"Visible" speed setting of cylinder is available !

New product

Speed control valve with adjusting dial
DSC Series

SPEED CONTROL VALVE WITH ADJUSTING DIAL

The flow in the display !

"Visible" speed setting of cylinder is available !

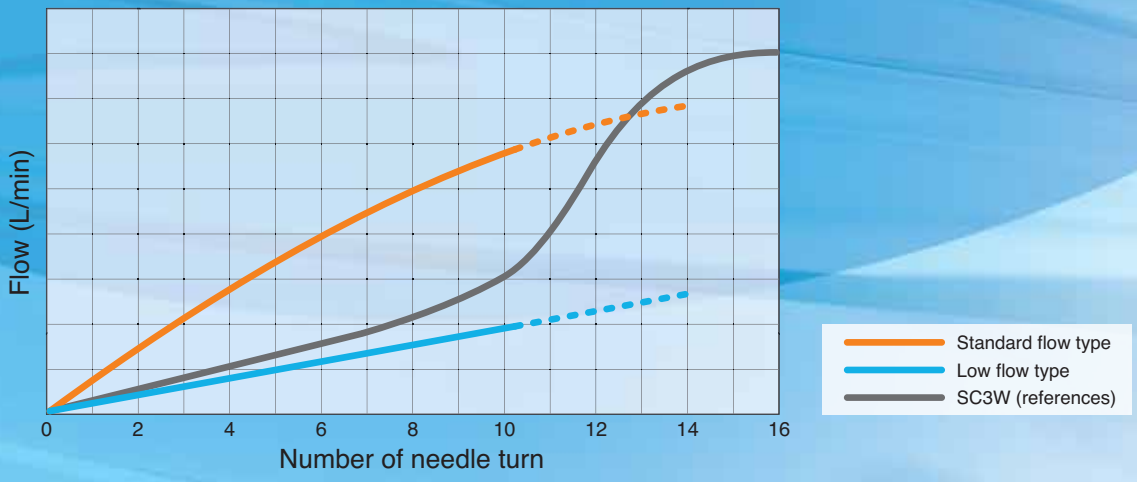
"Visible" speed setting by display number of rotaion of flow control needle.
Cylinder speed adjustment "foolproof ", easy "and " for sure ".

CKD Corporation
CC-1021A

The flow in the display !

The flow characteristics in proportion to number of needle turn

【Flow characteristics chart】



Stylization of speed setting

Cylinder speed is readily-numerically controlled and easily identifiable with display number of rotation.
A work manual is also quantifiable.

A push lock method is provided.

Needle fixing is the operability large depth improvement by push lock type.
Needle movement is prohibited when locked, and a certain lock is achieved.
Easy adjustment.

Prevent mis-adjustment

Foolproof numerical and accurate adjustment.
Repeatability prevent mis-adjustment.

