

Orientalmotor

Long Life AC Axial Flow Fans

MRE Series

The **MRE** Series long-life fans have an expected life of 100,000 hours and are available with a low speed alarm. All **MRE** Series fans include all components for easy installation.



■ Features

● The Expected Life of 100000 Hours

These axial flow fans have an expected life of 100000 hours (about 11 years).

They reduce the increase in bearing temperature, inhibit grease deterioration and improve vibration resistance and shock resistance through bearing enlargement. They also increase the life of circuits and couplers and reduce failure rate. They are designed based on the concept of initial failure so that random failure and wear-out failure will not occur, allowing for 100000 hours of continuous operation or more (survival rate of 90% or higher).

About Expected Life

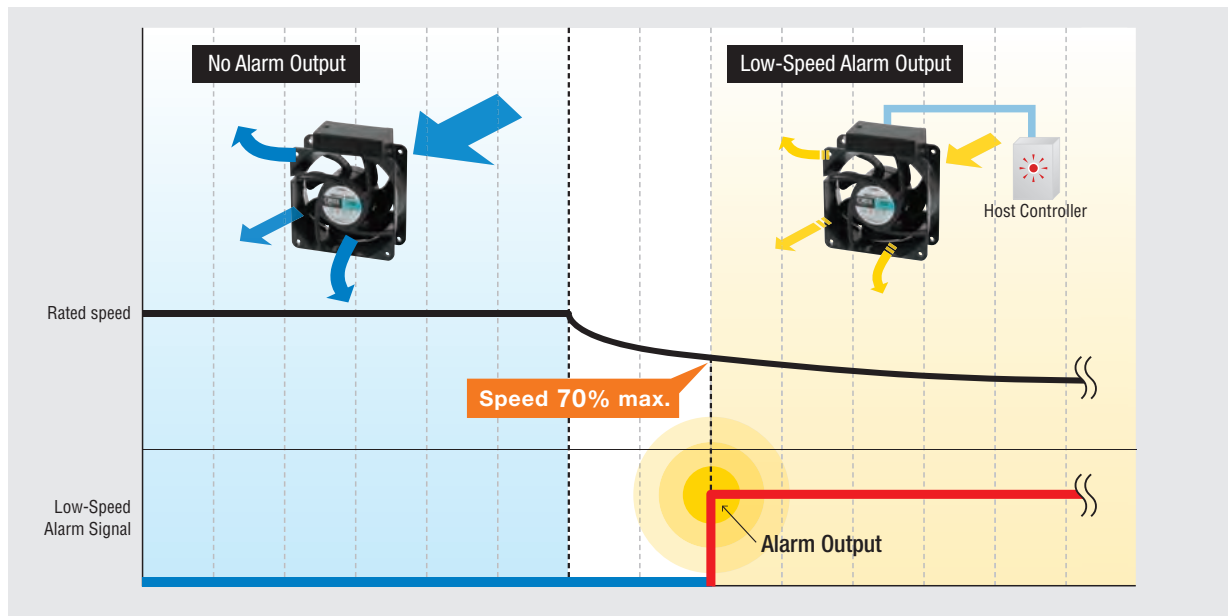
The 100000 hours of expected life indicates that more than 90% of fans will satisfy the following criteria when used at an ambient temperature of 60°C (140°F).

Criteria: Speed (at rated voltage): Greater than 70% of rated speed

Input Current (at rated voltage): Less than 130% of rated current

● The Low-Speed Alarm:

An alarm is output when the fan speed drops to 70% or less.



● Easy-to-Connect Fan Types are also Available.

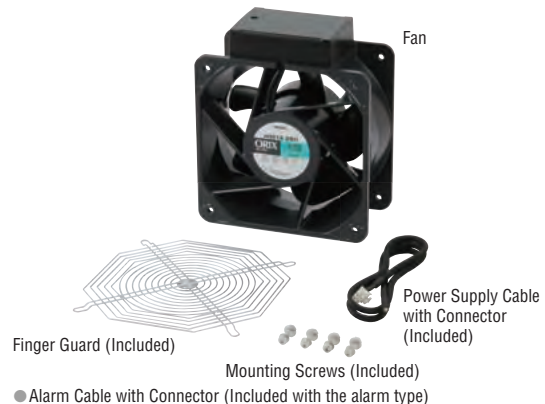
We have a cable with a connector for easy connection in addition to the standard lead wire type.

The connector type fan can reduce wiring.

Maintenance is also very easy because the fans can be replaced just by disconnecting the connector.

● All Necessary Items for Installation are Included.

The finger guard, cable with connector and mounting screws are included, so they can be used immediately.

