Cooling Fans

Centrifugal Blowers
Centrifugal blowers provide directional air flow by maximizing static pressure, making them optimal for spot cooling and for air flow through a duct. Alternatively, their high suction can be used to hold an object in position or their directed air flow can be used to move objects.

**Features**

Since the exhaust outlet is reduced to focus air to a specified direction, these blowers are used for spot cooling. The static pressure is also high, which makes them a suitable choice when cooling equipment through which air cannot flow easily or when blowing air using a duct.

**Types of Centrifugal Blowers**

<table>
<thead>
<tr>
<th>Series</th>
<th>Features</th>
<th>Power Supply Voltage</th>
<th>Impeller Diameter [mm (in.)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Centrifugal Blower</td>
<td>- AC input centrifugal blowers</td>
<td>Single-Phase 100/110/115 VAC</td>
<td>- 160 (6.30)</td>
</tr>
<tr>
<td>MB Series</td>
<td>- The MB Series is recognized by UL/CSA Standards and conforms to EN Standards. CE Marking is used in accordance with the Low Voltage Directive. (Certification status differs according to the product.)</td>
<td>Single-Phase 200/220/230 VAC</td>
<td>- 120 (4.72)</td>
</tr>
<tr>
<td></td>
<td>- RoHS-Compliant</td>
<td></td>
<td>- 100 (3.94)</td>
</tr>
<tr>
<td></td>
<td>- The MB Series conforms to the RoHS Directive.</td>
<td></td>
<td>- 80  (3.15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 60  (2.36)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 50  (2.00)</td>
</tr>
<tr>
<td>DC Centrifugal Blower</td>
<td>- DC input centrifugal blowers</td>
<td>Three-Phase 200/220/230 VAC</td>
<td>- 160 (6.30)</td>
</tr>
<tr>
<td>MBD Series</td>
<td>- RoHS-Compliant</td>
<td></td>
<td>- 120 (4.72)</td>
</tr>
<tr>
<td></td>
<td>- The MBD Series conforms to the RoHS Directive.</td>
<td></td>
<td>- 100 (3.94)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 80  (3.15)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 60  (2.36)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 50  (2.00)</td>
</tr>
</tbody>
</table>

- A three-phase 220 VAC version is not available.
- Details of safety standards ➔ Page H-2
- For detailed product safety standard information including standards, file number and certification body, please visit www.orientalmotor.com.

**System Configuration**

An example of a system configuration with the MB Series.

**Example of System Configuration**

<table>
<thead>
<tr>
<th>Fan</th>
<th>Sold Separately</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1040-B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thermostat</td>
</tr>
<tr>
<td></td>
<td>- AM1-WA1</td>
</tr>
<tr>
<td></td>
<td>Mounting Bracket</td>
</tr>
<tr>
<td></td>
<td>- PAS4B</td>
</tr>
<tr>
<td></td>
<td>Filter</td>
</tr>
<tr>
<td></td>
<td>- FLB10</td>
</tr>
<tr>
<td></td>
<td>Duct Joint</td>
</tr>
<tr>
<td></td>
<td>- FD10</td>
</tr>
</tbody>
</table>

- The system configuration shown above is an example. Other combinations are available.
- Not supplied
### General Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation Resistance</td>
<td>100 MΩ or more when 500 VDC megger is applied between the windings and the frame after continuous operation under normal ambient temperature and humidity. (MBD Series: 10 MΩ or more, 250 VDC megger; MBD, MBD , MBD , MBD Series: 10 MΩ or more, 500 VDC megger)</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>Sufficient to withstand 1.5 kVAC at 50 Hz applied between the windings and the frame for 1 minute after continuous operation under normal ambient temperature and humidity. (MBD Series: 500 VAC at 50 Hz, 1 minute)</td>
</tr>
<tr>
<td>Temperature Rise</td>
<td>45°C (81°F) or less measured by the thermometer method after the temperature of the motor case has stabilized after continuous operation under normal ambient temperature and humidity. (MBD Series: 15°C [27°F] or less)</td>
</tr>
<tr>
<td>Operating Voltage Range</td>
<td>MB Series: ±10% of the rated voltage; MBD Series: ±10% of the rated voltage</td>
</tr>
<tr>
<td>Thermal Class</td>
<td>MB Series: UL/CSA standards: 105 (A), EN standards: 120 (E); MBD Series: 120 (E)</td>
</tr>
<tr>
<td>Overheat Protection</td>
<td>MB1665, MB1255, MB1040 and MB840 types have built-in thermal protector (automatic return type). Open: 120±5°C (248±9°F), Close: 77±15°C (170±27°F); MBD8 and MBD20 types are impedance protected. MBD Series has an overheat protection circuit.</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>−10 to 60°C (+14 to 122°F) (MBD520, MBD630 types; MBD Series: −10 to 60°C (+14 to 140°F))</td>
</tr>
<tr>
<td>Ambient Humidity</td>
<td>85% or less (non-condensing)</td>
</tr>
<tr>
<td>Color</td>
<td>Dark gray</td>
</tr>
<tr>
<td>Materials</td>
<td>Motor case: Die cast aluminum; Casing: Die cast aluminum; Impeller: Aluminum</td>
</tr>
</tbody>
</table>

### Comparison of Characteristics

#### MB Series

- **50 Hz**

![Graph 1](image1.png)

- **60 Hz**

![Graph 2](image2.png)

#### MBD Series

- **50 Hz**

![Graph 3](image3.png)

- **60 Hz**

![Graph 4](image4.png)

