

Check Valve (Nozzle) CCN Series



**Stops precisely to prevent
fluid dripping**



FP
Food Process™

FP Series
compatible




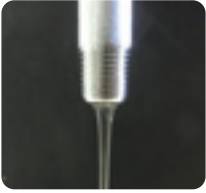


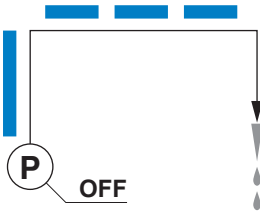
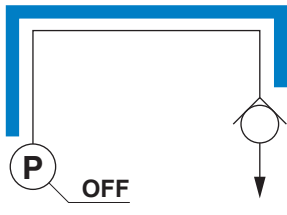
The check valves that expand applications.

Contributes to improved workability and tact time.
For coolants and wash water.



Improved workability

Stops precisely and continues to the next process smoothly, contributing to improved workability and tact time.

No check valve	Check valve with nozzle
<p>Discharge</p>  <p>After stopping</p> 	<p>Discharge</p>  <p>After stopping</p> 
Fluid dripping does not stop.	Prevents fluid dripping in the check valve Discharges via holding fluid inside the piping Also improves responsivity
	

Example of applications

Nozzle for machine tool coolants

- Prevents fluid dripping from leading to incorrect detections of the cutting tool breakage sensor
- Improves discharge responsivity

Cleaning equipment

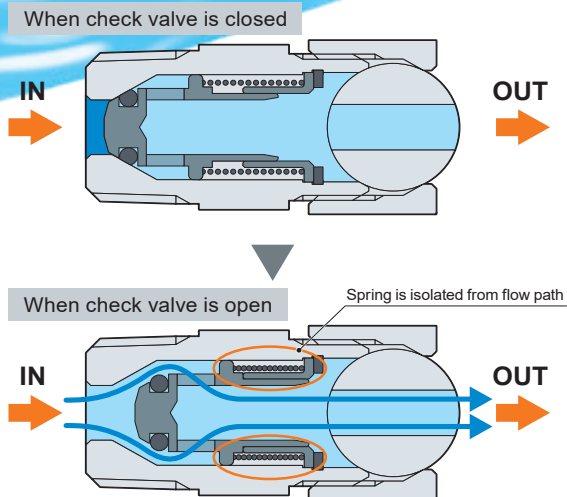
- Fluid dripping prevention protects workpieces

NOZZLE TYPE CHECK VALVE CCN SERIES

Resistant to foreign matter

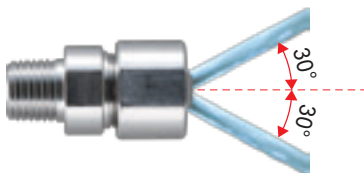
The spring and main valving element are not in the flow path while the coolant is passing, and thus problems due to catching foreign matter and clogging are minimized.

Flow path structure diagram



Injection direction adjustment function

The direction of the discharge outlet is easily adjustable.



A wide range of connection options

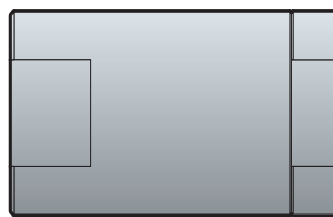
A new lineup of male and female threads is available on the OUT side. You can freely select it according to the required scene.



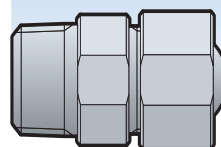
Compact and space saving

The integrated nozzle shape makes for compact piping.

CCH-10A



CCN-10F-5, 6



Volume

75%
Reduced

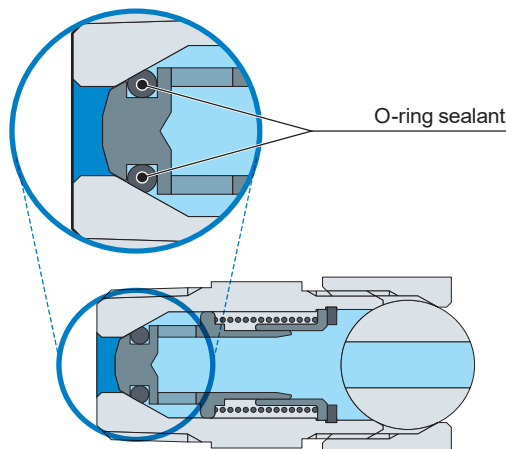
Weight

75%
Reduced

Long service life

Due to the O-ring sealant and metal touch structure, we have realized long-lasting internal sealing performance.