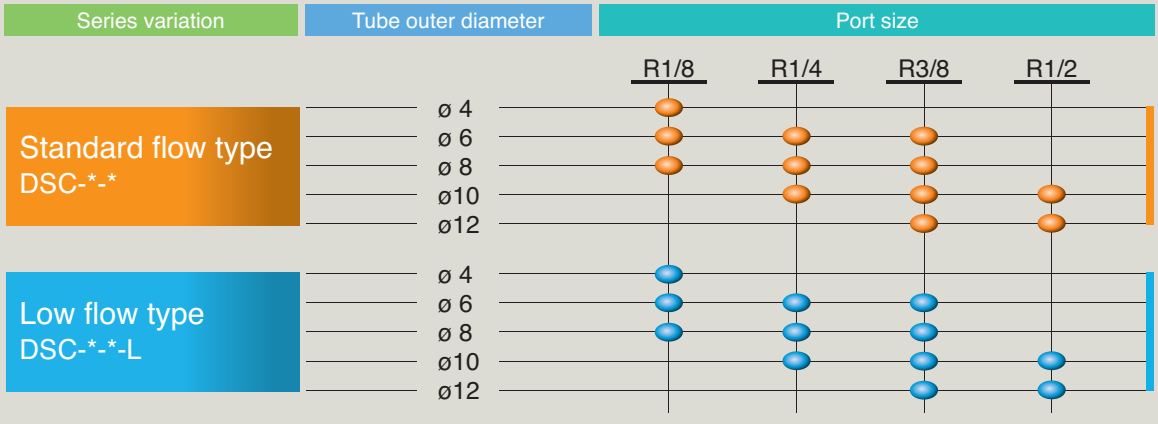
Work man-hours down

Quicker adjustment reduce more time of tooling change and maintenance work.
Due to knob is large type,fine adjustment is easy.

RoHS

Speed control valve with dial

DSC Series

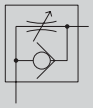
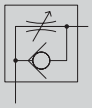


*Specification for LiB production line(P4) and clean room (P70) are available.

Speed control valve with dial

DSC Series

●Port size: Rc1/8 to Rc1/2

JIS symbol  (Meter-out)  (Meter-in)

RoHS

Specifications

Descriptions		DSC-6			DSC-8			DSC-10				DSC-15	
Applicable tube outer diameter mm		ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
Working fluid		Compressed air											
Max. working pressure MPa		1.0											
Min. working pressure MPa		0.05											
Withstanding pressure MPa		1.5											
Fluid temperature range ˚C		-5 to 60 (not freezing) (Note 2)											
Ambient temperature range ˚C		0 to 60 (not freezing)											
Port size		R1/8			R1/4			R3/8				R1/2	
Product weight g		33	34	35	45	46	48	60	61	64	65	95	97
Needle control range		1 to 10 rotation											
Free flow	L/min(ANR)	210	270	270	470	530	530	670	1000	1070	1070	1470	1600
	Effective sectional area mm^2	3.2	4	4	7	8	8	10	15	16	16	22	24
Controlled flow (standard flow)	L/min(ANR)	160	200	200	320	400	400	400	700	800	800	1120	1200
	Effective sectional area mm^2	2.4	3	3	5	6	6	6	10.5	12	12	17	17.5
Controlled flow (low flow)	L/min(ANR)	60			130			270				400	
	Effective sectional area mm^2	0.9			2			4				6	

Note 1: The flow is an atmospheric pressure conversion value with for 0.5MPa.
Note 2: Freezing could occur by adiabatic expansion depending on air quality (dew point).

Specification for LiB production line

●Structure available for Lib production line and general assembly process.

DSC - …… **P4**

Clean room specifications

●Dust generation preventing structure for use in cleanrooms

DSC - …… **P70**

How to order

DSC - 6 - 6 - I L

Ⓐ Port size
Ⓑ Applicable tube outer diameter
Ⓒ Control method
Ⓓ Flow type

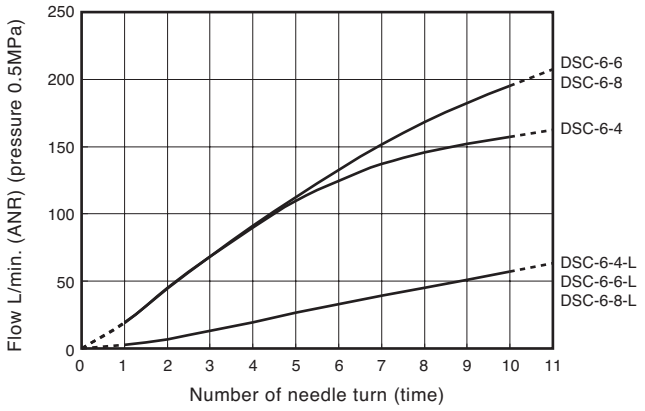
Symbol	Descriptions
Ⓐ Port size	
6	R1/8
8	R1/4
10	R3/8
15	R1/2
Ⓑ Applicable tube outer diameter	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
Ⓒ Control method	
Blank	Meter-out
I	Meter-in (push ring color: black)
Ⓓ Flow type	
Blank	Standard flow
L	Low flow

