

### How to Order

**XLA** — **16**    — **F9N**

**High vacuum angle valve**  
(Normally closed, bellows seal, air operated type)

**Flange size**

16
25
40
50
63
80

**Flange type**

Symbol	Type	Applicable flange size
Nil	KF(NW)	16, 25, 40, 50, 63, 80
D	K(DN)	63, 80

**Indicator/Actuation port direction**

Symbol	Description
Nil	Without indicator/Flange side
A	With indicator/Flange side
F	With indicator/Left flange surface
G	With indicator/Rear flange surface
J	With indicator/Right flange surface
K	Without indicator/Left flange surface
L	Without indicator/Rear flange surface
M	Without indicator/Right flange surface

Note) Actuation port direction  
(Example) Left flange surface: Indicates that the direction of the actuation port is to the left side when the flange surface is viewed from the front.

**Switch quantity/  
Mounting position**

Symbol	Quantity	Mounting position
Nil	—	—
A	2pcs.	Valve open/closed
B	1pc.	Valve open
C	1pc.	Valve closed

**Auto switch type**

Nil	Without auto switch (without built-in magnet)
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**Solid state auto switches**

F9N	D-F9N
F9P	D-F9P
F9B	D-F9B

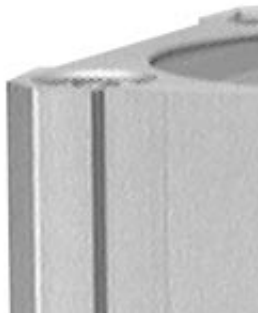
Note 1) The standard lead wire length is 0.5m.  
For 3m, "L" is added at the end of the part number.

(Example) F9NL: D-F9NL

Note 2) An auto switch should be secured against a stopper in the auto switch groove for detection of valve opening, or secured against a stopper or the valve body (depending on the valve size) for detection of valve closing.

**Temperature specifications/Heater**

Symbol	Temp. range	Heater
Nil	5 to 60°C (41 to 140°F)	None
High temp. type	H0	None
	H1	With heater for 80°C (176°F)
	H2	With heater for 100°C (212°F)
	H3	With heater for 120°C (248°F)



XLA

### Option specifications/Combination table

Option specifications	Symbol	Model					
		XLA-16	XLA-25	XLA-40	XLA-50	XLA-63	XLA-80
Indicator	A	•	•	•	•	•	•
High temp. type	Without heater	H0	•	•	•	•	•
	With heater for 80°C (176°F)	H1	—	•	•	•	•
	With heater for 100°C (212°F)	H2	—	—	•	•	•
	With heater for 120°C (248°F)	H3	—	•	•	•	•

Note) Auto switches cannot be mounted in the case of high temperature types.

**How to Order**

**XLAV** — **16** **F** — **F9N** — **1** **G**

**High vacuum angle valve**  
 (Normally closed, bellows seal,  
 air operated type  
 with solenoid valve)

**Flange size**

16
25
40
50
63
80

**Flange type**

Symbol	Type	Applicable flange size
Nil	KF(NW)	16, 25, 40, 50, 63, 80
D	K(DN)	63, 80

**Solenoid valve/Indicator direction**

F	With indicator/Left flange surface
G	With indicator/Rear flange surface
J	With indicator/Right flange surface
K	Without indicator/Left flange surface
L	Without indicator/Rear flange surface
M	Without indicator/Right flange surface

Note) Actuation port direction  
 (Example) Left flange surface: Indicates that the direction of the actuation port is to the left side when the flange surface is viewed from the front.

**Auto switch type**

Nil	Without auto switch (without built-in magnet)
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**Solid state auto switches**

F9N	D-F9N
F9P	D-F9P
F9B	D-F9B

Note 1) The standard lead wire length is 0.5m.  
 For 3m, "L" is added at the end of the part number.  
 (Example) F9NL: D-F9NL

Note 2) An auto switch should be secured against a stopper in the auto switch groove for detection of valve opening, or secured against a stopper or the valve body (depending on the valve size) for detection of valve closing.



