A small step for axis.
Large step ahead for system motion.

MINAS A5 Series

Five industry-leading advantages supported by a variety of new technologies and new features.

1 Quick
- 2.0 kHz frequency response
- 20 bits/revolution
- Low cogging torque
- The input/output pulse 4 Mpps

2 Smart
- Highly functional real-time auto-gain tuning
- Manual/auto notch filter
- Manual/auto damping filter
- Motion simulation

3 Light
- New structure
- Innovative core
- Innovative encoder

4 Safe
- Complies with European safety standards
- Low noise
- IP67 enclosure rating

5 Easy
- Set-up support software Localized in 4 languages
- Service life prediction
- Encoder temperature monitor

Series Line-up

A5 series
Rated output : 50W to 15.0kW

A5

- Speed, Position, Torque, Fullclose control type
- 20bit incremental Encoder, 17bit absolute/ incremental Encoder

A5E series
Rated output : 50W to 5.0kW

A5E

- Only position control
- 20bit incremental Encoder, 17bit incremental Encoder

A5N series
Rated output : 50W to 15.0kW

A5N

- Ultra High-speed Network “Realtime Express (RTEX)” Communication speed : 100Mbps Full-dupleex.

RTEX Realtime Express

* For details, see the website or request for information

A5L series
Capacity of applying Linear motor: Compatible with 5.0kW rotaly AC Servo motor

A5L

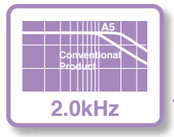
- Linear Motor and DD Motor Control
- Automatic Setup

* For details, see the website or request for information

Contents

1 Quick

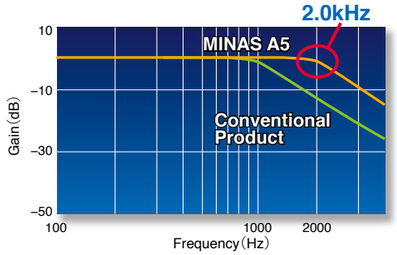
2.0 kHz frequency response



Example application Semiconductor production equipment, packaging, etc. A5 A5E

Achieves the industry's fastest frequency response of 2.0 kHz.

Operation speed up by new developed LSI and high responsible control. **By the industry's fastest speed and positioning response, a highly advanced system can be created. What's more, the shorter response delay will realize an extremely lower vibration.**



20 bits/revolution, 1.04 million pulses (At incremental type)

Example application Machine tools, textile machinery, etc. A5 A5E

Ensures smoother operation and reduced vibration at stopping.
Ensures accurate positioning in a short time.

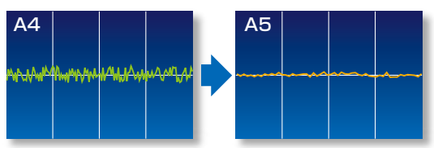
New proprietary signal processing technology achieves 1.04 million pulses with a 20-bit incremental encoder.

Low cogging torque (Excluding MSMD, MHMD, MDME 11.0kW. 15.0kW)

Example application Semiconductor production equipment, textile machinery, etc. A5 A5E

For the industry's most stable speed and lowest cogging

We've achieved the industry's lowest cogging by minimizing the pulse width by a new design incorporating a 10-pole rotor for the motor and a magnetic field parsing technique. **Positioning and stability are greatly improved by the minimal torque variation. This results to improved speed stability and positioning of motor rotation.**



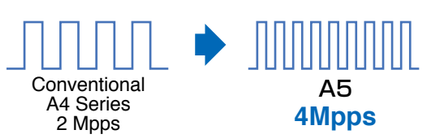
Vibration reduced to only **1/8**

The input/output pulse 4 Mpps

Example application Semiconductor production equipment, machine tools, etc. A5 A5E

Accommodates the industry's leading positioning resolution commands (with pulse train commands).

The command input and feedback output operate at the high speed of 4 Mpps. Accommodates high-resolution and high-speed operation, including standard full closed operation. (Provided with A5 only.)



2 Smart

Highly Functional Real-time Auto-Gain Tuning

Example application Semiconductor production equipment, food processing machinery, etc. A5 A5E

Incorporates the industry's quickest high-performance real-time auto-gain tuning featuring simple setup.

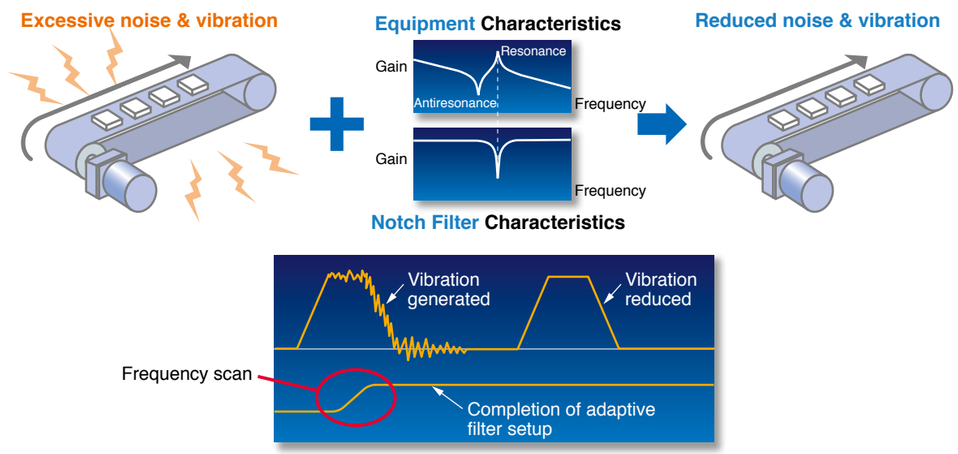
After installation, tuning will be completed automatically after several operations. When the response is adjusted, **simple tuning** is supported with a change of one parameter value. Use of the gain adjustment mode in the setup support software contributes to optimum adjustment. **The built-in auto vibration suppression function reduces equipment damage.** Appropriate modes are provided for various machines such as **vertical axis machines and high friction machines with belts**.
This makes it possible to perform simple optimal adjustments simply by selecting the mode and stiffness.

Manual/Auto Notch Filters

Example application Semiconductor production equipment, food processing machinery, etc. A5 A5E

Equipped with auto-setting notch filters for greater convenience.

Now there is no need to measure troublesome vibration frequencies. Our notch filters automatically detect vibration and provide simple auto-setting. These notch filters greatly reduce noise and vibration caused by equipment resonance and respond quickly during operation. The A5 Series features an industry-largest total of four notch filters with setup frequencies of 50 to 5,000 Hz. This approach enables depth adjustment within this frequency range. (Two of the filters share the auto set-up.)



Manual/Auto Damping Filter

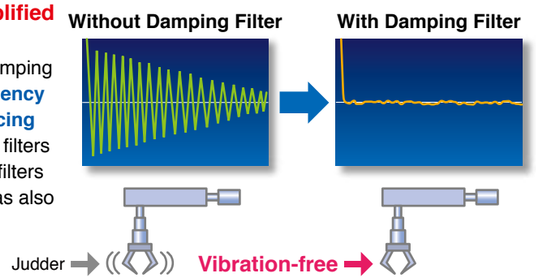
Damping filter

Example application: Chip mounters, food processing machinery, robots, general production machinery, etc.

A5 A5E

Equipped with a damping filter featuring simplified automatic setup.

The setup software features automatic setup of the damping filter. **This filter removes the natural vibration frequency component from the command input, greatly reducing vibration of the axis when stopping.** The number of filters has been increased to four from the conventional two filters (two for simultaneous use). The adaptive frequency has also been significantly expanded from 1 to 200 Hz.



Motion Simulation

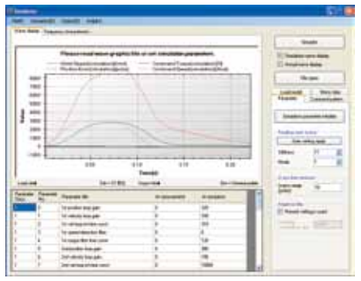
Simulation

Example application: General production machinery, etc.

A5 A5E

Equipped with a simplified machine simulation function.

The setup software uses frequency response data acquired from the actual machine. In addition, it features a machine simulation function for performing simulated operation. **This allows you to easily confirm the effects of gain and various filters without adjusting the actual equipment.**



3 Light

New Structure/ Innovative Core/ Innovative Encoder (Excluding MSMD, MHMD type)

New structure
Innovative core
Innovative encoder

Example application: Robots, chip mounters, general production machinery, etc.

A5 A5E

Featuring significantly reduced weight and a more compact motor

We've developed new designs for both compact motors and large motors. The new design used for the core has succeeded in compact. **The addition of an innovative compact encoder has contributed to a 10% to 25% (1 to 6 kg) reduction in motor weight in the 1 kW and larger class when compared with conventional motors.**

[Examples for MSM or MDM]

	A4 Series	A5 Series	Weight Reduction
MSM 1kW	4.5kg	3.5kg	▲1kg
MSM 2kW	6.5kg	5.3kg	▲1.2kg
MDM 1kW	6.8kg	5.2kg	▲1.6kg
MDM 2kW	10.6kg	8.0kg	▲2.6kg

4 Safe

Complies with European Safety Standards.

Safe torque off

Example application: Semiconductor and LCD production equipment, etc.

A5

Complies with the latest European safety standards.

Features non-software-based (hardware-based?) independent redundant circuitry for motor power isolation. This obviates the need for magnetic contactors to isolate the required motor in order to accommodate low-voltage machinery commands. (The final safety compliance must be applied as machine.)

Low noise

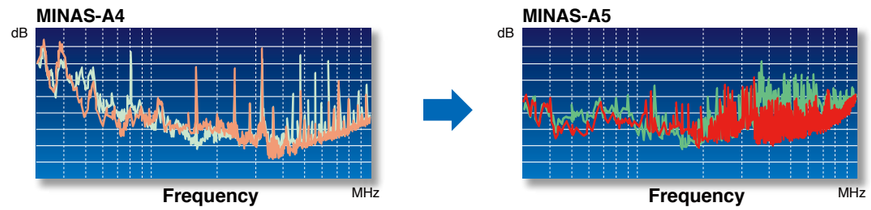
Low noise

Example application: Semiconductor and LCD production equipment, etc. general production machinery for export to the European market

A5 A5E

Complies with the European EMC Directive

By incorporating the latest circuit technology, A5 series achieves a further noise reduction of 3dB compared with the conventional A4 Series, which also features noise suppression. (The A4 Series also conforms to the EMC Directive.)



IP67 Enclosure Rating (Products are build to order items.)

IP67

Example application: Machine tools, robots, printing machines, etc.

A5 A5E

IP67 enclosure rating for increased environmental resistance

Our improved motor seals and direct-mount connectors in the motor power supply and encoder input-output areas contribute to this unit's IP67 enclosure rating.

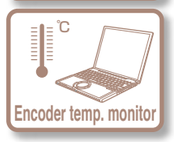
Adoption of direct-mount connector

IP67
- Protection against water
  - Protection against temporary immersion in water
- Protection against dust
  - Protected against dust penetration when in full contact

- Motors of MSMD and MHMD series and 0.9 kW or higher standard stock items have IP65 rating.
- Motors of IP67 have smaller encoder connector that requires cable compatible with IP67 motor.

* IP67motor is build to order items.

5 Easy



PANATERM Set-up Support Software

A5 A5E

New PANATERM Set-up Support Software, With many added features.

Localized in 4 languages

Choose either **English, Japanese, Chinese, or Korean**-language display.

Setup Wizard

This wizard supports fundamental settings in each control mode step by step, includeing reading of default setting.
In on-line condition, input data related to each step can be monitored in real time.

Trial run

This function supports positioning with the Z-phase search and software limit.

Fit gain

This function automatically searches the best suitable stiffness setting and mode and adjusts the gain once the target in-position range and setting time are set.

Service Life Prediction

The service life prediction function considers the internal temperature for main components such as the fan and condenser. If the rated value is exceeded, an alarm is displayed. **This approach prevents unexpected suspension of operation and allows for planning of systemized maintenance.**
Note: The life span prediction value should be considered as a guide only.

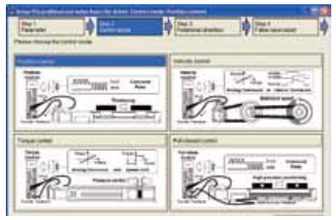
Encoder Temperature Monitor

The Encoder Temperature Monitor is a new function capable of **real-time measurement of the interior temperature of the encoder, something that has been difficult to achieve in the past**. It is valuable for monitoring the motor and can be used as a diagnostic in the event of a malfunction (provided with 20-bit encoder only).

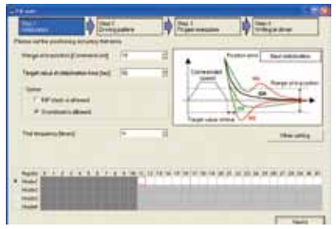
Other New Function

The software offers a wide range of convenient features including motor and driver data such as load factor, voltage, and driver temperature. Moreover, the logging function records the interface history. As well, a non-rotating contributing factor display function.

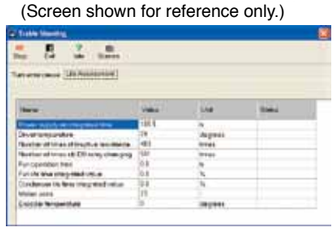
・Set up wizard function



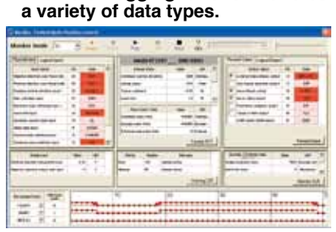
・Fit gain function



・Service Life Prediction function
(Screen shown for reference only.)



・The Data Logging function handles a variety of data types.



* Please download the set up software「PANATERM」from our web site and useafter install to the PC
http://industrial.panasonic.com/jp/i/25000/fa_minas_a5_panaterm/fa_minas_a5_panaterm.html
<CAUTION>
This software is applicable only to A5 series.
To apply this software to conventional product (A, AIII, E or A4 series), consult our distributors.

Other Functions

Command Control Mode A5

- Command control mode is available for Position, Speed (including eight internal velocities) and Torque.
- Using parameter settings, you can set up one optional command control mode or two command control modes by switching.
- According to suitable application utility, proper optional command control mode can be chosen.

Full closed Control A5

AB-phase linear scale (for general all-purpose products) or serial scale (for products with Panasonic's exclusive format) scales can be used (page 9.).

SEMI F47 A5 A5E

- Includes a function in compliance with the SEMI F47 standard for voltage sag immunity under no load or light load.
- Ideal for the semiconductor and LCD industries.

Notes:
1) Excluding the single-phase 100-V type.
2) Please verify the actual compliance with your machine checking the F47 standard for voltage sag immunity.

Inrush Current Preventive Function A5 A5E

- This driver is equipped with a rush current preventive resistor to prevent the circuit breaker from shutting off the power supply as a result of inrush current occurring at power-on.

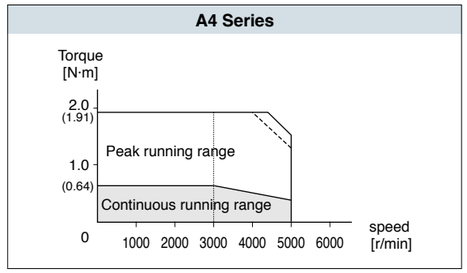
Regenerative Energy Discharge A5 A5E

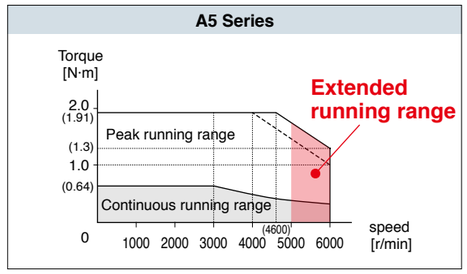
- A regenerative resistor is used to discharge regenerative energy, which is the energy generated when stopping a load with a large moment of inertia or when using this unit in vertical operation. This energy is returned to the driver from the motor.
- Frame A, B, G and frame H model drivers do not contain a regenerative resistor. Optional regenerative resisters are recommended.
- Frame C to frame F model drivers contain one regenerative resistor; however, adding an optional regenerative resistor provides additional regeneration capability.

6,000-rpm capability (build to order item) A5 A5E

The MSME motor (under 750 W) can accommodate a maximum speed of 6,000 r/min.

[Comparison of new and conventional 200 W]





- **Gear head**
Gear heads for 6000 r/min and 5000 r/min motors are available.Set 5000 r/min gear head only to 5000 r/min motor, and set 6000 r/min gear head only to 6000 r/min motor.
When customers prepare a gear head, use it as follows:
MSME → 6000 r/min
MSMD, MHMD → 5000 r/min

Dynamic Braking A5 A5E

- With parameter settings, you can select dynamic braking, which shorts servomotor windings U, V and W at Servo-OFF, during positive direction/ negative direction, and during power shutdown and tripping of the circuit breaker for over travel inhibition.
* The dynamic brake circuit of H-frame is external.
- The desired action sequence can be set up to accommodate your machine requirements.

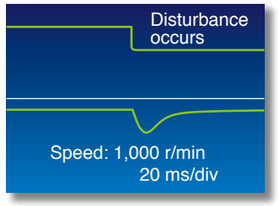
Parameter Initialization A5 A5E

Using the front panel or by connecting a PC, you can restore the parameters to the factory settings.

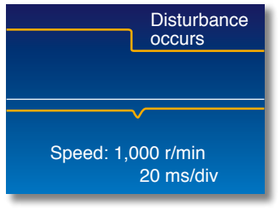
Disturbance Observer A5 A5E

By using a disturbance observer to add an estimated disturbance torque value to the torque canceling command, this function diminishes the impact of the disturbance torque, reduces vibration, and offsets any speed decline.

Disturbance observer function not in effect



Disturbance observer function in effect



Torque Feed Forward A5 A5E

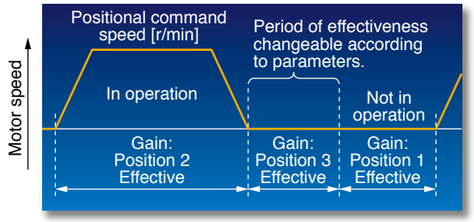
The Torque Feed Forward function performs a comparison with feedback and calculates the amount of torque to add to the necessary torque command in the command for actuation.

Friction Torque Compensation A5 A5E

This function reduces the effect of machine-related friction and improves responsiveness. Two kinds of friction compensation can be set up: unbalanced load compensation, which compensates with a constant operational offset torque; and kinetic friction, which changes direction in response to the direction of movement.

3-Step Gain A5 A5E

A 3-step gain switch is available in addition to the normal gain switch.
This chooses appropriate gain tunings at both stopping and running.
The 3-step gain switch gives you choices of 3 different tunings for normal running, stopping for faster positioning and at stopping.
The right gaining tunings achieve lower vibration and quicker positioning time of your application.



Inertia Ratio Conversion A5 A5E

You can adjust right inertia ratio by Inertia Ratio Conversion input(J-SEL).
When you have significant load inertia changes, it can adjust unbalanced speed and position gain turning combination.
It ends up quicker response of your system.

Input/Output Signal Assignment A5 A5E

You can use the parameters to arbitrarily allocate the universal 10 inputs and 6 outputs. (Inputs can be selected as either A contacts or B contacts). The Panaterm setup software provides an exclusive screen for a more simplified setup.

Torque Limiter Switching A5 A5E

You can use the I/Os to set up torque limits. These can be used for applications such as simplified pressure, tension control, and sensor-less homing.

Applicable international safety standards A5 A5E

(A5 series) (A5E series)

		Driver	Motor
EC Directives	EMC Directives	EN55011 EN61000-6-2 IEC61800-3	–
	Low-Voltage Directives	EN61800-5-1	EN60034-1 EN60034-5
	Machinery Directives Functional safety *1	EN954-1(CAT3) ISO13849-1(PL c,d) (Cat. 3) EN61508(SIL2) EN62061(SIL2) EN61800-5-2(STO) IEC61326-3-1	–
UL Standards		UL508C (E164620)	UL1004-1 (E327868: 50W to 750W, 6.0kW to 15.0kW) UL1004 (E327868: 400W(400V), 600W(400V), 750W(400V), 0.9kW to 5.0kW)
CSA Standards		C22.2 No.14	C22.2 No.100

IEC : International Electrotechnical Commission
EN : Europaischen Normen
EMC : Electromagnetic Compatibility
UL : Underwriters Laboratories
CSA : Canadian Standards Association

Pursuant to the directive 2004/108/EC, article 9(2)
Panasonic Testing Centre
Panasonic Service Europe, a division of
Panasonic Marketing Europe GmbH
Winsbergring 15, 22525 Hamburg, F.R. Germany

* When export this product, follow statutory provisions of the destination country.
* A5E series doesn't correspond to the functional safety *1 standard.

This product is not an object of China Compulsory Certification (CCC).

Applicable External Scales A5

Applicable External Scale	Manufacturer	Model No.	Resolution [µs]	Maximum Speed (m/s)*2
Parallel Type (AB-phase)	General	–	Maximum speed after 4 × multiplication: 4 Mpps	
Serial Type (Incremental)	Magnescale Co., Ltd.	SR75	0.01	3.3
		SR85	0.01	3.3
		SL700, PL101-RP	0.1	10
		SL710, PL101-RP	0.1	10
	MicroE Systems	MII-5000 MII-6000	0.1*3	5*3
Serial Type (Absolute)	Mitutoyo Corporation	AT573A	0.05	2
		ST771A(L)	0.5	5
		ST773A(L)	0.1	4
	Magnescale Co., Ltd.	SR77	0.01	3.3
		SR87	0.01	3.3
	Renishaw plc	RESOLUTE	0.001	0.4
			0.05	20
			0.1	40
	Fagor Automation S.Coop	SVAP	0.05	2
		SAP	0.05	2
		GAP	0.05	2

*2: The maximum speed is a characteristic of the driver. It is limited by the configuration of the machine and the system.
*3: It changes by the setting.

Motor Line-up

Motor Line-up

	Motor		Voltage	Rated output (kW)	Rated rotational speed (Max. speed) (r/min)	Rotary encoder: 20-bit incremental	Rotary encoder: 17-bit absolute	Enclosure (*1)	Features	Applications
Low inertia	MSMD		100V 200V	0.05 0.1 0.2 0.4	3000 (5000)	○	○	IP65	• Leadwire type • Small capacity • Suitable for high speed application • Suitable for all applications	• Bonder • Semiconductor production equipment • Packing machines etc
			200V	0.75	3000 (4500)					
	MSME		100V 200V	0.05 0.1 0.2 0.4	3000 (6000)	○	○	IP67	• Small capacity • Suitable for high speed application • Suitable for all applications	
			200V	0.75						
			400V	0.75	3000 (5000)	○	○	IP65(*2)	• Middle capacity • Suitable for the machines directly coupled with ball screw and high stiffness and high repetitive application	• SMT machines • Food machines • LCD production equipment etc
			200V 400V	1.0 1.5 2.0 3.0						
				4.0 5.0	3000 (4500)					
Middle inertia	MDME		400V	0.4 0.6	2000 (3000)	○	○	IP65(*2)	• Middle capacity • Suitable for low stiffness machines with belt driven	• Conveyors • Robots • Machine tool etc
			200V 400V	1.0 1.5 2.0 3.0 4.0 5.0						
				7.5 (*3)	1500 (3000)					
				11.0 (*3) 15.0 (*3)	1500 (2000)					
	MFME (Flat type) (*3)		200V 400V	1.5 2.5 4.5	2000 (3000)	○	○	IP67	• Middle capacity • Flat type and suitable for machines with space limitation	• Robots • Food machines etc
	MGME (Low speed/ High torque type)		200V 400V	0.9 2.0 3.0 4.5 (*3) 6.0 (*3)	1000 (2000)	○	○	IP65(*2)	• Middle capacity • Suitable for low speed and high torque application	• Conveyors • Robots • Textile machines etc
High inertia	MHMD		100V 200V	0.2 0.4	3000 (5000)	○	○	IP65	• Leadwire type • Small capacity • Suitable for low stiffness machines with belt driven	• Conveyors • Robots etc
			200V	0.75	3000 (4500)					
	MHME		200V 400V	1.0 1.5 2.0 3.0 4.0 5.0	2000 (3000)	○	○	IP65(*2)	• Middle capacity • Suitable for low stiffness machines with belt driven, and large load moment of inertia	• Conveyors • Robots • LCD manufacturing equipment etc
				7.5 (*3)	1500 (3000)					

(*1) Except for output shaft, and connector. (*2) IP67 motor is also available. (*3) Only IP67 motor is avilable.

*** See the page 16 to 23, driver and motor combination.**

Model Designation

* For combination of elements of model number, refer to Index.

Servo Motor

M S M E 5 A Z G 1 S ＊＊ — Special specifications

Symbol	Type
MSMD	Low inertia(50W to 750W)
MSME	Low inertia(50W to 5.0kW)
MDME	Middle inertia (400W to 15.0kW)
MFME	Middle inertia (1.5kW to 4.5kW)
MGME	Middle inertia (0.9kW to 6.0kW)
MHMD	High inertia(200W to 750W)
MHME	High inertia(1.0kW to 7.5kW)

Motor rated output

Symbol	Rated output	Symbol	Rated output
5A	50W	25	2.5kW
01	100W	30	3.0kW
02	200W	40	4.0kW
04	400W	45	4.5kW
06	600W	50	5.0kW
08	750W	60	6.0kW
09	0.9kW	75	7.5kW
10	1.0kW	C1	11.0kW
15	1.5kW	C5	15.0kW
20	2.0kW		

Voltage specifications

Symbol	Specifications
1	100V
2	200V
4	400V
Z	100V/200V common (50W only)

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
G	Incremental	20-bit	1,048,576	5
S	Absolute	17-bit	131,072	7

* S: can be used in incremental.

Motor specifications

MSME(50W to 750W(200V)), MSMD, MHMD

Symbol	Shaft: Round	Shaft: D-cut	Shaft: Key-way, center tap	Holding brake: without	Holding brake: with	Oil seal: without	Oil seal: with
A	●			●		●	
B	●				●	●	
C	●			●			●
D	●				●		●
N		●		●		●	
P		●			●	●	
Q		●		●			●
R		●			●		●
S			●	●		●	
T			●		●	●	
U			●	●			●
V			●		●		●

MSME(750W(400V), 1.0kW to 15.0kW), MDME, MFME, MGME, MHME

Symbol	Shaft: Round	Shaft: Key-way	Holding brake: without	Holding brake: with	Oil seal: without	Oil seal: with
C	●		●			●
D	●			●		●
G		●	●			●
H		●		●		●

Design order

Symbol	Specifications
C	IP65 motor
1	IP67 motor (MSMD, MHMD: IP65)

Motor with reduction gear

M S M E 0 1 1 G 3 1 N

Symbol	Type
MSMD	Low inertia (100W to 750W)
MSME	Low inertia (100W to 750W)
MHMD	High inertia (200W to 750W)

Motor rated output

Symbol	Rated output
01	100W
02	200W
04	400W
08	750W

Voltage specifications

Symbol	Specifications
1	100V
2	200V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
G	Incremental	20-bit	1,048,576	5
S	Absolute	17-bit	131,072	7

* S: can be used in incremental.

Gear ratio, gear type

Symbol	Gear reduction ratio	Motor output (W): 100	200	400	750	Gear type
1N	1/5	●	●	●	●	For high accuracy
2N	1/9	●	●	●	●	
3N	1/15	●	●	●	●	
4N	1/25	●	●	●	●	

* MHMD 100W is not prepared.

Motor structure

Symbol	Shaft: Key-way	Holding brake: without	Holding brake: with
3	●	●	
4	●		●

Servo Driver

Standard type: M A D H T 1 5 0 5 ＊＊＊ — Special specifications

Positioning type: M A D H T 1 5 0 5 E ＊＊ — Special specifications

Frame symbol *

Symbol	Frame
MADH	A5 series Frame A
MBDH	A5 series Frame B
MCDH	A5 series Frame C
MDDH	A5 series Frame D
MEDH	A5 series Frame E
MFDH	A5 series Frame F
MGDH	A5 series Frame G
MHDH	A5 series Frame H

* A5E series is up to F-frame.

Power device Max. current rating

Symbol	Current rating
T1	10A
T2	15A
T3	30A
T4	35A
T5	50A
T7	75A
TA	100A
TB	150A
TC	300A

Supply voltage specifications

Symbol	Specifications
1	Single phase, 100V
3	3-phase, 200V
4	3-phase, 400V
5	Single/3-phase, 200V

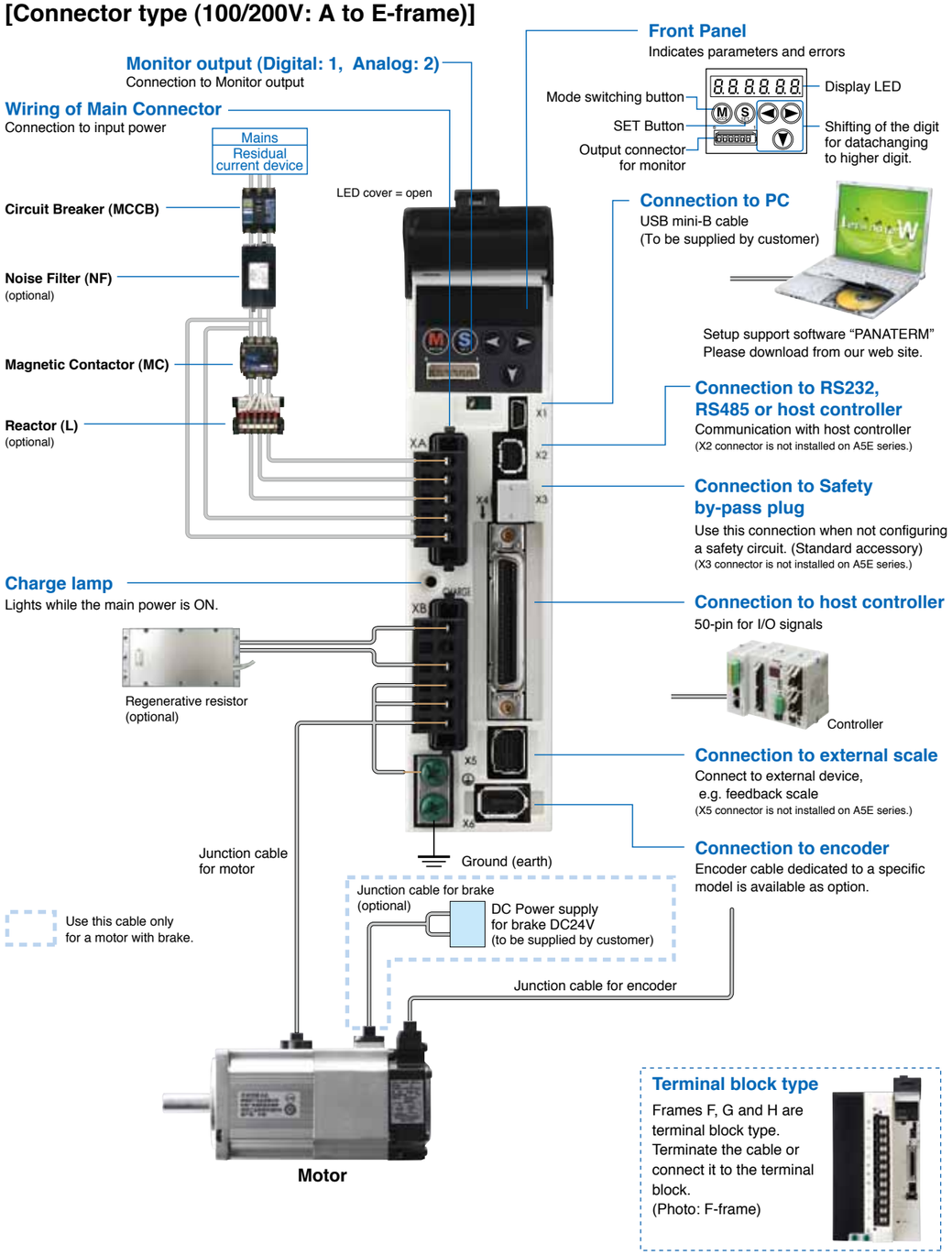
Only position control

E

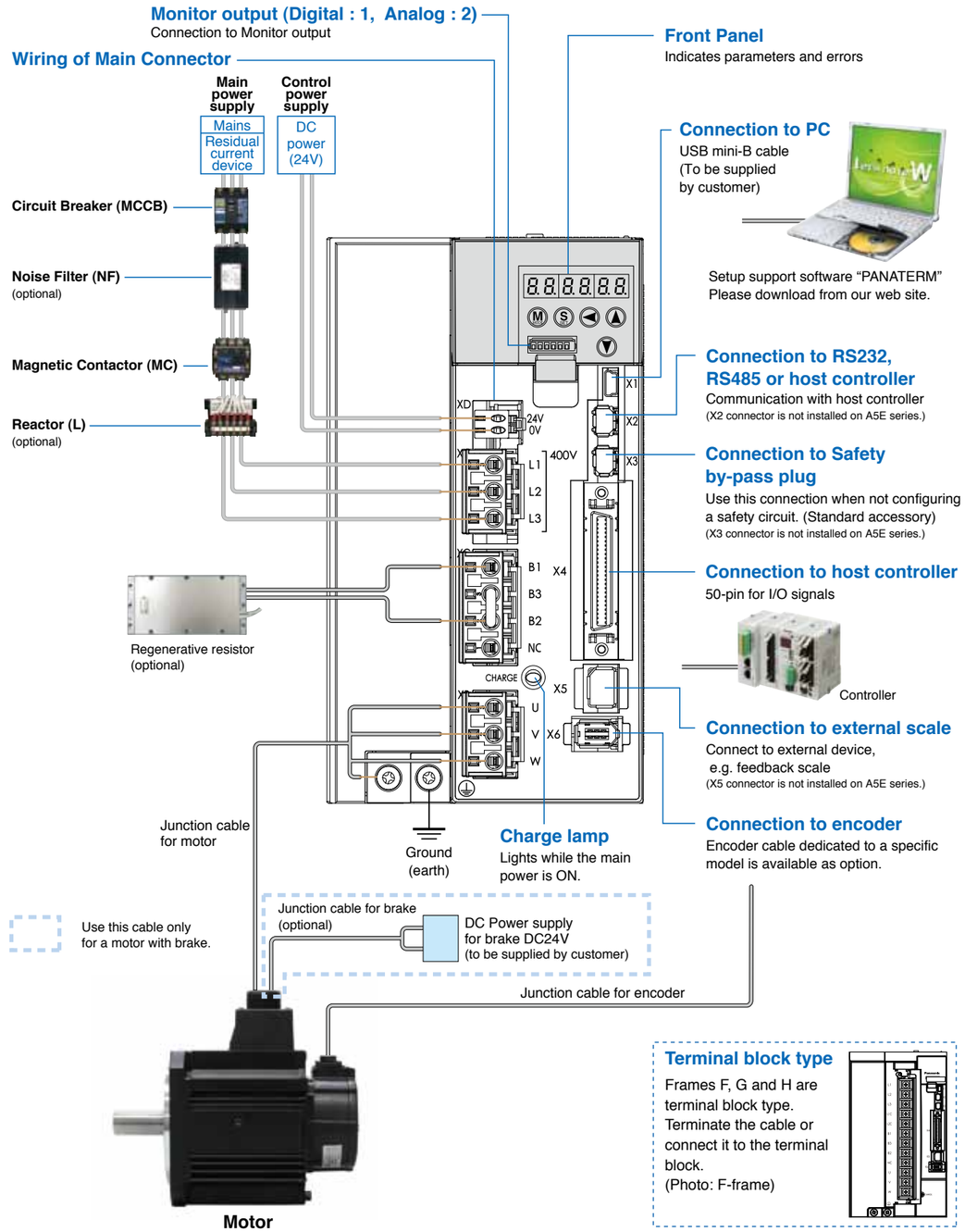
Current detector current rating

Symbol	Specifications	Symbol	Specifications
05	5A	40	40A
07	7.5A	64	64A
10	10A	90	90A
12	12A	A2	120A
20	20A	B4	240A
30	30A		

[Connector type (100/200V: A to E-frame)]

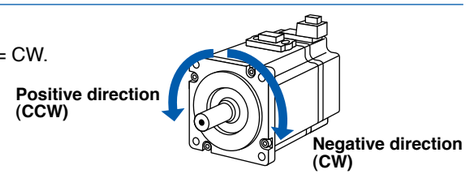


[Connector type (400V: D, E-frame)]



<Caution>
Apply adequate tightening torque to the product mounting screw by taking into consideration strength of the screw and the characteristics of material to which the product is installed. Overtightening can damage the screw and/or material; undertightening can result in loosening.
Example) Steel screw (M5) into steel section: 2.7 to 3.3 N·m.

<Note>
Initial setup of rotational direction: positive = CCW and negative = CW.
Pay an extra attention.