---

**Cooling Fans**

- **Introduction**
- **MR5**
- **Variable Frequency Motors**
- **MBD**
- **Cooling Fans**
- **Axial Flow Fans**
- **Centrifugal Blowers**
- **Cross Flow Fans**
- **Long-Life Motor**
- **Variable Flow**
- **AC Centrifugal Blower**
- **AC Cross Flow**
- **Accessories**
- **Installation**

---

**CAD Data**

www.orientalmotor.com

**Technical Support**

TEL: (800) 468-3982

E-mail: techsupport@orientalmotor.com

---

F-81
AC Centrifugal Blower
MB Series
Impeller Diameter
\( \phi 160 \text{ mm (} \phi 6.30 \text{ in.)} \)

### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current</th>
<th>Input</th>
<th>Speed</th>
<th>Max. Air Flow</th>
<th>Max. Static Pressure</th>
<th>Noise Level (dB)</th>
<th>Capacitor (( \mu )F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1665-B</td>
<td>Single-Phase 100</td>
<td>50</td>
<td>2.6</td>
<td>260</td>
<td>2750</td>
<td>8.0</td>
<td>282</td>
<td>1.96</td>
<td>76</td>
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<tr>
<td></td>
<td>Single-Phase 100</td>
<td>60</td>
<td>3.7</td>
<td>360</td>
<td>3100</td>
<td>9.0</td>
<td>318</td>
<td>2.75</td>
<td>80</td>
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<tr>
<td></td>
<td>Single-Phase 110</td>
<td>60</td>
<td>3.7</td>
<td>380</td>
<td>3200</td>
<td>9.0</td>
<td>318</td>
<td>2.75</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 115</td>
<td>60</td>
<td>3.7</td>
<td>400</td>
<td>3200</td>
<td>9.0</td>
<td>318</td>
<td>2.75</td>
<td>80</td>
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<tr>
<td>MB1665-D</td>
<td>Single-Phase 200</td>
<td>50</td>
<td>1.3</td>
<td>245</td>
<td>2700</td>
<td>7.7</td>
<td>272</td>
<td>1.96</td>
<td>75</td>
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<tr>
<td></td>
<td>Single-Phase 200</td>
<td>60</td>
<td>1.8</td>
<td>340</td>
<td>3000</td>
<td>8.4</td>
<td>287</td>
<td>2.75</td>
<td>76</td>
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<tr>
<td></td>
<td>Single-Phase 220</td>
<td>60</td>
<td>1.8</td>
<td>360</td>
<td>3150</td>
<td>8.7</td>
<td>307</td>
<td>2.75</td>
<td>77</td>
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<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>1.3</td>
<td>270</td>
<td>2750</td>
<td>8.0</td>
<td>282</td>
<td>1.96</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>1.3</td>
<td>370</td>
<td>3150</td>
<td>8.9</td>
<td>314</td>
<td>2.75</td>
<td>77</td>
</tr>
<tr>
<td>MB1665-T</td>
<td>Three-Phase 200</td>
<td>50</td>
<td>1.8</td>
<td>280</td>
<td>2750</td>
<td>8.0</td>
<td>282</td>
<td>1.96</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 200</td>
<td>60</td>
<td>1.8</td>
<td>360</td>
<td>3100</td>
<td>9.0</td>
<td>318</td>
<td>2.75</td>
<td>80</td>
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<tr>
<td></td>
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<td>400</td>
<td>3200</td>
<td>9.0</td>
<td>318</td>
<td>2.75</td>
<td>80</td>
</tr>
</tbody>
</table>

*Details of safety standards ➜ Page H-2

The following items are included in each product:
Fan, Capacitor*, Capacitor Cap*, Operating Manual
*Single-phase fans only

### Air Flow – Static Pressure Characteristics

![Air Flow Static Pressure Characteristics](image)

### Dimensions

Unit = mm (in.)

- Mass: 5 kg (11 lb.)

- **DXE E059**
  - 113 (4.45)
  - 222 (8.74)
  - 20 (0.79)

- 22.5 \( \times 22.5 \) (0.88 \( \times 0.88 \))

- 24.5 (0.96)

- Protective Earth Terminal
  - M4
  - 25 (0.98)

- Lead Wires 300 mm (12 in.)
  - UL Style 3271, AWG20

- 13 (0.51)

- 7 (0.28)

- 10 (0.39)

- 10 (0.39)

- 83 (3.27)

- 76 (2.99)
Cooling Fans

Introduction

Axial Flow Fans
Centrifugal Blowers
Cross Flow Fans
Cooling Module
Thermostats
Accessories
Installation

Capacitor (Included)

\[
\begin{align*}
& A \quad B \quad C \\
& 4.3 \quad 20 \quad 7 \\
& \text{(0.169)} \quad \text{(0.79)} \quad \text{(0.28)}
\end{align*}
\]

Panel Cut-Out

Unit = mm (in.)

Outlet Side

Intake Side

Capacitor Dimensions Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacitor Model</th>
<th>Capacitor Dimensions mm (in.)</th>
<th>Mass g (oz.)</th>
<th>Capacitor Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1665-B</td>
<td>CH400CFAUL</td>
<td>58 (2.28) 41 (1.61) 58 (2.28)</td>
<td>190 (6.7)</td>
<td>Included</td>
</tr>
<tr>
<td>MB1665-D</td>
<td>CH808FAUL</td>
<td>58 (2.28) 35 (1.38) 58 (2.28)</td>
<td>150 (5.3)</td>
<td>Included</td>
</tr>
</tbody>
</table>

Connection Diagrams

MB1665-B, MB1665-D

How to connect a capacitor → Page F-129

MB1665-T

Thermostats

A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

Thermostats AM1-WA1/AM1-XA1

Page → F-113

Accessories

Product
Mounting Bracket
PASSA
F-125

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

Product Line

Fan Kit Model

| T-MB1665-B-A |
| T-MB1665-D-A |
| T-MB1665-T-A |

See page F-82 to determine base fan required (Voltage) and page F-81 for fan kits product number code.
AC Centrifugal Blower
MB Series

Impeller Diameter
ϕ120 mm (ϕ4.72 in.)

Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current</th>
<th>Input</th>
<th>Speed</th>
<th>Max. Air Flow</th>
<th>Max. Static Pressure</th>
<th>Noise Level</th>
<th>Capacitor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAC</td>
<td>Hz</td>
<td>A</td>
<td>W</td>
<td>r/min</td>
<td>m³/min CFM</td>
<td>Pa inH₂O</td>
<td>dB (A)</td>
<td>μF</td>
</tr>
<tr>
<td>MB1255-B</td>
<td>Single-Phase 100</td>
<td>50</td>
<td>1.3</td>
<td>110</td>
<td>2850</td>
<td>4.4</td>
<td>155</td>
<td>309</td>
<td>1.24</td>
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<tr>
<td></td>
<td>Single-Phase 100</td>
<td>60</td>
<td>1.6</td>
<td>150</td>
<td>3300</td>
<td>5.1</td>
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<td>441</td>
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<tr>
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<td>Single-Phase 110</td>
<td>60</td>
<td>1.6</td>
<td>150</td>
<td>3300</td>
<td>5.1</td>
<td>180</td>
<td>441</td>
<td>1.77</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 115</td>
<td>60</td>
<td>1.6</td>
<td>150</td>
<td>3300</td>
<td>5.1</td>
<td>180</td>
<td>441</td>
<td>1.77</td>
</tr>
<tr>
<td>MB1255-D</td>
<td>Single-Phase 200</td>
<td>50</td>
<td>0.6</td>
<td>100</td>
<td>2850</td>
<td>4.4</td>
<td>155</td>
<td>314</td>
<td>1.26</td>
</tr>
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<td>Single-Phase 200</td>
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<td>0.8</td>
<td>145</td>
<td>3200</td>
<td>4.9</td>
<td>173</td>
<td>451</td>
<td>1.81</td>
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<tr>
<td></td>
<td>Single-Phase 220</td>
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<td>0.8</td>
<td>145</td>
<td>3300</td>
<td>5.1</td>
<td>180</td>
<td>451</td>
<td>1.81</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>50</td>
<td>0.6</td>
<td>110</td>
<td>2900</td>
<td>4.5</td>
<td>159</td>
<td>314</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>0.8</td>
<td>150</td>
<td>3300</td>
<td>5.2</td>
<td>184</td>
<td>451</td>
<td>1.81</td>
</tr>
<tr>
<td>MB1255-T</td>
<td>Three-Phase 200</td>
<td>50</td>
<td>0.6</td>
<td>85</td>
<td>2850</td>
<td>4.4</td>
<td>155</td>
<td>314</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 200</td>
<td>60</td>
<td>0.6</td>
<td>120</td>
<td>3280</td>
<td>5.0</td>
<td>177</td>
<td>451</td>
<td>1.81</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 220</td>
<td>60</td>
<td>0.6</td>
<td>125</td>
<td>3300</td>
<td>5.1</td>
<td>180</td>
<td>451</td>
<td>1.81</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 230</td>
<td>60</td>
<td>0.6</td>
<td>130</td>
<td>3300</td>
<td>5.2</td>
<td>184</td>
<td>451</td>
<td>1.81</td>
</tr>
</tbody>
</table>

MB1255-T meets UL and CSA Standards only.
Details of safety standards ➔ Page H-2

Air Flow – Static Pressure Characteristics

Dimensions
Unit = mm (in.)
Mass: 4 kg (8.8 lb.)
Protective Earth Terminal

Lead Wires 300 mm (12 in.)
UL Style 3271, AWG20
Cooling Fans

Introduction

Axial Flow Fans
Centrifugal Blowers
Cross Flow Fans
Cooling Module

Thermostats
Accessories
Installation

Capacitor (Included)

A
4.3
(0.169)
0.79
B
10
(0.39)
C
6
(0.24)

Panel Cut-Out
Unit = mm (in.)

Outlet Side
Intake Side

Capacitor Dimensions Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacitor Model</th>
<th>Capacitor Dimensions mm (in.)</th>
<th>Mass g (oz.)</th>
<th>Capacitor Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1255-B</td>
<td>CH100CFAUL</td>
<td>48 (1.89) 22.5 (0.89) 31.5 (1.24)</td>
<td>40 (1.41)</td>
<td>Included</td>
</tr>
<tr>
<td>MB1255-D</td>
<td>CH208FAUL</td>
<td>48 (1.89) 19 (0.75) 29 (1.14) 40 (1.41)</td>
<td>Included</td>
<td></td>
</tr>
</tbody>
</table>

Connection Diagrams

MB1255-B, MB1255-D

How to connect a capacitor → Page F-129

MB1255-T

Thermostats

A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger Guard</td>
<td>FGB12</td>
<td>F-118</td>
</tr>
<tr>
<td>Filter</td>
<td>FLB12</td>
<td>F-120</td>
</tr>
<tr>
<td>Mounting Bracket</td>
<td>PAS6A</td>
<td>F-125</td>
</tr>
<tr>
<td>Duct Joint</td>
<td>FD12</td>
<td>F-126</td>
</tr>
</tbody>
</table>

