


# Ex Explosion-Proof/Safety Enhanced Explosion-Proof Electric Motor

## Operation Manual & Cautions

Thank you for purchasing blowers.

This operating instruction manual contains operating instructions and cautions for [ **Ex Explosion-Proof/Safety Enhanced Explosion-Proof Electric Motor** ].

In order to use the blower [ **safely** ] and [ **efficiently** ], please read these instructions and cautions [ **particularly those marked**  ] thoroughly.

**Keep this manual carefully where it can be referred to when necessary.**

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# 1. Common to all Models

## 1-1. Precautions for Use



### Caution

#### (1) Terminal Box

For your safety, do not open the cover whenever energizing. Also, do not remove the clamp of the cable ground.



### Caution

#### (2) Protective Device

The electric motor does not come with any protective device.

In order to prevent explosions, ignition, burnout, etc., it is recommended to install protective devices other than overload protection devices (leakage circuit breakers, etc.).



### Caution

#### (3) Inverter (MDF series only)

Be sure to install it indoors in a non-hazardous area. The inverter is non-explosion-proof.

The parameter values of the inverter should never be changed in the fixed (locked) items described in each chapter. It is not covered by the warranty for use with changes to the fixed (locked) items.

## 1-2. Wiring



### Warning

In order to prevent explosions, ignition, burnout, etc., the external conductor should be drawn in accordance with the Electrical Equipment Technical Standards, Extension Regulations, Explosion-Proof Guidelines for Factory, etc.

## 1-3. Maintenance and Inspection



### Warning

Explosion-proof/safety enhanced explosion-proof electric motors, explosion-proof properties must be ensured.

When performing maintenance and inspections, be sure to have a maintenance person on site who has knowledge and skills about explosion-proof structures, construction of electrical equipment, related laws and regulations, and classification of hazardous areas.

## 1-4. Blower Usage

Please use according to the [Blower Instruction Manual and Precautions].

## 1-5. Electric Motors Series

### (1) Explosion-proof electric motor (MD series)

Explosion-proof electric motors are designed to withstand explosion pressure in the event of an explosion caused by gas or steam entering the motor and to prevent propagation of the fire caused by the explosion to the gas or steam outside the motor.

### (2) Explosion-proof electric motor (MDF Series)

It is an electric motor with the same structure as the MD series and is dedicated to the inverter drive.

### (3) Safety enhanced explosion-proof electric motor (ME Series)

Safety enhanced explosion-proof electric motors are those that do not generate sparks or arcs when the motor is operated under normal conditions of use, are free from the risk of becoming a source of ignition at high temperatures, and have increased insulation performance and safety against temperature rise and external damage.

The contents from this page onwards refer to different chapters for each model.  
Please check the model of the product and refer to the applicable chapter.

- Product Group A · MD-114LM1 · MD-125 · MD-125LS1  
 · MD-125LM1 · ME-150 · MD-150  
 · MD-150LS1 · MD-150LM1  
 Please refer to Chapter 2 (P4-8).

- Product Group B · MD2-37YT · MDF2-37YT  
 Please refer to Chapter 3 (P9-12).

- Product Group C · MD2-10YT · MD2-18YT · MD2-27YT  
 · MD2-40YT · MD-114 · MDF2-04YT  
 · MDF2-10YT · MDF2-18YT · MDF2-27YT  
 · MDF2-40YT · ME-114 · ME-125  
 · ME2-16YT · ME2-27YT · ME2-41YT  
 Please refer to Chapter 4 (P13-25).

TYPE 電動機銘板		MD-125LS1	
KW	0.020 0.070 0.25 0.25	FLAME PROOF MOTOR	
Hz	10 30 60 70	CLASS Ex d IIBT4	
VOLTS	44 85 198 197	TYPE MD-125LS1 2POLES 3φ	
AMP	0.80 1.0 1.2 1.3	THERMAL CLASS 155(F)	
VOL.	送風機銘板による	CONT / AMB. TEMP 40°C	
Ps.	送風機銘板による	2023 No. 231201901	

**SDG CO., LTD.**  
MADE IN JAPAN

TYPE MD-SB-75-R313	
Hz	50 60 60 FLAME PROOF MOTOR
VOLTS	200 200 220 CLASS Ex d IIBT4
AMP	1.4 1.2 1.0 TYPE MD-125
MAX $\omega$ /min	8.0 9.5 Output 0.25kW 2POLES 3φ
MAXPa	0.55 0.80 SU B /TEMP. RISE 80°C
2023 No.	231201901 INT AMB. TEMP 40°C

**SDG CO., LTD.**  
MADE IN JAPAN

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR		MODEL MDF2-04YT	
POLES	2	TYPE MDF FRAME 80	
[kW]	0.02 / 0.25 / 0.25	RATING S1 ITH. CLASS 155(F)	
[Hz]	10 / 60 / 70	CLASS Ex db IIBT4Gb	
[V]	45 / 196 / 197	WEIGHT [kg] 11	
[A]	0.8 / 1.2 / 1.3	2023 No. 231128910	

**SDG CO., LTD.**  
MADE IN JAPAN

Please check the model on the nameplate.

## 2. Applicable to Product Group A

This chapter (P4 to P8) applies to electric motors included in product group A below.

For models other than those listed below, please refer to Chapter 3 onwards.

Models included in product group A

MD Series · MD-125 · MD-150

MDF Series · MD-114LM1 · MD-125LS1 · MD-125LM1  
· MD-150LS1 · MD-150LM1

ME Series · ME-150

### 2-1. Explosion-Proof Electric Motors

This explosion-proof electric motor is manufactured in accordance with the Japan Industrial Standards (JIS) and international standards (related to IEC79) and has passed the type examination related to the technical standards of the Japan Industrial Safety Technology Association. This type examination for explosion-proof structure electrical machinery and equipment is valid only in Japan and does not conform to overseas standards.