Driver and List of Applicable Peripheral Equipments

Driver	Applicable motor	Voltage	Rated output	Required Power (at the rated load)	Circuit breaker (rated current)	Noise filter (Single phase / 3-phase)	Surge absorber (Single phase / 3-phase)	Noise filter for signal	Rated operating current of magnetic (contactor Contact configuration) *1	Diameter and withstand voltage of main circuit cable	Crimp terminal for main circuit terminal block *3	Diameter and withstand voltage of control power supply cable	Crimp terminal for control power supply terminal block	Diameter and withstand voltage of motor cable *4	Diameter and withstand voltage of brake cable
MADH	MSME MSMD MHMD	Single phase, 100V	50W to 100W	approx. 0.4kVA	10A	DV0P4170	DV0P4190	DV0P1460	20A (3P+1a)	0.75mm²/ AWG18 600 VAC or more	Connection to exclusive connector	0.75mm²/ AWG18 600 VAC or more	Connection to exclusive connector	2.0mm²/ AWG14 600 VAC or more	0.28mm² to 0.75mm²/ AWG22 to AWG18 100 VAC or more
		Single/ 3-phase, 200V	50W to 200W	approx. 0.5kVA		DV0P4170 / DV0PM20042	DV0P4190 / DV0P1450								
MBDH	MSME MSMD MHMD	Single 100V	200W	approx. 0.5kVA		DV0P4170	DV0P4190								
		Single/ 3-phase, 200V	400W	approx. 0.9kVA		DV0P4170 / DV0PM20042	DV0P4190 / DV0P1450								
MCDH	MSME MSMD MHMD	Single 100V	400W	approx. 0.9kVA		DV0PM20042	DV0P4190								
		Single/ 3-phase, 200V	750W	approx. 1.3kVA	15A		DV0P4190 / DV0P1450								
MDDH	MDME	Single/ 3-phase, 200V	1.0kW	approx. 1.8kVA		DV0P4220			30A (3P+1a)	2.0mm²/ AWG14 600V VAC or more					
	MHME														
	MGME		0.9kW	approx. 1.8kVA	20A										
	MSME		1.0kW	approx. 1.8kVA											
	MHME		1.5kW	approx. 2.3kVA											
	MDME														
	MFME														
	MSME														
	MDME	3-phase, 400V	400W	approx. 0.9kVA	10A	FN258L-16-07 (Recommended component)	DV0PM20050		20A (3P+1a)			0.52mm²/ AWG20 100 VAC or more			
	MDME		600W	approx. 1.2kVA											
	MSME		750W	approx. 1.6kVA											
	MSME		1.0kW	approx. 1.8kVA											
	MDME														
	MHME														
	MGME		0.9kW												
	MSME		1.5kW	approx. 2.3kVA											
	MDME														
	MFME														
	MHME														
MEDH	MDME	3-phase, 200V	2.0kW	approx. 3.3kVA	30A	DV0PM20043	DV0P1450	DV0P1460 RJ8035 (Recommended component) *5	60A (3P+1a)			0.75mm²/ AWG18 600 VAC or more			
	MSME														
	MHME		2.5kW	approx. 3.8kVA											
	MFME														
	MSME	3-phase, 400V	2.0kW	approx. 3.3kVA	15A	FN258L-16-07 (Recommended component)	DV0PM20050	DV0P1460	30A (3P+1a)			0.52mm²/ AWG20 100 VAC or more			
	MDME														
	MHME														
	MFME		2.5kW	approx. 3.8kVA											
MFDH	MGME	3-phase, 200V	2.0kW	approx. 3.8kVA	50A	DV0P3410	DV0P1450	DV0P1460 RJ8035 (Recommended component) *5	60A (3P+1a)	3.5mm²/ AWG12 600 VAC or more	11mm or smaller φ5.3 Terminal block M5	0.75mm²/ AWG18 600 VAC or more	11mm or smaller φ5.3 Terminal block M5	3.5mm²/ AWG12 600 VAC or more	0.75mm²/ AWG18 100 VAC or more
	MDME		3.0kW	approx. 4.5kVA											
	MHME														
	MSME														
	MGME		4.0kW	approx. 6.0kVA					100A (3P+1a)						
	MDME														
	MHME														
	MSME		4.5kW	approx. 6.8kVA											
	MFME														
	MGME		5.0kW	approx. 7.5kVA											
	MDME														
	MSME														
	MHME														
	MGME	3-phase, 200V	2.0kW	approx. 3.8kVA	30A	FN258L-30-07 (Recommended component)	DV0PM20050	DV0P1460	60A (3P+1a)		10mm or smaller φ4.3 Terminal block M4	0.75mm²/ AWG18 100 VAC or more	7mm or smaller φ3.2 Terminal block M3		
	MSME		3.0kW	approx. 4.5kVA											
	MDME														
	MGME														
	MHME		4.0kW	approx. 6.0kVA											
	MSME														
	MDME														
	MHME		4.5kW	approx. 6.8kVA											
	MFME														
	MGME		5.0kW	approx. 7.5kVA											
	MSME														
	MDME														
	MHME														
MGDH	MDME	3-phase, 200V	7.5kW	approx. 11kVA	60A	FS5559-60-34 (Recommended component)	DV0P1450	DV0P1460 RJ8095 (Recommended component) T400-61D (Recommended component) *5	100A (3P+1a)	5.3mm²/ AWG10 600 VAC or more	11mm or smaller φ5.3 Terminal block M5	0.75mm²/ AWG18 600 VAC or more	10mm or smaller φ5.3 Terminal block M5	13.3 mm²/ AWG6 600 VAC or more	
	MGME		6.0kW	approx. 9.0kVA											
	MHME		7.5kW	approx. 11kVA											
	MDME	3-phase, 400V	7.5kW	approx. 11kVA	30A	FN258-42-07 or FN258-42-33 (Recommended component)	DV0PM20050		60A (3P+1a)			0.75mm²/ AWG18 100 VAC or more			
	MGME		6.0kW	approx. 9.0kVA											
	MHME		7.5kW	approx. 11kVA											
MHDH	MDME	3-phase, 200V	11kW	approx. 17kVA	100A	FS5559-80-34 (Recommended component)	DV0P1450		150A (3P+1a)	13.3mm²/ AWG6 600 VAC or more *2	16mm or smaller φ6.4 Terminal block M6	0.75mm²/ AWG18 600 VAC or more	10mm or smaller φ4.3 Terminal block M4	21.1 mm²/ AWG4 600 VAC or more	
			15kW	approx. 22kVA	125A										
		3-phase, 400V	11kW	approx. 17kVA	50A	FN258-42-07 or FN258-42-33 (Recommended component)	DV0PM20050		100A (3P+1a)			0.75mm²/ AWG18 100 VAC or more		13.3 mm²/ AWG6 600 VAC or more	
			15kW	approx. 22kVA	60A									21.1 mm²/ AWG4 600 VAC or more	

*1 For the external dynamic brake resistor, use the magnetic contactor with the same rating as that for the main circuit.
*2 When use the external regenerative resistor of the option (DV0PM20058, DV0PM20059), use the cable with the same diameter as the main circuit cable.
*3 For the ground screw, use the same crimp terminal as that for the main circuit terminal block.
*4 The diameter of the ground cable and the external dynamic brake resistor cable must be equal to, or larger than that of the motor cable.
The motor cable is a shield cable, which conforms to the EC Directives and UL Standards. (G, H-frame only)
*5 Use thses products to suit an international standard.

• Related page
Noise filter ..... P.150 “Composition of Peripheral Equipments”
Surge absorber..... P.153 “Composition of Peripheral Equipments”
Noise filter for signal..... P.153 “Composition of Peripheral Equipments”
Motor/brake connector ..... P.156, 157 “Specifications of Motor connector”

• About circuit breaker and magnetic contactor
To comply to EC Directives, install a circuit break er between the power and the noise filter without fail, and the circuit breaker should conform to IEC Standards and UL recognized (Listed and Ⓤ marked).
Suitable for use on a circuit capable of delivering not more than 5,000 Arms symmetrical amperes, below the maximum input voltage of the product.
If the short-circuit current of the power supply exceeds this value, install a current limit device (current limiting fuse, current limiting circuit breaker, transformer, etc.) to limit the short-circuit current.

<Remarks>
• Select a circuit breaker and noise filter which match to the capacity of power supply (including a load condition).

• Terminal block and protective earth terminals
  • Use a copper conductor cables with temperature rating of 75˚C or higher.
  • Use the attached exclusive connector for A to E-frame, and maintain the peeled off length of 8 to 9mm.

Fastening torque list (Terminal block screw/Terminal cover fastening screw)

Driver		Terminal block screw		Terminal cover fastening screw	
Frame	Terminal name	Nominal size	Fastening torque (N•m)	Nominal size	Fastening torque (N•m)
F(200 V)	L1, L2, L3, L1C, L2C, B1, B2, B3, NC, U, V, W	M5	1.0 to 1.7	M3	0.19 to 0.21
F(400 V)	24V、0V	M3	0.4 to 0.6		
	L1, L2, L3, B1, B2, B3, NC, U, V, W	M4	0.7 to 1.0		
G	L1C, L2C, 24V, 0V, DB1, DB2, DB3, DB4, NC	M5	1.0 to 1.7		
	L1, L2, L3, B1, B2, NC, U, V, W	M5	2.0 to 2.4	M3	0.3 to 0.5
H	L1C, L2C, 24V, 0V, DB1, DB2	M4	0.7 to 1.0	M5	2.0 to 2.5
	L1, L2, L3, B1, B2, NC, U, V, W	M6	2.2 to 2.5		

Fastening torque list (Ground terminal screw/Connector to host controller (X4))

Driver frame	Ground screw		Connector to host controller (X4)	
	Nominal size	Fastening torque (N•m)	Nominal size	Fastening torque (N•m)
A to E	M4	0.7 to 0.8	M2.6	0.3 to 0.35
G	M5	1.4 to 1.6		
H	M6	2.4 to 2.6		

<Caution>
• Applying fastening torque larger than the maximum value may result in damage to the product.
• Do not turn on power without tightening all terminal block screws properly, otherwise, loose contacts may generate heat (smoking, firing).

<Remarks>
• To check for looseness, conduct periodic inspection of fastening torque once a year.

Table of Part Numbers and Options

50W to 750W (MSMD, MHMD: IP65 / MSME: IP67)

Motor						Driver			Power capacity (at rated load)	Optional parts							
Motor series			Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5 Series Part No. (Velocity, Position, Torque, Full-Closed type)	A5E Series Part No. (Only for position control type Note) 2	Frame		Encoder cable: 20-bit Incremental Note) 3	Encoder cable: 17-bit Absolute Note) 2,3		Motor cable: without brake Note) 3	Motor cable: with brake Note) 3	Brake cable Note) 3	Regenerative resistor	Reactor (Single phase / 3-phase)	Noise filter (Single phase / 3-phase)
Standard	Low inertia	MSMD (Leadwire type) 3000r/min	Single phase 100V	50	MSMD5AZ☐1✻	44	MADHT1105	MADHT1105E	A-frame	Approx. 0.4kVA	MFECA 0**0EAM	MFECA 0**0EAE note) 5		MFMCA 0**0EED	—	MFMCB 0**0GET	DV0P4280	DV0P227	DV0P4170
				100	MSMD011☐1✻	46	MADHT1107	MADHT1107E		Approx. 0.4kVA								
				200	MSMD021☐1✻	48	MBDHT2110	MBDHT2110E	B-frame	Approx. 0.5kVA							DV0P4283	DV0P228	
				400	MSMD041☐1✻	50	MCDHT3120	MCDHT3120E	C-frame	Approx. 0.9kVA							DV0P4282		DV0PM20042
			Single phase/ 3-phase 200V	50	MSMD5AZ☐1✻	45	MADHT1505	MADHT1505E	A-frame	Approx. 0.5kVA							DV0P4281	DV0P227 / DV0P220	DV0P4170 / DV0PM20042
				100	MSMD012☐1✻	47	MADHT1505	MADHT1505E		Approx. 0.5kVA									
				200	MSMD022☐1✻	49	MADHT1507	MADHT1507E		Approx. 0.5kVA							DV0P4283		
				400	MSMD042☐1✻	51	MBDHT2510	MBDHT2510E	B-frame	Approx. 0.9kVA								DV0P228 / DV0P220	
				750	MSMD082☐1✻	52	MCDHT3520	MCDHT3520E	C-frame	Approx. 1.3kVA									DV0PM20042
Order		MSME (Connector type) 3000r/min	Single phase 100V	50	MSME5AZ☐1✻	60	MADHT1105	MADHT1105E	A-frame	Approx. 0.4kVA	MFECA 0**0MJD (For movable, to output shaft)	MFECA 0**0MJE (For movable, to output shaft)		MFMCA 0**0NJD (For movable, to output shaft)		MFMCB 0**0PJT (For movable, to output shaft)	DV0P4280	DV0P227	DV0P4170
				100	MSME011☐1✻	62	MADHT1107	MADHT1107E		Approx. 0.4kVA									
				200	MSME021☐1✻	64	MBDHT2110	MBDHT2110E	B-frame	Approx. 0.5kVA	MFECA 0**0MKD (For movable, to opposite output shaft)	MFECA 0**0MKE (For movable, to opposite output shaft)		MFMCA 0**0NKD (For movable, to opposite output shaft)		MFMCB 0**0PKT (For movable, to opposite output shaft)	DV0P4283	DV0P228	
				400	MSME041☐1✻	66	MCDHT3120	MCDHT3120E	C-frame	Approx. 0.9kVA							DV0P4282		DV0PM20042
			Single phase/ 3-phase 200V	50	MSME5AZ☐1✻	61	MADHT1505	MADHT1505E	A-frame	Approx. 0.5kVA	MFECA 0**0TJD (For fixed, to output shaft)	MFECA 0**0TJE (For fixed, to output shaft)		MFMCA 0**0RJD (For fixed, to output shaft)	—	MFMCB 0**0SJT (For fixed, to output shaft)	DV0P4281	DV0P227 / DV0P220	DV0P4170 / DV0PM20042
				100	MSME012☐1✻	63	MADHT1505	MADHT1505E		Approx. 0.5kVA									
				200	MSME022☐1✻	65	MADHT1507	MADHT1507E		Approx. 0.5kVA							DV0P4283		
				400	MSME042☐1✻	67	MBDHT2510	MBDHT2510E	B-frame	Approx. 0.9kVA	MFECA 0**0TKD (For fixed, to opposite output shaft)	MFECA 0**0TKE (For fixed, to opposite output shaft)		MFMCA 0**0RKD (For fixed, to opposite output shaft) Note) 4		MFMCB 0**0SKT (For fixed, to opposite output shaft)		DV0P228 / DV0P220	
				750	MSME082☐1✻	68	MCDHT3520	MCDHT3520E	C-frame	Approx. 1.3kVA									DV0PM20042
Standard	High inertia	MHMD (Leadwire type) 3000r/min	Single phase 100V	200	MHMD021☐1✻	54	MBDHT2110	MBDHT2110E	B-frame	Approx. 0.5kVA	MFECA 0**0EAM	MFECA 0**0EAE note) 5		MFMCA 0**0EED	—	MFMCB 0**0GET	DV0P4283	DV0P228	DV0P4170
				400	MHMD041☐1✻	56	MCDHT3120	MCDHT3120E	C-frame	Approx. 0.9kVA							DV0P4282		DV0PM20042
			Single phase/ 3-phase 200V	200	MHMD022☐1✻	55	MADHT1507	MADHT1507E	A-frame	Approx. 0.5kVA							DV0P4283	DV0P227 / DV0P220	DV0P4170 / DV0PM20042
				400	MHMD042☐1✻	57	MBDHT2510	MBDHT2510E	B-frame	Approx. 0.9kVA								DV0P228 / DV0P220	
				750	MHMD082☐1✻	58	MCDHT3520	MCDHT3520E	C-frame	Approx. 1.3kVA									DV0PM20042

Note)1 Rotary encoder specifications: ☐ Motor specification: ✻ (refer to P.11)
Note)2 Because A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.
Note)3 Cable length: ** (03: 3m, 05: 5m, 10: 10m, 20: 20m) (Example. 3m: MFECA0030EAM)
Note)4 Cables for opposite to output shaft cannot be used with 50W or 100W motor.
Note)5 When you use a 17-bit absolute encoder as an incremental encoder, please use the encoder cable MFECA0**0EAD.

• Selection of cable for MSME motor (Movable: For application where the cable is movable. Fixed: For application where the cable is fixed.)

• Encoder cable

Example: MFECA0✻✻0 ◇ △ ☐

◇ : Cable type

Symbol	Specifications
M	Movable
T	Fixed

△ : Cable direction

Symbol	Specifications
J	Movable
K	Fixed

☐ : Encoder Specifications

Symbol	Specifications
D	20-bit Incremental
E	17-bit Absolute

• Motor cable

Example: MFMCA0✻✻0 ◇ △ D

◇ : Cable type

Symbol	Specifications
N	Movable
R	Fixed

△ : Cable direction

Symbol	Specifications
J	to output shaft
K	to opposite output shaft

• Brake cable

Example: MFMCB0✻✻0 ◇ △ T

◇ : Cable type

Symbol	Specifications
N	Movable
R	Fixed

△ : Cable direction

Symbol	Specifications
J	to output shaft
K	to opposite output shaft

• Options

Title			Part No.	Page
Interface cable			DV0P4360	167
Interface conversion cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A to D-frame	Single row type	DV0PM20032	170
		Double row type	DV0PM20033	
Connector Kit for Motor Connection	A to D-frame		DV0PM20034	171
Connector Kit for Motor/Encoder Connection			DV0P4290	172
			DV0P4380	
			DV0PM20035	173
Connector Kit for Motor/Brake Connection			DV0PM20040	176
Connector Kit	RS485, RS232		DV0PM20024	168
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	169
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	177
Battery Box			DV0P4430	
Mounting bracket	A-frame		DV0PM20027	178
	B-frame		DV0PM20028	
	C-frame		DV0PM20029	
Junction Cable for Encoder	without Battery Box		MFECA0**0EAD	158
			MFECA0**0EAM	
			MFECA0**0MJD	159
			MFECA0**0MKD	
			MFECA0**0TJD	
			MFECA0**0TKD	
	with Battery Box		MFECA0**0EAE	158
			MFECA0**0MJE	159
			MFECA0**0MKE	
			MFECA0**0TJE	
			MFECA0**0TKE	
Junction Cable for Motor	without Brake		MFMCA0**0EED	161
			MFMCA0**0NJD	
			MFMCA0**0NKD	
			MFMCA0**0RJD	
			MFMCA0**0RKD	
Junction Cable for Brake			MFMCB0**0GET	166
			MFMCB0**0PJT	
			MFMCB0**0PKT	
			MFMCB0**0SJT	
			MFMCB0**0SKT	
External Regenerative Resistor	50Ω 25W		DV0P4280	180
	100Ω 25W		DV0P4281	
	25Ω 50W		DV0P4282	
	50Ω 50W		DV0P4283	
	30Ω 100W		DV0P4284	
	20Ω 130W		DV0P4285	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0P20047			179
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043 DV0P3410			150
Surge absorber	Single phase		DV0P4190	153
	3-phase (200V)		DV0P1450	
Noise Filter for Signal Lines			DV0P1460	

Table of Part Numbers and Options

0.4kW to 5.0kW IP65 motor

Motor						Driver			Power capacity (at rated load)	Optional parts							
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5 Series Part No. (Velocity, Position, Torque, Full-Closed type)	A5E Series Part No. (Only for position control type Note) 2	Frame		Encoder cable			Motor cable		Brake cable	Regenerative resistor	Reactor (Single phase / 3-phase)	Noise filter
										20-bit Incremental Note) 3	17-bit Absolute Note) 2,3		without brake Note) 3	with brake Note) 3	Note) 3			
Low inertia	MSME 3000r/min	Single phase/ 3-phase 200V	1000	MSME102□C＊	69	MDDHT5540	MDDHT5540E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MSME152□C＊	70	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047 / DV0P222	
		3-phase 200V	2000	MSME202□C＊	71	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA							DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MSME302□C＊	72	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 x2 in parallel	DV0P224	DV0P3410
			4000	MSME402□C＊	73	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MSME502□C＊	74	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 4	
		3-phase 400V	750	MSME084□C＊	99	MDDHT2412	MDDHT2412E	D-frame	Approx. 1.6kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 4	Recommended components P.152
			1000	MSME104□C＊	100	MDDHT3420	MDDHT3420E		Approx. 1.8kVA									
			1500	MSME154□C＊	101	MDDHT3420	MDDHT3420E		Approx. 2.3kVA									
			2000	MSME204□C＊	102	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA							DV0PM20049		
			3000	MSME304□C＊	103	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 x2 in parallel		
			4000	MSME404□C＊	104	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MSME504□C＊	105	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
Middle inertia	MDME 2000r/min	Single phase/ 3-phase 200V	1000	MDME102□C＊	75	MDDHT3530	MDDHT3530E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MDME152□C＊	76	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047 / DV0P222	
		3-phase 200V	2000	MDME202□C＊	77	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA							DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MDME302□C＊	78	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 x2 in parallel	DV0P224	DV0P3410
			4000	MDME402□C＊	79	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MDME502□C＊	80	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 4	
		3-phase 400V	400	MDME044□C＊	106	MDDHT2407	MDDHT2407E	D-frame	Approx. 0.9kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 4	Recommended components P.152
			600	MDME064□C＊	107	MDDHT2407	MDDHT2407E		Approx. 1.2kVA									
			1000	MDME104□C＊	108	MDDHT2412	MDDHT2412E		Approx. 1.8kVA									
			1500	MDME154□C＊	109	MDDHT3420	MDDHT3420E		Approx. 2.3kVA									
			2000	MDME204□C＊	110	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA							DV0PM20049		
			3000	MDME304□C＊	111	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 x2 in parallel		
			4000	MDME404□C＊	112	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MDME504□C＊	113	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
	MGME (Low speed/ High torque type) 1000r/min	Single phase/ 3-phase 200V	900	MGME092□C＊	87	MDDHT5540	MDDHT5540E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMC D0**2ECD	MFMCA **2FCD	—	DV0P4284	DV0P228 / DV0P221	DV0P4220
		3-phase 200V	2000	MGME202□C＊	88	MFDHTA390	MFDHTA390E	F-frame	Approx. 3.8kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 x2 in parallel	DV0P223	DV0P3410
			3000	MGME302□C＊	89	MFDHTB3A2	MFDHTB3A2E		Approx. 4.5kVA								DV0P224	
		3-phase 400V	900	MGME094□C＊	120	MDDHT3420	MDDHT3420E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 4	Recommended components P.152
			2000	MGME204□C＊	121	MFDHT5440	MFDHT5440E	F-frame	Approx. 3.8kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 x2 in parallel		
			3000	MGME304□C＊	122	MFDHTA464	MFDHTA464E		Approx. 4.5kVA									
High inertia	MHME 2000r/min	Single phase/ 3-phase 200V	1000	MHME102□C＊	92	MDDHT3530	MDDHT3530E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228/ DV0P222	DV0P4220
			1500	MHME152□C＊	93	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047/ DV0P222	
		3-phase 200V	2000	MHME202□C＊	94	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA				MFMCE 0**2ECD	MFMCE 0**2FCD	—	DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MHME302□C＊	95	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 x2 in parallel	DV0P224	DV0P3410
			4000	MHME402□C＊	96	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MHME502□C＊	97	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 4	
		3-phase 400V	1000	MHME104□C＊	125	MDDHT2412	MDDHT2412E	D-frame	Approx. 1.8kVA	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20049	— Note) 4	Recommended components P.152
			1500	MHME154□C＊	126	MDDHT3420	MDDHT3420E		Approx. 2.3kVA									
			2000	MHME204□C＊	127	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA				MFMCE 0**2ECD	MFMCE 0**2FCD				
			3000	MHME304□C＊	128	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 x2 in parallel		
			4000	MHME404□C＊	129	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MHME504□C＊	130	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									

Note)1 Rotary encoder specifications: □ Motor specification: ＊ (refer to P.11)

Note)2 Because A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.

Note)3 Cable length: ** (03: 3m, 05: 5m, 10: 10m, 20: 20m), (Example. 3m: MFECA0030EAM)

Note)4 Reactor should be prepared by the user.

Note)5 Other combinations exist, and refer to P.180 for details.

• Options (IP65 motor)

Title			Part No.	Page
Interface cable			DV0P4360	167
Interface conversion cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A to D-frame	Single row type	DV0PM20032	170
		Double row type	DV0PM20033	
	E-frame (200V)		DV0PM20044	
	D-frame (400V)		DV0PM20051	
	E-frame (400V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D, E-frame (400V)		DV0PM20053	171
Connector Kit for Motor Connection	A to D-frame		DV0PM20034	
	E-frame (200V)		DV0PM20046	
	D-frame (400V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0P4310	174
			DV0P4320	
			DV0P4330	175
			DV0P4340	
Connector Kit	RS485, RS232		DV0PM20024	168
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	169
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	177
Battery Box			DV0P4430	
Mounting bracket	D-frame		DV0PM20030	178
Junction Cable for Encoder	without Battery Box		MFECA0**0ESD	159
	with Battery Box		MFECA0**0ESE	160
Junction Cable for Motor	without Brake		MFMCA0**2ECD	161
			MFMCD0**2ECD	162
			MFMCE0**2ECD	
			MFMCF0**2ECD	
			MFMCA0**3ECT	163
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	164
			MFMCE0**2FCD	
			MFMCA0**3FCT	165
External Regenerative Resistor	50Ω 25W		DV0P4280	180
	100Ω 25W		DV0P4281	
	25Ω 50W		DV0P4282	
	50Ω 50W		DV0P4283	
	30Ω 100W		DV0P4284	
	20Ω 130W		DV0P4285	
	120Ω 80W		DV0PM20048	
	80Ω 190W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			179
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043 DV0P3410			150
Surge absorber	Single phase		DV0P4190	153
	3-phase (200V)		DV0P1450	
	3-phase (400V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	

Table of Part Numbers and Options

400W to 15.0kW IP67 motor (MSME MDME MFME)

Motor						Driver			Power capacity (at rated load)	Optional parts								
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5 Series Part No. (Velocity, Position, Torque, Full-Closed type)	A5E Series Part No. (Only for position control type Note) 2	Frame		Encoder cable			Motor cable		Brake cable	Regenerative resistor	Reactor (Single phase / 3-phase)	Noise filter
										20-bit Incremental Note) 3	17-bit Absolute Note) 2,3		without brake Note) 3	with brake Note) 3	Note) 3			
Low inertia	MSME 3000r/min	Single phase/ 3-phase 200V	1000	MSME102□1∗	69	MDDHT5540	MDDHT5540E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MSME152□1∗	70	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047 / DV0P222	
		3-phase 200V	2000	MSME202□1∗	71	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA							DV0P4285 Note) 6	DV0P223	DV0PM20043
			3000	MSME302□1∗	72	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MSME402□1∗	73	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MSME502□1∗	74	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 5	
		3-phase 400V	750	MSME084□1∗	99	MDDHT2412	MDDHT2412E	D-frame	Approx. 1.6kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 5	Recommended components P.152
			1000	MSME104□1∗	100	MDDHT3420	MDDHT3420E		Approx. 1.8kVA									
			1500	MSME154□1∗	101	MDDHT3420	MDDHT3420E		Approx. 2.3kVA									
			2000	MSME204□1∗	102	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA							DV0PM20049		
			3000	MSME304□1∗	103	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MSME404□1∗	104	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MSME504□1∗	105	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
Middle inertia	MDME 2000r/min	Single phase/ 3-phase 200V	1000	MDME102□1∗	75	MDDHT3530	MDDHT3530E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MDME152□1∗	76	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047 / DV0P222	
		3-phase 200V	2000	MDME202□1∗	77	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA							DV0P4285 Note) 6	DV0P223	DV0PM20043
			3000	MDME302□1∗	78	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MDME402□1∗	79	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MDME502□1∗	80	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 5	
			7500	MDME752□1∗	81	MGDHTC3B4	—	G-frame	Approx. 11kVA				— Note) 4	— Note) 4		DV0P4285 ×3 in parallel		Recommended components P.152
			11000	MDMEC12□1∗	82	MHDHTC3B4		H-frame	Approx. 17kVA							DV0PM20058		
			15000	MDMEC52□1∗	83	MHDHTC3B4			Approx. 22kVA									
		3-phase 400V	400	MDME044□1∗	106	MDDHT2407	MDDHT2407E	D-frame	Approx. 0.9kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 5	Recommended components P.152
			600	MDME064□1∗	107				Approx. 1.2kVA									
			1000	MDME104□1∗	108	MDDHT2412	MDDHT2412E		Approx. 1.8kVA									
			1500	MDME154□1∗	109	MDDHT3420	MDDHT3420E		Approx. 2.3kVA									
			2000	MDME204□1∗	110	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA							DV0PM20049		
			3000	MDME304□1∗	111	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MDME404□1∗	112	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MDME504□1∗	113	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
			7500	MDME754□1∗	114	MGDHTB4A2	—	G-frame	Approx. 11kVA				— Note) 4	— Note) 4		DV0PM20049 ×3 in parallel		Recommended components P.152
			11000	MDMEC14□1∗	115	MHDHTB4A2		H-frame	Approx. 17kVA							DV0PM20059		
			15000	MDMEC54□1∗	116	MHDHTB4A2			Approx. 22kVA									
	MFME (Flat type) 2000r/min	Single phase/ 3-phase 200V	1500	MFME152□1∗	84	MDDHT5540	MDDHT5540E	D-frame	Approx. 2.3kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCA 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
		3-phase 200V	2500	MFME252□1∗	85	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.8kVA				MFMCF 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 6	DV0P224	DV0PM20043
			4500	MFME452□1∗	86	MFDHTB3A2	MFDHTB3A2E	F-frame	Approx. 6.8kVA				MFMCD 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	— Note) 5	DV0P3410
		3-phase 400V	1500	MFME154□1∗	117	MDDHT3420	MDDHT3420E	D-frame	Approx. 2.3kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCF 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 5	Recommended components P.152
			2500	MFME254□1∗	118	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.8kVA							DV0PM20049		
			4500	MFME454□1∗	119	MFDHTA464	MFDHTA464E	F-frame	Approx. 6.8kVA				MFMCD 0**3ECT	MFMCA 0**3FCT		DV0PM20049 x2 in parallel		

Note)1 Rotary encoder specifications: □ Motor specification: ∗ (refer to P.11)
Note)2 Because A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.
Note)3 Cable length: ** (03: 3m, 05: 5m, 10: 10m, 20: 20m), (Example. 3m: MFECA0030EAM)
Note)4 Recommend to get the connector kit of options.
Note)5 Reactor should be prepared by the user.
Note)6 Other combinations exist, and refer to P.180 for details.

• Options (IP67 motor)

Title			Part No.	Page
Interface cable			DV0P4360	167
Interface conversion cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A to D-frame	Single row type	DV0PM20032	170
		Double row type	DV0PM20033	
	E-frame (200V)		DV0PM20044	
	D-frame (400V)		DV0PM20051	
	E-frame (400V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D, E-frame (400V)		DV0PM20053	171
Connector Kit for Motor Connection	A to D-frame		DV0PM20034	
	E-frame (200V)		DV0PM20046	
	D-frame (400V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0PM20036	173
			DV0PM20037	174
			DV0PM20038	
			DV0PM20039	175
Connector Kit	RS485, RS232		DV0PM20024	168
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	169
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	177
Battery Box			DV0P4430	
Mounting bracket	D-frame		DV0PM20030	178
Junction Cable for Encoder	without Battery Box		MFECA0**0ETD	160
	with Battery Box		MFECA0**0ETE	
Junction Cable for Motor	without Brake		MFMCA0**2ECD	161
			MFMCD0**2ECD	
			MFMCE0**2ECD	162
			MFMCF0**2ECD	
			MFMCA0**3ECT	163
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	164
			MFMCE0**2FCD	
			MFMCA0**3FCT	165
External Regenerative Resistor	50Ω 25W		DV0P4280	180
	100Ω 25W		DV0P4281	
	25Ω 50W		DV0P4282	
	50Ω 50W		DV0P4283	
	30Ω 100W		DV0P4284	
	20Ω 130W		DV0P4285	
	120Ω 80W		DV0PM20048	
	80Ω 190W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			179
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043 DV0P3410			150
Surge absorber	Single phase		DV0P4190	153
	3-phase (200V)		DV0P1450	
	3-phase (400V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	

Table of Part Numbers and Options

0.9kW to 7.5kW IP67 motor (MGME / MHME)

Motor					Driver			Power capacity (at rated load)	Optional parts								
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5 Series Part No. (Velocity, Position, Torque, Full-Closed type)	A5E Series Part No. (Only for position control type) Note) 2	Frame		Encoder cable			Motor cable		Brake cable	Regenerative resistor	Reactor (Single phase / 3-phase)	Noise filter
										20-bit Incremental Note) 3	17-bit Absolute Note) 2,3		without brake Note) 3	with brake Note) 3	Note) 3			
Middle inertia	MGME (Low speed/High torque type) 1000r/min	Single phase/ 3-phase 200V	900	MGME092□1＊	87	MDDHT5540	MDDHT5540E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P221	DV0P4220
		3-phase 200V	2000	MGME202□1＊	88	MFDHTA390	MFDHTA390E	F-frame	Approx. 3.8kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P223	DV0P3410
			3000	MGME302□1＊	89	MFDHTB3A2	MFDHTB3A2E		Approx. 4.5kVA								DV0P224	
			4500	MGME452□1＊	90	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 5	
			6000	MGME602□1＊	91	MGDHTC3B4	—	G-frame	Approx. 9.0kVA				— Note) 4	— Note) 4		DV0P4285 ×3 in parallel		Recommended components P.152
		3-phase 400V	900	MGME094□1＊	120	MDDHT3420	MDDHT3420E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 5	Recommended components P.152
			2000	MGME204□1＊	121	MFDHT5440	MFDHT5440E	F-frame	Approx. 3.8kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			3000	MGME304□1＊	122	MFDHTA464	MFDHTA464E		Approx. 4.5kVA									
			4500	MGME454□1＊	123	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
			6000	MGME604□1＊	124	MGDHTB4A2	—	G-frame	Approx. 9.0kVA				— Note) 4	— Note) 4		DV0PM20049 ×3 in parallel		
High inertia	MHME 2000r/min	Single phase/ 3-phase 200V	1000	MHME102□1＊	92	MDDHT3530	MDDHT3530E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MHME152□1＊	93	MDDHT5540	MDDHT5540E		Approx. 2.3kVA								DV0PM20047 / DV0P222	
		3-phase 200V	2000	MHME202□1＊	94	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA				MFMCE 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 6	DV0P223	DV0PM20043
			3000	MHME302□1＊	95	MFDHTA390	MFDHTA390E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MHME402□1＊	96	MFDHTB3A2	MFDHTB3A2E		Approx. 6kVA								DV0P225	
			5000	MHME502□1＊	97	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA								— Note) 5	
			7500	MHME752□1＊	98	MGDHTC3B4	—	G-frame	Approx. 11kVA				— Note) 4	— Note) 4		DV0P4285 ×3 in parallel		Recommended components P.152
		3-phase 400V	1000	MHME104□1＊	125	MDDHT2412	MDDHT2412E	D-frame	Approx. 1.8kVA	MFECA 0**0ETD	MFECA 0**0ETE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 5	Recommended components P.152
			1500	MHME154□1＊	126	MDDHT3420	MDDHT3420E		Approx. 2.3kVA				MFMCE 0**2ECD			DV0PM20049		
			2000	MHME204□1＊	127	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA									
			3000	MHME304□1＊	128	MFDHT5440	MFDHT5440E	F-frame	Approx. 4.5kVA				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MHME404□1＊	129	MFDHTA464	MFDHTA464E		Approx. 6kVA									
			5000	MHME504□1＊	130	MFDHTA464	MFDHTA464E		Approx. 7.5kVA									
			7500	MHME754□1＊	131	MGDHTB4A2	—	G-frame	Approx. 9.0kVA				— Note) 4	— Note) 4		DV0PM20049 ×3 in parallel		

Note)1 Rotary encoder specifications: □ Motor specification: ＊ (refer to P.11)
Note)2 Because A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.
Note)3 Cable length: ** (03: 3m, 05: 5m, 10: 10m, 20: 20m), (Example. 3m: MFECA0030EAM)
Note)4 Recommend to get the connector kit of options.
Note)5 Reactor should be prepared by the user.
Note)6 Other combinations exist, and refer to P.180 for details.

