Perfect for strict cleanliness. Easier to use.

Manual **MWD Series**

Air operated **SWD Series**

The **3** key points to achieving **excellent cleanliness and ease of use**

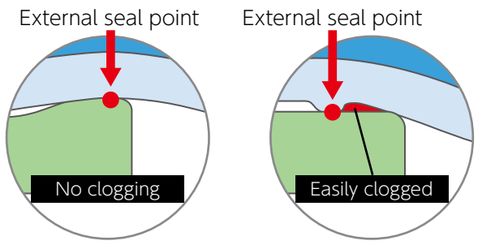
Clean

High washability realized

The external seal of the diaphragm periphery adopts a flat structure eliminating the pocket between the diaphragm and body. There is no accumulation of liquids in the pocket, so the valve stays cleaner.

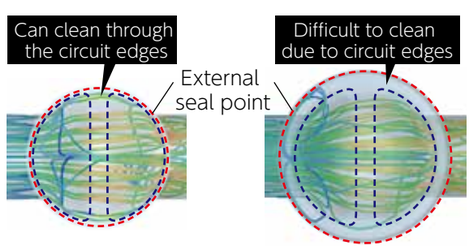
High replaceability reduces cleaning time

Designed to have little dead space in which fluid may be trapped, allowing the circuit to be thoroughly cleaned. The high liquid replaceability contributes to reduced cleaning time.



SWD / MWD Series

If using an external seal with a protruding diaphragm



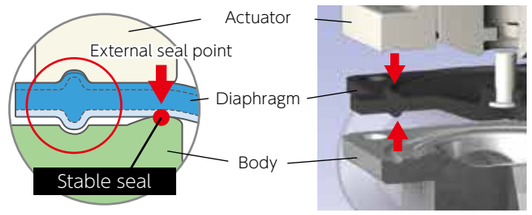
SWD / MWD Series

If using an external seal with a protruding diaphragm

Maintainability

Realizes a reduction in maintenance time

Using a unique mechanism and more appropriate diaphragm enables secure positioning and easy diaphragm replacement. Retains an easily assembled and secure seal to realize a reduction in maintenance time.



Groove matching positioning allows a stable seal

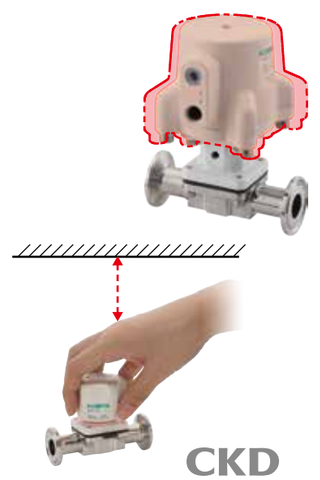
Compact

Space and energy saving of equipment and facilities (Air operated)

Years of pneumatic cylinder production have created unique technologies, with which we keep the actuator compact in relation to the valve bore size and reduce air consumption.

Secures maintenance space (Manual type)

Adopts a compact manual handle to secure sufficient space within the device, making valve operation easier.



Weir diaphragm valve Air operated

SWD Series

●Connection: ISO ferrule

RoHS

How to Order

SWD 1 1 - 8 - F

- SWD: Model No.
- 1: ❶ Series
- 1: ❷ Actuation
- 8: ❸ Port size
- F: Material: ADC12 actuator, PTFE/EPDM diaphragm, SUS316L body

❶ Series

Code	Description
1	Size 1
2	Size 2
3	Size 3
4	Size 4
5	Size 5

Note: ❸Refer to the port size table and select the port size.

❷ Actuation

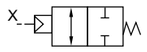
Code	Description
1	NC (normally closed)
2	NO (normally open)
3	Double acting

❸ Port size

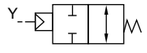
Code	Description		Model No. SWD1	SWD2	SWD3	SWD4	SWD5
8	Clamp fitting	8 A	●				
10		10A	●				
15		15A		●			
25		25 A (1S)			●		
40		40 A (1.5S)				●	
50		50 A (2S)					●

Circuit diagram symbol

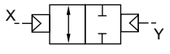
● NC (normally closed)



● NO (normally open)



