Port size 2 1/2) VXFA26A, B, C, D (Port size 3)
 VXFA27B (Port size 3 1/2) VXFA28B (Port size 4)

Air tank capacity... VXFA21 to VXFA22: 100 L
 VXFA23 to VXFA24: 200 L
 VXFA25 to VXFA28: 1000 L

Energising time 150 msec

Pilot valve

VX232AA (Orifice, $\phi 5$, Rated voltage 24 VDC)

Piping length to the pilot valve

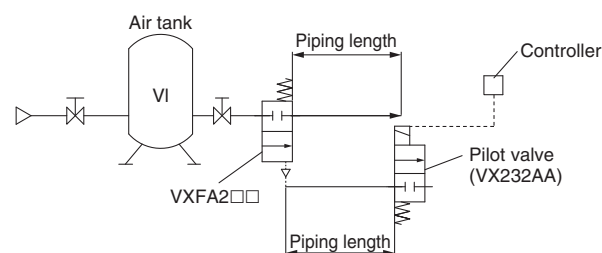
500 mm, 1000 mm, 1500 mm ($\phi 10$, $t = 1.5$)

Outlet piping length 500 mm

Thread size of outlet piping Open

How to calculate

1. Set the tank pressure to 0.5 MPa.
2. Close the stop valve on the inlet of the tank.
3. Energise the pilot valve and read the tank pressure after releasing the pressure.

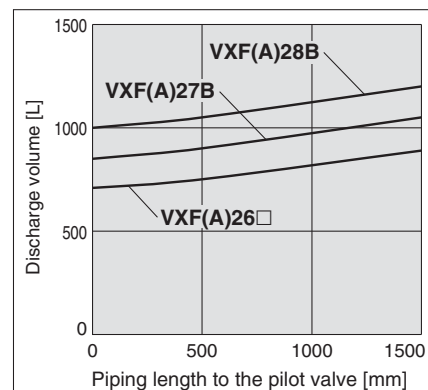
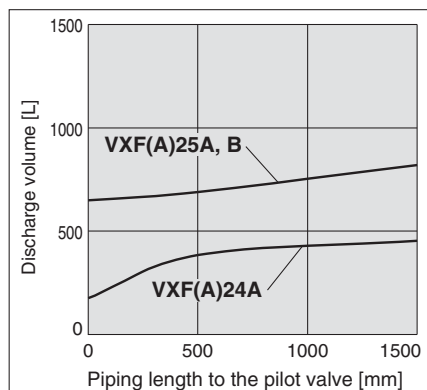
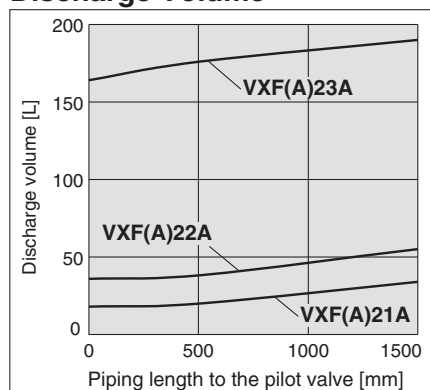


VXFA2 Test circuit

Note 1) If the regulator or the restrictor is installed right before the IN side of the valve, the valve may oscillate when it is turned off. Keep the regulator or the restrictor away from the valve for at least 1 m or change restriction.

Note 2) The dust collector valve is a large flow control valve in which air is discharged with high speed to clean the bag filter with impact air. Tank capacity should be sufficient to secure impact wave and discharge flow rate. If the air tank capacity is insufficient, increased response time, malfunctions or oscillation may occur.

Discharge Volume

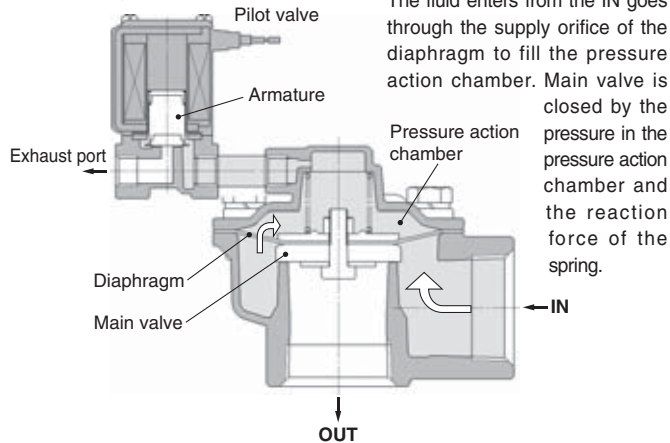


Series VXFA2

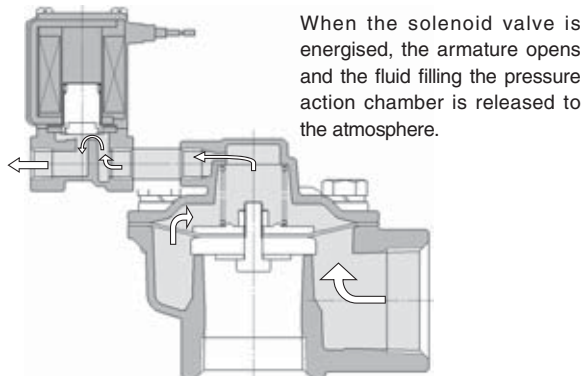
Working Principle

VXFA21, 22, 23

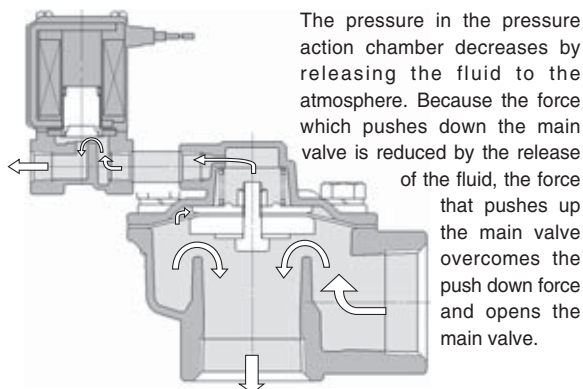
De-energised



Right after energised

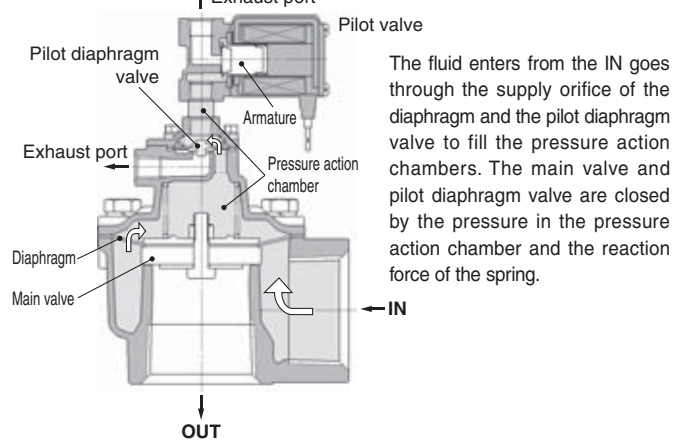


Energised (Main valve open)

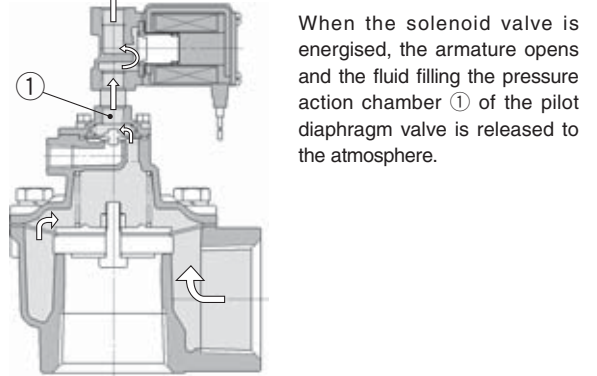


VXFA24 to 28 (Double diaphragm)

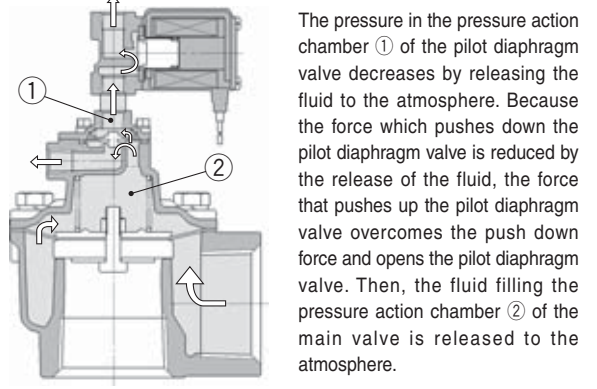
De-energised



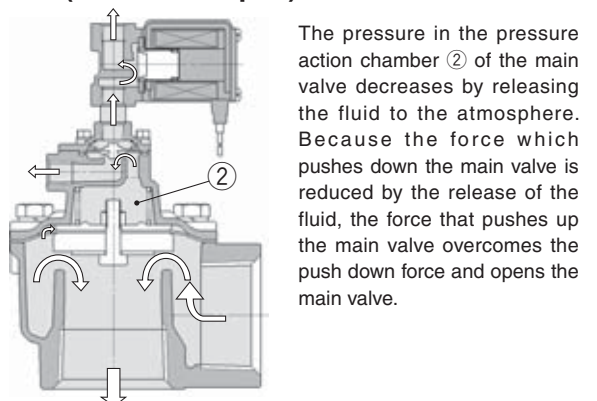
Right after energised



Energised (Pilot diaphragm valve open)



Energised (Main valve open)

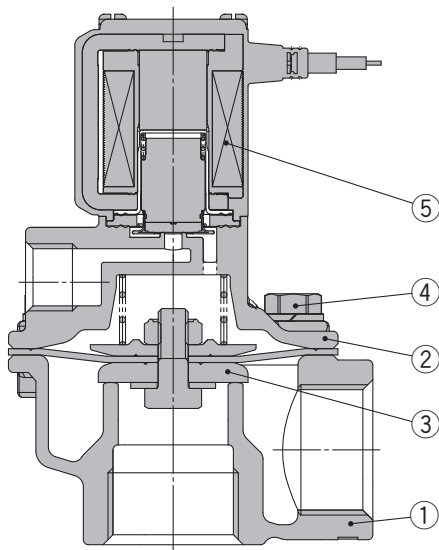


Series VXF2/VXFA2

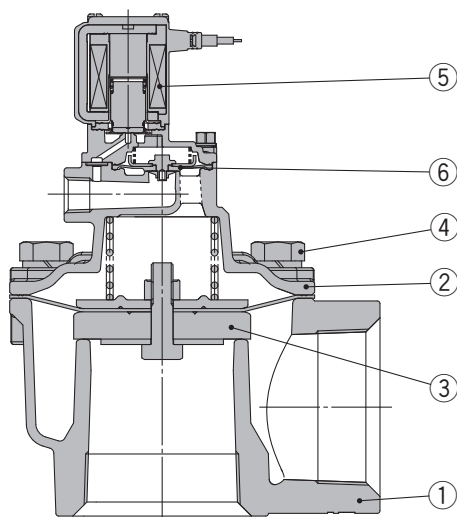
Construction

Solenoid Valve Type

VXF2 $\frac{1}{3}$ A□□/Direct piping type



VXF2 $\frac{4}{6}$ A□□/Direct piping type



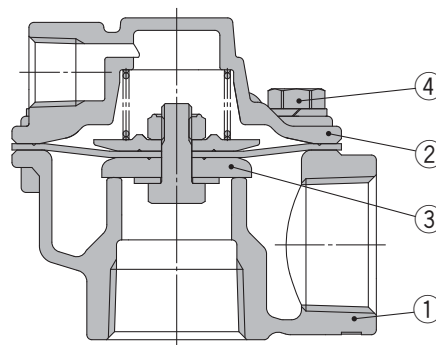
Component Parts

(): For high temperature

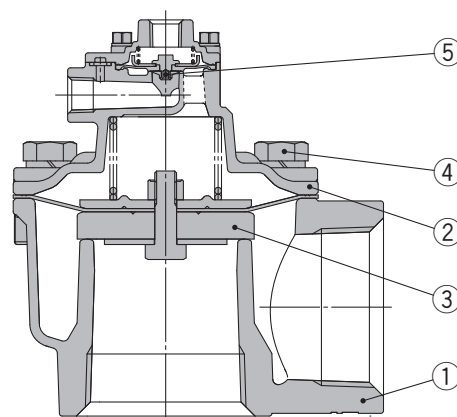
No.	Description	Material
1	Body	ADC
2	Bonnet	ADC
3	Diaphragm assembly	NBR (FKM), POM (PTFE), Stainless steel
4	Upset head bolt	FE
5	Pilot valve assembly	—
6	Diaphragm assembly for pilot valve	NBR (FKM), Stainless steel

Air Operated Type

VXFA2 $\frac{1}{3}$ A□□/Direct piping type



VXFA2 $\frac{4}{6}$ A□□/Direct piping type



Component Parts

(): For high temperature

No.	Description	Material
1	Body	ADC
2	Bonnet	ADC
3	Diaphragm assembly	NBR (FKM), POM (PTFE), Stainless steel
4	Upset head bolt	FE
5	Diaphragm assembly for pilot valve	NBR (FKM)

Replacement Parts (Direct piping type)

Model	Diaphragm assembly Note 1) (For normal temperature/high temperature)	Diaphragm assembly for pilot valve		Silencer	
		Solenoid valve type (For normal temperature/high temperature)	Air operated type (For normal temperature/high temperature)	Solenoid valve type (For normal temperature/high temperature)	Air operated type (For normal temperature/high temperature)
VXF(A)21A(A,B,C,D)	VXF-21AA/VXF-21AC	—	—	AN20-02/EBKX-J2001-100	—
VXF(A)22A(A,B,C,D)	VXF-22AA/VXF-22AC	—	—	AN20-02/EBKX-J2001-100	—
VXF(A)23A(A,B,C,D)	VXF-23AA/VXF-23AC	—	—	AN20-02/EBKX-J2001-100	—
VXF(A)24A(A,B,C,D)	VXF-24AA/VXF-24AC	VXD30-3A-1A/VXD30-3A-F-1A	VXD30-3A-2A/VXD30-3A-F-2A	AN20-02/EBKX-J2001-100	AN20-02/EBKX-J2001-100
VXF(A)25A(A,B,C,D)	VXF-25AA/VXF-25AC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120	AN40-04/EBKX-J2003-120
VXF(A)26A(A,C) Note 2)	VXF-26AA/VXF-26AC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	—	—
VXF(A)26A(B,D) Note 2)	VXF-26AB/VXF-26AD	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120	AN40-04/EBKX-J2003-120

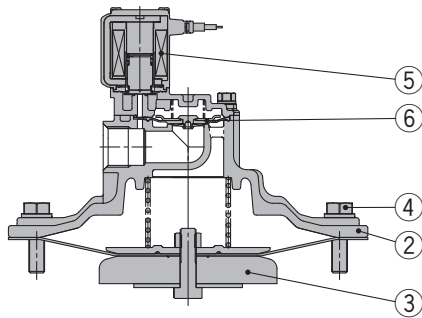
Note 1) Spring is shipped together with the product, but not assembled.

Note 2) When the VXF26 is ordered without a silencer, and a silencer is attached later by the user, the operation may become unstable while ON. When attaching a silencer later, be sure to replace the diaphragm assembly as well. When ordering a product with a silencer and is used without the silencer, the operation may become unstable while OFF. In this case, the diaphragm assembly should be replaced.