• Options (IP67 motor)

Title			Part No.	Page
Interface cable			DV0P4360	167
Interface conversion cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A to D-frame	Single row type	DV0PM20032	170
		Double row type	DV0PM20033	
	E-frame (200V)		DV0PM20044	
	D-frame (400V)		DV0PM20051	
	E-frame (400V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D, E-frame (400V)		DV0PM20053	171
Connector Kit for Motor Connection	A to D-frame		DV0PM20034	
	E-frame (200V)		DV0PM20046	
	D-frame (400V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0PM20036	173
			DV0PM20037	174
			DV0PM20038	
			DV0PM20039	175
Connector Kit	RS485, RS232		DV0PM20024	168
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	169
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	177
Battery Box			DV0P4430	
Mounting bracket	D-frame		DV0PM20030	178
Junction Cable for Encoder	without Battery Box		MFECA0**0ETD	160
	with Battery Box		MFECA0**0ETE	
Junction Cable for Motor	without Brake		MFMCA0**2ECD	161
			MFMCD0**2ECD	162
			MFMCE0**2ECD	
			MFMCF0**2ECD	
			MFMCA0**3ECT	163
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	164
			MFMCE0**2FCD	
			MFMCA0**3FCT	165
External Regenerative Resistor	50Ω 25W		DV0P4280	180
	100Ω 25W		DV0P4281	
	25Ω 50W		DV0P4282	
	50Ω 50W		DV0P4283	
	30Ω 100W		DV0P4284	
	20Ω 130W		DV0P4285	
	120Ω 80W		DV0PM20048	
	80Ω 190W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			179
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043 DV0P3410			150
Surge absorber	Single phase		DV0P4190	153
	3-phase (200V)		DV0P1450	
	3-phase (400V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	

Basic Specifications	Input power	100V	Main circuit	Single phase, 100 to 120V +10% –15% 50/60Hz
			Control circuit	Single phase, 100 to 120V +10% –15% 50/60Hz
		200V	Main circuit: A to D-frame	Single/3-phase, 200 to 240V +10% –15% 50/60Hz
			Main circuit: E to H-frame	3-phase, 200 to 230V +10% –15% 50/60Hz
			Control circuit: A to D-frame	Single phase, 200 to 240V +10% –15% 50/60Hz
			Control circuit: E to H-frame	Single phase, 200 to 230V +10% –15% 50/60Hz
		400V	Main circuit: D to H-frame	3-phase, 380 to 480V +10% –15% 50/60Hz
			Control circuit: D to H-frame	DC 24V ± 15%
	Environment		temperature	Ambient temperature: 0˚C to 55˚C (free from freezing) Storage temperature: –20˚C to 65˚C (Max.temperature guarantee: 80˚C for 72 hours free from condensation*1)
			humidity	Both operating and storage : 20 to 85%RH (free from condensation*1)
			Altitude	Lower than 1000m
			Vibration	5.88m/s^2 or less, 10 to 60Hz (No continuous use at resonance frequency)
	Control method			IGBT PWM Sinusoidal wave drive
	Encoder feedback			17-bit (131072 resolution) absolute encoder, 7-wire serial 20-bit (1048576 resolution) incremental encoder, 5-wire serial
	Feedback scale feedback		A/B phase	A/B phase, initialization signal defferential input.
			serial	Manufacturers that support serial communication scale: Mitutoyo Corporation Magnescale Co., Ltd. MicroE Systems Renishaw plc, Fagor Automation S.Coop
	Parallel I/O connector	Control signal	Input	General purpose 10 inputs The function of general-purpose input is selected by parameters.
			Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.
		Analog signal	Input	3 inputs (16Bit A/D : 1 input, 12Bit A/D : 2 inputs)
			Output	2 outputs (Analog monitor: 2 output)
		Pulse signal	Input	2 inputs (Photo-coupler input, Line receiver input)
			Output	4 outputs (Line driver: 3 output、open collector: 1 output)
	Communication function		USB	Connection with PC etc.
			RS232	1 : 1 communication
			RS485	1 : n communication up to 31 axes to a host.
	Safety function			Used for functional safety.
	Front panel			(1) 5 keys (2) LED (6-digit) (3) Connector for monitor (Analog monitor output (2ch), Digital monitor output (1ch))
	Regeneration			A, B, G and H-frame: no built-in regenerative resistor (external resistor only) C to F-frame: Built-in regenerative resistor (external resistor is also enabled.)
	Dynamic brake			A to G-frame: Built-in (external resistor is also available to G-frame) H-frame: External only
	Control mode			Switching among the following 7 mode is enabled, (1) Position control (2) Velocity control (3) Toque control (4) Position/Velocity control (5) Position/Torque control (6) Velocity/Torque control (7) Full-closed control

*1 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

Function	Position control	Control input		(1) Deviation counter clear (2) Command pulse inhibitation (3) Electric gear (4) Damping control switching etc.
		Control output		Positioning complete (In-position) etc.
		Pulse input	Max. command pulse frequency	Exclusive interface for Photo-coupler: 500kpps Exclusive interface for line driver : 4Mpps
			Input pulse signal format	Differential input ((1) Positive and Negative direction, (2) A and B-phase, (3) Command and direction)
			Electronic gear (Division/Multiplication of command pulse)	1/1000 to 1000 times
			Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input
		Analog input	Torque limit command input	Individual torque limit for both positive and negative direction is enabled.
			Torque feed forward input	Analog voltage can be used as torque feed forward input.
		Instantaneous Speed Observer		Available
		Damping Control		Available
	Velocity control	Control input		(1) Selection of internal velocity setup 1 (2) Selection of internal velocity setup 2 (3) Selection of internal velocity setup 3 (4) Speed zero clamp etc.
		Control output		Speed arrival etc.
		Analog input	Velocity command input	Speed command input can be provided by means of analog voltage. Parameters are used for scale setting and command polarity. (6V/Rated rotational speed Default)
			Torque limit command input	Individual torque limit for both positive and negative direction is enabled.
			Torque feed forward input	Analog voltage can be used as torque feed forward input.
		Internal velocity command		Switching the internal 8speed is enabled by command input.
		Soft-start/down function		Individual setup of acceleration and deceleration is enabled, with 0 to 10s/1000r/min. Sigmoid acceleration/deceleration is also enabled.
		Zero-speed clamp		Speed zero clamp input is enabled.
		Instantaneous Speed Observer		Available
		Velocity Control filter		Available
	Torque control	Control input		Speed zero clamp, Torque command sign input etc.
		Control output		Speed arrival etc.
		Analog input	Torque command input	Speed command input can be provided by means of analog voltage. Parameters are used for scale setting and command polarity. (3V/rated torque Default)
		Speed limit function		Speed limit value with parameter t is enabled.
	Full-closed control	Control input		(1) Deviation counter clear (2) Command pulse inhibition (3) Command dividing gradual increase switching (4) Damping control switching etc.
		Control output		Full-closed positioning complete etc.
		Pulse input	Max. command pulse frequency	Exclusive interface for Photo-coupler: 500kpps Exclusive interface for line driver : 4Mpps
			Input pulse signal format	Differential input
			Electronic gear (Division/ Multiplication of command pulse)	1/1000 to 1000 times
			Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input
		Analog input	Torque limit command input	Individual torque limit for both positive and negative direction is enabled.
			Torque feed forward input	Analog voltage can be used as torque feed forward input.
		Setup range of division/multiplication of feedback scale		1/40 to 160 times
	Common	Auto tuning		The load inertia is identified in real time by the driving state of the motor operating according to the command given by the controlling device and set up support software “PANATERM”. The gain is set automatically in accordance with the rigidity setting.
		Division of encoder feedback pulse		Set up of any value is enabled (encoder pulses count is the max.).
		Protective function	Hard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.
			Soft error	Excess position deviation, command pulse division error, EEPROM error etc.
		Traceability of alarm data		The alarm data history can be referred to.

A5E series (Only for position control type)

Basic Specifications	Input power	100V	Main circuit	Single phase, 100 to 120V +10% –15% 50/60Hz
			Control circuit	Single phase, 100 to 120V +10% –15% 50/60Hz
		200V	Main circuit A to D-frame	Single/3-phase, 200 to 240V +10% –15% 50/60Hz
			Main circuit E to F-frame	3-phase, 200 to 230V +10% –15% 50/60Hz
			Control circuit A to D-frame	Single phase, 200 to 240V +10% –15% 50/60Hz
			Control circuit E to F-frame	Single phase, 200 to 230V +10% –15% 50/60Hz
		400V	Main circuit D to F-frame	3-phase, 380 to 480V +10% –15% 50/60Hz
			Control circuit D to F-frame	DC 24V ± 15%
	Environment		temperature	Ambient temperature: 0˚C to 50˚C (free from freezing) Storage temperature: –20˚C to 65˚C (Max.temperature guarantee: 80˚C for 72 hours free from condensation*1)
			humidity	Both operating and storage : 20 to 85%RH (free from condensation*1)
			Altitude	Lower than 1000m
			Vibration	5.88m/s^2 or less, 10 to 60Hz (No continuous use at resonance frequency)
	Control method			IGBT PWM Sinusoidal wave drive
	Encoder feedback			20-bit (1048576 resolution) incremental encoder, 5-wire serial
	Parallel I/O connector	Control signal	Input	General purpose 10 inputs The function of general-purpose input is selected by parameters.
			Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.
		Analog signal	Input	none
			Output	2 outputs (Analog monitor: 2 output)
		Pulse signal	Input	2 inputs (Photo-coupler input, Line receiver input)
			Output	4 outputs (Line driver: 3 output、open collector: 1 output)
	Communication function		USB	Connection with PC etc.
	Front panel			(1) 5 keys (2) LED (6-digit) (3) Analog monitor output (2ch)
	Regeneration			A, B-frame: no built-in regenerative resistor (external resistor only) C to F-frame: Built-in regenerative resistor (external resistor is also enabled.)
	Dynamic brake			Built-in
	Control mode			(1) Position control (2) Internal velocity control (3) Position/ Internal velocity control

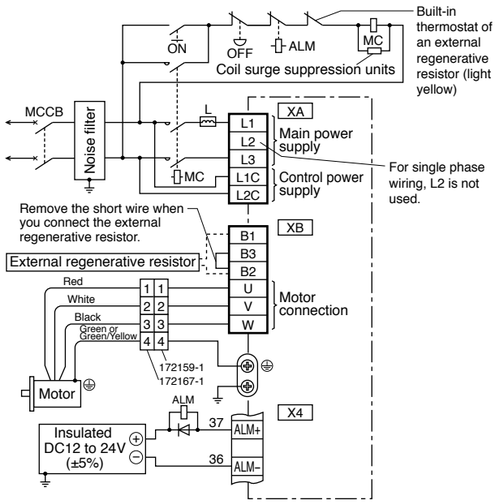
*1 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

Function	Position control	Control input		(1) Deviation counter clear (2) Command pulse inhibitation (3) Electric gear (4) Damping control switching etc.
		Control output		Positioning complete (In-position) etc.
		Pulse input	Max. command pulse frequency	Exclusive interface for Photo-coupler: 500kpps Exclusive interface for line driver : 4Mpps
			Input pulse signal format	Differential input ((1) Positive and Negative direction, (2) A and B-phase, (3) Command and direction)
			Electronic gear (Division/ Multiplication of command pulse)	1/1000 to 1000 times
			Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input
		Instantaneous Speed Observer		Available
		Damping Control		Available
	Common	Auto tuning		The load inertia is identified in real time by the driving state of the motor operating according to the command given by the controlling device and set up support software “PANATERM”. The gain is set automatically in accordance with the rigidity setting.
		Division of encoder feedback pulse		Set up of any value is enabled (encoder pulses count is the max.).
		Protective function	Hard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.
			Soft error	Excess position deviation, command pulse division error, EEPROM error etc.
		Traceability of alarm data		The alarm data history can be referred to.

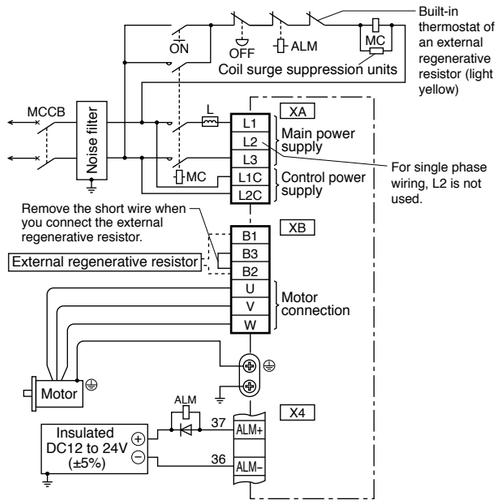
Wiring to Connector, XA, XB, XC, XD and Terminal block

In Case of Single Phase, A to D-frame, 100V / 200V type

• **In Case of MSMD, MHMD**



• **In Case of MSME**

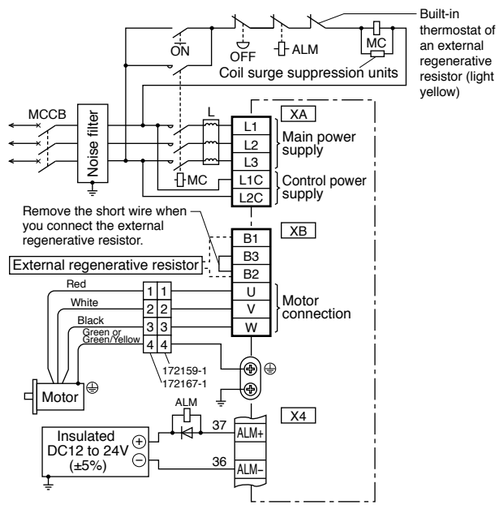


<CAUTION>
A-frame and B-frame: Open between B2 and B3.
C-frame and D-frame: Short between B2 and B3.

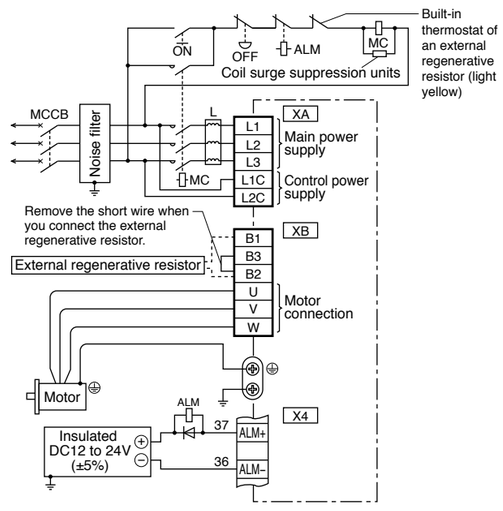
<CAUTION>
A-frame and B-frame: Open between B2 and B3.
C-frame and D-frame: Short between B2 and B3.

In Case of 3-Phase, A to D-frame, 200V type

• **In Case of MSMD, MHMD**



• **In Case of MSME**

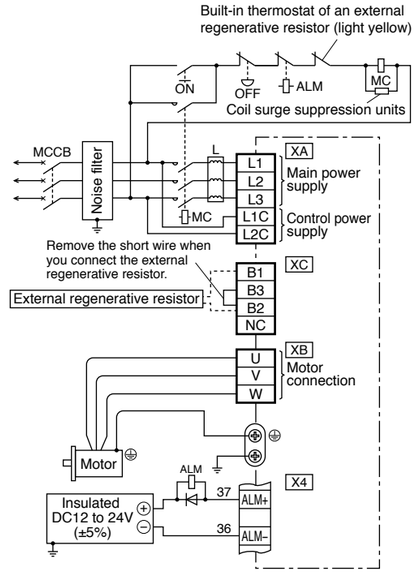


<CAUTION>
A-frame and B-frame: Open between B2 and B3.
C-frame and D-frame: Short between B2 and B3.

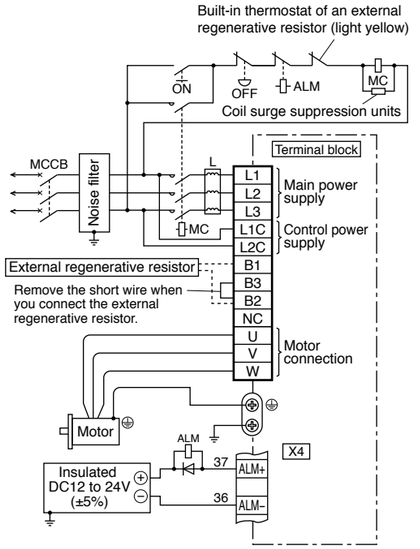
<CAUTION>
A-frame and B-frame: Open between B2 and B3.
C-frame and D-frame: Short between B2 and B3.

* Refer to P.156, P.157, Specifications of Motor connector.

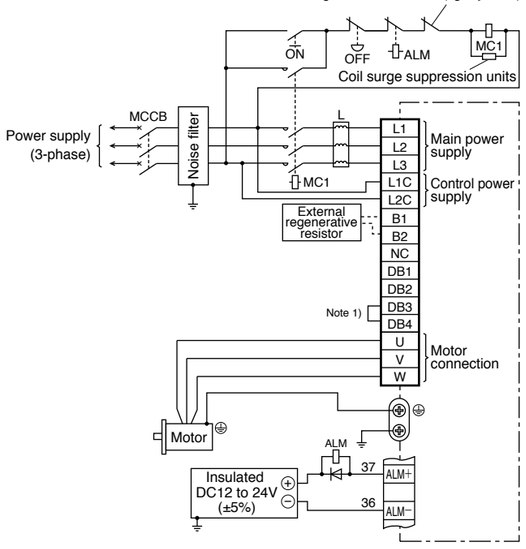
In Case of 3-Phase, E-frame, 200V type



In Case of 3-Phase, F-frame, 200V type



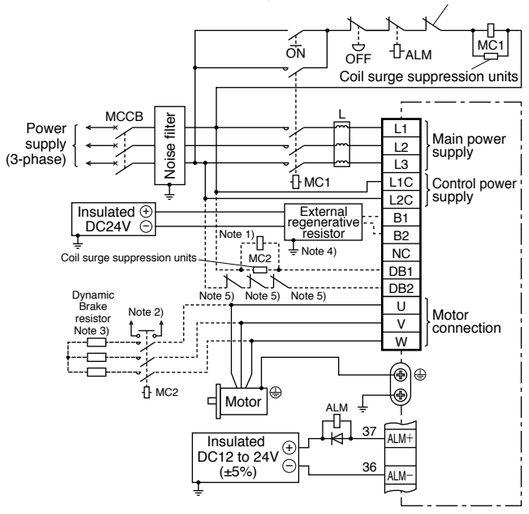
In Case of 3-Phase, G-frame, 200V type



Note 1)
Normally, do not disconnect the shorting bar.

* Reactor should be prepared by the user.

In Case of 3-Phase, H-frame, 200V type



Note 1) Magnetic contactor MC2 must be the same as the contactor MC1 in the main circuit.

Note 2) Servo may be turned on in the external sequence if the dynamic brake resistor deposits: to protect the system, provide the auxiliary contact.

Note 3) Use 1.2 Ω, 400 W resistor (to be supplied by customer).

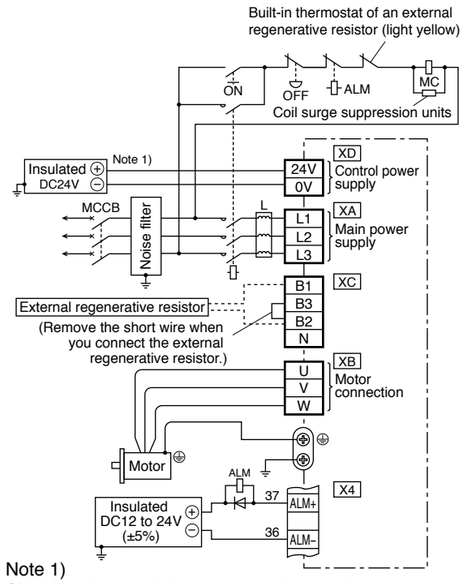
Note 4) To use the external dynamic brake resistor:
Connect the R1 and R2 terminals to B1 and B2.
Connect the T1 and T2 terminals as shown in the left diagram.
Connect the 24 V and 0 V terminals to a 24 VDC power supply.
Connect the E terminal to the ground.

Note 5) Provide an external protective device (e.g. thermal fuse) to monitor the temperature of the external dynamic brake resistor.

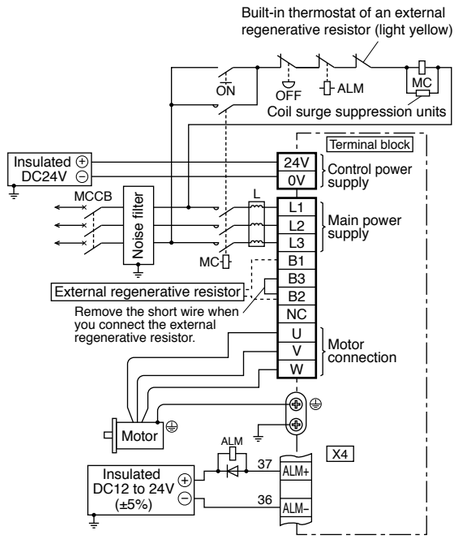
* Refer to P.156, P.157, Specifications of Motor connector.

Wiring to Connector, XA, XB, XC, XD and Terminal block

In Case of 3-Phase, D and E-frame, 400V type

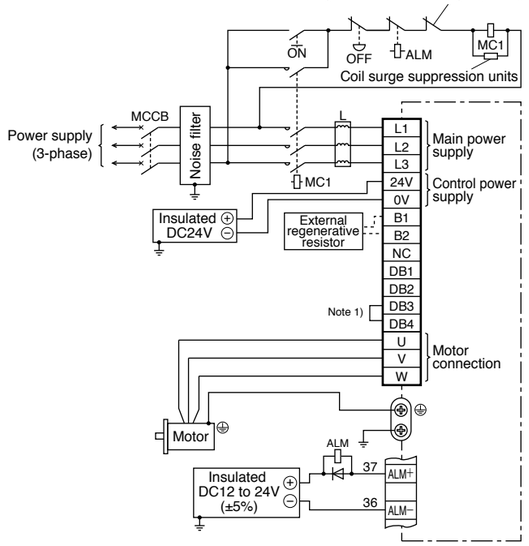


In Case of 3-Phase, F-frame, 400V type



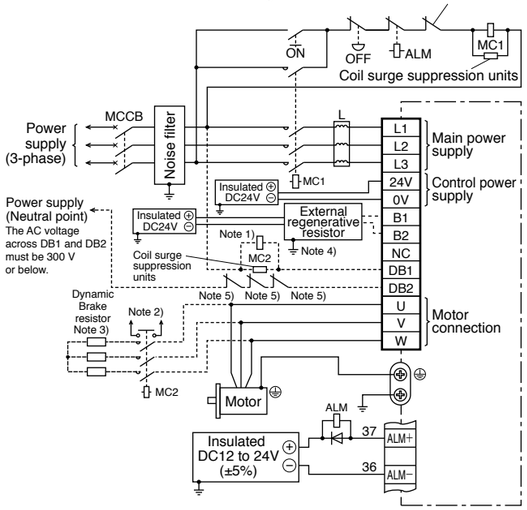
Note 1)
Shielding the circuit is recommended for the purpose of noise reduction.

In Case of 3-Phase, G-frame, 400V type



Note 1)
Normally, do not disconnect the shorting bar.

In Case of 3-Phase, H-frame, 400V type



Note 1) Magnetic contactor MC2 must be the same as the contactor MC1 in the main circuit.

Note 2) Servo may be turned on in the external sequence if the dynamic brake resistor deposits: to protect the system, provide the auxiliary contact.

Note 3) Use 4.8 Ω, 400 W resistor (to be supplied by customer).

Note 4) To use the external dynamic brake resistor:
Connect the R1 and R2 terminals to B1 and B2.
Connect the T1 and T2 terminals as shown in the left diagram.
Connect the 24 V and 0 V terminals to a 24 VDC power supply.
Connect the E terminal to the ground.

Note 5) Provide an external protective device (e.g. thermal fuse) to monitor the temperature of the external dynamic brake resistor.

* Refer to P.156, P.157, Specifications of Motor side connector.

Wiring to the connector, X3 (Excluding A5E Series)

Connecting the host controller can configure a safety circuit that controls the safety functions.

When not constructing the safety circuit, use the supplied safety bypass plug.

Outline description of safe torque off (STO)

The safe torque off (STO) function is a safety function that shuts the motor current and turns off motor output torque by forcibly turning off the driving signal of the servo driver internal power transistor. For this purpose, the STO uses safety input signal and hardware (circuit).

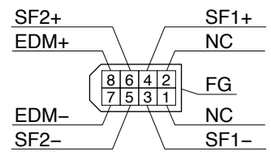
When STO function operates, the servo driver turns off the servo ready output signal (S-RDY) and enters safety state.

This is an alarm condition and the 7-seg LED on the front panel displays the error code number.

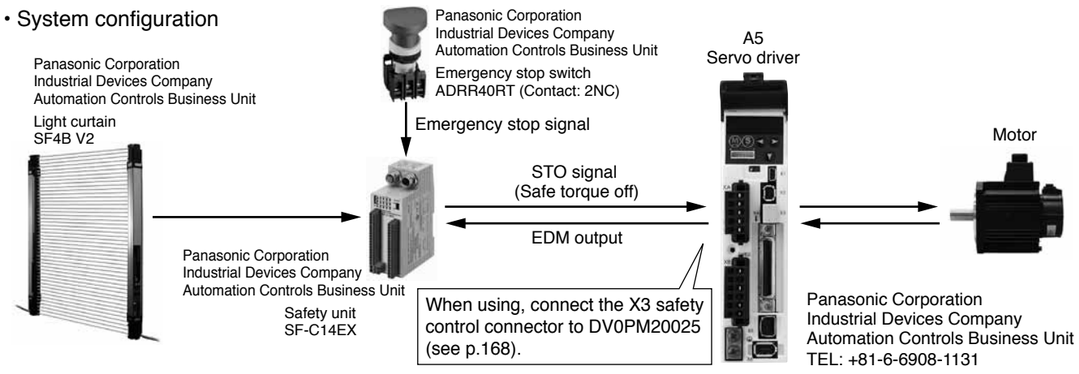
Safety precautions

- When using the STO function, be sure to perform equipment risk assessment to ensure that the system conforms to the safety requirements.
- Even while the STO function is working, the following potential safety hazards exist. Check safety in risk assessment.
  - The motor may move when external force (e.g. gravity force on vertical axis) is exerted on it. Provide an external brake, etc., as necessary to secure the motor. Note that the purpose of motor with brake is holding and it cannot be used for braking application.
  - When parameter Pr5.10 Sequence at alarm is set to free run (disable dynamic brake), the motor is free run state and requires longer stop distance even if no external force is applied. Make sure that this does not cause any problem.
  - When power transistor, etc., becomes defective, the motor will move to the extent equivalent of 180 electrical angle (max.). Make sure that this does not cause any problem.
  - The STO turns off the current to the motor but does not turn off power to the servo driver and does not isolate it. When starting maintenance service on the servo driver, turn off the driver by using a different disconnecting device.
- External device monitor (hereafter EDM) output signal is not a safety signal. Do not use it for an application other than failure monitoring.
- Dynamic brake and external brake release signal output are not related to safety function. When designing the system, make sure that the failure of external brake release during STO condition does not result in danger condition.
- When using STO function, connect equipment conforming to the safety standards.

[Connector pin assignment]
(Viewed from cable)

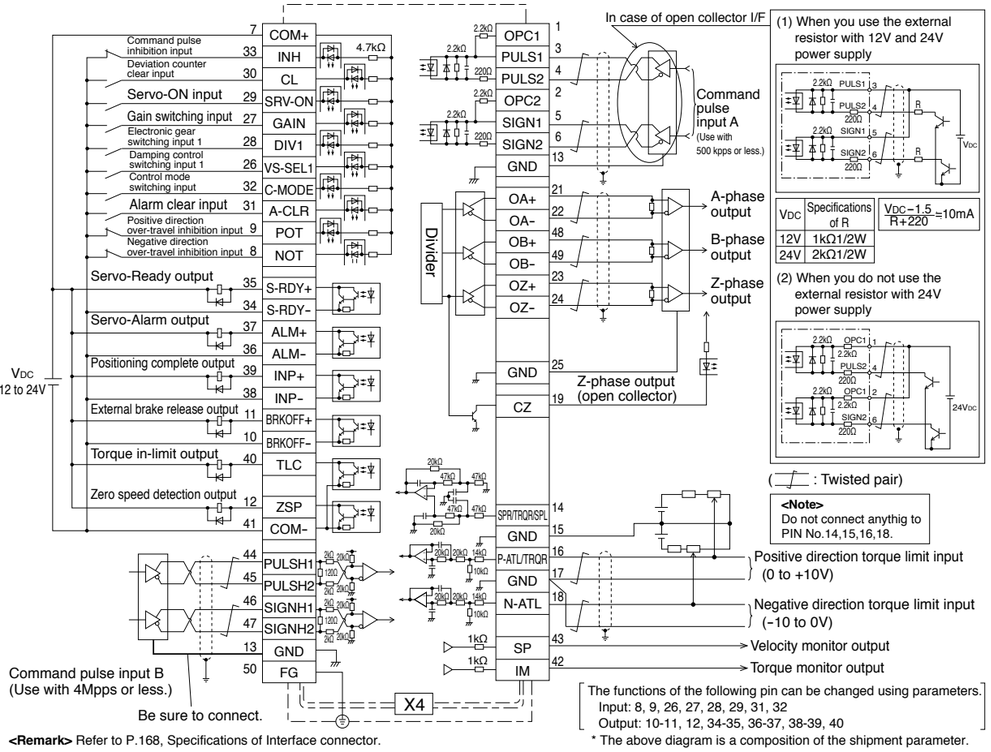


• System configuration



Wiring to the connector, X4

Wiring Example of Position Control Mode

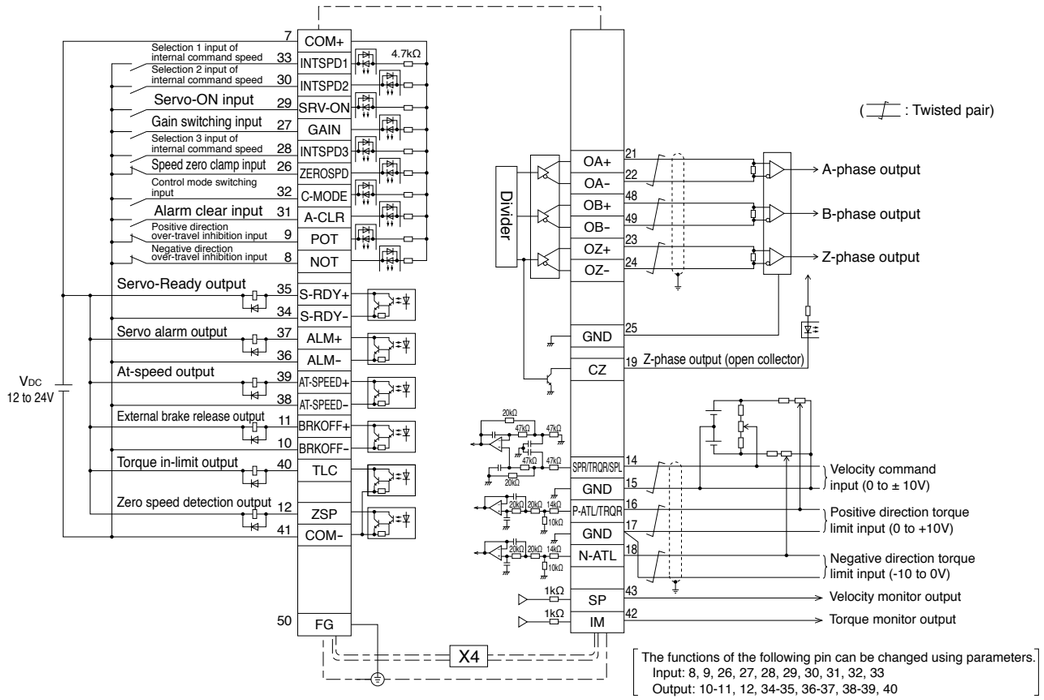


The functions of the following pin can be changed using parameters.
Input: 8, 9, 26, 27, 28, 29, 31, 32
Output: 10-11, 12, 34-35, 36-37, 38-39, 40

* The above diagram is a composition of the shipment parameter.

<Remark> Refer to P.168, Specifications of Interface connector.

Wiring Example of Velocity Control Mode (Excluding A5E Series)

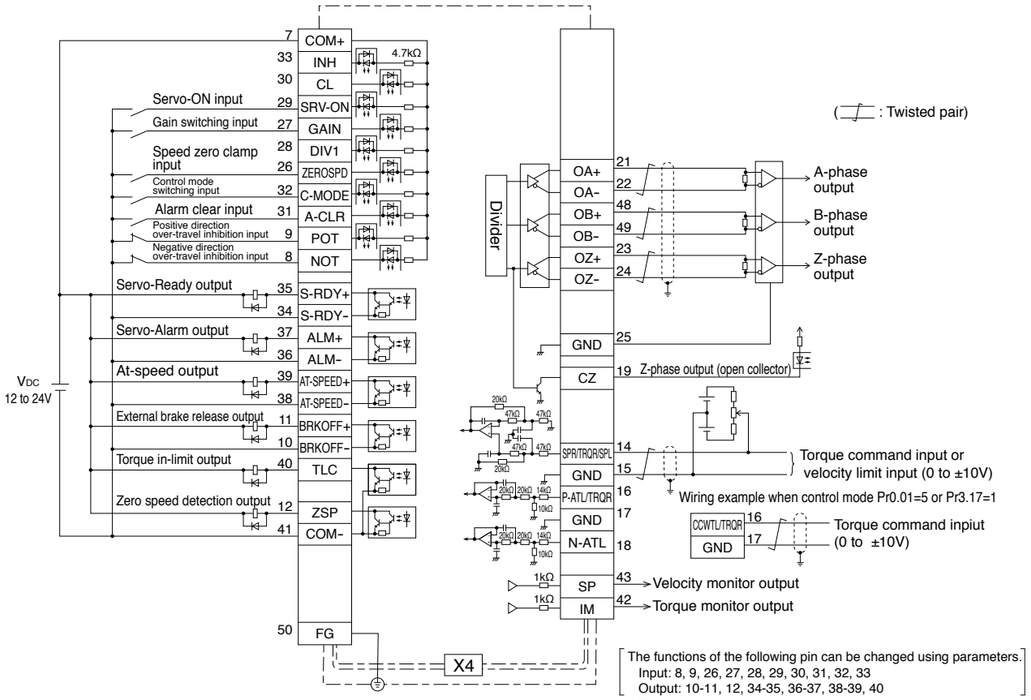


The functions of the following pin can be changed using parameters.
Input: 8, 9, 26, 27, 28, 29, 30, 31, 32, 33
Output: 10-11, 12, 34-35, 36-37, 38-39, 40

* The above diagram is a composition of the shipment parameter.

<Remark> Refer to P.168, Specifications of Interface connector.

Wiring Example of Torque Control Mode (Excluding A5E Series)

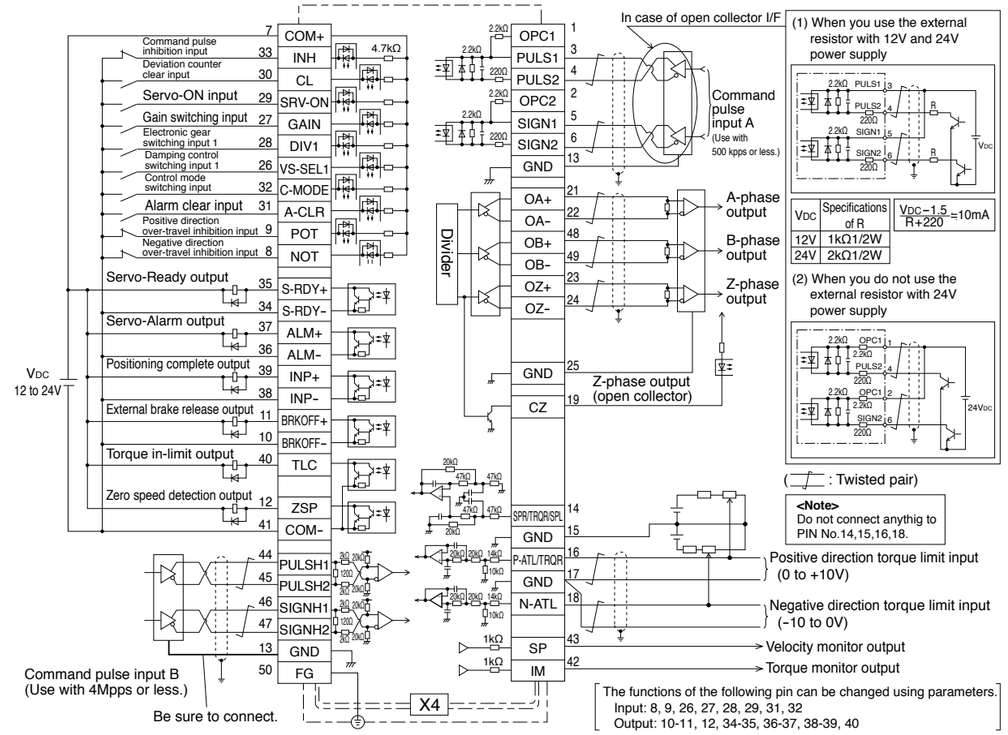


The functions of the following pin can be changed using parameters.
Input: 8, 9, 26, 27, 28, 29, 30, 31, 32, 33
Output: 10-11, 12, 34-35, 36-37, 38-39, 40

* The above diagram is a composition of the shipment parameter.

<Remark> Refer to P.168, Specifications of Interface connector.

Wiring Example of Full-closed Control Mode (Excluding A5E Series)



The functions of the following pin can be changed using parameters.
Input: 8, 9, 26, 27, 28, 29, 31, 32
Output: 10-11, 12, 34-35, 36-37, 38-39, 40

* The above diagram is a composition of the shipment parameter.

<Remark> Refer to P.168, Specifications of Interface connector.

