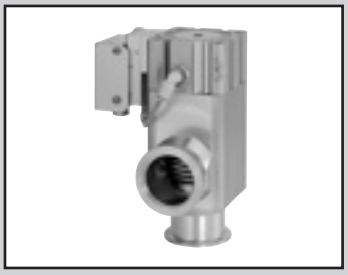


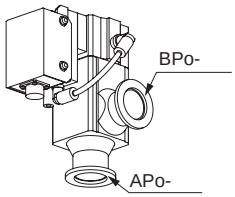
Vacuum pressure control system

IAVB Series

RoHS

Specifications

Item		IAVB217	IAVB317	IAVB417	IAVB517
Working fluid		Vacuum and inert gas			
Working pressure	Pa (abs)	1.3×10^{-6} to 1×10^{5}			
Max. working differential pressure	MPa	0.1			
Valve seat leakage	Pa·m^3/s(He)	1.3×10^{-10} or less			
External leakage	Pa·m^3/s(He)	1.3×10^{-11} or less			
Proof pressure	MPa	0.3 MPa			
Fluid temperature	°C	5 to 60			
Ambient temperature	°C	5 to 45			
Orifice size	mm	ø17	ø24	ø43	ø48
Conductance *1	ℓ/s	5	13	43	74
Connection		NW16	NW25	NW40	NW50
Weight	Kg	0.6	0.8	1.6	2.4
Pilot air pressure	MPa	0.45 to 0.55 MPa			
Mounting orientation		Unrestricted			
Connection direction *2		with port A on the chamber side, Port B connected to vacuum pump side			

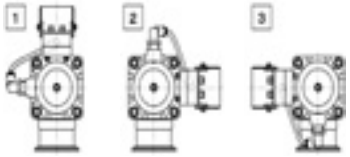


*1: The conductance value is the theoretical calculation value in the molecular region, and not the actual measured value.
*2: Avoid reverse connection: while fully open and closed operation will be possible even with reverse connection, the vacuum pressure control will become unstable.
*3: Grease for vacuum is applied to the O-rings of outer seal parts.

How to order

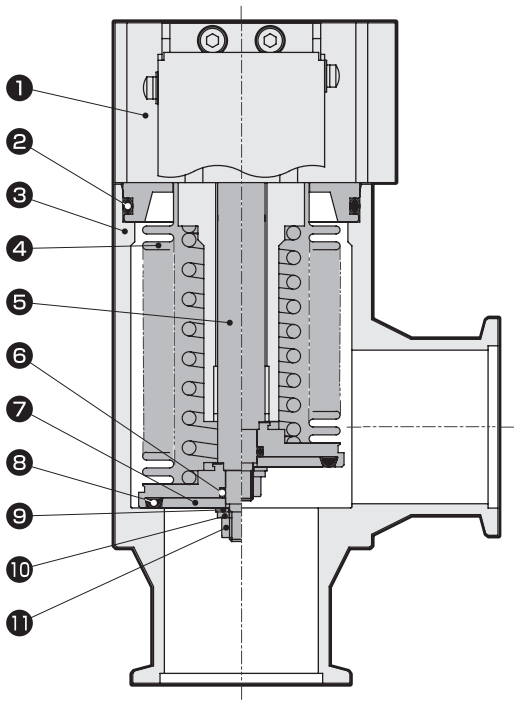
IAVB **2** **1** **7** - **16K** - **3**

- Model No.
- Actuation: 1 = NC
- Ⓐ Orifice size: 2 = ø17, 3 = ø24, 4 = ø39, 5 = ø48
- 7 = Aluminum single-action valve
- Ⓑ Connection: 16K = NW16, 25K = NW25, 40K = NW40, 50K = NW50
- Ⓒ Operating port position: 3, 1, 2

Code	Description
Ⓐ Orifice size	
2	Orifice size ø17
3	Orifice size ø24
4	Orifice size ø39
5	Orifice size ø48
Ⓑ Connection	
16K	NW16
25K	NW25
40K	NW40
50K	NW50
Ⓒ Operating port position	
3	
1	
2	Operating port positions are shown as 3 (standard), 1, 2 with respect to the flange direction when viewed from the valve upper surface.

