

High Vacuum Angle Valve

Series XLH

Manual Valve Bellows Seal

How to Order

XLH — 16

High vacuum manual angle valve (Bellows seal)

Flange size

16
25
40
50

Heater

Symbol	Heater type
Nil	None
H2	With heater for 100°C
H3	With heater for 120°C

* Contact SMC for XLH series with auto switch.



XLH

Heater combination table

Setting temperature	Symbol	Model			
		XLH-16	XLH-25	XLH-40	XLH-50
100°C	H2	—	—	•	•
120°C	H3	—	•	•	•

Note) Heater cannot be retrofitted.

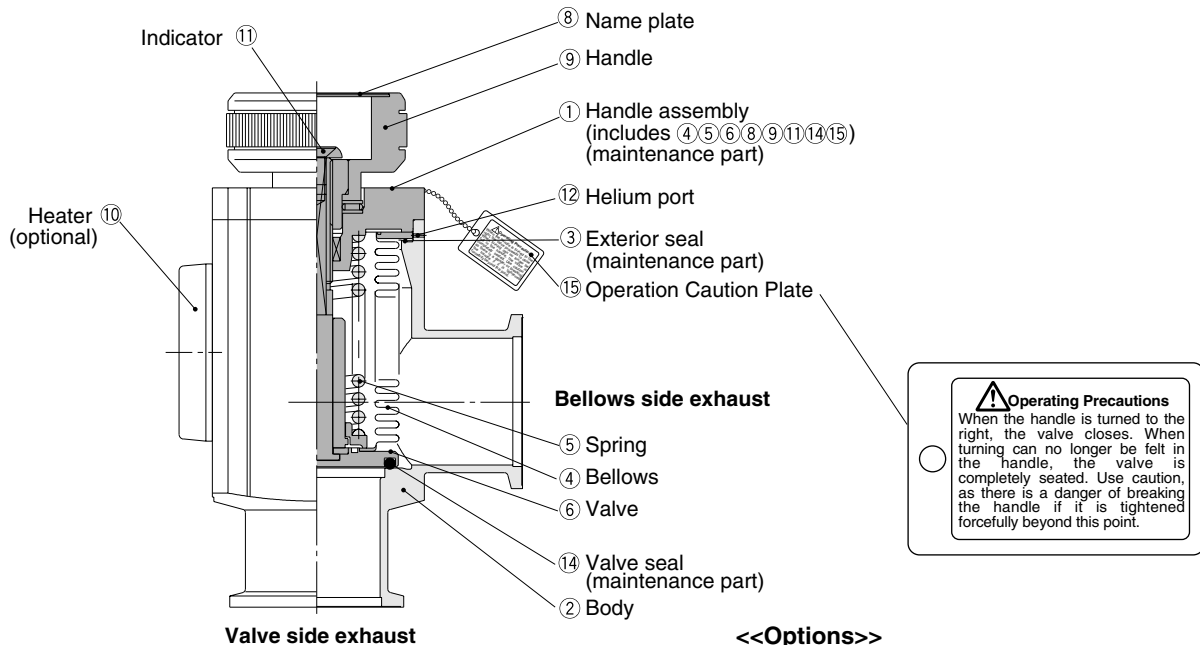
Specifications

Model	XLH-16	XLH-25	XLH-40	XLH-50
Fluid	Non-corrosive gas for aluminum alloy (A6063) and SUS304/316			
Operating temperature °C	5 to 150			
Operating pressure Pa {Torr}	Atmospheric pressure to 1×10^{-6} {760 to 7.5×10^{-9} }			
Conductance ℓ/s ^{Note 1)}	5	14	45	80
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^{-11} { 1×10^{-10} } at ordinary temperatures, excluding gas permeation		
Flange type	KF (NW)			
Principle materials	Body: Aluminum alloy Bellows: Stainless steel Seal: FKM (Fluoro rubber)			
Surface treatment	Exterior: Hard anodized Interior: Bare surface			
Actuation torque N·m {kgf·cm}	0.1≤ {1≤}	0.15≤ {1.5≤}	0.35≤ {3.5≤}	0.5≤ {5≤}
Handle revolutions	5	7	10	13
Weight kg	0.23	0.41	1.05	1.62

Note 1) The conductance is the same as that of an elbow of the same dimensions.