Wiring to the connector, X5 (Excluding A5E Series)

Applicable external scale

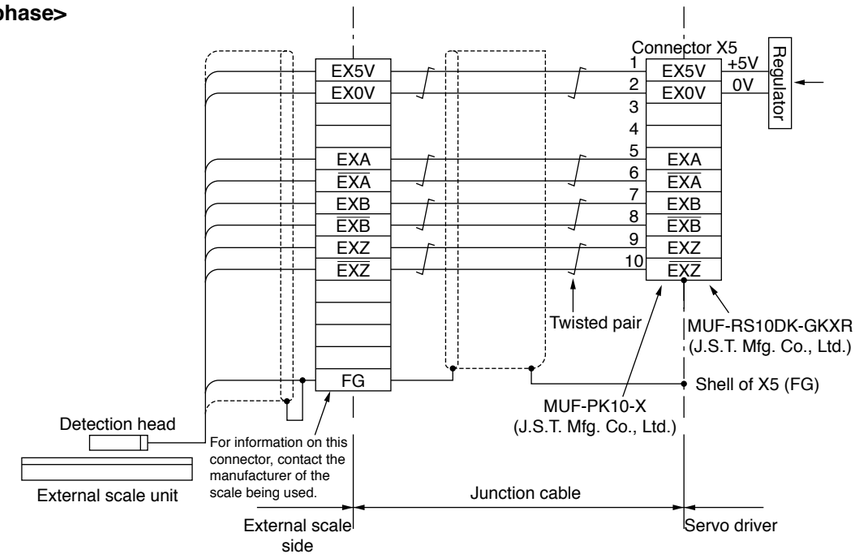
The manufacturers applicable external scales for this product are as follows.

- Mitutoyo Corporation
- Magnescale Co., Ltd.
- MicroE systems
- Renishaw plc
- Fagor Automation S.Coop

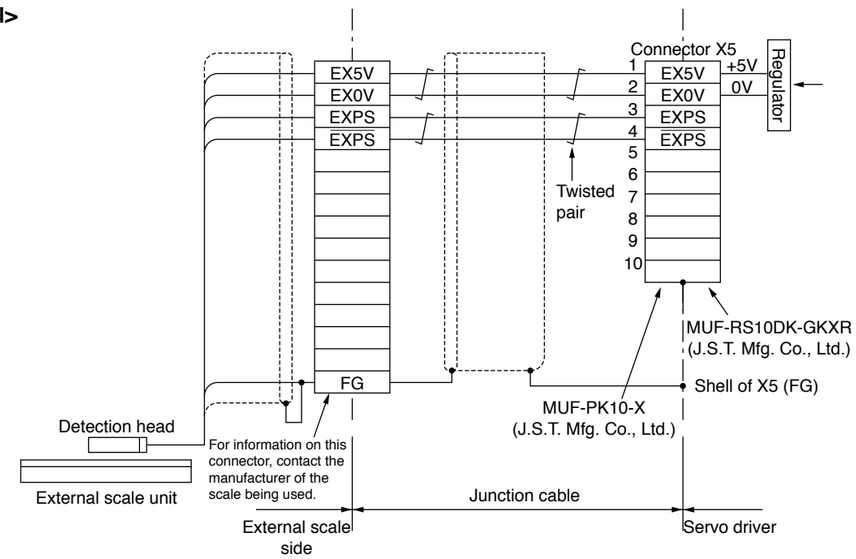
* For the details of the external scale product, contact each company.

Wiring Diagram of X5

<A/B-phase>



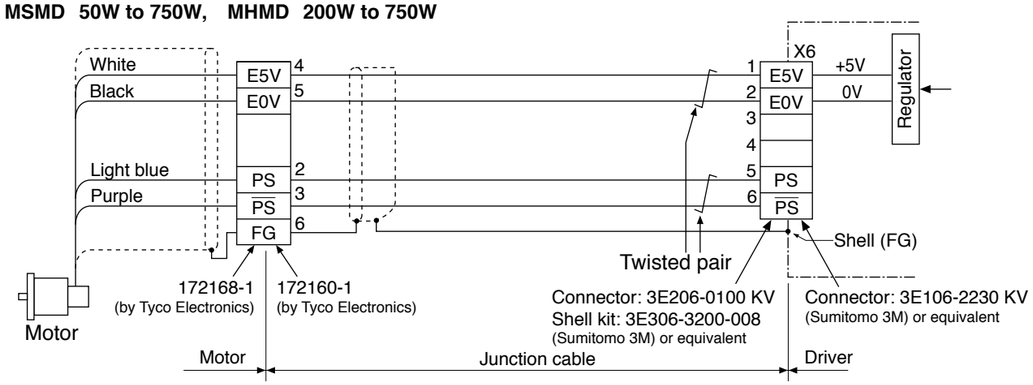
<Serial>



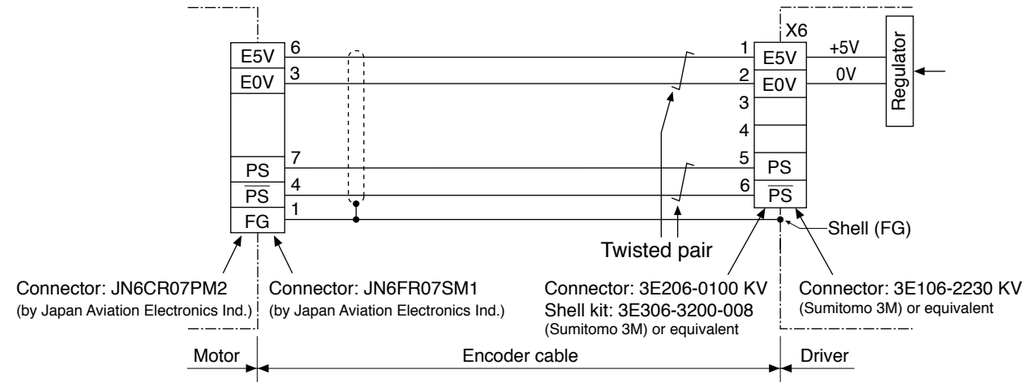
Wiring to the connector, X6

In case of 20-bit incremental encoder

MSMD 50W to 750W, MHMD 200W to 750W



MSME 50W to 750W (200V)



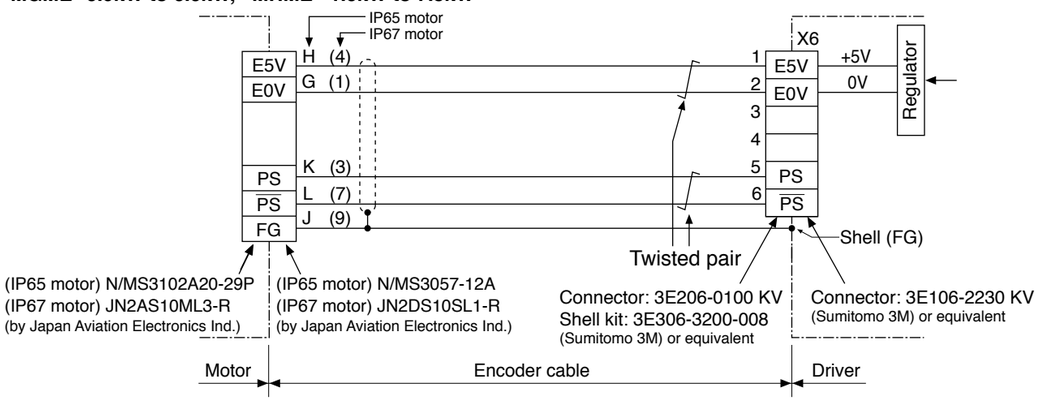
<Caution>

- Tighten the motor connector mounting screw (M2) with a torque between 0.19 and 0.21 N·m. To avoid damage, be sure to use only the screw supplied with the connector.
- Do not remove the gasket supplied with the junction cable connector. Securely install the gasket in place. Otherwise, the degree of protection of IP67 will not be guaranteed.

[Connector pin assignment (Motor side)]

(Viewed from cable)

MSME 750W (400V), 1.0kW to 5.0kW, MDME 400W to 15.0kW, MFME 1.5kW to 4.5kW
MGME 0.9kW to 6.0kW, MHME 1.0kW to 7.5kW

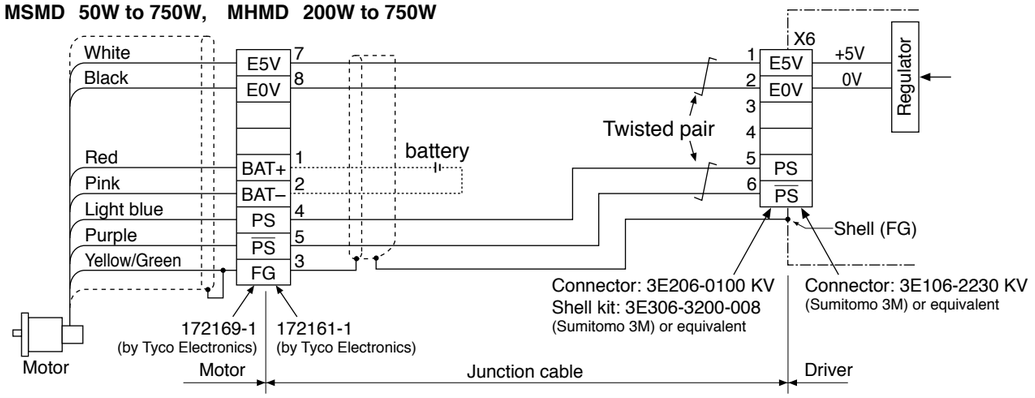


[Connector pin assignment] Refer to P.156, 157 “Specifications of Motor connector”.

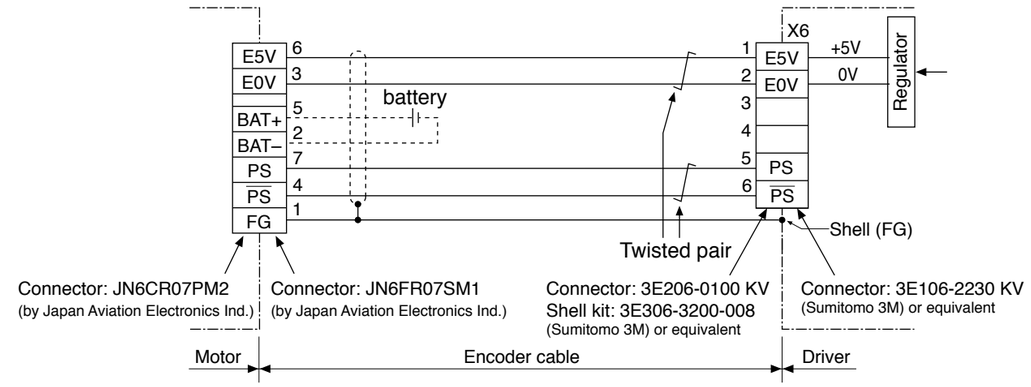
Control Circuit Diagram — Wiring to the connector, X6

In case of 17-bit absolute encoder (A5Eseries does not correspond.)

MSMD 50W to 750W, MHMD 200W to 750W



MSME 50W to 750W (200V)



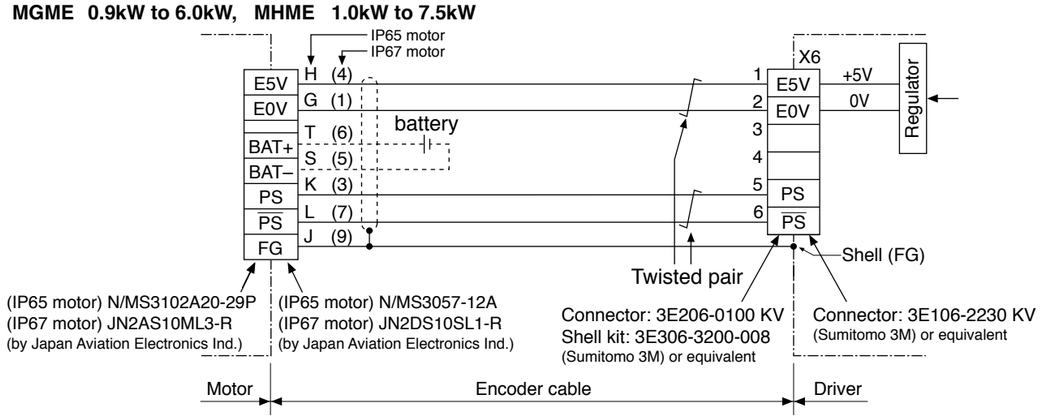
<Caution>

- Tighten the motor connector mounting screw (M2) with a torque between 0.19 and 0.21 N·m. To avoid damage, be sure to use only the screw supplied with the connector.
- Do not remove the gasket supplied with the junction cable connector. Securely install the gasket in place. Otherwise, the degree of protection of IP67 will not be guaranteed.

[Connector pin assignment (Motor side)]

(Viewed from cable)

MSME 750W (400V), 1.0kW to 5.0kW, MDME 400W to 15.0kW, MFME 1.5kW to 4.5kW
MGME 0.9kW to 6.0kW, MHME 1.0kW to 7.5kW



[Connector pin assignment] Refer to P.156, 157 “Specifications of Motor connector”.

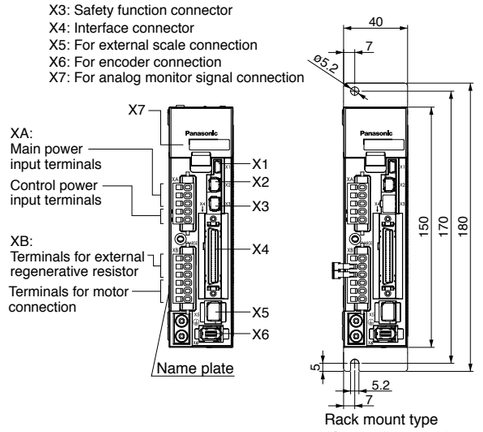
Dimensions of Driver

* The size of A5series and A5Eseries is same.

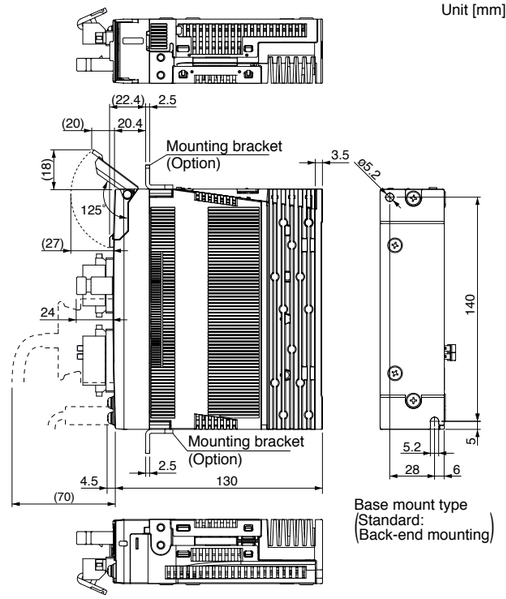
A-frame

Unit [mm]

X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection



Rack mount type
(Option: Front-end mounting)



Base mount type
(Standard:
Back-end mounting)

Mass: 0.8kg

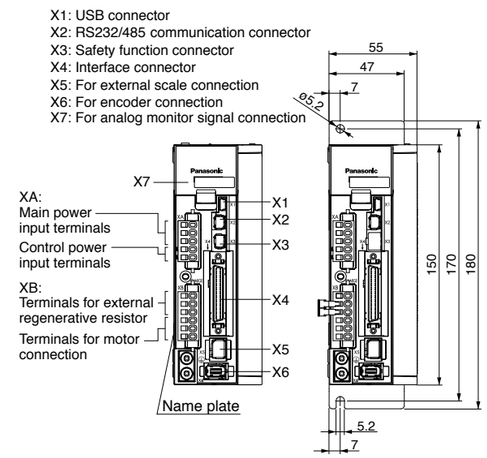
Connector of driver side			A5	A5E
Connector XA	S05B-F32SK-GGXR	J.S.T. Mfg. Co., Ltd.	●	●
Connector XB	S06B-F32SK-GGXR	J.S.T. Mfg. Co., Ltd.	●	●
Connector X1	UB-M5BR-DMP14-4S (or equivalent)	J.S.T. Mfg. Co., Ltd.	●	●
Connector X2	1-2040537-1 (or equivalent)	Tyco Electronics	●	—
Connector X3	2040537-1 (or equivalent)	Tyco Electronics	●	—
Connector X4	10250-52A2PE (or equivalent)	Sumitomo 3M	●	●
Connector X5	MUF-RS10DK-GKXR (or equivalent)	J.S.T. Mfg. Co., Ltd.	●	—
Connector X6	3E106-2230 KV (or equivalent)	Sumitomo 3M	●	●
Connector X7	530140610 (or equivalent)	Japan Molex Inc.	●	●

Connector of power and motor side (Attached to the driver)			A5	A5E
Connector XA	05JFAT-SAXGF	J.S.T. Mfg. Co., Ltd.	●	●
Connector XB	06JFAT-SAXGF	J.S.T. Mfg. Co., Ltd.	●	●

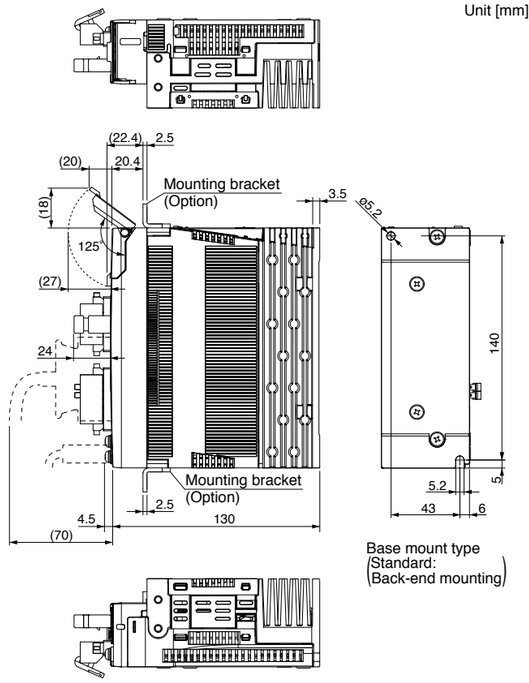
B-frame

Unit [mm]

X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection



Rack mount type
(Option: Front-end mounting)



Base mount type
(Standard:
Back-end mounting)

* For connectors used to connect to the driver, power supply and motor, refer to the A-frame table because both frames use the same connectors.

Mass: 1.0kg

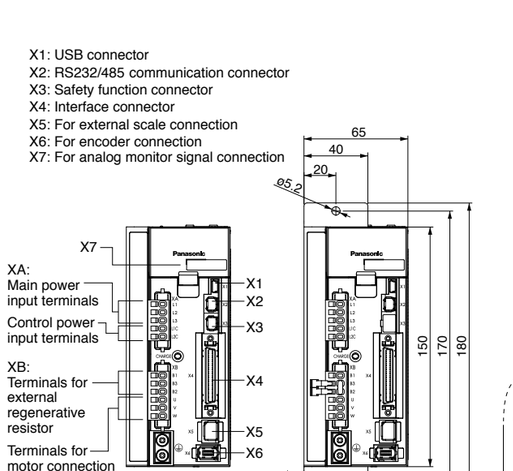
Dimensions of Driver

* The size of A5series and A5Eseries is same.

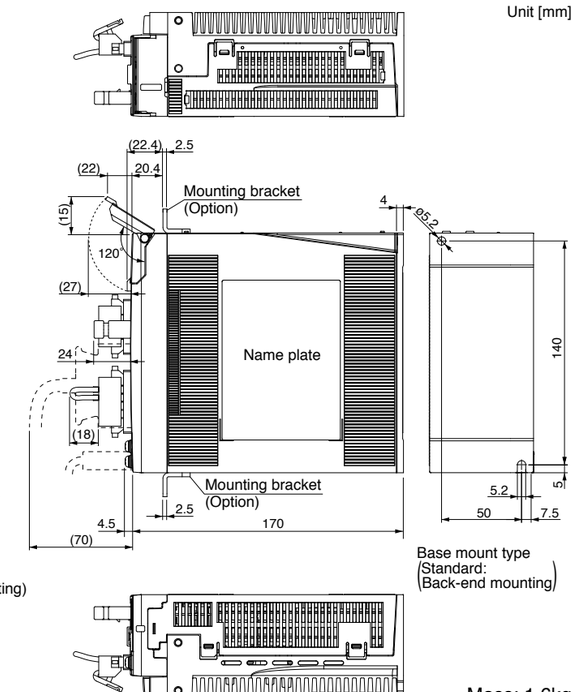
C-frame

Unit [mm]

X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection



Rack mount type
(Option: Front-end mounting)



Base mount type
(Standard:
Back-end mounting)

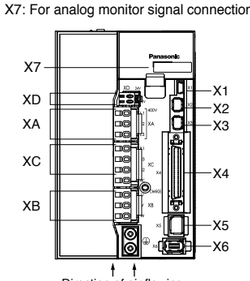
Mass: 1.6kg

* For connectors used to connect to the driver, power supply and motor, refer to the A-frame table because both frames use the same connectors.

D-frame (400V)

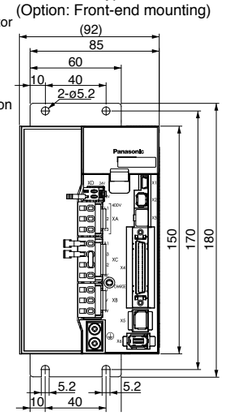
Unit [mm]

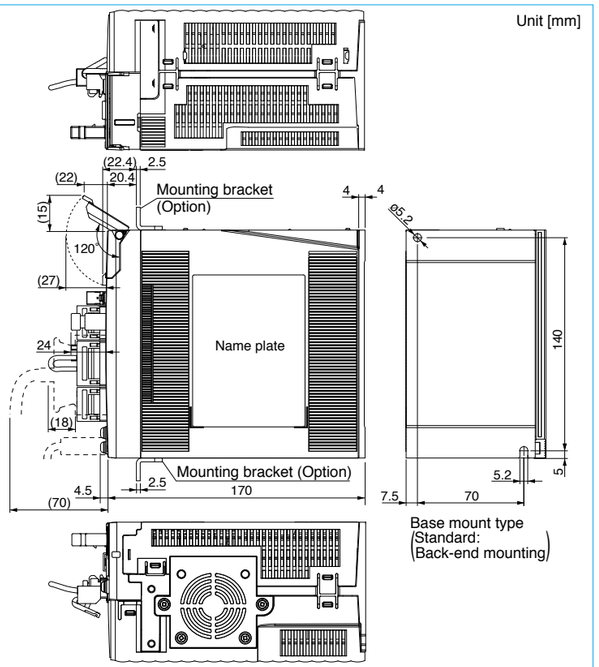
XA: Main power input terminals
XB: Terminals for motor connection
XC: Terminals for external regenerative resistor
XD: Control power input terminals
X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection



Direction of air flowing
to the internal cooling fan

Rack mount type
(Option: Front-end mounting)





Base mount type
(Standard:
Back-end mounting)

Connector of driver side		
Connector XA	S03B-JTSMSS-GSANYR	J.S.T. Mfg. Co., Ltd.
Connector XB	S03B-JTSMSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XC	S04B-JTSMSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XD	S02B-J25SK-GGR	J.S.T. Mfg. Co., Ltd.
Connector of power and motor side (Attached to the driver)		
Connector XA	03JFAT-SAYGSA-M	J.S.T. Mfg. Co., Ltd.
Connector XB	03JFAT-SAXGSA-M	J.S.T. Mfg. Co., Ltd.
Connector XC	04JFAT-SAXGSA-M	J.S.T. Mfg. Co., Ltd.
Connector XD	02MJFAT-SAGF	J.S.T. Mfg. Co., Ltd.

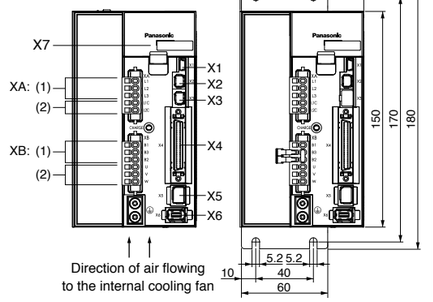
Mass: 1.9kg

* For connectors X1 to X7 for connection to the driver, refer to those listed in the A-frame table because both frames use the same connectors.

D-frame (200V)

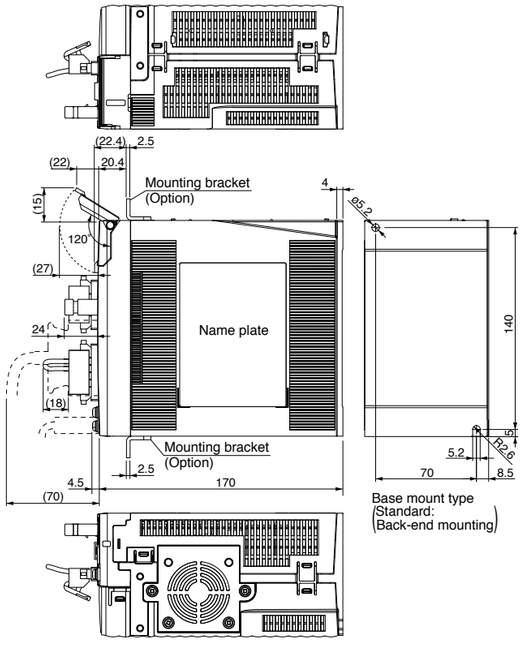
Unit [mm]

X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection



Direction of air flowing
to the internal cooling fan

Rack mount type
(Option: Front-end mounting)



Base mount type
(Standard:
Back-end mounting)

XA:
(1) Main power input terminals
(2) Control power input terminals
XB:
(1) Terminals for external regenerative resistor
(2) Terminals for motor connection

Mass: 1.8kg

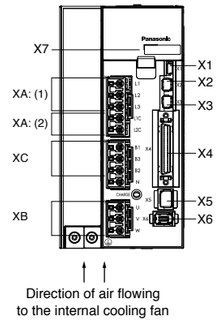
* For connectors used to connect to the driver, power supply and motor, refer to the A-frame table because both frames use the same connectors.

E-frame (200V)

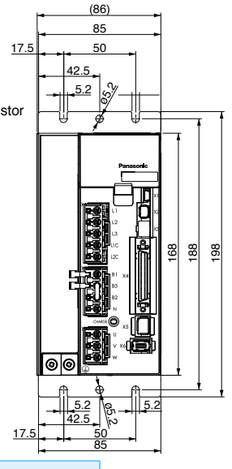
Unit [mm]

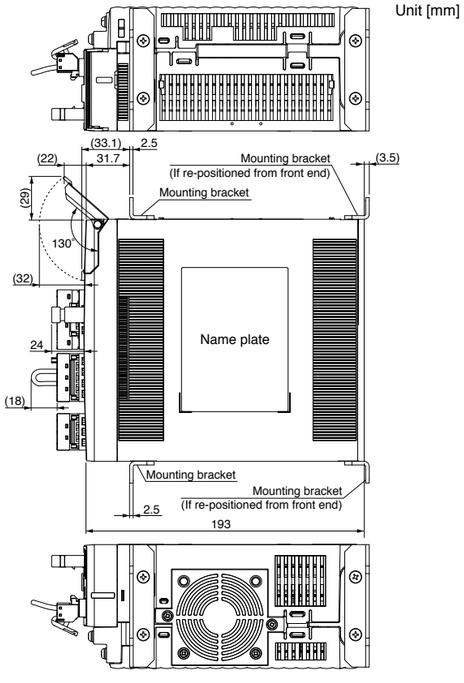
X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection

XA: (1) Main power input terminals
(2) Control power input terminals
XB: Terminals for motor connection
XC: Terminals for external regenerative resistor



Direction of air flowing
to the internal cooling fan





Connector of driver side		
Connector XA	S05B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XB	S03B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XC	S04B-JTSLSS-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector of power and motor side (Attached to the driver)		
Connector XA	05JFAT-SAXGSA-L	J.S.T. Mfg. Co., Ltd.
Connector XB	03JFAT-SAXGSA-L	J.S.T. Mfg. Co., Ltd.
Connector XC	04JFAT-SAXGSA-L	J.S.T. Mfg. Co., Ltd.

Mass: 2.7kg

* For connectors X1 to X7 for connection to the driver, refer to those listed in the A-frame table because both frames use the same connectors.

Dimensions of Driver

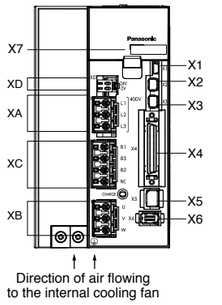
* The size of A5series and A5Eseries is same.

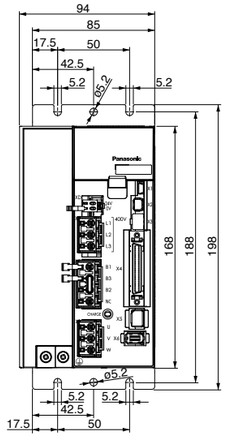
E-frame (400V)

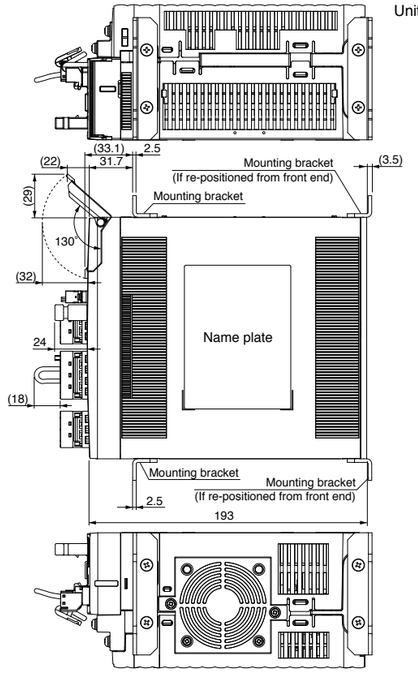
X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection

XA: Main power input terminals
XB: Terminals for motor connection
XC: Terminals for external regenerative resistor
XD: Control power input terminals

Unit [mm]







Connector of driver side		
Connector XA	S03B-JTSLSS-GSANYR	J.S.T. Mfg. Co., Ltd.
Connector XB	S03B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XC	S04B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XD	S02B-J25SK-GGR	J.S.T. Mfg. Co., Ltd.
Connector of power and motor side (Attached to the driver)		
Connector XA	03JFAT-SAYGSA-L	J.S.T. Mfg. Co., Ltd.
Connector XB	03JFAT-SAXGSA-L	J.S.T. Mfg. Co., Ltd.
Connector XC	04JFAT-SAXGSA-L	J.S.T. Mfg. Co., Ltd.
Connector XD	02MJFAT-SAGF	J.S.T. Mfg. Co., Ltd.

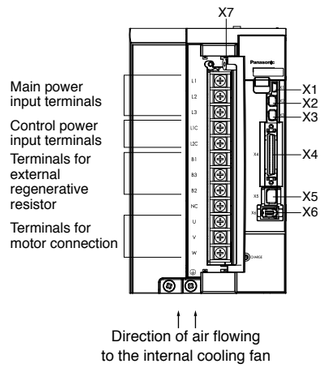
Mass: 2.7kg

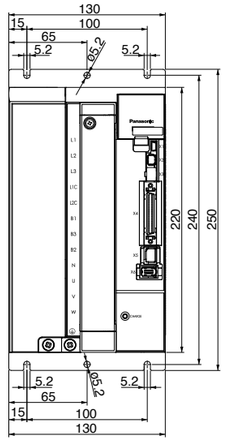
* For connectors X1 to X7 for connection to the driver, refer to those listed in the A-frame table because both frames use the same connectors.

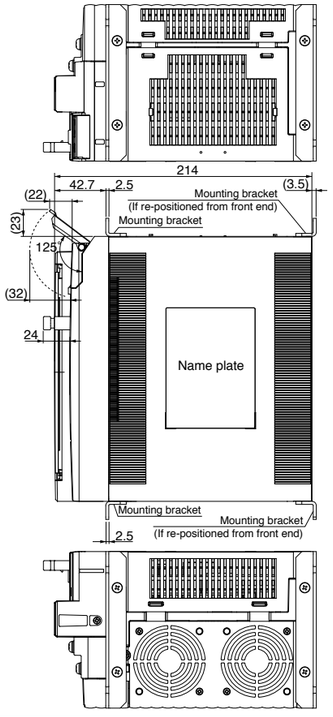
F-frame (200V/400V)

X1: USB connector
X2: RS232/485 communication connector
X3: Safety function connector
X4: Interface connector
X5: For external scale connection
X6: For encoder connection
X7: For analog monitor signal connection

Unit [mm]





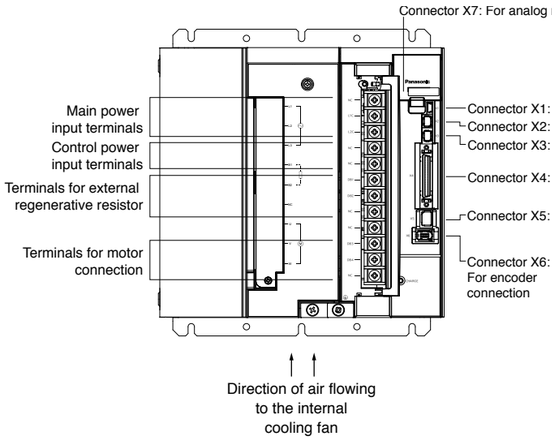


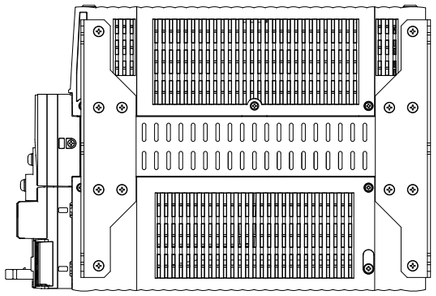
Mass: 4.8kg

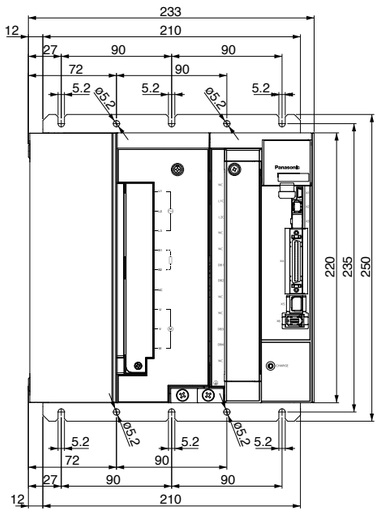
* For connectors used to connect to the driver, refer to the A-frame table because both frames use the same connectors.

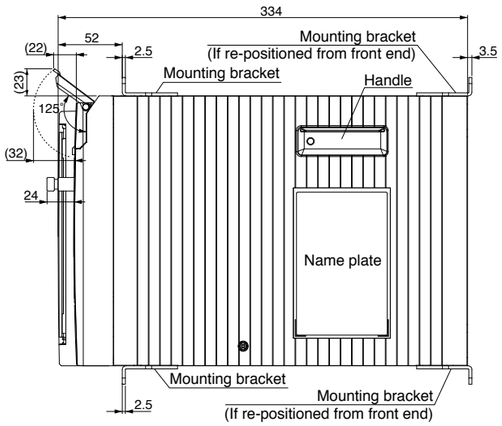
G-frame (200V/400V) * A5E series is out of the lineup.