Sealing mechanism



Corrosion-resistant material

Can be used in a variety of situations, such as water cooling of laser processing machines and cleaning equipment. They exhibit the same reliability demonstrated for liquid coolant applications due to the metal parts being all stainless steel.

Supports food manufacturing processes FP Series (option)



Catalog No. CC-1271A

Safe and secure for food manufacturing processes.

NSF H1
grease for
foodstuffs is used

Material compatible
with the Food Sanitation Act
Fluid passage section
Resin / rubber



This logo represents our commitment to support food manufacturing processes with safe CKD products.



Check valve (nozzle)

CCN Series

● Working pressure: 0.05 to 1.0 MPa



Specifications

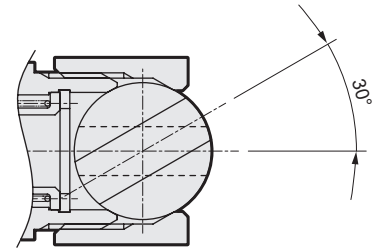
Item	CCN	
	Standard	Series for food processing
Working fluid	Coolant, water and other non-corrosive fluids (*1)	Coolant/water/other non-corrosive liquids (*1)
Fluid viscosity	mm ² /s	500 or less
Max. working pressure	MPa	1.0
Proof pressure (water)	MPa	2.0
Fluid temperature	°C	-10 to 60 (no freezing) / During 130°C steam sterilization for 20 mins or less
Ambient temperature	°C	-10 to 60
Cracking pressure	kPa	25 (reference value) (*2)
Closing pressure	kPa	10 (water head: 1 m)
Mounting orientation		Unrestricted (*3)

*1: Liquid that does not affect stainless steel (chrome plating) or fluoro rubber.

*2: Cracking pressure refers to the pressure at which a flow of 5 mL/min (AIR) is found.

The value may increase depending on the type and viscosity of the liquid. When the valve is used for the first time after being unused for long periods, the initial cracking pressure may be higher than normal.

*3: The nozzle can be adjusted up to 30°. (OUT side port size: when 4, 5, or 6 is selected)

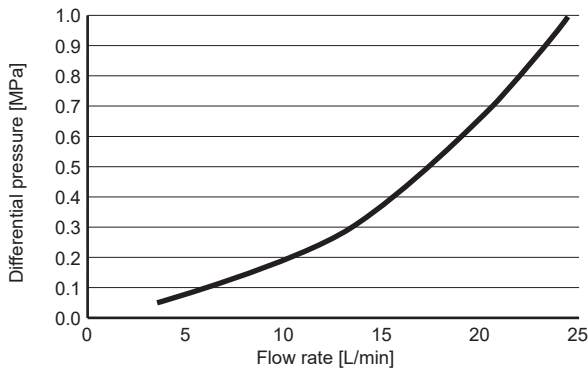


Individual specifications

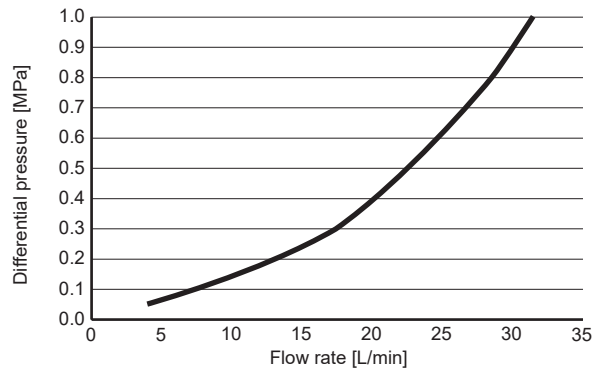
Item	IN side port size	Weight (kg)	Orifice diameter (mm)
Model No.			
CCN-08	R1/4, G1/4, 1/4NPT	0.05	5
CCN-10	R3/8, G3/8, 3/8NPT	0.06	6