Note 2) For valve heater specifications, refer to "Common Option Specifications, [1] Heaters" on page 26.

Construction/Operation



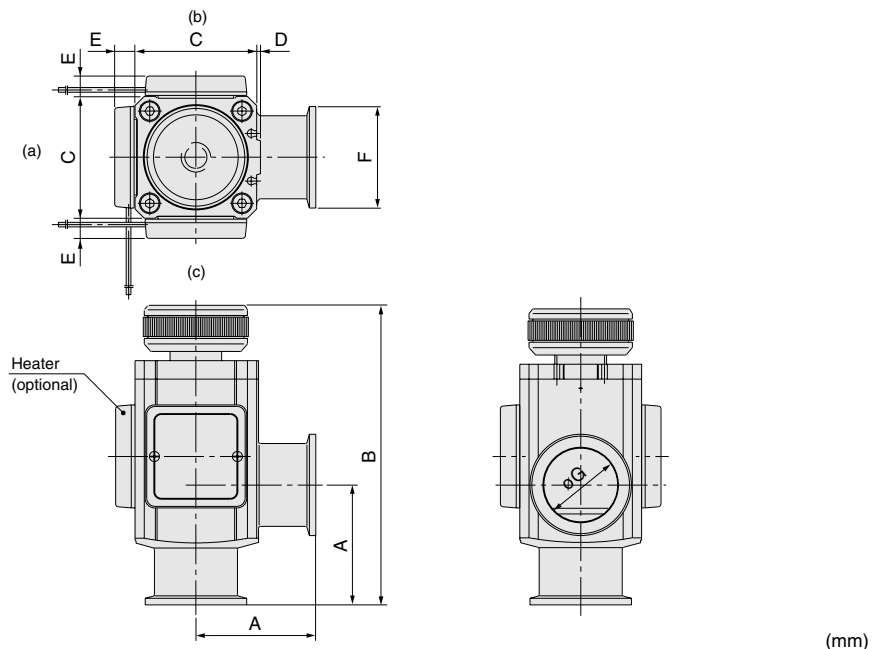
<<Operating principle>>

By turning the handle ⑨ to the left, the valve ⑥ opens. The handle ⑨ does not move up and down, but the indicator ⑪ shows the open or closed position of the valve. As the handle ⑨ is turned to the right, the valve ⑥ closes, and when the turning force of the handle ⑨ suddenly ceases to be felt, the valve ⑥ is sealed. The sealing force for the valve ⑥ comes from the spring ⑤, and is constant.

<<Options>>

- ⑩ Heater: Simple heating is performed using thermistors. The valve body can be heated to approximately 100 or 120°C, 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.
- ⑪ Indicator: When the valve is open, an orange marker appears in the center of the name plate ⑧.

Dimensions



Model	A	B	C	D	E Note 1)	F	G
XLH-16	40	100.5	38	1	—	30	17
XLH-25	50	114	48	1	12	40	26
XLH-40	65	162.5	66	2	11	55	41
XLH-50	70	179.5	79	2	11	75	52

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

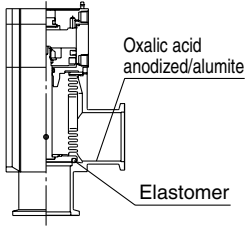
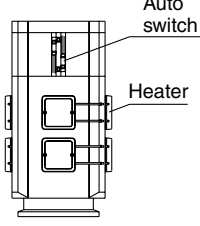
Note 2) (a), (b) and (c) in the above drawing indicate heater mounting positions.

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

For further details, refer to mounting positions under Replacement heaters/Part Nos. on page 35.