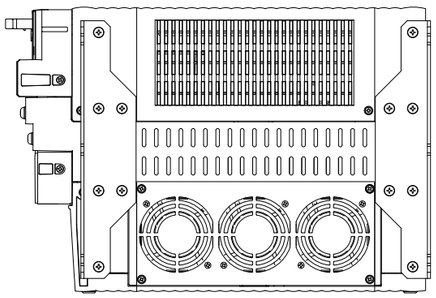
Unit [mm]











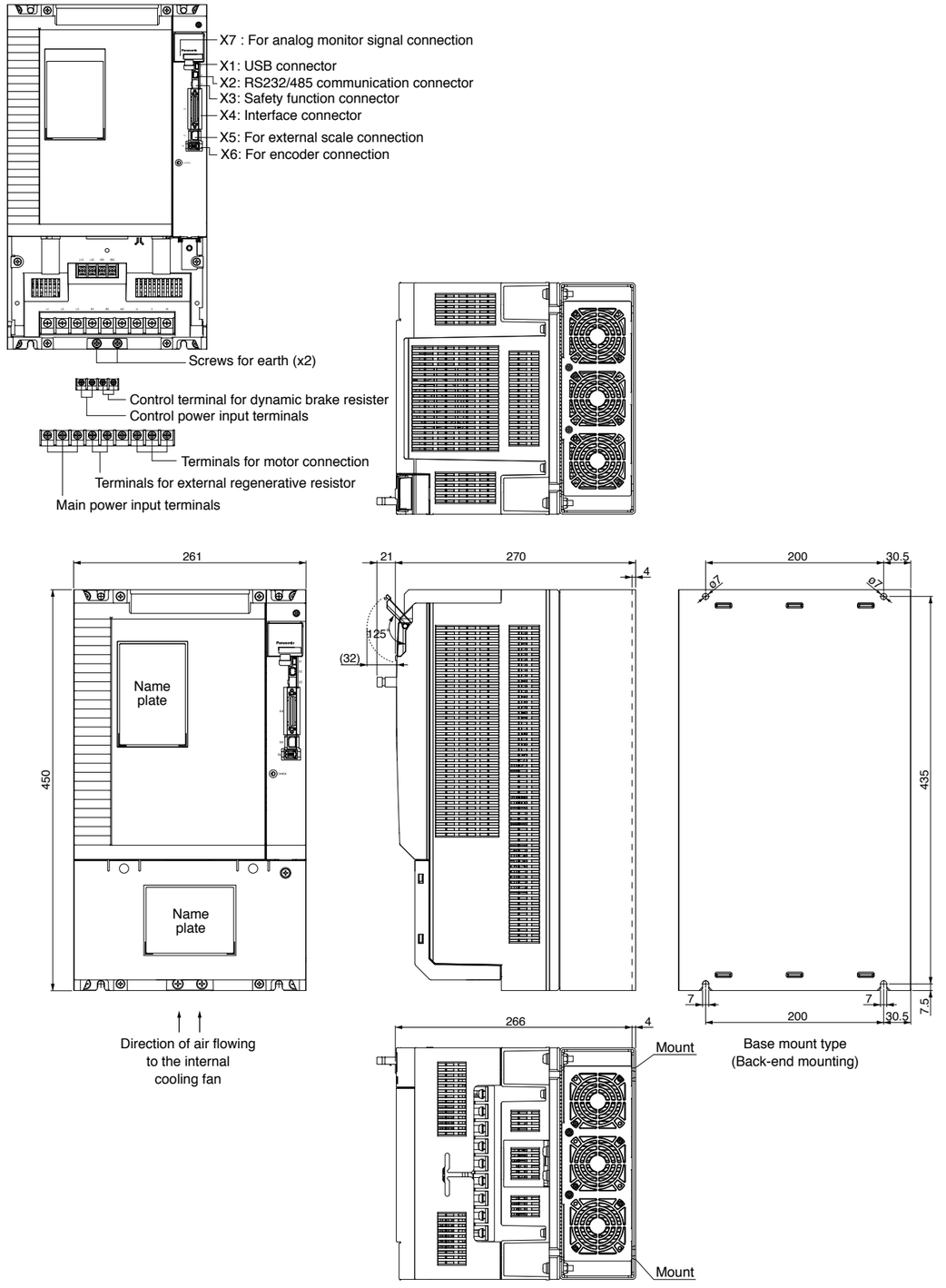
Mass: 13.5kg

* For connectors used to connect to the driver, refer to the A-frame table because both frames use the same connectors.

* A5E series is out of the lineup.

H-frame (200V/400V)

Unit [mm]



* For connectors used to connect to the driver, refer to the A-frame table because both frames use the same connectors.

Mass: 21.0kg

Features/ Lineup

Features

- Line-up IP65 motor: 50W to 5.0kW
  IP67 motor: 50W to 15.0kW
- Max speed: 6000r/min (MSME 50W to 750W)
- Low inertia (MSME) to High inertia (MHME).
- Low cogging torque: Rated torque ratio 0.5% (typical value).
- 20-bit incremental encoder (1,048,576 pulse)
- 17-bit absolute encoder (131,072 pulse).
- Enclosure rating: IP65 and IP67
- Compact & Light weight

Motor Lineup

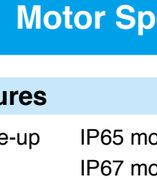
Small capacity

MSME
Low inertia
Max. speed: 6000r/min
Rated speed: 3000r/min
Rated output: 50W to 750W(200V)
Enclosure: IP67

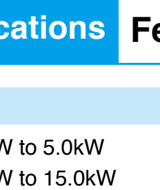
MSMD
Low inertia
Max. speed: 5000r/min : 4500r/min(750W)
Rated speed: 3000r/min
Rated output: 50W to 750W
Enclosure: IP65

MHMD
High inertia
Max. speed: 5000r/min : 4500r/min(750W)
Rated speed: 3000r/min
Rated output: 200W to 750W
Enclosure: IP65

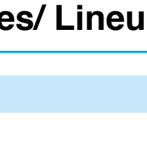
Middle capacity



MSME
Low inertia
Max. speed: 5000r/min : 4500r/min (from 4.0kW)
Rated speed: 3000r/min
Rated output: 750W(400V), 1.0kW to 5.0kW
Enclosure: IP65 (IP67)



MDME
Middle inertia
Max. speed: 3000r/min : 2000r/min (from 11.0kW)
Rated speed: 2000r/min : 1500r/min (from 7.5kW)
Rated output
IP65: 400W to 5.0kW
IP67: 400W to 15.0kW
Enclosure: IP65 (IP67)



MFME
(Flat type)*
Middle inertia
Max. speed: 3000r/min
Rated speed: 2000r/min
Rated output: 1.5kW to 4.5kW
Enclosure: IP67

MGME
(Low speed/ High torque type)
Middle inertia
Max. speed: 2000r/min
Rated speed: 1000r/min
Rated output
IP65: 0.9kW to 3.0kW
IP67: 0.9kW to 6.0kW
Enclosure: IP65(IP67)

MHME
High inertia
Max. speed: 3000r/min
Rated speed: 2000r/min : 1500r/min(7.5kW)
Rated output
IP65: 1.0kW to 5.0kW
IP67: 1.0kW to 7.5kW
Enclosure: IP65(IP67)

Middle capacity motor has the IP67 type.

(IP65 type motor)

Compact

(IP67 type motor)

Part No.: **M□ME******□*
C: IP65 motor
1: IP67 motor

* MFME motor is IP67 type only.

Motor Specifications 100V MSMD 50W [Low inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		MSMD5AZG1□	MSMD5AZS1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1105	
		A5E series	MADHT1105E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			50	
Rated torque (N·m)			0.16	
Momentary Max. peak torque (N·m)			0.48	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.025	
	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

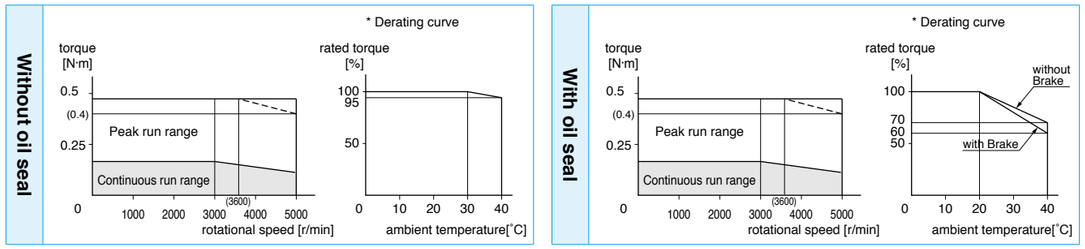
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

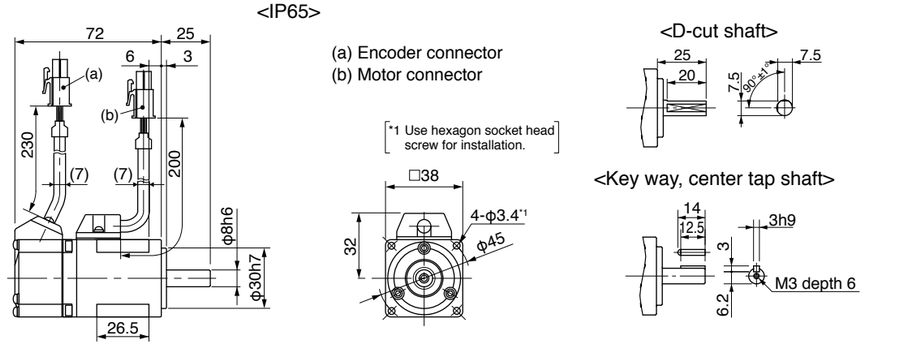
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<Without Brake> Mass: 0.32 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSMD 50W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		MSMD5AZG1□	MSMD5AZS1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1505	
		A5E series	MADHT1505E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			50	
Rated torque (N·m)			0.16	
Momentary Max. peak torque (N·m)			0.48	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4281		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.025	
	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

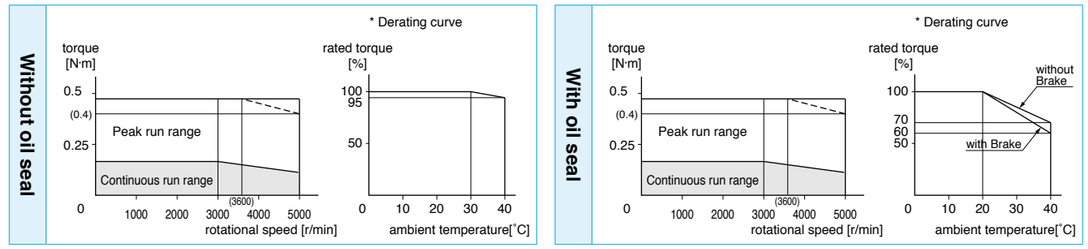
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

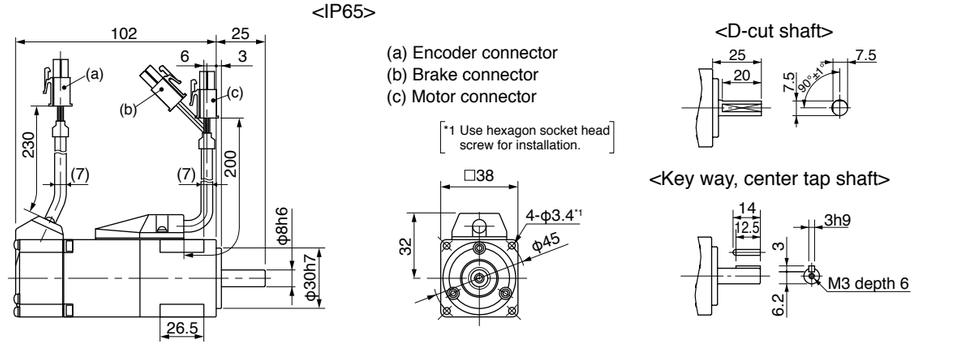
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<With Brake> Mass: 0.53 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC100V	
Motor model *1	IP65		MSMD011G1□	MSMD011S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1107	
		A5E series	MADHT1107E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.4	
Rated output (W)			100	
Rated torque (N·m)			0.32	
Momentary Max. peak torque (N·m)			0.95	
Rated current (A(rms))			1.7	
Max. current (A(o-p))			7.2	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.051	
	With brake		0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

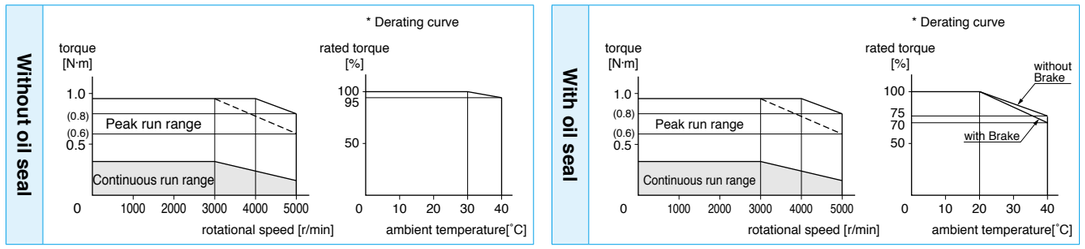
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

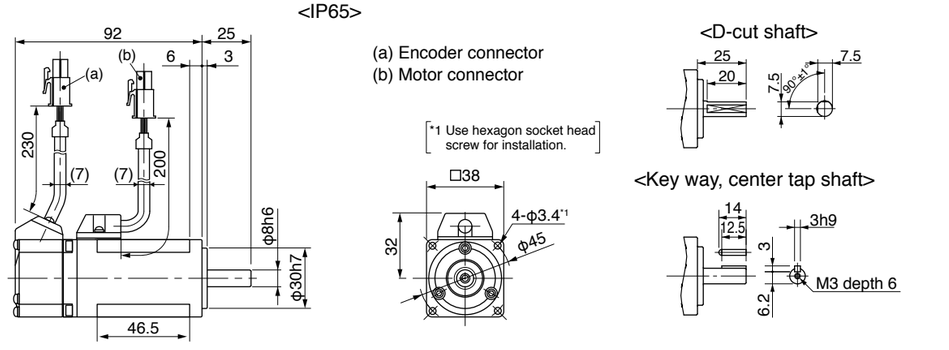
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<Without Brake> Mass: 0.47 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1	IP65		MSMD012G1□	MSMD012S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1505	
		A5E series	MADHT1505E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			100	
Rated torque (N·m)			0.32	
Momentary Max. peak torque (N·m)			0.95	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4281		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.051	
	With brake		0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

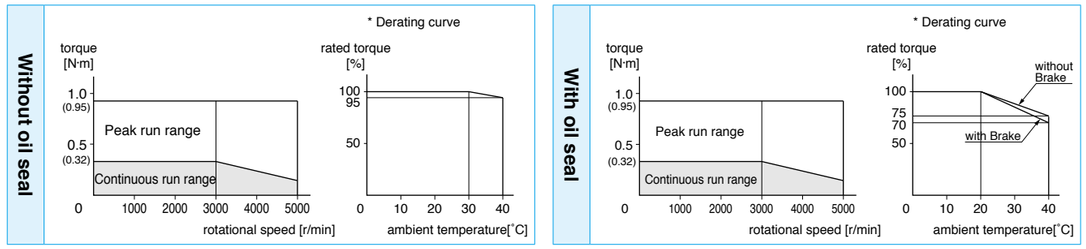
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

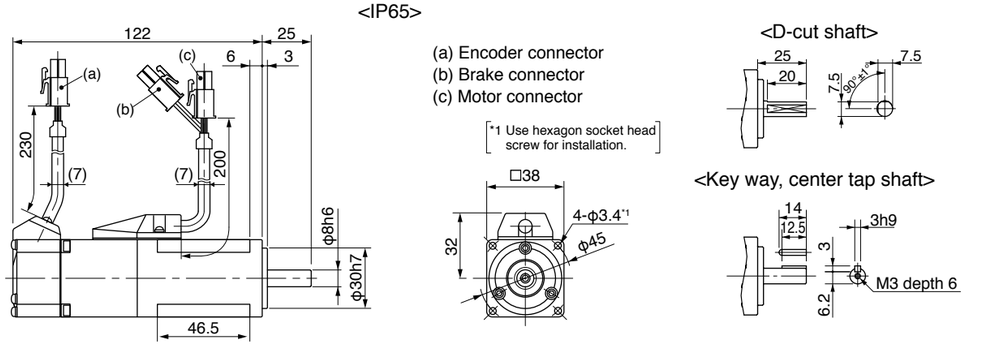
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage)



Dimensions

<With Brake> Mass: 0.68 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 100V MSMD 200W [Low inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		MSMD021G1□	MSMD021S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MBDHT2110	
		A5E series	MBDHT2110E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			2.5	
Max. current (A(o-p))			10.6	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.14	
	With brake		0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

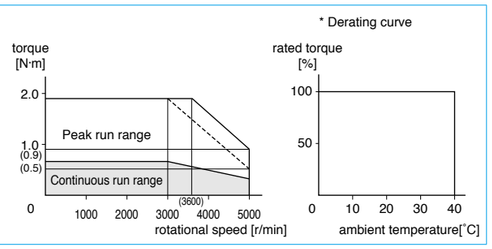
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

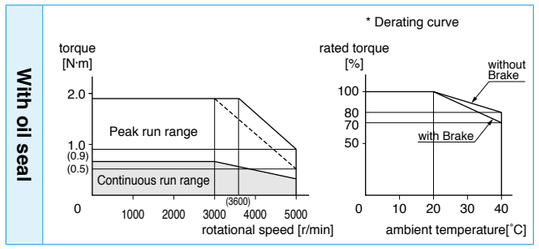
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



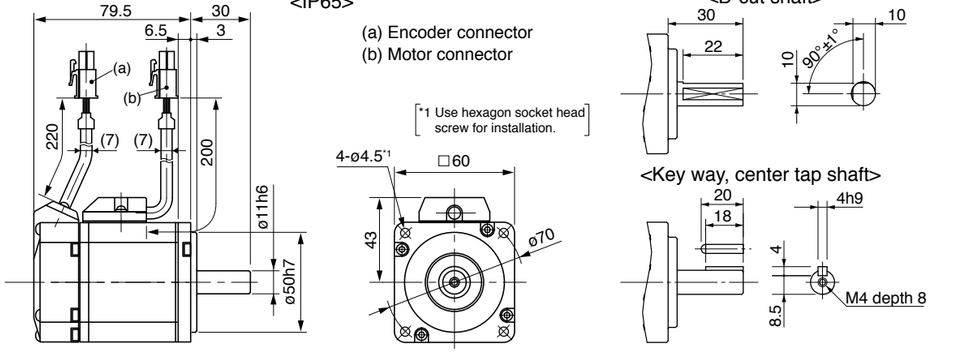
With oil seal



Dimensions

<Without Brake>

Mass: 0.82 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSMD 200W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		MSMD022G1□	MSMD022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1507	
		A5E series	MADHT1507E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			1.6	
Max. current (A(o-p))			6.9	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.14	
	With brake		0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

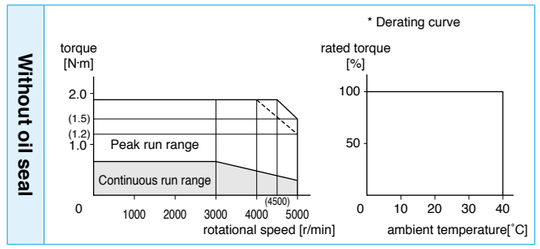
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

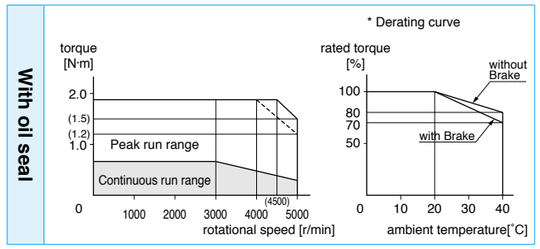
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



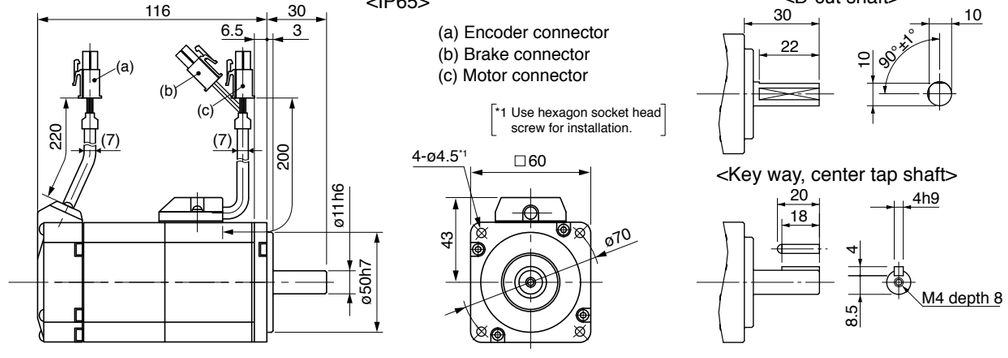
With oil seal



Dimensions

<With Brake>

Mass: 1.3 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 100V MSMD 400W [Low inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		MSMD041G1□	MSMD041S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MCDHT3120	
		A5E series	MCDHT3120E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			4.6	
Max. current (A(o-p))			19.5	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4282		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.26	
	With brake		0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

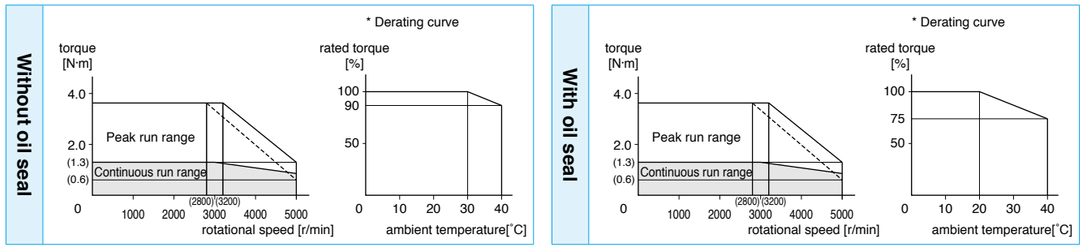
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

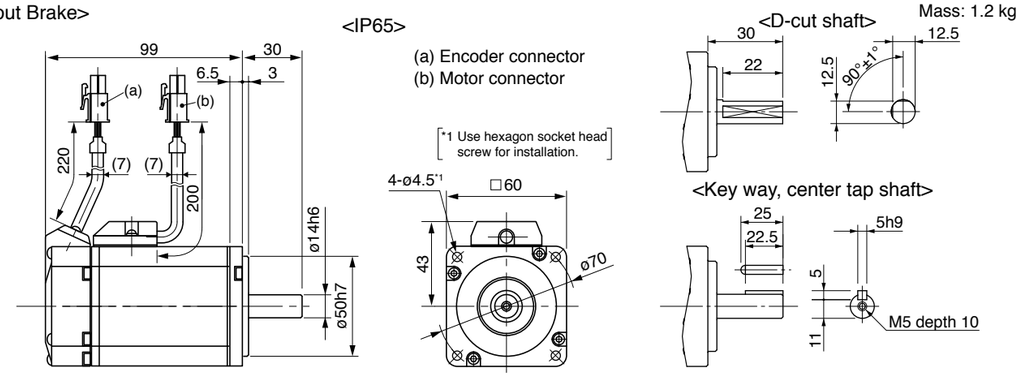
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<Without Brake>



[Unit: mm]

* For the dimensions with brake, refer to the right page.

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSMD 400W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		MSMD042G1□	MSMD042S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MBDHT2510	
		A5E series	MBDHT2510E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			2.6	
Max. current (A(o-p))			11.0	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.26	
	With brake		0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

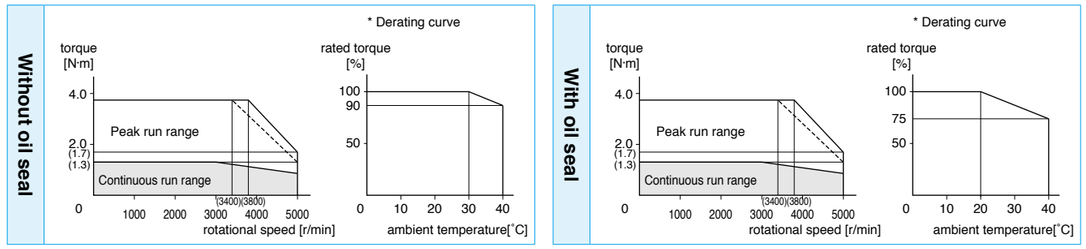
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

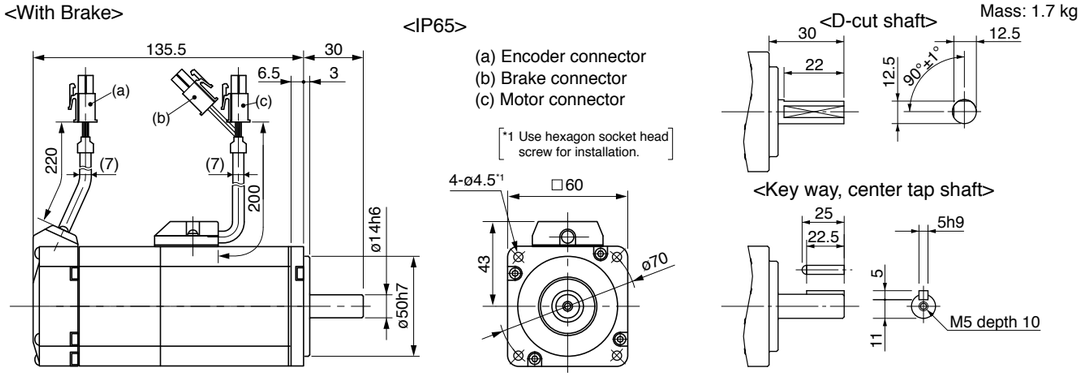
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<With Brake>



[Unit: mm]

* For the dimensions without brake, refer to the left page.

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1	IP65		MSMD082G1□	MSMD082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MCDHT3520	
		A5E series	MCDHT3520E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			1.3	
Rated output (W)			750	
Rated torque (N·m)			2.4	
Momentary Max. peak torque (N·m)			7.1	
Rated current (A(rms))			4.0	
Max. current (A(o-p))			17.0	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.87	
	With brake		0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

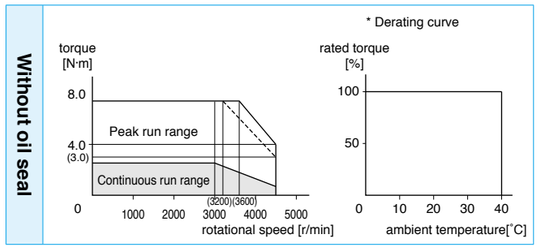
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

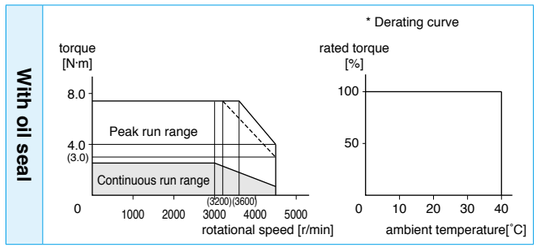
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
During operation	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



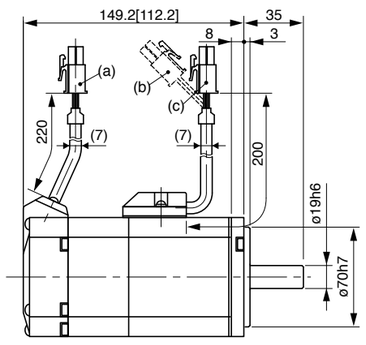


Dimensions

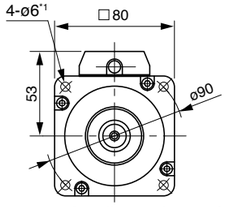
Mass: Without brake/ 2.3 kg
With brake/ 3.1 kg

<IP65>

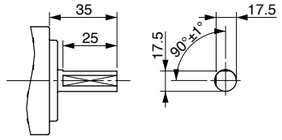
(a) Encoder connector
(b) Brake connector
(c) Motor connector



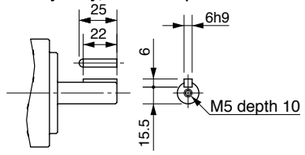
[*1 Use hexagon socket head screw for installation.]



<D-cut shaft>



<Key way, center tap shaft>



* Figures in [ ] represent the dimensions without brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

MEMO

Motor Specifications 100V MHMD 200W [High inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		MHMD021G1□	MHMD021S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MBDHT2110	
		A5E series	MBDHT2110E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			2.5	
Max. current (A(o-p))			10.6	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.42	
	With brake		0.45	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

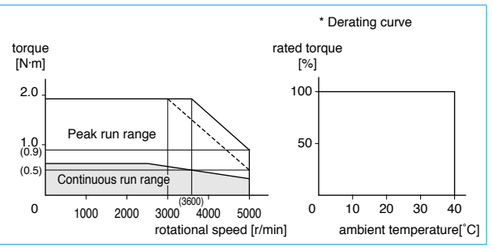
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

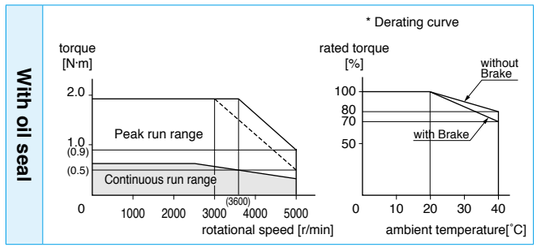
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal

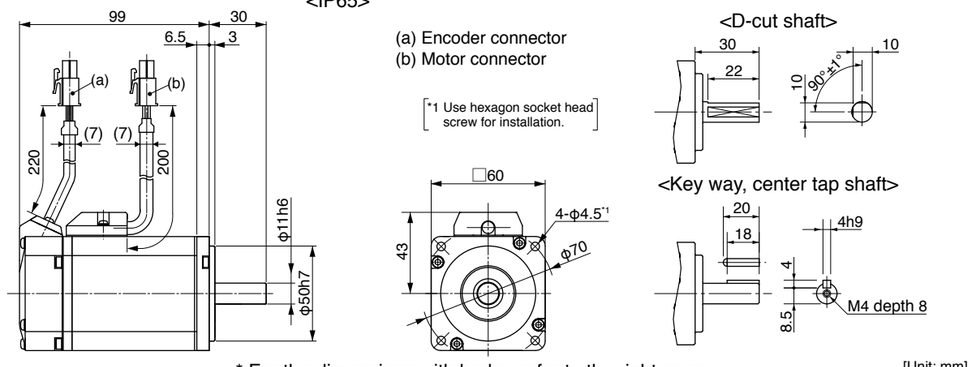


With oil seal



Dimensions

<Without Brake> <IP65> Mass: 0.96 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHMD 200W [High inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		MHMD022G1□	MHMD022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MADHT1507	
		A5E series	MADHT1507E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			1.6	
Max. current (A(o-p))			6.9	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.42	
	With brake		0.45	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

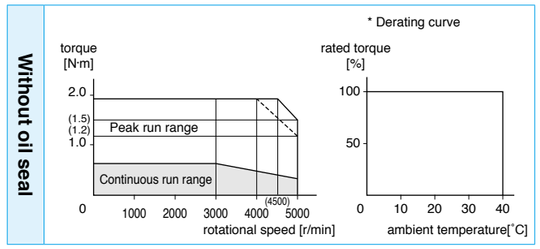
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

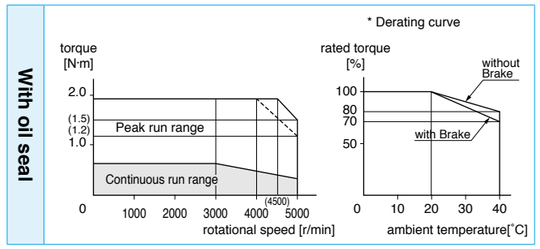
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal

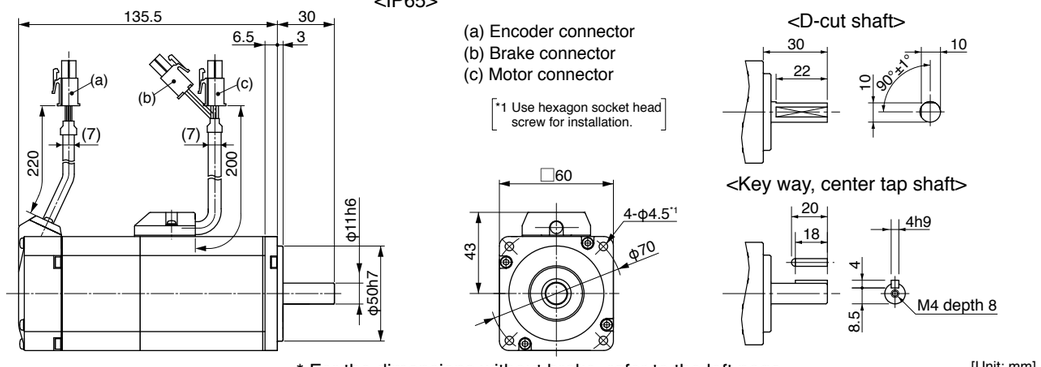


With oil seal



Dimensions

<With Brake> <IP65> Mass: 1.4 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 100V MHMD 400W [High inertia, Small capacity]

Specifications

			AC100V	
Motor model *1		IP65	MHMD041G1□	MHMD041S1□
		IP67	–	–
Applicable driver *2	Model No.	A5 series	MCDHT3120	
		A5E series	MCDHT3120E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			4.6	
Max. current (A(o-p))			19.5	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4282	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	0.67	
		With brake	0.70	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

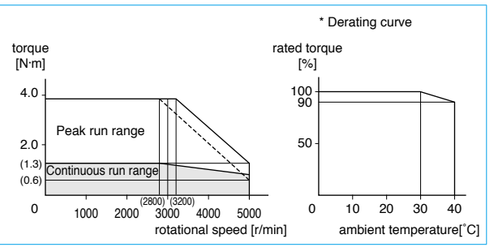
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

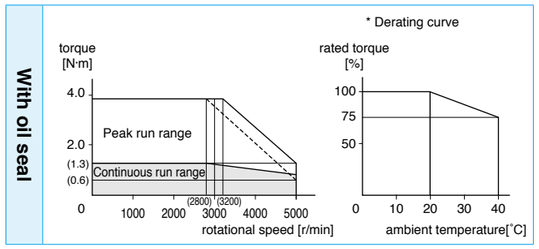
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



With oil seal

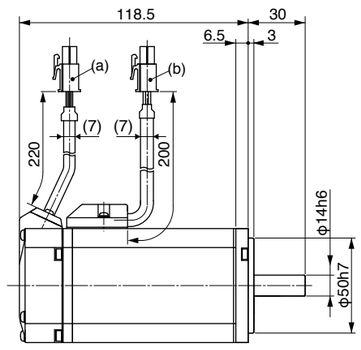


Dimensions

<Without Brake>

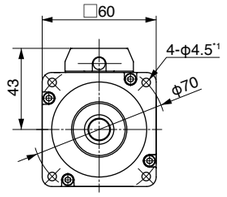
Mass: 1.4 kg

<IP65>

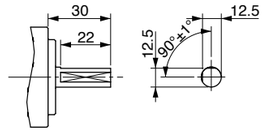


(a) Encoder connector
(b) Motor connector

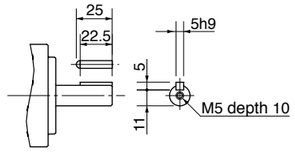
*1 Use hexagon socket head screw for installation.



<D-cut shaft>



<Key way, center tap shaft>



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHMD 400W [High inertia, Small capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHMD042G1□	MHMD042S1□
		IP67	–	–
Applicable driver *2	Model No.	A5 series	MBDHT2510	
		A5E series	MBDHT2510E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			2.6	
Max. current (A(o-p))			11.0	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4283	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	0.67	
		With brake	0.70	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

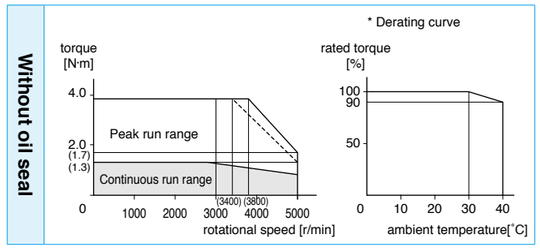
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

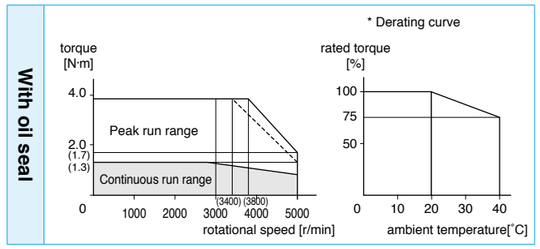
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



With oil seal

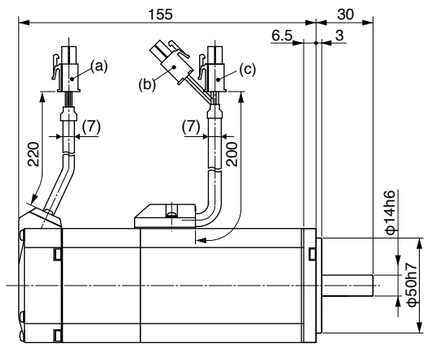


Dimensions

<With Brake>

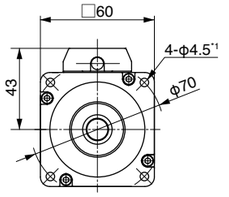
Mass: 1.8 kg

<IP65>

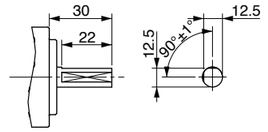


(a) Encoder connector
(b) Brake connector
(c) Motor connector

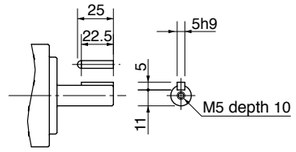
*1 Use hexagon socket head screw for installation.



