SMC *P.G.Information* *(Specialized product)*

SP021E-050E
P: GZ

High Vacuum Angle Valve with Heat-Resistant Solid State Auto Switch

XLD-40**-F7NJ

SMC CORPORATION
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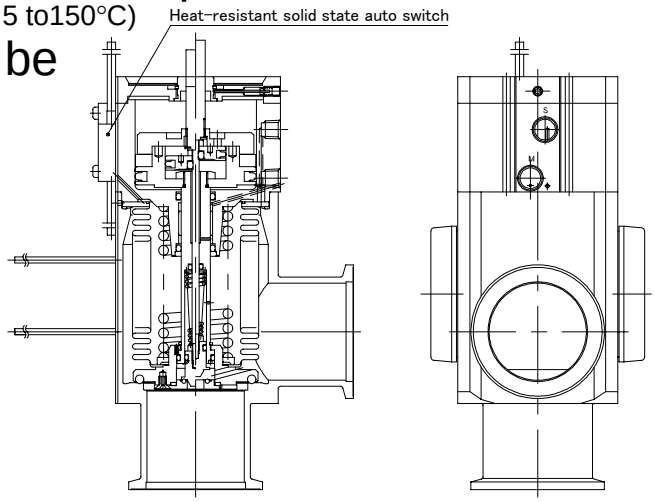
URL: http://www.smcworld.com

Feature 1: With heat-resistant solid state auto switch, for detecting the position open/close of valve.

(Operating temperature range: 5 to150°C)

Feature 2: Various seals can be selected. (O-ring)

Seal material	Inside of ( ) : Compound No.
Nil	FKM (1349-80)
N1	EPDM (2101-80)
P1	BARREL PERFLUORO (70W)
Q1	KALREZ (4079)
R1	CHEMRAZ (SS592)
R2	CHEMRAZ (SS630)
R3	CHEMRAZ (SSE38)
S1	VMQ (1232-70)
T1	FKM FOR PLASMA (3310-75)



Specifications

High vacuum angle valve

Valve type		N.C. type (Pressurize to open, bellows/O-ring seal)
Fluid		Non-corrosive gas for aluminum alloy (A6063) and SUS304/316
Ambient and operating temperature		5 to 150°C
Operating pressure		Atmospheric pressure to 1×10^{-6}Pa (for absolute pressure)
Conductance (*1)	Main exhaust valve	45L/sec
	Initial exhaust valve	2 to 8L/sec
Leakage		Refer to How to Order/Part where seal material is changed
Response time (*2)	Main exhaust valve	0.21sec
	Initial exhaust valve	0.08sec
Flange type		KF40
Principal materials		Body: Aluminum alloy, Bellows: Stainless steel
Actuation pressure		0.4 to 0.7MPa
Actuation port size		Rc1/8
Service life		2 million cycles (For standard seal material: FKM)
Weight		1.2kg (Without heat-resistant solid state auto switch)

*1) The main exhaust valve conductance is the value for the molecular flow of an elbow having the same dimensions. The initial exhaust valve conductance is the value for the viscous flow.
*2) The time required for 90% valve movement when an actuation pressure of 0.5MPa is applied. There is a difference of about 20% in this value at the upper and lower pressure limits.

Heaters (*3)

Rated heater voltage		90 to 125VAC
Heater power W (nominal value) In-rush/Consumption (power)	H1: 80°C	200/20
	H2: 100°C	200/40
	H3: 120°C	400/70

*3) In-rush current will flow to the heater for several tens of second and will then subside. Please refer to our high vacuum angle valve (Series XL) catalogue (CAT.E829) for other details.

Heat-resistant solid state auto switch (D-F7NJ*) (*4)

Power supply voltage	24VDC (20 to 26VDC)
Current consumption	25mA or less
Load voltage	28VDC or less
Load current	40mA or less
Internal voltage drop	0.8V or less
Leakage current	100 μA or less
Operating time	1ms or less
Ambient temperature	Sensor: 0 to 150°C(*5), Amplifier: 0 to 60°C
Indicator light (Amplifier)	Actuated position: Red LED, Optimum operating position: Green LED
Enclosure	Sensor: IEC529 Standard IP63, Amplifier: IEC529 Standard IP65
Lead wires	Oil resistant heavy duty vinyl cord, Ø3.4mm, 0.2mm^2, 3 wires (brown, blue, black)
Lead wires length (Switch weight)	L: 3m (170g), Z: 5m (210g)

*4) Please refer to our Best Pneumatics (general catalogue) for the details of heat resistance auto switch.
*5) Use high vacuum angle valve within operating temperature (5 to 150°C).