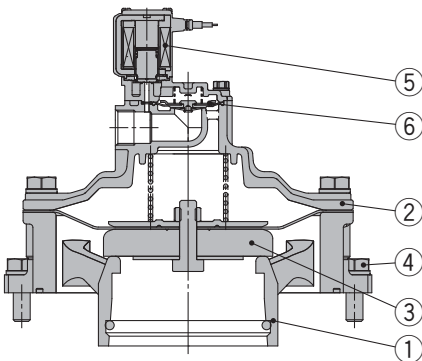
Construction

Solenoid Valve Type

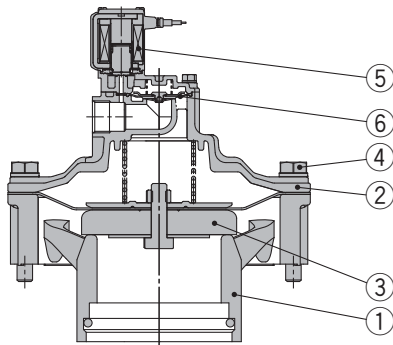
VXF2⁵/₆⁷B□□/Flange type
8



VXF26C□□/Flange body I type



VXF26D□□/Flange body II type



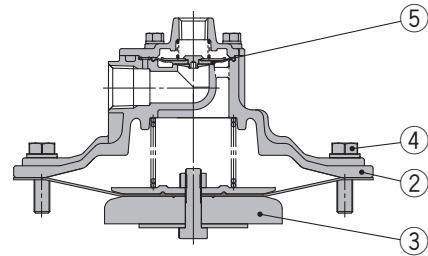
Component Parts

(): For high temperature

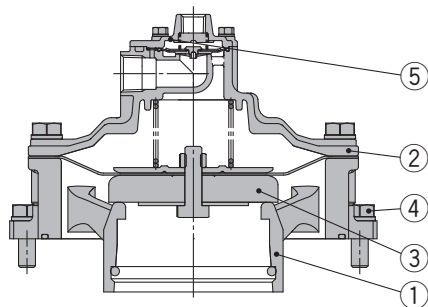
No.	Description	Material
1	Body	ADC
2	Bonnet	ADC
3	Diaphragm assembly	NBR (FKM), POM (PTFE), Stainless steel
4	Upset head bolt	FE
5	Pilot valve assembly	—
6	Diaphragm assembly for pilot valve	NBR (FKM), Stainless steel

Air Operated Type

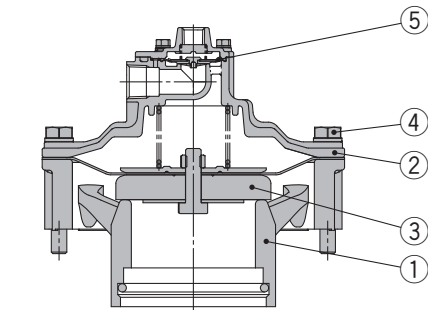
VXFA2⁵/₆⁷B□□/Flange type
8



VXFA26C□□/Flange body I type



VXFA26D□□/Flange body II type



Component Parts

(): For high temperature

No.	Description	Material
1	Body	ADC
2	Bonnet	ADC
3	Diaphragm assembly	NBR (FKM), POM (PTFE), Stainless steel
4	Upset head bolt	FE
5	Diaphragm assembly for pilot valve	NBR (FKM), Stainless steel

Replacement Parts (Flange type, Flange body [I, II] type)

Model	Diaphragm assembly ^{Note 1)} (For normal temperature/high temperature)	Diaphragm assembly for pilot valve		Silencer (For normal temperature/high temperature)
		Solenoid valve type (For normal temperature/high temperature)	Air operated type (For normal temperature/high temperature)	
VXF(A)25B(A,B,C,D)	VXF-25AA/VXF-25AC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120
VXF(A)26B(A,C) ^{Note 2)}	VXF-26BA/VXF-26BC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	—
VXF(A)26B(B,D) ^{Note 2)}	VXF-26BB/VXF-26BD	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120
VXF(A)26C(A,C) ^{Note 2)}	VXF-26CA/VXF-26CC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	—
VXF(A)26C(B,D) ^{Note 2)}	VXF-26CB/VXF-26CD	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120
VXF(A)26D(A,C) ^{Note 2)}	VXF-26CA/VXF-26CC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	—
VXF(A)26D(B,D) ^{Note 2)}	VXF-26CB/VXF-26CD	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120
VXF(A)27B(A,B,C,D)	VXF-27BA/VXF-27BC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120
VXF(A)28B(A,B,C,D)	VXF-28BA/VXF-28BC	VXD40S-3A-1A/VXD40S-3A-F-1A	VXD40S-3A-2A/VXD40S-3A-F-2A	AN40-04/EBKX-J2003-120

Note 1) Spring is shipped together with the product, but not assembled.

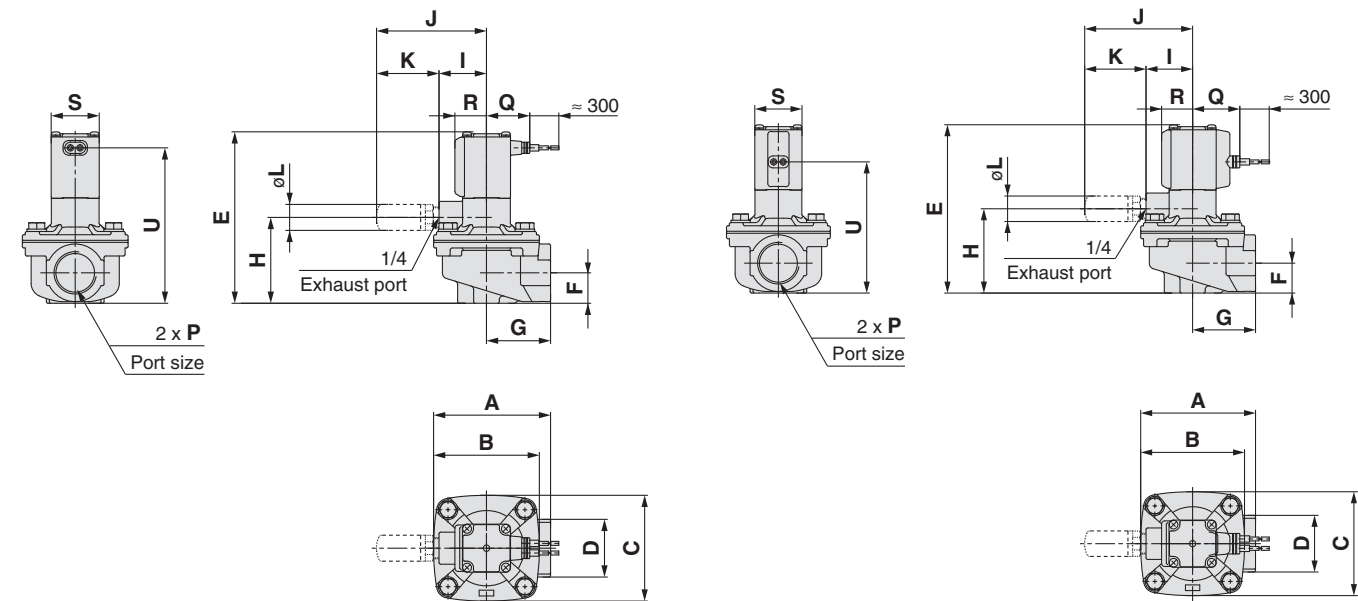
Note 2) When the VXF26 is ordered without a silencer, and a silencer is attached later by the user, the operation may become unstable while ON. When attaching a silencer later, be sure to replace the diaphragm assembly as well. When ordering a product with a silencer and is used without the silencer, the operation may become unstable while OFF. In this case, the diaphragm assembly should be replaced.

Series **VXF2**

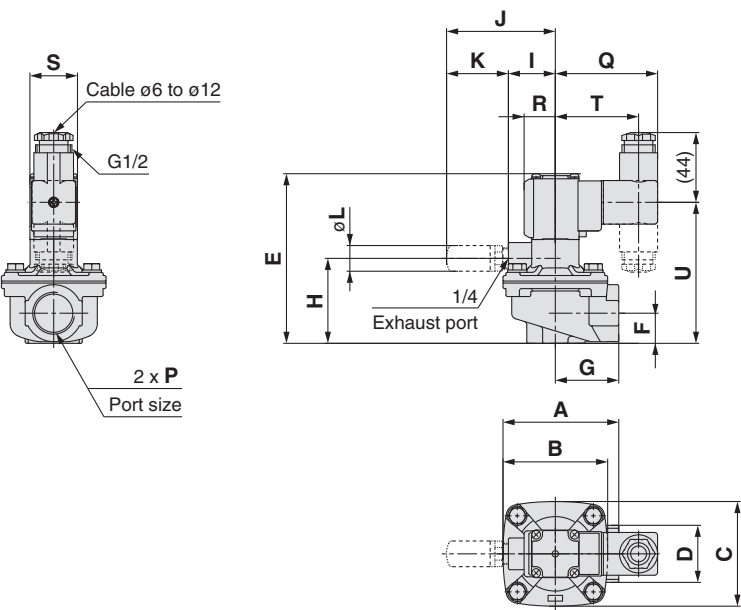
Dimensions: **Direct piping type** VXF21A□□□/22A□□□/23A□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



Dimensions [mm]

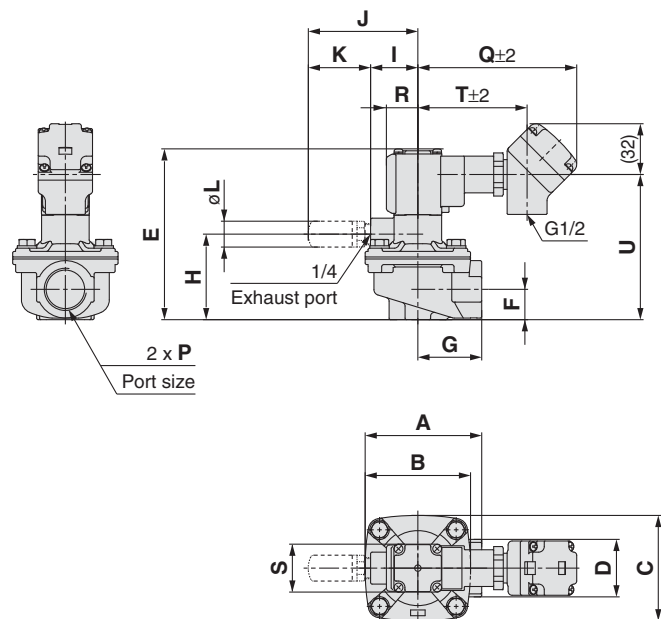
Model	Port size P	A	B	C	D	E	F	G	H	I	J	K	L	S
VXF21A□	3/4	73	66	66	36	107	19	40	53.5	29.5	68.5 (70.8)	39 (41.3)	16.5 (17)	30
VXF22A□	1	84	74	74	45	118	23.5	47	64.5	29.5	68.5 (70.8)	39 (41.3)	16.5 (17)	30
VXF23A□	1 1/2	132	110	110	63	154.5	35	77	95	32	71 (73.3)	39 (41.3)	16.5 (17)	35

Model	Grommet			Grommet (with surge voltage suppressor)			DIN terminal			
	Q	R	U	Q	R	U	Q	R	U	T
VXF21A□	27	20	97	30	20	83.5	64.5	20	89	52.5
VXF22A□	27	20	108	30	20	94.5	64.5	20	100	52.5
VXF23A□	29.5	22	143.5	32.5	22	130	67	22	135.5	55

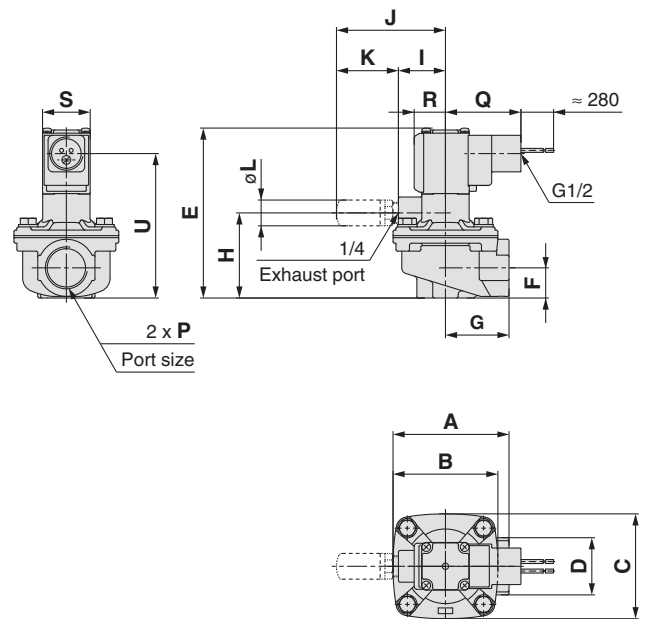
* (): When the symbol “D” for high temperature is selected.

Dimensions: **Direct piping type** VXF21A□□□/22A□□□/23A□□□

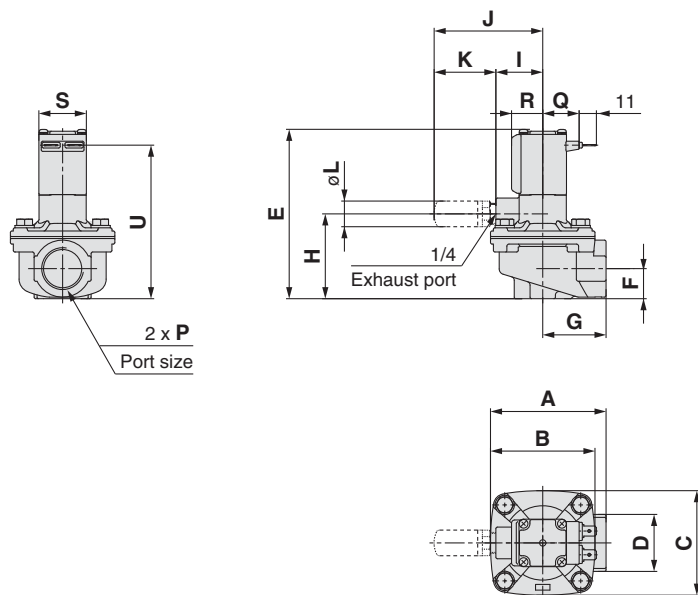
Conduit terminal



Conduit



Flat terminal



Dimensions

[mm]

Model	Port size P	A	B	C	D	E	F	G	H	I	J	K	L	S
VXF21A□	3/4	73	66	66	36	107	19	40	53.5	29.5	68.5 (70.8)	39 (41.3)	16.5 (17)	30
VXF22A□	1	84	74	74	45	118	23.5	47	64.5	29.5	68.5 (70.8)	39 (41.3)	16.5 (17)	30
VXF23A□	1 1/2	132	110	110	63	154.5	35	77	95	32	71 (73.3)	39 (41.3)	16.5 (17)	35
Model	Conduit terminal				Conduit			Flat terminal						
	Q	R	U	T	Q	R	U	Q	R	U				
VXF21A□	99.5	20	91	68.5	47.5	20	91	23	20	97				
VXF22A□	99.5	20	102	68.5	47.5	20	102	23	20	108				
VXF23A□	102	22	137.5	71	50	22	137.5	25.5	22	143.5				

