



Air operated valve for high vacuum

AVB^{5/6/7/8}*2 Series

● Formed bellows type



Model No.	Actuation	Orifice	Model No.	Actuation	Orifice	Model No.	Actuation	Orifice
AVB512	NC	ø24	AVB522	NO	ø24	AVB532	Double acting	ø24
AVB612	NC	ø40	AVB622	NO	ø40	AVB632	Double acting	ø40
AVB712	NC	ø50	AVB722	NO	ø50	AVB732	Double acting	ø50
AVB812	NC	ø80	AVB822	NO	ø80	AVB832	Double acting	ø80
AVB21	NC	ø 5						

Long-life, low dust generation

● Pilot-operated solenoid valve installable

● Long-life formed bellows

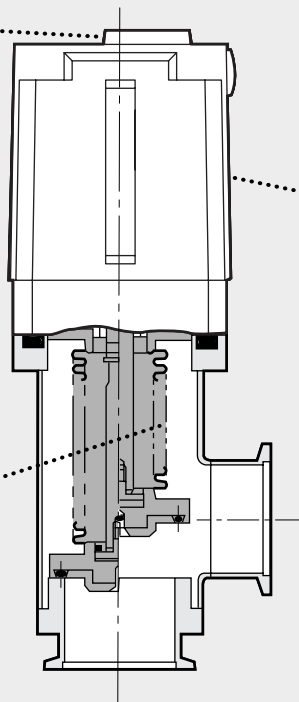
Special stainless steel material (ASL350)

Durability: 1 million times (*1)

*1 Life when working media is inert gas within specified range, which does not contain solids such as reaction products.

● Low dust generation

Wetted areas (flow path) have no sliding sections that may generate particles.



● Usable with back pressure

The vacuum pump can be connected to either port.

(Excluding AVB812)

● Miniature switch mountable

A reed switch (proximity) can be connected to confirm the operation. (Retrofitting possible)

AVB21 is:

● Ideal for leak valves

● Ultra-compact with 5mm orifice

⚠ Precautions

Always read page 9 in the introduction and the precautions on page 88 to 91 to ensure correct, safe use of this product.

- Working media
- Installation
- Direction when connecting piping
- Proximity switch, reed switch



AVB21-8T



AVB**2-*K

Specifications

Descriptions	AVB21-8T	AVB5 ¹ ₂ ³	AVB6 ¹ ₂ ³	AVB7 ¹ ₂ ³	AVB8 ¹ ₂ ³ (Custom order)
Working fluid	Vacuum and inert gas				
Working pressure range Pa(abs)	1.3×10 ⁴ to 2.5×10 ⁵	1.3×10 ⁻⁶ to 1×10 ⁵			
Maximum working differential pressure MPa	0.25	0.1			0.1 (Back pressure not available for NC type)
Valve seat leakage Pa·m ³ /s(He)	1.3×10 ⁻⁹ or less				
External leakage Pa·m ³ /s(He)	1.3×10 ⁻⁹ or less				
Withstanding pressure MPa	0.3				
Fluid temperature °C	5 to 60				
Ambient temperature °C	0 to 60				
Orifice mm	5	24	40	50	80
Stroke mm	3	15	20	22	32
Conductance Note 1 l/s	—	13	52	80	242
Connection	1/4" tube	NW25	NW40	NW50	NW80
Control pressure MPa	0.3 to 0.5				
Weight kg	0.25	1.4	2.5	3.3	9.9
JIS symbol	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>● NC (Excluding AVB812)</p> </div> <div style="text-align: center;"> <p>● NO</p> </div> <div style="text-align: center;"> <p>● Double acting</p> </div> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>(AVB812)</p> </div> <div style="text-align: center;"> </div> </div>				

Note 1: The conductance is the theoretical calculation value at the molecular flow range, and is not the actual measurement value.