How to Order

XLD- 40 [ ] H3 -F7NJ L B- X [ ] [ ] [ ] - [ ]

Flange size

Actuation port direction (*6)

Nil	Flange side
K	Left flange surface
L	Rear flange surface
M	Right flange surface

Temperature specifications/Heater

H0	No heater
H1	With heater for 80°C
H2	With heater for 100°C
H3	With heater for 120°C

Heat-resistant solid state auto switch

Lead wires length (*7)

Switch Qty./Mounting position (*7)

Body inside treatment (*7)

Seal material (*7, 8)

Part where seal material is changed (*7, 8)

Actuation port screw type (*7)

*6) Actuation port direction
(EX) Left flange surface: Indicates that the direction of the actuation port is to the left side when flange surface A (refer to Dimensions) is viewed from the front.
*7) Choose part number from How to Order shown below.
*8) The part where seal material has been changed is to be changed to the same material that specified part (O-ring) has chosen. FKM (fluorine rubber) will be used as seal materials with no symbol and ones for unspecified parts.
*9) Please refer to dimensions for the seal parts (2-1, 4).

Lead wires length	
L	3m
Z	5m

Switch Qty./Mounting position	
A	2 pcs. (When valve open/close, each switch is ON)
B	1 pc. (When valve open, a switch is ON)
C	1 pc. (When valve close, a switch is ON)

Body interior treatment	
Nil	Base material
A	Oxalic acid anodized

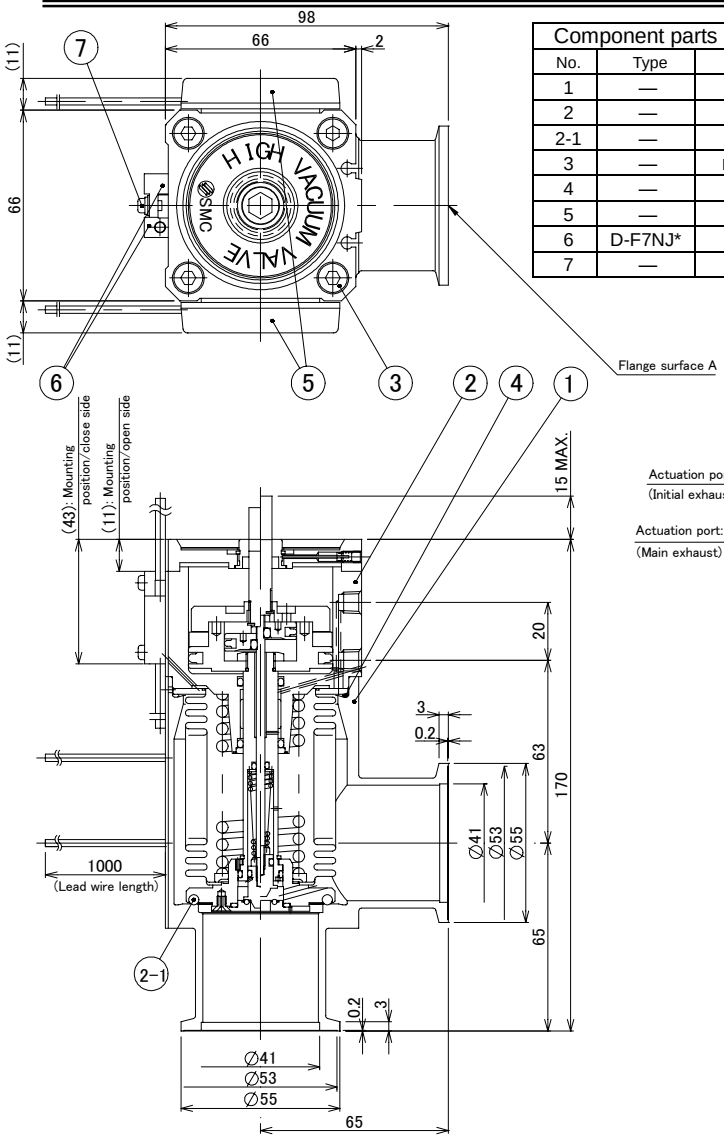
Seal material/Inside of ( ) : Compound No.	
Nil	FKM (1349-80)
N1	EPDM (2101-80)
P1	BARREL PERFLUORO (70W)
Q1	KALREZ (4079)
R1	CHEMRAZ (SS592)
R2	CHEMRAZ (SS630)
R3	CHEMRAZ (SSE38)
S1	VMQ (1232-70)
T1	FKM FOR PLASMA (3310-75)