RoHS

Thermostats AM1-WA1/AM1-XA1

Page → F-113

Product Line

Fan Kit Model

- MB1255-B-GA
- MB1255-B-FA
- MB1255-D-GA
- MB1255-D-FA
- MB1255-T-GA
- MB1255-T-FA

- GA (Included with finger guard, mounting bracket and mounting screws)
- FA (Included with filter, mounting bracket and mounting screws)
- See page F-84 to determine base fan required (Voltage) and page F-81 for fan kits product number code.
AC Centrifugal Blower

**MB Series**

**Impeller Diameter**

\(\phi 100 \text{ mm (}\phi 3.94 \text{ in.})\)

### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage (VAC)</th>
<th>Frequency (Hz)</th>
<th>Current (A)</th>
<th>Input (W)</th>
<th>Speed (r/min)</th>
<th>Max. Air Flow (m³/min)</th>
<th>Max. Static Pressure (Pa)</th>
<th>Noise Level (dB (A))</th>
<th>Capacitor ((\mu F))</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1040-B</td>
<td>Single-Phase 100</td>
<td>50</td>
<td>0.55</td>
<td>45</td>
<td>2750</td>
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<td>81.2</td>
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<td>55</td>
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<td>81.2</td>
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<td>0.30</td>
<td>50</td>
<td>3100</td>
<td>2.6</td>
<td>91.8</td>
<td>304</td>
<td>1.22</td>
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<tr>
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<td>Single-Phase 220</td>
<td>60</td>
<td>0.30</td>
<td>55</td>
<td>3200</td>
<td>2.7</td>
<td>95.3</td>
<td>304</td>
<td>1.22</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>0.30</td>
<td>55</td>
<td>3250</td>
<td>2.4</td>
<td>84.7</td>
<td>304</td>
<td>1.22</td>
</tr>
</tbody>
</table>

### Air Flow – Static Pressure Characteristics

![Air Flow - Static Pressure Characteristics graph]

### Dimensions

**Unit = mm (in.)**

- **Mass:** 2 kg (4.4 lb.)
- **Protective Earth Terminal:** M4 E027
- **Lead Wires:** 300 mm (12 in.), UL Style 3286, AWG20
- **Rotation Direction:** R2 (R 0.08)
- **Unpainted:** \(\phi 10 (0.39)\)
- **Painted:** 25 (0.98)
- **Air Flow:** 134 (5.28)
- **Max. Air Flow:** 90 (3.54)
- **Max. Static Pressure:** 44.5 (1.75)
- **Noise Level:** 10 (0.39)
- **Operating Voltage Range:** \(\pm 10\%\)
- **Materials:**
  - Motor Case: Die Cast Aluminum
  - Casing: Die Cast Aluminum
  - Impeller: Aluminum
- **Overheat Protection:** Built-in Thermal Protector
- **Bearings:** Ball Bearings

Details of safety standards ➔ Page H-2

The following items are included in each product:

- Fan
- Capacitor*
- Capacitor Cap*
- Operating Manual

*Single-phase fans only

---

**Operating Voltage Range:** \(\pm 10\%\)

**Materials:**
- Motor Case: Die Cast Aluminum
- Casing: Die Cast Aluminum
- Impeller: Aluminum

**Overheat Protection:** Built-in Thermal Protector

**Bearings:** Ball Bearings
Cooling Fans

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Panel Cut-Out
Unit = mm (in.)

Capacitor Dimensions Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacitor Model</th>
<th>Capacitor Dimensions mm (in.)</th>
<th>Mass g (oz.)</th>
<th>Capacitor Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB1040-B</td>
<td>CH308FAUL</td>
<td>58 (2.28) 21 (0.83) 31 (1.22) 50 (1.77)</td>
<td>Included</td>
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<tr>
<td>MB1040-D</td>
<td>CH128FAUL</td>
<td>37 (1.46) 18 (0.71) 27 (1.06) 30 (1.06)</td>
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<td></td>
</tr>
</tbody>
</table>

Connection Diagram

Thermostats
A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

Thermostats AM1-WA1/AM1-XA1

Fan Kit
The lineup includes a product configuration containing all necessary accessories in one package.

Product Line

<table>
<thead>
<tr>
<th>Fan Kit Model</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-MB1040-B-GA</td>
<td>GA</td>
</tr>
<tr>
<td>T-MB1040-B-FA</td>
<td>FA</td>
</tr>
<tr>
<td>T-MB1040-D-GA</td>
<td>GA</td>
</tr>
<tr>
<td>T-MB1040-D-FA</td>
<td>FA</td>
</tr>
</tbody>
</table>

- GA (Included with finger guard, mounting bracket and mounting screws)
- FA (Included with filter, mounting bracket and mounting screws)
- See page F-86 to determine base fan required (Voltage) and page F-81 for fan kits product number code.
### Centrifugal Blowers/AC Input

#### AC Centrifugal Blower

**MB Series**

**Impeller Diameter**

$\phi$80 mm ($\phi$3.15 in.)

#### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current</th>
<th>Input</th>
<th>Speed r/min</th>
<th>Max. Air Flow m$^3$/min</th>
<th>Max. Static Pressure Pa</th>
<th>Noise Level in$\text{H}_2\text{O}$ dB (A)</th>
<th>Capacitor $\mu$F</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB840-B</td>
<td>Single-Phase 100</td>
<td>50</td>
<td>0.29</td>
<td>28</td>
<td>2800</td>
<td>1.6</td>
<td>56.5</td>
<td>152</td>
<td>0.61</td>
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<tr>
<td></td>
<td>Single-Phase 100</td>
<td>60</td>
<td>0.37</td>
<td>32</td>
<td>3150</td>
<td>1.8</td>
<td>63.5</td>
<td>221</td>
<td>0.886</td>
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<tr>
<td></td>
<td>Single-Phase 110</td>
<td>60</td>
<td>0.37</td>
<td>35</td>
<td>3300</td>
<td>1.8</td>
<td>63.5</td>
<td>226</td>
<td>0.906</td>
</tr>
<tr>
<td></td>
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<td>60</td>
<td>0.37</td>
<td>36</td>
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<td>63.5</td>
<td>226</td>
<td>0.906</td>
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<tr>
<td>MB840-D</td>
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<td>50</td>
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<td>28</td>
<td>2800</td>
<td>1.6</td>
<td>56.5</td>
<td>152</td>
<td>0.61</td>
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<tr>
<td></td>
<td>Single-Phase 200</td>
<td>60</td>
<td>0.18</td>
<td>32</td>
<td>3200</td>
<td>1.8</td>
<td>63.5</td>
<td>221</td>
<td>0.886</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 220</td>
<td>60</td>
<td>0.18</td>
<td>35</td>
<td>3350</td>
<td>1.8</td>
<td>63.5</td>
<td>226</td>
<td>0.906</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>50</td>
<td>0.15</td>
<td>35</td>
<td>2850</td>
<td>1.6</td>
<td>56.5</td>
<td>157</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>0.18</td>
<td>36</td>
<td>3350</td>
<td>1.8</td>
<td>63.5</td>
<td>226</td>
<td>0.906</td>
</tr>
<tr>
<td>MB840-T</td>
<td>Three-Phase 200</td>
<td>50</td>
<td>0.12</td>
<td>25</td>
<td>2800</td>
<td>1.6</td>
<td>56.5</td>
<td>152</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 200</td>
<td>60</td>
<td>0.15</td>
<td>28</td>
<td>3200</td>
<td>1.8</td>
<td>63.5</td>
<td>221</td>
<td>0.886</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 220</td>
<td>60</td>
<td>0.15</td>
<td>30</td>
<td>3350</td>
<td>1.8</td>
<td>63.5</td>
<td>226</td>
<td>0.906</td>
</tr>
<tr>
<td></td>
<td>Three-Phase 230</td>
<td>60</td>
<td>0.15</td>
<td>30</td>
<td>3350</td>
<td>1.8</td>
<td>63.5</td>
<td>226</td>
<td>0.906</td>
</tr>
</tbody>
</table>

- **MB840-T** meets UL and CSA Standards only.
- **Details of safety standards**: Page H-2

#### Air Flow – Static Pressure Characteristics

![Air Flow – Static Pressure Characteristics](image)

#### Dimensions  Unit = mm (in.)

- Mass: 1.3 kg (2.9 lb.)
- Protective Earth Terminal: M4
- Lead Wires: 300 mm (12 in.)
- UL Style 3266, AWG20

---

Operating Voltage Range: ±10%

- **Materials**
  - Motor Case: Die Cast Aluminum
  - Casing: Die Cast Aluminum
  - Impeller: Aluminum
- Overheat Protection: Built-in Thermal Protector
- Bearings: Ball Bearings
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Capacitor (Included)

Panel Cut-Out
Unit = mm (in.)

Capacitor Dimensions Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacitor Model</th>
<th>Capacitor Dimensions mm (in.)</th>
<th>Mass g (oz.)</th>
<th>Capacitor Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB840-B</td>
<td>CH15FAUL</td>
<td>31 (1.22) 14.5 (0.57) 23.5 (0.93)</td>
<td>35 (1.24)</td>
<td>Included</td>
</tr>
<tr>
<td>MB840-D</td>
<td>CH25FAUL</td>
<td>31 (1.22) 17 (0.67) 27 (1.06)</td>
<td>40 (1.41)</td>
<td>Included</td>
</tr>
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</table>

Connection Diagrams

MB840-B, MB840-D

MB840-T

Thermostats
A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

Thermostats AM1-WA1/AM1-XA1

Fan Kit
The lineup includes a product configuration containing all necessary accessories in one package.

Product Line

- GA (Included with finger guard, mounting bracket and mounting screws)
- FA (Included with filter, mounting bracket and mounting screws)
- See page F-88 to determine base fan required (Voltage) and page F-81 for fan kits product number code.