Internal structure and parts list

●IAVB217/IAVB317/IAVB417/IAVB517

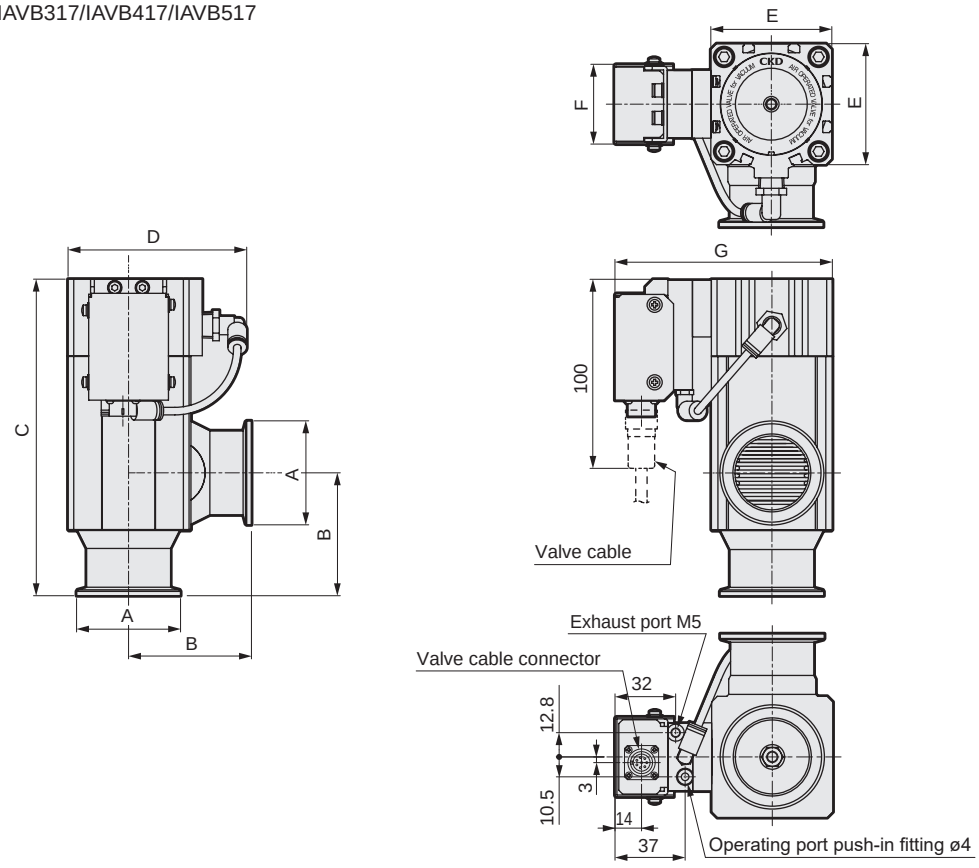


Part number	Part name	Material	
1	Cylinder (magnet interior)		
2	O-ring	FKM	Note
3	Body	A + 6063	
4	Bellows	SUS316L	
5	Rod	SUS316L	
6	O-ring	FKM	
7	Valve disk B	SUS316L	
8	O-ring	FKM	
9	Flat washer	SUS304	
10	Spring washer	SUS304	
11	Hexagon nut	SUS304	

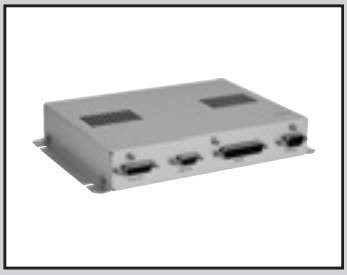
Note: Contact CKD for other O-ring material compatibility.