Flow characteristics

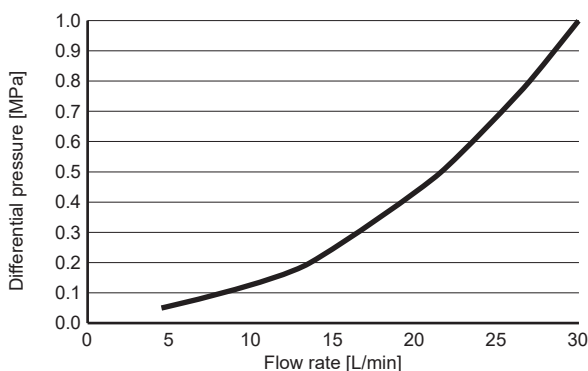
●CCN-08*-4



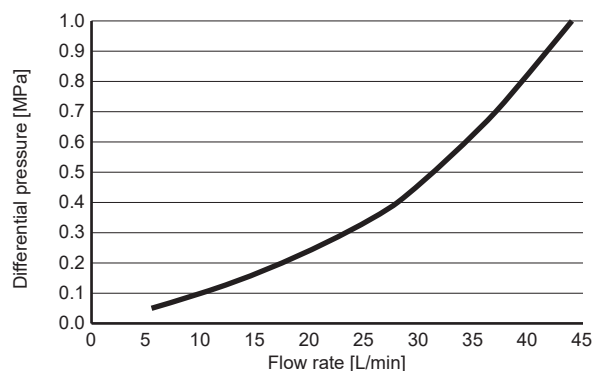
●CCN-08*-5



●CCN-10*-5



●CCN-10*-6



* Reference value according to CKD test conditions. Note that the flow characteristics may differ depending on the piping conditions.

How to order

CCN - 08F - 4 -

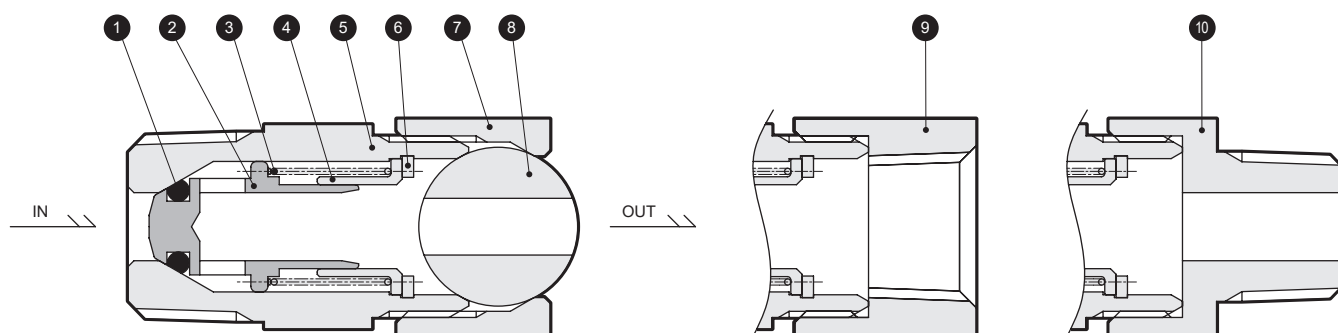
A IN side port size

B OUT side port size

C Series

Code	Content						
A IN side port size							
08F	R1/4						
10F	R3/8						
08G	G1/4 (male thread)						
10G	G3/8 (male thread)						
08H	1/4NPT (male thread)						
10H	3/8NPT (male thread)						
B OUT side port size							
		08F	10F	08G	10G	08H	10H
4	ø4	●		●		●	
5	ø5	●	●	●	●	●	●
6	ø6		●		●		●
A	Rc1/4	●	●				
B	R1/4	●	●				
C	G1/4 (female thread)			●	●		
D	G1/4 (male thread)			●	●		
E	1/4NPT (female thread)					●	●
F	1/4NPT (male thread)					●	●
C Series							
Blank	Standard						
FP2	Series for food processing						

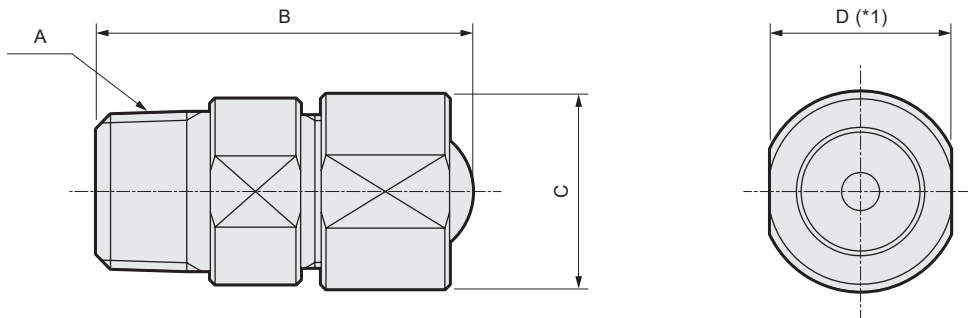
Internal structure and parts list



No.	Part name	Material	
1	O-ring	FKM	Fluoro rubber
2	Main Valve body	SUS303	Stainless steel (chrome plating)
3	Spring	SUS304	Stainless steel
4	Valve holder	SUS303	Stainless steel
5	Body	SUS303	Stainless steel
6	C-snap ring	SUS304	Stainless steel
7	Cover	SUS303	Stainless steel
8	Nozzle	SUS303	Stainless steel
9	Cover (female thread)	SUS303	Stainless steel
10	Cover (male thread)	SUS303	Stainless steel

