

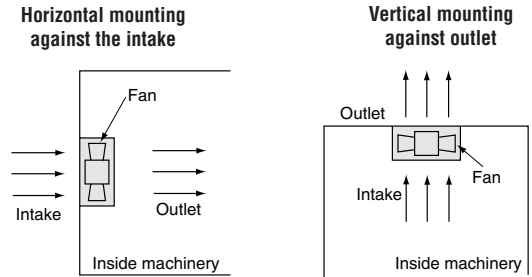
	Axial Flow Fans			Centrifugal Blowers			Cross Flow Fans				
	AC Input	DC Input	AC Input	DC Input	AC Input	DC Input	AC Input	DC Input			
	Variable Flow										
MRS			MU	Long Life MDE	MDS · MD	MB	MBD	MF	MFD	Thermostats	Accessories

Before Using a Fan

Before Using a Fan

Mounting the Fan

These fans can be oriented such that air is blown either horizontally or vertically. In addition, they can be mounted against either the outlet or inlet.

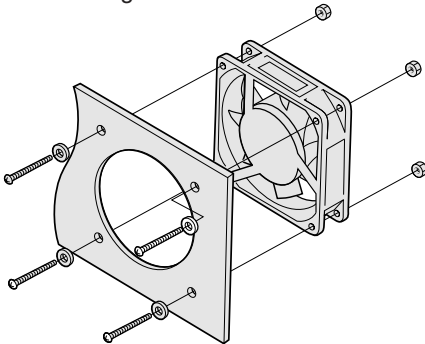


Mounting Fans in Machinery

● Axial Flow Fans

To mount the fan in machinery, drill suitable mounting holes in accordance with the mounting hole dimensional diagrams given on the same page as the product (for some fans, the shape the mounting holes is different for inlet and outlet mounting).

To prevent vibration, mount the fan securely to a strong metal plate. Mounting screws are not included with the fan (included with the machinery). Use screws of suitable size, referring to the fan's external dimensions and the mounting hole dimensional diagrams.



Recommended Tightening Torque

Model	Screw Dimensions	Tightening Torque oz-in (N·m)
MRS series (except for MRS14)	M5	170 (1.2)
MRS14 type	M4	85 (0.6)
MU series (except for MU925)	M4	85 (0.6)
MU925 type	M3	56 (0.4)
MDE, MDS•MD series (except for MD625, MDS510, MDS410)	M4	85 (0.6)
MD625, MDS510, MDS410 type	M3	56 (0.4)

● Centrifugal Blowers

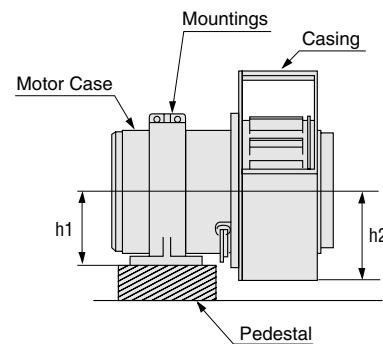
◆ Using special mountings (sold separately)

Special mountings matched to the diameter of the motor case can be used to mount the blower in place.



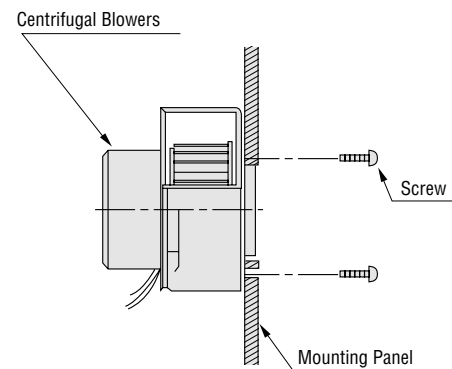
Mounting **PAS□A (B)**

For all the blowers except **MB520** and **MB630**, h_2 is longer than h_1 , therefore, a pedestal must be used when mounting the blower so that the casing does not touch the surface to which the fan is fixed.



◆ Attaching blowers directly to the machine using screws (For **MB520** and **MB630** only)

Mounting holes are provided in three spots on the **MB520** and **MB630** casings so the blowers can be fixed to the machine with no extra mounting equipment. Refer to the panel cut-out on the blower page for dimensions to drill mounting holes.



