



## Anti-bacterial/bacteria-removing/odor removal filter

# Safety Precautions

Always read this section before use.

Refer to "Pneumatic, vacuum and auxiliary components No. CB-024SA" and "Pneumatic Valves (CB-023SA)" for general precautions.

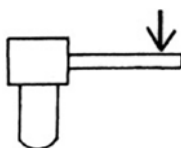
In the full line catalog it is stated that this product cannot be used with devices or applications that make direct contact with foods or beverages. However, the FP2 Series can be used for these applications as long as they are within the limits of the product specifications.

## Design/selection

### ⚠ WARNING

- The anti-bacterial filter has an anti-bacterial effect on bacteria attached to internal filter elements, suppressing bacteria growth. The working fluid itself has no bacteria-reducing effects. Anti-bacterial activity value, which represents the anti-bacterial effect, is an actual value from CKD's prescribed conditions.
- The bacteria removing filter removes and reduces the bacteria in the working fluid, but it does not kill all bacteria. It also does not remove viruses. LRV, which represents bacteria removing effect, is an actual value from CKD's prescribed conditions.
- This product is designed for industrial use. Do not use in any equipment or circuit that concerns human life.
- This product tolerates a small amount of leakage which does not affect performance.
- For use with nitrogen gas (N<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>), provide sufficient ventilation.
- This filter traps waste and bacteria in the working fluid and provides clean working fluid to the secondary side. It does not add anti-bacterial or sterilizing functions to the working fluid itself.
- It cannot be used in environments containing sodium hypochlorite, synthetic oil, organic solvents, chemicals, cutting oil, screw locking agent, leak detection solutions, or hot water, etc., or where these substances may come in contact with the product. Refer to page 24 for details on plastic bowl and transparent case chemical resistance.
- Piping load torque  
Avoid piping fixed with a single support, as this can result in excessive force and lead to damage.  
[Combination, module type]  
Make sure that no piping load or torque is applied to the body or pipes.

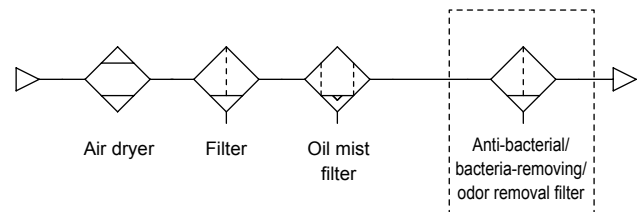
Series	SFC3**	SFC4**	SFC8**
Max. torque N·m	50	50	100



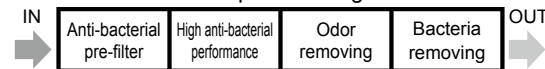
- Use this product after properly checking compatibility of the material with its use conditions and environment.

### ⚠ CAUTION

- Check the working circuit and working fluid.  
To prevent drop in filter performance, install dryer, air filter and oil mist filter on the primary side, and remove water or oil.



- Installation order for anti-bacterial/bacteria-removing/odor removal filter  
We recommend the use of the bacteria-removing unit as the final filter before the compressed air/gas contact foodstuffs.



- Do not exceed max. working or differential pressure.  
Not observing this could damage the product or element.
- Do not flow over the max. flow rate.  
Doing so may degrade the filtration accuracy and damage the element.
- This device cannot be used as an absolute filter.
- Do not use where IN and OUT side pressure difference exceeds 0.1 MPa.  
Suddenly supplying fluid to the filter by blowing fluid with secondary side released to atmospheric pressure, etc., could make removal inefficient. In this case, install a restriction valve on the filter's IN side to keep the pressure difference to 0.1 MPa or less.  
Consult with CKD about attaching differential pressure gauge GA400.
- High moisture levels  
Install the air dryer and drain separator before the anti-bacterial/bacteria removing filter.  
If there is a large drainage from the compressor, hot and highly humid air could shorten the device's life or result in corrosion.
- Water-lubricated compressor circuit  
Take measures to prevent chlorine-based substances from entering the compressed air.
- The odor removal filter uses activated carbon to apply suction to oil vapor.  
Be sure to install an oil mist filter (M Series M type) on the primary side, and remove oil mist in advance.
- The odor removal filter uses suction to remove the oil vapor in compressed air (nitrogen gas, carbon dioxide).  
Activated carbon suction is not equally effective with all substances, so that it will not completely eliminate all odors.
- The odor removal filter does not have anti-bacterial or bacteria-removing functions.