- (1) Standard specifications of explosion-proof electric motor groups, temperature grades, operating conditions, etc.

Electric Motor Specifications				
Classification of explosion-proof structure		Explosion-proof		Safety enhanced explosion-proof
Series		MD, MDF		ME
Output		0.2kW~2.2kW		0.25kW~2.2kW
Symbols for the type of explosion-proof structure		d		e
Availability of inverter operation		MD : ×	MDF : ○	×
Group symbols		II A/ II B		II
Temperature grade		T1/T2/T3/T4		T1/T2/T3
Operating conditions		X <sup>*1</sup>		—
Ambient temperature		- 10°C to 40°C		
Ambient humidity		Relative humidity less than 90%		
Blower Specifications				
Standard type	Intake air temperature	- 10°C to 40°C		
	Inlet air humidity	Relative humidity less than 90%		
Heat-resistant type	Intake air temperature	- 10°C to 120°C/70°C <sup>*2</sup>	- 10°C to 150°C/70°C <sup>*2</sup>	
	Inlet air humidity	Relative humidity less than 100%		

Note: For suction substances, refer to the Blower Instruction Manual and Precautions.

\*1 The symbol X indicates that special operating conditions for safety are required, and this product indicates that sealing fittings are used for electrical work.

\*2 The allowable intake air temperature of the heat-resistant type varies depending on the model. Please check the catalog or contact us.

## 2-2. Precautions for Use

### Caution

#### (1) External Connections

After caulking the crimp terminal\*1 on the power supply side and screwing it to the crimp terminal on the electric motor side, insulate it sufficiently with insulating tape.

☆**Safety Enhanced Explosion-Proof (ME series):** When performing electrical work, use sealing fitting to prevent dust from entering the terminal box.

☆**Explosion-Proof (MD series):** When performing electrical work, use sealing fitting or designated cable grounds to prevent flammable gas from flowing in.

\*1 Use R2-5 for the crimp terminal.

Available Cable Grounds

	0.2~2.2kW
MD, MDF	SXBM-22B*2 Manufactured by Shimada Electric
ME	—

\*2

Model (Manufactured by Shimada Electric)	Compatible Cable Diameter
SXBM-22B-4	12.0~12.9
SXBM-22B-3	13.0~13.9
SXBM-22B-2	14.0~14.9
SXBM-22B-1	15.0~16.0

### Caution

#### (2) Inverter Operation

Electric Blower Model

MD: Inverter operation is not possible regardless of the set frequency.

MDF: Inverter operation is possible.

(Applicable variable speed control device nameplate: available)

Minimum frequency: 10Hz

Please use it at or below the rated current value.

Maximum frequency: 50Hz/60Hz (depending on the model)

Please use it at or below the rated current value.

The one-to-one combination of explosion-proof electric motor and inverter has passed the examination test. Be sure to operate with the dedicated inverter indicated on the electric motor.

If an inverter is used, the power waveform will be distorted, and the buzzing noise and vibration of the motor will be slightly increased. If abnormal temperature rise or abnormal vibration occurs, stop operation immediately. There is a risk of damage to the blower.

Some settings of the inverter are fixed (locked). Please refer to the table on the following page for fixed (locked) items.



Fixed (locked) items (\*Cannot be changed)

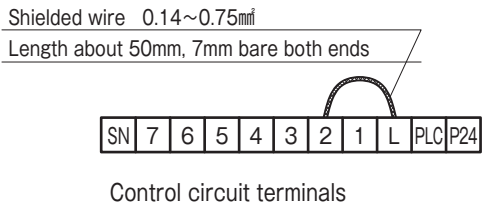
Code	Name	Setting value		Description	
		2.2 kW or less	3.7 kW	2.2 kW or less	3.7 kW
A003	Base frequency	60		60Hz	
A004	Maximum frequency	60		60Hz	
A041	Torque boost select	00		Manual torque boost	
A042	Manual torque boost value	9.5	10.0	9.5%	10.0%
A043	Manual torque boost frequency	10.0	15.0	10.0%	15.0%
A044	V/f characteristic curve	01		Reduced torque (1.7)	
A045	V/f gain	100		100%	
A051	DC braking enable	00		Disable	
A061	Frequency upper limit	0*		Disable*	
A062	Frequency lower limit	10		10Hz	
A081	AVR function select	00		AVR enabled	
A082	AVR voltage select	200		200V	
A085	Energy-saving operation mode	00		Normal operation	
b013	Electronic thermal characteristic	02		Free setting	
b015	Free setting electronic thermal ~freq.1	0		0Hz	
b016	Free setting electronic thermal~current1	The value is 0.8 times the INV rated current value			
b017	Free setting electronic thermal ~freq.2	20		20Hz	
b018	Free setting electronic thermal~current2	The value is 0.8 times the INV rated current value			
b019	Free setting electronic thermal ~freq.3	60		60Hz	
b020	Free setting electronic thermal~current3	The value is 1.0 times the INV rated current value			
b049	Dual Rating Selection	00		CT mode	
b089	Automatic carrier frequency reduction	00		Disable	
b171	Inverter mode selection	00		No function	
b180	Initialization trigger	00		Initialization disable	
H001	Auto-tuning selection	00		Disable	

\* "50" for 50Hz blower

Note: The second control function (200 series) of the above item is also fixed (locked) with the same contents.