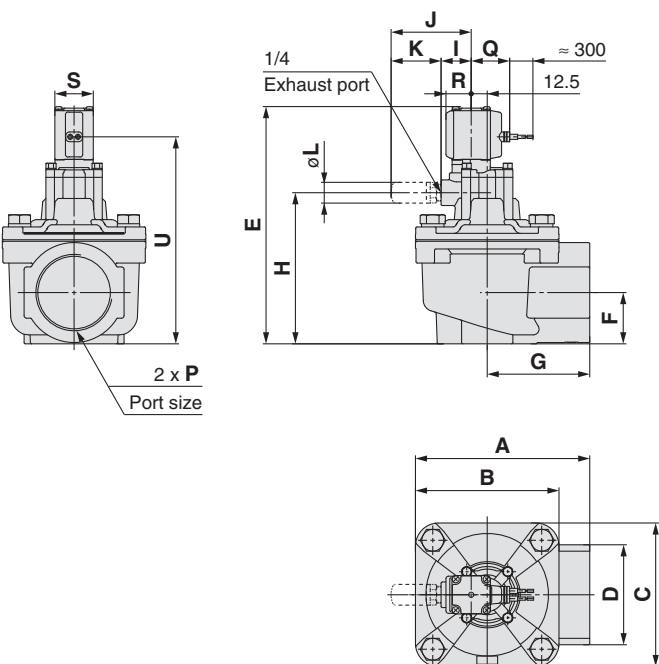
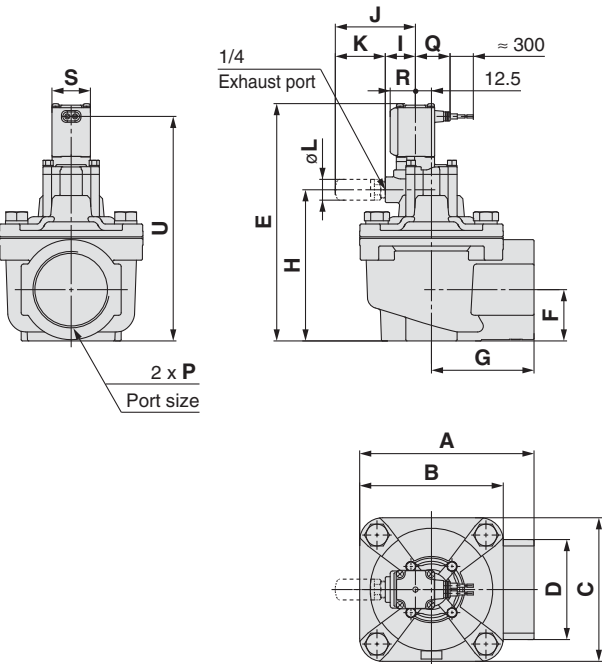
* (): When the symbol "D" for high temperature is selected.

Series **VXF2**

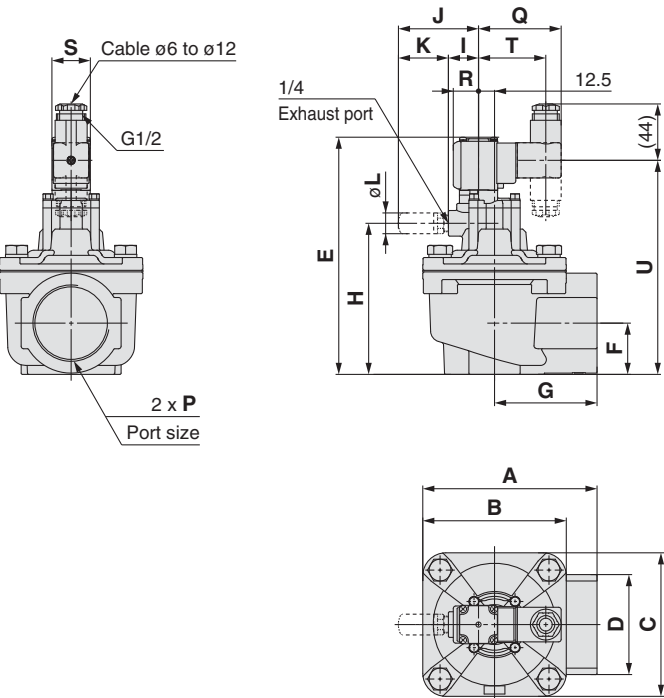
Dimensions: **Direct piping type** VXF24A□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



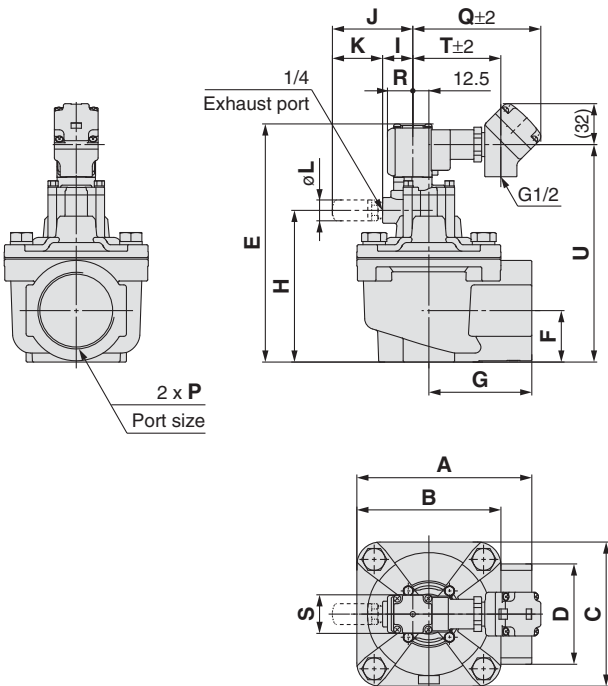
Dimensions [mm]

Model	Port size P	A	B	C	D	E	F	G	H	I	J	K	L	S
VXF24A□	2	136	112	112	78	185	40	80	118	23.5	62.5 (64.8)	39 (41.3)	16.5 (17)	30
Model	Grommet			Grommet (with surge voltage suppressor)			DIN terminal							
	Q	R	U	Q	R	U	Q	R	U	T				
VXF24A□	27	20	175	30	20	161.5	64.5	20	167	52.5				

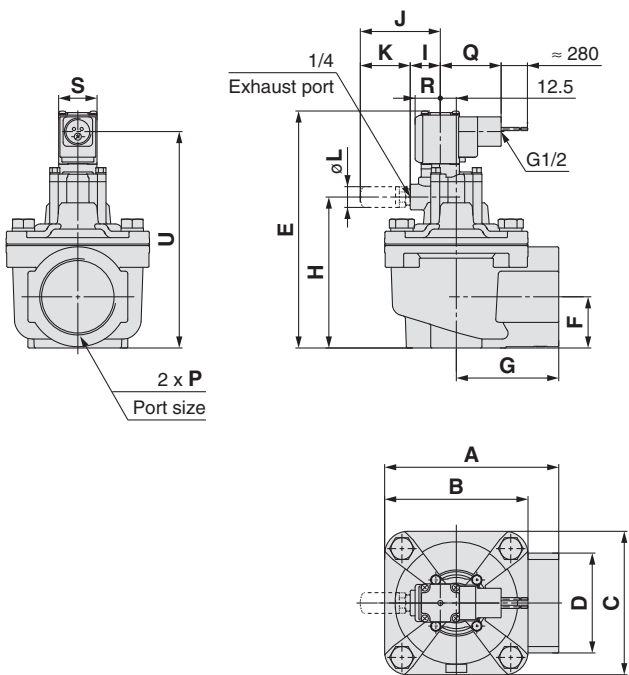
* (): When the symbol “D” for high temperature is selected.

Dimensions: **Direct piping type** VXF24A□□□

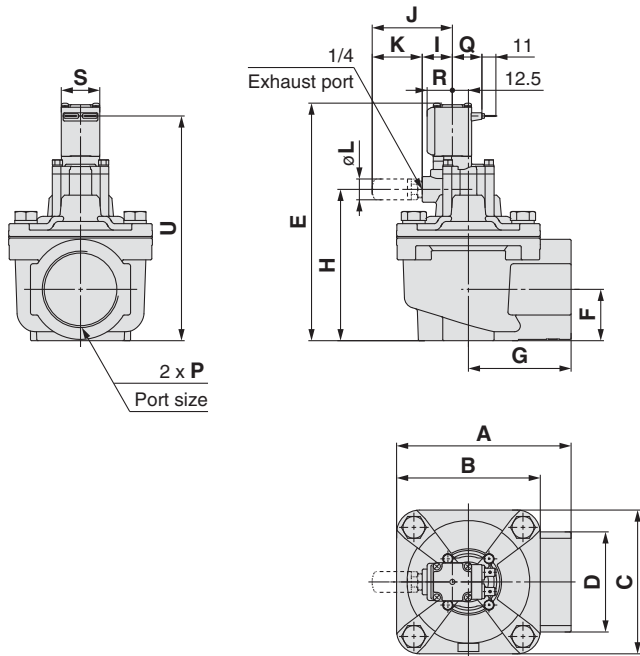
Conduit terminal



Conduit



Flat terminal



Dimensions

[mm]

Model	Port size P	A	B	C	D	E	F	G	H	I	J	K	L	S
VXF24A□	2	136	112	112	78	185	40	80	118	23.5	62.5 (64.8)	39 (41.3)	16.5 (17)	30
Model	Conduit terminal				Conduit			Flat terminal						
	Q	R	U	T	Q	R	U	Q	R	U				
VXF24A□	99.5	20	169	68.5	47.5	20	169	23	20	175				

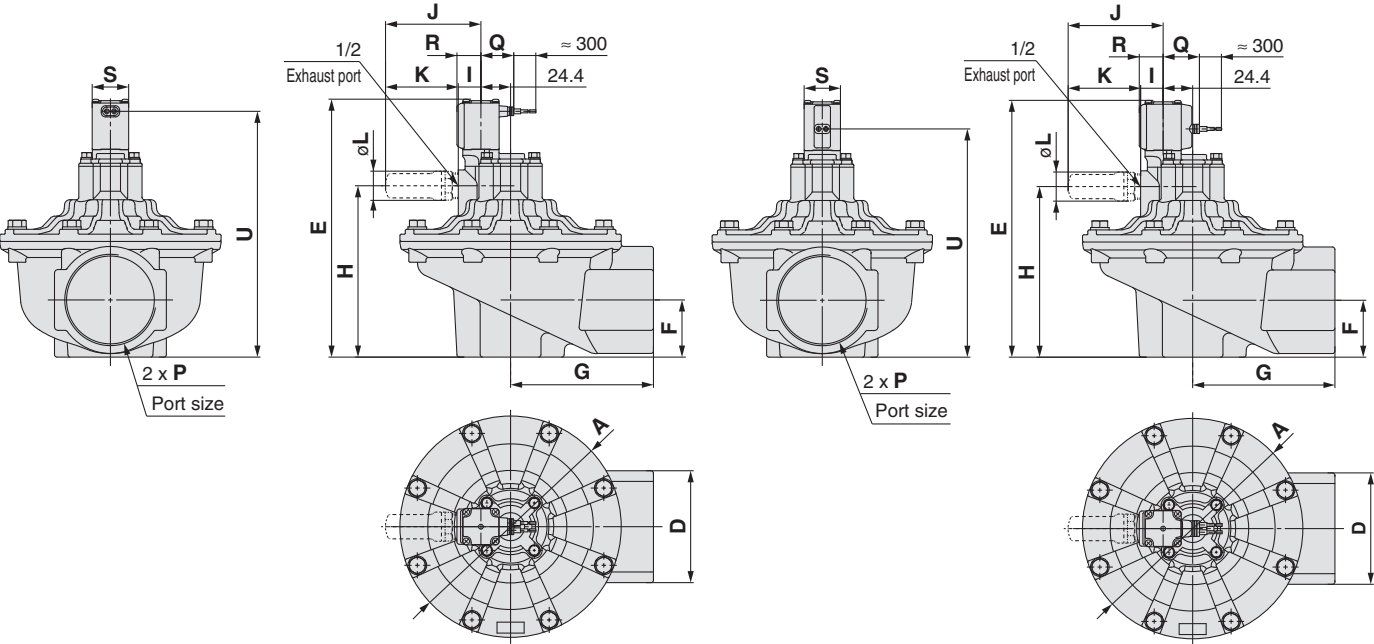
* (): When the symbol “D” for high temperature is selected.

Series **VXF2**

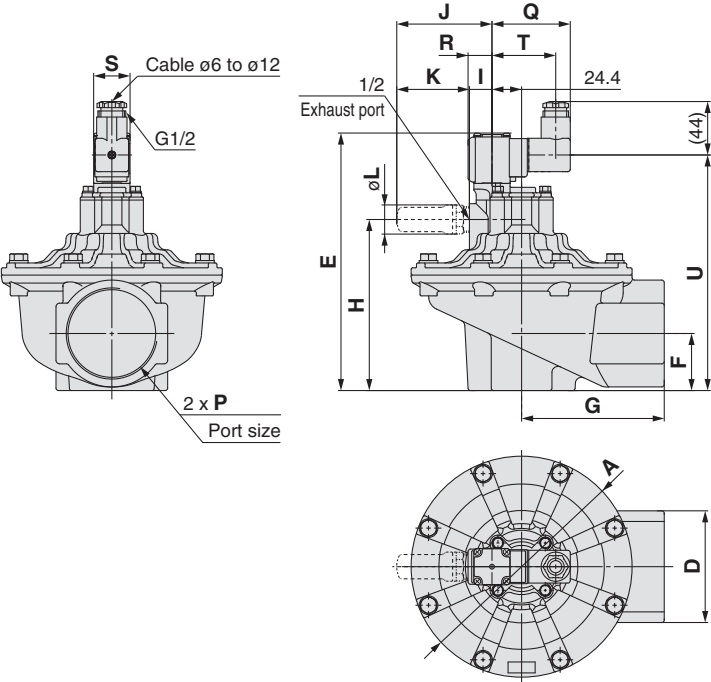
Dimensions: **Direct piping type** VXF25A□□□/26A□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



Dimensions

[mm]