Port size - applicable tube outer diameter combination

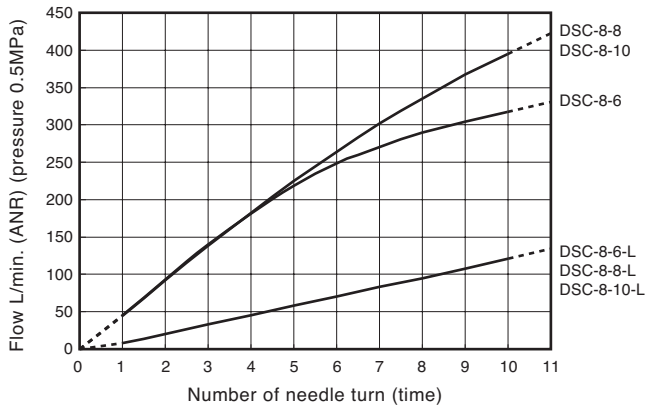
Tube \ Piping	R1/8	R1/4	R3/8	R1/2
ø4	○			
ø6	○	○	○	
ø8	○	○	○	
ø10		○	○	○
ø12			○	○

Flow characteristics

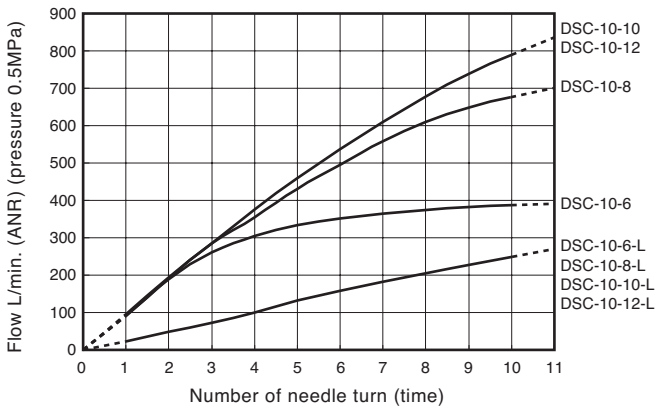
●DSC-6-※



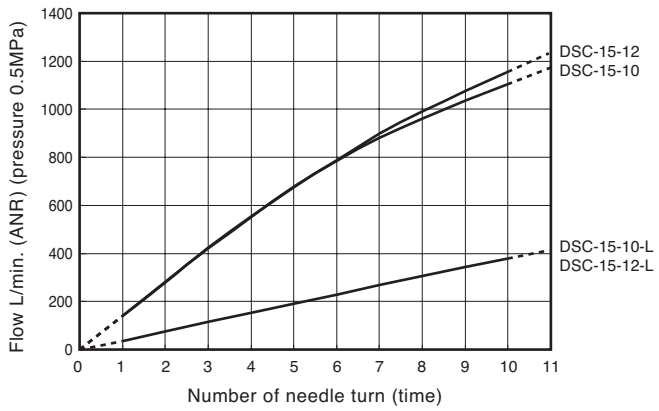
●DSC-8-※



●DSC-10-※

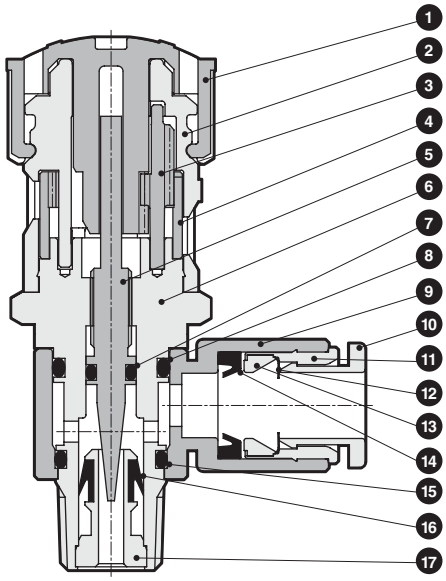


●DSC-15-※



Note: Care must be taken because flow characteristics vary depending on the piping conditions and temperature change after the pre-.

