

Siloxane/Ozone Remover SFX90 Series

INSTRUCTION MANUAL

SM-B13253-A/1



- Read this Instruction Manual before using the product.
- Read the safety notes carefully.
- Keep this Instruction Manual in a safe and convenient place for future reference.

PREFACE

Thank you for purchasing CKD's "**SFX90 Series**" remover.

This Instruction Manual contains basic matters such as installation and usage instructions to ensure optimal performance of the product. Please read this Instruction Manual thoroughly and use the product properly.

Keep this Instruction Manual in a safe place and be careful not to lose it.

Product specifications and appearances presented in this Instruction Manual are subject to change without notice.

- The product is intended for users who have basic knowledge about materials, piping, electricity, and mechanisms of pneumatic components. CKD shall not be responsible for accidents caused by persons who selected or used the product without knowledge or sufficient training.
- Since there are a wide variety of customer applications, it is impossible for CKD to be aware of all of them. Depending on the application or usage, the product may not be able to exercise its full performance, or an accident may occur due to fluid, piping, or other conditions. It is the responsibility of the customer to check the product specifications and decide how the product shall be used in accordance with the application and usage.

SAFETY INFORMATION

When designing and manufacturing any device incorporating the product, the manufacturer has an obligation to ensure that the device is safe. To that end, make sure that the safety of the machine mechanism of the device, the pneumatic or water control circuit, and the electric system that controls such mechanism is ensured.

To ensure the safety of device design and control, observe organization standards, relevant laws and regulations, which include the following:

ISO 4414, JIS B 8370, JFPS 2008 (the latest edition of each standard), the High-Pressure Gas Safety Act, the Industrial Safety and Health Act, other safety rules, organization standards, relevant laws and regulations

To use our products safely, it is important to select, use, handle, and maintain the products properly. Observe the warnings and precautions described in this Instruction Manual to ensure device safety.

Although various safety measures have been adopted in the product, customer's improper handling may lead to an accident. To avoid this:

**Thoroughly read and understand this Instruction Manual
before using the product.**

To explicitly indicate the severity and likelihood of a potential harm or damage, precautions are classified into three categories: "DANGER", "WARNING", and "CAUTION".

 DANGER	Indicates an imminent hazard. Improper handling will cause death or serious injury to people.
 WARNING	Indicates a potential hazard. Improper handling may cause death or serious injury to people.
 CAUTION	Indicates a potential hazard. Improper handling may cause injury to people or damage to property.

Precautions classified as "CAUTION" may still lead to serious results depending on the situation. All precautions are equally important and must be observed.

Other general precautions and tips on using the product are indicated by the following icon.

	Indicates general precautions and tips on using the product.
---	--

Precautions on Product Use

WARNING

The product must be handled by a qualified person who has extensive knowledge and experience.

The product is designed and manufactured as a device or part for general industrial machinery.

Use the product within the specifications.

The product must not be used beyond its specifications. Also, the product must not be modified and additional work on the product must not be performed.

The product is intended for use in devices or parts for general industrial machinery. It is not intended for use outdoors or in the conditions or environment listed below.

- In applications for nuclear power, railroad system, aviation, ship, vehicle, medical equipment, and equipment that directly touches beverage or food.
- For special applications that require safety including amusement equipment, emergency shut-off circuit, press machine, brake circuit, and safety measures.
- For applications where life or properties may be adversely affected and special safety measures are required.

(Exception is made if the customer consults with CKD prior to use and understands the specifications of the product. However, even in that case, safety measures must be taken to avoid danger in case of a possible failure.)

Do not handle the product or remove pipes and devices until confirming safety.

- Inspect and service the machine and devices after confirming the safety of the entire system. Also, turn off the energy source (air supply or water supply) and power to the relevant facility. Release compressed air and fluid from the system and use extreme care to avoid water or electric leakage.
- Since there may be hot or live parts even after operation has stopped, use extreme care when handling the product or removing pipes and devices.
- When starting or restarting a machine or device that incorporates pneumatic components, make sure that a safety measure (such as a pop-out prevention mechanism) is in place and system safety is secured.

Do not subject the product to sudden pressure changes.

- When installing valves or other devices before and after this product, and when pressurizing or depressurizing, operate the valves slowly. Sudden operation of the valves can lead to element damage.