Made to Order

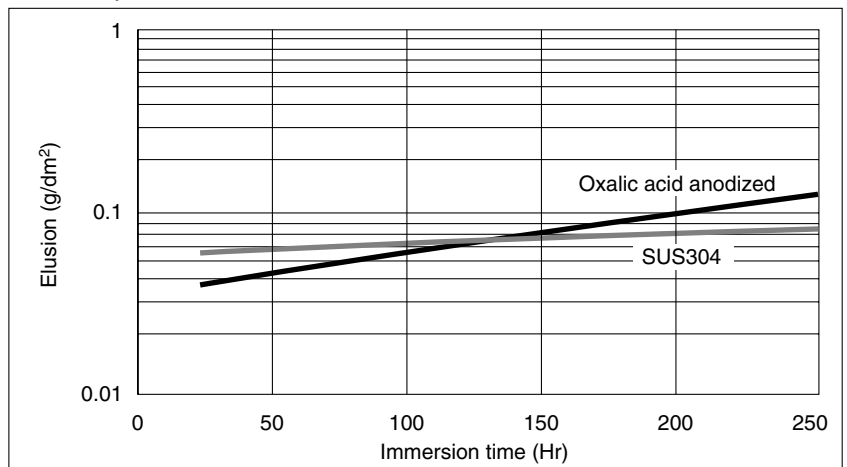
Special aluminum valve products. Contact SMC for applicable models.

Special specifications	Contents	
Improved corrosion resistance ^{Note)}	Body interior is oxalic acid anodized to improve corrosion resistance against chlorine system gas. (The corrosion resistance is equivalent to that of stainless steel SUS304.)	
Improved plasma resistance	Use of perfluoroelastomer for internal seals enables applications in severe operating environments, such as semiconductor manufacturing processes involving plasma generation.	
Improved resistance to corrosion and plasma	Body interior = Oxalic acid anodized Internal seal = Perfluoroelastomer	
Heat-resistant type (120 °C) (Deposit prevention + Operation check + Internal processing)	A baking heater is added for uniform heating to prevent formation of deposits. Adoption of a high temperature auto switch (Max. 150 °C) enables operation check during heating.	

Consult SMC for the above specifications.

Note) Type with improved corrosion resistance.

An immersion test in HCl (1% hydrochloric acid) yields results equivalent to those for SUS304 for the first 150 hours.



Maintenance Parts

Air operated angle valve/Manual valve Bonnet & handle assembly/Construction part number: (1)

Model	Temperature specifications	Valve size					
		XL -16	XL -25	XL -40	XL -50	XL -63	XL -80
XLA	General use	XLA16-30-1	XLA25-30-1	XLA40-30-1	XLA50-30-1	XLA63-30-1	XLA80-30-1
	High temperature	XLA16-30-1H	XLA25-30-1H	XLA40-30-1H	XLA50-30-1H	XLA63-30-1H	XLA80-30-1H
XLAV	General use	XLAV16-30-1	XLAV25-30-1	XLAV40-30-1	XLAV50-30-1	XLAV63-30-1	XLAV80-30-1
XLC	General use	XLC16-30-1	XLC25-30-1	XLC40-30-1	XLC50-30-1	XLC63-30-1	XLC80-30-1
	High temperature	XLC16-30-1H	XLC25-30-1H	XLC40-30-1H	XLC50-30-1H	XLC63-30-1H	XLC80-30-1H
XLCV	General use	XLCV16-30-1	XLCV25-30-1	XLCV40-30-1	XLCV50-30-1	XLCV63-30-1	XLCV80-30-1
XLF	General use	XLF16-30-1	XLF25-30-1	XLF40-30-1	XLF50-30-1	XLF63-30-1	XLF80-30-1
	High temperature	XLF16-30-1H	XLF25-30-1H	XLF40-30-1H	XLF50-30-1H	XLF63-30-1H	XLF80-30-1H
XLFV	General use	XLFV16-30-1	XLFV25-30-1	XLFV40-30-1	XLFV50-30-1	XLFV63-30-1	XLFV80-30-1
XLG	General use	XLG16-30-1	XLG25-30-1	XLG40-30-1	XLG50-30-1	XLG63-30-1	XLG80-30-1
	High temperature	XLG16-30-1H	XLG25-30-1H	XLG40-30-1H	XLG50-30-1H	XLG63-30-1H	XLG80-30-1H
XLGV	General use	XLGV16-30-1	XLGV25-30-1	XLGV40-30-1	XLGV50-30-1	XLGV63-30-1	XLGV80-30-1
XLD	General use	—	XLD25-30-1	XLD40-30-1	XLD50-30-1	XLD63-30-1	XLD80-30-1
	High temperature	—	XLD25-30-1H	XLD40-30-1H	XLD50-30-1H	XLD63-30-1H	XLD80-30-1H
XLDV	General use	—	XLDV25-30-1	XLDV40-30-1	XLDV50-30-1	XLDV63-30-1	XLDV80-30-1
XLH	Standard	XLH16-30-1	XLH25-30-1	XLH40-30-1	XLH50-30-1	—	—