CAD Data
Manuals www.orientalmotor.com
Technical Support TEL: (800) 468-3982 E-mail: techsupport@orientalmotor.com
### Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current</th>
<th>Input</th>
<th>Speed</th>
<th>Max. Air Flow</th>
<th>Max. Static Pressure</th>
<th>Noise Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAC</td>
<td>Hz</td>
<td>A</td>
<td>W</td>
<td>r/min</td>
<td>m³/min</td>
<td>CFM</td>
<td>Pa</td>
</tr>
<tr>
<td>MB630-B</td>
<td>Single-Phase 100</td>
<td>50</td>
<td>0.11</td>
<td>8.0</td>
<td>2300</td>
<td>0.44</td>
<td>15.5</td>
<td>53</td>
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<tr>
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<td>Single-Phase 100</td>
<td>60</td>
<td>0.11</td>
<td>8.0</td>
<td>1900</td>
<td>0.36</td>
<td>12.7</td>
<td>76</td>
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<td>2300</td>
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<td>77</td>
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<td>60</td>
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<td>10.0</td>
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<td>0.49</td>
<td>17.3</td>
<td>79</td>
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<td>Single-Phase 200</td>
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<td>0.08</td>
<td>12.0</td>
<td>2500</td>
<td>0.49</td>
<td>17.3</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 200</td>
<td>60</td>
<td>0.08</td>
<td>11.0</td>
<td>2600</td>
<td>0.50</td>
<td>17.7</td>
<td>83</td>
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<tr>
<td></td>
<td>Single-Phase 220</td>
<td>60</td>
<td>0.08</td>
<td>13.0</td>
<td>2900</td>
<td>0.55</td>
<td>19.4</td>
<td>83</td>
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<tr>
<td></td>
<td>Single-Phase 230</td>
<td>50</td>
<td>0.09</td>
<td>16.0</td>
<td>2600</td>
<td>0.50</td>
<td>17.7</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Single-Phase 230</td>
<td>60</td>
<td>0.08</td>
<td>14.0</td>
<td>2900</td>
<td>0.55</td>
<td>19.4</td>
<td>83</td>
</tr>
</tbody>
</table>

**Details of safety standards ➜ Page H-2**

### Air Flow – Static Pressure Characteristics

- Operating Voltage Range: ±10%
- Materials:
  - Motor Case: Die Cast Aluminum
  - Casing: Die Cast Aluminum
  - Impeller: Aluminum
- Overheat Protection: Impedance Protected
- Bearings: Ball Bearings

### Dimensions (Unit = mm (in.))

- Mass: 0.5 kg (1.1 lb.)
- DXT E063

- **Φ10 (Φ0.39)**
  - Unpainted
- **Φ15 (Φ0.59)**
  - Protective Earth Terminal M4
- **Φ20 (Φ0.79)**
- **(9) (0.35)**
  - **(1.38)**
  - **(R0.84)**
- **(35) (1.38)**
  - **(R1)**
  - **(75) (2.95)**
- **(40) (1.57)**
- **(15) (0.59)**
  - **(3) (0.12)**
- **(3×M3)**
  - Lead Wires 300 mm (12 in.)
  - UL Style 3266, AWG20
Cooling Fans

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Connection Diagram

Thermostats
A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

- Thermostats AM1-WA1/AM1-XA1
- Page F-113

Fan Kit
The lineup includes a product configuration containing all necessary accessories in one package.

- Mounting Bracket PA52B Page F-125

Panel Cut-Out
Unit = mm (in.)

Outlet Side
Intake Side

35 (1.38)

3×Ø3.5
(±0.138)

120˚

Mounting Screws [M4×10 mm (0.39 in.)]

Product Line

<table>
<thead>
<tr>
<th>Fan Kit Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-MB630-B-A</td>
<td></td>
</tr>
<tr>
<td>T-MB630-D-A</td>
<td></td>
</tr>
</tbody>
</table>

See page F-90 to determine base fan required (Voltage) and page F-81 for fan kits product number code.

Accessories

- Mounting Bracket
- PE
- Line

CAD Data Manuals
www.orientalmotor.com
Technical Support
TEL: (800) 468-3982
E-mail: techsupport@orientalmotor.com

F-91
AC Centrifugal Blower
MB Series

Impeller Diameter
φ50 mm (φ1.97 in.)

Specifications (RoHS)

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current A</th>
<th>Input W</th>
<th>Speed r/min</th>
<th>Max. Air Flow m³/min</th>
<th>CFM</th>
<th>Max. Static Pressure Pa</th>
<th>inH₂O</th>
<th>Noise Level dB (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB520-B</td>
<td>Single-Phase 100</td>
<td>50 Hz</td>
<td>0.11</td>
<td>8</td>
<td>2600</td>
<td>0.21</td>
<td>7.41</td>
<td>37</td>
<td>0.149</td>
<td>33</td>
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<td></td>
<td>Single-Phase 100</td>
<td>60 Hz</td>
<td>0.10</td>
<td>7</td>
<td>3000</td>
<td>0.24</td>
<td>8.47</td>
<td>53</td>
<td>0.213</td>
<td>37</td>
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<tr>
<td></td>
<td>Single-Phase 110</td>
<td>50 Hz</td>
<td>0.11</td>
<td>8.5</td>
<td>3200</td>
<td>0.25</td>
<td>8.83</td>
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<tr>
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<td>Single-Phase 115</td>
<td>60 Hz</td>
<td>0.11</td>
<td>9</td>
<td>3200</td>
<td>0.25</td>
<td>8.83</td>
<td>55</td>
<td>0.221</td>
<td>38</td>
</tr>
<tr>
<td>MB520-D</td>
<td>Single-Phase 200</td>
<td>50 Hz</td>
<td>0.09</td>
<td>11</td>
<td>2650</td>
<td>0.22</td>
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<td>3200</td>
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<tr>
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<td>0.23</td>
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<td>0.16</td>
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<tr>
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<td>Single-Phase 230</td>
<td>60 Hz</td>
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<td>13</td>
<td>3300</td>
<td>0.27</td>
<td>9.53</td>
<td>60</td>
<td>0.241</td>
<td>38</td>
</tr>
</tbody>
</table>

Air Flow – Static Pressure Characteristics

Dimensions
Unit = mm (in.)