Electrical specifications		
Rated voltage		100V AC(50/60Hz), 110V AC(60Hz), 200V AC(50/60Hz), 220V AC(60Hz), 24V DC
Apparent power	When holding	3.9VA(50Hz), 3.1VA(60Hz)
	When starting	9.2VA(50Hz), 7.9VA(60Hz)
Power consumption	AC	2.0W(50Hz), 1.7W(60Hz)
	DC	4.0W
Heat resistance class		B

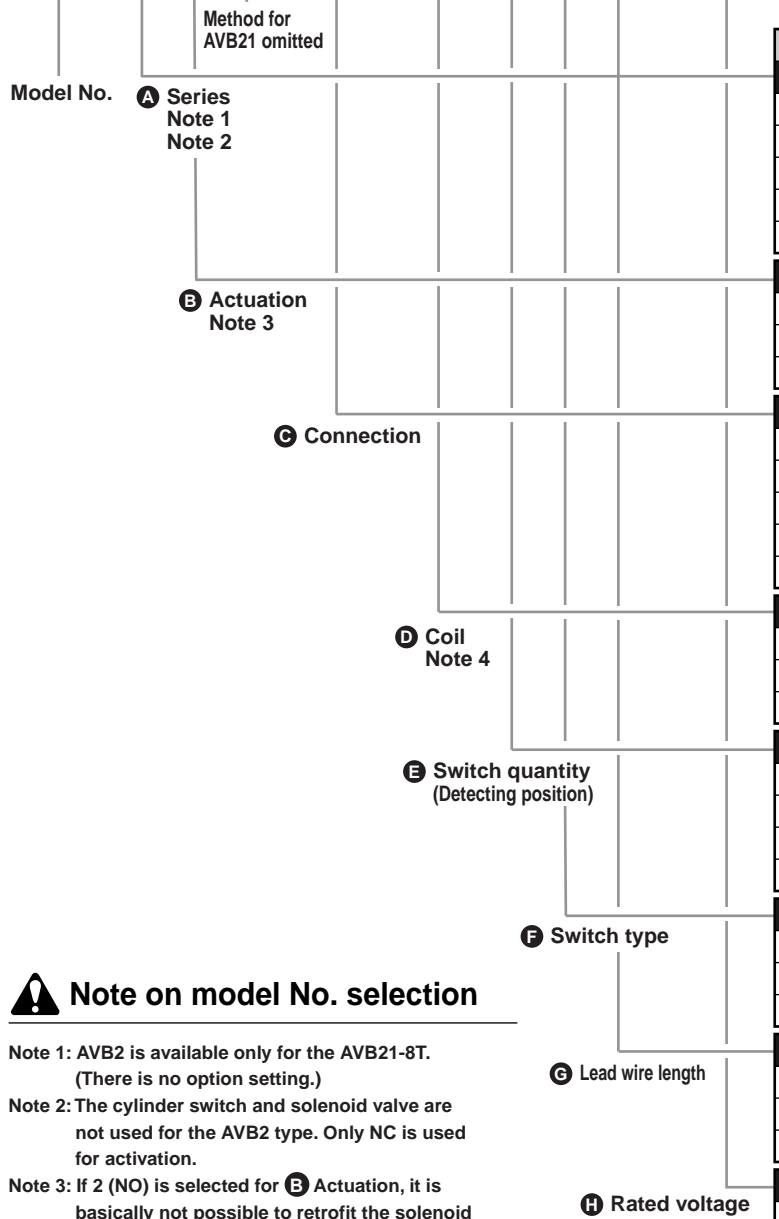
Switch specifications

Descriptions	Proximity switch	
	NAB-C2	NAB-C3
Applications	Programmable controller	Programmable controller, relay, IC circuit, small solenoid valve
Power voltage	—	10 to 28V DC
Load voltage/Current	10 to 30V DC, 5 to 30mA	30V DC, 150mA or less
Power consumption	—	15mA or less at 24V DC (when ON)
Internal voltage drop	4V or less	0.5V or less
Light	Illuminating diode (lights when ON)	
Leakage current	1mA or less	10 μA or less
Lead wire length Note 2	1m (oil resistant vinyl round code 2-conductor 0.2mm ²)	1m (oil resistant vinyl round code 3-conductor 0.15mm ²)
Maximum impact	294m/s ²	
Insulation resistance	100MΩ and over when measured with 500VDC megger	
Withstand voltage	No failure when 1000VAC is applied for 1 minute	
Ambient temperature range	-10 to +60°C	
Protective structure	IEC Standard IP67, JIS CO920 (water-tight type), oil-resistant	

Note 2: 3 m and 5 m leads are available as options.