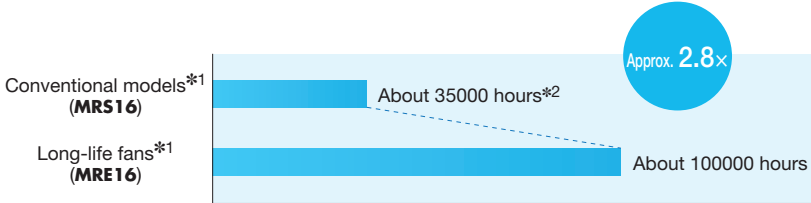


■ The Advantages of Using Long-life Axial Flow Fans

● Reduction of Equipment Maintenance

Long-life axial flow fans have an expected life of 100000 hours, so the number of cooling fans that need replacing is decreased compared to conventional models.

▼ Comparison of the service life of conventional models and long-life fans (example)



*1 The conventional models are **T-MRS16-BTA-G** and **MRS16-BTA**. The long-life fan is **MRE16-BBHG**.

*2 Estimated life of 35000 hours with an ambient temperature of 60°C (140°F). Estimated life is an estimated value calculated using the bearing life-of-grease formula. Estimated life is different for each model.

● Equipment That Requires High Reliability

Expected life of 100000 hours or more (continuous operation).

Suitable for applications where continuous operation is required when a failure has had a large effect on systems and equipment.

[Applications]

- Back-up equipment for power failures
- Equipment installed in data centers, etc.
- Plant equipment that is continuously operational

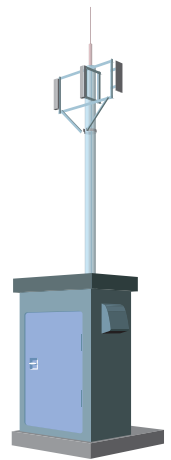
● Early Detection of Reduced Air Flow Capacity and Other Abnormalities (Low-Speed Alarm)

If the cooling fan is a low-speed alarm type, early detection and handling of abnormalities is possible. This protects the equipment and entire system from the risk of reduced air flow capacity and stalling due to unexpected troubles, increasing reliability.

● Hard-to-service Environments

[Examples of Hard-to-service Environments]

- Equipment that is continuously operational and cannot be stopped
- Areas that are hard to enter
- Equipment that is delivered to and installed in remote locations



General Specifications

AC Axial Flow Fans

Item	Specifications
Insulation Resistance	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.
Dielectric Strength	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.
Temperature Rise	30°C (54°F) or less measured by the thermometer method after the temperature of the case has stabilized after continuous operation under normal ambient temperature and humidity.
Operating Voltage Range	±10% of the rated voltage
Thermal Class	UL/CSA standards: 105 (A), EN standards: 120 (E)
Overheat Protection	MRE Series has built-in thermal protector. (automatic return type) Open: 120±5°C (248±9°F), Close: 77±15°C (170.6±27°F)
Operating Environment	Provided in a separate box.
Storage Condition	Provided in a separate box.
Color	Frame: Dark Gray Blades: Black
Materials	Frame: Die cast aluminum Blades: Polycarbonate (Flammability grade: V-0)

Operating Environment and Storage Condition

Type	Operating Environment*1		Storage Condition*1 *2		Environmental Standards
	Ambient Temperature	Ambient Humidity	Ambient Temperature	Ambient Humidity	
Standard Type	-30~+60°C (-22~+140°F)	85% or less (non-condensing)	-40~+70°C (-40~+158°F)	85% or less (non-condensing)	Compliant with ETSI standards*3
Low-Speed Alarm Type	-20~+60°C (-4~+140°F)		-20~+70°C (-4~+158°F)		

*1 The operating environment and storage conditions require no condensation, no freezing and no vibration or external force other from the fan.

*2 The storage condition applies to a short period such as a period during transportation.

*3 The operating environment and storage condition are compliant with the following environmental standards:

- ETSI EN 300 019-2-1 V2.1.2 (2000-09) Class 1.3E Storage
- ETSI EN 300 019-2-2 V2.1.2 (1999-09) Class 2.3 Transportation
- ETSI EN 300 019-2-3 V2.2.2 (2003-04) Class 3.4 Stationary use

Test Name	Environmental Standards	Conditions and Test Details
Heat Cycle Test	ETSI EN 300 019-2-1 ETSI EN 300 019-2-2 ETSI EN 300 019-2-3	5 cycles at -40~+30°C (-40~+86°F), temperature gradient: 1.0°C (1.8°F)/min. Low temperature: [-40°C (-40°F)]. High temperature: [+30°C (+86°F)]. Shelf time: 3 hours No abnormality after the test.
Low-Temperature Shelf Test		-45°C (-49°F). Shelf time: 72 hours. No abnormality after the test.