Never change the parameters of fixed (locked) items. It is not covered by the warranty for use with changes to the fixed (locked) items. Please use the first control method. The second control method cannot be used. DC braking cannot be used. The V/f characteristic is 1.7th power reduction torque. Optional products such as noise filters and reactors cannot be used between the inverter and the electric motor. Please use it between the power supply and the inverter.

This product has a soft lock by connecting the "L-2". For changes other than the fixed (locked) items, remove the "L-2" wire and set it. When the settings are complete, connect the "L-2" again and apply the soft lock. The spare shielded wire is attached to the back of the terminal block cover of the inverter.



The inverter stop time is set to a free-run stop. (A free-run stop is a stop method that shuts off the inverter output when it stops. The motor stops after coasting.)

Code	Setting value	Description
b091	01	free-run to stop

### 2-3. Electric Motor Specifications

The explosion-proof electric motor used in the blower is for indoor use. Do not install outdoors or in areas subject to water. (Outdoor versions are also available.) Safety enhanced explosion-proof electric motors are designed for outdoor use.

### 3. Applicable to Product Group B

This chapter (P9 to P12) applies to electric motors included in product group B below. For models other than those listed below, please refer to Chapter 2 or Chapter 4.

Models included in product group B

MD Series · MD2-37YT

MDF Series · MDF2-37YT

#### 3-1. Explosion-Proof Electric Motors

This explosion-proof electric motor is a product that has passed the type examination for explosion-proof structure electrical machinery and equipment in accordance with the Explosion-Proof Guidelines for Factory Electrical Equipment (Technical Guidelines 2008 for International Standards). This type examination for explosion-proof structure electrical machinery and equipment is valid only in Japan.

- (1) Standard specifications of explosion-proof electric motor groups, temperature grades, operating conditions, etc.

Electric Motor Specifications		
Classification of explosion-proof structure		Explosion-proof
Series		MD                      MDF
Output		3.7kW                      3.7kW
Symbols for the type of explosion-proof structure		d
Availability of inverter operation		×                              ○
Group symbols		II A/ II B
Temperature grade		T4
Ambient temperature		- 20°C to 40°C
Ambient humidity		Relative humidity less than 90%
Blower Specifications		
Standard type	Intake air temperature	- 10°C to 40°C
	Inlet air humidity	Relative humidity less than 90%
Heat-resistant type	Intake air temperature	- 10°C to 120°C /70°C*
	Inlet air humidity	Relative humidity less than 100%

Note: For suction substances, refer to the Blower Instruction Manual and Precautions.

\* The allowable intake air temperature of the heat-resistant type varies depending on the model. Please check the catalog or contact us.

## 3-2. Precautions for Use



### Caution

#### (1) External Connections

After caulking the crimp terminal\* on the power supply side and screwing it to the crimp terminal on the electric motor side, insulate it sufficiently with insulating tape.

☆**Explosion-Proof (MD series):** When performing electrical work, use cable grounds according to prevent flammable gas from flowing in.

\* Use R3.5-5 for the crimp terminal.



### Caution

#### (2) Inverter operation

Electric Blower Model

MD: Regardless of the set frequency, inverter operation is impossible.

MDF: Inverter operation is possible.

(Applicable variable speed control device nameplate: available)

	MDF2-37YT
Output [kW]	3.7~3.7~0.3
Number of poles	2
Frequency [Hz]	70~60~10
Electrical pressure [V]	193~194~50
Current [A]	14.0~14.0~2.0

The one-to-one combination of explosion-proof electric motor and inverter has passed the examination. Be sure to operate with the dedicated inverter indicated on the electric motor.

If an inverter is used, the power waveform will be distorted, and the buzzing noise and vibration of the motor will be slightly increased. If abnormal temperature rise or abnormal vibration occurs, stop operation immediately. There is a risk of damage to the blower.

Some settings of the inverter are fixed (locked). Please refer to the table on the following page for fixed (locked) items.

Fixed (locked) items (\*Cannot be changed)

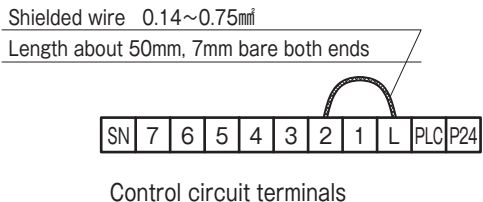
Code	Name	Setting value		Description	
		2.2 kW or less	3.7 kW	2.2 kW or less	3.7 kW
A003	Base frequency	60		60Hz	
A004	Maximum frequency	60		60Hz	
A041	Torque boost select	00		Manual torque boost	
A042	Manual torque boost value	9.5	10.0	9.5%	10.0%
A043	Manual torque boost frequency	10.0	15.0	10.0%	15.0%
A044	V/f characteristic curve	01		Reduced torque (1.7)	
A045	V/f gain	100		100%	
A051	DC braking enable	00		Disable	
A061	Frequency upper limit	0*		Disable*	
A062	Frequency lower limit	10		10Hz	
A081	AVR function select	00		AVR enabled	
A082	AVR voltage select	200		200V	
A085	Energy-saving operation mode	00		Normal operation	
b013	Electronic thermal characteristic	02		Free setting	
b015	Free setting electronic thermal ~freq.1	0		0Hz	
b016	Free setting electronic thermal~current1	The value is 0.8 times the INV rated current value			
b017	Free setting electronic thermal ~freq.2	20		20Hz	
b018	Free setting electronic thermal~current2	The value is 0.8 times the INV rated current value			
b019	Free setting electronic thermal ~freq.3	60		60Hz	
b020	Free setting electronic thermal~current3	The value is 1.0 times the INV rated current value			
b049	Dual Rating Selection	00		CT mode	
b089	Automatic carrier frequency reduction	00		Disable	
b171	Inverter mode selection	00		No function	
b180	Initialization trigger	00		Initialization disable	
H001	Auto-tuning selection	00		Disable	

\* "50" for 50Hz blower

Note: The second control function (200 series) of the above item is also fixed (locked) with the same contents.