Dimensions

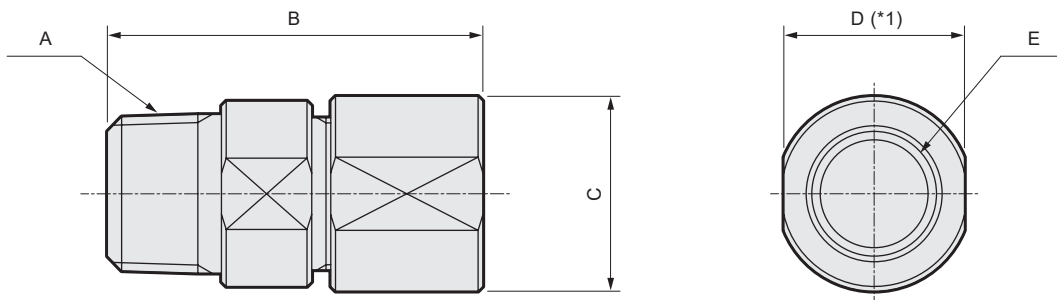
● CCN-08F/08H/10F/10H-4/5/6



Model No.	A	B	C	D (*1)
CCN-08F-4/5	R1/4	36.5	ø20.5	17
CCN-10F-5/6	R3/8	39.5	ø20.5	18
CCN-08H-4/5	1/4NPT (male thread)	37.5	ø20.5	17
CCN-10H-5/6	3/8NPT (male thread)	41	ø20.5	18

*1: The body side dimensions are tang dimensions.

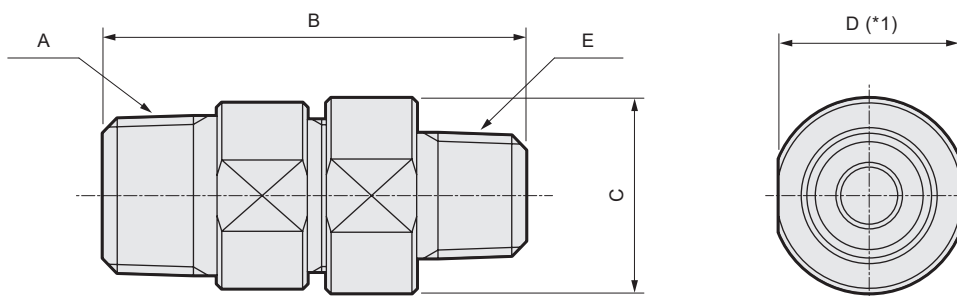
● CCN-08F/08H/10F/10H-A/E



Model No.	A	B	C	D (*1)	E
CCN-08F-A	R1/4	36.5	ø20.5	17	Rc1/4
CCN-10F-A	R3/8	39.5	ø20.5	18	Rc1/4
CCN-08H-E	1/4NPT (male thread)	39	ø20.5	17	1/4NPT (female thread)
CCN-10H-E	3/8NPT (male thread)	42.5	ø20.5	18	1/4NPT (female thread)

*1: The body side dimensions are tang dimensions.

● CCN-08F/08H/10F/10H-B/F

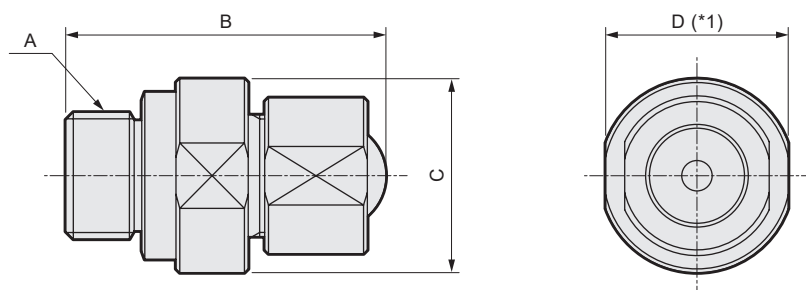


Model No.	A	B	C	D (*1)	E
CCN-08F-B	R1/4	41.5	ø20.5	17	R1/4
CCN-10F-B	R3/8	44.5	ø20.5	18	R1/4
CCN-08H-F	1/4NPT (male thread)	43.5	ø20.5	17	1/4NPT (male thread)
CCN-10H-F	3/8NPT (male thread)	47	ø20.5	18	1/4NPT (male thread)

*1: The body side dimensions are tang dimensions.