<D-cut shaft>



<Key way, center tap shaft>



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1	IP65		MHMD082G1□	MHMD082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5 series	MCDHT3520	
		A5E series	MCDHT3520E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			1.3	
Rated output (W)			750	
Rated torque (N·m)			2.4	
Momentary Max. peak torque (N·m)			7.1	
Rated current (A(rms))			4.0	
Max. current (A(o-p))			17.0	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		1.51	
	With brake		1.61	
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

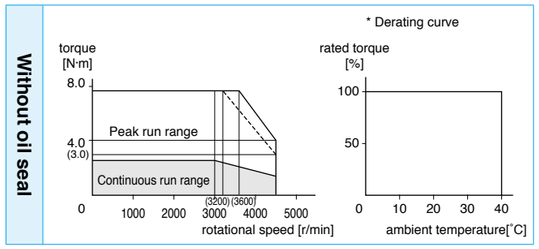
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

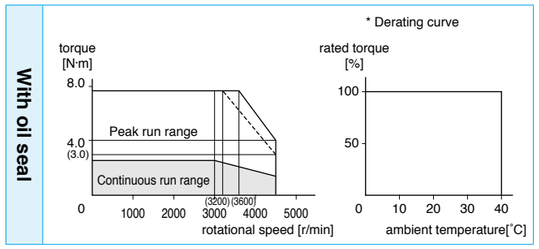
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
During operation	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

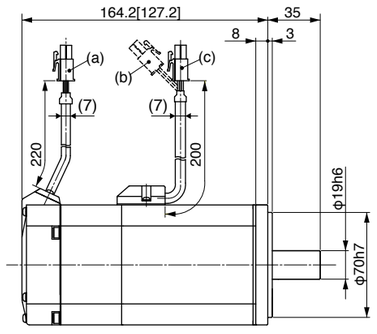




Dimensions

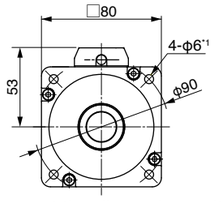
Mass: Without brake/ 2.5 kg
With brake/ 3.5 kg

<IP65>

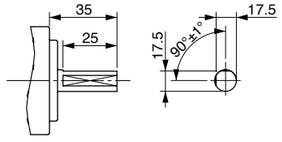


(a) Encoder connector
(b) Brake connector
(c) Motor connector

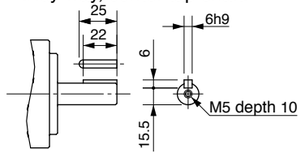
[*1 Use hexagon socket head screw for installation.]



<D-cut shaft>



<Key way, center tap shaft>



* Figures in [ ] represent the dimensions without brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

MEMO

Motor Specifications 100V MSME 50W [Low inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		–	–
	IP67		MSME5AZG1□	MSME5AZS1□
Applicable driver *2	Model No.	A5 series	MADHT1105	
		A5E series	MADHT1105E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.4	
Rated output (W)			50	
Rated torque (N·m)			0.16	
Momentary Max. peak torque (N·m)			0.48	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.025	
	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

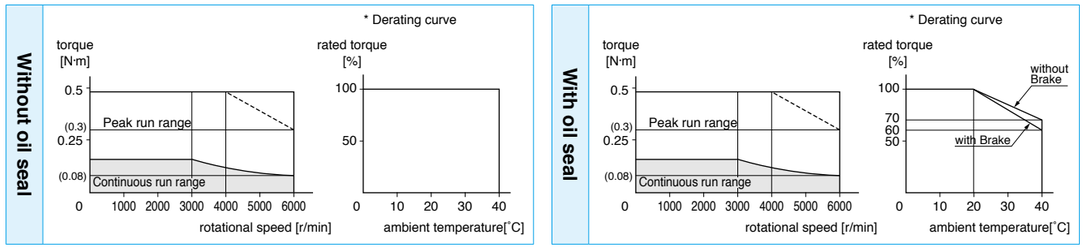
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

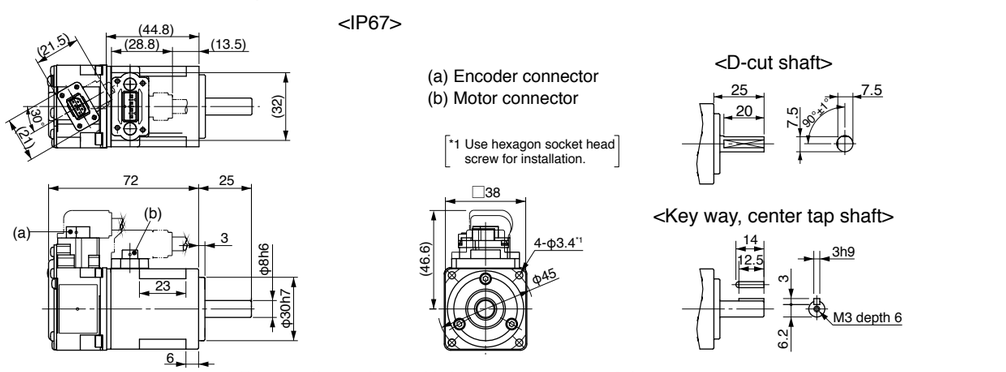
Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<Without Brake, Cable direction to output shaft>

Mass: 0.31 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 50W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MSME5AZG1□	MSME5AZS1□
Applicable driver *2	Model No.	A5 series	MADHT1505	
		A5E series	MADHT1505E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			50	
Rated torque (N·m)			0.16	
Momentary Max. peak torque (N·m)			0.48	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.025	
	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

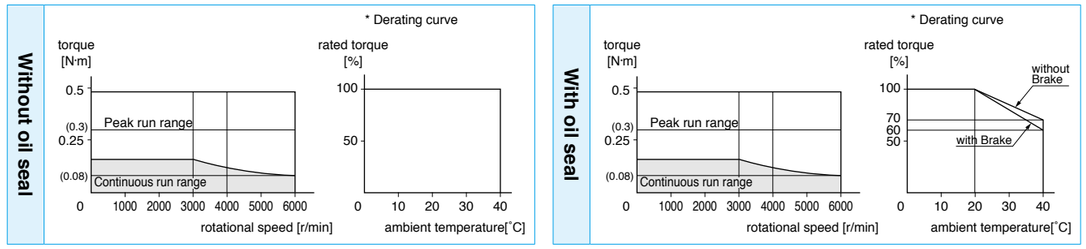
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

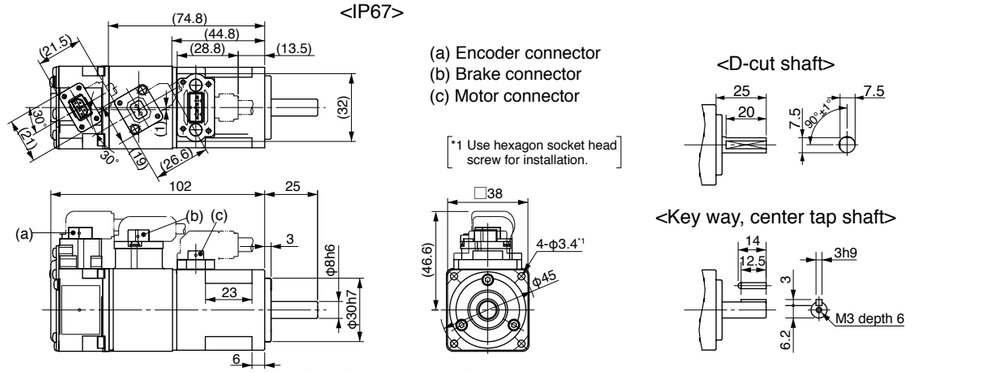
Torque characteristics (at AC200V of power voltage)



Dimensions

<With Brake, Cable direction to output shaft>

Mass: 0.51 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

100V MSME 100W [Low inertia, Small capacity]

Specifications

			AC100V	
Motor model *1	IP65		–	–
	IP67		MSME011G1□	MSME011S1□
Applicable driver *2	Model No.	A5 series	MADHT1107	
		A5E series	MADHT1107E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.4	
Rated output (W)			100	
Rated torque (N·m)			0.32	
Momentary Max. peak torque (N·m)			0.95	
Rated current (A(rms))			1.6	
Max. current (A(o-p))			6.9	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.051	
	With brake		0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

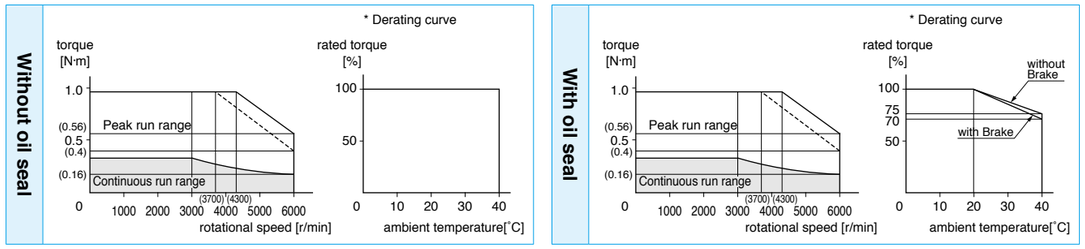
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

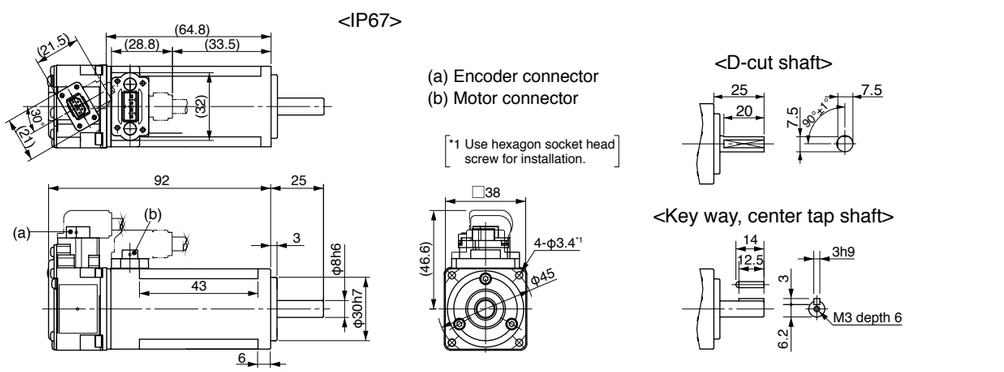
Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<With Brake, Cable direction to output shaft>

Mass: 0.46 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200V MSME 100W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MSME012G1□	MSME012S1□
Applicable driver *2	Model No.	A5 series	MADHT1505	
		A5E series	MADHT1505E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			100	
Rated torque (N·m)			0.32	
Momentary Max. peak torque (N·m)			0.95	
Rated current (A(rms))			1.1	
Max. current (A(o-p))			4.7	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4280		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.051	
	With brake		0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

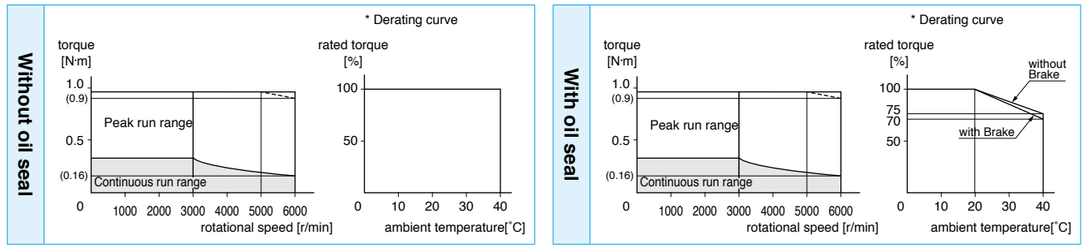
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

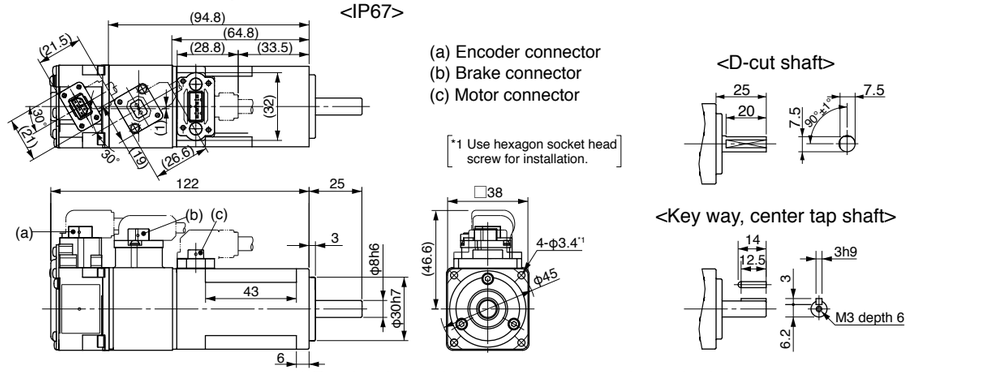
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<With Brake, Cable direction to output shaft>

Mass: 0.66 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC100V	
Motor model *1	IP65		–	–
	IP67		MSME021G1□	MSME021S1□
Applicable driver *2	Model No.	A5 series	MBDHT2110	
		A5E series	MBDHT2110E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			2.5	
Max. current (A(o-p))			10.6	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.14	
	With brake		0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

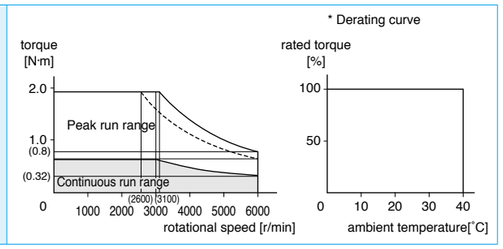
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

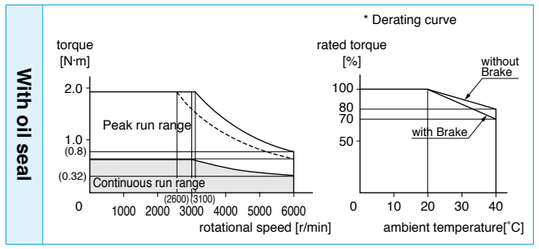
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



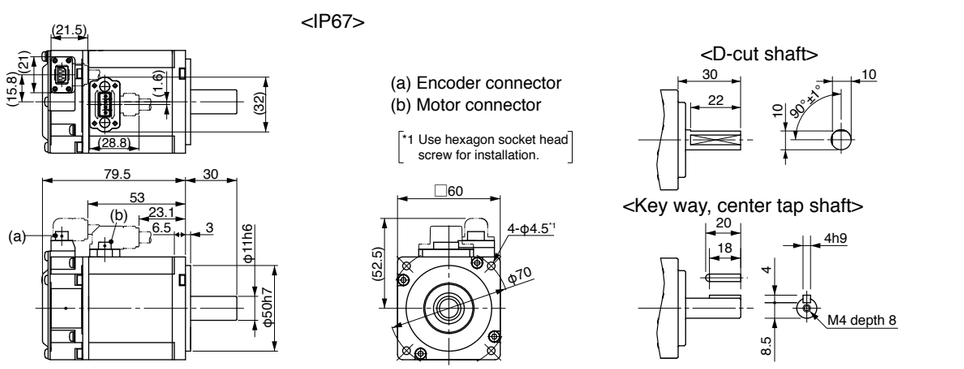
With oil seal



Dimensions

<Without Brake, Cable direction to output shaft>

Mass: 0.78 kg



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MSME022G1□	MSME022S1□
Applicable driver *2	Model No.	A5 series	MADHT1507	
		A5E series	MADHT1507E	–
	Frame symbol		A-frame	
Power supply capacity (kVA)			0.5	
Rated output (W)			200	
Rated torque (N·m)			0.64	
Momentary Max. peak torque (N·m)			1.91	
Rated current (A(rms))			1.5	
Max. current (A(o-p))			6.5	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.14	
	With brake		0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

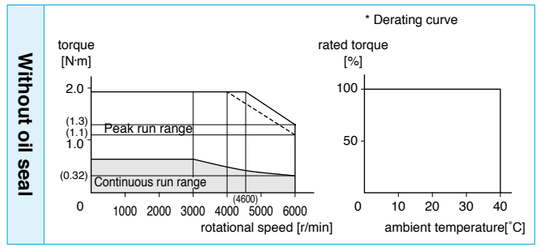
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

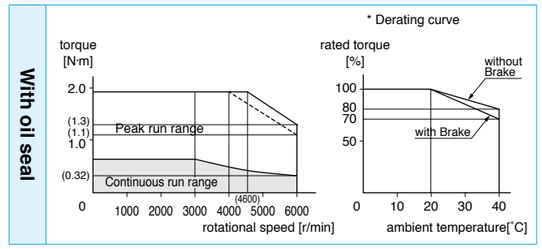
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



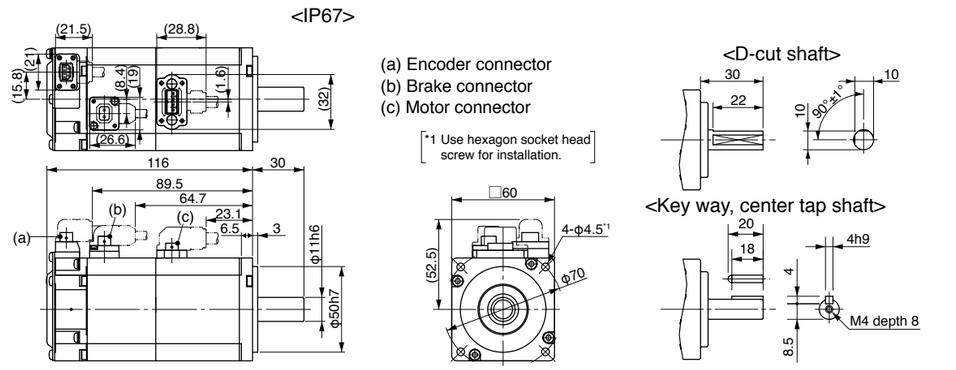
With oil seal



Dimensions

<With Brake, Cable direction to output shaft>

Mass: 1.2 kg



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC100V	
Motor model *1	IP65		–	–
	IP67		MSME041G1□	MSME041S1□
Applicable driver *2	Model No.	A5 series	MCDHT3120	
		A5E series	MCDHT3120E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			4.6	
Max. current (A(o-p))			19.5	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4282		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.26	
	With brake		0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

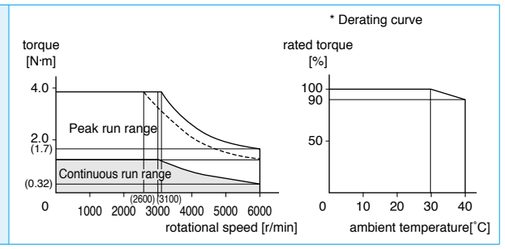
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

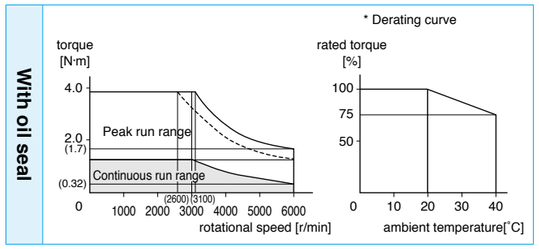
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC100V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



With oil seal

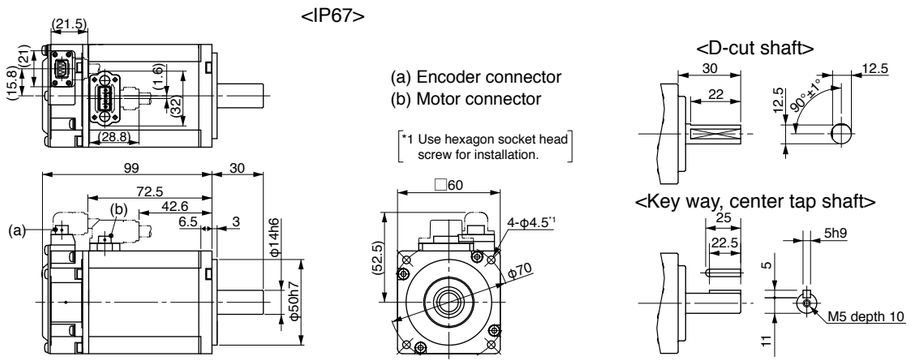


Dimensions

<Without Brake, Cable direction to output shaft>

Mass: 1.2 kg

<IP67>



* For the dimensions with brake, refer to the right page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MSME042G1□	MSME042S1□
Applicable driver *2	Model No.	A5 series	MBDHT2510	
		A5E series	MBDHT2510E	–
	Frame symbol		B-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.3	
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			2.4	
Max. current (A(o-p))			10.2	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.26	
	With brake		0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

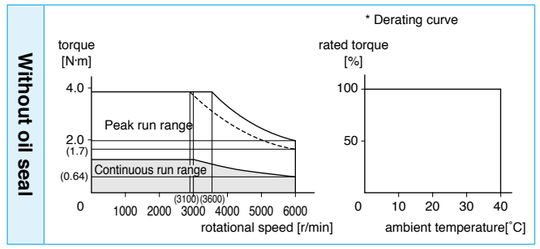
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

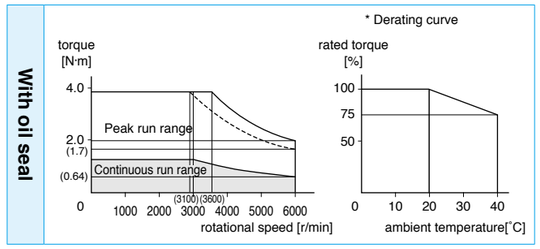
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.37.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



With oil seal

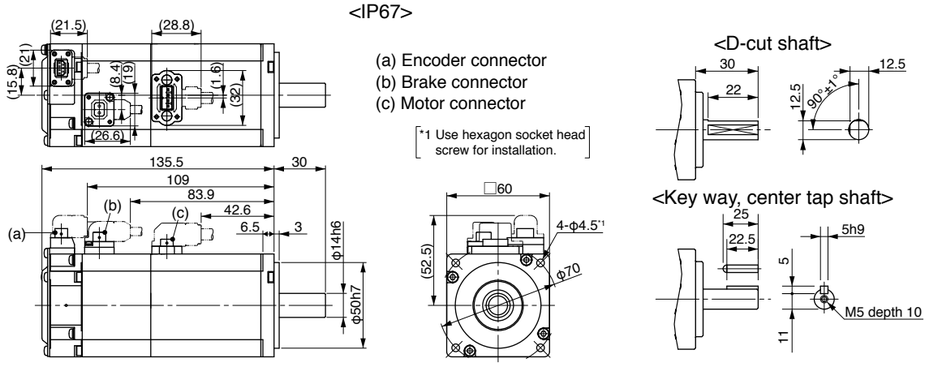


Dimensions

<With Brake, Cable direction to output shaft>

Mass: 1.6 kg

<IP67>



* For the dimensions without brake, refer to the left page.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 750W [Low inertia, Small capacity]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		0MSME82G1□	MSME082S1□
Applicable driver *2	Model No.	A5 series	MCDHT3520	
		A5E series	MCDHT3520E	–
	Frame symbol		C-frame	
Power supply capacity (kVA)			1.3	
Rated output (W)			750	
Rated torque (N·m)			2.4	
Momentary Max. peak torque (N·m)			7.1	
Rated current (A(rms))			4.1	
Max. current (A(o-p))			17.4	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			6000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		0.87	
	With brake		0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)
(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

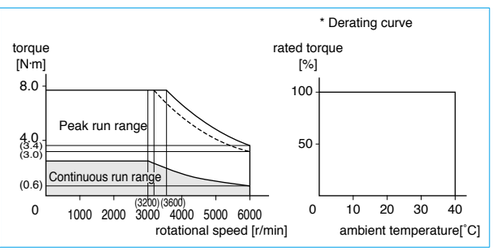
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
During operation	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

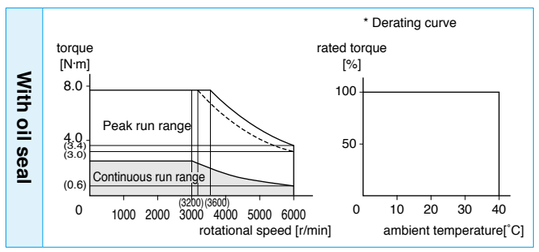
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

Without oil seal



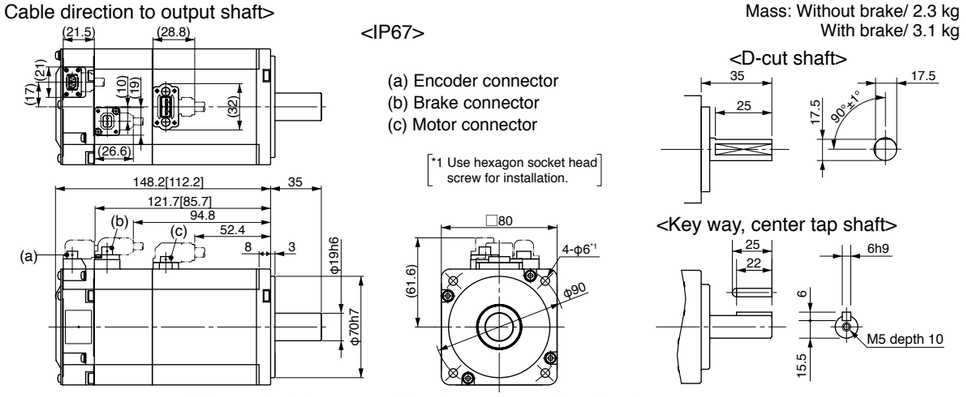
With oil seal



Dimensions

<With Brake, Cable direction to output shaft>

Mass: Without brake/ 2.3 kg
With brake/ 3.1 kg



* Figures in [ ] represent the dimensions without brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 1.0kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1	IP65		MSME102GC□	MSME102SC□
	IP67		MSME102G1□	MSME102S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			3.18	
Momentary Max. peak torque (N·m)			9.55	
Rated current (A(rms))			6.6	
Max. current (A(o-p))			28	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4284		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		2.03	
	With brake		2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)
(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

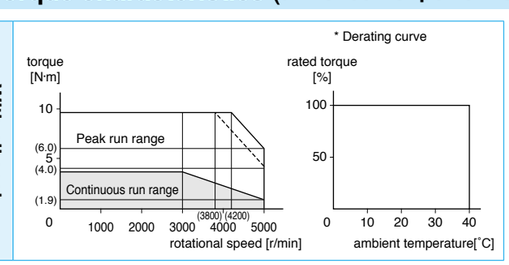
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

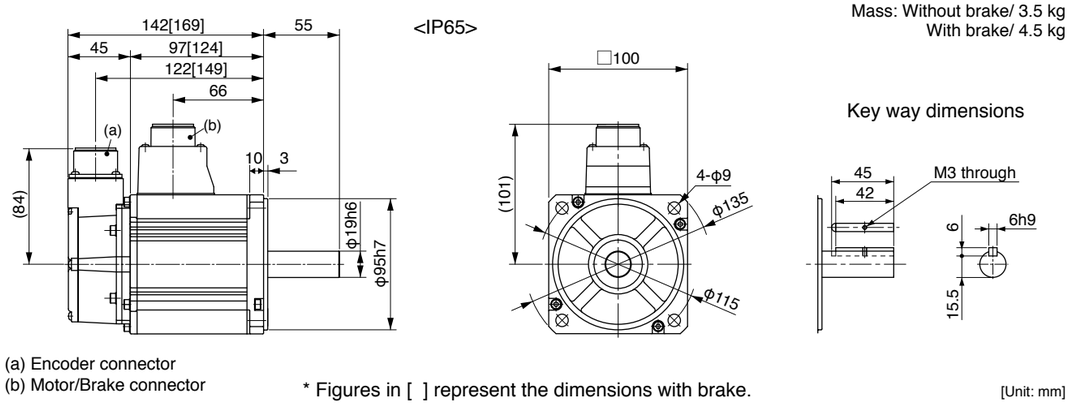
With oil seal



Dimensions

(For IP67 motor, refer to P.132.)

Mass: Without brake/ 3.5 kg
With brake/ 4.5 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 1.5kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MSME152GC□	MSME152SC□
		IP67	MSME152G1□	MSME152S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			8.2	
Max. current (A(o-p))			35	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4284	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	2.84	
		With brake	3.17	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

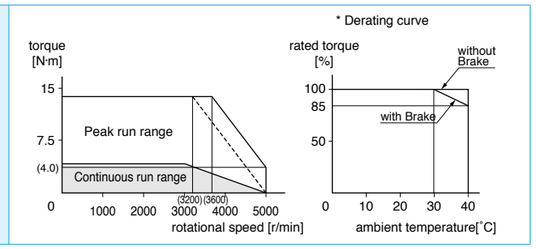
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

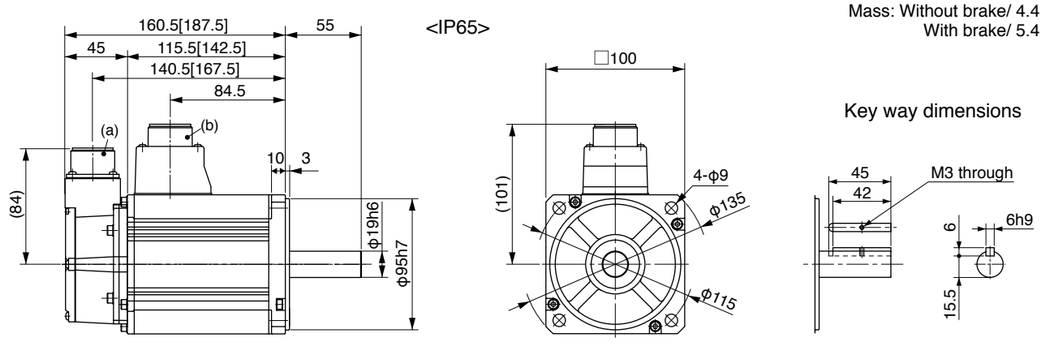
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.132.)



Mass: Without brake/ 4.4 kg
With brake/ 5.4 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 2.0kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MSME202GC□	MSME202SC□
		IP67	MSME202G1□	MSME202S1□
Applicable driver *2	Model No.	A5 series	MEDHT7364	
		A5E series	MEDHT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			6.37	
Momentary Max. peak torque (N·m)			19.1	
Rated current (A(rms))			11.3	
Max. current (A(o-p))			48	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	3.68	
		With brake	4.01	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

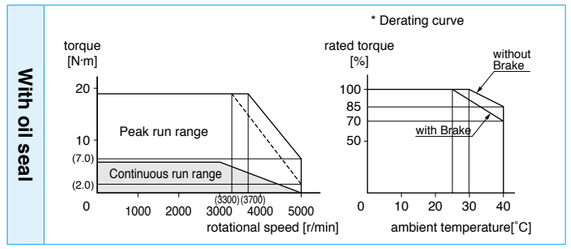
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

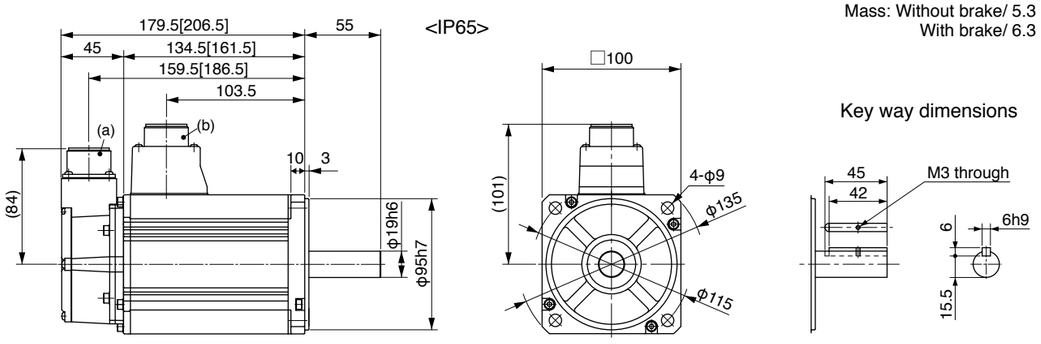
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.132.)



Mass: Without brake/ 5.3 kg
With brake/ 6.3 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 3.0kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MSME302GC□	MSME302SC□
		IP67	MSME302G1□	MSME302S1□
Applicable driver *2	Model No.	A5 series	MFDHTA390	
		A5E series	MFDHTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			18.1	
Max. current (A(o-p))			77	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	6.50	
		With brake	7.85	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	11.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

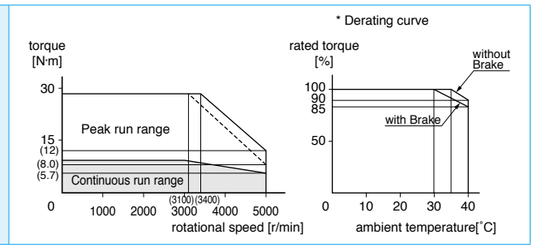
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

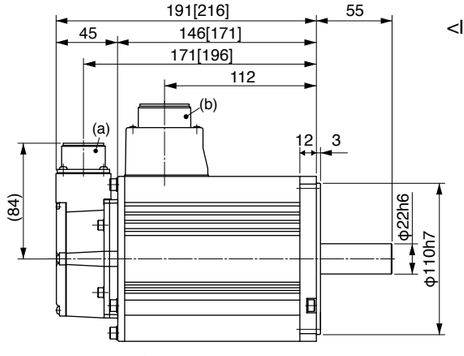
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

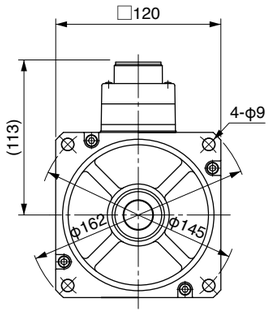


Dimensions

(For IP67 motor, refer to P.132.)

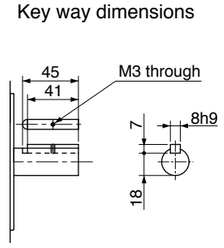


<IP65>



Mass: Without brake/ 8.3 kg
With brake/ 9.4 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 4.0kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MSME402GC□	MSME402SC□
		IP67	MSME402G1□	MSME402S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (kW)			4.0	
Rated torque (N·m)			12.7	
Momentary Max. peak torque (N·m)			38.2	
Rated current (A(rms))			19.6	
Max. current (A(o-p))			83	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	12.9	
		With brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

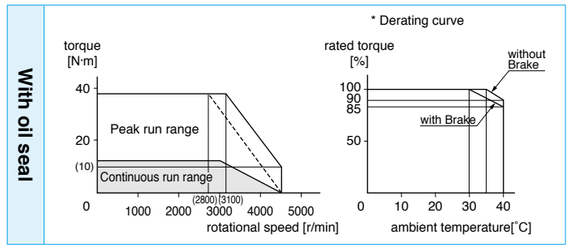
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

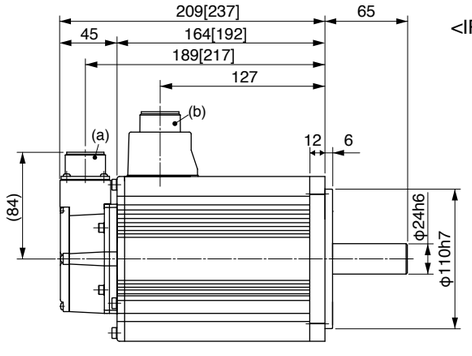
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

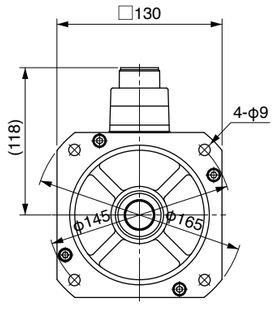


Dimensions

(For IP67 motor, refer to P.132.)

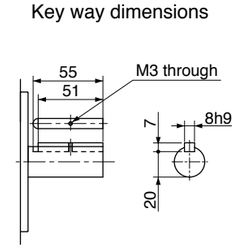


<IP65>



Mass: Without brake/ 11.0 kg
With brake/ 12.6 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MSME 5.0kW [Low inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MSME502GC□	MSME502SC□
		IP67	MSME502G1□	MSME502S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			15.9	
Momentary Max. peak torque (N·m)			47.7	
Rated current (A(rms))			24.0	
Max. current (A(o-p))			102	
Regenerative brake frequency (times/min) Note)1		Without option	357	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	17.4	
		With brake	18.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

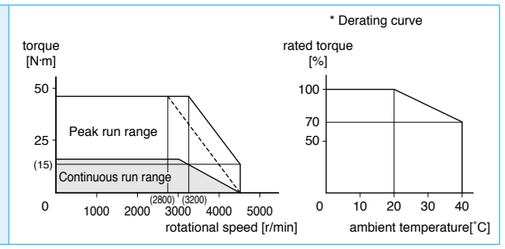
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

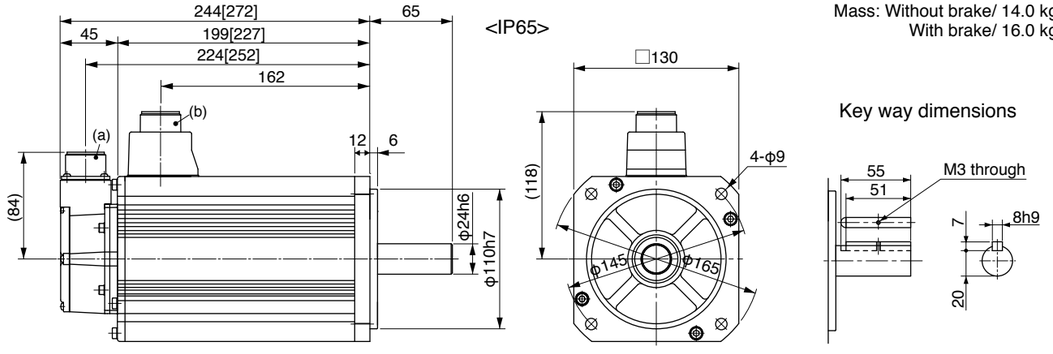
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.133.)