Never change the parameters of fixed (locked) items. It is not covered by the warranty for use with changes to the fixed (locked) items. Please use the first control method. The second control method cannot be used. DC braking cannot be used. The V/f characteristic is 1.7th power reduction torque. Optional products such as noise filters and reactors cannot be used between the inverter and the electric motor. Please use it between the power supply and the inverter.

This product has a soft lock by connecting the "L-2". For changes other than the fixed (locked) items, remove the "L-2" wire and set it. When the settings are complete, connect the "L-2" again and apply the soft lock. The spare shielded wire is attached to the back of the terminal block cover of the inverter.



The inverter stop time is set to a free-run stop. (A free-run stop is a stop method that shuts off the inverter output when it stops. The motor stops after coasting.)

Code	Setting value	Description
b091	01	free-run to stop

### 3-3. Electric Motor Specifications

- (1) The explosion-proof electric motor used in the blower is for outdoors use.

## 4. Applicable to Product Group C

This chapter (P13-25) applies to electric motors included in product group C below. For models other than those listed below, please refer to Chapter 2 or Chapter 3.

• Models included in product group C

MD Series · MD-114 · MD2-10YT · MD2-18YT · MD2-27YT  
· MD2-40YT

MDF Series · MDF2-04YT · MDF2-10YT · MDF2-18YT  
· MDF2-27YT · MDF2-40YT

ME Series · ME-114 · ME-125 · ME2-16YT · ME2-27YT · ME2-41YT

### 4-1. Explosion-Proof Electric Motors

This explosion-proof electric motor is a product that has passed the type examination for explosion-proof structure electrical machinery and equipment in accordance with the Explosion-Proof Guidelines for Factory Electrical Equipment. This type examination for explosion-proof structure electrical machinery and equipment is valid only in Japan.

- (1) Standard specifications of explosion-proof electric motor groups, temperature grades, operating conditions, etc.

Electric Motor Specifications			
Classification of explosion-proof structure		Explosion-proof	
Series		MD	MDF
Output		0.2kW	0.25kW~3.7kW
Classification of explosion-proof structure		d	db
Protection level		—	Gb
Availability of inverter operation		×	○
Group symbols		II A/ II B	
Temperature grade		T1/T2/T3/T4	
Ambient temperature		-10°C to 40°C	
Ambient humidity		Relative humidity less than 90%	
Blower Specifications			
Standard type	Intake air temperature	-10°C to 40°C	
	Inlet air humidity	Relative humidity less than 90%	
Heat-resistant type	Intake air temperature	-10°C to 120°C /70°C*	
	Inlet air humidity	Relative humidity less than 100%	

Electric Motor Specifications		
Classification of explosion-proof structure	Safety enhanced explosion-proof	
Series	ME	
Output	0.2kW-2.2kW	3.7kW
Symbols for the type of explosion-proof structure	e	e
Availability of inverter operation	×	×
Group symbols	II	II
Temperature grade	T1/T2/T3	T1/T2
Ambient temperature	-10°C to 40°C	
Ambient humidity	Relative humidity less than 90%	
Blower Specifications		
Standard type	Intake air temperature	-10 to 40°C
	Inlet air humidity	Relative humidity less than 90%
Heat-resistant type	Intake air temperature	-10°C to 150°C/70°C*
	Inlet air humidity	Relative humidity less than 100%

Note: For suction substances, refer to the Blower Instruction Manual and Precautions.

\* The allowable intake air temperature of the heat-resistant type varies depending on the model. Please check the catalog or contact us.

## 4-2. Precautions for Use

### **Caution**

#### (1) Tightening Screws

The tightening screws specified by the manufacturer should be used.



 **Caution**

(2) External Connections

After caulking the crimp terminal\* on the power supply side and screwing it to the crimp terminal on the electric motor side, insulate it sufficiently with insulating tape.

☆**Explosion-Proof (MDF series):** When performing electrical work, use a cable ground according to the table below to prevent flammable gas from flowing in.

For 3.7kW, use a cable with a heat-resistant temperature of 70°C or higher.

☆**Explosion-Proof (MD series):** When performing electrical work, use sealing fitting or cable grounds according to the table below to prevent flammable gas from flowing in. For 3.7kW, use a cable with a heat-resistant temperature of 70°C or higher.

☆**Safety Enhanced Explosion-Proof (ME series):** When performing electrical work, use sealing fittings or cable grounds according to the table below to prevent dust from entering the terminal box.

\* Use R○-5 for the crimp terminal. R○ should be selected according to the cable diameter you are using.

How to Pull into the Terminal Box

	0.2kW	0.25~1.0kW	1.5~3.7kW
MDF		Cable ground (CGW-22 [Standard accessories])	Cable ground (CGW-22 [Standard accessories])
MD	Cable ground (SXBM-22B) Sealing fitting	Cable ground (CGW-22 [Standard accessories])	Cable ground (CGW-22 [Standard accessories])
ME	Sealing fitting	Sealing fitting	Cable ground (CGW-22 [Standard accessories])

Cable Ground Specifications

Model	Manufacturer	Packing Inner Diameter (compatible cable diameter) [φ]	Tightening Torque of Cable Clamp [cN·m]
CGW-22	Manufactured by Japan Safety System	14 (12.0~14.0)	100
		16 (14.0~16.0)	60
SXBM-22B	Manufactured by Shimada Electric	13 (12.0~12.9)	100
		14 (13.0~13.9)	
		15 (14.0~14.9)	
		16 (15.0~16.0)	

 **Caution**

(3) Inverter operation

Electric Blower Model

MD: Regardless of the set frequency, inverter operation is impossible.