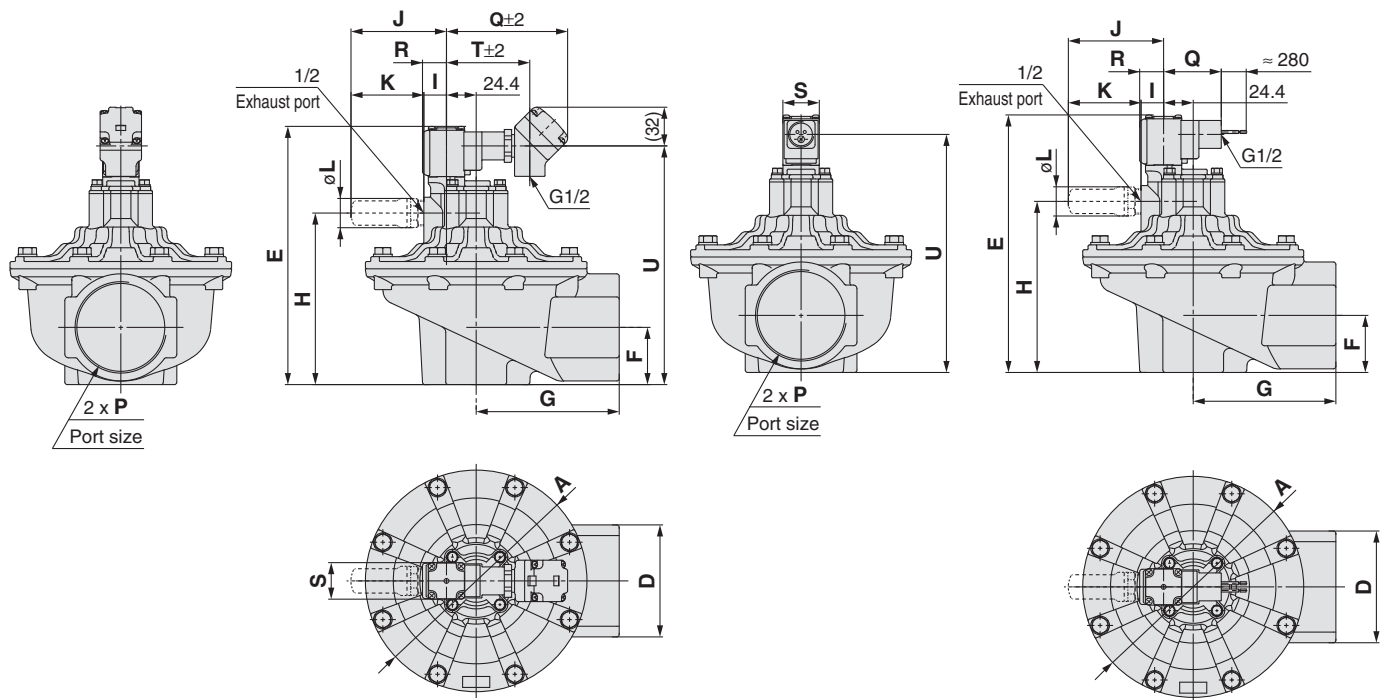
Model	Port size P	A	D	E	F	G	H	I	J	K	L	S
VXF25A□	2 1/2	182	92	212	47	117.5	141	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF26A□	3	206	102	247	63	119	176	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30
Model	Grommet			Grommet (with surge voltage suppressor)			DIN terminal					
	Q	R	U	Q	R	U	Q	R	U	T		
VXF25A□	27	20	202	30	20	188.5	64.5	20	194	52.5		
VXF26A□	27	20	237	30	20	223.5	64.5	20	229	52.5		

* (): When the symbol "D" for high temperature is selected.

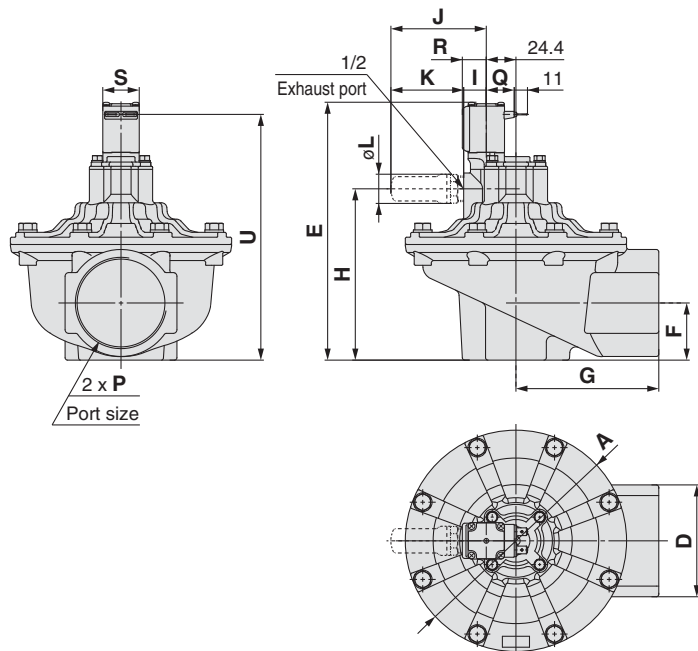
Dimensions: **Direct piping type** VXF25A□□□/26A□□□

Conduit terminal

Conduit



Flat terminal



Dimensions

[mm]

Dimensions

Model	Port size P	A	D	E	F	G	H	I	J	K	L	S
VXF25A□	2 1/2	182	92	212	47	117.5	141	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF26A□	3	206	102	247	63	119	176	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30

Model	Conduit terminal				Conduit			Flat terminal		
	Q	R	U	T	Q	R	U	Q	R	U
VXF25A□	99.5	20	196	68.5	47.5	20	196	23	20	202
VXF26A□	99.5	20	231	68.5	47.5	20	231	23	20	237

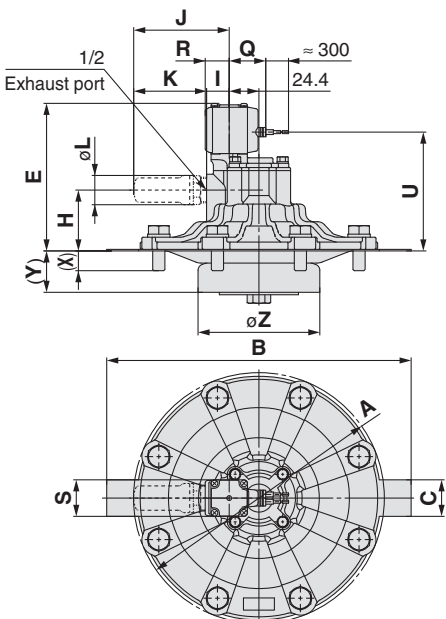
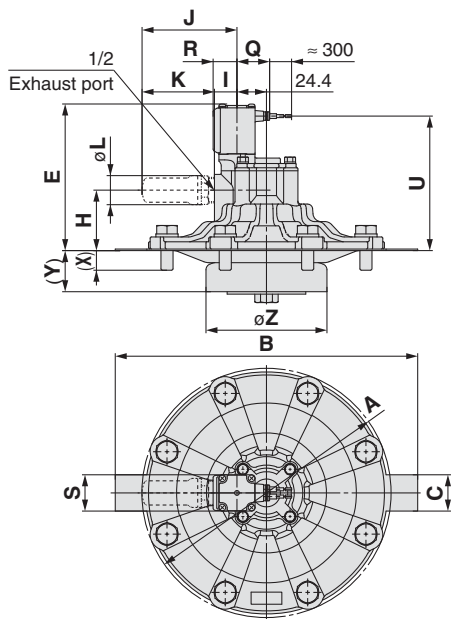
* (): When the symbol "D" for high temperature is selected.

Series VXF2

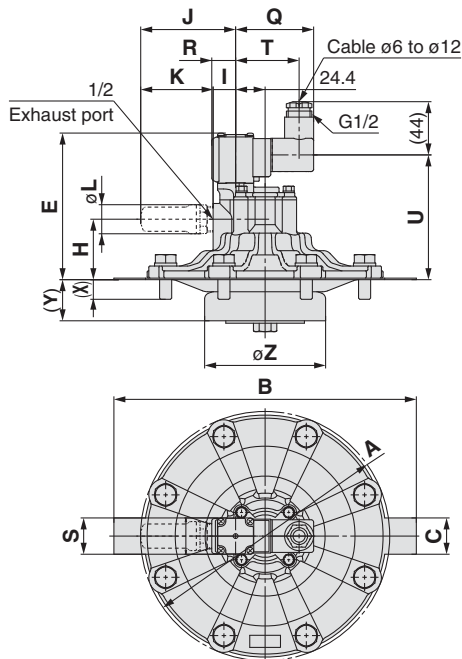
Dimensions: **Flange type** VXF25B□□□/26B□□□/27B□□□/28B□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



Note) Refer to page 21 for the dimensions on the mounting side.

Dimensions

[mm]

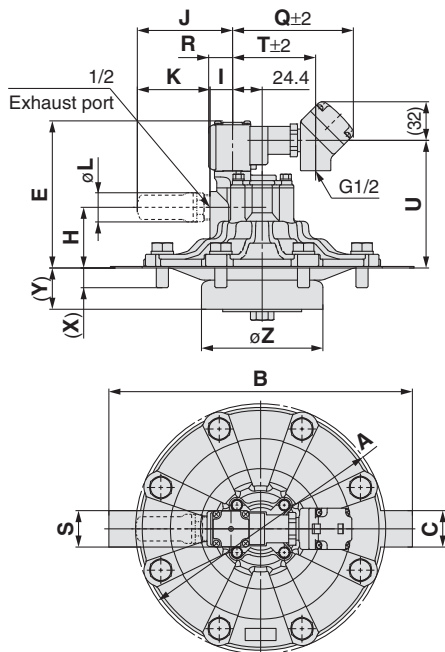
Model	A	B	C	E	H	I	X	Y	Z	J	K	L	S
VXF25B□	182	—	—	118	47	18.6	17	18.3	90	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF26B□	206	250	30	121	50	18.6	17	34	100	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF27B□	206	250	30	121	50	18.6	17	34	110	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF28B□	206	250	30	121	50	18.6	17	34	120	78.4 (70.2)	59.8 (43.1)	24 (17)	30

Model	Grommet			Grommet (with surge voltage suppressor)			DIN terminal			
	Q	R	U	Q	R	U	Q	R	U	T
VXF25B□	27	20	108	30	20	94.5	64.5	20	100	52.5
VXF26B□	27	20	111	30	20	97.5	64.5	20	103	52.5
VXF27B□	27	20	111	30	20	97.5	64.5	20	103	52.5
VXF28B□	27	20	111	30	20	97.5	64.5	20	103	52.5

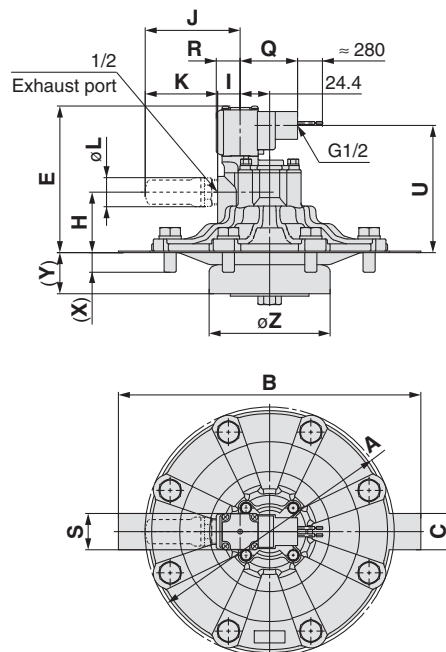
* () : When the symbol “D” for high temperature is selected.

Dimensions: **Flange type** VXF25B□□□/26B□□□/27B□□□/28B□□□

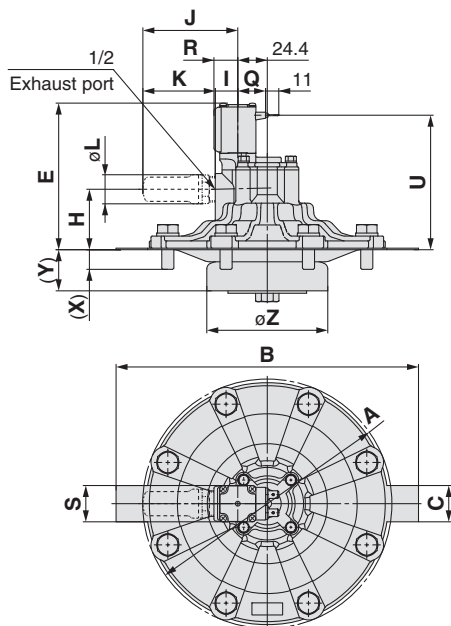
Conduit terminal



Conduit



Flat terminal



Note) Refer to page 21 for the dimensions of the mounting interface.

Dimensions

[mm]

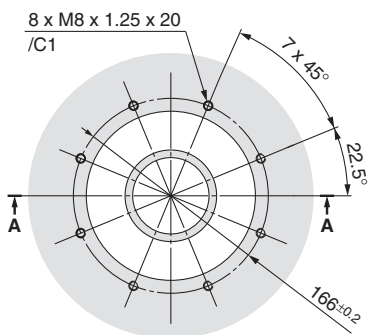
Model	A	B	C	E	H	I	X	Y	Z	J	K	L	S
VXF25B□	182	—	—	118	47	18.6	17	18.3	90	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF26B□	206	250	30	121	50	18.6	17	34	100	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF27B□	206	250	30	121	50	18.6	17	34	110	78.4 (70.2)	59.8 (43.1)	24 (17)	30
VXF28B□	206	250	30	121	50	18.6	17	34	120	78.4 (70.2)	59.8 (43.1)	24 (17)	30

Model	Conduit terminal				Conduit			Flat terminal		
	Q	R	U	T	Q	R	U	Q	R	U
VXF25B□	99.5	20	102	68.5	47.5	20	102	23	20	108
VXF26B□	99.5	20	105	68.5	47.5	20	105	23	20	111
VXF27B□	99.5	20	105	68.5	47.5	20	105	23	20	111
VXF28B□	99.5	20	105	68.5	47.5	20	105	23	20	111

* (): When the symbol "D" for high temperature is selected.

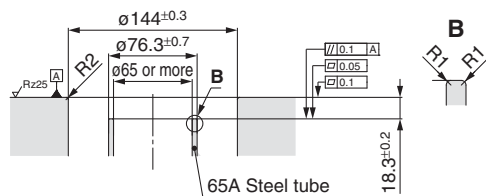
Dimensions of the Mounting interface: **Flange type**

VXF25B□□□

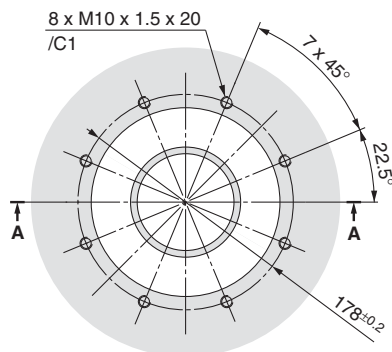


A-A

The surface roughness of the orifice should be Rz6.3 or less.

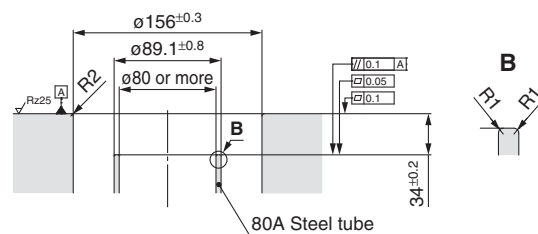


VXF26B□□□

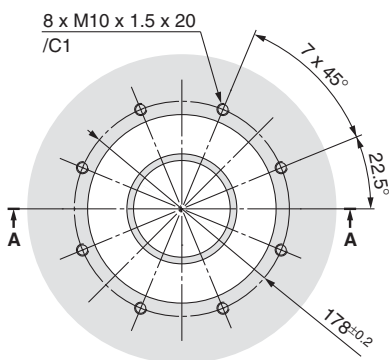


A-A

The surface roughness of the orifice should be Rz6.3 or less.

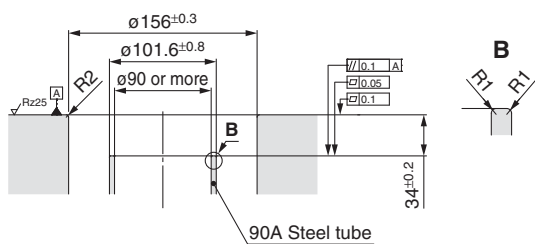


VXF27B□□□

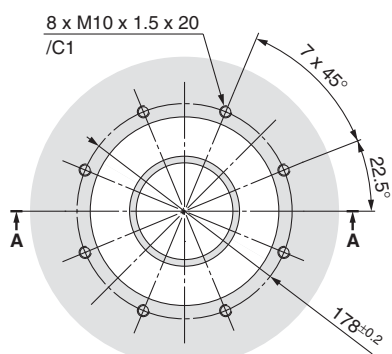


A-A

The surface roughness of the orifice should be Rz6.3 or less.