How to order

AVB 5 1 2 - 25K - 2C - H C2 3 - DC24V



Symbol	Descriptions	
A Series		
2	1/4"	
5	25A	
6	40A	
7	50A	
8	80A (Custom order)	
B Actuation		
1	NC (normally closed)	
2	NO (normally open)	
3	Double acting	
C Connection		
8T	1/4" tube	Only AVB21 is available
25K	NW25	Only AVB5*3 is available
40K	NW40	Only AVB6*3 is available
50K	NW50	Only AVB7*3 is available
80K	NW80	Only AVB8*3 is available
D Coil		
Blank	Without solenoid valve	
2C	Grommet coil	
2G	DIN terminal box	
E Switch quantity (Detecting position)		
Blank	Without switch	
H	Detect when valve is open	
R	Detect when valve is closed	
D	Detect when valve is open/closed	
F Switch type		
Blank	Without switch	
C2	Proximity 2 wire	
C3	Proximity 3 wire	
G Switch lead wire length		
Blank	1m (standard)	
3	3m	
5	5m	
H Rated voltage		
Blank	Without solenoid valve	
AC100V	AC100V(50/60Hz), AC110V(60Hz)	
AC200V	AC200V(50/60Hz), AC220V(60Hz)	
DC24V	DC24V	

⚠ Note on model No. selection

Note 1: AVB2 is available only for the AVB21-8T.
(There is no option setting.)

Note 2: The cylinder switch and solenoid valve are not used for the AVB2 type. Only NC is used for activation.

Note 3: If 2 (NO) is selected for **B** Actuation, it is basically not possible to retrofit the solenoid valve. Designate the solenoid valve at purchase.

Note 4: The **D** Coil setting is used only when 1 (NC) or 2 (NO) is selected for **B** Actuation.
(The solenoid valve option is not used for the double-acting valve.)

<Example of model number >

AVB512-25K-2C-HC23-DC24V

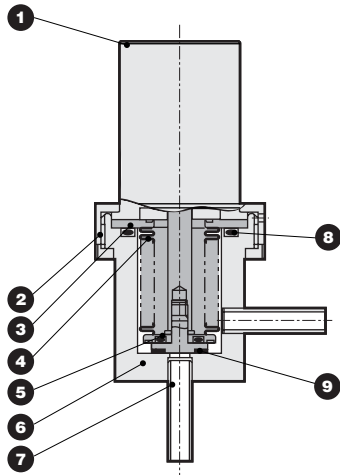
Model: AVB512 high vacuum air operated valve

- A** Series : 25A
- B** Actuation : NC (normally closed)
- C** Connection : NW25
- D** Coil : Grommet coil
- E** Switch quantity : Detect when valve is open
- F** Switch type : Proximity 2 wire
- G** Lead wire length : 3m
- H** Rated voltage : 24V DC

Internal structure and parts list

AVB21-8T

●NC

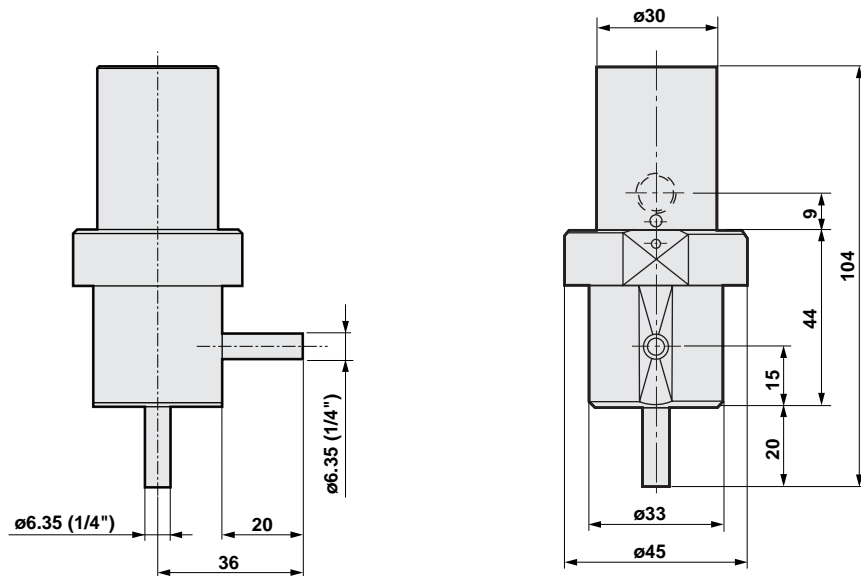


No.	Parts name	Material
①	Cylinder	
②	Ring	C3604
③	Bellows ring	SUS304
④	Bellows	SUS316L
⑤	Valve disk B	SUS304
⑥	Body	SUS304
⑦	Pipe	SUS304
⑧	O ring	FKM
⑨	Valve disk A	FKM/SUS304