- Mass: 0.3 kg (0.7 lb.)
- Φ10 (±0.39)
- Protective Earth Terminal M4
- Unpainted
- 25 (0.98)
- 20.5 (0.81)
- 10 (0.39)
- 4 (0.16)
- 20 (0.79)
- 8 (0.31)
- 78 (3.07)
- 70.5 (2.76)
- 0.5 (0.02)
- 0.5 (0.02)
- 70.5 (2.76)
- 4 (0.16)
- 0.5 (0.02)
- 0.5 (0.02)
- 22.5
- Lead Wires 300 mm (12 in.)
- UL Style 3266, AWG20
Cooling Fans

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Thermostats

A thermostat makes it possible for fans to operate only when cooling is necessary, thereby conserving energy.

Thermostats

AM1-WA1/AM1-XA1

Connection Diagram

Outlet Side

Intake Side

Panel Cut-Out Unit = mm (in.)

20.5
(0.81)

120°

3 × ø3.5
(ø1.38)

98 (3.89)

Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting Bracket</td>
<td>PA52B</td>
<td>F-125</td>
</tr>
</tbody>
</table>

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

Fan Kit Model

T-MB520-B-A
T-MB520-D-A

See page F-92 to determine base fan required (Voltage) and page F-81 for fan kits product number code.
DC Centrifugal Blower
MBD Series

Impeller Diameter
ϕ120 mm (ϕ4.72 in.)

Specifications (RoHS)

<table>
<thead>
<tr>
<th>Function</th>
<th>Model</th>
<th>Voltage</th>
<th>Current</th>
<th>Speed</th>
<th>Max. Air Flow</th>
<th>Max. Static Pressure</th>
<th>Noise Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Speed Alarm, Contact Alarm Type</td>
<td>MBD12-24A</td>
<td>24 VDC</td>
<td>1.5 A</td>
<td>1900</td>
<td>3.0 m³/min</td>
<td>106 Pa</td>
<td>1.49 dB (A)</td>
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<tr>
<td>Standard Type</td>
<td>MBD12-24</td>
<td>24 VDC</td>
<td>1.5 A</td>
<td>1900</td>
<td>3.0 m³/min</td>
<td>106 Pa</td>
<td>1.49 dB (A)</td>
</tr>
</tbody>
</table>

Alarm specifications ⑦ ➜ Page F-22

The following items are included in each product.

- Fan, Operating Manual

Air Flow – Static Pressure Characteristics

Dimensions  Unit = mm (in.)

Mass: 1.5 kg (3.3 lb.)

- DXF E031

- Lead Wires 300 mm (12 in.)
  - UL Style 1007, AWG24

Operating Voltage Range: ±10%

- Materials
  - Motor Case: Die Cast Aluminum
  - Casing: Die Cast Aluminum
  - Impeller: Aluminum

- Overheat Protection: Built-in Overheat Protection Circuit
- Bearings: Ball Bearings
Cooling Fans

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AC Input
DC Input
AC Input
DC Input
AC Input
DC Input

MRS
Var
Variable Flow
MRSMU
MDS/MD
Long-Life
MDEMB
MBDM
FDFM
FM

Panel Cut-Out  Unit = mm (in.)

Outlet Side
Intake Side

58 (2.28)

96 (3.78)

96 (3.78)

24 VDC
Red
Black
White
Blue
GND
Alarm Output (Alarm type only)

Connection Diagram

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

RoHS

Fan
Mounting Bracket
Finger Guard or Filter
Mounting Screws
[M5×20 mm (0.79 in.)]

Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger Guard</td>
<td>FGB12</td>
<td>F-118</td>
</tr>
<tr>
<td>Filter</td>
<td>FLB12</td>
<td>F-120</td>
</tr>
<tr>
<td>Mounting Bracket</td>
<td>PAS4B</td>
<td>F-125</td>
</tr>
<tr>
<td>Duct Joint</td>
<td>FD12</td>
<td>F-126</td>
</tr>
</tbody>
</table>

Product Line

Fan Kit Model

T-MBD12-24A-GA
T-MBD12-24A-FA
T-MBD12-24-GA
T-MBD12-24-FA

- GA (Included with finger guard, mounting bracket and mounting screws)
- FA (Included with filter, mounting bracket and mounting screws)

See page F-94 to determine base fan required (Voltage/Alarm) and page F-81 for fan kits product number code.
DC Centrifugal Blower
MBD Series

Impeller Diameter
ϕ100 mm (ϕ3.94 in.)

Specifications (RoHS)

<table>
<thead>
<tr>
<th>Function</th>
<th>Model</th>
<th>Voltage</th>
<th>Current</th>
<th>Speed</th>
<th>Max. Air Flow</th>
<th>Max. Static Pressure</th>
<th>Noise Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Speed Alarm, Contact Alarm Type</td>
<td>MBD10-24A</td>
<td>24</td>
<td>1.0</td>
<td>2400</td>
<td>1.95</td>
<td>68.8</td>
<td>294</td>
</tr>
<tr>
<td>Pulse Sensor Type</td>
<td>MBD10-24S</td>
<td>24</td>
<td>1.0</td>
<td>2400</td>
<td>1.95</td>
<td>68.8</td>
<td>294</td>
</tr>
<tr>
<td></td>
<td>MBD10-48S</td>
<td>48</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Type</td>
<td>MBD10-24</td>
<td>24</td>
<td>1.0</td>
<td>2400</td>
<td>1.95</td>
<td>68.8</td>
<td>294</td>
</tr>
<tr>
<td></td>
<td>MBD10-48</td>
<td>48</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alarm specifications ③, ⑨ ➜ Page F-22

The following items are included in each product

Fan, Operating Manual

Air Flow – Static Pressure Characteristics

Dimensions
Unit = mm (in.)

Mass: 1.2 kg (2.6 lb.)
Cooling Fans

Panel Cut-Out  Unit = mm (in.)

