

High Vacuum Angle Valve

Series *XLG, XLGV*

Double Acting/O-ring Seal

Air Operated Type

How to Order

XLG — **16** **M9N** **A**

High vacuum angle valve
(Double acting, O-ring seal, air operated type)

Flange size

16
25
40
50
63
80
100
160

Flange type

Symbol	Type	Applicable flange size
Nil	KF(NW)	16, 25, 40, 50, 63, 80
D	K(DN)	63, 80, 100, 160

Actuation port direction

Symbol	Flange side
Nil	Flange side
K	Left flange surface
L	Rear flange surface
M	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.



XLG

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

Symbol	Auto switch model	Remarks
Nil	—	Without auto switch (without built-in magnet)
M9N(L)(M)(Z)	D-M9N(L)(M)(Z)	Solid state auto switch
M9P(L)(M)(Z)	D-M9P(L)(M)(Z)	
M9B(L)(M)(Z)	D-M9B(L)(M)(Z)	
A90(L)(Z)	D-A90(L)(Z)	Reed auto switch (Not applicable to flange size 16)
A93(L)(Z)	D-A93(L)(Z)	
M9//	—	Without auto switch (with built-in magnet)

Note 1) Auto switches shown above cannot be mounted on the high temperature type. For the high temperature type, a semi-standard product that uses the heat resistant auto switch D-F7NJ* is available. For details, please contact SMC.

Note 2) Standard lead wire length is 0.5 m. Add "L" to the end of the part number when 3 m is desired, "M" when 1 m, and "Z" when 5 m.

Example) -M9NL

Symbol	Applicable flange size
Nil	16, 25, 40
1	50, 63, 80, 100, 160

Temperature specifications/Heater

Symbol	Temperature	Heater	
Nil	5 to 60°C	—	
High temperature type	5 to 150°C	H0	—
		H4	With 100°C heater
		H5	With 120°C heater

High temperature type combination table

High temperature specifications	Symbol	Model						
		XLG-16	XLG-25	XLG-40	XLG-50	XLG-63	XLG-100	XLG-160
Without heater	H0	•	•	•	•	•	•	•
With heater for 100°C	H4	—	—	•	•	•	•	•
With heater for 120°C	H5	—	•	•	•	•	•	•

Air Operated Type/with Solenoid Valve

How to Order



XLGV — 16 — K — M9N A — 5 — G — Q

High vacuum angle valve
 Double acting,
 O-ring 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 direction

K	Left flange surface
L	Rear flange surface
M	Right flange surface

* M: Size 16, 25, 40 only.
 * Nil: Size 50, 63, 80 only.
 Note) Solenoid valve direction
 (Example) Left flange surface:
 Indicates that the direction of the solenoid valve is to the left side when the flange surface is viewed from the front.

Symbol	Applicable flange size
Nil	16, 25, 40
1	50, 63, 80

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)

Electrical entry

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

Solenoid valve action

Nil	2 position single
W	2 position double

Rated voltage

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

Auto switch type

Symbol	Auto switch model	Remarks
Nil	—	Without auto switch (without built-in magnet)
M9N(L)(M)(Z)	D-M9N(L)(M)(Z)	Solid state auto switch
M9P(L)(M)(Z)	D-M9P(L)(M)(Z)	
M9B(L)(M)(Z)	D-M9B(L)(M)(Z)	
A90(L)(Z)	D-A90(L)(Z)	Reed auto switch (Not applicable to flange size 16)
A93(L)(Z)	D-A93(L)(Z)	
M9//	—	Without auto switch (with built-in magnet)

Standard lead wire length is 0.5 m. Add "L" to the end of the part number when 3 m is desired, "M" when 1 m, and "Z" when 5 m.

Example) -M9NL



XLGV

Note 1) Option specifications/Combinations

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

Note 2) Solenoid valves

2 position single: XLGV-16, 25, 40: SYJ3190 XLGV-50, 63, 80: SYJ5190

2 position double: XLGV-16, 25, 40: SYJ3290 XLGV-50, 63, 80: SYJ5290

Examples) SYJ3190-1GS SYJ3290-1GS

For further details on solenoid valves, refer to the SMC solenoid valve catalog "SYJ 3000, 5000, 7000" (E144-A).