Dimensions

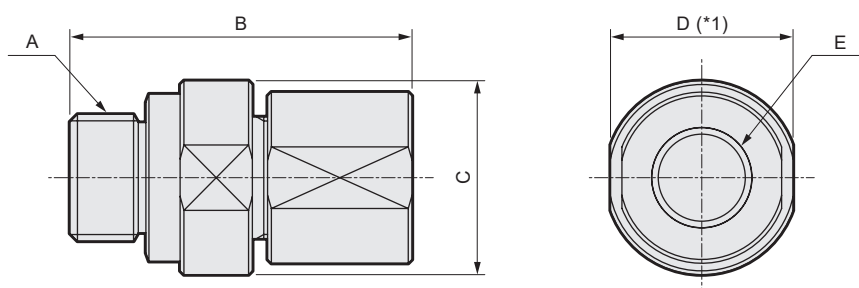
● CCN-08G/10G-4/5/6



Model No.	A	B	C	D (*1)
CCN-08G-4/5	G1/4 (male thread)	40	ø20.5	19
CCN-10G-5/6	G3/8 (male thread)	42	ø25.5	24

*1: The body side dimensions are tang dimensions.

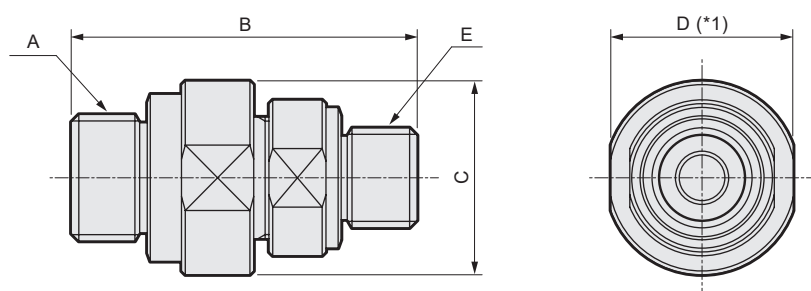
● CCN-08G/10G-C



Model No.	A	B	C	D (*1)	E
CCN-08G-C	G1/4 (male thread)	43	ø20.5	19	G1/4 (female thread)
CCN-10G-C	G3/8 (male thread)	45	ø25.5	24	G1/4 (female thread)

*1: The body side dimensions are tang dimensions.

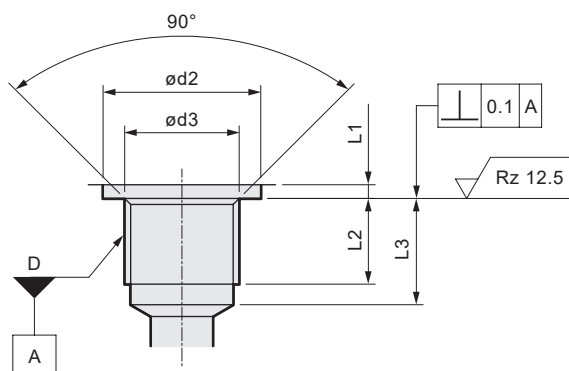
● CCN-08G/10G-D



Model No.	A	B	C	D (*1)	E
CCN-08G-D	G1/4 (male thread)	43.5	ø20.5	19	G1/4 (male thread)
CCN-10G-D	G3/8 (male thread)	45.5	ø25.5	24	G1/4 (male thread)

*1: The body side dimensions are tang dimensions.

[G screw recommended female screw dimension]



Thread nominal D	d2 (min.)	d3		L1 (max.)	L2 (min.)	L3 (min.)
		Reference	Tolerance			
G1/4	20	13.2	+0.2	1.5	12.5	15.5
G3/8	23	16.7	0	2		



Safety Precautions

Be sure to read this section before 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.


Observe warnings and precautions to ensure device safety.