Mass: Without brake/ 14.0 kg
With brake/ 16.0 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 1.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MDME102GC□	MDME102SC□
		IP67	MDME102G1□	MDME102S1□
Applicable driver *2	Model No.	A5 series	MDDHT3530	
		A5E series	MDDHT3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			5.7	
Max. current (A(o-p))			24	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4284	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	4.60	
		With brake	5.90	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

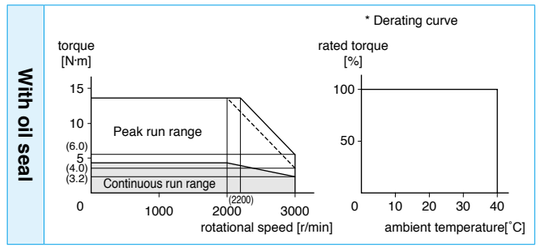
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

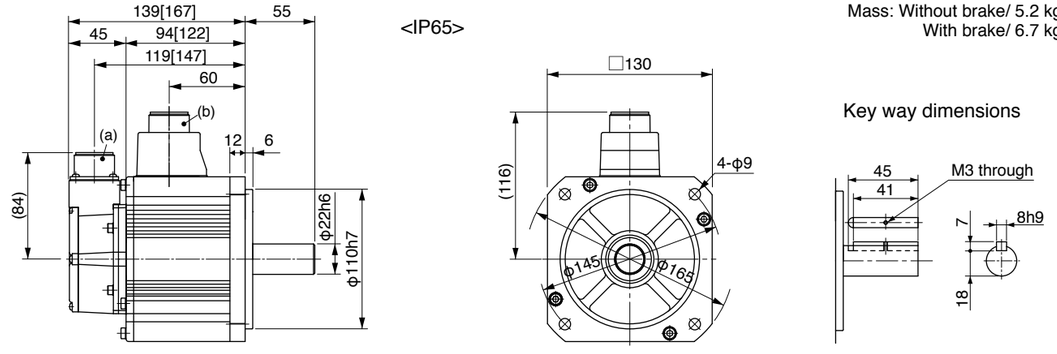
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.133.)



Mass: Without brake/ 5.2 kg
With brake/ 6.7 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 1.5kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MDME152GC□	MDME152SC□
		IP67	MDME152G1□	MDME152S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			9.4	
Max. current (A(o-p))			40	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4284	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	6.70	
		With brake	7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

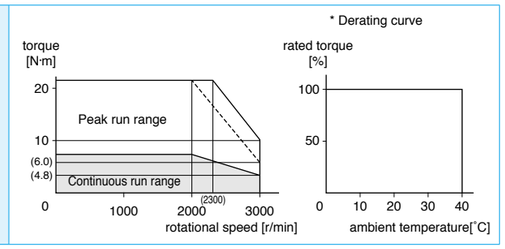
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

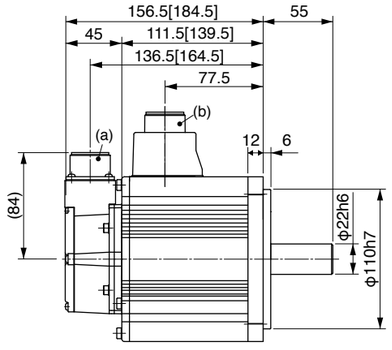
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.133.)



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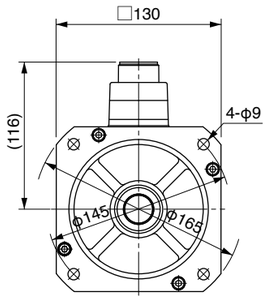
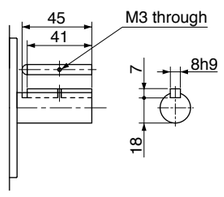


Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 2.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MDME202GC□	MDME202SC□
		IP67	MDME202G1□	MDME202S1□
Applicable driver *2	Model No.	A5 series	MEDHT7364	
		A5E series	MEDHT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			11.5	
Max. current (A(o-p))			49	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	8.72	
		With brake	10.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

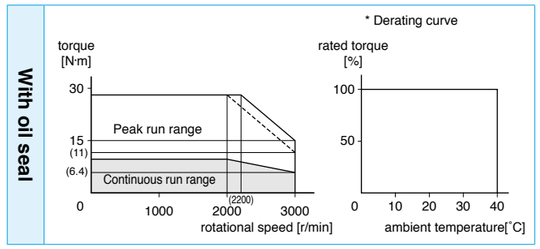
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

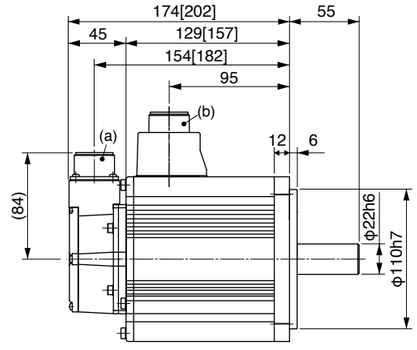
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

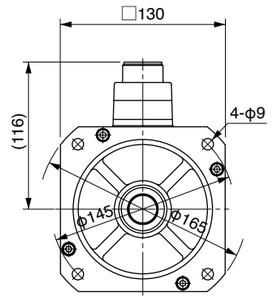


Dimensions

(For IP67 motor, refer to P.133.)

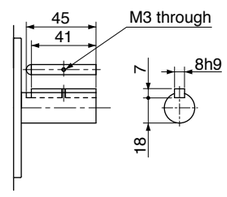


<IP65>



Mass: Without brake/ 8.0 kg
With brake/ 9.5 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 3.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MDME302GC□	MDME302SC□
		IP67	MDME302G1□	MDME302S1□
Applicable driver *2	Model No.	A5 series	MFDHTA390	
		A5E series	MFDHTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			14.3	
Momentary Max. peak torque (N·m)			43.0	
Rated current (A(rms))			17.4	
Max. current (A(o-p))			74	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	12.9	
		With brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

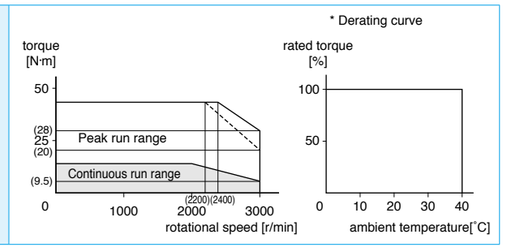
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

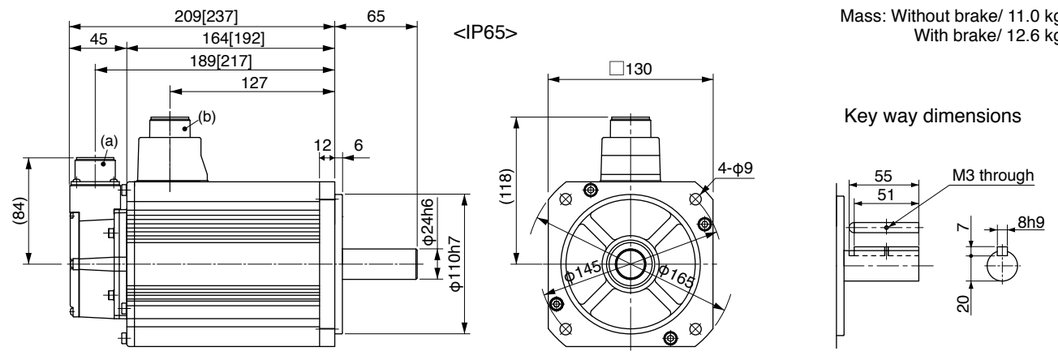
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.134.)



Mass: Without brake/ 11.0 kg
With brake/ 12.6 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 4.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MDME402GC□	MDME402SC□
		IP67	MDME402G1□	MDME402S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (kW)			4.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			57.3	
Rated current (A(rms))			21.0	
Max. current (A(o-p))			89	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	37.6	
		With brake	38.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

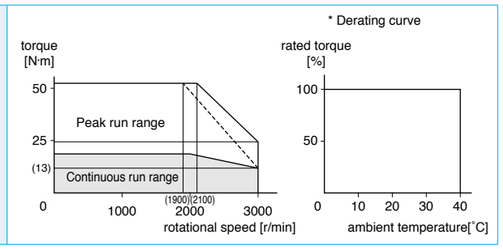
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

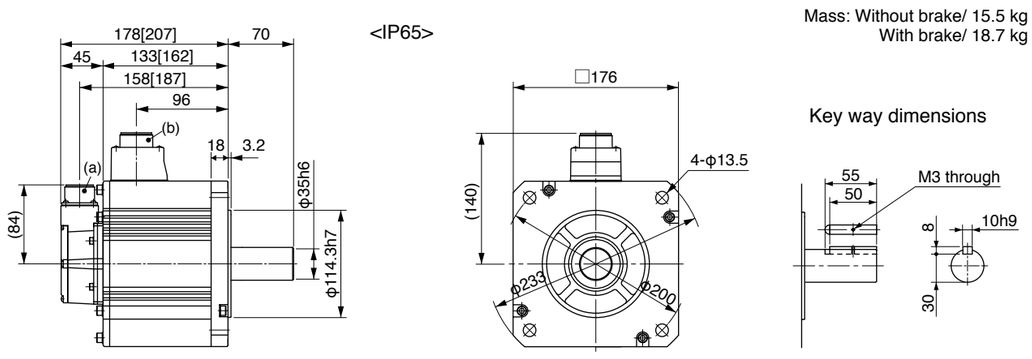
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.134.)



Mass: Without brake/ 15.5 kg
With brake/ 18.7 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 5.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1	IP65		MDME502GC□	MDME502SC□
	IP67		MDME502G1□	MDME502S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			23.9	
Momentary Max. peak torque (N·m)			71.6	
Rated current (A(rms))			25.9	
Max. current (A(o-p))			110	
Regenerative brake frequency (times/min) Note)1	Without option		120	
	DV0P4285×2		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		48.0	
	With brake		48.8	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

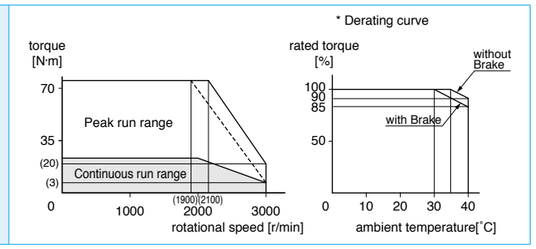
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

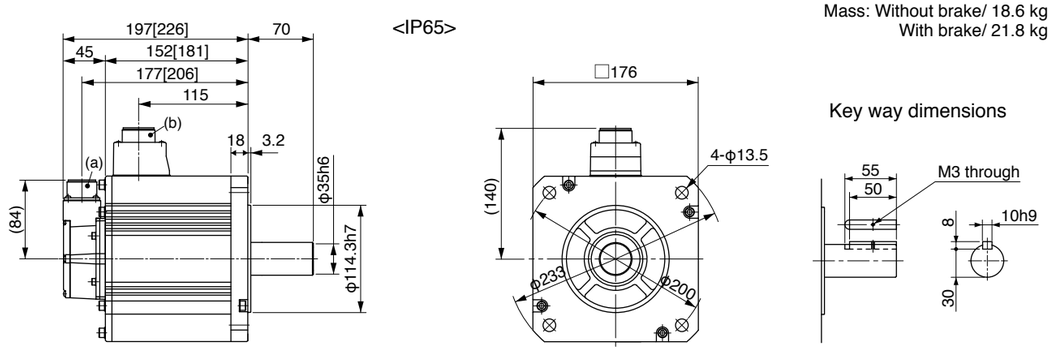


Dimensions

(For IP67 motor, refer to P.134.)

Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg

<IP65>



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MDME 7.5kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MDME752G1□	MDME752S1□
Applicable driver *2	Model No.	A5 series	MGDHTC3B4	
		A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (kW)			7.5	
Rated torque (N·m)			47.8	
Momentary Max. peak torque (N·m)			119	
Rated current (A(rms))			44.0	
Max. current (A(o-p))			165	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4285×3		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		101	
	With brake		107	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

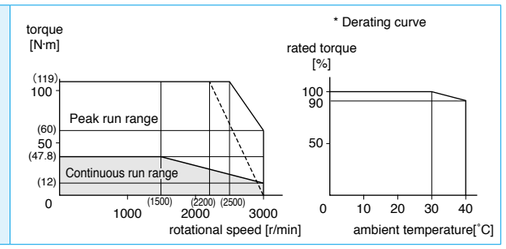
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.41.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

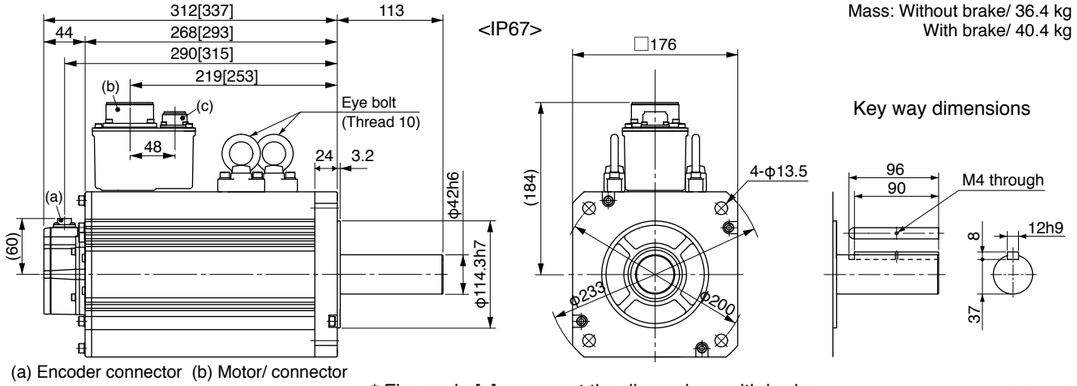
With oil seal



Dimensions

Mass: Without brake/ 36.4 kg
With brake/ 40.4 kg

<IP67>



(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1		IP65	–	–
		IP67	MDMEC12G1□	MDMEC12S1□
Applicable driver *2	Model No.	A5 series	MHDHTC3B4	
		A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			17	
Rated output (kW)			11.0	
Rated torque (N·m)			70.0	
Momentary Max. peak torque (N·m)			175	
Rated current (A(rms))			54.2	
Max. current (A(o-p))			203	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20058		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		212	
	With brake		220	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

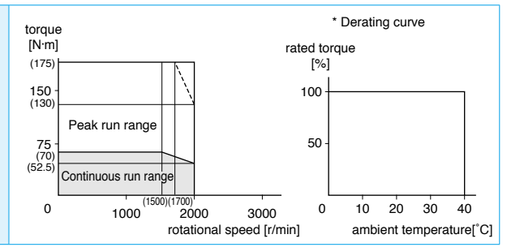
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

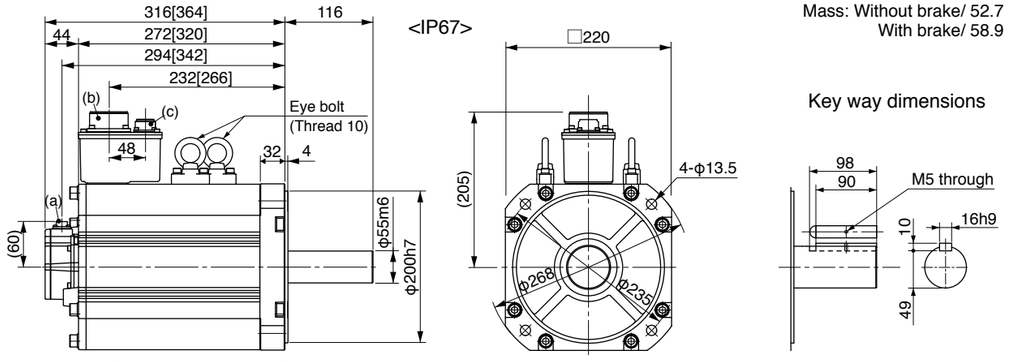
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 52.7 kg
With brake/ 58.9 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1		IP65	–	–
		IP67	MDMEC52G1□	MDMEC52S1□
Applicable driver *2	Model No.	A5 series	MHDHTC3B4	
		A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			22	
Rated output (kW)			15.0	
Rated torque (N·m)			95.5	
Momentary Max. peak torque (N·m)			224	
Rated current (A(rms))			66.1	
Max. current (A(o-p))			236	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20058		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		302	
	With brake		311	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

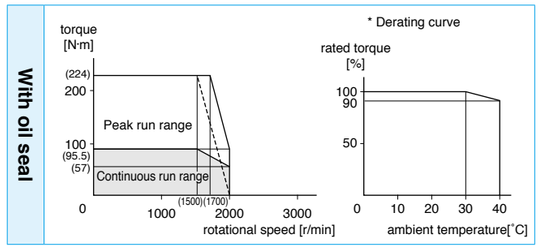
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

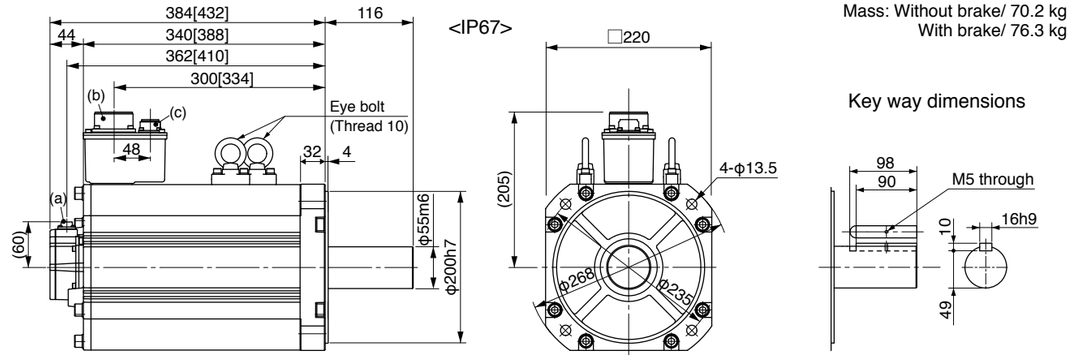
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 70.2 kg
With brake/ 76.3 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MFME 1.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MFME152G1□	MFME152S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			7.5	
Max. current (A(o-p))			32	
Regenerative brake frequency (times/min) Note)1	Without option		100	
	DV0P4284		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		18.2	
	With brake		23.5	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	35 or less
Exciting current (DC) (A)	0.83±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

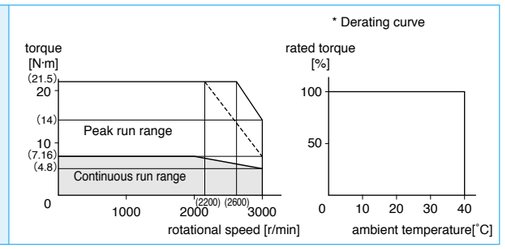
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

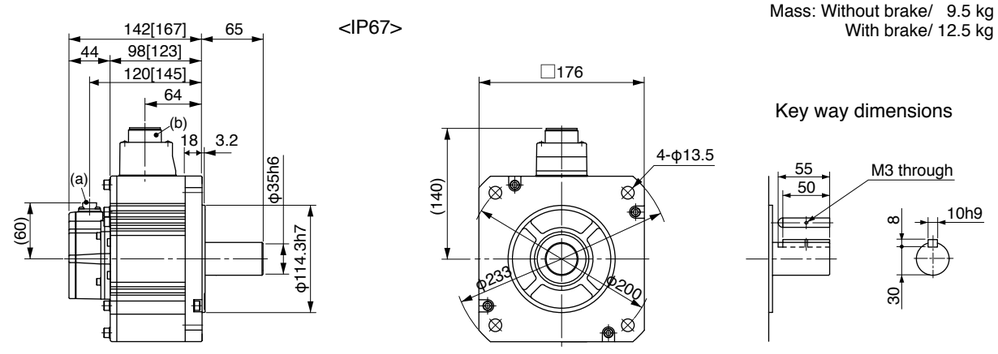
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 9.5 kg
With brake/ 12.5 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MFME 2.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MFME252G1□	MFME252S1□
Applicable driver *2	Model No.	A5 series	MEDHT7364	
		A5E series	MEDHT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.8	
Rated output (kW)			2.5	
Rated torque (N·m)			11.9	
Momentary Max. peak torque (N·m)			30.4	
Rated current (A(rms))			13.4	
Max. current (A(o-p))			57	
Regenerative brake frequency (times/min) Note)1	Without option		75	
	DV0P4285		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		35.8	
	With brake		45.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	21.6 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

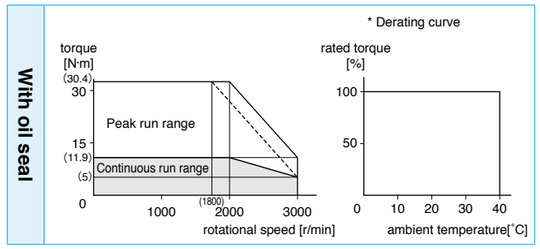
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

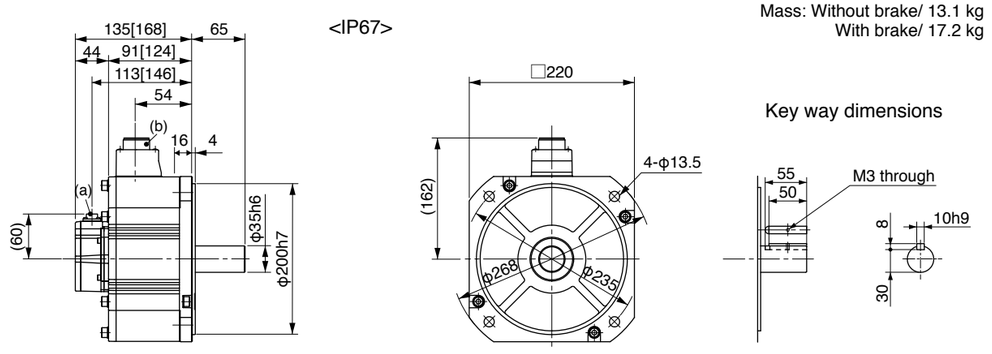
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 13.1 kg
With brake/ 17.2 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MFME 4.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MFME452G1□	MFME452S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (kW)			4.5	
Rated torque (N·m)			21.5	
Momentary Max. peak torque (N·m)			54.9	
Rated current (A(rms))			24.7	
Max. current (A(o-p))			105	
Regenerative brake frequency (times/min) Note)1	Without option		67	
	DV0P4285×2		375	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		63.1	
	With brake		70.9	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	31.4 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

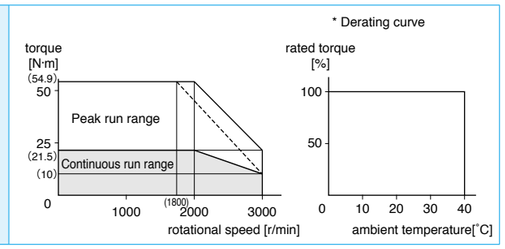
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

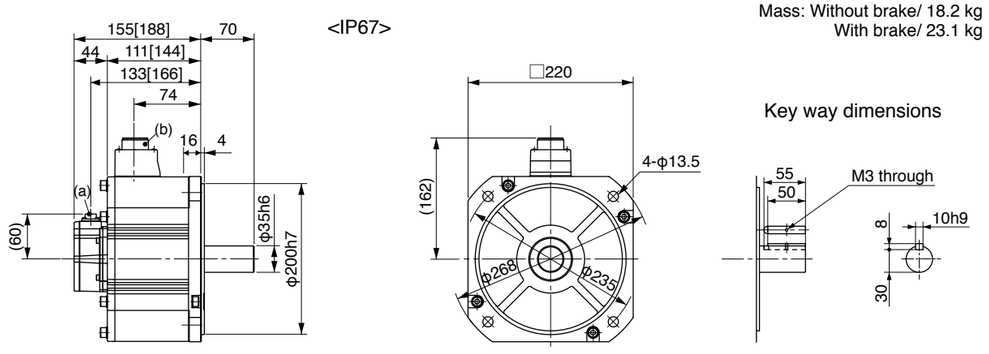
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

Mass: Without brake/ 18.2 kg
With brake/ 23.1 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MGME 0.9kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1	IP65		MGME092GC□	MGME092SC□
	IP67		MGME092G1□	MGME092S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			0.9	
Rated torque (N·m)			8.59	
Momentary Max. peak torque (N·m)			19.3	
Rated current (A(rms))			7.6	
Max. current (A(o-p))			24	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4284		No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		6.70	
	With brake		7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

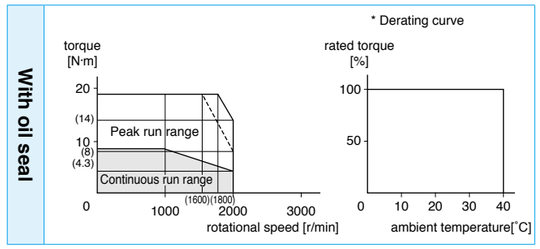
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	686
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

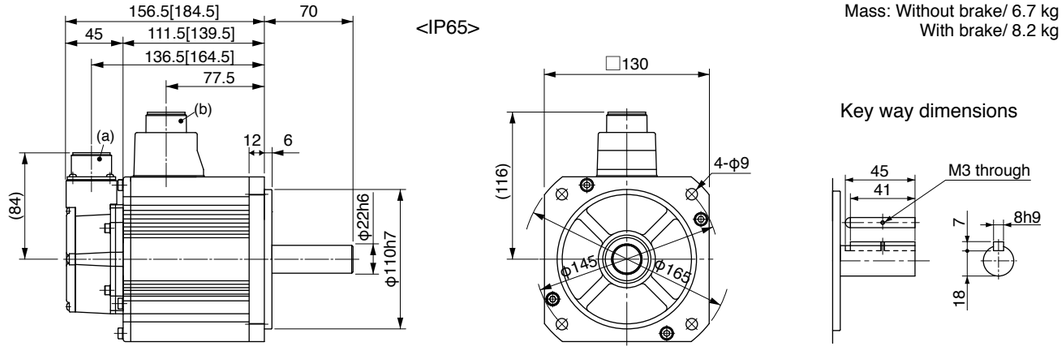
With oil seal



Dimensions

(For IP67 motor, refer to P.134.)

Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MGME 2.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MGME202GC□	MGME202SC□
		IP67	MGME202G1□	MGME202S1□
Applicable driver *2	Model No.	A5 series	MFDHTA390	
		A5E series	MFDHTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			3.8	
Rated output (kW)			2.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			47.7	
Rated current (A(rms))			17.0	
Max. current (A(o-p))			60	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	30.3	
		With brake	31.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

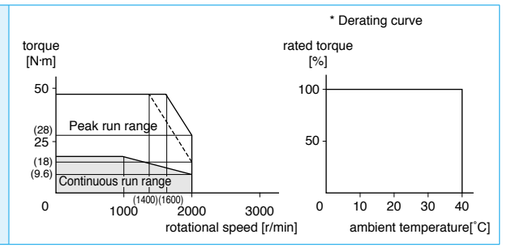
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

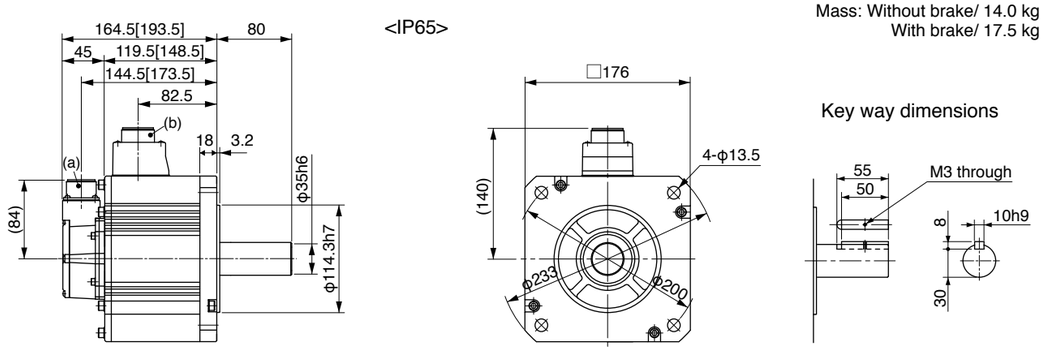
With oil seal



Dimensions

(For IP67 motor, refer to P.134.)

Mass: Without brake/ 14.0 kg
With brake/ 17.5 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MGME 3.0kW [Middle inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MGME302GC□	MGME302SC□
		IP67	MGME302G1□	MGME302S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			28.7	
Momentary Max. peak torque (N·m)			71.7	
Rated current (A(rms))			22.6	
Max. current (A(o-p))			80	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	48.4	
		With brake	49.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

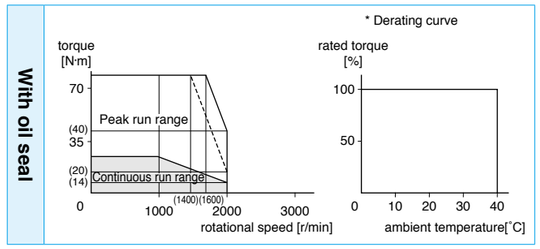
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

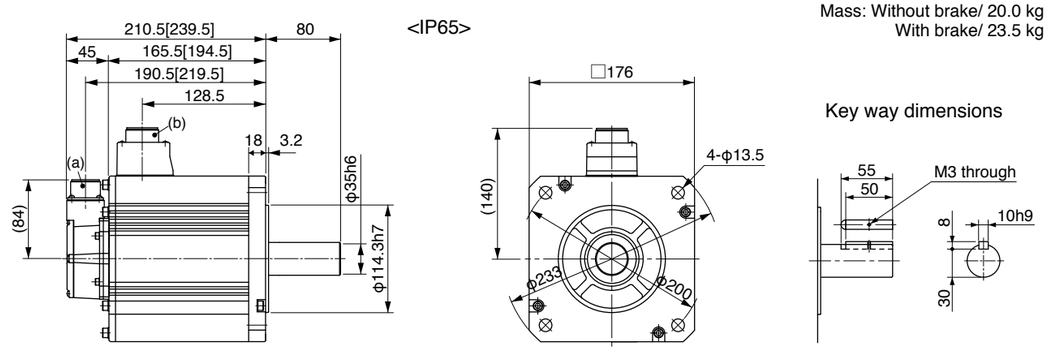
With oil seal



Dimensions

(For IP67 motor, refer to P.134.)

Mass: Without brake/ 20.0 kg
With brake/ 23.5 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1		IP65	–	–
		IP67	MGME452G1□	MGME452S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			4.5	
Rated torque (N·m)			43.0	
Momentary Max. peak torque (N·m)			107	
Rated current (A(rms))			29.7	
Max. current (A(o-p))			110	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4285×2		No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		79.1	
	With brake		84.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

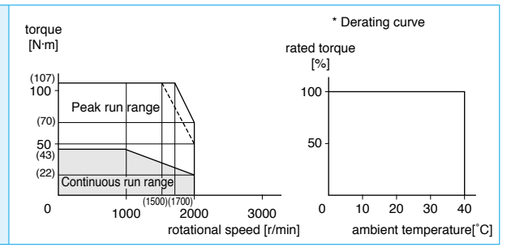
- For details of Note 1 to Note 5, refer to P.136.
- Dimensions of Driver, refer to P.40.

*1 Motor specifications: □

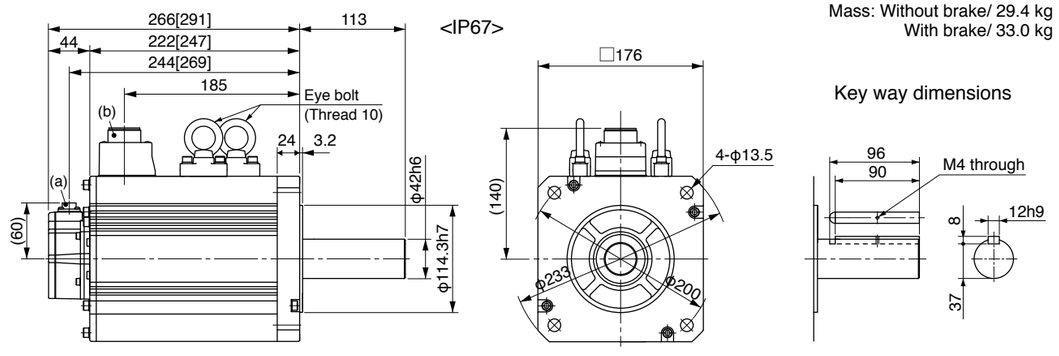
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 29.4 kg
With brake/ 33.0 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC200V	
Motor model *1		IP65	–	–
		IP67	MGME602G1□	MGME602S1□
Applicable driver *2	Model No.	A5 series	MGDHTC3B4	
		A5E series	—	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (kW)			6.0	
Rated torque (N·m)			57.3	
Momentary Max. peak torque (N·m)			143	
Rated current (A(rms))			38.8	
Max. current (A(o-p))			149	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4285×4		No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		101	
	With brake		107	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1764
	Thrust load A, B-direction (N)	588

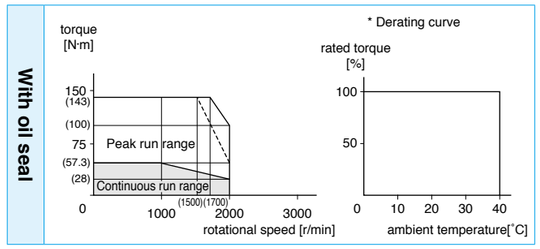
- For details of Note 1 to Note 5, refer to P.136.
- Dimensions of Driver, refer to P.41.

*1 Motor specifications: □

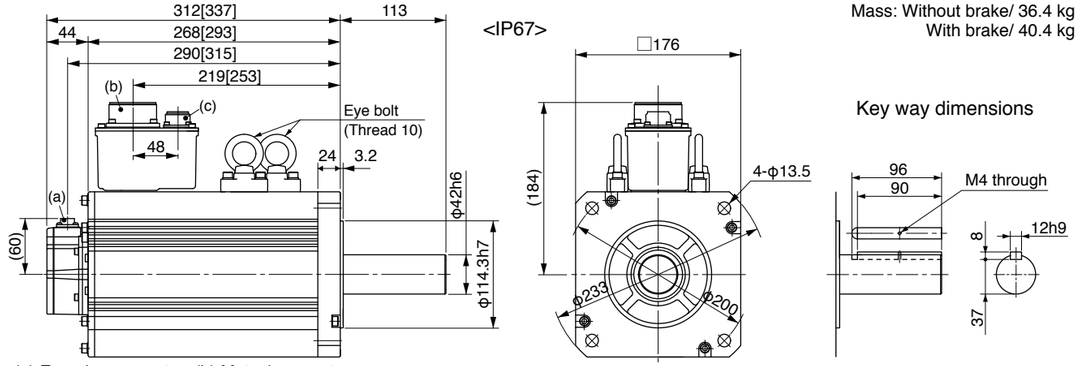
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 36.4 kg
With brake/ 40.4 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 1.0kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME102GC□	MHME102SC□
		IP67	MHME102G1□	MHME102S1□
Applicable driver *2	Model No.	A5 series	MDDHT3530	
		A5E series	MDDHT3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			5.7	
Max. current (A(o-p))			24	
Regenerative brake frequency (times/min) Note)1		Without option	83	
		DV0P4284	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	24.7	
		With brake	26.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

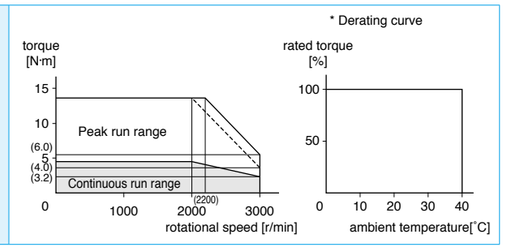
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

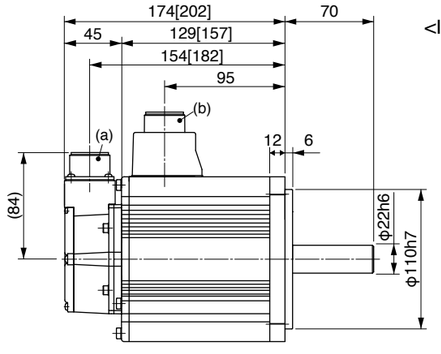
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

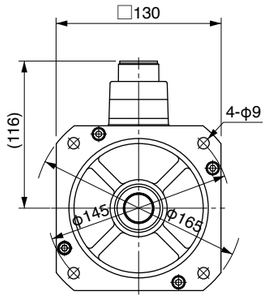


Dimensions

(For IP67 motor, refer to P.135.)

