

Silencer Outdoor

SL-□-W Series

INSTRUCTION MANUAL

SM-P00104-A



- 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 **"SL-□-W Series "** **silencer outdoor series**.

This Instruction Manual contains basic matters such as installation and usage instructions in order 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 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 and JIS B 8370 (the latest edition of each standard)




In order 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.
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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 (Except for outdoor specification products) 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.

Precautions on Product Disposal



CAUTION

The product's working material uses metal or resin parts.

After disassembling according to "4.3 Disassembly and assembly method", please dispose of separately.

(Refer to "1.4 Internal Structure Diagram" for the material.)

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1. PRODUCT OVERVIEW

1.1 Model Number Indication

SL – 8A – W

(a)

(a) Port size	
8A	Rc1/4
10A	Rc3/8
15A	Rc1/2

1.2 Specifications

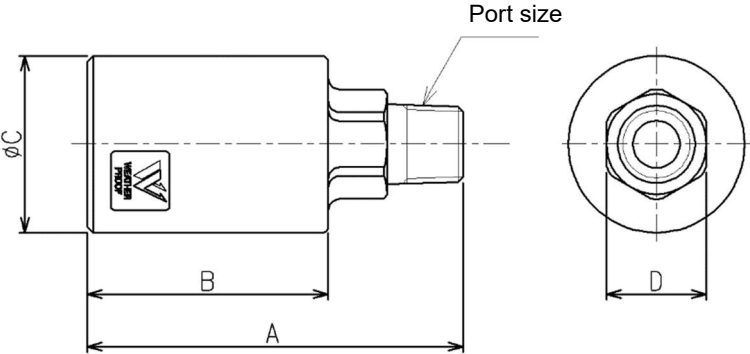
1.2.1 Product specifications

Model no.		SL-8A-W	SL-10A-W	SL-15A-W
Descriptions				
Working fluid		Compressed air		
Max. working pressure	MPa	0.9		
Min. working pressure	MPa	0		
Proof pressure	MPa	1.35		
Fluid temperature	°C	5 to 60		
Ambient temperature	°C	-10 to 60 (no freezing)		
Port size		Rc1/4	Rc3/8	Rc1/2
Weight	g	75	100	105
Applicable cylinder tube bore size	mm	Ø50 to Ø100	Ø63 to Ø140	Ø75 to Ø180
Noise reduction effect	dB[A]	20 or more		
Flow rate ^{Note 1}	m ³ /min (ANR)	2.4	3.2	4.1
Effective cross-sectional area	mm ²	36	48	61

Note 1: This is the flow rate at pressure of 0.5 MPa.

1.3 Dimensions

1.3.1 Discrete



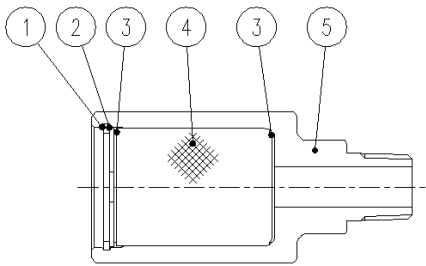
Model no.	Port size	A	B	ϕC	D
SL-8A-W	R1/4	64	41	30	17
SL-10A-W	R3/8	74.5	49.5	36	24
SL-15A-W	R1/2	77.5	49.5	36	24

1.3.2 Components

■ Replacement element

Part name	Model no.
Replacement element	SL-□A-EL

1.4 Internal Structure



JIS symbol



No.	Part name	Material
1	C snap ring	Stainless steel
2	Perforated metal	Stainless steel
3	Wire mesh	Stainless steel
4	Element	Vinylidene chloride
5	Body	Aluminum

2. INSTALLATION

2.1 Environment

Do not use the product in an environment where:

- Ambient temperature When the product temperature exceeds the range of -10 to +60 °C.
(If used in an environment exposed to direct sunlight, the product temperature may become higher than the ambient temperature.)
- Air freezes
- If there is a corrosive gas, liquid or chemical atmosphere
- Dusty atmosphere
- If there is a heat source in the surroundings, try to avoid radiant heat
- Ozone generation environment

2.2 Unpacking

- 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.

2.3 Mounting

CAUTION

Follow the recommended torque.

It may cause loosening of screws, air leakage and damage.

Pay attention to the conditions of use.

- Do not apply a lateral load to the main body during or after mounting.
- Install the silencer so that the exhaust air does not come into direct contact with your eyes.
- Make sure there is enough space around the silencer for installation and removal.

- For the lock nut recommended tightening torque, refer to the table below. Be careful not to damage the nut by over-tightening it.