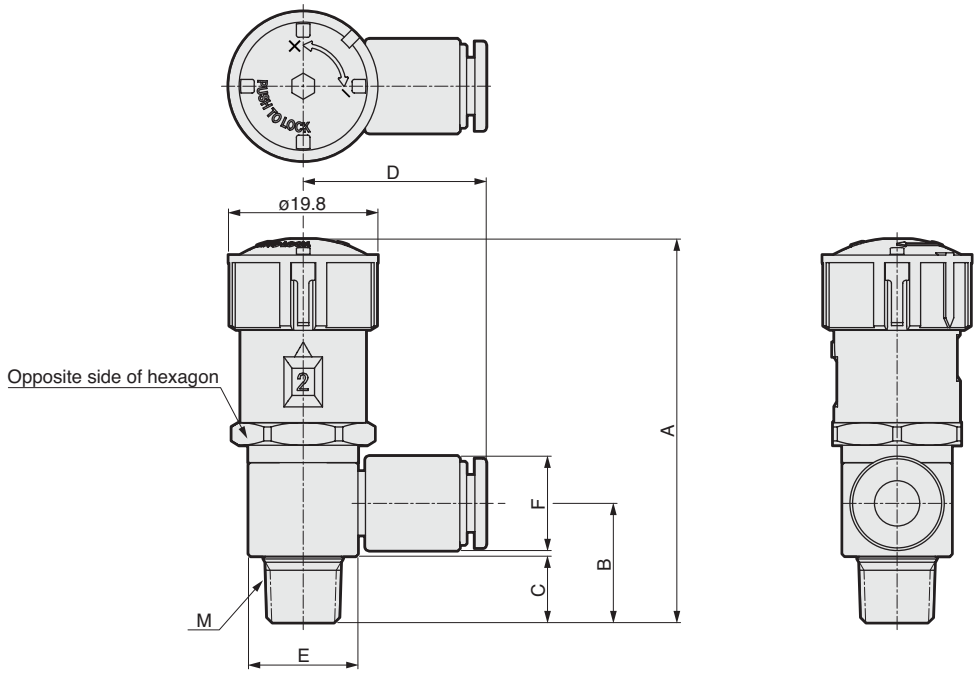
Internal structure and parts list



No.	Parts name	Material
1	Knob	Polyacetal
2	Gear guard	PBT
3	Gear	Stainless steel
4	Display ring	Polyacetal
5	Needle	Stainless steel
6	Rotary shaft	Brass
7	O ring	Nitrile rubber
8	O ring	Nitrile rubber
9	Rotor	PBT
10	Push ring	PBT
11	Outer ring	Brass
12	Chuck	Stainless steel
13	Chuck holder	Polyetherimide
14	Packing seal	Nitrile rubber
15	O ring	Nitrile rubber
16	Packing seal	Hydrogenated nitrile rubber
17	Check	Brass

Note 1: All the brass parts are plated with electroless nickeling.