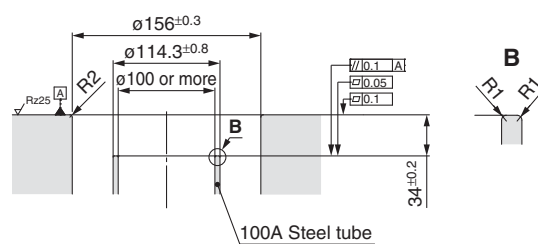


VXF28B□□□



A-A

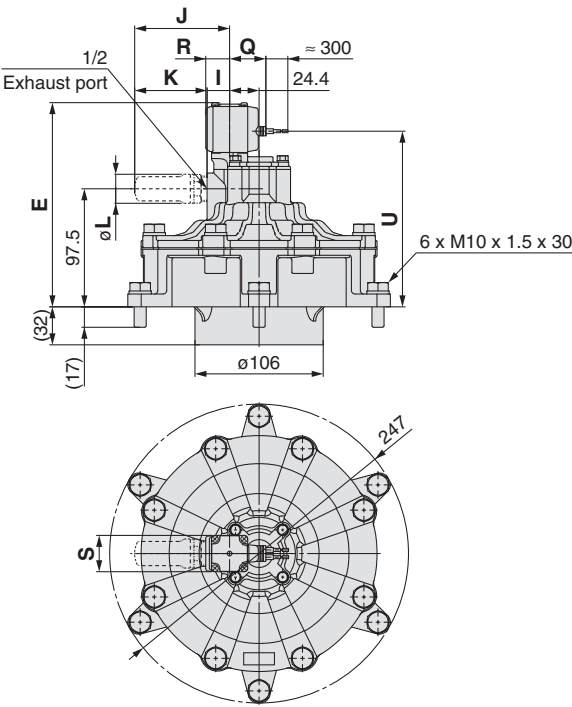
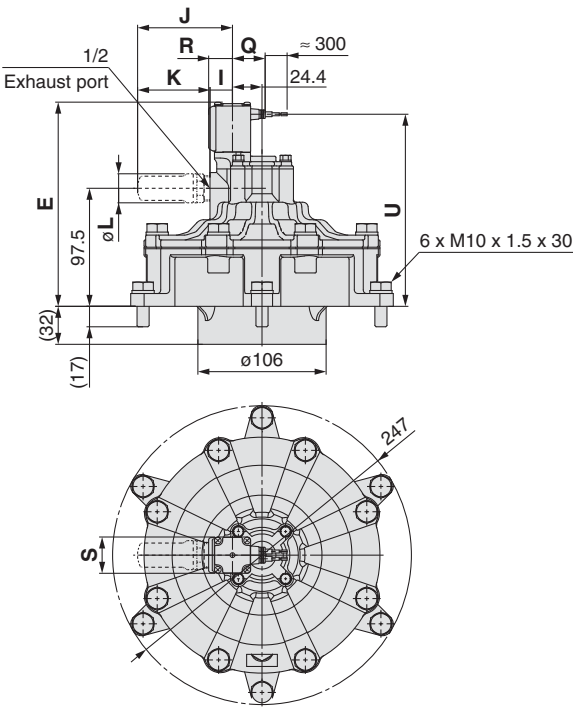
The surface roughness of the orifice should be Rz6.3 or less.



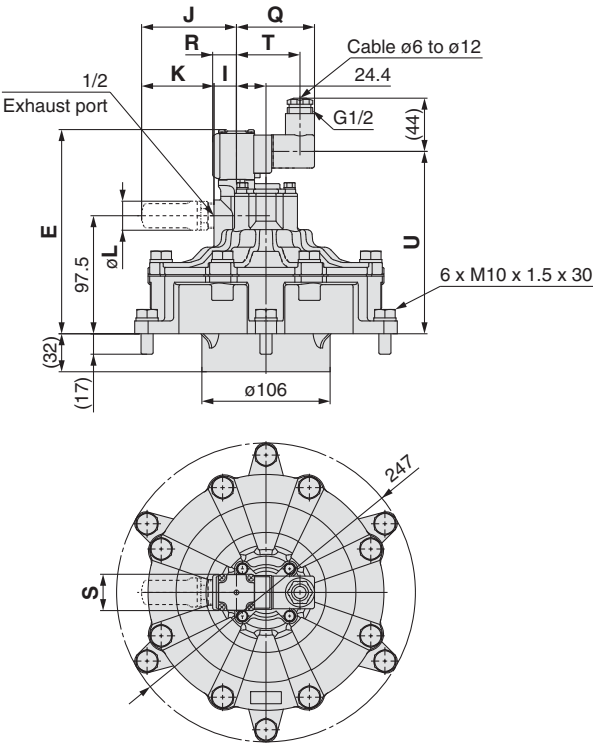
Dimensions: **Flange body I type** VXF26C□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



Note) Refer to page 26 for the dimensions of the mounting interface.

Dimensions

[mm]

Model	E	I	J	K	L	S	Grommet			Grommet (with surge voltage suppressor)			DIN terminal			
							Q	R	U	Q	R	U	Q	R	U	T
VXF26C□	169	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30	27	20	159	30	20	145	64.5	20	151	52.5

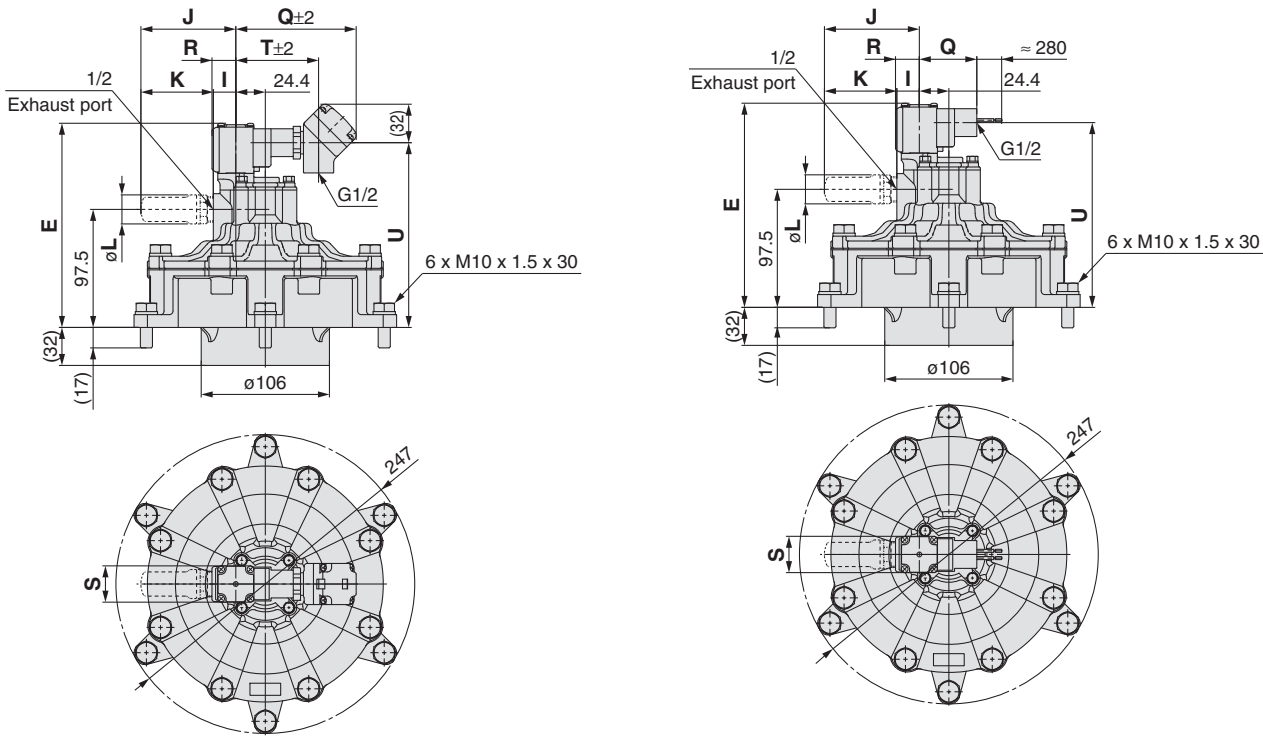
* (): When the symbol "D" for high temperature is selected.

Series **VXF2**

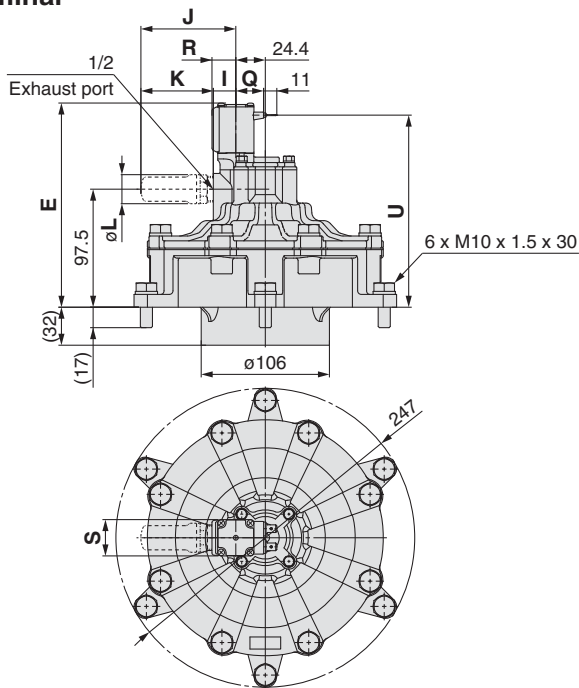
Dimensions: **Flange body I type** **vXF26C**□□□

Conduit terminal

Conduit



Flat terminal



Note) Refer to page 26 for the dimensions of the mounting interface.

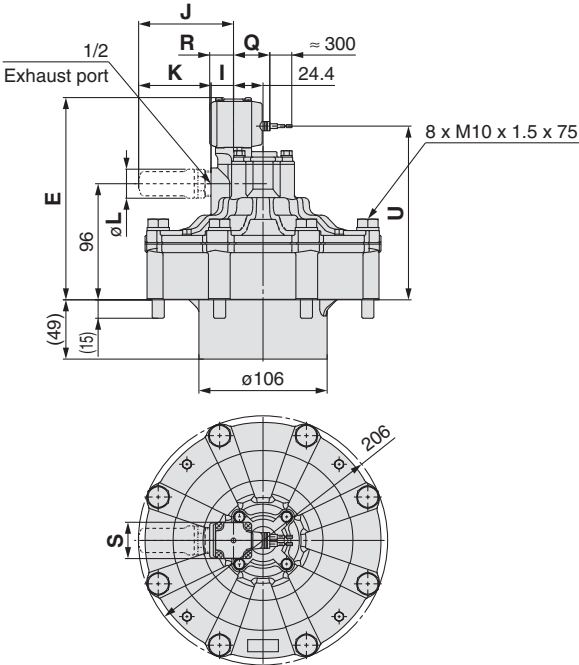
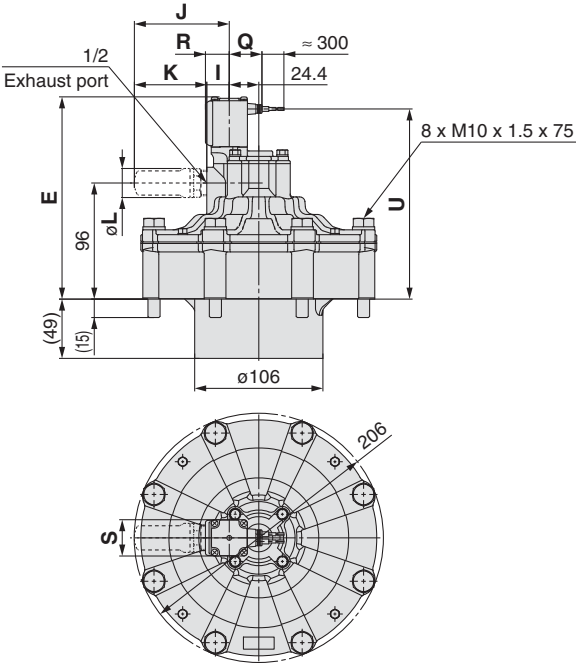
Dimensions																[mm]
Model	E	I	J	K	L	S	Conduit terminal				Conduit			Flat terminal		
							Q	R	U	T	Q	R	U	Q	R	U
VXF26C□	169	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30	99.5	20	153	68.5	47.5	20	153	23	20	159

* (): When the symbol “D” for high temperature is selected.

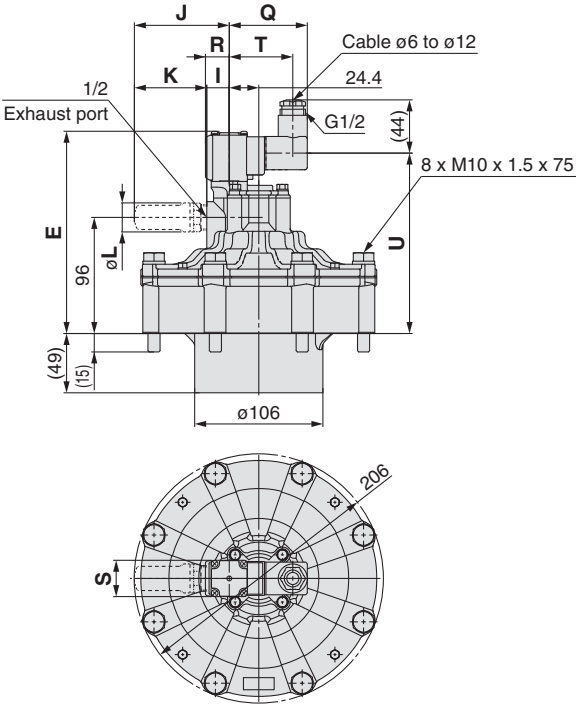
Dimensions: **Flange body II type** VXF26D□□□

Grommet

Grommet (with surge voltage suppressor)



DIN terminal



Note) Refer to page 26 for the dimensions of the mounting interface.

