



OPERATING MANUAL

Cooling Module FM Series IP43/55 Rated Fan, Filter Panel

Introduction

■ Before using the product

Only qualified personnel should work with the product.

Use the product correctly after thoroughly reading the section "Safety precautions."

The product described in this manual has been designed and manufactured for use in general industrial machinery, and must not be used for any other purpose. Oriental Motor Co., Ltd. is not responsible for any damage caused through failure to observe this warning.

■ Hazardous substances

RoHS (Directive 2002/95/EC 27Jan.2003) compliant

FM□23□I-2□□□1 type only

Safety precautions

The precautions described below are intended to prevent danger or injury to the user and other personnel through safe, correct use of the product. Use the product only after carefully reading and fully understanding these instructions.



Handling the product without observing the instructions that accompany a "Warning" symbol may result in serious injury or death.



Handling the product without observing the instructions that accompany a "Caution" symbol may result in injury or property damage.



- Do not use the product in explosive or corrosive environments, in the presence of flammable gases, locations subjected to splashing water, or near combustibles. Doing so may result in fire, electric shock or injury.
- Assign qualified personnel the task of installing, wiring, operating/controlling, inspecting and troubleshooting the product. Failure to do so may result in fire, electric shock or injury.
- Do not transport, install the product, perform connections or inspections when the power is on. Always turn the power off before carrying out these operations. Failure to do so may result in electric shock.
- To prevent the risk of electric shock, use the cooling module for class I equipment only.
Lüfter zur Verwendung in Geräten der Schutzklasse I.
- Install the cooling module in an enclosure in order to prevent electric shock or injury.
- Be sure to ground the protective earth conductor when installing the cooling module. Failure to do so may result in electric shock.
Erden Sie den Produkt bei der Installation mit einem Schutzerdungskabel. Nichtbeachtung dieses Hinweises könnte einen elektrischen Schlag verursachen.
- Keep the input-power voltage within the specified range to avoid fire and electric shock.
- Connect the cables securely according to the wiring diagram in order to prevent fire and electric shock.
- Do not forcibly bend, pull or pinch the cable. Doing so may fire and electric shock.
- Do not disassemble or modify the cooling module. This may cause electric shock or injury. Refer all such internal inspections and repairs to the branch or sales office from which you purchased the product.
- Do not remove the finger guard while the cooling module is operating. It may result in injury.

Thank you for purchasing an Oriental Motor product.

This Operating Manual describes product handling procedures and safety precautions.

- Please read it thoroughly to ensure safe operation.
- Always keep the manual where it is readily available.

⚠ Caution

- Do not use the cooling module beyond its specifications, or electric shock, injury or damage to equipment may result.
- Do not touch the motor during operation or immediately after stopping. The surface is hot and may cause a burn.
- Do not hold the rotating parts (blades) of the fan or lead wire. This may cause injury.
- Keep the area around the cooling module free of combustible materials in order to prevent fire or a burn.
- To prevent the risk of damage to equipment, leave nothing around the cooling module that would obstruct ventilation.
- When an abnormality is noted, stop the operation immediately, or fire, electric shock or injury may occur.
- The motor's surface temperature may exceed 70 °C (158 °F), even under normal operating conditions. If a fan is accessible during operation, post the warning label shown in the figure in a conspicuous position to prevent the risk of burns.
- To dispose of the cooling module, disassemble it into parts and components as much as possible and dispose of individual parts/components as industrial waste.



Warning label

Preparation

■ Checking the product

Upon opening the package, verify that the items listed below are included. Report any missing or damaged items to the branch or sales office from which you purchased the product.

- Cooling module 1 pc.
- Plug cord 1 pc.
- Mounting frame 1 pc.
- Mounting screw set 2 sets
(Tap-tight screws for affixing mounting frame and grille affixing screws)
- Operating manual 1 copy

■ Checking the model name

Check the model number against the number indicated on the product.

Installation

■ Location for installation

The cooling module is designed and manufactured for installation in equipment. The hood side of the cooling module is designed to IP43 or IP55 to provide protection against ingress of objects and liquids in an environment of pollution degree 2. Install it in a well-ventilated location that provides easy access for inspection. The location must also satisfy the following conditions:

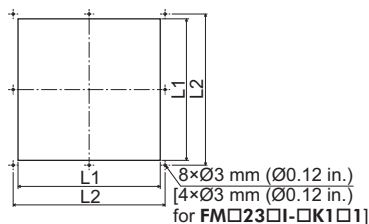
- Inside an enclosure that is installed indoors (provide vent holes)
- Operating ambient temperature
-10 to +60 °C (+14 to +140 °F) (non-freezing)
- Operating ambient humidity 85% or less (non-condensing)
- Area that is free of explosive atmosphere or toxic gas (such as sulfuric gas) or liquid
- Area not exposed to direct sun
- Area free of excessive amount of dust, iron particles or the like
- Area not subject to splashing water (rains, water droplets), oil (oil droplets) or other liquids
- Area free of excessive salt
- Area not subject to continuous vibration or excessive shocks
- Area free of excessive electromagnetic noise (from welders, power machinery, etc.)
- Area free of radioactive materials, magnetic fields or vacuum

■ Installation method

Install the cooling module onto an appropriate flat metal plate having excellent vibration resistance and heat conductivity. Position the cooling module vertically with the hood outlet facing down.

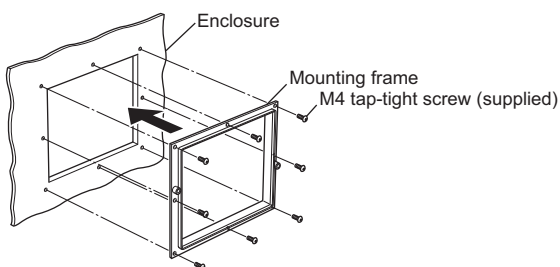
1. Drill a mounting hole in the enclosure.

Reference mounting hole dimensions

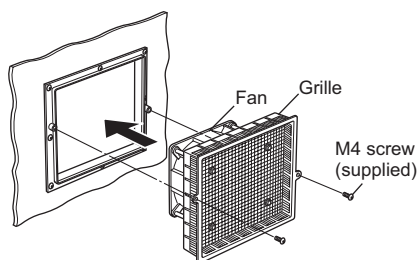


Model	Dimensions [mm (in.)]	
	L1	L2
FM□23□I-□H2□1	176 ^{+0.4} ₀ (6.93)	188 ^{±0.2} (7.40)
FM□23□I-□J2□1	125 ^{+0.4} ₀ (4.92)	137 ^{±0.2} (5.39)
FM□23□I-□K1□1	97 ^{+0.4} ₀ (3.82)	109 ^{±0.2} (4.29)

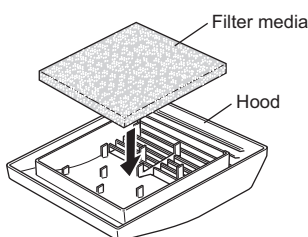
2. Remove the protective tape from the mounting frame. Fit the mounting frame into the mounting hole and affix the frame with the supplied tap-tight screws at eight locations (or at four locations for FM□23□I-□K1□1).
Take note that since the mounting frame is made of ABS resin, tightening the screws excessively may damage the frame.



3. Insert the fan and grille assembly into the mounting frame and affix the assembly with the supplied screws at two locations. The tightening torque is 0.57 N·m (81 oz-in).



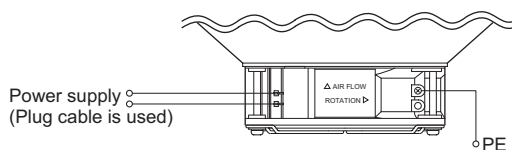
4. Install the filter media into the hood. Do not install the media on the grille side, as it may reduce the air volume.
The filter media must be installed in such a way that air will flow from the coarse-mesh side to the fine-mesh side. Wrong orientation will cause the media to clog easily.



5. Install the hood on the grille.

Connection

Connect the supplied plug cable to the power-supply input terminal on the fan. Push in the plug until the terminal becomes no longer visible.



Overheat protection

This cooling module is impedance-protected. If an error occurs or the fan is locked, the coil impedance will increase and suppress input to the cooling module, thereby preventing the fan coil from burning.

Option

■ Replacement filter media

● IP43 rated filter media

Set of 5 sheets

Model	Applicable product
FMXAB-D	FM series – External dimensions: 209 × 226 mm (8.23 × 8.90 in.)
FMXAB-E	FM series – External dimensions: 157 × 170 mm (6.18 × 6.69 in.)
FMXAB-F	FM series – External dimensions: 129 × 134 mm (5.08 × 5.28 in.)

● IP55 rated filter media

Set of 5 sheets

Model	Applicable product
FMXAC-D	FM series – External dimensions: 209 × 226 mm (8.23 × 8.90 in.)
FMXAC-E	FM series – External dimensions: 157 × 170 mm (6.18 × 6.69 in.)
FMXAC-F	FM series – External dimensions: 129 × 134 mm (5.08 × 5.28 in.)

Cooling of the filter media reduces the cooling capacity. Clean or replace the filter media regularly.

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