MDF: Inverter operation is possible.

(Applicable variable speed control device nameplate: available)

	MDF2-04YT	MDF2-04YT	MDF2-10YT
Output [kW]	0.02~0.25~0.25	0.039~0.5~0.5	0.059~0.75~0.75
Number of poles	2	2	2
Frequency [Hz]	10~60~70	10~60~70	10~60~70
Electrical pressure [V]	45~196~197	45~196~197	46~194~196
Current [A]	0.8~1.2~1.3	1.5~2.3~2.5	1.8~3.3~3.3

	MDF2-10YT	MDF2-18YT	MDF2-27YT
Output [kW]	0.079~1.0~1.0	0.12~1.8~1.8	0.18~2.7~2.7
Number of poles	2	2	2
Frequency [Hz]	10~60~70	10~60~70	10~60~70
Electrical pressure [V]	46~194~196	49~196~198	50~197~197
Current [A]	2.4~4.4~4.3	0.9~6.9~6.8	1.2~10.0~10.1

	MDF2-40YT
Output [kW]	0.3~4.0~4.0
Number of poles	2
Frequency [Hz]	10~60~70
Electrical pressure [V]	50~194~195
Current [A]	2.0~15.0~14.8

The one-to-one combination of explosion-proof electric motor and inverter has passed the type examination. Be sure to operate with the dedicated inverter indicated on the electric motor.

If an inverter is used, the power waveform will be distorted, and the buzzing noise and vibration of the motor will be slightly increased. If abnormal temperature rise or abnormal vibration occurs, stop operation immediately. There is a risk of damage to the blower.

Some settings of the inverter are fixed (locked). Please refer to the table on the following page for fixed (locked) items.

Fixed (locked) items (\*Cannot be changed)

Code	Name	Setting value		Description	
		1.0 kW or less	1.5 kW or more	1.0 kW or less	1.5 kW or more
A003	Base frequency	60		60Hz	
A004	Maximum frequency	60		60Hz	
A041	Torque boost mode selection	00		Manual torque boost	
A042	Manual torque boost value	Please check the table of next page for the setting values of A042 and A043			
A043	Manual torque boost peak speed				
A044	Control mode selection	01		[V/f] Reducing torque characteristics (IM)	
A045	Output voltage gain,	100		100%	
A051	DC braking selection	00		Disable	
A061	Upper frequency limit	0*		Disable*	
A062	Lower frequency limit	10		10Hz	
A081	AVR function selection	00		Always enable	
A082	Motor rated voltage,	200		200V	
A085	Eco drive enable	00		Disable	
b013	Electronic thermal characteristic selection	02		Free setting	
b015	Free electronic thermal frequency-1	0		0Hz	
b016	Free electronic thermal current-1	The value is 0.8 times the INV rated current value			
b017	Free electronic thermal frequency-2	20		20Hz	
b018	Free electronic thermal current-2	The value is 0.8 times the INV rated current value			
b019	Free electronic thermal frequency-3	60		60Hz	
b020	Free electronic thermal current-3	The value is 1.0 times the INV rated current value			
b049	Load type selection	00	01	Normal duty	Low duty
b089	Automatic carrier reduction selection	00		Disable	
b171	Inverter mode selection	00		Disable	
b180	Execute initialization and mode selection	00		Disable	
H001	Auto-tuning selection	00	—	Disable	—
H004	Async. Motor number of poles	2		2 poles	

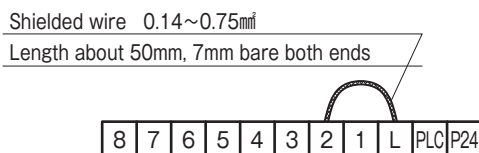
\* "50" for 50Hz blower

Note: The second control function (200 series) of the above item is also fixed (locked) with the same contents.

Code	Setting value				Description			
	1.0 kW or less	1.5 kW	2.2 kW	3.7 kW	1.0 kW or less	1.5 kW	2.2 kW	3.7 kW
A042	9.5	10.0	10.0	10.0	9.5%	10.0%	10.0%	10.0%
A043	10.0	10.0	12.0	15.0	10.0%	10.0%	12.0%	15.0%

Never change the parameters of fixed (locked) items. It is not covered by the warranty for use with changes to the fixed (locked) items. Please use the first control method. The second control method cannot be used. DC braking cannot be used. The V/f characteristic is 1.7th power reduction torque. Optional products such as noise filters and reactors cannot be used between the inverter and the electric motor. Please use it between the power supply and the inverter.

This product has a soft lock by connecting the "L-2". For changes other than the fixed (locked) items, remove the "L-2" wire and set it. When the settings are complete, connect the "L-2" again and apply the soft lock. The spare shielded wire is attached to the back of the terminal block cover of the inverter.



Control circuit terminals

The inverter stop time is set to a free-run stop. (A free-run stop is a stop method that shuts off the inverter output when it stops. The motor stops after coasting.)

Code	Setting value	Description
b091	01	free-run to stop

**⚠ Caution**

- (4) Disassembly prohibited.