● Double acting

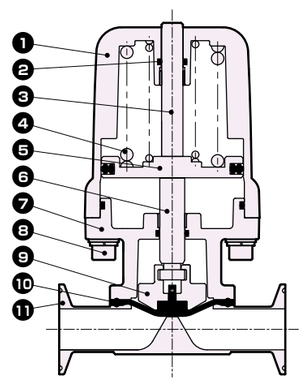


Specifications

Item		SWD✳1	SWD✳2	SWD✳3
Actuation		NC (normally closed)	NO (normally open)	Double acting
Working fluid		Water, pure water, chemical liquids (fluids that do not corrode wetted part materials)		
Working pressure	MPa	0 to 0.6		
Proof pressure (water)	MPa	2.0		
Fluid temperature	°C	5 to 90 (Allowable for 20 minutes or less during steam sterilization of 130°C)		
Ambient temperature	°C	0 to 60		
Frequency	cycles/min.	SWD1 to 4: 20 or less SWD5:10 or less		
Valve seat leakage	cm^3/min	0 (water pressure)		
Mounting orientation		Unrestricted (✳1)		
Operating port		Rc1/8		
Operating fluid		Air		
Operating pressure	MPa	SWD1✳-8, SWD1✳-10, SWD2✳-15: 0.35 to 0.7	0.25 to 0.35	0.2 to 0.3
		SWD3✳-25: 0.4 to 0.7	0.3 to 0.35	0.25 to 0.3
		SWD4✳-40: 0.4 to 0.7	0.35 to 0.4	0.3 to 0.35
		SWD5✳-50: 0.4 to 0.7	0.27 to 0.32	0.2 to 0.25
Cv		SWD1✳-8	2.3	
		SWD1✳-10	2.6	
		SWD2✳-15	4.5	
		SWD3✳-25	13	
		SWD4✳-40	27	
		SWD5✳-50	50	
Kv value (✳2)		SWD1✳-8	2.0	
		SWD1✳-10	2.3	
		SWD2✳-15	3.9	
		SWD3✳-25	11	
		SWD4✳-40	23	
		SWD5✳-50	43	
Material	Diaphragm	PTFE / EPDM		
	Body	SUS316L (buff polishing #400 or equiv., electrolytic polishing)		
	Actuator	ADC12 (fluoro resin coating)		

✳1: For horizontal piping, liquid accumulation in the valve can be minimized by piping at the angle described on page 15.
✳2: Refer to the Intro page of "Fluid control valves" (RJ-013AA) for Kv values.

Internal Structure Diagram / Material

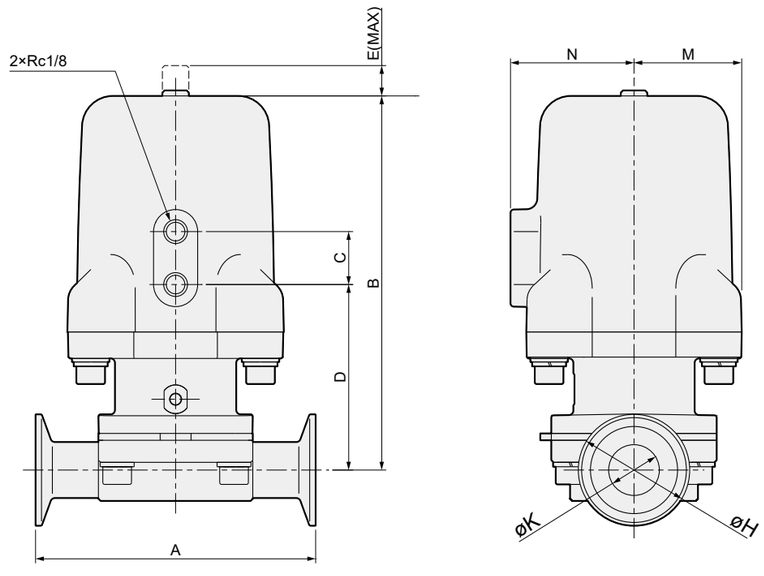


No.	Part name	Material	
1	Cylinder guard	ADC12	Aluminum die-casting
2	O-ring	FKM	Fluoro rubber
3	Indicator	SUS304	Stainless steel
4	Spring	SUS304 (or SWP, SWOSC)	Stainless steel (or piano wire, oil temper wire)
5	Piston	A2017	Aluminum
6	Piston rod	SUS304	Stainless steel
7	Rod cover, yoke	ADC12	Aluminum die-casting
8	Hexagon socket head cap screw	SUS304, SUSXM7	Stainless steel
9	Compressor	SCS13	Stainless steel
10	Diaphragm	PTFE, EPDM, SUS303, SUS304	Fluoro resin, ethylene propylene rubber, stainless steel
11	Body	SUS316L	Stainless steel

Note: Refer to page 12 for consumable parts. Wetted parts material are of two types: PTFE (diaphragm), SUS316L (body).