CONTENTS

PREFACE	i
SAFETY INFORMATION	ii
Precautions on Product Use	iii
CONTENTS	iv
1. INSTALLATION	1
1.1 Environment.....	1
1.2 Unpacking	2
1.3 Mounting	2
1.4 Piping	2
2. USAGE	4
3. MAINTENANCE AND INSPECTION	5
3.1 Daily Inspection.....	5
3.2 Periodic Inspection.....	5
3.3 How to Perform Maintenance	6
3.3.1 Removal of the Element.....	6
3.3.2 Replacement of the Element.....	7
4. TROUBLESHOOTING	8
4.1 Problems, Causes, and Solutions	8
5. WARRANTY PROVISIONS	9
5.1 Warranty Conditions	9
5.2 Warranty Period	9

1. INSTALLATION

1.1 Environment

⚠ WARNING

Avoid air flow containing corrosive gas (strongly acidic gases such as hydrogen sulfide, sulfur dioxide, hydrogen chloride or fluorine) or strongly alkaline gas (amines, ammonia, caustic soda, etc.).

It will cause material deterioration.

Avoid using the product if compressed air contains chemicals, in an atmosphere where chemicals are present, or in a place where chemicals may adhere.

The element or packing may be damaged and cause an accident.

Use at an ozone concentration of 0.5ppm or less.

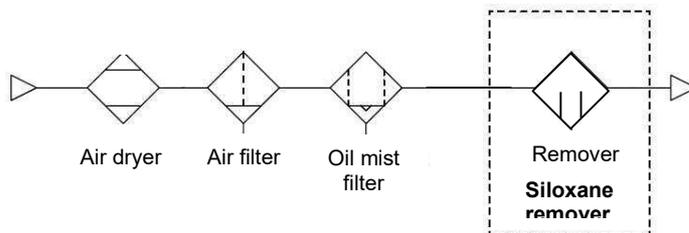
Prolonged use at levels above 2ppm may cause activated carbon to become brittle or generate heat. Use extreme care when using the product in combination with equipment which generates ozone (such as an ionizer).

⚠ CAUTION

Observe the following precautions regarding the ambient environment.

- Do not use the product where there is direct irradiation of ultraviolet rays.
- Avoid installing the product where it is exposed to direct sunlight.
- Avoid installing the product where it is subject to vibrations and shocks.

Install an air dryer, an air filter, and an oil mist filter on the primary side to remove moisture and oil.



Make sure that substances such as chlorine do not become mixed with the compressed air when using a water lubricated type compressor circuit.

Install an air dryer and a drain separator before the air filter if there is a large amount of drainage.

The remover does not remove drainage. An excessive amount of drainage from the compressor may cause the air to become hot and highly humid and this may lead to lower durability or corrosion of the product.

Do not use the product in an environment where:

- Ambient temperature is outside the range of 5°C to 50°C
- Air can freeze
- Water drop or cutting oil can splash onto the product
- Condensation may occur due to high humidity and temperature change
- Sea breeze or seawater can splash onto the product
- Atmosphere contains corrosive gas, fluids, or chemicals
- Atmosphere contains a lot of dust
- Atmosphere contains spatter
- It is exposed to direct sunlight, rain, wind, or water
- There is a heat source in the surrounding area and heat is radiated
- 2ppm or more ozone is produced

1.2 Unpacking

⚠ CAUTION

Do not open the packing of the product until just before piping to prevent foreign matters from entering the product.

- Check that the model number ordered, and the model number indicated on the product are the same.
- Check the exterior of the product for any damage.

1.3 Mounting

■ Filter installation order

Install the filters in the order shown below.



1.4 Piping

⚠ WARNING

Do not apply pipe loads or torque to the body and the pipes.



<Piping load torque>

Series	SFX90
Max. torque (N·m)	100

⚠ CAUTION

Fully flush and clean the pipes before use.

Residual dust or foreign matter in a pipe may cause operation fault.

Connect the pipes correctly according to the direction of flow by checking the direction of the arrow.

Reverse flow may arise in Main line filter, resulting in damage of element.

Prevent foreign matters from entering the pipes while piping and connecting the fitting.

Be careful not to allow cutting chips from the piping screw and seal material from entering the pipes while piping and connecting the fitting.

Residual dust or foreign matter in a pipe may cause lower performance of the product.

Tighten the pipes with the appropriate tightening torque.

Do not subject the body and the pipes to a bending moment that is due to pipe loads.

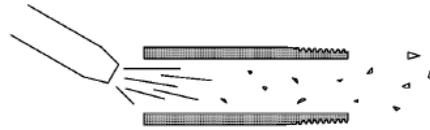
Firmly secure and install the product with the specified bracket, a stand, or a pipe support.