Dimensions

●IAVB217/IAVB317/IAVB417/IAVB517



Model No.	A	B	C	D	E	F	G
16K	ø30 (NW16)	40	114	57	40	43	91
25K	ø40 (NW25)	50	127	71	45	43	96
40K	ø55 (NW40)	65	168	95	64	43	115
50K	ø75 (NW50)	70	186	108	77	43	128



Controller for **IAVB**

RoHS

General specifications

Item		IAVB-CONT			
		IAVB217	IAVB317	IAVB417	IAVB517
Power supply voltage		24 VDC ± ±10% (stabilized power supply with ripple rate 1% or less)			
Current consumption		0.5 A or less (fuse capacity 1 A)			
Ambient temperature	°C	10 to 40			
External input	No. of inputs	2 points			
	Input method	Dry contact input (photo coupler isolation)			
	Input capacity	24 VDC, 10 mA or less			
External output	No. of output points	2 points			
	Output method	NPN open collector output (photo coupler isolation)			
	Load capacity	30 VDC, 15 mA or less			
	Internal voltage drop	1.2 VDC or less			
Analog voltage input	Number of points	2 points			
	Type	0-10 VDC 0-5VDC (both input load 20 kΩ)			
Analog voltage output	Number of points	1 points			
	Output	0 to 10 VDC (connecting load 10 kΩ)			
Repeatability		Within ±1% F.S.			
Operation mode		Operation via serial connection or contact input and analog voltage (selection method)			
Communication method		RS-485			
Pressure control count		1ch			

Use a power source with sufficient margin against fuse capacity (current).

How to order

How to order controller individual model

IAVB-CONT

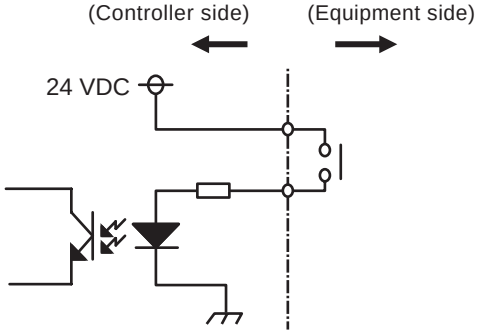
How to order valve cable individual model

IAVB-VCBL-03

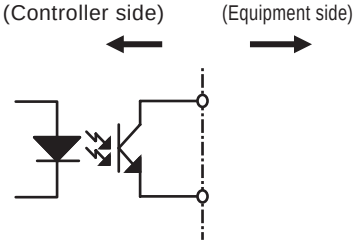
Cable length 3 m

Interface circuit

Dry contact input : Photo coupler input
When the contact is closed, about 5 mA flows.

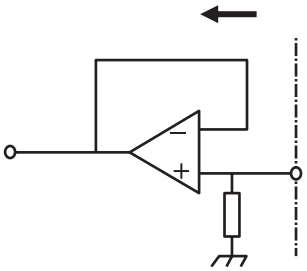


NPN open collector output: Photo coupler output
Load capacity 30 VDC, 15 mA or less
Internal voltage drop 1.2 VDC or less



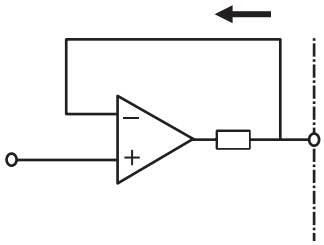
Analog voltage input: Follower input
Input load 20 kΩ

(Controller side) (Equipment side)



Analog voltage output: Follower output
Analog voltage output: Follower output

(Controller side) (Equipment side)



Connector terminal assignment of controller

1.MAIN (D-SUB 25pin male)

Pin No.	Signal name	Input/output	Remarks
1	Grounding terminal	Ground	Grounding
2	(NC)	-	(Connect nothing)
3	Power supply 24 VDC	Power supply input (+)	Power supply (+)
4	(NC)	-	(Connect nothing)
5	(NC)	-	(Connect nothing)
6	(port for CKD inspection)	-	(Connect nothing)
7	Press monitor output (0 to 10 V)	Analog output	0 to 10 V is equivalent to sensor 0 to 100%
8	Press command value input (0 to 5 V)	Analog input	0 to 5 V is equivalent to sensor 0 to 100%
9	Valve status output	NPN output	Photo coupler collector output 2
10	Alarm status output	NPN output	Photo coupler collector output 1
11	Valve operation input COM	Contact input (-) COM	Contact input (-) COM
12	Valve operation contact 2 input	Contact input (+)	Photo coupler cathode 2
13	AGND	Analog GND	Analog 0 V
14	(NC)	-	(Connect nothing)
15	(NC)	-	(Connect nothing)
16	Power supply GND	Power supply input (-)	Power supply (-)
17	(NC)	-	(Connect nothing)
18	AGND	Analog GND	Analog 0 V
19	(NC)	-	(Connect nothing)
20	AGND	Analog GND	Analog 0 V
21	AGND	Analog GND	Analog 0 V
22	(Spare)	(NPN output)	(Photo coupler collector output 3)
23	Status COM	Photo coupler emitter COM	Photo coupler emitter COM
24	Valve operation contact 1 input	Contact input (+)	Photo coupler cathode 1
25	(port for CKD inspection)	-	(Connect nothing)