Dimensions

● SWD



Model No.	A	B	C	D	E	H	K	M	N	Weight [kg] NC	NO	Double acting
SWD1✳-8-F	90	99.5	22	60	7	34	10.5	32	40	0.6		
SWD1✳-10-F	90	101	22	61.5	7	34	14	32	40	0.6		
SWD2✳-15-F	108	130	22	73	8.5	34	17.5	38	46.5	1.2		
SWD3✳-25-F	127	170	24	84	12.5	50.5	23	49	56	2.7	2.3	2.3
SWD4✳-40-F	159	212	28	97	16.5	50.5	35.7	57	66	5.1	4.1	4.0
SWD5✳-50-F	190	241.5	47	118	23	64	47.8	76.5	87.5	9.5	7.8	7.5

Weir diaphragm valve Manual type

MWD Series

●Connection: ISO ferrule

RoHS

How to Order

MWD 1 0 - 8 - F

- MWD: Model No.
- 1: Series
- 0: (blank)
- 8: Port size
- F: Material: A5056 actuator, PTFE/EPDM diaphragm, SUS316L body

1 Series

Code	Description
1	Size 1
2	Size 2
3	Size 3
4	Size 4
5	Size 5

Note: ❷Refer to the port size table and select the port size.

2 Port size

Code	Description		Model No. MWD1	MWD2	MWD3	MWD4	MWD5
8	Clamp fitting	8 A	●				
10		10A	●				
15		15A		●			
25		25 A (1S)			●		
40		40 A (1.5S)				●	
50		50 A (2S)					●

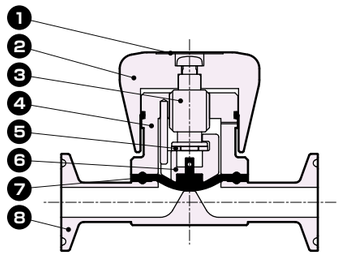
Circuit diagram symbol

Specifications

Item		MWD 10-8	MWD 10-10	MWD 20-15	MWD 30-25	MWD 40-40	MWD 50-50
Working fluid		Water, pure water, chemical liquids (fluids that do not corrode wetted part materials)					
Working pressure	MPa	0 to 0.6					
Proof pressure (water pressure)	MPa	2.0					
Fluid temperature	°C	5 to 90 (Allowable for 20 minutes or less during steam sterilization of 130°C)					
Ambient temperature	°C	0 to 60					
Valve seat leakage	cm^3/min	0 (water pressure)					
Mounting orientation		Unrestricted (✳1)					
Operating torque	N·m	0.7 to 1.1	0.7 to 1.1	1.0 to 1.5	1.7 to 2.7	3.0 to 4.0	5.0 to 5.5
Cv		2.3	2.6	4.5	13	27	50
Kv value (✳2)		2.0	2.3	3.9	11	23	43
Material	Diaphragm	PTFE / EPDM					
	Body	SUS316L (buff polishing #400 or equiv., electrolytic polishing)					
	Actuator	A5056 (fluoro resin coating)					

✳1: For horizontal piping, liquid accumulation in the valve can be minimized by piping at the angle described on page 15.
✳2: Refer to the Intro page of “Fluid control valves” (RJ-013AA) for Kv values.