Do not apply high pressure suddenly when supplying compressed air for the first time after connecting the pipes/tubes.

Sudden introduction of highly pressurized air may cause the tubes to become disconnected, jump around, and result in an accident.

■ Pipe cleaning

Before piping, blow air into the pipes to clean the interior and to remove cutting chips and foreign matters.

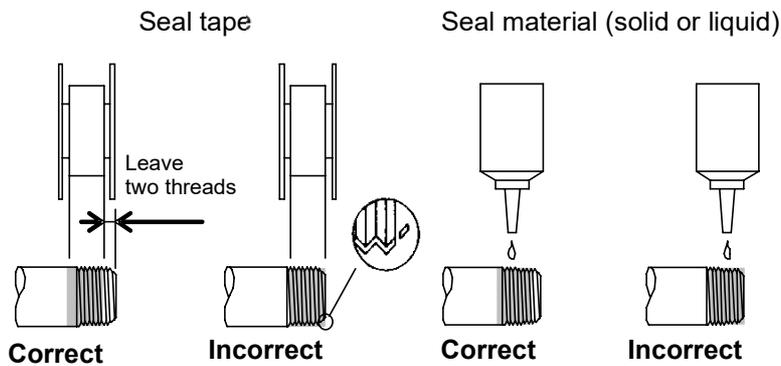


■ Seal material

Apply a seal tape or seal material to the screw threads leaving two or more threads at the pipe end uncovered or uncoated. If the pipe end is fully covered or coated, a shred of seal tape or residue of seal material may enter inside of the pipes or device and cause a failure.

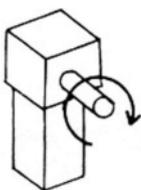
When using a seal tape, wind it around the screw threads in the direction opposite from the screw threads and press it down with your fingers to attach it firmly. When using a liquid seal material, be careful not to apply it to resin parts. The resin parts can become damaged and this may lead to a failure or malfunction.

Also, do not apply seal material to the internal threads.



■ Pipe screwing torque

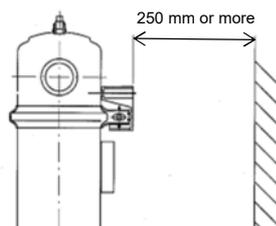
Do not apply excessive torque to the body and the pipes when piping.



Series	SFX90
Max. torque (N·m)	100

■ Maintenance space

Secure sufficient space under the bowl for taking out parts when disassembling and cleaning.



Series	SFX90
Maintenance space (H)	1420 mm or more

2. USAGE

⚠ WARNING

Use the product within the specifications.
Ventilate sufficiently when using the product with nitrogen gas (N2).
Do not use the product for medical purposes or in any equipment or circuit that concerns human life.
 The product is designed for industrial use.

⚠ CAUTION

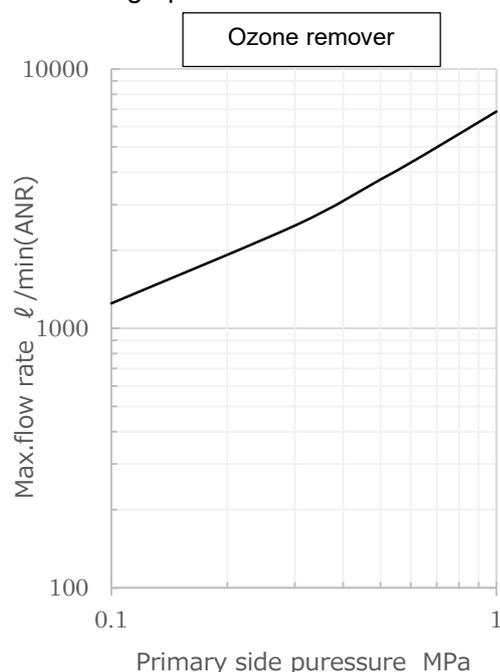
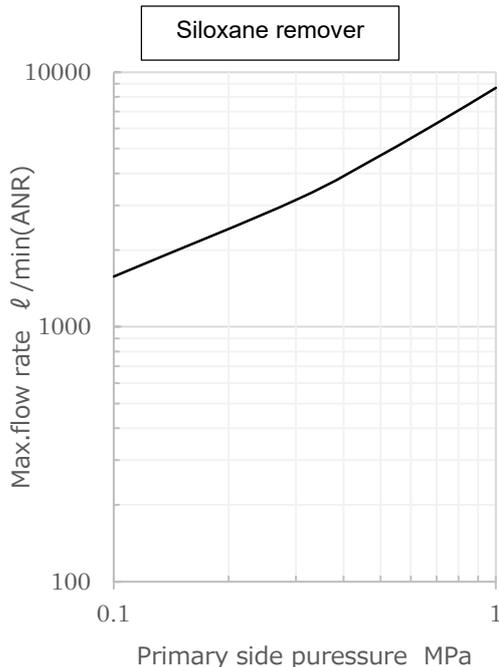
Check the working circuit and the working fluid.
Do not subject the product to vibration, impact, or other external forces such as those caused by swinging tubes.
Use the product within the maximum processing flow rate.
Use the product within the maximum working pressure and maximum working temperature.
Use the product so that the pressure difference between the IN side and the OUT side does not exceed 0.1 MPa.
Siloxane removal and ozone removal cannot be used at the same time