● Environmental Standards: ETSI

ETSI is the abbreviation for the European Telecommunications Standards Institute, and is a standardization organization established to formulate standard models for telecommunications in Europe. The ETSI EN 300 019 series are standards based on IEC 60721, established for environmental conditions for devices, and provide specific definitions of environmental conditions along with test conditions.

Product Number Code

MRE 16 - B B H G

① ② ③ ④ ⑤ ⑥

MRE 16 - T H 2 G

① ② ③ ⑤ ⑦ ⑥

①	Series Name	MRE Series
②	Frame Size	16 : 160 mm (6.30 in.), 18 : 180 mm (7.09 in.)
③	Voltage	B : Single-Phase 100/110/115 VAC D : Single-Phase 200/230 VAC T : Three-Phase 200/220/230 VAC
④	Additional Function	Blank: With no Additional Functions A : Low-Speed Alarm, Contact Alarm Type (Normal Operation: Contact OFF) B : Low-Speed Alarm, Contact Alarm Type (Normal Operation: Contact ON) M : Low-Speed Alarm, Electronic Alarm Type
⑤	Connection Type	H : With Connector
⑥	Accessory	G : Finger Guard
⑦	Reference Number	

Low-Speed Alarm Specifications

The alarm specifications vary depending on the type of alarm.

Check the alarm and sensor specifications according to the model name you use.

Specifications can also be referred to by the alarm specifications number and the sensor specifications number shown on the specifications for each product.

Low-Speed Alarm, Contact Alarm Type

An alarm is output when the fan speed drops to a specific level. Output mode is contact output.

①	<p>● Models ◇ MRE Series: MRE18-□BHG, MRE16-□BHG</p> <p>● Alarm Specifications</p> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>1800±300 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Relay Output</td> </tr> <tr> <td>Output Condition</td> <td>Normal Operation: Contact ON Alarm Output: Contact OFF</td> </tr> <tr> <td>Maximum Rating</td> <td>Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)</td> </tr> <tr> <td>Delay Function</td> <td>None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)</td> </tr> </table>	Alarm Activation Speed	1800±300 r/min	Output Mode	Relay Output	Output Condition	Normal Operation: Contact ON Alarm Output: Contact OFF	Maximum Rating	Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)	Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)	<p>● Example of Alarm Output Circuit Connection</p>
Alarm Activation Speed	1800±300 r/min											
Output Mode	Relay Output											
Output Condition	Normal Operation: Contact ON Alarm Output: Contact OFF											
Maximum Rating	Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)											
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)											

②	<p>● Models ◇ MRE Series: MRE18-□AHG, MRE16-□AHG</p> <p>● Alarm Specifications</p> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>1800±300 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Relay Output</td> </tr> <tr> <td>Output Condition</td> <td>Normal Operation: Contact OFF Alarm Output: Contact ON</td> </tr> <tr> <td>Maximum Rating</td> <td>Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)</td> </tr> <tr> <td>Delay Function</td> <td>None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)</td> </tr> </table>	Alarm Activation Speed	1800±300 r/min	Output Mode	Relay Output	Output Condition	Normal Operation: Contact OFF Alarm Output: Contact ON	Maximum Rating	Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)	Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)	<p>● Example of Alarm Output Circuit Connection</p>
Alarm Activation Speed	1800±300 r/min											
Output Mode	Relay Output											
Output Condition	Normal Operation: Contact OFF Alarm Output: Contact ON											
Maximum Rating	Contact capacity Resistive load max. 10 VA (max. 100 V/max. 0.5 A) Minimum load 5 VDC 1 mA (Design your circuit to operate at 0.5 mA max.)											
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)											

Low-Speed Alarm, Electronic Alarm Type

An alarm is output when the fan speed drops to a specific level. Output mode is electronic output.