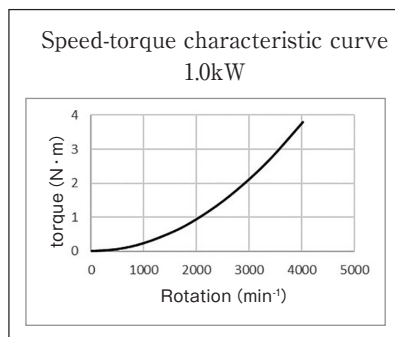
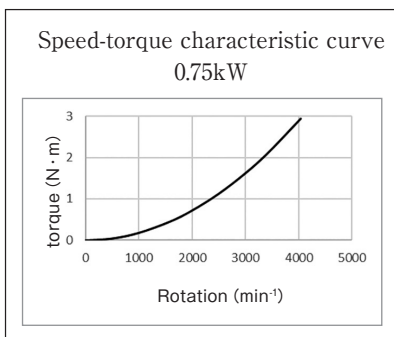
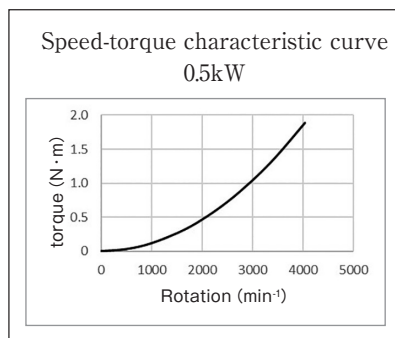
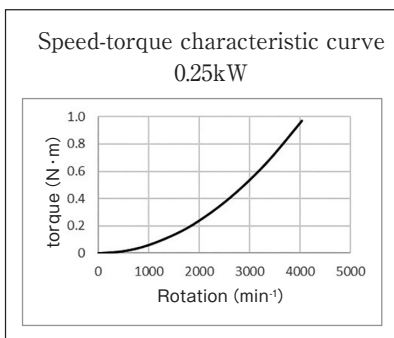
Never disassemble the electric motor. Doing so may cause a malfunction or an accident.

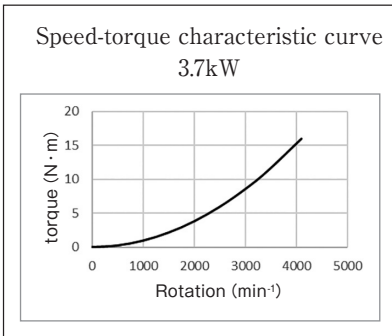
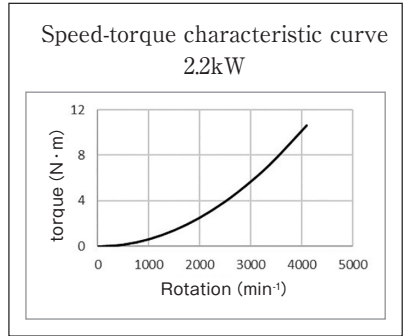
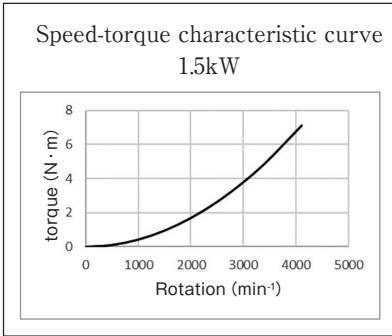
### 4-3. Electric Motor Specifications



#### Caution

- (1) The explosion-proof electric motor used in the blower is for outdoors use. However, only the 0.2kW of the MD series is for indoor use. Do not install outdoors or in areas subject to water. (Outdoor versions are also available.) Safety enhanced explosion-proof electric motors are designed for outdoor use.
- (2) Speed-torque characteristic curve of an inverter-driven electric motor





 **Warning**

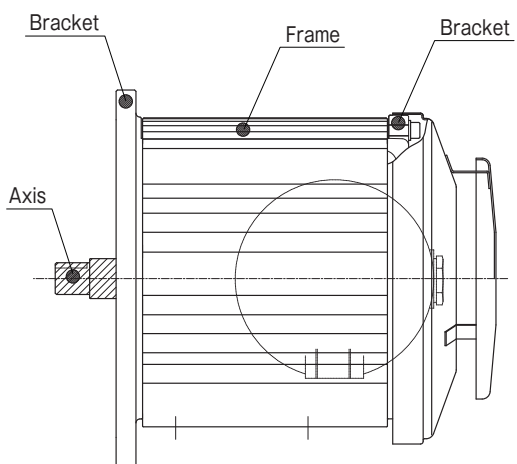
(3) Allowable axial and radial loads on shaft ends

Do not apply a load of more than 1 kg to the end of the shaft in both the axial and radial directions.

\* Please be sure to contact us if you want to apply a load of 1 kg or more, or if you want to install a product other than our product.

(4) Thermal expansion of shafts and housings under rated conditions

Part names	Rate of change due to thermal expansion			
	MD, MDF		ME	
	1.0kW or less	1.5kW or more	1.0kW or less	1.5kW or more
Bracket	0.0735%	0.0753%	0.0687%	
Frame	0.0819%		0.0765%	
Axis	0.0392%		0.0366%	




## 4-4. Wiring



### Warning

(1) Connecting the ground wire of the terminal box

① To prevent electric shock accidents, be sure to connect the ground wire.

② Connect the ground wire from the  marked part.