Dimensions



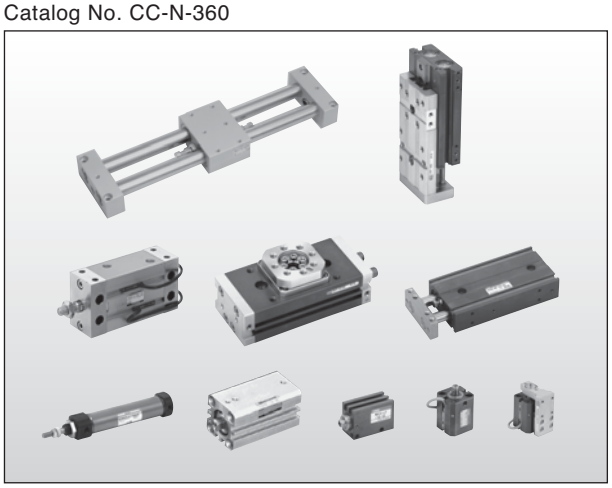
Model no.	M	Applicable tube outer diameter	A		B	C	D	E	F	Opposite side of hexagon
			Locked	Adjustment						
DSC-6-4	R1/8	ø4	51	54	16.2	8.7	23.5	14.5	10	17
DSC-6-6		ø6			15.7		24.5		12.5	
DSC-6-8		ø8			15.4		26		14.5	
DSC-8-6	R1/4	ø6	55.5	58.5	20.0	11.7	26	18	12.5	17
DSC-8-8		ø8			19.0		27.5		14.5	
DSC-8-10		ø10			19.0		30.5		17.5	
DSC-10-6	R3/8	ø6	58	61	23.1	12.7	28.5	22.5	12.5	19
DSC-10-8		ø8			21.3		30		14.5	
DSC-10-10		ø10			21.8		32		17.5	
DSC-10-12		ø12			21.7		33.5		20	
DSC-15-10	R1/2	ø10	63	66	25.2	15.7	34.5	27.5	17.5	24
DSC-15-12		ø12			25.7		36		20	

Related products

Fine speed cylinder F Series

- No stick-slip at 1mm
- Smooth actuation and stops anywhere in the stroke
- 10 different models with inner diameter of ø6 to ø100
- Various swiches including reed, proximity and 2-color display can be mounted

Catalog No. CC-N-360



Needle valve with adjusting dial DVL Series

- Linear flow characteristics
- Visible control of flow rates
- Use as a speed control valve
- Oil-prohibition type available
- Unrestricted installation

Catalog No. CC-860

Safety precautions

Always read this section before starting use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle, and maintain the product appropriately to ensure that the CKD product is used safely.
Be sure to observe the description given under DANGER, WARNING and CAUTION to assure safety of the equipment.
Check that device safety is ensured, and manufacture a safe device.

WARNING

(1) This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience in handling.

(2) Use this product in accordance of specifications.

This product must be used within its stated specifications. It must not be modified or machined.
This product is intended for use as a general-purpose industrial device or part. It is not intended for use outdoors or for use under the following conditions or environment.
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD productspecifications. The customer must provide safety measures to avoid risks in the event of problems.)
(1)Use for special applications requiring safety including nuclear energy, railroad, aviation, ship, vehicle, medical equipment, equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.
(2)Use for applications where life or assets could be adversely affected, and special safety measures are required.

(3) Observe corporate standards, regulations, etc., related to the safety of device design and control, etc.

ISO 4414, JIS B 8370 (pneumatic system rules)
Principles for pneumatic cylinder selection and use
Including High Pressure Gas Maintenance Law, Occupational Safety and Sanitation Laws, other safety rules, body standards and regulations, etc.

(4) Do not handle, pipe, or remove devices before confirming safety.

(1) Inspect and service the machine and devices after confirming safety of the entire system related to this product.
(2) Note that there may be hot or charged sections even after operation is stopped.
(3) When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
(4) When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

(5) Observe warnings and cautions on the pages below to prevent accidents.

■ The safety cautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER (DANGER): When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, or when there is a high degree of emergency to a warning.

WARNING (WARNING): When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

CAUTION (CAUTION): When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as “CAUTION” may lead to serious results depending on the situation.
In any case, important information that must be observed is explained.

Disclaimer

(1) Term of warranty

"Warranty Period" is one (1) year from the first delivery to the customer.