Lock nut recommended tightening torque

Screw size	Tightening torque (N·m)
R1/4	6~8
R3/8	13~15
R1/2	16~18

- Do not install the exhaust port of the silencer facing up.
Take measures to prevent dust, dirt and rainwater from entering through the exhaust port.

3. USAGE

3.1 Safety Instructions

WARNING

Use the product within the specifications.

Control the speed by gradually turning the needle from the fully closed position.

Turning the needle counterclockwise will lift the needle to an open position.

CAUTION

The product is designed for compressed air.

Do not use other fluids.

The exhaust port may become blocked due to clogging of the silencer.

Consider a safety design that will prevent the entire system from malfunctioning.

The muffling effect value is based on the JIS standard.

The muffling effect may change depending on the circuit and pressure used.

4. MAINTENANCE AND INSPECTION

WARNING

Use a special tool to remove and assemble the C-shaped retaining ring and be careful not to fly the C-shaped retaining ring.

When replacing the element, be sure to assemble the C-shaped retaining ring.

If the assembly is incomplete, the internal components may pop out during use and it is dangerous.

CAUTION

When replacing the element, be sure to assemble the wire mesh and punching metal. Store in a hot and humid place or in a place below 40 ° C away from direct sunlight.

4.1 Daily Inspection

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

4.2 Periodic Inspection

- In order 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.

4.3 Disassembly and assembly method

4.3.1 Disassembly

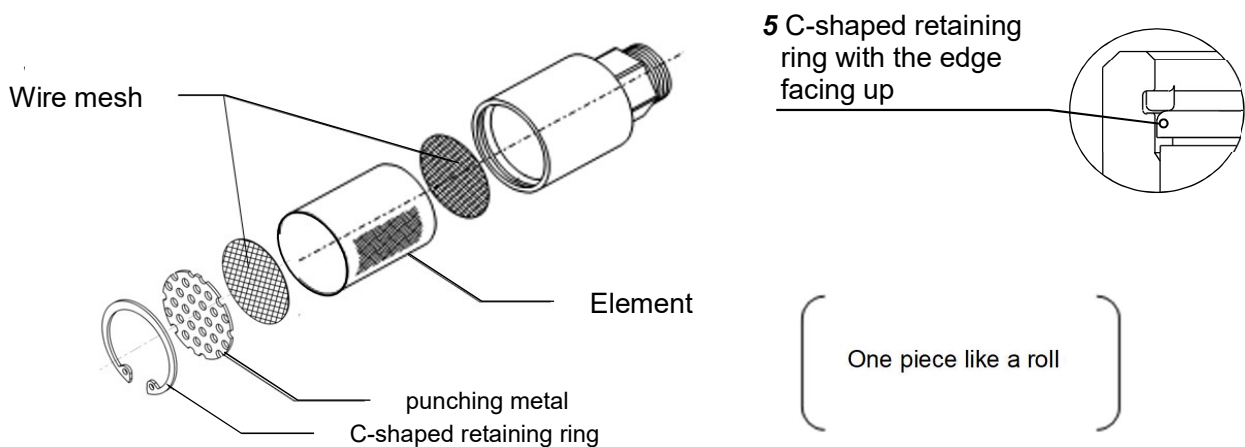
Parts such as elements can be taken out by removing the C-shaped retaining ring of the exhaust port with a special tool.

4.3.2 assembly method

- If clogging occurs, replace the element.

■ Element replacement procedure

- 1** Remove the C-shaped retaining ring with a special tool.
(At this time, be careful not to let the C-shaped retaining ring pop out.)
- 2** Take out the punching metal and wire mesh.
- 3** Remove the old element.
- 4** Make sure there is a wire mesh inside the silencer and insert a new element.
- 5** Assemble the wire mesh, punching metal, and C-shaped retaining ring in this order.
(At this time, pay attention to the direction of the C-shaped retaining ring)



- Depending on the usage conditions of the silencer, the element may be clogged and the exhaust flow rate may decrease.
- This product is guaranteed for outdoor use, but it does not guarantee corrosion resistance (no rust, no discoloration).

5. TROUBLESHOOTING

5.1 Problems, Causes, and Solutions

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

Problem	Cause	Solution
The speed of the device has slowed down.	Decrease in exhaust flow rate due to element clogging.	Replace the element with a new one.
Internal parts such as elements have popped out	Insufficient assembly of C-shaped retaining ring when replacing the element.	Assemble so that the groove C-shaped retaining ring of the silencer body fits securely.

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

6. WARRANTY PROVISIONS

6.1 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.

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.

6.2 Warranty Period

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