③	<p>● Models ◇ MRE Series: MRE18-□MHG, MRE16-□MHG</p> <p>● Alarm Specifications</p> <table border="1"> <tr> <td>Alarm Activation Speed</td> <td>1800±300 r/min</td> </tr> <tr> <td>Output Mode</td> <td>Open-Collector Output</td> </tr> <tr> <td>Output Condition</td> <td>Normal Operation: L Level (Internal transistor ON) Alarm Output: H Level (Internal transistor OFF)</td> </tr> <tr> <td>Maximum Rating</td> <td>Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.</td> </tr> <tr> <td>Delay Function</td> <td>None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)</td> </tr> </table>	Alarm Activation Speed	1800±300 r/min	Output Mode	Open-Collector Output	Output Condition	Normal Operation: L Level (Internal transistor ON) Alarm Output: H Level (Internal transistor OFF)	Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.	Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)	<p>● Example of Alarm Output Circuit Connection</p>
Alarm Activation Speed	1800±300 r/min											
Output Mode	Open-Collector Output											
Output Condition	Normal Operation: L Level (Internal transistor ON) Alarm Output: H Level (Internal transistor OFF)											
Maximum Rating	Maximum Applied Voltage: 30 VDC max. Maximum Inflow Current: 15 mA max.											
Delay Function	None (External delay circuit is required to prevent alarm detection when starting the fan. The delay time should be 10 sec. min.)											

AC Long Life Axial Flow Fans MRE Series

180 mm – 90 mm Thick
(7.09 in. – 3.54 in. Thick)



With Alarm

Operating Voltage Range: $\pm 10\%$ (Applies to each voltage)

Materials

Frame: Die cast aluminum

Blades: Polycarbonate (Flammability grade V-0)

Overheat Protection: Built-in thermal protector

Bearings: Ball bearings

Specifications (RoHS)



Type	Model	Voltage VAC	Frequency Hz	Current A	Input W	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
							m ³ /min	CFM	Pa	inH ₂ O	
Low-Speed Alarm Contact Alarm Type <Alarm Specifications: ①> (Normal Operation: Contact ON)	MRE18-BBHG	Single-Phase 100	50	0.57	54.5	2850	11	388	196	0.786	56
		Single-Phase 100	60	0.75	76	3300	12.8	452	245	0.982	60
		Single-Phase 110	60	0.73	81	3350	12.8	452	245	0.982	61
		Single-Phase 115	60	0.72	84	3350	12.8	452	245	0.982	61
	MRE18-DBHG	Single-Phase 200	50	0.27	54.5	2850	11	388	196	0.786	56
		Single-Phase 200	60	0.36	70	3300	12.8	452	245	0.982	60
		Single-Phase 230	60	0.34	77	3350	12.8	452	245	0.982	61
	MRE18-TBHG	Three-Phase 200	50	0.24	52	2850	11	388	196	0.786	56
		Three-Phase 200	60	0.25	70	3300	12.8	452	245	0.982	60
		Three-Phase 220	60	0.25	74	3350	12.8	452	245	0.982	61
		Three-Phase 230	60	0.26	76	3350	12.8	452	245	0.982	61
	Standard Type	MRE18-BHG	Single-Phase 100	50	0.57	54.5	2850	11	388	196	0.786
Single-Phase 100			60	0.75	76	3300	12.8	452	245	0.982	60
Single-Phase 110			60	0.73	81	3350	12.8	452	245	0.982	61
Single-Phase 115			60	0.72	84	3350	12.8	452	245	0.982	61
MRE18-DHG		Single-Phase 200	50	0.27	54.5	2850	11	388	196	0.786	56
		Single-Phase 200	60	0.36	70	3300	12.8	452	245	0.982	60
		Single-Phase 230	60	0.34	77	3350	12.8	452 </tr			

● Alarm specifications ① → Page 4

● Low-speed alarms of other specifications are also available.

Contact Alarm Type (Normal operation: Contact OFF): **MRE18-□AHG** Alarm specifications ② → Page 4

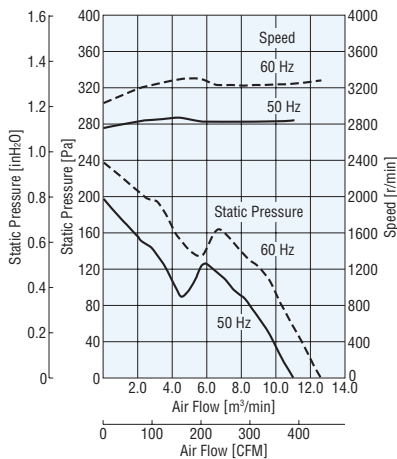
Electronic Alarm Type: **MRE18-□MHG** Alarm specifications ③ → Page 4

The following items are included in each product.