(2) Scope of warranty

In case any defect attributable to CKD is found during the Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgement.
Note that the following faults are excluded from the warranty term:
(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications
(2) Failure caused by other than the delivered product
(3) Use other than original design purposes.
(4) Third-party repair/modification
(5) Failure caused by reason that is unforeseeable with technology put into practical use at the time of delivery
(6) Failure attributable to force majeure.
In no event shall CKD be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

(3) Compatibility confirmation

In no event shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

Safety precautions

Pneumatic components warning and cautions

Always read this section before starting use.
Refer to "Pneumatic, vacuum and auxiliary components CB-024SA".

Caution : Speed control valve with dial

Design & Selection

⚠ CAUTION

■ This valve can not be used as a stop valve that has no leakage.

Due to structure, a few leakage could occur.

■ Care must be taken because the flow varies from the characteristics value on page 2 depending on the piping conditions before or after the product and temperature.

■ Do not use this valve in circuits where ozone is generated intentionally.

Ozone resistance is sufficient for naturally generated ambient ozone. Packing deteriorates if ozone levels are high.

■ This product is used with compressed air. Avoid use in other fluids.

■ Use this product in accordance with the specifications range.
Consult with CKD when using the product outside specifications or for special applications.

- Use with exceeding the specifications range may result in insufficient performance, and safety can not be secured.
- This product could not use in special applications and environment.
  For example, use for special applications including nuclear energy, railway, aircraft, marine vessel, vehicle, medical equipment, equipment, or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.

■ Confirm that the product will withstand the working environment.

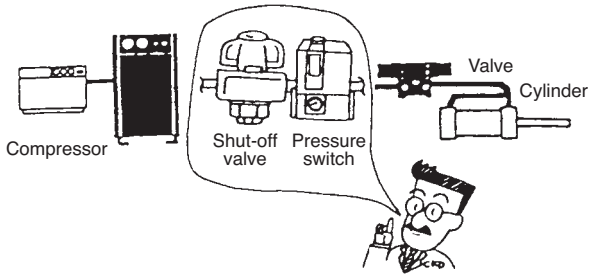
- This product cannot be used in environments where functional obstacles could occur.
  Special environments reaching high temperatures, having chemical atmospheres, or having chemicals, vibration, humidity, moisture, dripping, or gas are present. Environments where ozone is generated.
- Do not use the product in the place that the product could directly contact with coolant or spatter, etc.., ,

■ Understand compressed air features before designing a pneumatic circuit.

- The same functions as mechanical, hydraulic, and electrical methods cannot be anticipated if instantaneous service interruption and holding are required during an emergency stop.
- Pop-out, air discharge, or leakage due to air compression and expansion could occur.

■ Install the pressure switch and " the shut-off valve " compressed air inlet side of a device.

- The pressure switch will disable operation until set pressure is reached.The shut-off valve will exhaust compressed air in the pneumatic pressure circuit, and will prevent accidents caused by operation of pneumatic components by residual pressure.



■ Confirm that PTFE can be used. The sealant contains PTFE (polytetrafluoroethylene resin) powder. Check that this poses no problem during use.

■ Indicate the maintenance conditions in the device's instruction manual.

- The product's function can drop markedly with working status, working environment, and maintenance, and can prevent safety from being attained.With correct maintenance, the product functions can be used to the fullest.

■ Use in the ultra dry air is short service life deppending on the deterioration of the rubber part.

■ Do not continue pushing or give load to the push ring of push-in joint.

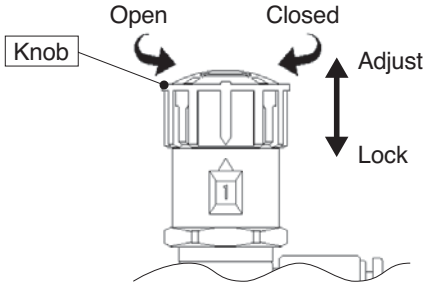
- There is a possibility that tube is not able to grip.
- Note not to continue pushing the push ring , during transport with product assembly.