XLAV

**Light/Surge voltage suppressor**

Nil	None
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
U	With light/surge voltage suppressor (non-polar type)

\* The S type is not available for AC.  
 \* The U type is DC only.

**Electrical entry**

G	Grommet (lead wire length 300mm)
H	Grommet (lead wire length 600mm)
L	L type plug connector
M	M type plug connector

**Rated voltage**

1	100VAC, 50/60Hz
2	200VAC, 50/60Hz
3	110VAC, 50/60Hz
4	220VAC, 50/60Hz
5	24VDC
6	12VDC

**Switch quantity/Mounting position**

Symbol	Quantity	Mounting position
Nil	—	—
A	2pcs.	Valve open/closed
B	1pc.	Valve open
C	1pc.	valve closed

Note 1) Option specifications/Combinations

This model has indicator, auto switch and K(DN) flange options, but high temperature/heater options are not available.

Note 2) Solenoid valves

XLAV-16, 25, 40, 50: SYJ319 XLAV-63, 80: SYJ519  
 Example) SYJ319-1GS, etc.

For further details on solenoid valves, refer to the SMC solenoid valve catalog "SYJ 300, 500, 700" (E143-B).

Note 3) Solenoid valves are shipped facing downward (flange side), but can be rotated to face upward.

## Specifications

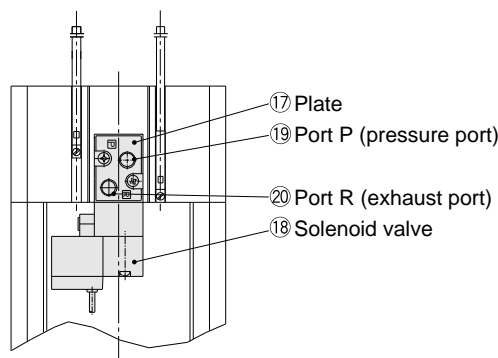
Model	XLA(V)-16	XLA(V)-25	XLA(V)-40	XLA(V)-50	XLA(V)-63	XLA(V)-80	
Valve type	Normally closed (pressurize to open, spring seal)						
Fluid	Non-corrosive gas for aluminum alloy (A6063) and SUS304/316						
Operating temperature °C	XLA	5 to 60°C (41 to 140°F) [high temperature type: 5 to 150°C (41 to 302°F)]					
	XLAV	5 to 50°C (41 to 122°F)					
Operating pressure Pa {Torr}	Atmospheric pressure to $1 \times 10^{-6}$ {760 to $7.5 \times 10^{-9}$ }						
Conductance $\text{ds}$ <small>Note 1)</small>	5	14	45	80	160	200	
Leakage $\text{Pa m}^3/\text{s}$ {Torr $\text{ds}$ }	Internal	$1.3 \times 10^{-10}$ { $1 \times 10^{-9}$ } at ordinary temperatures, excluding gas transmission					
	External	$1.3 \times 10^{-11}$ { $1 \times 10^{-10}$ } at ordinary temperatures, excluding gas transmission					
Operating time s <small>Note 2)</small>	0.05	0.1	0.21	0.24	0.26	0.28	
Flange type	KF (NW)			KF (NW), K (DN)			
Principle materials	Body: Aluminum alloy Bellows: Stainless steel Seal: FKM (fluoro rubber)						
Surface treatment	Exterior: Hard anodized Interior: Machined for clean environment						
Actuation pressure MPa	0.4 to 0.7 (58 to 101psi)						
Actuation port size	XLA	M5 (10-32 nominal)		Rc(PT) 1/8			
	XLAV	M5 (10-32 nominal) Ports P, R1/R2			Rc(PT) 1/8(Port P): M5(10-32 nominal) Ports R1/R2		
Actuating solenoid valve recommended Cv factor (XLC)	0.05≤	0.06≤	0.09≤	0.11≤	0.3≤	0.35≤	
Service life (Million cycles)	2						
Weight kg (lb)	XLA	0.25 (0.55)	0.46 (1.01)	1.1 (2.43)	1.6 (3.52)	2.9 (6.39)	5.0 (11.02)
	XLAV	0.29 (0.64)	0.49 (1.08)	1.14 (2.51)	1.64 (3.61)	2.96 (6.52)	5.06 (11.16)

Note 1) Conductance is the same as that of an elbow with the same dimensions.