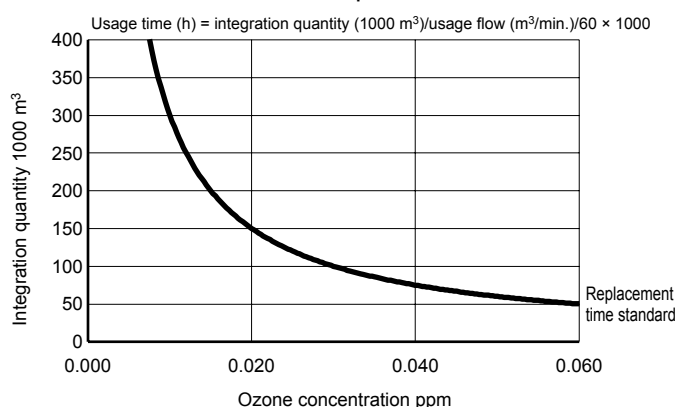
# Anti-bacterial/Bacteria removing filter

## Mounting, installation and adjustment

### ⚠ WARNING

- Prevent the generated ozone from passing through the filter. Otherwise the filter element may be degraded. Take care especially when using an ozone generator (e.g., ionizer) together.
  - (1) Do not install in the upstream portion of the filter.
  - (2) When installing downstream of the filter, stop air while static electricity is neutralized since generated ozone may flow back.
- Avoid installing this product where it is subject to direct ultraviolet.
- If the hollow fiber membrane in the bacteria removing filter suffers oxidative degradation from ozone or ultraviolet in the fluid, it may be damaged and allow flow over to the secondary side. Implement periodic inspections and exchange. Consult the graph below for standard replacement times.

Relation between ozone concentration and integration quantity  
Filter element replacement time



### ⚠ CAUTION

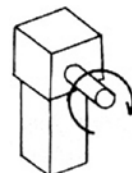
- Check the flow direction with arrow and connect correctly.
- Securing of maintenance space  
Secure sufficient space for maintenance and inspection.
- After attaching the pipes, flush and clean them before use.  
Dirt or foreign materials in piping will lower product performance.
- Check that foreign materials do not enter when tightening pipes or fittings.  
When screwing in piping or fittings, check that swarf from port threads or sealant does not get inside. Dirt or foreign matter remaining in the piping will deteriorate product performance. In particular, if swarf from the OUT side port thread on the last-installed unit is produced, that swarf will be blown through too.  
During piping, tighten at or below the torque determined in the catalogue, and then flush thoroughly before use.
- Install the drain cock downward vertically.

### ■ Piping screw-in torque

[Combination, module type]

Make sure that excessive torque is not applied on the body and pipe when piping.

Series	SFC3**	SFC4**	SFC8**
Max. torque N·m	30	30	70



[Inline type]

Port thread	Tightening torque N·m
Rc1/4	6 to 8
Rc3/8	13 to 15

### ■ Drain piping

- The drain piping for the plastic bowl has a barbed nipple, and can be directly installed. However, confirm that the drain cock is closed before inserting the tube.  
Pipe so that no lateral load applies on the bowl.  
Do not fix the tube connected to the drain outlet with a lateral load applied. If drainage is performed with a lateral load applied, external leakage may occur.

### ■ Tightening torque of drain cock

- The maximum tightening torque of the drain cock of the plastic bowl is 0.5 N·m.

- Pipe so no excessive force is applied to the product.  
When piping or installing, do not apply tension, pressure, bending or external force from tube, etc.

- When supplying working fluid after connecting pipes, do not apply high pressure suddenly.  
Connected piping could be dislocated and tubing could fly off.

- Select the appropriate piping tube.

- Securely insert a tube into the push-in fitting before use.

- Use width across flats of the connection part when piping.