Specifications

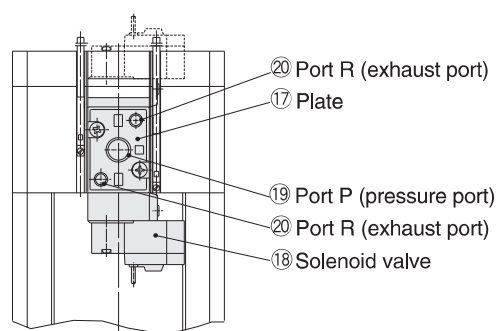
Model	XLG(V)-16	XLG(V)-25	XLG(V)-40	XLG(V)-50	XLG(V)-63	XLG(V)-80	XLG-100	XLG-160	
Valve type	Double acting (dual operation), pressurize to open/close								
Fluid	Non-corrosive gas for aluminum alloy (A6063) and SUS304/316								
Operating temperature °C	XLG	5 to 60 (high temperature type: 5 to 150)							
	XLGV	5 to 50							
Operating pressure Pa Torr}	Atmospheric pressure to 1×10^{-5} {760 to 7.5×10^{-5} }								
Conductance ℓ/s <small>Note 1)</small>	5	14	45	80	160	200	300	800	
Leakage Pa m ³ /s {Torr ℓ/s }	Internal	1.3×10^{-10} { 1×10^{-9} } at ordinary temperatures, excluding gas permeation							
	External	1.3×10^{-10} { 1×10^{-9} } at ordinary temperatures, excluding gas permeation							
Operating time ms <small>Note 2)</small>	XLG	40	45	60	60	95	105	200	350
	XLGV	45	50	85	90	135	150	—	—
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 {kgf/cm ² }	0.3 to 0.6				0.4 to 0.6				
Actuation port size	XLG	M5			Rc 1/8				
	XLGV	M5 (Ports P, R ₁ /R ₂)		Rc(PT) 1/8 (Ports P), M5 (Ports R ₁ /R ₂)		—		—	
Actuating solenoid valve recommended Cv factor (XLF)	≤ 0.18 (comparable SY3120)								
Service life (Million cycles)	1								
Weight kg	XLG	0.28	0.46	1.1	1.4	2.3	4.1	7.6	14.9
	XLGV	0.32	0.5	1.14	1.5	2.4	4.2	—	

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

Note 2) The operating time with no solenoid valve (XLF) is the same value as the case of the solenoid valve piped directly to the bonnet, where the actuation pressure is 0.5MPa {5kgf/cm²}. The operating time becomes faster under high pressure.

Note 3) For valve heater specifications, refer to "Common Option Specifications, [1] Heaters" on page 38.

Construction/Operation



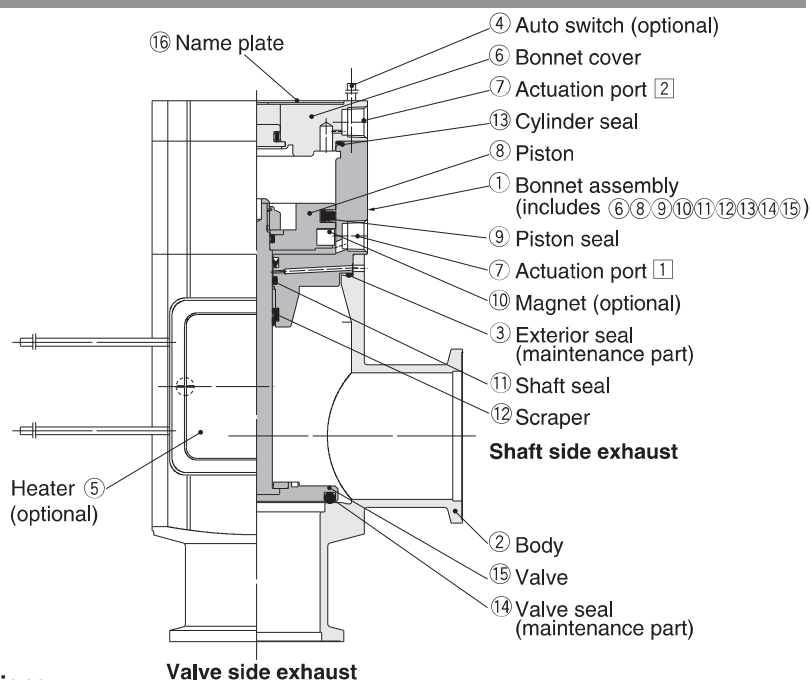
<<Operating principle>>

By applying pressure from the actuating port [1]-(7), the piston (8), sealed by the shaft seal (11) and the piston seal (9), is operated opening the valve (actuation port [2]-(7) is released). Conversely, by applying pressure to actuation port [2]-(7), the piston (8), sealed by the cylinder seal (13) and the piston seal (9), is operated closing the valve (15) which is sealed by the valve seal (14) (actuation port [1]-(7) is released). In the case of the XLCV, 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.

Moreover, in the case of a double solenoid, the valve moves to the side where the solenoid valve (18) is turned ON.

Operation is the same as that of the XLC.

For sizes 50, 63 and 80, the valve is sealed with a standard load by means of an overrun mechanism.



