

Cooling Fans

Installation

Overview,
Product
Series

Axial
Flow
Fans

AC Input
Low-Power
Consumption
EMU

AC Input
Compact Size
MU

AC Input
Large Size,
Large Air Flow
MRS

AC Input
Long-Life
MRE

DC Input
MDS
MD

DC Input
Alarm
MDA

DC Input
Variable Flow
MDV

DC Input
Long-Life
MDE

DC Input
Splash Proof
MDP

Centrifugal
Blowers

AC Input
MB
DC Input
MBD

Cross Flow Fans

AC Input
MF
DC Input
MFD

Enclosure Fan
Modules

Thermostat

Accessories

Installation

Installation

Installation

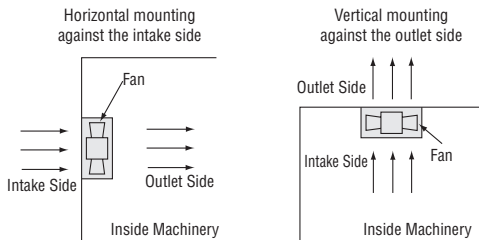
Installation Conditions

Install the fan in a location that meets the following conditions. Use in a location that does not satisfy these conditions could damage the product.

- Indoors (This product is designed and manufactured to be installed within another device.)
- The ambient temperature and humidity for operation and storage differ according to the product. Refer to the pages where each product is listed.
- Not exposed to explosive, flammable or corrosive gases
- Not exposed to direct sunlight
- Not exposed to water
- No oil or grease, organic solvents, acid or alkaline chemicals
- Not exposed to continuous vibration or excessive impact

Mounting Direction of Fans

Fans can be mounted such that air is blown either horizontally or vertically. In addition, they can be mounted against either the outlet side or the intake side.

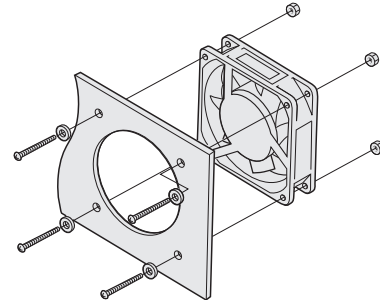


Mounting Fans to Machinery

● Axial Flow Fans

To mount the fan to machinery, drill the mounting holes, referring to the panel cut-out in each page where product is listed (for some fans, the shape of the mounting holes is different for the intake side and the outlet side).

To prevent vibration, mount the fan securely to a strong metal plate. Installation screws are not included with the fan. Use screws of suitable size, referring to the dimensions and the panel cut-out. (Installation screws are supplied with the fan kit.)



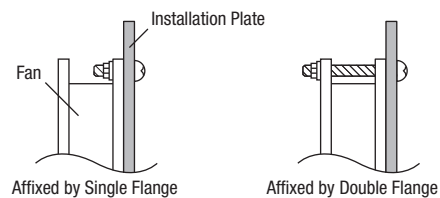
Recommended Tightening Torque

Series and Products	Screw Size	Recommended Tightening Torque
EMU Series	M4	0.6 N·m (85 oz-in)
MU Series (Except for MU925)		
MU925 Type	M3	0.4 N·m (56 oz-in)
MRS Series (Except for MRS14)	M5	1.2 N·m (170 oz-in)
MRE Series		
MRS14 Type	M4	0.6 N·m (85 oz-in)
MDS410, MDS510, MD625, MDA625 Type	M3	0.4 N·m (56 oz-in)
MDS, MD, MDA, MDV, MDE, MDP Series (Except for MDS410, MDS510, MD625 and MDA625)	M4	0.6 N·m (85 oz-in)

The **MU925** type cannot be affixed with a single flange.

Mount using screws that pass through both flanges.

When mounting the **MU1238** type using a single flange, use a plain washer with an outer diameter of $\phi 8$ mm ($\phi 0.31$ in.) or less.



Installing Accessories

Dust or objects entering the machinery through the fan opening can affect the life of the machinery and cause accidents. To ensure safety and maintain performance, it is recommended that accessories such as finger guards, filters and screens be installed on fans.

For installing of accessories below, refer to the following page.

Finger guards	Page G-108
Filters	Page G-110
Screens	Page G-113

Connection to Power Supply

- Connection to **MRS Series** □180 mm – 90 mm (□7.09 in. – 3.54 in.) Thick Fan with Extension Cable/**MRE Series/Enclosure Fan Module IP4X Type** □180 mm – 90 mm (□7.09 in. – 3.54 in.) Thick Fan Installed

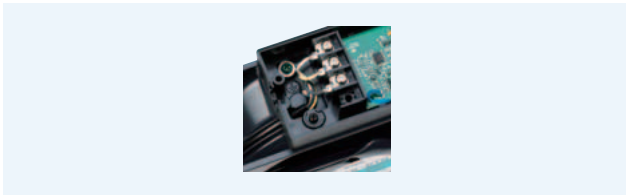
Connection and disconnection is possible using a quick-connect/disconnect connector of the power supply cable, alarm cable (included with alarm only) to the fan connector.