Note 2) The time required for 90% valve movement when an actuation pressure of 0.5MPa {72psi} is applied. There is a difference of about 20% in this value at the upper and lower pressure limits.

Note 3) For valve heater specifications, refer to "Common Option Specifications, [1] Heaters" on page 37.

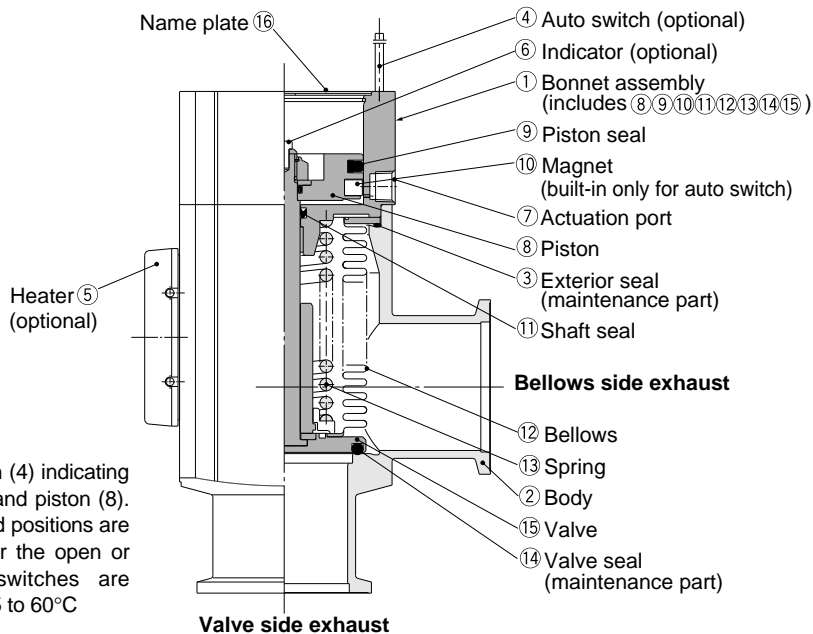
## Construction /Operation



With solenoid valve

### Options

- ④ Auto switch: The magnet (10) actuates the auto switch (4) indicating the position of the integrated valve (15) and piston (8). With 2 auto switches, the open and closed positions are detected, and with 1 auto switch, either the open or closed position is detected. Auto switches are applicable at ordinary temperatures only 5 to 60°C (41 to 140°F).
- ⑤ Heater: Simple heating is performed using thermistors. The valve body can be heated to approximately 80, 100 or 120°C (176, 212 or 248°F) depending on the heater option and the valve size. The type and number of thermistors to be used will vary depending upon size and setting temperature. In the case of high temperature specifications, the bonnet assembly (1) is a heat resistant structure.
- ⑥ Indicator: When the valve is open, an orange marker about 1mm in height appears in the center of the name plate (16).