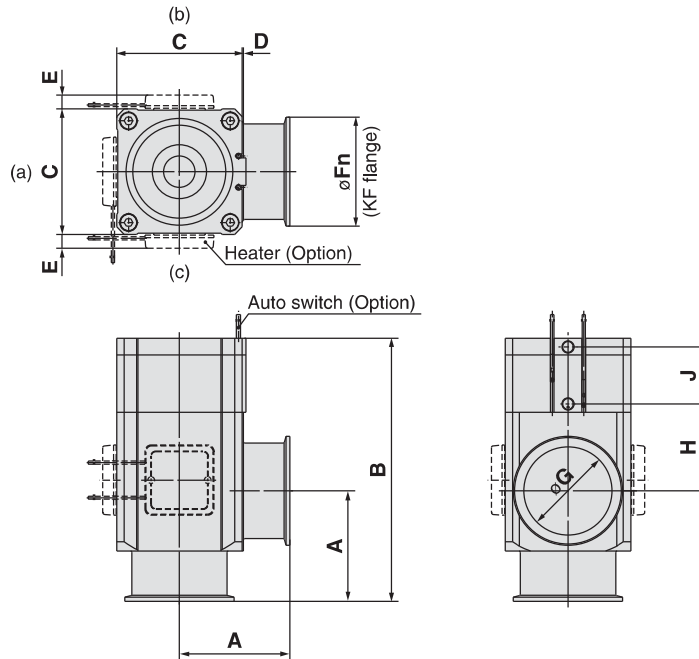
<<Options>>

- 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 60C).
- ⑤ Heater: Simple heating is performed using thermistors. The valve body can be heated to approximately 80, 100 or 120C, 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. This is not available with solenoid valve.

Series XLG, XLGV

Dimensions

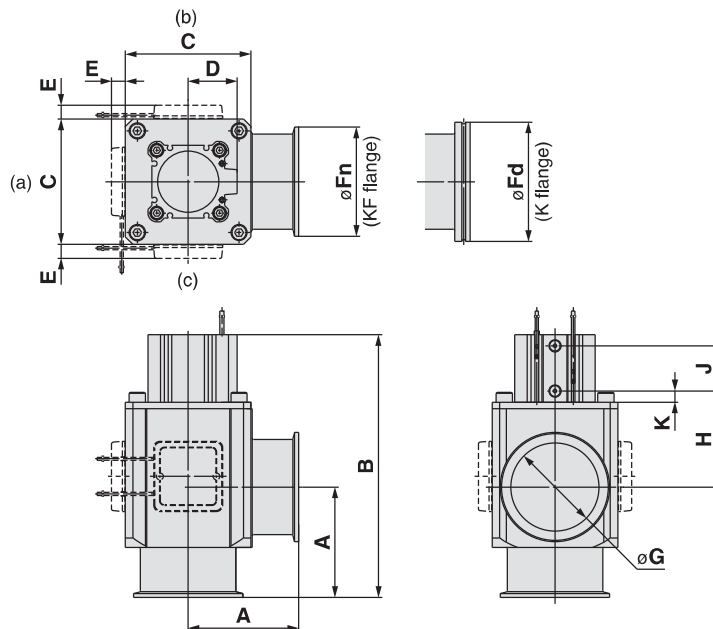
XLG16, 25, 40/Air operated



Model	A	B	C	D	E Note 1)	F _n	G	H	J
XLG-16	40	110	38	1	—	30	17	40	26
XLG-25	50	121	48	1	12	40	26	39	28
XLG-40	65	171	66	2	11	55	41	63	36

Note 1) Dimension E applies when heater option is included. (Lead wire length: approx. 1 m)
 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" on page 43.