- The remover does not have antibacterial/bacteria-removing function.
- Siloxane removal targets low-molecular-weight siloxanes. Specifications are based on D5 (decamethylcyclopentasiloxane) data from our evaluation method.
- This device cannot be used as a filtration filter.
- Even after the removal of ozone by the remover, there is a possibility that new ozone may be generated in the piping due to piping conditions, etc.
- The removal rate given in the catalog is the actual value determined under our specified conditions. Siloxane removal is the performance when an oil mist filter (M series M type) is installed on the primary side.

■ Maximum processing flow rate

Make sure the flow rate does not exceed the values shown in the graph below.



3. MAINTENANCE AND INSPECTION

WARNING

Stop supplying the pressure and make sure that there is no residual pressure before maintenance.

Before removing the case assembly, stop supplying the compressed air, release the pressure from the bowl, and check that there is no residual pressure in the bowl.

CAUTION

Thoroughly read and understand the Instruction Manual supplied with the product before use and maintenance.

Inspect and replace the filter element periodically.

Performance degradation may occur if the filter element is clogged. Make sure your hands are clean when attaching the new element.

When replacing the element, make sure not to let bacteria, dusts, and foreign matters that have adhered on the primary side flow into the secondary side.

Do not hold the filter paper when attaching or removing the filter element.

The product may become damaged or may not be able to exercise its full performance.

Do not use alcohol to disinfect or clean the product.

Deterioration or damage of the plastic parts may occur.

Do not modify the product.

3.1 Daily Inspection

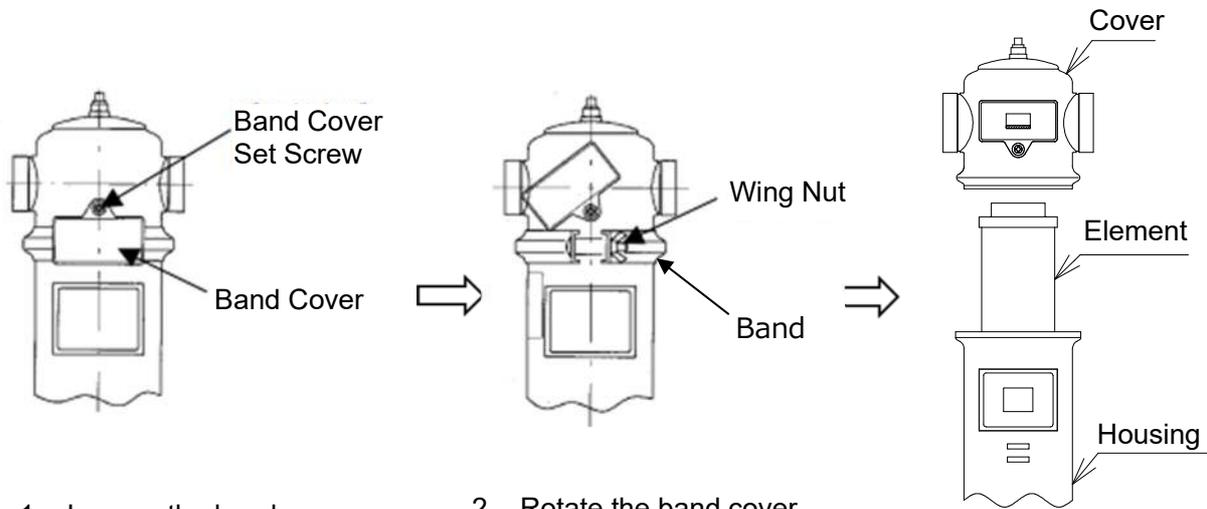
- Thoroughly read and understand this Instruction Manual before maintenance and inspection.
- Check that the product operates properly before starting use.