Dimensions

[mm]

Model	E	I	J	K	L	S	Grommet			Grommet (with surge voltage suppressor)			DIN terminal			
							Q	R	U	Q	R	U	Q	R	U	T
VXF26D□	167	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30	27	20	157	30	20	143.5	64.5	20	149	52.5

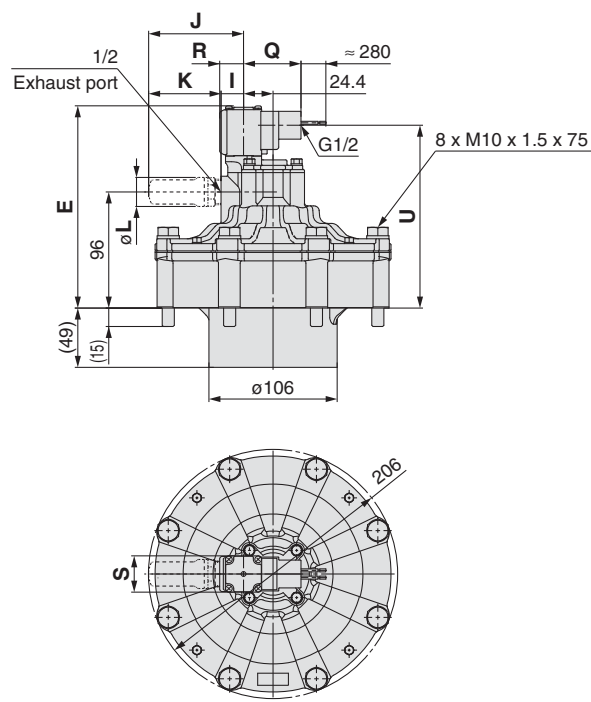
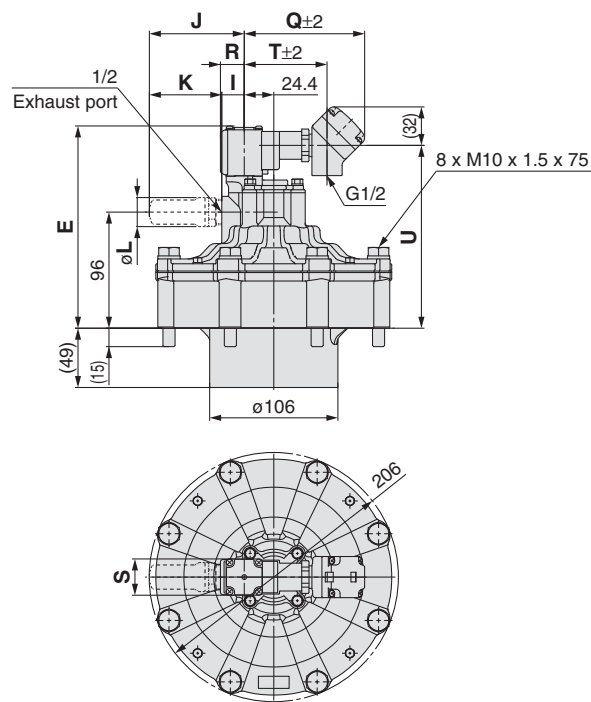
* (): When the symbol "D" for high temperature is selected.

Series VXF2

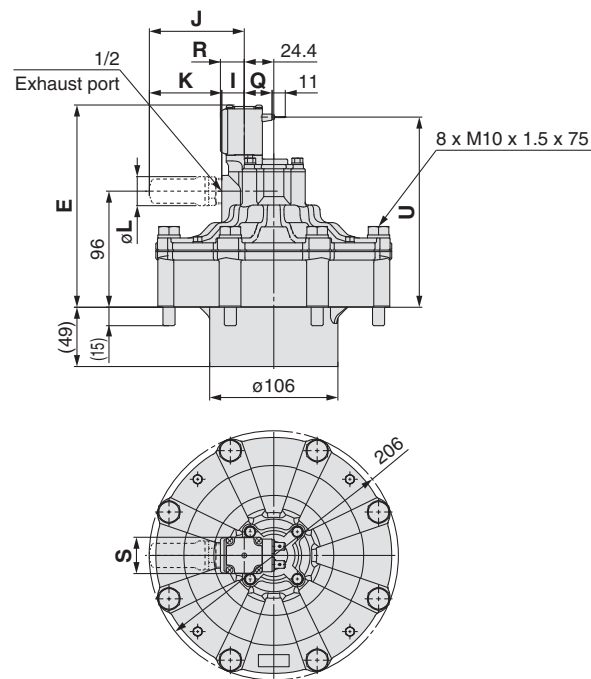
Dimensions: **Flange body II type** VXF26D□□□

Conduit terminal

Conduit



Flat terminal



Note) Refer to page 26 for the dimensions of the mounting interface.

Dimensions

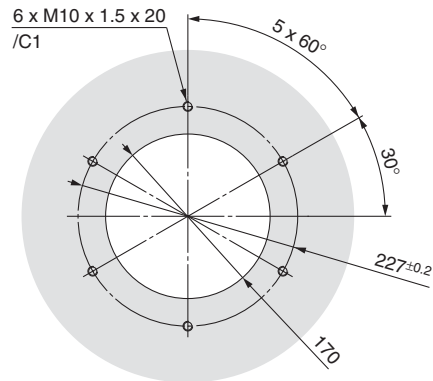
[mm]

Model	E	I	J	K	L	S	Conduit terminal				Conduit			Flat terminal		
							Q	R	U	T	Q	R	U	Q	R	U
VXF26D□	167	18.6	78.4 (70.2)	59.8 (43.1)	24 (17)	30	99.5	20	151	68.5	47.5	20	151	23	20	157

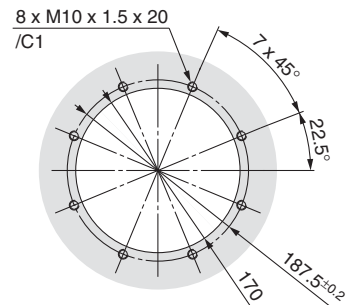
* (): When the symbol “D” for high temperature is selected.

Dimensions of the Mounting interface: **Flange body I/II type**

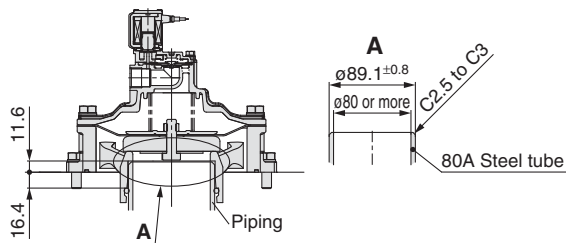
VXF26C□□□



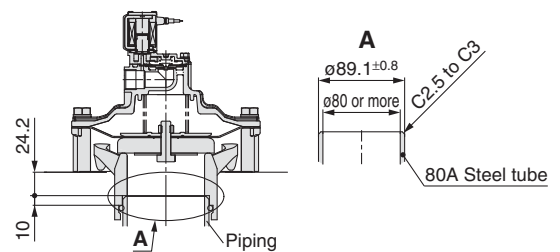
VXF26D□□□



VXF26C□□□ Piping



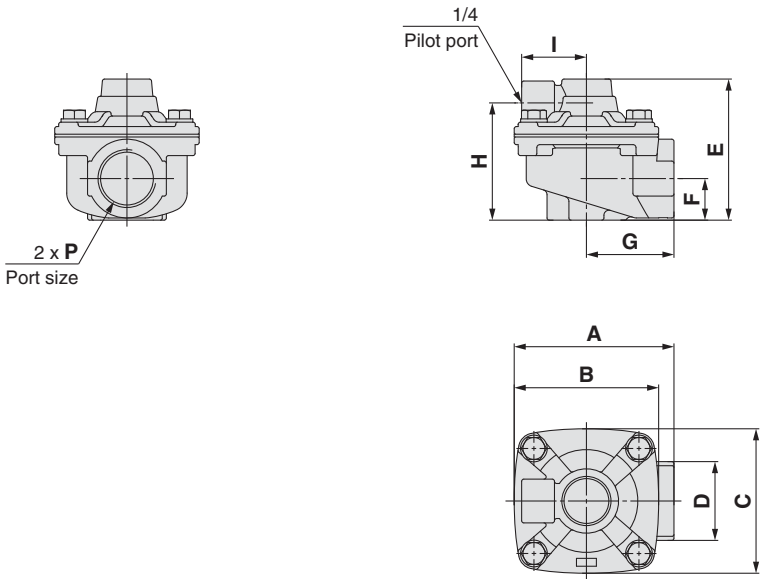
VXF26D□□□ Piping



Series VXFA2

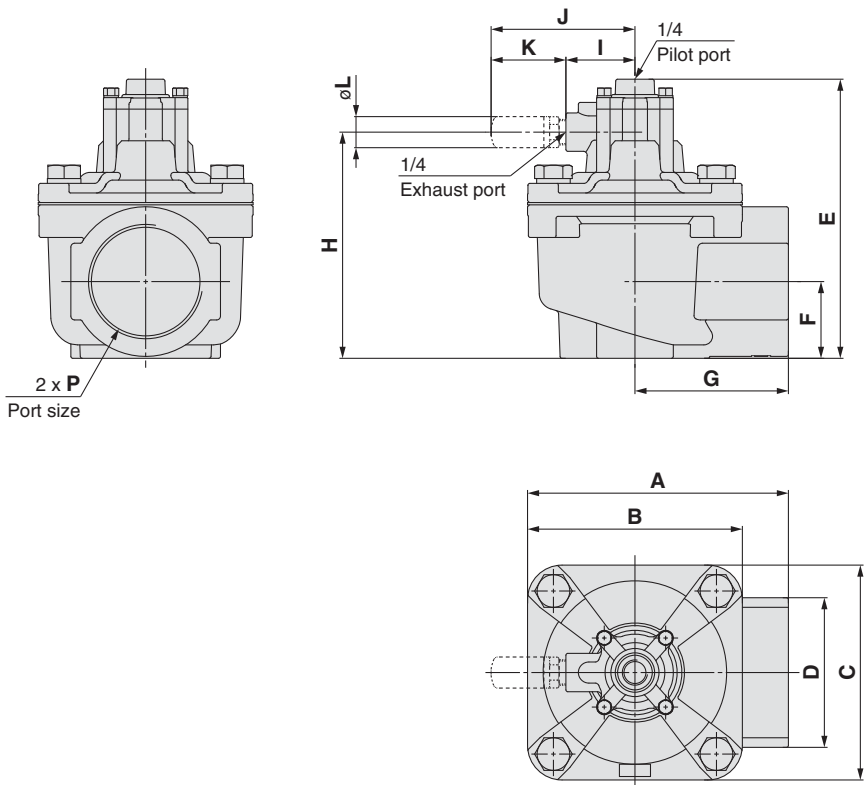
Dimensions: Direct piping type

- VXFA21A□□□
- VXFA22A□□□
- VXFA23A□□□



Dimensions [mm]										
Model	Port size P	A	B	C	D	E	F	G	H	I
VXFA21A□	3/4	73	66	66	36	64.5	19	40	53.5	29.5
VXFA22A□	1	84	74	74	45	74.5	23.5	47	64.5	29.5
VXFA23A□	1 1/2	132	110	110	63	106	35	77	95	32

VXFA24A□□□



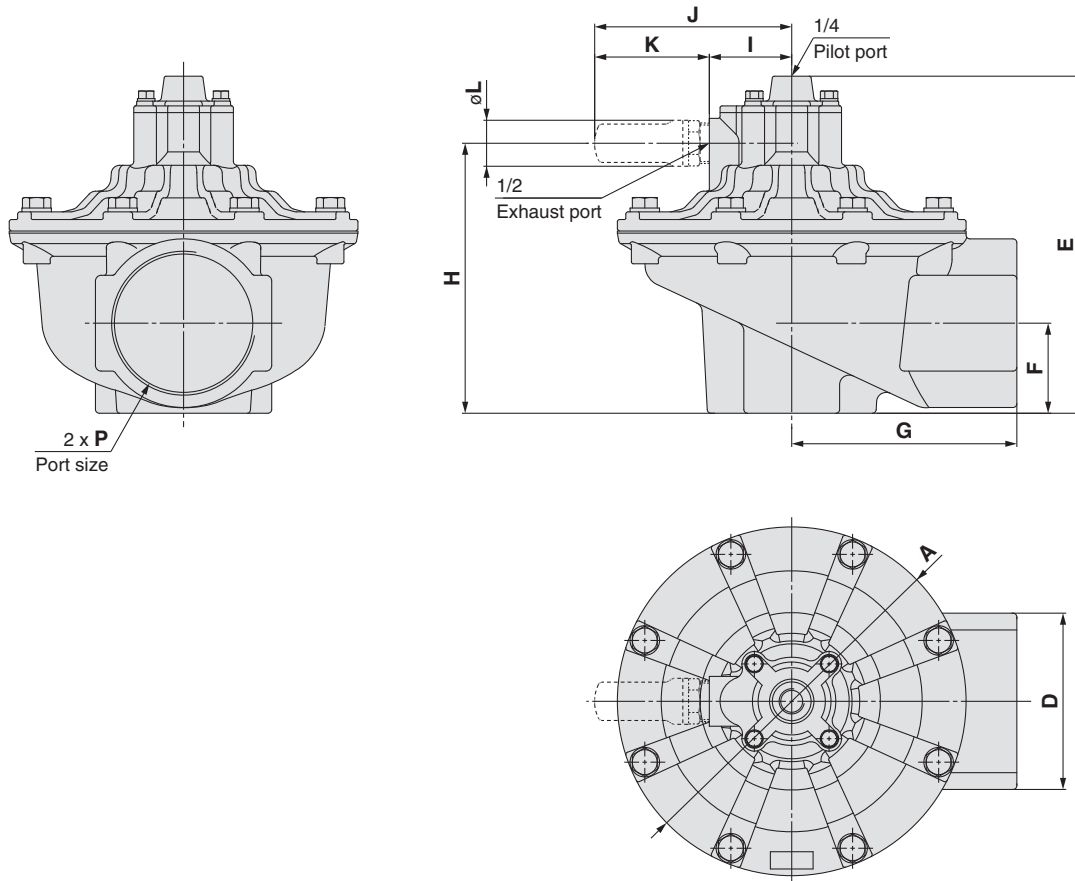
Dimensions [mm]													
Model	Port size P	A	B	C	D	E	F	G	H	I	J	K	L
VXFA24A□	2	136	112	112	78	145.5	40	80	118	36	75 (77.8)	39 (41.3)	16.5 (17)

* (): When the symbol “D” for high temperature is selected.

Dimensions: **Direct piping type**

VXFA25A□□□

VXFA26A□□□



Dimensions

[mm]

Model	Port size P	A	D	E	F	G	H	I	J	K	L
VXFA25A □	2 1/2	182	92	176	47	117.5	141	43	102.8 (94.6)	59.8 (43.1)	24 (17)
VXFA26A □	3	206	102	211	63	119	176	43	102.8 (94.6)	59.8 (43.1)	24 (17)

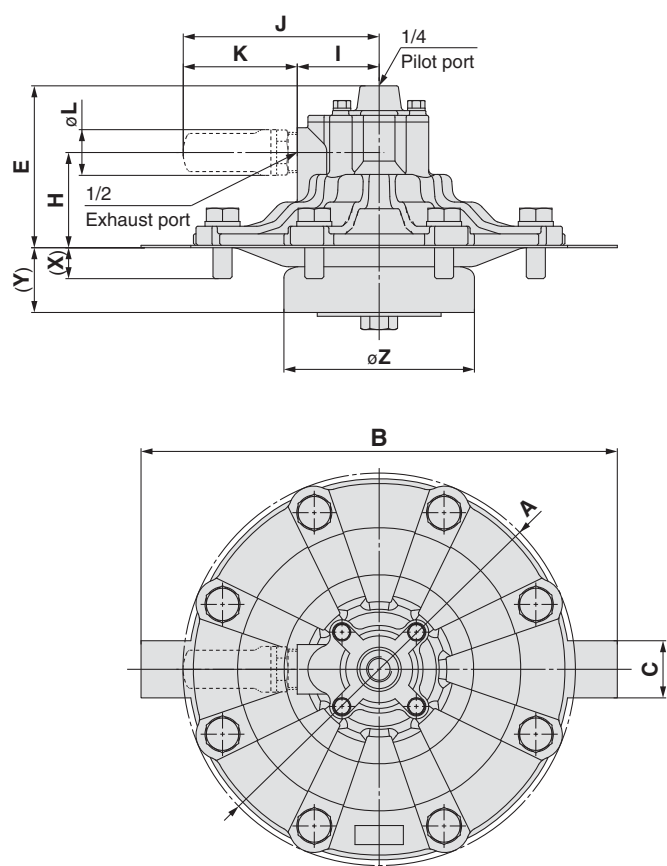
* (): When the symbol "D" for high temperature is selected.