Fan, Finger Guard, Mounting Screws [M5×20 mm (0.79 in.)], Power Supply Cable, Alarm Cable (included with the alarm type), Operating Manual

Air Flow – Static Pressure Characteristics

(Characteristics when a finger guard is not installed)



Other Low-Speed Alarm Type

MRE Series has other low-speed alarm fans. For details on this product please refer to our website, contact technical support or your nearest Oriental Motor sales office. www.orientalmotor.com

Low-Speed Alarm Type	Voltage	Model
Contact Alarm Type (Normal Operation: Contact OFF)	Single-Phase 100/110/115 VAC	MRE18-BAHG
	Single-Phase 200/230 VAC	MRE18-DAHG
	Three-Phase 200/220/230 VAC	MRE18-TAHG
Electronic Alarm Type	Single-Phase 100/110/115 VAC	MRE18-BMHG
	Single-Phase 200/230 VAC	MRE18-DMHG
	Three-Phase 200/220/230 VAC	MRE18-TMHG

● Either **B**, **D** or **T** indicating voltage is entered in the box □ is located within the product name.

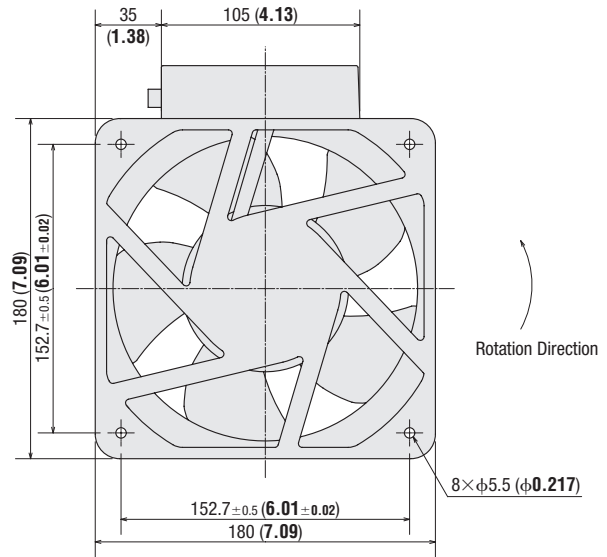
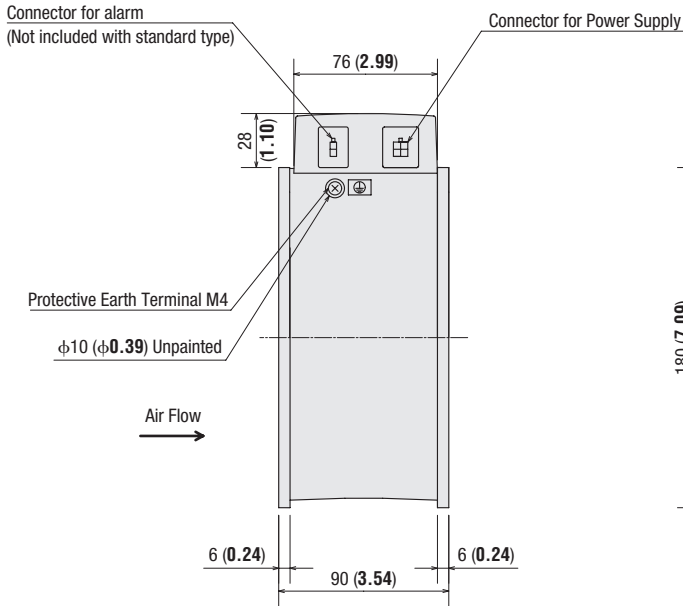
■ Dimensions Unit = mm (in.)

● Fan

Mass: 2.5 kg (5.5 lb.)

Standard Type **DXF** E150

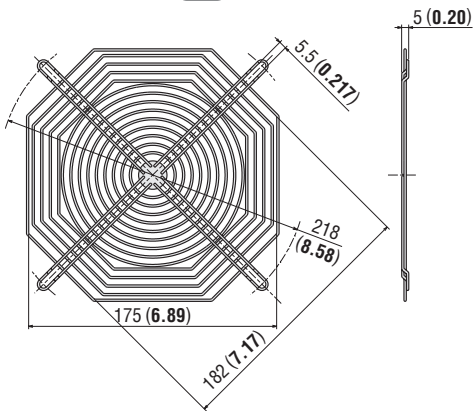
Alarm Type **DXF** E151



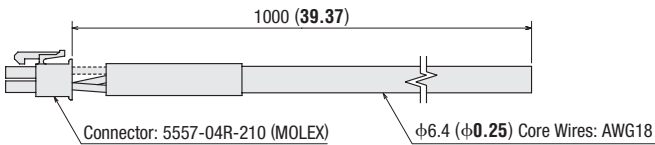
● Finger Guard (Included)

Conformed Component for Safety Standards

Mass: 95 g (3.4 oz.) **DXF** E055

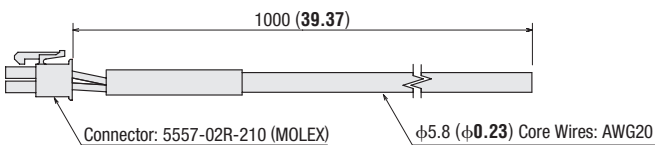


● Power Supply Cable with Connector (Included)