2.PRESS (D-SUB 9pin female)

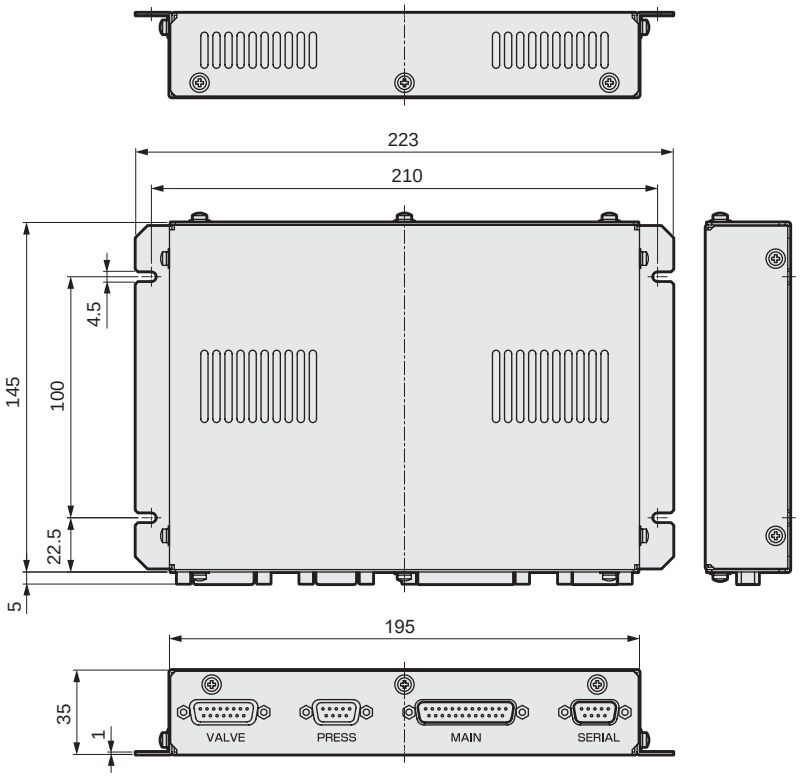
Pin No.	Signal name	Input/output	Remarks
1	(port for CKD inspection)	-	(Connect nothing)
2	(port for CKD inspection)	-	(Connect nothing)
3	Press input (0 to 10 V)	Analog input	Chamber pressure sensor
4	PRESS GND	Analog GND	Sensor signal GND
5 to 9	(NC)	-	(Connect nothing)

3.SERIAL (D-SUB 9pin male)

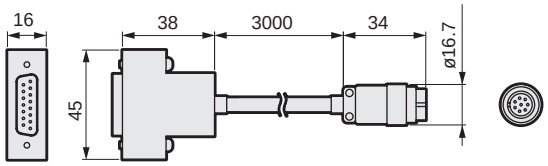
Pin No.	Signal name	Input/output	Remarks
1	NC	-	(Connect nothing)
2	NC	-	(Connect nothing)
3	TXD(+)/ RXD(+)	Transmission/reception (+)	Controller (+)↔ Host (+)
4	TXD(-)/ RXD(-)	Transmission/reception (-)	Controller (-)↔ Host (-)
5	SG	Signal ground	Serial power supply 0 V
6 to 9	(NC)	-	(Connect nothing)