[Inline type]

In the case of Rc thread piping, apply the wrench to the tang of the connection part. Do not apply it to any other part when tightening.

- Attach the maintenance label to this product to make maintenance periods clear.

### ■ Storage

Do not store this product in a hot, humid atmosphere or atmospheric conditions outside of the specified range for a prolonged period of time. Resin or rubber parts could deteriorate, and the resin element housing could become discolored. Contact CKD when storing products exceeding specifications.

# Anti-bacterial/Bacteria removing filter

## Use & maintenance

### ⚠ WARNING

- Perform a periodic inspection once every six months or less to check for any cracks, scratches, and other damage to the plastic bowl and transparent housing. Replace the bowl with a new one or another product if you find any damages.

- Check the plastic bowl periodically for contamination.

- If parts are heavily contaminated or if transparency has decreased, replace with a new bowl.
- Use water and household detergent to wash parts. Rinse them out well with clean water afterward.

- Removing the cup

Stop the working fluid supply. Release the pressure in the bowls completely and make sure that there is no residual pressure before removing the bowls.

- Remove air filter drain.

Components could malfunction if drainage flows into the secondary side.

- Do not disinfect or clean using alcohol. It may deteriorate or damage the plastic part.

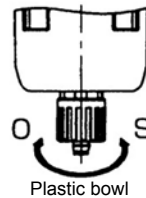
### ⚠ CAUTION

- Anti-bacterial and bacteria removing effects lessen when there are dirt or oil deposits in the filter element. Periodically implement inspections and replacements. Contact CKD for maintenance details.

- Do not modify the product.

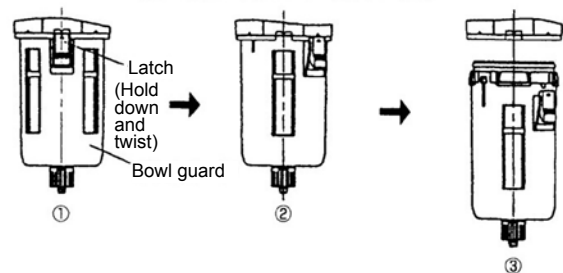
- Read the instructions and precautions attached with the product before use or maintenance. When attaching new elements, do so after washing your hands.

#### How to release drainage



- Drainage starts when the cock is turned to O side, and the discharge stops when the cock is turned in S direction. Tighten by hand in the S direction.

#### Detaching the resin bowl



- This filter cannot be flushed with air, water, etc., and be reused. When 1 year (6000 hours) has passed or the pressure drops to 0.1 MPa, replace the element with a new one.

- We ask that customers perform element replacement maintenance by themselves.
- During element replacement, take consideration that bacteria, waste, or foreign matter deposits in the primary side do not flow into the secondary side.

- While operating, do not apply vibration, impact, or other external force from tube.

## Chemical resistance of plastic



### WARNING

- The chemical resistance of plastic parts is shown below.
- Avoid using products in an atmosphere where chemicals are contained in working fluid, the atmosphere, or where they could adhere to parts.
- Use in the above state could lead to bowl damage and accidents.

### Chemical resistance of plastic bowl and clear housing

Consult CKD when using in environments filled with the following chemicals.  
Check whether the testing solutions, sealants and adhesives contain the following chemicals.

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Nylon
Inorganic chemicals	Acids	Sodium hypochlorite, hydrochloric acid, sulfuric acid, hydrofluoric acid, phosphoric acid, chromic acid, etc.	Sterilization, acid washing of metals, acidic degreasing solutions, coating treatment solutions, etc.	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, Alkalis such as sodium carbonate	Alkaline degreasing solution for metals Soluble cutting oil, leakage detection agent	○
	Inorganic salts	Sodium sulfide, sodium nitrate, potassium bichromate, sulfate of soda, etc.		○
Organic chemicals	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	○
	Petroleum components	Solvent naphtha, gasoline, kerosene		○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent Leakage detection agent	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base and leakage detection agents	×
	Esters	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic oil, rust preventing agent additive plasticizer for synthetic resin	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		○
	Amines	Methylamine, diethylamine, ethylamine, aniline, acetoacetanilide, etc.	Additive of brake oil	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	○