3.2 Periodic Inspection

- To use the product under optimum conditions, perform a periodic inspection every six months.
- It is recommended to check that there is no leakage from the pipes.

3.3 How to Perform Maintenance

3.3.1 Removal of the Element



1. Loosen the band cover set screw and ensure that the air inside the Cover is released. If air leaks out, release the residual pressure in the piping.

2. Rotate the band cover 180° and temporarily secure it, then loosen the wing nut of the band. Be careful as the housing may fall. Also, be cautious of the falling bolt, collar, and the O-ring inside the band.

3. Remove the band and then remove the housing downward. Next, remove the element downward.

3.3.2 Replacement of the Element

Affix the maintenance label to the product to serve as a reminder of when to replace the element.
 Replace the element with a new one after one year.
 This replacement period is for reference only. The service life of the product may be shortened depending on the condition of use and the environment.

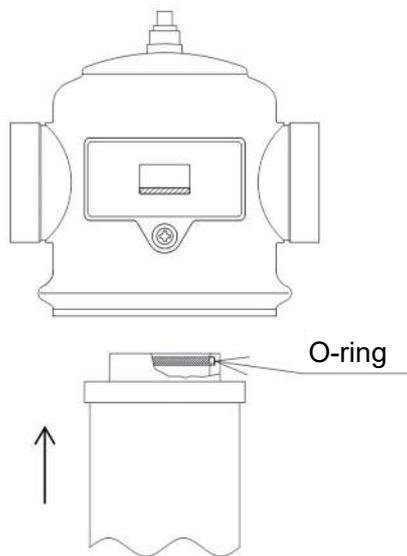
<Replacement element>

Series	Element model no.
SFX90	SFX90-ELEMENT



Washing and cleaning will not make the element reusable.

■ Installation of the Element



- 1** Apply fluorine grease lubricant lightly to the O-ring supplied with the new element.
- 2** Fit the O-ring into the groove inside the element. Next, attach the element to the cover. Do not hold the filter material part. Assemble the housing, O-ring, and band with the bolt and collar, and tighten the wing nut until the band touches the collar.
 Wing nut tightening torque: 2~4 N·m
 The band may move after tightening, but will be fixed in place by pressure when in use.
- 3** Return the band cover to its original position. If the band cover fixing screw was removed, make sure that the band cover is sandwiched between two seal washers.
 Band cover fixing screw tightening torque: 1~1.5N·m

4. TROUBLESHOOTING

4.1 Problems, Causes, and Solutions

If the product does not operate as intended, check the table below for a possible solution.

Problem	Cause	Solution
Siloxane and ozone cannot be removed.	Removal performance drops due to water and oil adhering to the element.	Install an oil mist filter and air dryer on the primary side to remove water and oil mist.
	Element has reached the end of its service life.	Stop supplying the compressed air, remove the bowl assembly, and replace the element.
	Maximum processing flow rate is exceeded.	Use below the maximum flow rate
Fluid does not flow. Pressure drop is large.	Element has reached the end of its service life.	Stop supplying the compressed air, remove the bowl assembly, and replace the element.
Air leaks from where case is mounted.	There are scratches or foreign matters on O-ring for case sealing.	Stop supplying the compressed air, remove the bowl assembly, and clean or replace the O-ring.

If you have any other questions or concerns, contact your nearest CKD sales office or distributor.

5. WARRANTY PROVISIONS

5.1 Warranty Conditions

■ Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified below, 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:

- 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 this Instruction Manual.
- Failure caused by incorrect use such as careless handling or improper management.
- Failure not caused by the product.
- Failure caused by use not intended for the product.
- Failure caused by modifications/alterations or repairs not carried out by CKD.
- Failure that could have been avoided if the customer's machinery or device, into which the product is incorporated, had functions and structures generally provided in the industry.
- Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
- Failure caused by acts of nature and disasters beyond control of CKD.
- Failure caused by Consumable parts (elements) that are affected by the conditions of use.

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.

■ Confirmation of product compatibility

It is the responsibility of the customer to confirm compatibility of the product with any system, machinery, or device used by the customer.

■ Others

The terms and conditions of this warranty stipulate basic matters.

When the terms and conditions of the warranty described in individual specification drawings or the Specifications are different from those of this warranty, the specification drawings or the Specifications shall have a higher priority.

5.2 Warranty Period

The product is warranted for one (1) year from the date of delivery to the location specified by the customer.