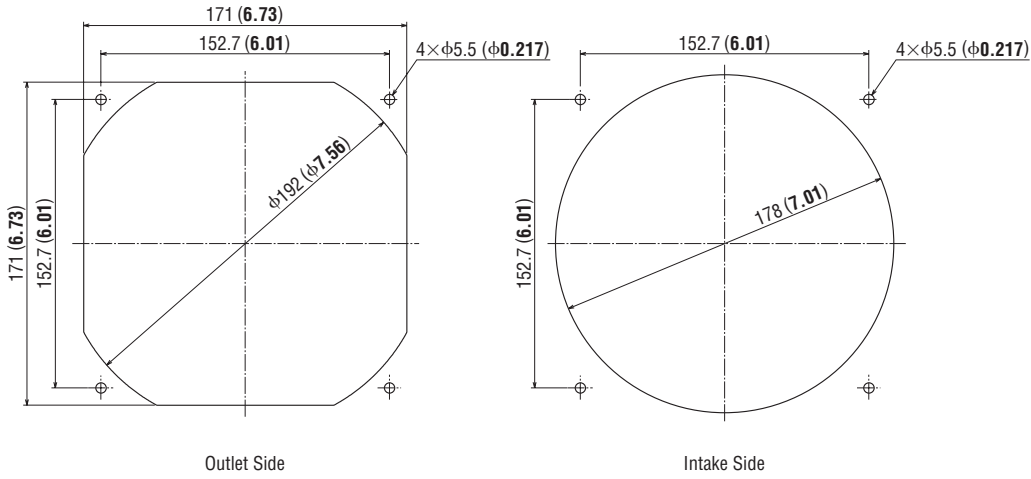


● The  area is not available with the single-phase type.

● Alarm Cable with Connector (Included with the alarm type)

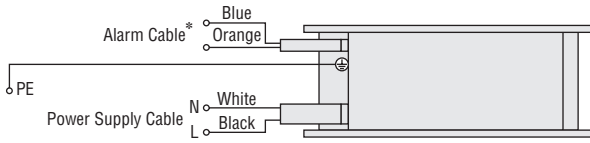


Panel Cut-Out Unit = mm (in.)

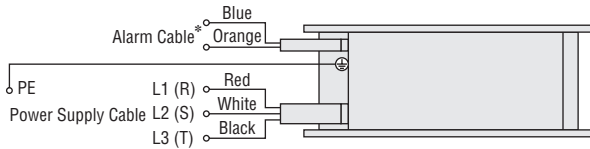


Connection Diagram

Single-Phase



Three-Phase



*Included with the alarm type

Accessories

Product	Product Name
Finger Guard*	FG18D
Filter	FL18

*Another finger guard needs to be purchased separately when using the finger guard on both sides.

● For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

AC Long Life Axial Flow Fans MRE Series

160 mm – 62 mm Thick
 6.30 in. – 2.44 in. Thick



With Alarm

Operating Voltage Range: $\pm 10\%$ (Applies to each voltage)

Materials

- Frame: Die cast aluminum
- Blades: Polycarbonate (Flammability grade V-0)
- Overheat Protection: Built-in thermal protector
- Bearings: Ball bearings



Specifications (RoHS)