Installation & Adjustment

⚠ CAUTION

■ The needle lock is released when the knob is pulled, and is locked when pressed.

■ The clockwise rotation makes the flow open and the counterclockwise rotation makes the flow close.



■ After adjusting speed, press the knob and confirm that the needle is locked.

■ Controlable range of needle is from 1 to 10 turning, operate with 0.05N·m less torque.

Turning the knob forcedly more than the abobe mentioned range may cause deviation of flow characteristics and trouble. Even when the needle is fully closed, the dial indication is not 0.

■ Adjust speed by opening when the needle is nearly closed.

If the needle is open, the actuator could pop out suddenly and cause a hazard.

■ Check flow direction with JIS symbol.

If installed in reverse, speed adjustment will not be applied and the actuator could pop out, creating a hazard.

■ Final speed must be adjusted as necessary.

Speed differs greatly depending on product differences, working conditions, actuator differences, and temperature, so confirm the final speed as necessary.

■ Install an air filter before the circuit.

The flow varies depending on clogging or foreign matters adhered in the orifice.

■ When piping ,tightend the screw with the specified tightening torque (table1-(1)). Do the additional tightening job for the rotation number display location adjustment less than the specified torque(table1-(2)).

To avoid trouble, do not the piping with gripping the knob.

Thread size	(1) Piping (N·m)	(2) Retightening (N·m)
R1/8	3 to 5	9 or less
R1/4	6 to 8	14 or less
R3/8	13 to 15	24 or less
R1/2	16 to 18	30 or less

Tightening torque of port thread (table 1)

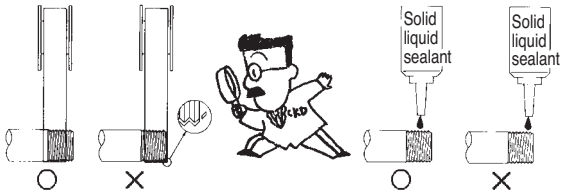
■ Securely insert the tube until it contacts the joint's tube end, and check that it does not come off the joint.

■ Do not take the product out of the packing bag until just before piping.

● It foreign matter enters into the pneumatic components internal, then a cause such as a failure and malfunction since a piping port.

■ When connecting pipes, wrap sealing tape in the opposite direction from threads starting 2 mm margin from the end of piping threads.

● If sealing tape protrudes from pipe threads, it could be cut when screwed in. This could cause the tape to enter the pneumatic components and lead to faults.



■ Handling push-in tube joint/tube

● Refer to Cautions of joint and tube, and "Pneumatic,Vacuum and Auxiliary Components" (No.CB-024S) for handling push-in joints and tubes.

■ Always flush just before piping pneumatic component.

● Foreign matter that enters during piping must not enter pneumatic components.

■ When supplying compressed air for the first time after connecting pipes, do not apply high pressure suddenly.

● Tube may come off and fly out, causing an accident.

■ After connecting piping, check pipe connections for air leaks before supplying compressed air.

● Apply a leakage detection agent on pipe connections with a brush, and check for air leaks.

■ Connect piping so that connections are not dislocated by system movement, vibration, or tension.

● Control of actuator speed will be disabled if piping on the exhaust side of the pneumatic circuit is disengaged.
● When using the chuck holding mechanism, the chuck will be released creating a hazardous state.

■ Ensure spaces around the pneumatic component for installation, removal, wiring, and piping work.

■ Avoid use in applications involving continuous turning or swaying.

● Otherwise the joint could be damaged.