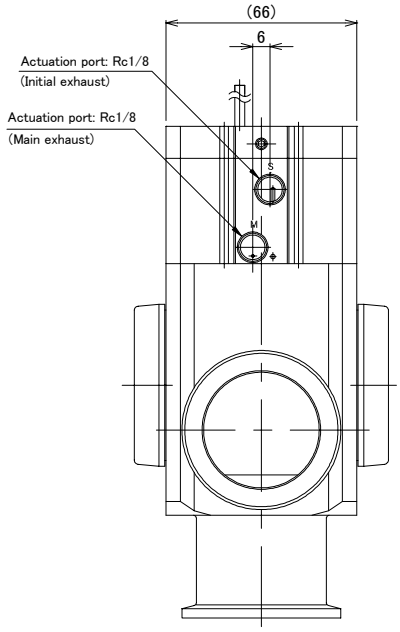
Part where seal material is changed			
	Part where seal material is changed	Leakage (*10) Unit: Pa·m^3/sec or less	
		Internal	External
Nil	None	1.3×10^{-10}	1.3×10^{-11}
A	2-1, 4	1.3×10^{-8}	1.3×10^{-9}
B	2-1	1.3×10^{-8}	1.3×10^{-11}
C	4	1.3×10^{-10}	1.3×10^{-9}

*10) At ordinary temperatures, excluding gas permeation

Actuation port screw type	
Nil	Rc1/8
01N	NPT1/8
01F	G1/8
01T	NPTF1/8

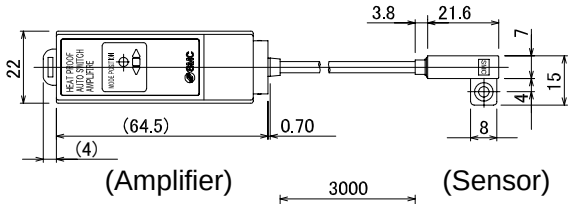
Dimensions: mm

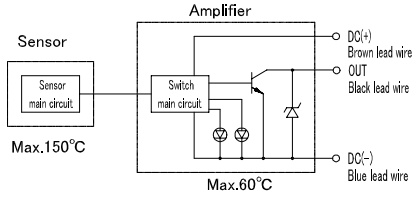


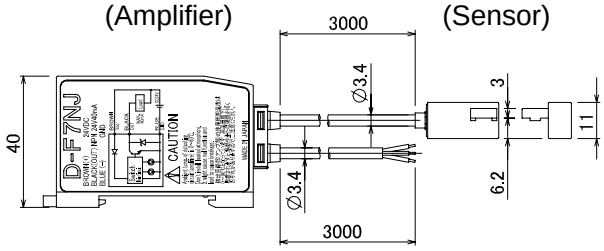


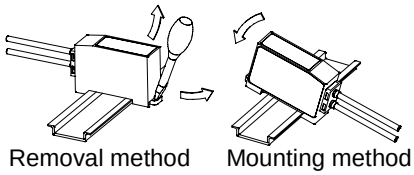
Component parts					
No.	Type	Parts name	Material	Qty.	Notes
1	—	Body	A6063-T6	1	—
2	—	Bonnet assembly	—	1	—
2-1	—	O-ring	—	1	—
3	—	Hexagon socket head cap screw	SUS × M7	4	M6 × 1, L=40
4	—	O-ring	—	1	—
5	—	Heater assembly	—	n	—
6	D-F7NJ*	Heat-resistant auto switch	—	n	—
7	—	Switch mounting bracket	—	n	—

Heat-resistant solid state auto switch









⚠ Caution To ensure the safest possible operation of this product, please be sure to read thoroughly the "Safety Instruction" in our “high vacuum angle valve (Series XL) catalogue” (CAT.E829) before use.