Type	Model	Voltage VAC	Frequency Hz	Current A	Input W	Speed r/min	Max. Air Flow		Max. Static Pressure		Noise Level dB (A)
							m ³ /min	CFN	Pa	inH ₂ O	
Low-Speed Alarm Contact Alarm Type <Alarm Specifications: ①> (Normal Operation: Contact ON)	MRE16-BBHG	Single-Phase 100	50	0.45	39	2800	6.2	219	127	0.509	49
		Single-Phase 100	60	0.44	41	3250	7.3	258	157	0.63	52
		Single-Phase 110	60	0.46	48	3300	7.3	258	157	0.63	53
		Single-Phase 115	60	0.48	51	3300	7.3	258	157	0.63	53
	MRE16-DBHG	Single-Phase 200	50	0.21	39	2800	6.2	219	127	0.509	49
		Single-Phase 200	60	0.21	41	3250	7.3	258	157	0.63	52
		Single-Phase 230	60	0.22	51	3300	7.3	258	157	0.63	53
	MRE16-TBHG	Three-Phase 200	50	0.15	33	2800	6.2	219	127	0.509	49
		Three-Phase 200	60	0.13	37	3250	7.3	258	157	0.63	52
		Three-Phase 220	60	0.14	41	3300	7.3	258	157	0.63	53
		Three-Phase 230	60	0.15	43	3300	7.3	258	157	0.63	53
	Standard Type	MRE16-BHG	Single-Phase 100	50	0.45	39	2800	6.2	219	127	0.509
Single-Phase 100			60	0.44	41	3250	7.3	258	157	0.63	52
Single-Phase 110			60	0.46	48	3300	7.3	258	157	0.63	53
Single-Phase 115			60	0.48	51	3300	7.3	258	157	0.63	53
MRE16-DHG		Single-Phase 200	50	0.21	39	2800	6.2	219	127	0.509	49
		Single-Phase 200	60	0.21	41	3250	7.3	258	157	0.63	52
		Single-Phase 230	60	0.22	51	3300	7.3	258	157	0.63	53
MRE16-TH2G		Three-Phase 200	50	0.15	33	2800	6.2	219	127	0.509	49
		Three-Phase 200	60	0.13	37	3250	7.3	258	157	0.63	52
		Three-Phase 220	60	0.14	41	3300	7.3	258	157	0.63	53
		Three-Phase 230	60	0.15	43	3300	7.3	258	157	0.63	53

● Alarm specifications ① → Page 4

● Low-speed alarms of other specifications are also available.

Contact Alarm Type (Normal operation: Contact OFF): **MRE16-□AHG** Alarm specifications ② → Page 4

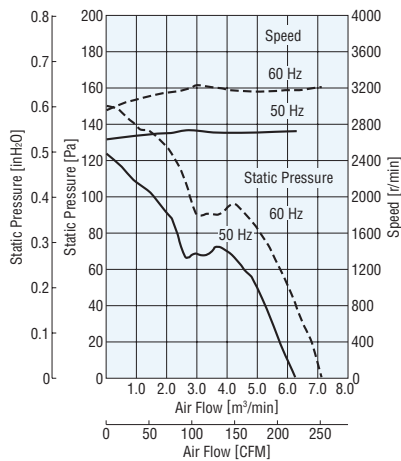
Electronic Alarm Type: **MRE16-□MHG** Alarm specifications ③ → Page 4

The following items are included in each product.

Fan, Finger Guard, Mounting Screws [M5×20 mm (0.79 in.)], Power Supply Cable, Alarm Cable (included with the alarm type), Operating Manual

Air Flow – Static Pressure Characteristic

(Characteristics when a finger guard is not installed)



Other Low-Speed Alarm Type

MRE Series has other low-speed alarm fans. For details on this product please refer to our website, contact technical support or your nearest Oriental Motor sales office. www.orientalmotor.com

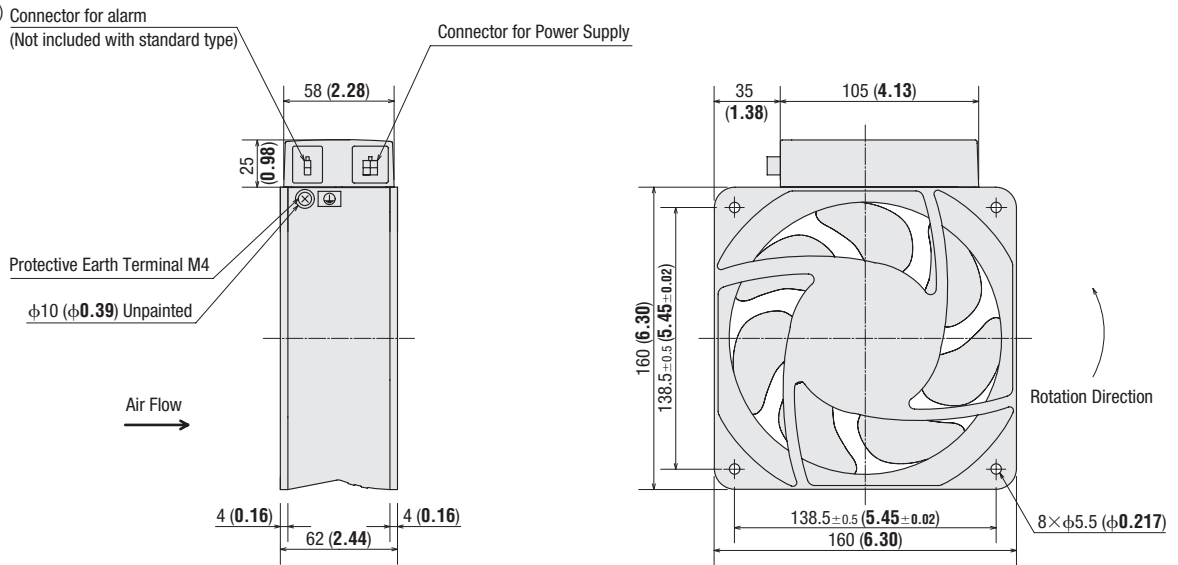
Low-Speed Alarm Type	Voltage	Model
Contact Alarm Type (Normal Operation: Contact OFF)	Single-Phase 100/110/115 VAC	MRE16-BAHG
	Single-Phase 200/230 VAC	MRE16-DAHG
	Three-Phase 200/220/230 VAC	MRE16-TAHG
Electronic Alarm Type	Single-Phase 100/110/115 VAC	MRE16-BMHG
	Single-Phase 200/230 VAC	MRE16-DMHG
	Three-Phase 200/220/230 VAC	MRE16-TMHG