Series VXFA2

Dimensions:

Flange type

- VXFA25B□□□
- VXFA26B□□□
- VXFA27B□□□
- VXFA28B□□□



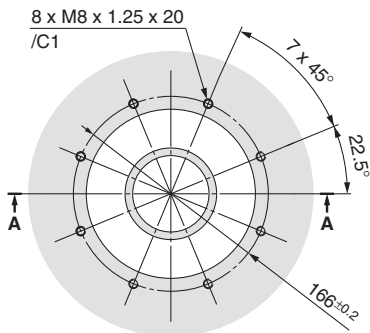
Note) Refer to page 30 for the dimensions of the mounting interface.

Dimensions												[mm]
Model	A	B	C	E	Y	X	H	I	J	K	L	Z
VXFA25B□	182	—	—	82	18.3	17	47	43	102.8 (94.6)	59.8 (43.1)	24 (17)	90
VXFA26B□	206	250	30	85	34	17	50	43	102.8 (94.6)	59.8 (43.1)	24 (17)	100
VXFA27B□	206	250	30	85	34	17	50	43	102.8 (94.6)	59.8 (43.1)	24 (17)	110
VXFA28B□	206	250	30	85	34	17	50	43	102.8 (94.6)	59.8 (43.1)	24 (17)	120

* (): When the symbol “D” for high temperature is selected.

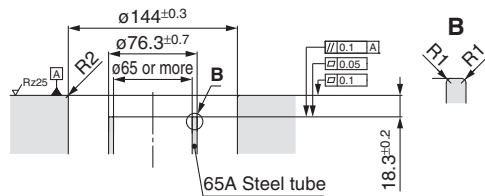
Dimensions of the Mounting interface: **Flange type**

VXFA25B□□□

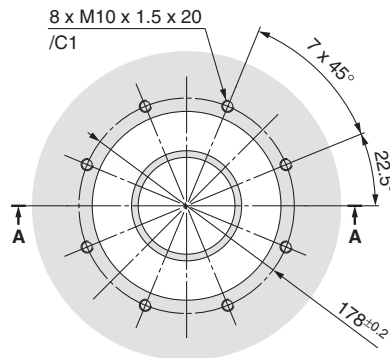


A-A

The surface roughness of the orifice should be Rz6.3 or less.

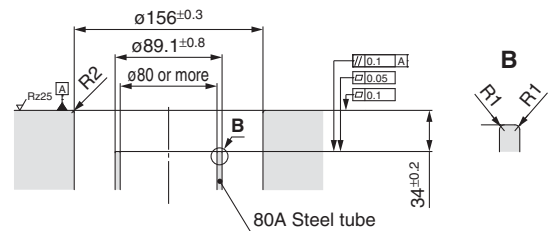


VXFA26B□□□

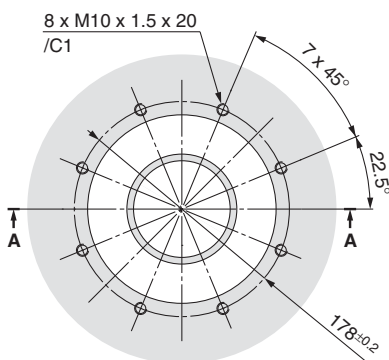


A-A

The surface roughness of the orifice should be Rz6.3 or less.

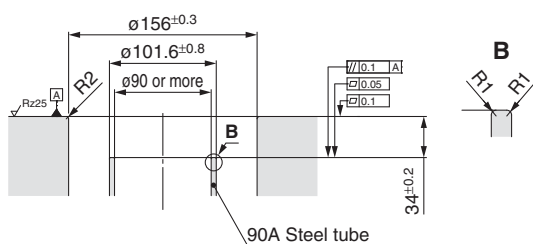


VXFA27B□□□

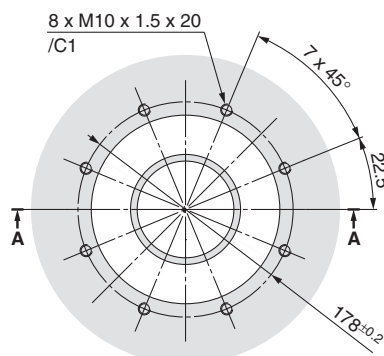


A-A

The surface roughness of the orifice should be Rz6.3 or less.

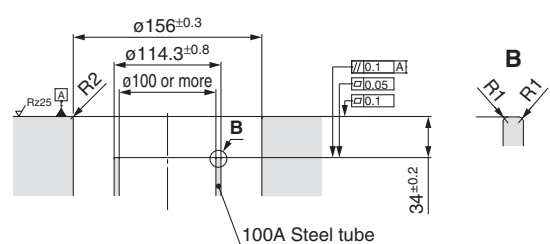


VXFA28B□□□



A-A

The surface roughness of the orifice should be Rz6.3 or less.

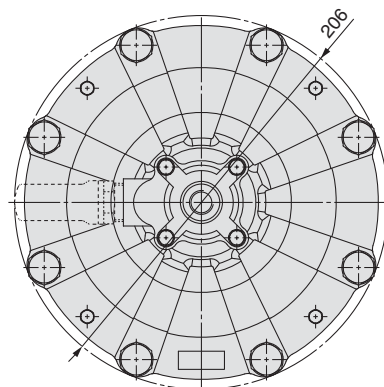
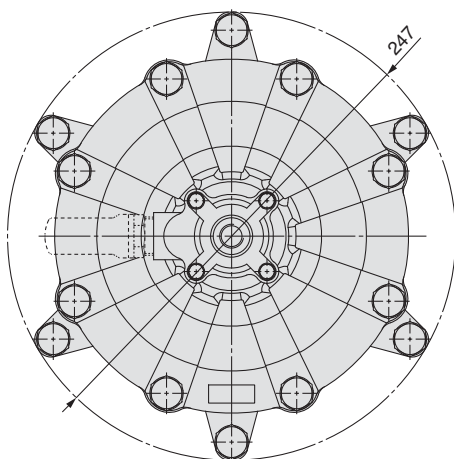
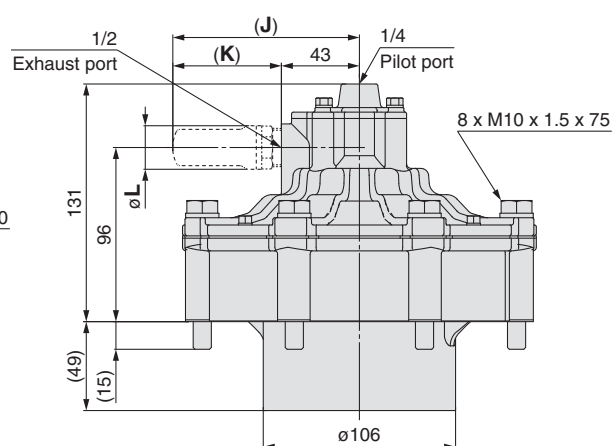
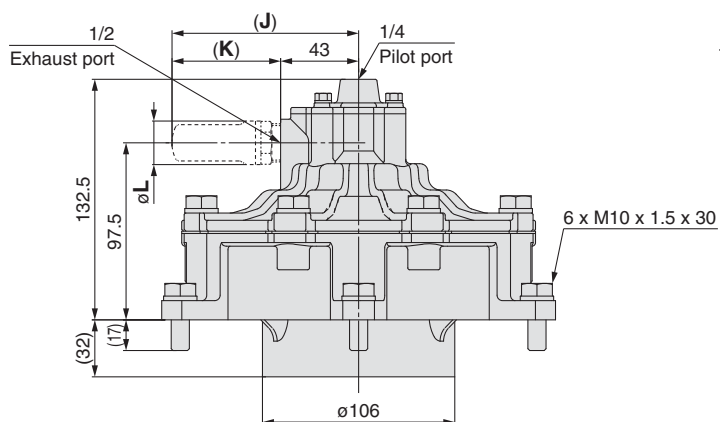


Series VXFA2

Dimensions: Flange body I/II type

VXFA26C□□□

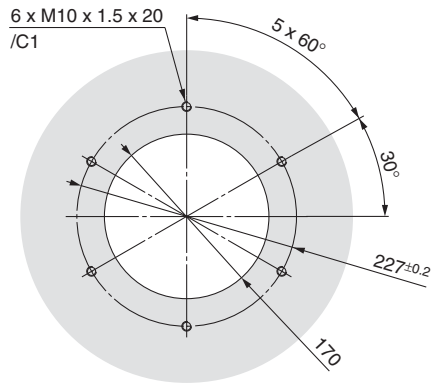
VXFA26D□□□



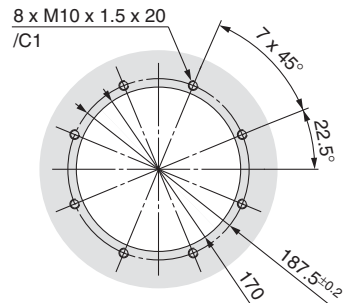
Note) Refer to page 32 for the dimensions of the mounting interface.
Refer to page 29 for J, K, L dimensions.

Dimensions of the Mounting interface: **Flange body I/II type**

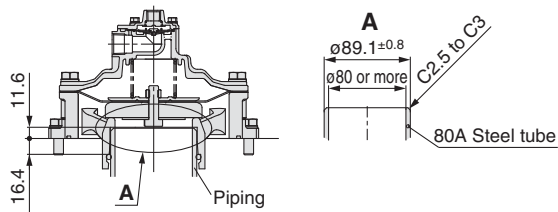
VXFA26C□□□



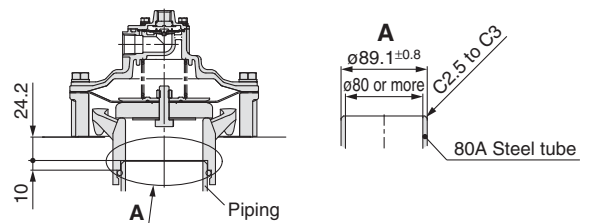
VXFA26D□□□



VXFA26C□□□ Piping



VXFA26D□□□ Piping

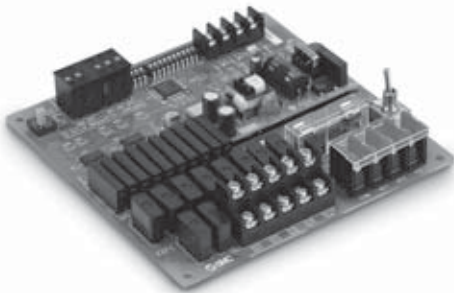


Dedicated Controller For VXF(A)2/Series VXFC

How to Order Controller

VXFC **06** **D** - Q

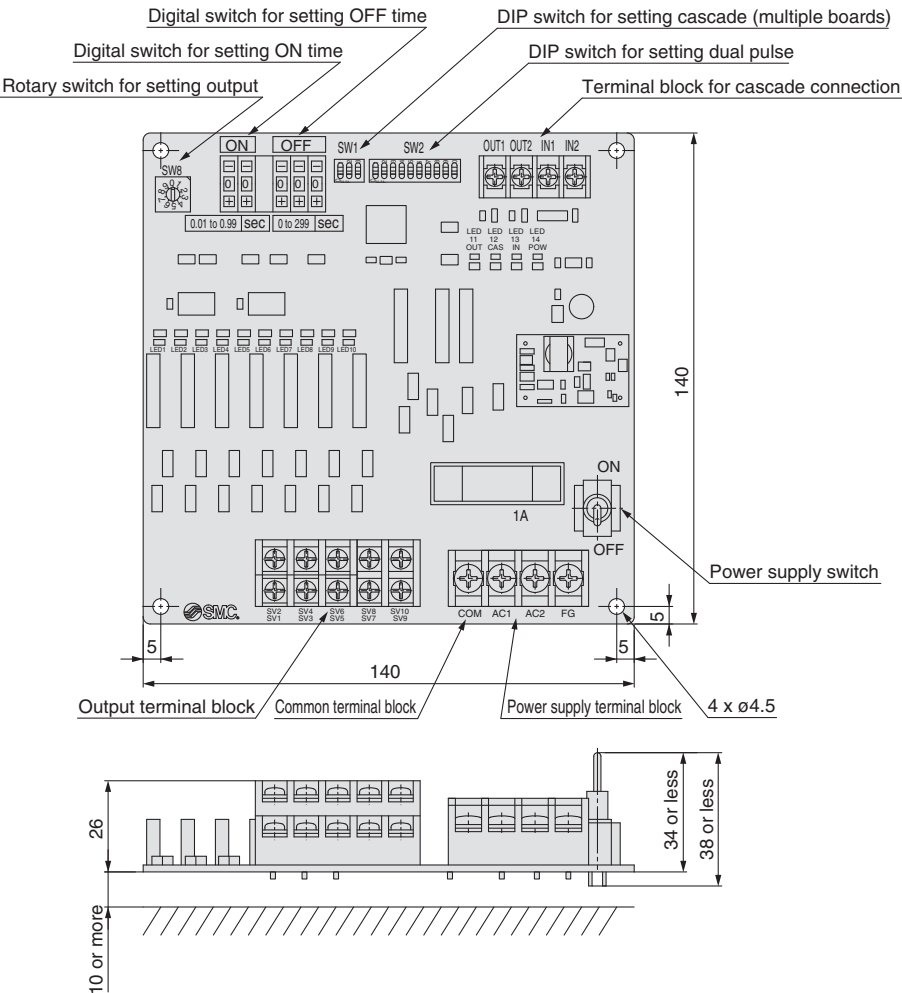
Number of outputs		Voltage	
06	6 outputs	D	24 to 48 VDC
10	10 outputs		



Specifications

Model		VXFC ⁰⁶ ₁₀ D
Input voltage		24 to 48 VDC
Output voltage		Same as input voltage
Time setting	ON	0.01 to 0.99 sec
	OFF	0 to 299 sec
	Time accuracy	±2 %
Number of outputs		6 to 10 points
Operating ambient temperature		0 to 50 °C (No condensation allowed)
Operating ambient humidity		45 to 80 % (No condensation allowed)
Output current		0.3 A or less
Power supply fuse		1 A

Dimensions



Series VXF(A)

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 open.

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 not exceed the maximum operating pressure differential.]

4. Withstand 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. $\cos \theta \approx 0.9$

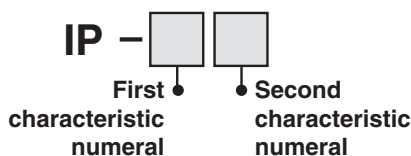
2. Surge voltage

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

3. Degree of protection

A degree 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 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

Electrical Terminology

● 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	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof 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: Dust-tight, Water-jet-proof type

"Water-jet-proof 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

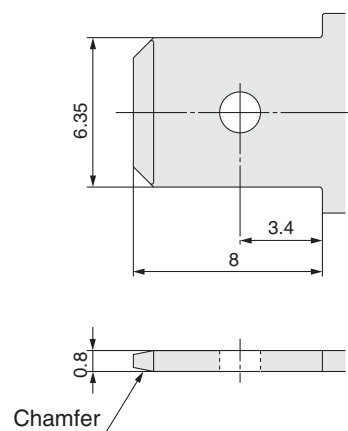
FKM: Fluoro rubber

2. Symbol

In the symbol ($\frac{V}{W} \frac{1}{2} \frac{1}{W}$), when the valve is closed, flow is blocked from port 1 to port 2. However, if the pressure in port 2 is higher than port 1, the valve will not be able to block the fluid and it will flow from port 2 to port 1.