44.5 (1.75)

Outlet Side  Intake Side

Connection Diagrams

Low-Speed Alarm, Contact Alarm Type

24 VDC or 48 VDC

Red  +  Black  White  Blue  GND  Alarm Output

Pulse Sensor Type, Standard Type

24 VDC or 48 VDC

Red  +  Black  GND  Yellow  Pulse Sensor Output (Pulse sensor type only)

Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger Guard</td>
<td>FG10</td>
<td>F-118</td>
</tr>
<tr>
<td>Filter</td>
<td>FLB10</td>
<td>F-120</td>
</tr>
<tr>
<td>Mounting Bracket</td>
<td>PAS4B</td>
<td>F-125</td>
</tr>
<tr>
<td>Duct Joint</td>
<td>FD10</td>
<td>F-126</td>
</tr>
</tbody>
</table>

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

Product Line

<table>
<thead>
<tr>
<th>Fan Kit Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-MBD10-24A-GA</td>
</tr>
<tr>
<td>T-MBD10-24A-FA</td>
</tr>
<tr>
<td>T-MBD10-24S-GA</td>
</tr>
<tr>
<td>T-MBD10-24S-FA</td>
</tr>
<tr>
<td>T-MBD10-24-GA</td>
</tr>
<tr>
<td>T-MBD10-24-FA</td>
</tr>
<tr>
<td>T-MBD10-48S-GA</td>
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<tr>
<td>T-MBD10-48S-FA</td>
</tr>
<tr>
<td>T-MBD10-48-GA</td>
</tr>
<tr>
<td>T-MBD10-48-FA</td>
</tr>
</tbody>
</table>

- **GA** (included with finger guard, mounting bracket and mounting screws)
- **FA** (included with filter, mounting bracket and mounting screws)
- See page F-96 to determine base fan required (Voltage/Alarm) and page F-81 for fan kits product number code.
DC Centrifugal Blower
MBD Series
Impeller Diameter
ϕ80 mm (ϕ3.15 in.)

Specifications (RoHS)

<table>
<thead>
<tr>
<th>Function</th>
<th>Model</th>
<th>Voltage VDC</th>
<th>Current A</th>
<th>Speed r/min</th>
<th>Max. Air Flow m³/min</th>
<th>Max. Static Pressure Pa</th>
<th>Noise Level dB (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Speed Alarm, Contact Alarm Type</td>
<td>MBD8-24A</td>
<td>24</td>
<td>0.7</td>
<td>2600</td>
<td>1.45</td>
<td>51.2</td>
<td>196</td>
</tr>
<tr>
<td>(Alarm specifications: ⑦)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.786</td>
</tr>
<tr>
<td>Pulse Sensor Type</td>
<td>MBD8-24S</td>
<td>24</td>
<td>0.7</td>
<td>2600</td>
<td>1.45</td>
<td>51.2</td>
<td>196</td>
</tr>
<tr>
<td>(Alarm specifications: ⑨)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.786</td>
</tr>
<tr>
<td>Standard Type</td>
<td>MBD8-48</td>
<td>48</td>
<td>0.5</td>
<td>2600</td>
<td>1.45</td>
<td>51.2</td>
<td>196</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.786</td>
</tr>
</tbody>
</table>

The following items are included in each product.
Fan, Operating Manual

Air Flow – Static Pressure Characteristics

Dimensions
Unit = mm (in.)
Mass: 1.1 kg (2.4 lb.)

Lead Wires 300 mm (12 in.)
UL Style 1007, AWG24
Cooling Fans

Introduction

Axial Flow Fans
Centrifugal Blowers
Cross Flow Fans
Cooling
Module

Thermostats

Accessories

Outlet Side
Intake Side

Panel Cut-Out  Unit = mm (in.)

Connection Diagrams

Low-Speed Alarm, Contact Alarm Type

Pulse Sensor Type, Standard Type

Accessories

<table>
<thead>
<tr>
<th>Product</th>
<th>Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger Guard</td>
<td>FGB8</td>
<td>F-118</td>
</tr>
<tr>
<td>Filter</td>
<td>FLB8</td>
<td>F-120</td>
</tr>
<tr>
<td>Mounting Bracket</td>
<td>PAS4B</td>
<td>F-125</td>
</tr>
<tr>
<td>Duct Joint</td>
<td>FD8</td>
<td>F-126</td>
</tr>
</tbody>
</table>

Fan Kit

The lineup includes a product configuration containing all necessary accessories in one package.

Product Line

<table>
<thead>
<tr>
<th>Fan Kit Model</th>
</tr>
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<tbody>
<tr>
<td>T-MBD8-24A-GA</td>
</tr>
<tr>
<td>T-MBD8-24A-FA</td>
</tr>
<tr>
<td>T-MBD8-24S-GA</td>
</tr>
<tr>
<td>T-MBD8-24S-FA</td>
</tr>
<tr>
<td>T-MBD8-24-GA</td>
</tr>
<tr>
<td>T-MBD8-24-FA</td>
</tr>
<tr>
<td>T-MBD8-48S-GA</td>
</tr>
<tr>
<td>T-MBD8-48S-FA</td>
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<tr>
<td>T-MBD8-48-GA</td>
</tr>
<tr>
<td>T-MBD8-48-FA</td>
</tr>
</tbody>
</table>

- GA (Included with finger guard, mounting bracket and mounting screws)
- FA (Included with filter, mounting bracket and mounting screws)

See page F-88 to determine base fan required (Voltage/Alarm) and page F-81 for fan kits product number code.