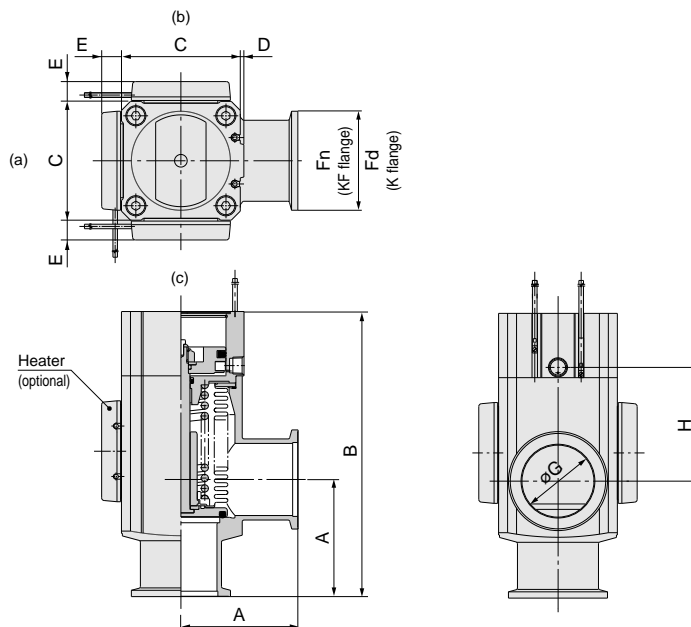
### Operation principle

By applying pressure from the actuation port (7), the piston (8), which is sealed by the shaft seal (11) and the piston seal (9), overcomes the force of the spring (13), and the valve (15) opens. With the exhaust of air pressure, the valve (15) is closed by the force of the spring (13) and is sealed by the valve seal (14). In the case of the XLAV, port P(19) is normally pressurized, and the valve (15) opens when the solenoid valve (18) is turned ON and closes when it is turned OFF. Operation is the same as that of the XLA.

## Dimensions (mm)

1 in = 25.4mm

### XLA/Air operated type



Model	A	B	C	D	E <sup>Note 1)</sup>	Fn	Fd	G	H
<b>XLA-16</b>	40	103	38	1	—	30	—	17	40
<b>XLA-25</b>	50	113	48	1	12	40	—	26	39
<b>XLA-40</b>	65	158	66	2	11	55	—	41	63
<b>XLA-50</b>	70	170	79	2	11	75	—	52	68
<b>XLA-63</b>	88	196	100	3	11	87	95	70	69
<b>XLA-80</b>	90	235	117	3	11	114	110	83	96

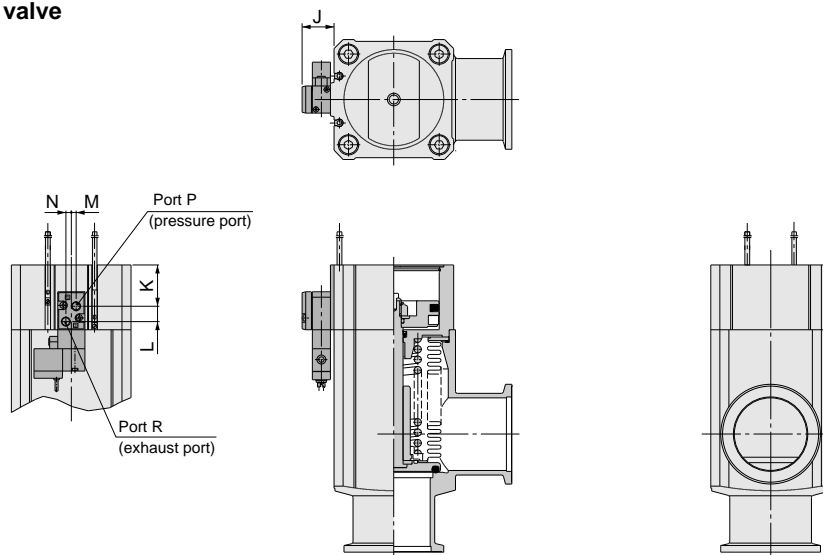
Note 1) Dimension E applies when heater option is included. (lead wire length: approx. 1m)

Note 2) (a), (b) and (c) in the above drawing indicate heater mounting positions.

Moreover, heater mounting positions will differ depending on the type of heater.

For further details, refer to mounting positions under Replacement heaters/Part Nos. on page 46.

### XLAV/With solenoid valve



Model	J	K	L	M	N
<b>XLAV-16</b>	16.5	13	8.5	3	3
<b>XLAV-25</b>	16.5	14	8.5	3	3
<b>XLAV-40</b>	17.5	23	8.5	3	3
<b>XLAV-50</b>	17.5	25	8.5	3	3
<b>XLAV-63</b>	29	29	12	4	2
<b>XLAV-80</b>	29	39	12	4	2

\* Other dimensions are the same as XLA.