● Either **B**, **D** or **T** indicating voltage is entered in the box □ is located within the product name.

■ Dimensions Unit = mm (in.)

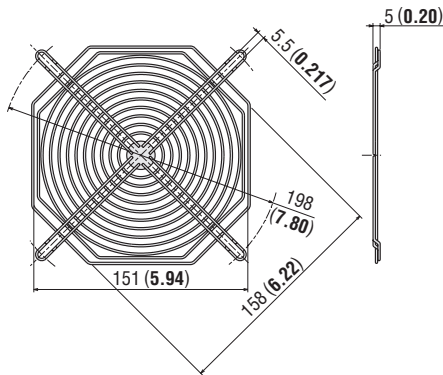
● Fan

Mass: 1.35 kg (3.0 lb.)
 Standard Type
DXF E148
 Alarm Type
DXF E149

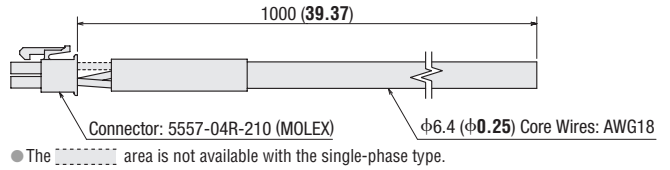


● Finger Guard (Included)

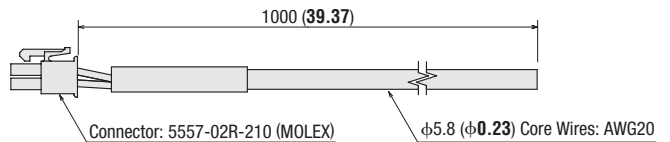
Conformed Component for Safety Standards
 Mass: 75 g (2.6 oz.) **DXF** E053



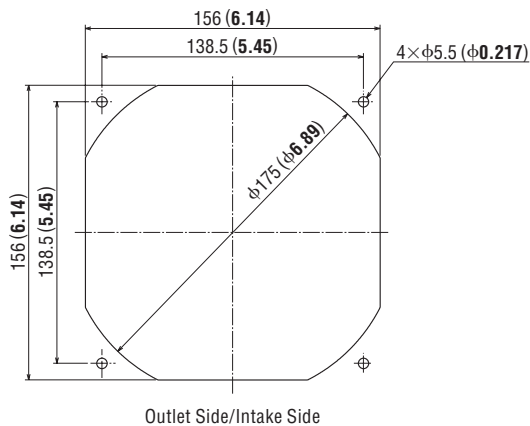
● Power Supply Cable (Included)



● Alarm Cable (Included with the alarm type)

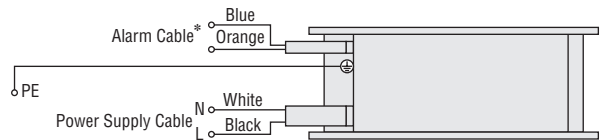


■ Panel Cut-Out Unit = mm (in.)

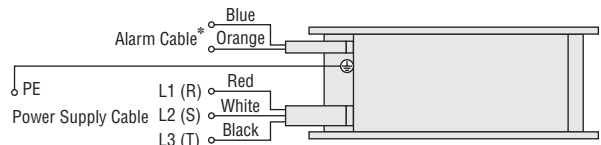


■ Connection Diagram

◇ Single-Phase



◇ Three-Phase



*Included with the alarm type

■ Accessories

Product	Product Name
Finger Guard*	FG16D
Filter	FL16

*Another finger guard needs to be purchased separately when using the finger guard on both sides.

● For detailed accessories information see Oriental Motor General Catalog or visit www.orientalmotor.com.

Specifications are subject to change without notice.
 This catalog was published in February, 2012. #408