Recommended Tightening Torque

Model	Screw Dimensions	Tightening Torque oz-in (N·m)
MB630 type	M3 P0.5 Length = $t + 0.14$ inch	85 (0.6)
MB520 type	M3 P0.5 Length = $t + 0.1$ inch	

t: Thickness of mounting plate

● Cross Flow Fans

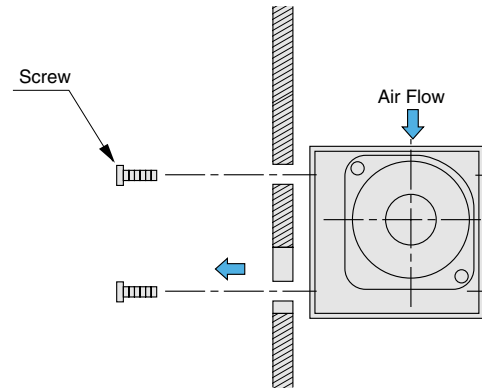
Cross flow fan casings have mounting holes on all sides.

Recommended Tightening Torque

Model	Screw Dimensions	Tightening Torque oz-in (N·m)
MF·MFD series	M4 P0.7 Length = t+0.2 inch	198 (1.4)

t: Thickness of mounting plate

* When the fan is mounted on the inlet side or outlet side, refer to the panel cut-out on the cross flow fan page for dimensions to drill the mounting holes.



■ Mounting Locations

Install the fan and capacitor in locations that meet the following conditions (Otherwise the fan may be damaged.):

- Indoors (the product is designed and manufactured to be mounted in a machine.)
- Ambient temperature 14°F~140°F (14°F~108°F for **MB** series) (Nonfreezing)

■ 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 options such as finger guards, filters and screens be installed on fans. Refer to the installation instructions given on the following pages.

Finger Guard	Page E-102
Filter	Page E-105
Screen	Page E-107

■ Connection to Power Supply

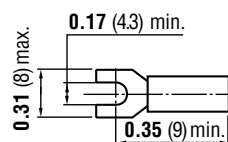
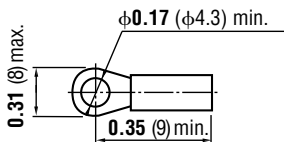
● MRS Series

MRS (excluding **MRS20**, **MRS25**) series fans use a terminal box for the power supply connection, allowing the power supply cord to be fastened securely. If possible, use a crimp-style terminal to connect the cord to the terminal box. Also, when connecting the power supply for fans that include alarm with single-phase voltage specifications, be sure to connect the capacitor provided.



<Crimp-style Terminals that can be used>
Unit = inch (mm)

Round terminal type with insulation U-shaped terminal type with insulation



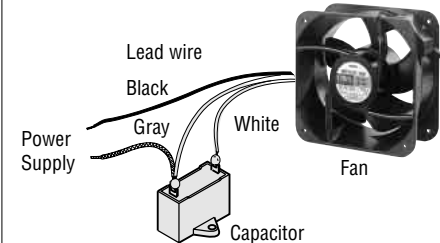
- Ambient humidity 0~85% (Noncondensing)
- No explosive, flammable and/or corrosive gas.
- No exposure to direct sunlight.
- No splashing water
- No oil or grease, organic solvents, acid or alkaline chemicals.
- No continuous vibration or excessive shock.

◆ How to Connect a Capacitor

● 2-Terminal Capacitor



How to Connect Fan/Capacitor



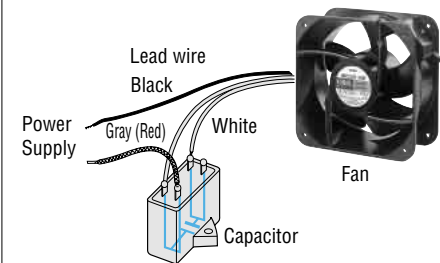
● 4-Terminal Capacitor



How to Connect Fan/Capacitor

For lead wire connection with 4-terminal capacitor, use one lead wire for each individual terminal.

The terminals of capacitor are connected as shown in the inner diagram on the right.