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.
 - 2** Use this product in accordance with specifications.
This product must be used within its stated specifications. In addition, never modify or additionally machine this product. This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments. (Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)
 - 1** Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
 - 2** Use for applications where life or assets could be significantly affected, and special safety measures are required.
 - 3** Observe organization standards and regulations, etc., related to the safety of device design and control, etc. ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components) JFPS2008 (Principles for pneumatic cylinder selection and use) Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization 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 all systems 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 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 in the following pages to prevent accidents.
- The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

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

 **WARNING:** If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.

 **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. Every item provides important information and must be observed.

Warranty

- 1** **Warranty period**
The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.
- 2** **Warranty coverage**
If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge. However, following failures are excluded from this warranty:
 - 1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
 - 2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
 - 3) Failure not caused by the product.
 - 4) Failure caused by use not intended for the product.
 - 5) Failure caused by modifications/alterations or repairs not carried out by CKD.
 - 6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
 - 7) Failure caused by acts of nature and disasters beyond control of CKD.The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.
- 3** **Compatibility check**
The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.



Safety precautions

Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

Refer to "General Purpose Valves (CB-03-1SA)" for general precautions. Although the above general catalog states that products are not applicable for equipment or applications with direct contact with beverages/foodstuffs, the FP2 Series products can be used in such applications as long as they are within the range of the product specifications.

Product-specific cautions: Check valve (nozzle) CCN Series

Design/Selection

CAUTION

- "Food Sanitation Act compliant" refers to products with materials conforming to the Food Sanitation Act.
- Use after confirming the structure and material, valve structure, working fluids, and working atmospheres of each component carefully for yourself.

- Internal parts may wear due to valve operation. If there is any impact, take necessary measures.
- If the fluid is water or water drops remain inside, rust may be generated and flow to the secondary side. Take necessary measures in that case.

When using the product

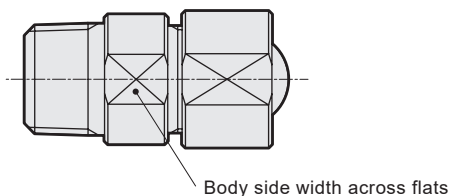
CAUTION

- If the product is used at a low flow rate, differential pressure will be insufficient and chattering may occur. In this case, take measures such as increasing the flow rate.
- Arbitrarily adjust the nozzle direction. After adjustment, take care not to over-tighten the cover.

[Tightening torque of cover after adjusting nozzle]

Proper tightening torque (N · m)
1.3 to 1.5

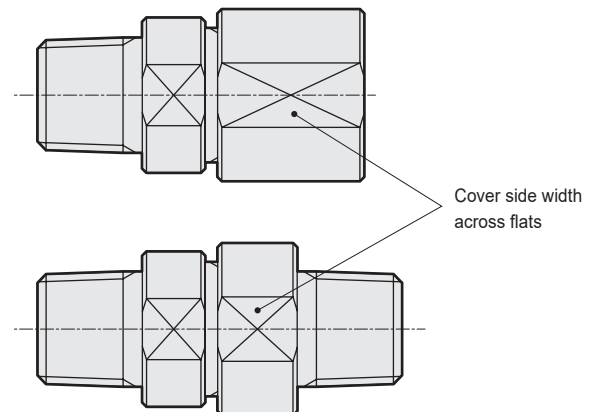
- When piping the product, use the width across flats on the body side and tighten.



[Piping tightening torque]

Piping nominal diameter	Recommended piping tightening torque (N · m)
R1/4 , G1/4 , 1/4NPT	6 to 8
R3/8 , G3/8 , 3/8NPT	13 to 15

- When using female or male threads of the cover, use the width across flats on the cover side to tighten.



[Piping tightening torque]

Piping nominal diameter	Recommended piping tightening torque (N·m)
Rc1/4 , R1/4 , G1/4 , 1/4NPT	6 to 8

- If you want to use it in-line, please contact our sales staff.

- When hot fluid flows during steam sterilization, the valve body becomes hot, so do not touch with your hands or body. There is a risk of burns if these coils are touched directly.

Related products



Check valve (for fluids)

CCH Series

● Working pressure: 0.05 to 7.0 MPa



JIS symbol



Specifications

Descriptions	CCH-10	CCH-15	CCH-20
Working fluid	Coolant/water/other non-corrosive liquids (*1)		
Fluid viscosity mm ² /s	500 or less		
Max. working pressure MPa	7.0		
Proof pressure (water) MPa	14.0		
Fluid temperature °C	-10 to 60 (no freezing)		
Ambient temperature °C	-10 to 60		
Cracking pressure kPa	6 (reference value) (*2)		
Valve seat leakage cm ³ /min	1.0 or less (water pressure)		
Port size	Rc3/8	Rc1/2	Rc3/4
Cv	3.6	6.9	11.0
Weight kg	0.27	0.44	0.88
Mounting orientation	Unrestricted		

*1: Liquid that does not affect stainless steel (chrome plating) or fluoro rubber.