XLG50, 63, 80, 100, 160/Air operated

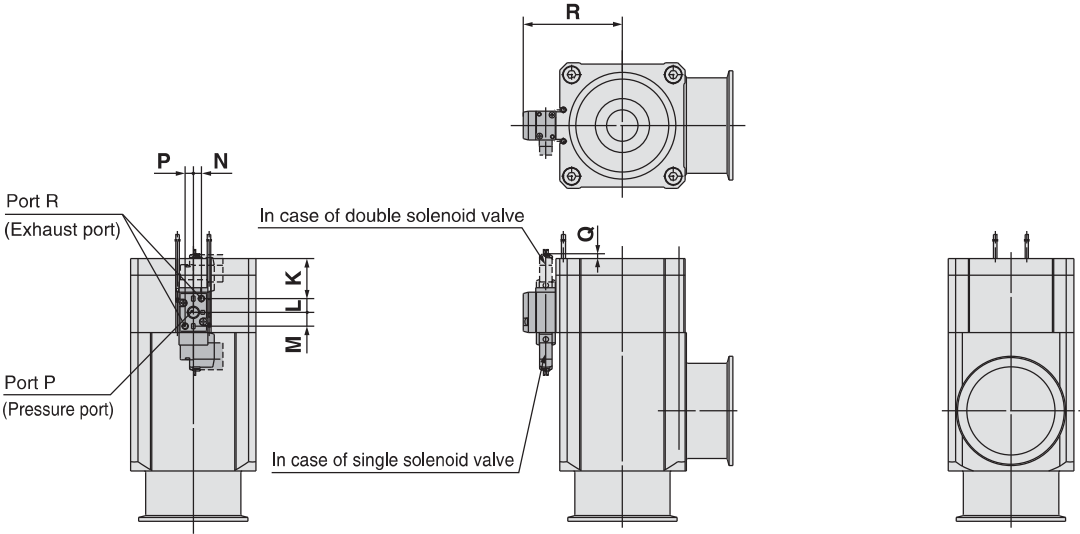


Model	A	B	C	D	E Note 1)	F _n	F _d	G	H	J	K
XLG-50	70	183	80	31	10,5	75	—	52	77	29	10,5
XLG-63	88	209	100	39	11	87	95	70	76,5	36	9
XLG-80	90	250	117	45,5	11	114	110	83	105	44	9
XLG-100	108	270,5	154	55	11	134	130	102	92	58	9
XLG-160	138	339	200	65	11	190	180	153	124	62	12,5

Note 1) Dimension E applies when heater option is included. (Lead wire length: approx. 1 m)
 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" on page 43.

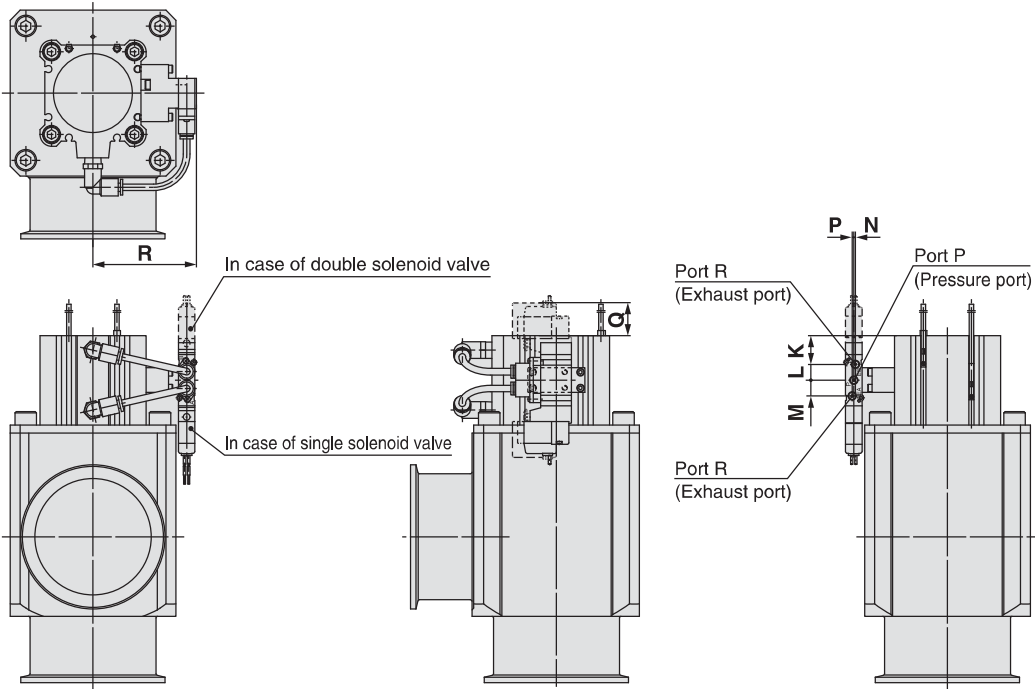
Dimensions

XLGV/With solenoid valve



Model	K	L	M	N	P	Q	R
XLGV-16	14.3	9.2	6.4	3.5	2.7	17.3	36
XLGV-25	15.8	9.2	6.4	3.5	2.7	15.8	41
XLGV-40	29	9.2	6.4	3.5	2.7	2.6	51

* Other dimensions are the same as the XLG.
 Note) For details, consult your SMC sales representative.



Model	K	L	M	N	P	Q	R
XLGV-50	12.5	9.5	9.5	1	1	23.5	52.6
XLGV-63	17.4	9.5	9.5	1	1	18.6	62.3
XLGV-80	23.5	9.5	9.5	1	1	12.4	70.8

* Other dimensions are the same as the XLG.
 Note) For details, consult your SMC sales representative.