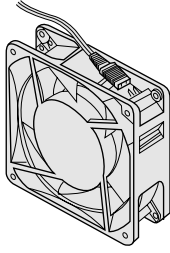


* Crimp Terminals are available (Except for **MRS16-□□A**) for easy connection. Use AMP Fasten Terminal 187 series (Tyco Electronics AMP K.K.)

* Capacitor connection of **MB** Series centrifugal Blowers is the same as above.

● MU Series

Terminals for connection to the power supply are located in the fan frame. Using the optional power supply cord makes one-touch connections.
(The **MU825** type has lead wire output, so no plug cord is required.)

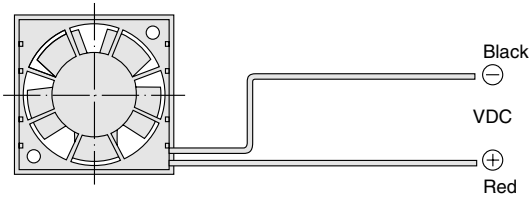


● MDE Series, MDS, MD, MBD Series, MFD Series

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. (This applies to all DC axial-flow fans.)

Even if connections are reversed by mistake, the fan is equipped with a protection circuit to keep current from flowing in the wrong direction.

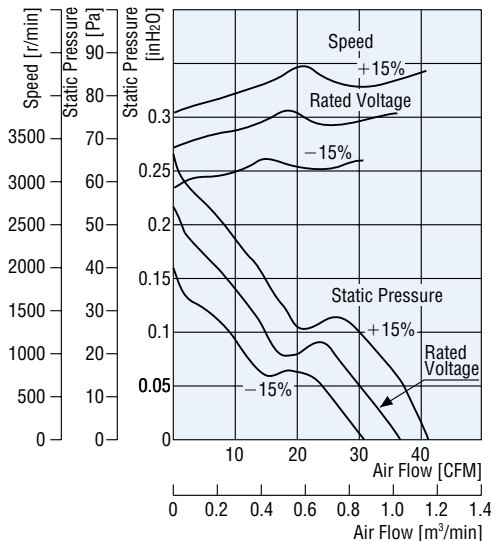
For **MDE-MDS-MD** series, use a DC power source with reinforced insulation with the primary side.



■ Speed Adjustment

The DC fan can be operated within the usage voltage range. When the input voltage is varied within this usage voltage range, the rotation rate varies proportionally to the voltage and the fan air flow characteristic also varies.

MD825B-24

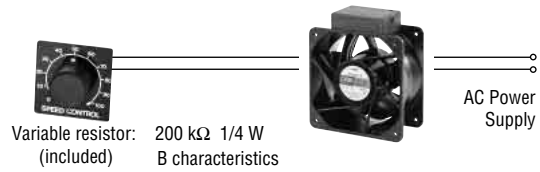


■ Use of Variable Flow Fans·VARIOFLOW

● Operation of Axial Flow Fan (MRS18V2, MRS16V)

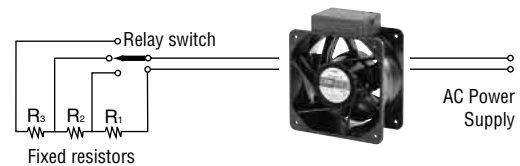
◆ When adjusting the speed with a variable resistor

Connect the provided speed setting variable resistor to the lead wire coming out of the fan terminal box.



◆ When setting the speed with multiple external fixed resistors

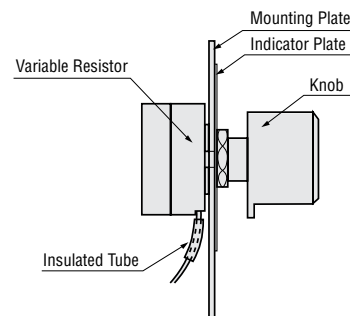
Relays can be used to switch between fixed resistors (1/4 W min.)



● Speed setting variable resistor

A high voltage can be applied across the terminals of the variable resistor, so be sure to insulate with tubes or tapes. If the variable resistor is used in an area with high electrical noise, the speed may fluctuate. Should this occur, try any of the following solutions:

- Put a noise filter on the power source line.
- Use twisted pair wire for the wiring.
- Route the wire as far as possible from lines generating noise (lines with large current flows).



Note:

The indicator plate and control knob are included with the variable resistor.