③ For MD and MDF series (excluding MD series 0.2kW), connect the ground wire by sandwiching it between two flat washers. (See Figure 1)

The cross-sectional area of the ground wire connected to the outside of the terminal box should be at least 4mm<sup>2</sup>. (See Figure 2)

The cross-sectional area of the ground wire connected to the inside of the terminal box should be the same as the power wire connected to the lead wire. (See Figure 2)

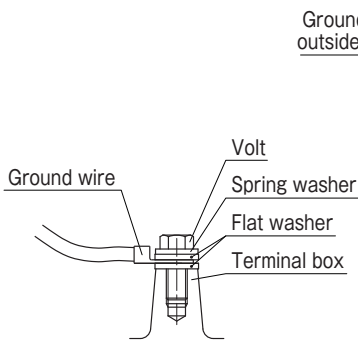


Figure 1

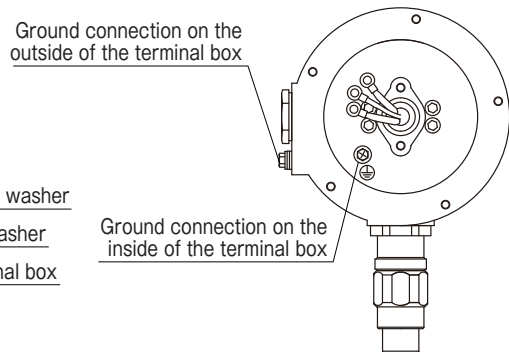


Figure 2

④ For the 0.2kW ME series and MD series, connect the ground wire by sandwiching it between the flat washer and the terminal box. (See Figure 3)

3)

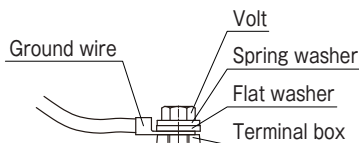


Figure 3



## 4-5. Maintenance and Inspection

- (1) Bearing maintenance and replacement intervals.

The bearings of the electric motors use sealed ball bearings, so there is no need to replenish or lubricate the bearings.

The grease life varies greatly depending on the usage environment, but please estimate for about one year.

## 4-6. Nameplate Information

- (1) MD

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-10YT				
POLES	2	TYPE MD	80	
[kW]	0.75	RATING S1	TH CLASS 130 ㉔	
[Hz]	50 / 60 / 60	CLASS	ExdbIBT4Gb	
[V]	200 / 200 / 220	WEIGHT [kg]	11	
[A]	1.4 / 1.2 / 1.1	2□□□ No.	□□□□□□□□	
[min <sup>-1</sup> ]	2800 / 3400 / 3400			

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-10YT				
POLES	2	TYPE MD	80	
[kW]	0.5	RATING S1	TH CLASS 130 ㉔	
[Hz]	50 / 60 / 60	CLASS	ExdbIBT4Gb	
[V]	200 / 200 / 220	WEIGHT [kg]	11	
[A]	2.5 / 2.3 / 2.2	2□□□ No.	□□□□□□□□	
[min <sup>-1</sup> ]	2850 / 3450 / 3450			

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-10YT				
POLES	2	TYPE MD	80	
[kW]	0.75	RATING S1	TH CLASS 130 ㉔	
[Hz]	50 / 60 / 60	CLASS	ExdbIBT4Gb	
[V]	200 / 200 / 220	WEIGHT [kg]	14	
[A]	3.3 / 3.1 / 2.8	2□□□ No.	□□□□□□□□	
[min <sup>-1</sup> ]	2850 / 3450 / 3450			

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-10YT				
POLES	2	TYPE MD	80	
[kW]	1.0	RATING S1	TH CLASS 130 ㉔	
[Hz]	50 / 60 / 60	CLASS	ExdbIBT4Gb	
[V]	200 / 200 / 220	WEIGHT [kg]	14	
[A]	4.3 / 4.0 / 3.8	2□□□ No.	□□□□□□□□	
[min <sup>-1</sup> ]	2850 / 3450 / 3450			

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-18YT					
[kW]	1.8	POLES	2	TYPE MD	112
[V] / [Hz]	200/50 / 200/60 / 220/60	RATING S1	TH CLASS 155 ㉔		
[A]	6.7 / 6.6 / 6.1	CLASS	ExdbIBT4Gb		
EFF. $\eta$ at 15kW	84.2 / 85.5 / 85.5	WEIGHT [kg]	29		
IE CODE	IE3 / IE3 / IE3				
[min <sup>-1</sup> ]	2900 / 3450 / 3500	2□□□ No.	□□□□□□□□		

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-27YT					
[kW]	2.7	POLES	2	TYPE MD	112
[V] / [Hz]	200/50 / 200/60 / 220/60	RATING S1	TH CLASS 155 ㉔		
[A]	10.1 / 9.8 / 9.1	CLASS	ExdbIBT4Gb		
EFF. $\eta$ at 2.7kW	85.9 / 86.5 / 86.5	WEIGHT [kg]	32		
IE CODE	IE3 / IE3 / IE3				
[min <sup>-1</sup> ]	2900 / 3450 / 3500	2□□□ No.	□□□□□□□□		

Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR MODEL MD2-40YT					
[kW]	4.0	POLES	2	TYPE MD	112
[V] / [Hz]	200/50 / 200/60 / 220/60	RATING S1	TH CLASS 155 ㉔		
[A]	15.4 / 14.4 / 13.4	CLASS	ExdbIBT4Gb		
EFF. $\eta$ at 3.7kW	87.8 / 88.5 / 88.5	WEIGHT [kg]	37		
IE CODE	IE3 / IE3 / IE3				
[min <sup>-1</sup> ]	2900 / 3450 / 3500	2□□□ No.	□□□□□□□□		

Applicable guidelines: Explosion-Proof Guidelines for Factory Electrical Equipment (International Harmonized Technical Guidelines) JNIOH-TR-46-1:2020 and 2:2018

## (2) MDF

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR					
MODEL MDF2-04YT					
POLES	2	TYPE	MDF	FRAME	80
[kW]	0.02 / 0.25 / 0.25	RATING S1	TH CLASS	155 (F)	
[Hz]	10 / 60 / 70	CLASS	E×d×b1BT4Gb		
[V]	45 / 196 / 197	WEIGHT [kg]	11		
[A]	0.8 / 1.2 / 1.3	2□□□ No.	□□□□□□□□		