Internal Structure Diagram / Material

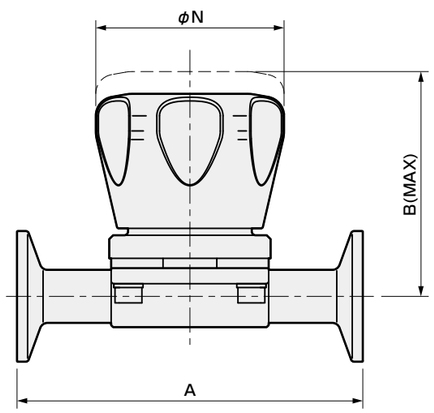


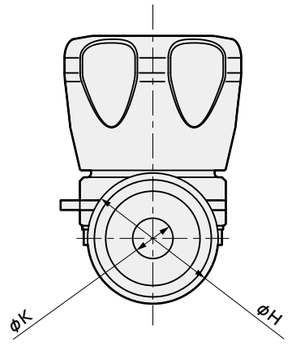
No.	Part name	Material	
1	Indicator	PET	Polyethylene terephthalate
2	Handle	A5056	Aluminum
3	Rod	SUS304	Stainless steel
4	Bonnet	A5056	Aluminum
5	Bearing	-	-
6	Compressor	SCS13	Stainless steel
7	Diaphragm	PTFE, EPDM, SUS303, SUS304	Fluoro resin, ethylene propylene rubber, stainless steel
8	Body	SUS316L	Stainless steel

Note: Refer to page 12 for consumable parts. Wetted parts material are of two types: PTFE (diaphragm), SUS316L (body).

Dimensions

● MWD





Model No.	A	B	H	K	N	Weight [kg]
MWD10-8-F	90	58.5	34	10.5	49	0.4
MWD10-10-F	90	60.7	34	14	49	0.4
MWD20-15-F	108	71.5	34	17.5	59	0.6
MWD30-25-F	127	88.7	50.5	23	69	1.2
MWD40-40-F	159	107.6	50.5	35.7	89	2.4
MWD50-50-F	190	164.5	64	47.8	89	4.6

HYN
SWD / MWD
SWD-T
SPD
HYA

Weir diaphragm valve Manual type
Spring seal

MWD-S Series

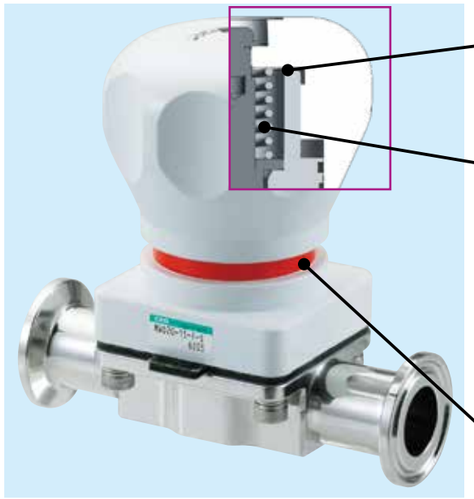
Special-order product

●Connection: ISO ferrule

RoHS

Features

No more diaphragm damage due to overtightening.



Handle stopper mechanism

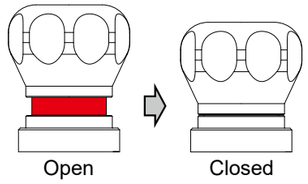
You can tell when it is fully tightened.

Spring seal

Just turn the handle until it is fully tightened, for consistently optimal sealing force. No handle tightening torque control required. Significant improvement of diaphragm durability at high temperatures. The spring conforms to loosening due to temperature changes, meaning that no retightening after SIP is required.

Indicator equipment

Open/Close status is visually apparent even from a distance.



How to Order

MWD 1 0 - 8 - F - S

- MWD: Model No.
- 1: ❶ Series
- 8: ❷ Port size
- F: Material: A5056 actuator, PTFE/EPDM diaphragm, SUS316L body

❶ Series

Code	Description
1	Size 1
2	Size 2
3	Size 3
4	Size 4

Note: ❷Refer to the port size table and select the port size.

❷ Port size

Code	Description		Model No. MWD1	MWD2	MWD3	MWD4
8	Clamp fitting	8 A	●			
10		10A	●			
15		15A		●		
25		25 A (1S)			●	
40		40 A (1.5S)				●

✳1: Refer to page 12 for consumable parts. Wetted parts material are of two types: PTFE (diaphragm), SUS316L (body).
✳2: Contact your CKD Sales representative for Special-order product, delivery date, price, etc.