- Connection to **MRS Series Terminal Box Fan**

The **MRS Series** (except for **MRS20** and **MRS25**) fans use a terminal block for the power supply connection, allowing the lead wires to be fixed securely. It is recommended to use a crimp terminal to connect the cord to the terminal block.

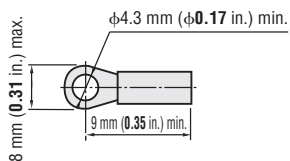
<Inside of the Terminal Box>



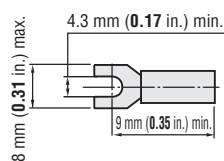
<Applicable wire size>
AWG20 or thicker

Recommended Crimp Terminal

- Round Terminal Type with Insulation



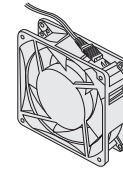
- Fork Terminal Type with Insulation



- **EMU and MU Series, and Enclosure Fan Module (MU Series Fan Type)**

Power supply terminals are located in the fan frame. Using the accessory plug cord (the enclosure fan module comes with a plug cord) makes connection easy.

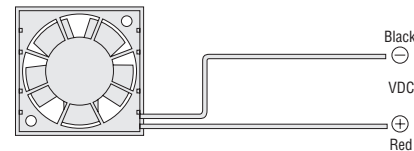
- Except for **MU825** Type, enclosure fan module IP4X Type □180 mm – 90 mm (□7.09 in. – 3.54 in.)



- **MDS, MD, MDA, MDV, MDE and MDP Series Connections**

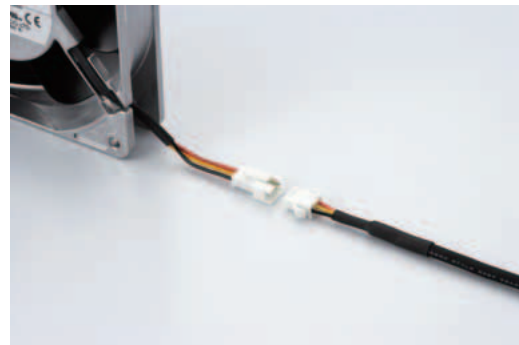
Use the black and red lead wires extending from the fan, connecting the red wire to the plus (+) terminal and the black wire to the minus (-) terminal. (Common to all DC axial flow fans.)

Even if connection is reversed by mistake, the fan is equipped with a protection circuit to keep current from flowing in the wrong direction. For the **MDS, MD, MDA, MDV, MDE** and **MDP** products to confirm with safety standards, use a DC power supply with reinforced insulation on the primary side.



- **MDS, MD and MDA Series Connector Type, and Enclosure Fan Module (DC Fan Type)**

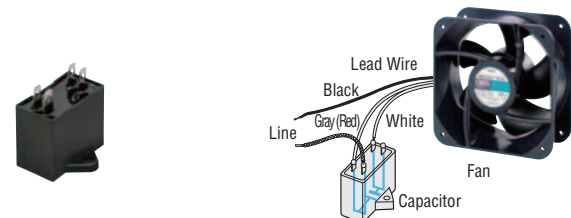
Cable with connector (included) provides for quick connect/disconnect to fan.



- How to Connect a Capacitor

◇ For 4-Terminal Capacitor

- How to Connect Fan and Capacitor



- Terminals of the capacitor are connected inside as shown in the figure above.
- For lead wire connection with 4-terminal capacitor, use one lead wire per terminal.

Overview,
Product
Series

Axial
Flow
Fans

AC Input
Low-Power
Consumption
EMU

AC Input
Compact Size
MU

AC Input
Large Size,
Large Air Flow
MRS

AC Input
Long-Life
MRE

DC Input
MDS
MD

DC Input
Alarm
MDA

DC Input
Variable Flow
MDV

DC Input
Long-Life
MDE

DC Input
Splash Proof
MDP

Centrifugal
Blowers

AC Input
MB
DC Input
MBD

Cross Flow Fans

AC Input
MF
DC Input
MFD

Enclosure Fan
Modules

Thermostat

Accessories

Installation

Speed Adjustment

The DC fan can be operated within the operating voltage range. When the input voltage is varied within this operating voltage range, the fan speed varies proportionally to the voltage and the fan air flow characteristics also vary.

MD825B-24