Flat Terminal

1. Flat terminal/Electrical connection size of molded coil.





Series VXF2/VXFA2

Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 2 Port Solenoid Valves for Fluid Control, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

2 Port Solenoid Valve For Dust Collector Series VXF2/VXFA2

Design

⚠ Warning

1. Cannot be used as an emergency shutoff valve etc.

The valves presented in this catalogue are not designed for safety applications such as an emergency shutoff valve. If the valves are used in this type of system, other reliable safety assurance measures should also be adopted.

2. Extended periods of continuous energization

This is a valve for pulse operation. Do not energize it continuously. Since a large amount of air is consumed, the diaphragm will oscillate (chatter) due to insufficient air supply on the inlet side, and this can lead to failure.

3. When the conduit type is used as equivalent to an IP65 enclosure, install a wiring conduit etc.

Silencer

⚠ Caution

1. The silencer's affect on the valve response times is initially negligible, but will change due to clogging after extended use. Replace it after using about 500,000 times. This number is subject to change based on fluid quality and energising time.

2. When using a silencer, ensure there is space for replacing the silencer.

Selection

⚠ Warning

1. Air quality

1. Use clean air.

Do not use compressed air that contains chemicals, synthetic oils including organic solvents, salt or corrosive gases, etc., as it can cause damage or malfunction.

2. Install an air filter.

Install an air filter close to the valve on the upstream side. A filtration degree of 5 µm or less should be selected.

3. Install an aftercooler or air dryer, etc.

Compressed air that contains excessive drainage may cause malfunction of valves and other pneumatic equipment. To prevent this, install an aftercooler or air dryer, etc.

4. If excessive carbon powder is generated, eliminate it by installing a mist separator on the upstream side of valves.

If excessive carbon powder is generated by the compressor, it may adhere to the inside of the valves and cause a malfunction.

Selection

⚠ Warning

2. Ambient environment

Use within the allowable ambient temperature range. Check the compatibility of the product's parts materials with the ambient atmosphere.

3. Countermeasures against static electricity

Take measures to prevent static electricity since some fluids can cause static electricity.

4. Low temperature operation

1. The valve can be used in an ambient temperature of between -20 to -10 °C.

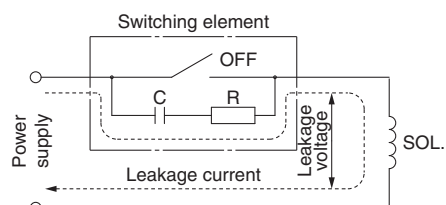
5. Fluid properties

Use a general compressed air with a filter of 5 µm or less mounted on the inlet of the piping. (Excluding dry air)

⚠ Caution

1. Leakage voltage

Particularly when using a resistor in parallel with a switching element and using a C-R element (surge voltage suppressor) to protect the switching element, take note that leakage current will flow through the resistor, C-R element, etc., creating a possible danger that the valve may not turn off.



AC coil: 5 % or less of rated voltage
DC coil: 2 % or less of rated voltage

2. The response performance and start-up speed of air operated type (VXFA2) is slower compared to the solenoid type (VXF2). Refer to the data for pilot piping.

3. Note that for DC, idle time and return time increase if the voltage is lowered. If a surge voltage suppressor is installed, the return speed decreases.



Series VXF2/VXFA2

Specific Product Precautions 2

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2 Port Solenoid Valve For Dust Collector Series VXF2/VXFA2

Mounting

Warning

1. If air leakage increases or equipment does not operate properly, stop operation.

After mounting is completed, confirm that it has been done correctly by performing a suitable function test.

2. Do not apply external force to the coil section.

When tightening is performed, apply a wrench or other tool to the outside of the piping connecting parts.

3. Mount a valve with its coil position upward, not downward.

When mounting a valve with its coil position downward, foreign objects in the fluid will adhere to the iron core leading to a malfunction. Especially for strict leakage control, such as with vacuum applications and non-leak specifications, the coil must be positioned upward.

4. Do not warm the coil assembly with a heat insulator etc.

Use tape, heaters, etc., for freeze prevention on the piping and body only. They can cause the coil to burn out.

5. Avoid sources of vibration, or adjust the distance from the body to a minimum length so that resonance will not occur.

6. Painting and coating

Warnings or specifications printed or labelled on the product should not be erased, removed or covered up.

Piping

Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

Install piping so that it does not apply pulling, pressing, bending or other forces on the valve body.

2. Avoid connecting ground lines to piping, as this may cause electric corrosion of the system.

3. Always tighten threads with the proper tightening torque.

When attaching fittings to valves, tighten with the proper tightening torque shown below.

Tightening Torque for Piping

Connection thread	Tightening torque [N·m]
Rc1/4	12 to 14
Rc3/8	22 to 24
Rc1/2	28 to 30
Rc3/4	28 to 30
Rc1	36 to 38
Rc1 1/2	40 to 42
Rc2	48 to 50
Rc2 1/2	48 to 50
Rc3	48 to 50

Piping

Caution

4. When connecting piping to a product

Avoid misconnections, regarding the supply port etc.

5. If a regulator, or a restrictor, is installed immediately before or after the valve, the main valve may oscillate (chatter). Install them away from the valve or change the restriction.

6. The header tank capacity should be sufficient. This is a valve for large flow rate, so if the capacity is too small, the main valve may oscillate due to pressure drop or insufficient air supply.

Wiring

Caution

1. As a rule, use electrical wire with a cross sectional area of 0.5 to 1.25 mm² for wiring.

Furthermore, do not allow excessive force to be applied to the lines.

2. Use electrical circuits which do not generate chattering in their contacts.

3. Use voltage which is within ± 10 % of the rated voltage. In cases with a DC power supply where importance is placed on responsiveness, stay within ± 5 % of the rated value. The voltage drop is the value in the lead wire section connecting the coil.

4. When a surge from the solenoid affects the electrical circuitry, install a surge voltage suppressor etc. in parallel with the solenoid. Or, adopt an option that comes with a surge voltage protection circuit.

(However, a surge voltage occurs even if the surge voltage protection circuit is used. For details, please consult with SMC.)



Series VXF2/VXFA2

Specific Product Precautions 3

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 2 Port Solenoid Valves for Fluid Control, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

2 Port Solenoid Valve For Dust Collector Series VXF2/VXFA2

Operating Environment

⚠ Warning

1. Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water vapor, or where there is direct contact with any of these.
2. Do not use in explosive atmospheres.
3. Do not use in locations subject to vibration or impact.
4. Do not use in locations where radiated heat will be received from nearby heat sources.
5. Employ suitable protective measures in locations where there is contact with water droplets, oil or welding spatter, etc.

Maintenance

⚠ Warning

1. Removing the product

The valve becomes hot depending on the fluid temperature. Confirm that the valve temperature has dropped sufficiently before performing work. If touched inadvertently, there is a danger of being burned.

1. Shut off the fluid supply and release the fluid pressure in the system.
2. Shut off the power supply.
3. Remove the product.

2. Low frequency operation

Switch valves at least once every 30 days to prevent malfunction. Also, in order to use it under the optimum state, conduct a regular inspection once a every 6 months.

⚠ Caution

1. Filters

1. Be careful regarding clogging of filters.
2. Replace filter elements after one year of use, or earlier if the pressure drop reaches 0.1 MPa.

2. Storage

In case of long term storage after use, thoroughly remove all moisture to prevent rust and deterioration of rubber materials, etc.

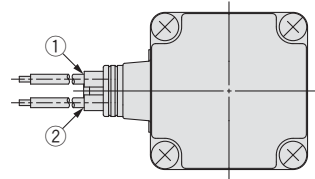
3. Exhaust the drainage from an air filter periodically.

Electrical Connections

⚠ Caution

■ Grommet

Class B coil: AWG20 Outside insulator diameter of 2.5 mm

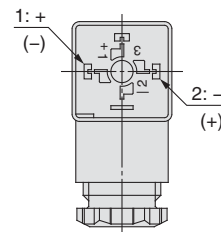


Rated voltage	Lead wire colour	
	①	②
DC	Black	Red
100 VAC	Blue	Blue
200 VAC	Red	Red
Other AC	Grey	Grey

* There is no polarity.

■ DIN terminal

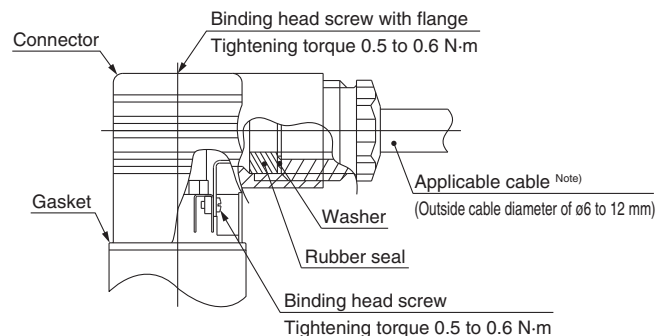
Internal connections are shown below for the DIN terminal, make connections to the power supply accordingly.



Terminal no.	1	2
DIN terminal	+ (-)	- (+)

* There is no polarity.

- Use a heavy-duty cord with an outside cable diameter of ϕ 6 to 12 mm.
- Use the tightening torques below for each section.



Note) For an outside cable diameter of ϕ 9 to 12 mm, remove the internal parts of the rubber seal before using.



Series VXF2/VXFA2

Specific Product Precautions 4

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 2 Port Solenoid Valves for Fluid Control, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

2 Port Solenoid Valve For Dust Collector Series VXF2/VXFA2

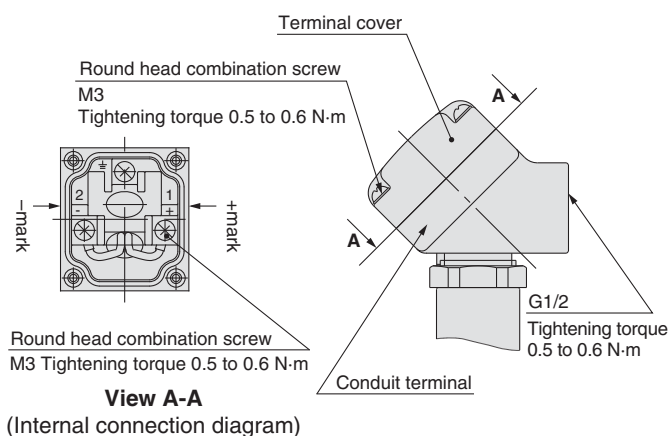
Electrical Connections

⚠ Caution

■ Conduit terminal

In the case of the conduit terminal, make connections according to the marks shown below.

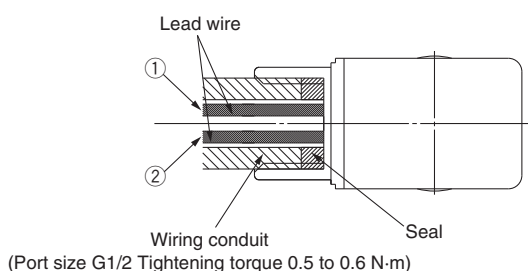
- Use the tightening torques below for each section.
- Properly seal the terminal connection (G1/2) with the special wiring conduit etc.



■ Conduit

When used as an IP65 equivalent, use seal to install the wiring conduit. Also, use the tightening torque below for the conduit.

Class B coil: AWG20 Outside insulator diameter of 2.5 mm



Rated voltage	Lead wire colour	
	①	②
DC	Black	Red
100 VAC	Blue	Blue
200 VAC	Red	Red
Other AC	Grey	Grey

* There is no polarity.

Description	Part no.
Seal	VCW20-15-6

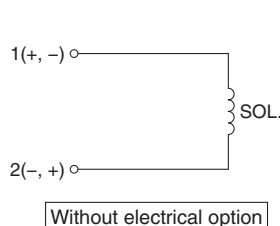
Note) Please order separately.

Electrical Circuits

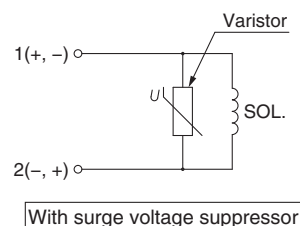
⚠ Caution

[DC circuit]

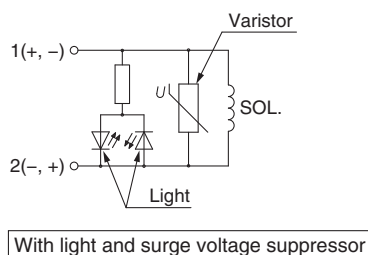
Grommet, Faston terminal



Grommet, DIN terminal, Conduit terminal, Conduit

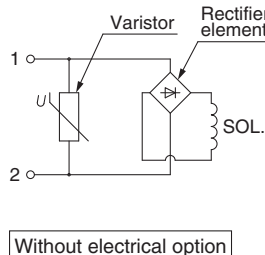


DIN terminal, Conduit terminal

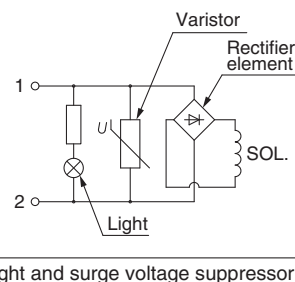


[AC circuit]

Grommet, DIN terminal Conduit terminal, Conduit



DIN terminal, Conduit terminal





Series VXF2/VXFA2

Specific Product Precautions 5

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 2 Port Solenoid Valves for Fluid Control, refer to “Handling Precautions for SMC Products” and the Operation Manual on SMC website, <http://www.smc.eu>

Dedicated Controller For VXF(A)2 Series VXFC

Wiring

Warning

1. The controller starts its output the moment the power switch is turned ON. Be aware that even if the power switch is turned OFF, power is connected to the terminal block.

Caution

1. Make sure that the input power supply voltage matches the voltage in the controller's specifications. The output voltage to the solenoid valves will be the same as the input power supply voltage.
2. Connect a ground that is rated Class 3 or greater to the power supply terminal block's FG.
3. If the power source is DC, check the polarity. If the polarity is incorrect, it may result in a malfunction or damage.
4. For details, refer to the separate Operation Manual.
5. The solenoid valve connected to the controller should be equipped with a surge voltage suppressor.

Operating Environment

Warning

1. Operate under conditions that are free of vibration and impact.
2. Operate in an ambient temperature range between 0 °C and 50 °C.
3. Operate in an ambient humidity range between 45 % to 85 % (with no condensation).

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

- Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
- Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
- Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Warning

- The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.**
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
- Only personnel with appropriate training should operate machinery and equipment.**
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.
- Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
 - The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
 - When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
 - Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
 - Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
 - Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
 - An application which could have negative effects on people, property, or animals requiring special safety analysis.
 - Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

Caution

- The product is provided for use in manufacturing industries.**
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

- *1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots - Safety.
etc.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.
Read and accept them before using the product.

Limited warranty and Disclaimer

- The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
- For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
- Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

- The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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