Dimensions

AVB21-8T

●NC

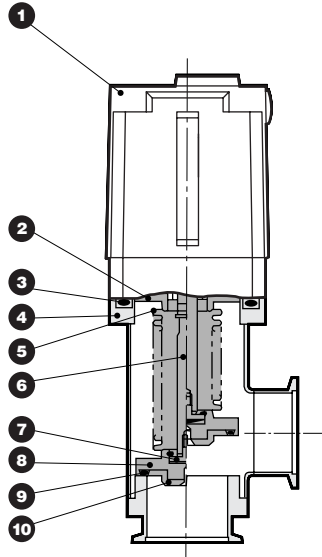


Internal structure and parts list

AVB**2-*K

●NC/NO/Double acting

(The drawing below shows the NC cross-section.)



No.	Parts name	Material
①	Cylinder (magnet integrated)	
②	Bellows adaptor	SUS316
③	O ring (*1)	FKM
④	Body	SUS316
⑤	Formed bellows	ASL350
⑥	Rod	SUS316
⑦	Rod piece	SUS304
⑧	Valve disk A	SUS316
⑨	O ring	FKM
⑩	Valve disk B	SUS316

*1. The external seal differs slightly for AVB7 and AVB8. (The ③ O-ring seal is shown at left.)

Dimensions

AVB**2-*K

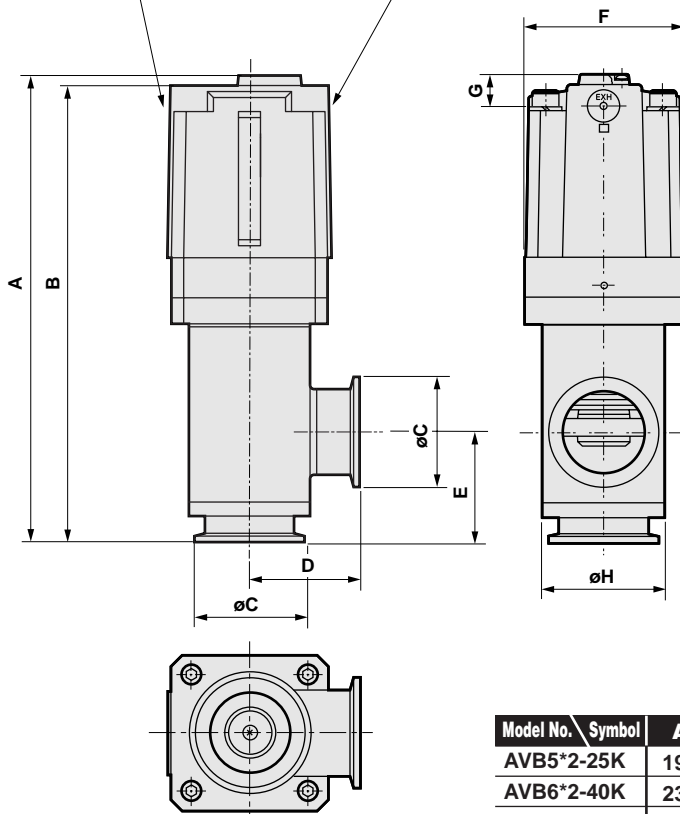
●NC/NO/Double acting

X port (NC)

Y port (NO, double acting)

Y port (NC)

X port (NO, double acting)



●The options (pilot-operated solenoid valve, cylinder switch) and dimensions are available upon request.
The solenoid valve option is not used for double-acting valve.

Model No. / Symbol	A	B	øC	D	E	F	G	øH
AVB5*2-25K	193	188	40(NW25)	50	50	63	15	48.6
AVB6*2-40K	233	228	55(NW40)	55	55	78	15.5	60.5
AVB7*2-50K	271	266	75(NW50)	70	70	78	15.5	76.3
AVB8*2-80K	359	354	114(NW80)	95	98	115	15.5	118