Exterior seal, (M) Valve seal, S Valve seal Assemblies

Construction No.	Description	XL(A, C, H) [V]-16	XL(F, G) [V]-16	XLD [V]-25	XL(A, C, H) [V]-25	XL(F, G) [V]-25	XLD [V]-40	XL [V]-40	XLD [V]-50	XL [V]-50	XLD [V]-63	XL [V]-63	XLD [V]-80	XL [V]-80
③	Exterior seal	AS568-025V	XLF16-6	AS568-030V	—	XLF25-6	AS568-035V	—	AS568-039V	—	AS568-043V	—	AS568-045V	—
⑭ (-②)	(M) Valve seal	B2401-V15V	—	B2401-V24V	—	—	B2401-P42V	—	AS568-227V	—	AS568-233V	—	B2401-V85V	—
⑭ (-②)	S Valve seal assembly	—	—	AS568-009V	—	—	XLD40-2-9-1A	—	XLD50-2-9-1A	—	XLD80-2-9-3A	—	XLD80-2-9-3A	—

* Refer to the Construction/Operation drawing of each series for the construction numbers.

Replacement heaters/Part Nos. (XLA, XLC, XLD, XLF, XLG, XLH)

Model	Part Nos./Mounting positions/Set quantity					
	H2 (heater for 100°C)	Mounting position	Set quantity	H3 (heater for 120°C)	Mounting position	Set quantity
XL -25	—	—	—	XLA25-60M-1	(a)	1
XL -40	XLA25-60M-1	(a)	1	XLA25-60M-2	(b) (c)	1
XL -50	XLA25-60M-1	(a)	1	XLA25-60M-2	(b) (c)	1
XL -63	XLA25-60M-2	(b) (c)	1	XLA25-60M-3	(a) (b) (c)	1
XL -80	XLA25-60M-3	(a) (b) (c)	1	XLA25-60M-2	(b) (c)	2

Note 1) The above (a), (b), (c) indicate heater mounting positions. The heater mounting positions (a), (b), (c) are shown in the dimension drawing for each series.

Note 2) Heater set quantity indicates multiple heaters.

(Example) The heaters included with XLA-80-H3 are 2 pieces of XLH25-60M-2 (a set including 2 heater units).

Angle solenoid valve

Construction No.	Description	XLS-16- 	XLS-16-P 	XLS-25- 	XLS-25-P
②	Coil assembly	XLS16-20- G, C, T, D	XLS16-20-P G	XLS25-20- G, C, T, D	XLS25-20-P G
⑥	Core assembly	XLS16-30-1		XLS25-30-1	
④	Armature assembly	XLS16-30-2		XLS25-30-2	
③-①	Core O-ring	AS568-018V		AS568-018V	
③-②	Bonnet O-ring	AS568-025V		AS568-030V	

Note) The voltage symbol is entered here. (Refer to "How to Order")

The letters G, C, T and D following indicate grommet, conduit, terminal and DIN respectively.

* Refer to the Construction/Operation sections for construction numbers.