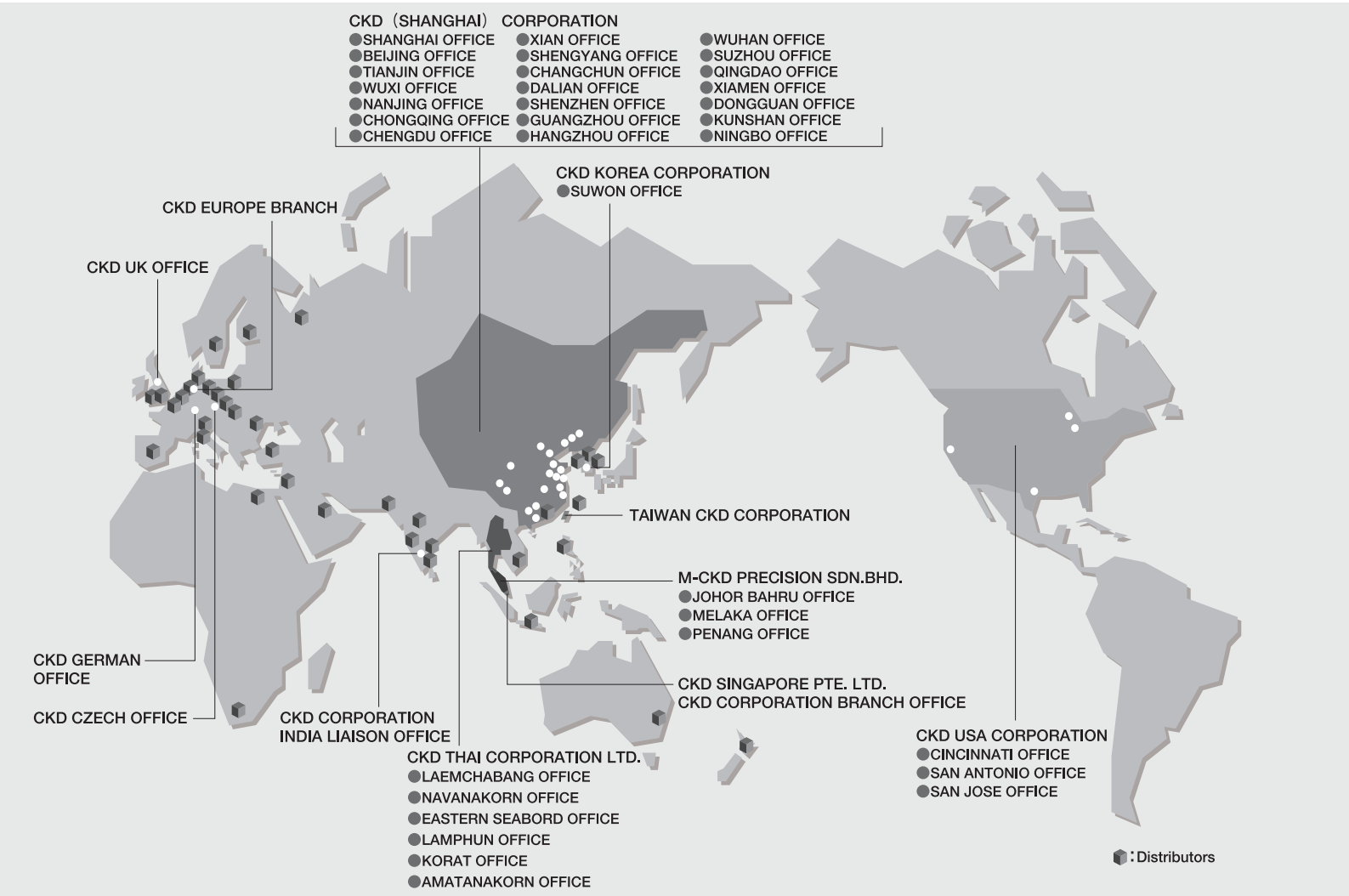
■ Avoid use in places with high vibration or impact.

During Use & Maintenance

⚠ WARNING

■ Stop air and confirm that there is no residual pressure before replacing the tube.

WORLD-NETWORK



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