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR					
MODEL MDF2-04YT					
POLES	2	TYPE	MDF	FRAME	80
[kW]	0.039 / 0.5 / 0.5	RATING S1	TH CLASS	155 (F)	
[Hz]	10 / 60 / 70	CLASS	E×d×b1BT4Gb		
[V]	45 / 196 / 197	WEIGHT [kg]	11		
[A]	1.5 / 2.3 / 2.5	2□□□ No.	□□□□□□□□		

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR					
MODEL MDF2-10YT					
POLES	2	TYPE	MDF	FRAME	80
[kW]	0.059 / 0.75 / 0.75	RATING S1	TH CLASS	155 (F)	
[Hz]	10 / 60 / 70	CLASS	E×d×b1BT4Gb		
[V]	46 / 194 / 196	WEIGHT [kg]	14		
[A]	1.8 / 3.3 / 3.3	2□□□ No.	□□□□□□□□		

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR					
MODEL MDF2-10YT					
POLES	2	TYPE	MDF	FRAME	80
[kW]	0.079 / 1.0 / 1.0	RATING S1	TH CLASS	155 (F)	
[Hz]	10 / 60 / 70	CLASS	E×d×b1BT4Gb		
[V]	46 / 194 / 196	WEIGHT [kg]	14		
[A]	2.4 / 4.4 / 4.3	2□□□ No.	□□□□□□□□		

### Applicable variable speed control device nameplate

適用可変速制御装置	
製造者名	株式会社 日立産機システム
型式	C1-004LF2
主回路制御方式	トランジスタインバータ
	PWM制御方式
定格 出力電圧	45~197V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	3.0A
適用トルク	低減トルク
インバータ-0.4	KN-457

### Applicable variable speed control device nameplate

適用可変速制御装置	
製造者名	株式会社 日立産機システム
型式	C1-004LF2
主回路制御方式	トランジスタインバータ
	PWM制御方式
定格 出力電圧	45~197V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	3.0A
適用トルク	低減トルク
インバータ-0.4	KN-457

### Applicable variable speed control device nameplate

適用可変速制御装置	
製造者名	株式会社 日立産機システム
型式	C1-007LF2
主回路制御方式	トランジスタインバータ
	PWM制御方式
定格 出力電圧	46~196V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	5.0A
適用トルク	低減トルク
インバータ-0.75	KN-458

### Applicable variable speed control device nameplate

適用可変速制御装置	
製造者名	株式会社 日立産機システム
型式	C1-007LF2
主回路制御方式	トランジスタインバータ
	PWM制御方式
定格 出力電圧	46~196V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	5.0A
適用トルク	低減トルク
インバータ-0.75	KN-458

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR				
MODEL MDF2-18YT				
POLES	2	TYPE	MDF	FRAME 112
[kW]	0.12 / 1.8 / 1.8	RATING S1	TH CLASS	155 (F)
[Hz]	10 / 60 / 70	CLASS	Exd b I BT4Gb	
[V]	49 / 196 / 198	WEIGHT [kg]	29	
[A]	0.9 / 6.9 / 6.8	Z	□□□□□□□□	

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR				
MODEL MDF2-27YT				
POLES	2	TYPE	MDF	FRAME 112
[kW]	0.18 / 2.7 / 2.7	RATING S1	TH CLASS	155 (F)
[Hz]	10 / 60 / 70	CLASS	Exd b I BT4Gb	
[V]	50 / 197 / 197	WEIGHT [kg]	32	
[A]	1.2 / 10.0 / 10.1	Z	□□□□□□□□	

### Electric motor nameplate

3 PHASE INDUCTION MOTOR FLAME PROOF MOTOR				
MODEL MDF2-40YT				
POLES	2	TYPE	MDF	FRAME 112
[kW]	0.3 / 4.0 / 4.0	RATING S1	TH CLASS	155 (F)
[Hz]	10 / 60 / 70	CLASS	Exd b I BT4Gb	
[V]	50 / 194 / 195	WEIGHT [kg]	37	
[A]	2.0 / 15.0 / 14.8	Z	□□□□□□□□	

### Applicable variable speed control device nameplate

<b>適用可変速制御装置</b>	
製造者名	株式会社 日立産機システム
型式	C1-015LF2
主回路制御方式	トランジスタインバータ PWM制御方式
定格 出力電圧	49~198V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	9.6A
適用トルク	低減トルク
<b>インバーター-1.5</b>	<b>KN-459</b>

### Applicable variable speed control device nameplate

<b>適用可変速制御装置</b>	
製造者名	株式会社 日立産機システム
型式	C1-022LF2
主回路制御方式	トランジスタインバータ PWM制御方式
定格 出力電圧	50~197V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	12.0A
適用トルク	低減トルク
<b>インバーター-2.2</b>	<b>KN-460</b>

### Applicable variable speed control device nameplate

<b>適用可変速制御装置</b>	
製造者名	株式会社 日立産機システム
型式	C1-037LF2
主回路制御方式	トランジスタインバータ PWM制御方式
定格 出力電圧	50~195V
出力周波数	10~70Hz
回転速度	600~4200min <sup>-1</sup>
最大出力電流	19.6A
適用トルク	低減トルク
<b>インバーター-3.7</b>	<b>KN-461</b>

Applicable guidelines: Explosion-Proof Guidelines for Factory Electrical Equipment (International Harmonized Technical Guidelines) JNIOHS-TR-46-L:2020 and 2:2018

**SDG CO., Ltd.**

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