*2: Cracking pressure refers to the pressure at which a flow of 5 mL/min (AIR) is found.

The value may increase depending on the type and viscosity of the liquid.

When the valve is used for the first time after being unused for long periods, the initial cracking pressure may be higher than normal.

How to order

CCH - 10 - A

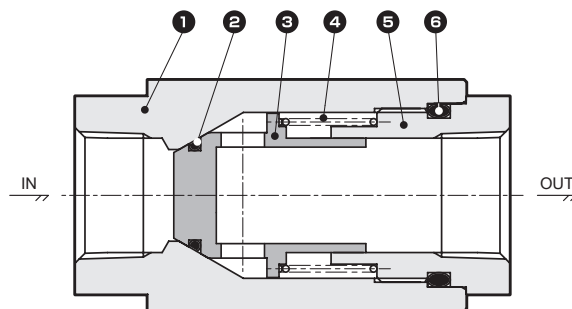
A Port size

B Thread

A Port size	
10	3/8
15	1/2
20	3/4

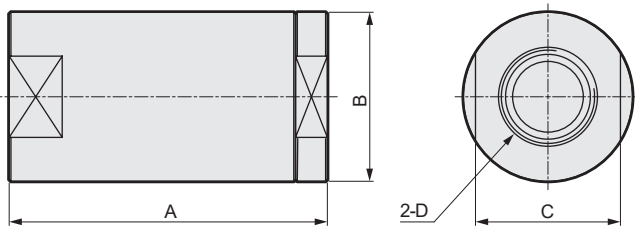
B Thread	
A	Rc Thread
G	G Thread
N	NPT Thread

Internal structure and parts list



No.	Part name	Material
1	Body	SUS303 Stainless steel
2	O-ring	FKM Fluoro rubber
3	Main Valve body	SUS303 Stainless steel (chrome plating)
4	Spring	SUS304 Stainless steel
5	Cap	SUS303 Stainless steel
6	O-ring	FKM Fluoro rubber

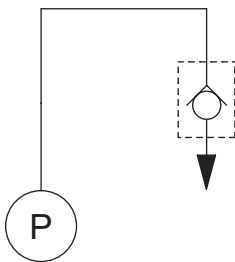
Dimensions



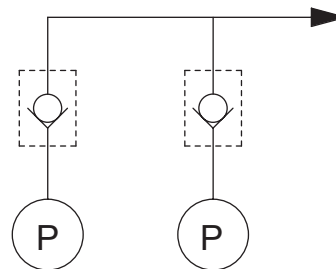
Model No.	A	B	C	D
CCH-10A/G/N	62	ø32	27	Rc3/8, G3/8, 3/8NPT
CCH-15A/G/N	75	ø38	34	Rc1/2, G1/2, 1/2NPT
CCH-20A/G/N	90	ø48	41	Rc3/4, G3/4, 3/4NPT

Example of usage circuit

- Coolant control of machine tools
Improves discharge responsivity and prevents fluid dripping



- Reverse flow prevention of 2 fluid control
Prevents reverse flow of multiple pressures and multiple fluids in merged circuits



⚠ WARNING

■ Design/selection

- Working fluids
 - ① Compatibility has not been evaluated with all coolants. Particularly, if coolant contains high levels of chlorine or sulfur, materials used at wetted parts could be adversely affected. Non-corrosive fluids refer to fluids that are mutually unaffected when they contact the valve's wetted part materials. Wetted part materials: stainless steel, chrome plating, fluoro rubber
 - ② Internal parts may wear when the check valve operates. Caution is required because wear chips could enter the secondary side of the check valve.
- Quality of fluid
Iron rust and debris in the fluid can cause operation faults or leaks and deteriorate product performance.
- Fluid temperature
Be sure to use the coolant check valve within the specified fluid temperature range.