Circuit diagram symbol

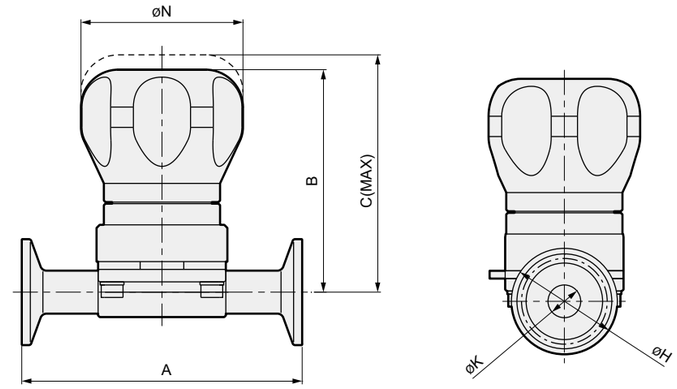
Specifications

Item		MWD10-8	MWD10-10	MWD20-15	MWD30-25	MWD40-40
Working fluid		Water, pure water, chemical liquids (fluids that do not corrode wetted part materials)				
Working pressure	MPa	0 to 0.6				
Proof pressure (water pressure)	MPa	2.0				
Fluid temperature	°C	5 to 90 (Allowable for 20 minutes or less during steam sterilization of 130°C)				
Ambient temperature	°C	0 to 60				
Valve seat leakage	cm^3/min	0 (water pressure)				
Mounting orientation		Unrestricted (✳1)				
Cv		2.3	2.6	4.5	13	27
Kv value (✳2)		2.0	2.3	3.9	11	23
Material	Diaphragm	PTFE / EPDM				
	Body	SUS316L (buff polishing #400 or equiv., electrolytic polishing)				
	Actuator	A5056 (fluoro resin coating)				

✳1: For horizontal piping, liquid accumulation in the valve can be minimized by piping at the angle described on page 15.
✳2: Refer to the Intro page of “Fluid control valves” (RJ-013AA) for Kv values.

Dimensions

● MWD-S



Model No.	A	B	C	H	K	N	Weight [kg]
MWD10-8-F-S	90	71	79	34	10.5	52	0.4
MWD10-10-F-S	90	74	81	34	14	52	0.4
MWD20-15-F-S	108	84	94	34	17.5	66	0.8
MWD30-25-F-S	127	119	133	50.5	23	80	2.0
MWD40-40-F-S	159	146	163	50.5	35.7	89	3.6

Consumable parts (diaphragm)

How to Order

SWD - 1 PE

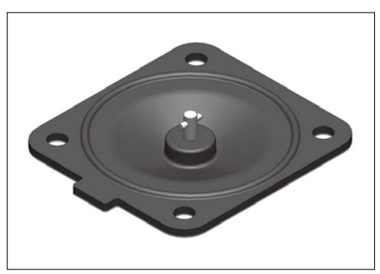
Model No.

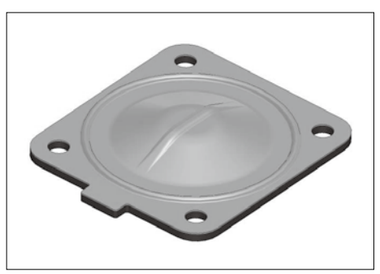
1 Series

1 Series

Code	Description
1	Size 1
2	Size 2
3	Size 3
4	Size 4
5	Size 5

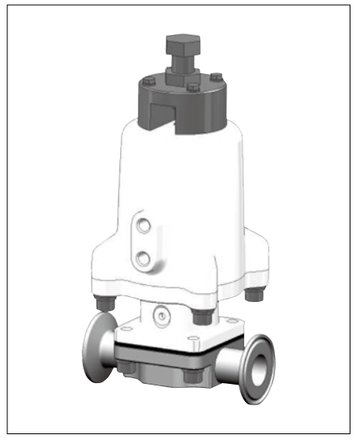
Note: Common model No. for SWD, MWD and MWD-S.





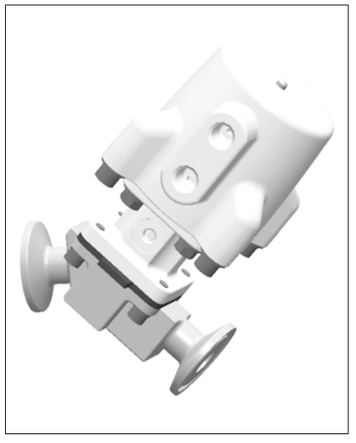
Special-order product

With opening adjustment mechanism



With open/close detection switch

Specially shaped body



Note: Contact your CKD Sales representative for Special-order product, delivery date, price, etc.

MEMO

Fluid Control Valves

Safety Precautions

Be sure to read this section before use.