Dimensions

●IAVB-CONT



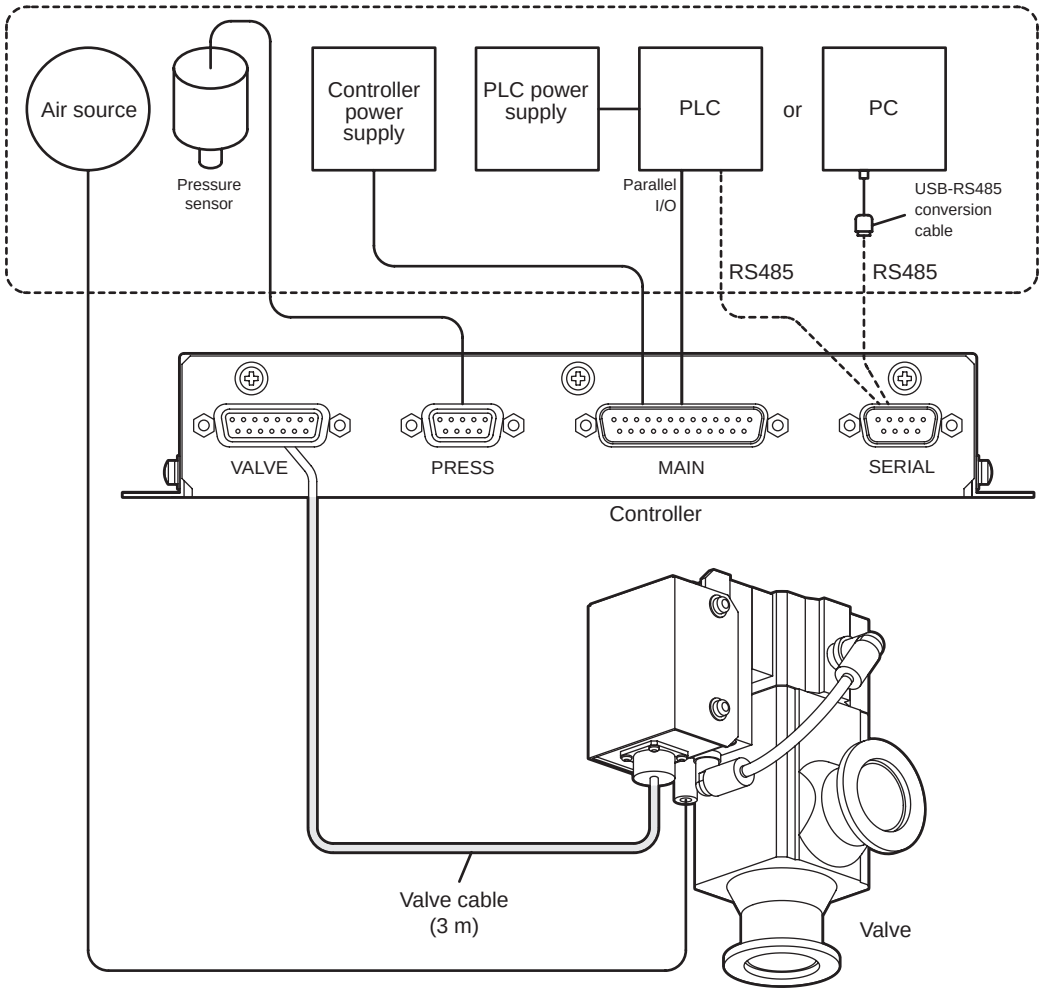
●IAVB-VCBL-03



Valve cable

System configurations table

System prepared by customer



- Capacitance manometer (0-10V output) is recommended for pressure sensor. (For other pressure sensors, consult with CKD.)
- When using a computer, prepare a USB-RS-485 conversion cable.

Configuration of product

Name	Quantity
Valve	1
Controller	1
Valve cable	1

This product is a system product intended for communication and control with the customer's PLC. The customer is responsible for confirming the compatibility of CKD products with the systems, machines and equipment used. When purchasing a controller, support freeware is included. This software is freeware intended to support rapid startup for customers. Its operation in customer computer environments is not guaranteed.