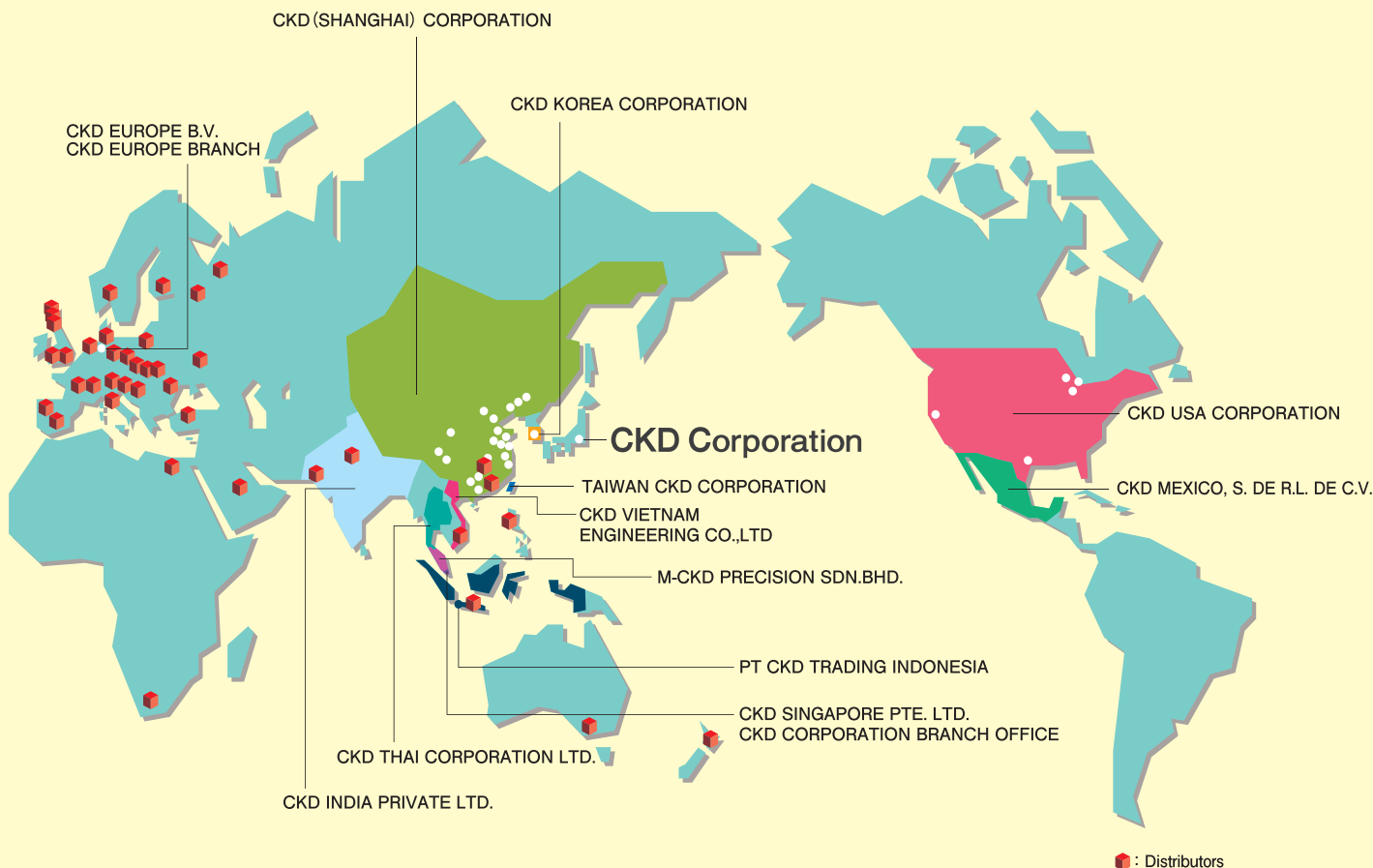
⚠ CAUTION

■ When using the product

- Check the IN and OUT directions before piping.
- If the product is used at a low flow rate, differential pressure will be insufficient and chattering may occur. In this case, take measures such as increasing the flow rate.
- Refer to the table below for the piping tightening torque.

[Piping tightening torque]

Piping nominal diameter	Recommended piping tightening torque (N·m)
Rc3/8	31 to 33
Rc1/2	41 to 43
Rc3/4	62 to 65



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ASIA

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- 杭州事務所 (HANGZHOU OFFICE)
- 無錫事務所 (WUXI OFFICE)
- 昆山事務所 (KUNSHAN OFFICE)
- 蘇州事務所 (SUZHOU OFFICE)
- 南京事務所 (NANJING OFFICE)
- 合肥事務所 (HEFEI OFFICE)
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- 鄭州事務所 (ZHENGZHOU OFFICE)
- 長沙事務所 (CHANGSHA OFFICE)
- 重慶事務所 (CHONGQING OFFICE)
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