Refer to "Fluid control valves (RJ-013AA)" for general precautions Although the above general catalog states that products are not applicable for medical equipment or direct contact with beverages/foodstuffs, the SWD/MWD Series products can be used in such applications as long as they are within the range of the product specifications.

Product-specific cautions: Weir diaphragm valve: SWD/MWD Series

Design / Selection

⚠WARNING

■This product cannot be used as an emergency shut-off valve.
It is not designed to function as a safety valve, such as an emergency shut-off valve. When using in such a system, always take separate measures that will ensure safety.

■Incorrect equipment selection and handling can cause problems not only in this product, but also to your system. For equipment selection and handling, it is the customer's responsibility to check the specifications of this product and the compatibility with your system before use.

■Take measures to prevent physical harm or property damage in the event of breakdown of this product.

■Liquid ring
When the valve opens and closes, the diaphragm moves up and down, which causes the flow path capacity to change inside the valve. For this reason, if the fluid is an incompressible fluid (liquid), extreme pressures will be created in the valve when operating under conditions that seal the fluid in the valve (liquid ring). In this case, install a release valve on the primary or secondary side of the valve, preventing a liquid ring circuit from forming.

■Working fluids
Check the compatibility of product component materials and working fluids.

■Fluid temperature
Use within the specified fluid temperature range.

■Fluid pressure range
Use within the specified working pressure range.

■Iron rust and foreign materials in the fluid can cause operation faults or leaks and deteriorate product performance. Provide measures to remove foreign matter.

■Use in high temperatures and steam
When hot fluid flows during steam sterilization, the valve body becomes hot, so do not touch with your hand or body. There is a risk of burns if these coils are touched directly. Do not place objects that may deteriorate, melt, or ignite near the unit.

⚠CAUTION

■Rapid changes in fluid temperature may cause internal leakage.

■While the upper side of the diaphragm (actuator side) does not come into contact with the fluid, due to changes in fluid type and fluid temperature, fluid may permeate and turn into fluid atmosphere.

■As for compressed air for actuator operation, use air or inert gas passed through a filter with a filtration rating of 5 μm or more.

■If the product has been out of use for one month or more, perform a test run before starting actual operation.

■When the product will not be used for one month or more, completely remove any water left in the product. Water residue will cause rusting and may lead to malfunction or leaks. If residual water cannot be eliminated, operate the valve several times a day and pass water through to ensure ideal use.

■When the operating air supply time or exhaust time is short, the valve actuation may be unable to keep up.

■Do not allow fluid to come into contact with anything other than the fluid passage section of the product.

■Water hammer and vibration may occur in certain fluid pressure and piping conditions. In most cases, this can be resolved by adjusting the open-close speed using a speed controller, etc. If a problem persists, review and revise the fluid pressure and piping conditions.

■If you use the product infrequently, contact CKD.

■Indicator rises during valve opening. Since grease is applied to the indicator part, be careful of adhesion.

■Do not use valves as a footing or place any heavy objects on top of the valves.

■Use the air operated operating air pressure within the specified pressure range.

■Use the manual operating torque within the specified torque range.

■Observe the operating frequency. Operating frequency is 20 cycles/min or less for SWD1 to 4, and 10 cycles/min or less for SWD5.

■For horizontal piping, liquid accumulation in the valve can be minimized by tilting the valve and piping. Pipe so that the "-CKD-" mark stamped on the body piping section is directly above.
(Refer to Table 1, Fig. 1)

Table 1. Port size and valve tilt angle

Model No.	Port size	Valve tilt angle (θ°)
SWD1✳-8, MWD10-8	8 A	23
SWD1✳-10, MWD10-10	10A	11
SWD2✳-15, MWD20-15	15A	14
SWD3✳-25, MWD30-25	25 A (1S)	25
SWD4✳-40, MWD40-40	40 A (1.5S)	24
SWD5✳-50, MWD50-50	50 A (2S)	23

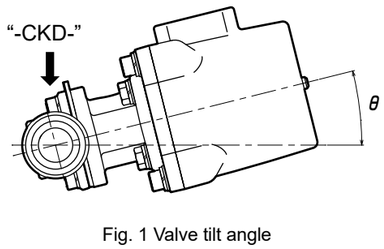


Fig. 1 Valve tilt angle

For cautions for mounting, installation, adjustment, use and maintenance, refer to the CKD components Product Site (https://www.ckd.co.jp/kiki/en/) → "Model No.→ Instruction manual for details.