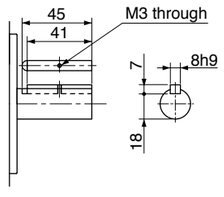


<IP65>



Mass: Without brake/ 6.7 kg
With brake/ 8.1 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 1.5kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME152GC□	MHME152SC□
		IP67	MHME152G1□	MHME152S1□
Applicable driver *2	Model No.	A5 series	MDDHT5540	
		A5E series	MDDHT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			9.4	
Max. current (A(o-p))			40	
Regenerative brake frequency (times/min) Note)1		Without option	22	
		DV0P4284	130	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	37.1	
		With brake	38.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

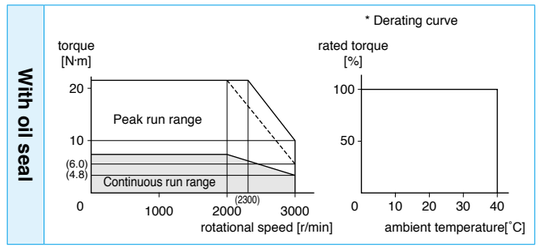
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.38.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

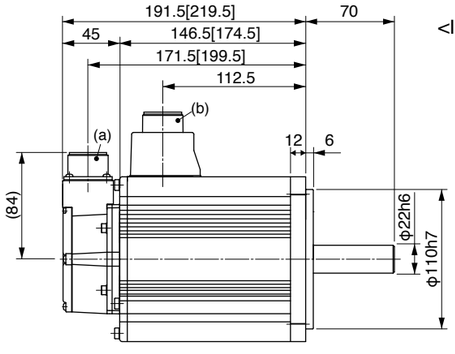
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

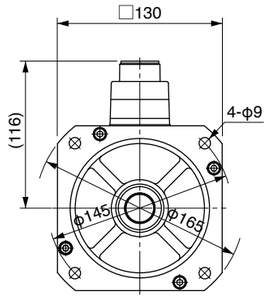


Dimensions

(For IP67 motor, refer to P.135.)

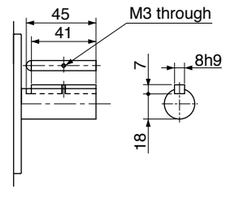


<IP65>



Mass: Without brake/ 8.6 kg
With brake/ 10.1 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 2.0kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME202GC□	MHME202SC□
		IP67	MHME202G1□	MHME202S1□
Applicable driver *2	Model No.	A5 series	MEDHT7364	
		A5E series	MEDHT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			11.1	
Max. current (A(o-p))			47	
Regenerative brake frequency (times/min) Note)1		Without option	45	
		DV0P4285	142	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	57.8	
		With brake	59.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

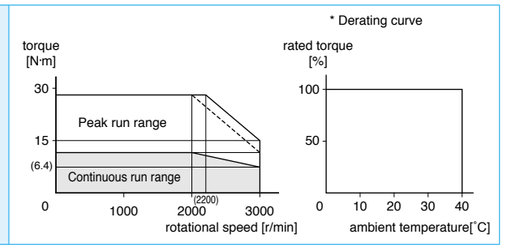
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

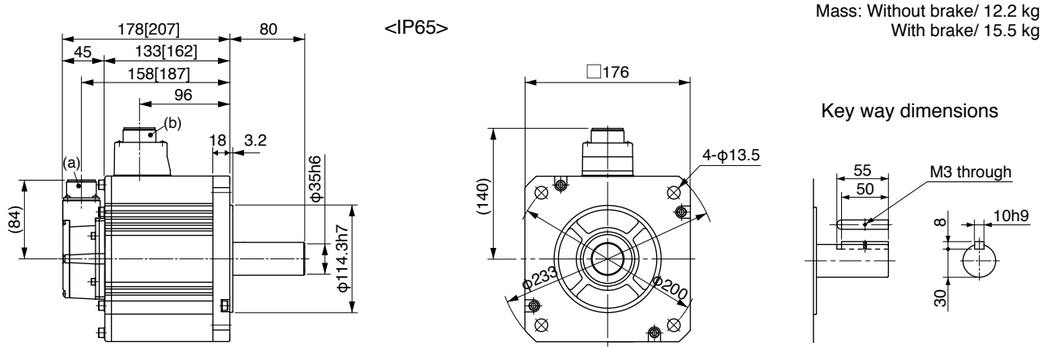
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 12.2 kg
With brake/ 15.5 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 3.0kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME302GC□	MHME302SC□
		IP67	MHME302G1□	MHME302S1□
Applicable driver *2	Model No.	A5 series	MFDHTA390	
		A5E series	MFDHTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			14.3	
Momentary Max. peak torque (N·m)			43.0	
Rated current (A(rms))			16.0	
Max. current (A(o-p))			68	
Regenerative brake frequency (times/min) Note)1		Without option	19	
		DV0P4285×2	142	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	90.5	
		With brake	92.1	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

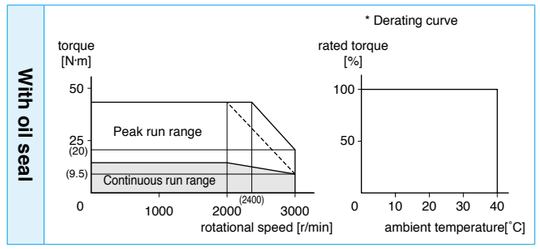
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

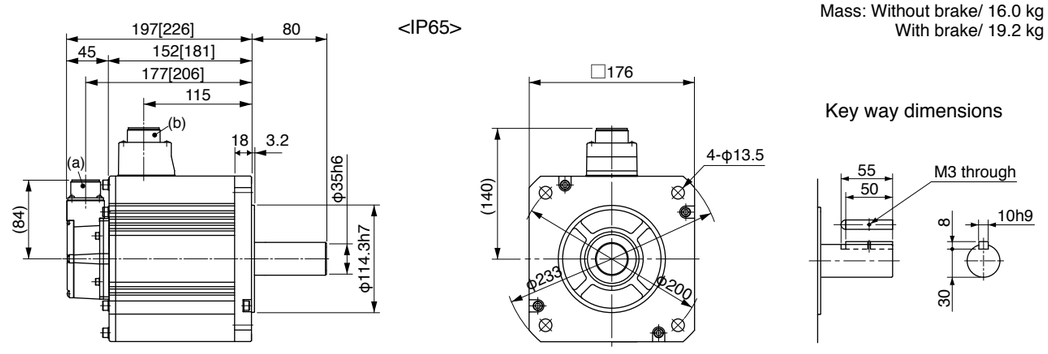
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 16.0 kg
With brake/ 19.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 4.0kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME402GC□	MHME402SC□
		IP67	MHME402G1□	MHME402S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (kW)			4.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			57.3	
Rated current (A(rms))			21.0	
Max. current (A(o-p))			89	
Regenerative brake frequency (times/min) Note)1		Without option	17	
		DV0P4285×2	125	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	112	
		With brake	114	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

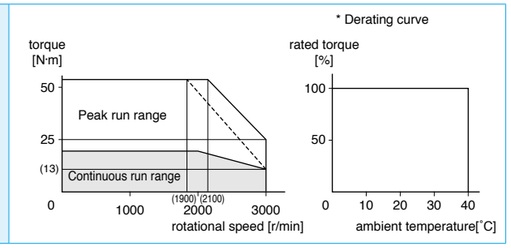
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

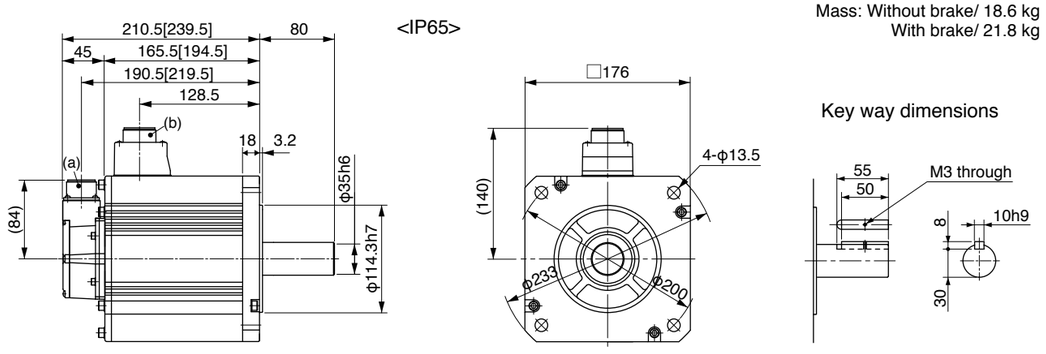
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 5.0kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1		IP65	MHME502GC□	MHME502SC□
		IP67	MHME502G1□	MHME502S1□
Applicable driver *2	Model No.	A5 series	MFDHTB3A2	
		A5E series	MFDHTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			23.9	
Momentary Max. peak torque (N·m)			71.6	
Rated current (A(rms))			25.9	
Max. current (A(o-p))			110	
Regenerative brake frequency (times/min) Note)1		Without option	10	
		DV0P4285×2	76	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	162	
		With brake	164	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

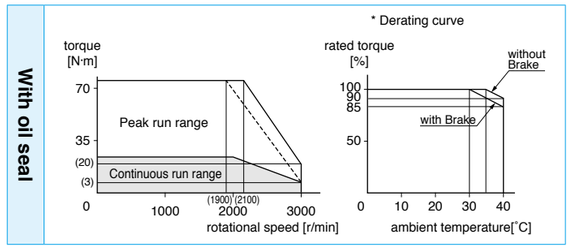
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

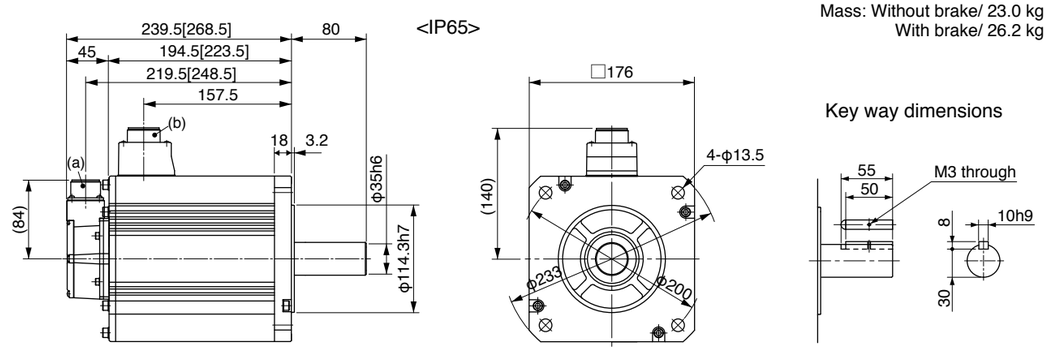
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 23.0 kg
With brake/ 26.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 200V MHME 7.5kW [High inertia, Middle capacity]

Specifications

			AC200V	
Motor model *1	IP65		–	–
	IP67		MHME752G1□	MHME752S1□
Applicable driver *2	Model No.	A5 series	MGDHTC3B4	
		A5E series	—	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (kW)			7.5	
Rated torque (N·m)			47.8	
Momentary Max. peak torque (N·m)			119	
Rated current (A(rms))			44.0	
Max. current (A(o-p))			165	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0P4285×4		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10^{-4}kg·m^2)	Without brake		273	
	With brake		279	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.41±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

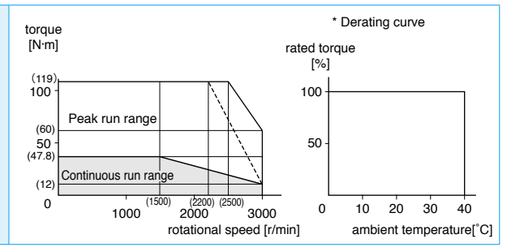
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

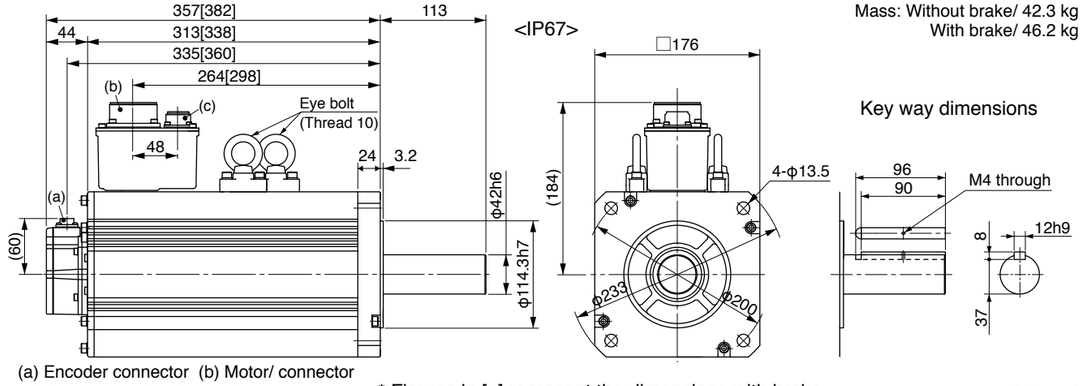
• For details of Note 1 to Note 5, refer to P.136.
• Dimensions of Driver, refer to P.41.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 42.3 kg
With brake/ 46.2 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MSME 750W [Low inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MSME084GC□	MSME084SC□
	IP67		MSME084G1□	MSME084S1□
Applicable driver *2	Model No.	A5 series	MDDHT2412	
		A5E series	MDDHT2412E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.6	
Rated output (W)			750	
Rated torque (N·m)			2.39	
Momentary Max. peak torque (N·m)			7.16	
Rated current (A(rms))			2.4	
Max. current (A(o-p))			10	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor (×10^{-4}kg·m^2)	Without brake		1.61	
	With brake		1.93	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

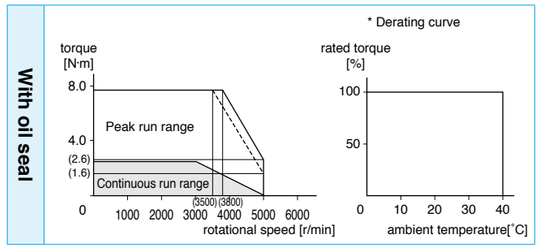
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

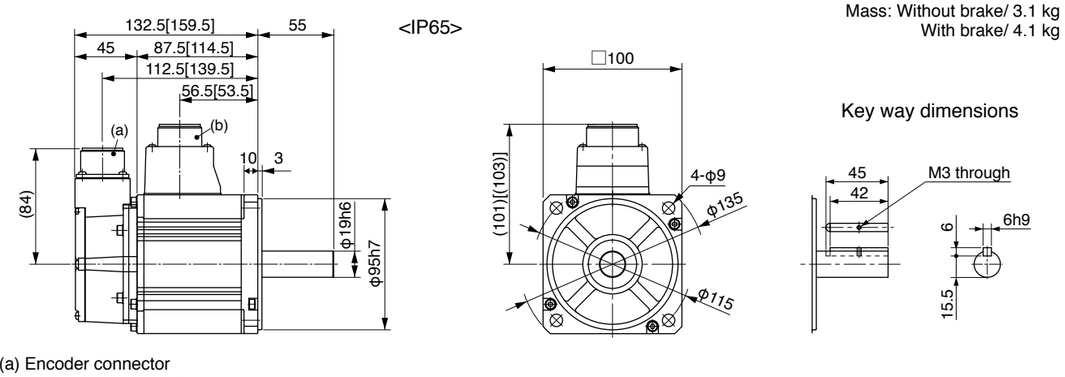
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.132.)



Mass: Without brake/ 3.1 kg
With brake/ 4.1 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1	IP65		MSME104GC□	MSME104SC□
	IP67		MSME104G1□	MSME104S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			3.18	
Momentary Max. peak torque (N·m)			9.55	
Rated current (A(rms))			3.3	
Max. current (A(o-p))			14	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		2.03	
	With brake		2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

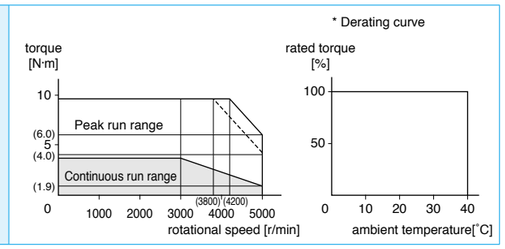
- For details of Note 1 to Note 5, refer to P.137.
- Dimensions of Driver, refer to P.39.

*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

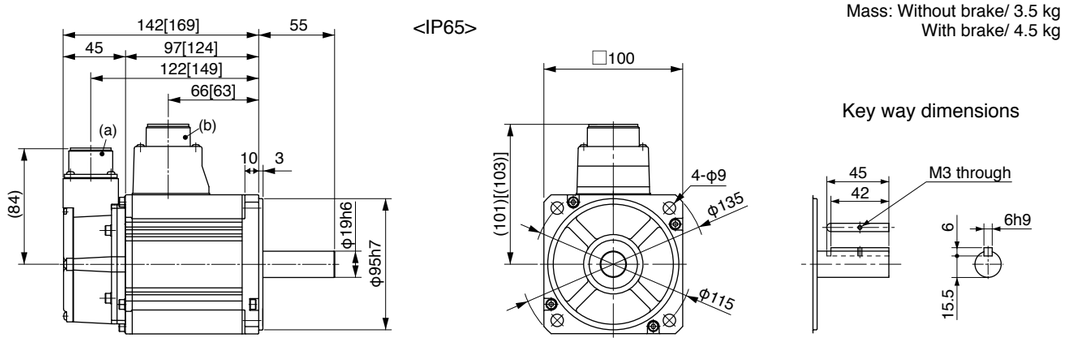
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.132.)



Mass: Without brake/ 3.5 kg
With brake/ 4.5 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1	IP65		MSME154GC□	MSME154SC□
	IP67		MSME154G1□	MSME154S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			4.2	
Max. current (A(o-p))			18	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		2.84	
	With brake		3.17	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

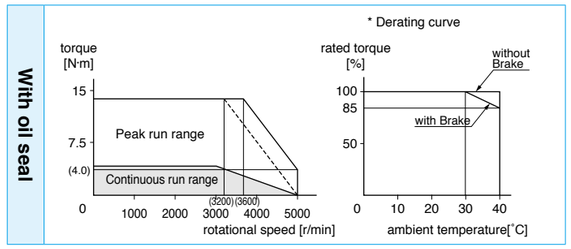
- For details of Note 1 to Note 5, refer to P.137.
- Dimensions of Driver, refer to P.39.

*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

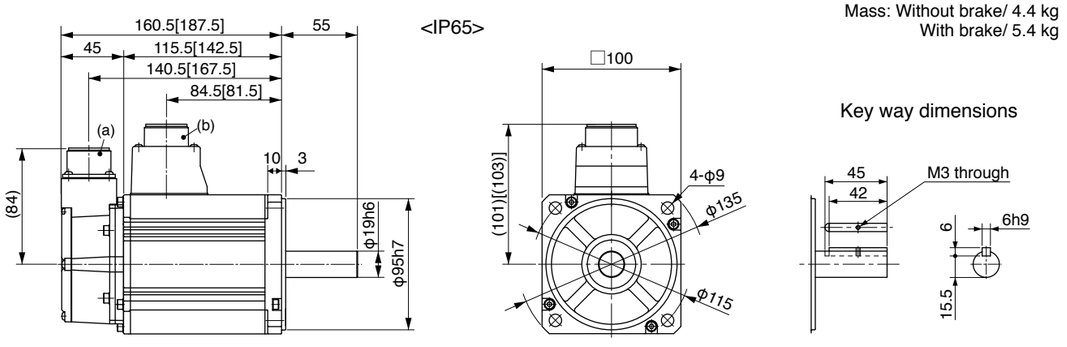
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.132.)



Mass: Without brake/ 4.4 kg
With brake/ 5.4 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MSME 2.0kW [Low inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MSME204GC□	MSME204SC□
	IP67		MSME204G1□	MSME204S1□
Applicable driver *2	Model No.	A5 series	MEDHT4430	
		A5E series	MEDHT4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			6.37	
Momentary Max. peak torque (N·m)			19.1	
Rated current (A(rms))			5.7	
Max. current (A(o-p))			24	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		3.68	
	With brake		4.01	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

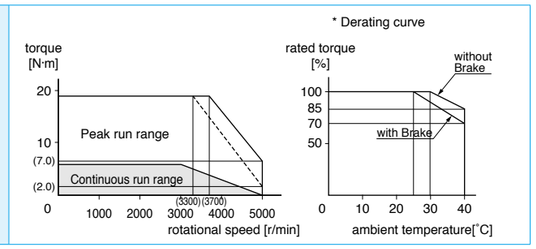
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

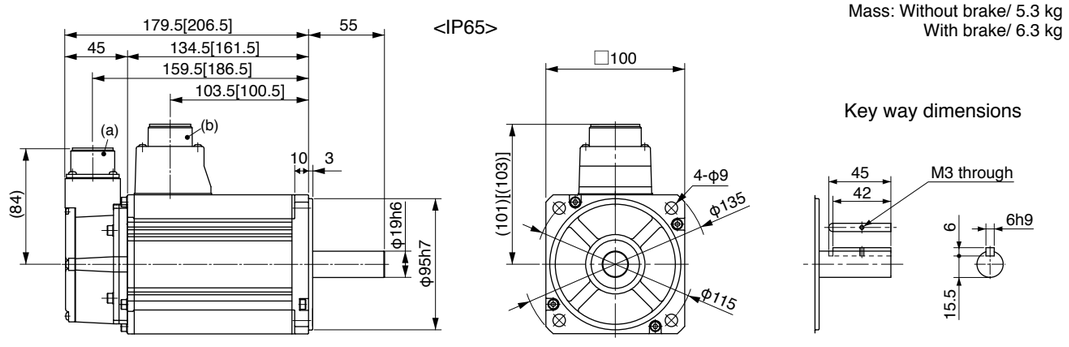
With oil seal



Dimensions

(For IP67 motor, refer to P.132.)

Mass: Without brake/ 5.3 kg
With brake/ 6.3 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MSME 3.0kW [Low inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MSME304GC□	MSME304SC□
	IP67		MSME304G1□	MSME304S1□
Applicable driver *2	Model No.	A5 series	MFDHT5440	
		A5E series	MFDHT5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			9.2	
Max. current (A(o-p))			39	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×2		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			5000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		6.50	
	With brake		7.85	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	11.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

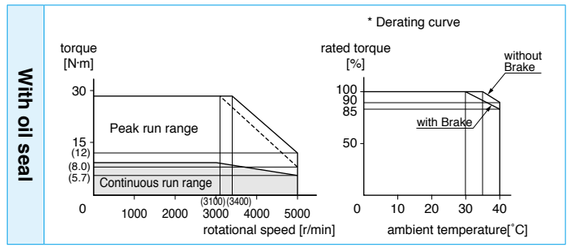
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

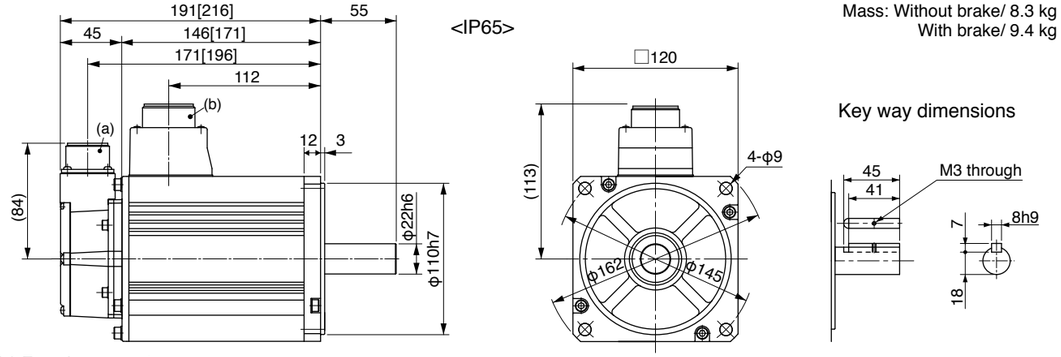
With oil seal



Dimensions

(For IP67 motor, refer to P.132.)

Mass: Without brake/ 8.3 kg
With brake/ 9.4 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MSME 4.0kW [Low inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MSME404GC□	MSME404SC□
		IP67	MSME404G1□	MSME404S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (kW)			4.0	
Rated torque (N·m)			12.7	
Momentary Max. peak torque (N·m)			38.2	
Rated current (A(rms))			9.9	
Max. current (A(o-p))			42	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×2		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		12.9	
	With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

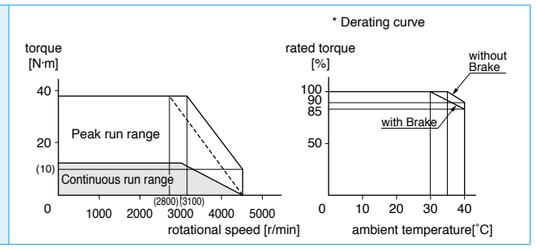
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

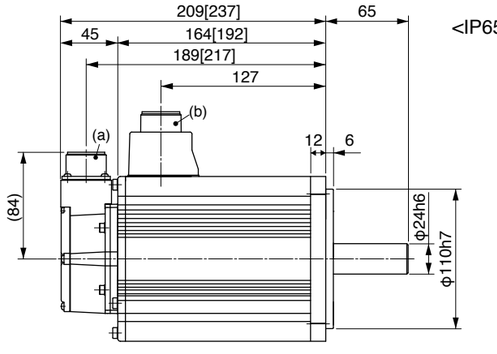
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

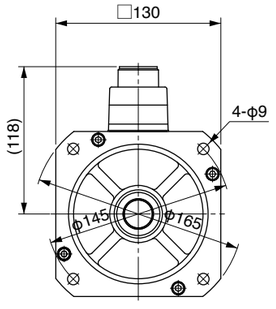
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



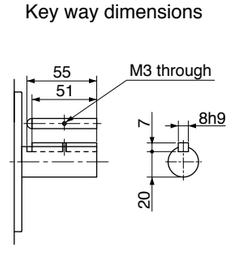
Dimensions (For IP67 motor, refer to P.132.)





Mass: Without brake/ 11.0 kg
With brake/ 12.6 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MSME 5.0kW [Low inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MSME504GC□	MSME504SC□
		IP67	MSME504G1□	MSME504S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			15.9	
Momentary Max. peak torque (N·m)			47.7	
Rated current (A(rms))			12.0	
Max. current (A(o-p))			51	
Regenerative brake frequency (times/min) Note)1	Without option		357	
	DV0PM20049×2		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed (r/min)			4500	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		17.4	
	With brake		18.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

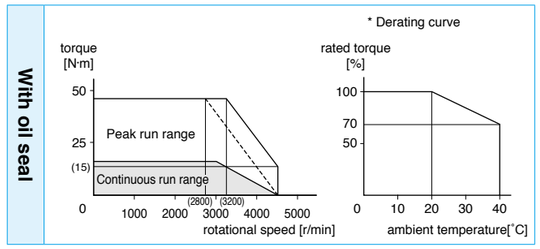
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

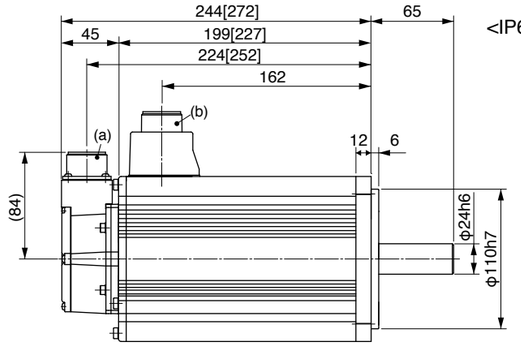
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

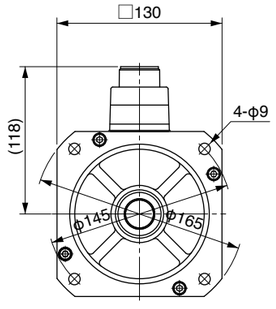
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



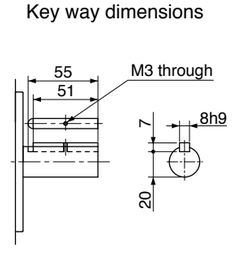
Dimensions (For IP67 motor, refer to P.133.)





Mass: Without brake/ 14.0 kg
With brake/ 16.0 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1		IP65	MDME044GC□	MDME044SC□
		IP67	MDME044G1□	MDME044S1□
Applicable driver *2	Model No.	A5 series	MDDHT2407	
		A5E series	MDDHT2407E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			0.9	
Rated output (W)			400	
Rated torque (N·m)			1.91	
Momentary Max. peak torque (N·m)			5.73	
Rated current (A(rms))			1.2	
Max. current (A(o-p))			4.9	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20048	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	1.61	
		With brake	1.9	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

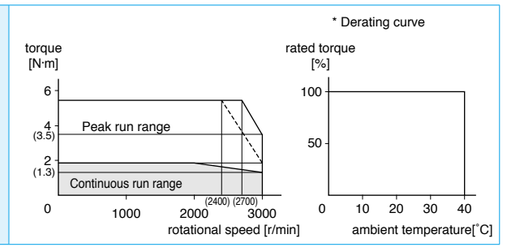
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

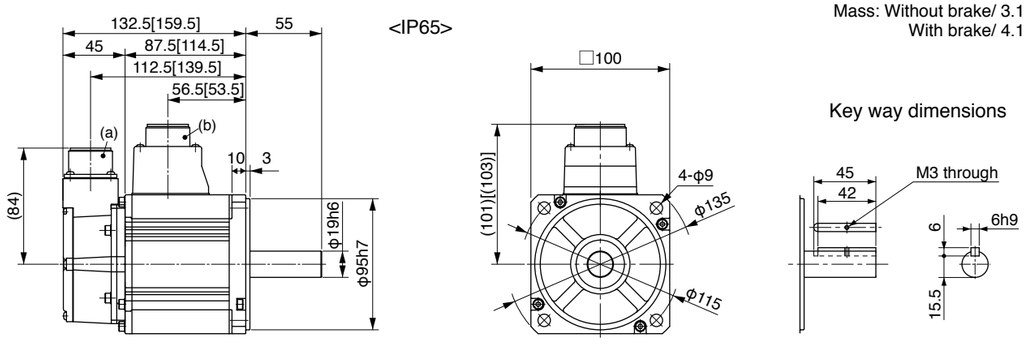
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.133.)



Mass: Without brake/ 3.1 kg
With brake/ 4.1 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1		IP65	MDME064GC□	MDME064SC□
		IP67	MDME064G1□	MDME064S1□
Applicable driver *2	Model No.	A5 series	MDDHT2407	
		A5E series	MDDHT2407E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.2	
Rated output (W)			600	
Rated torque (N·m)			2.86	
Momentary Max. peak torque (N·m)			8.59	
Rated current (A(rms))			1.5	
Max. current (A(o-p))			6.5	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20048	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	2.03	
		With brake	2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

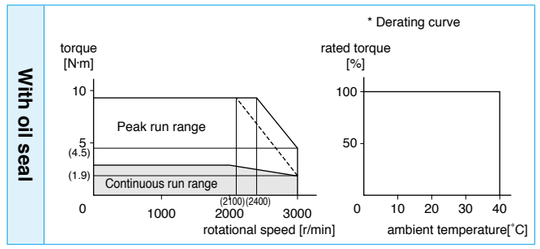
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

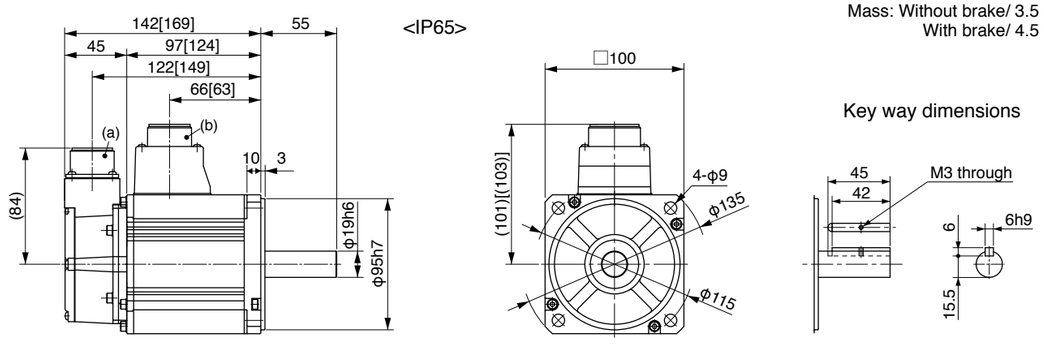
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.133.)



Mass: Without brake/ 3.5 kg
With brake/ 4.5 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1	IP65		MDME104GC□	MDME104SC□
	IP67		MDME104G1□	MDME104S1□
Applicable driver *2	Model No.	A5 series	MDDHT2412	
		A5E series	MDDHT2412E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			2.8	
Max. current (A(o-p))			12	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		4.60	
	With brake		5.90	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

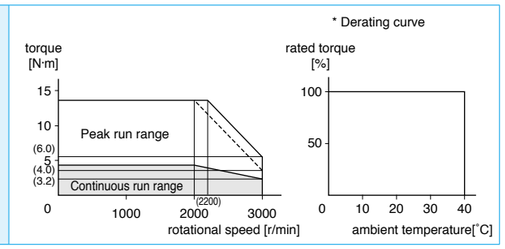
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

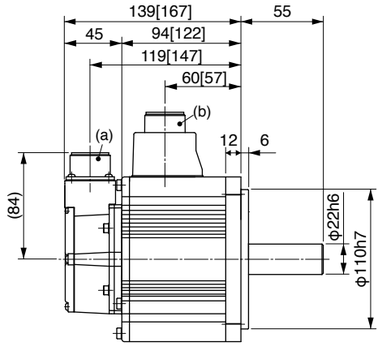
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

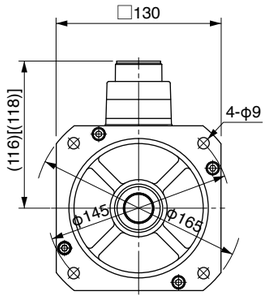


Dimensions

(For IP67 motor, refer to P.133.)

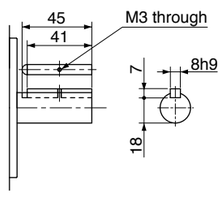


<IP65>



Mass: Without brake/ 5.2 kg
With brake/ 6.7 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC400V	
Motor model *1	IP65		MDME154GC□	MDME154SC□
	IP67		MDME154G1□	MDME154S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			4.7	
Max. current (A(o-p))			20	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		6.70	
	With brake		7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

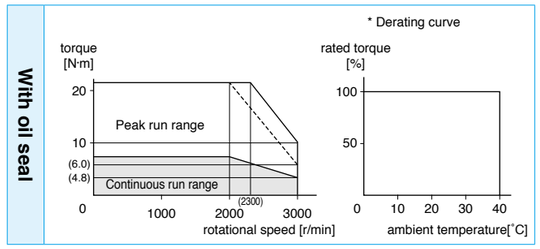
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

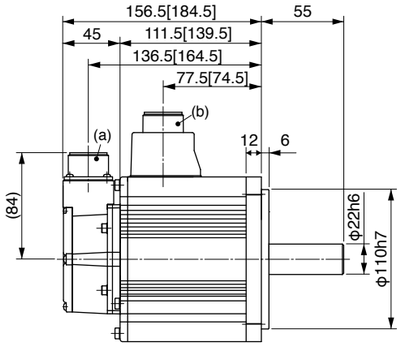
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

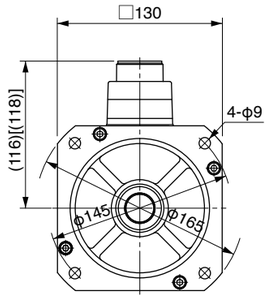


Dimensions

(For IP67 motor, refer to P.133.)

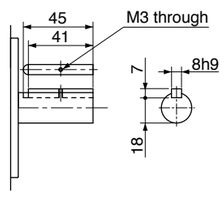


<IP65>



Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

400V MDME 2.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MDME204GC□	MDME204SC□
		IP67	MDME204G1□	MDME204S1□
Applicable driver *2	Model No.	A5 series	MEDHT4430	
		A5E series	MEDHT4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			5.9	
Max. current (A(o-p))			25	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	8.72	
		With brake	10.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

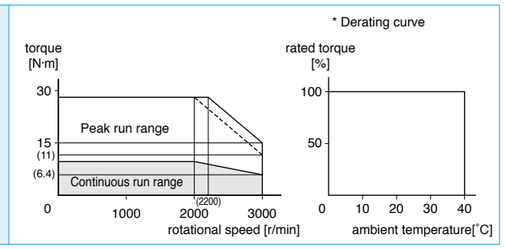
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

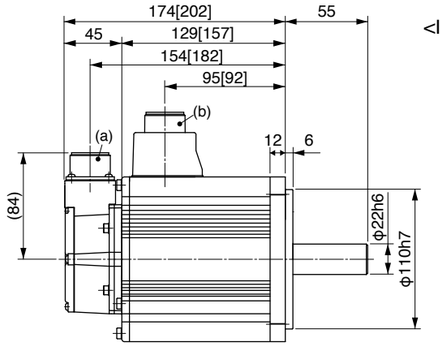
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

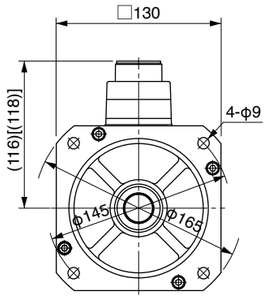


Dimensions

(For IP67 motor, refer to P.133.)

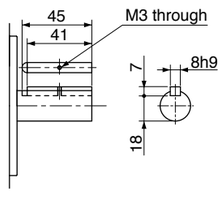


<IP65>



Mass: Without brake/ 8.0 kg
With brake/ 9.5 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

400V MDME 3.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MDME304GC□	MDME304SC□
		IP67	MDME304G1□	MDME304S1□
Applicable driver *2	Model No.	A5 series	MFDHT5440	
		A5E series	MFDHT5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			14.3	
Momentary Max. peak torque (N·m)			43.0	
Rated current (A(rms))			8.7	
Max. current (A(o-p))			37	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049×2	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	12.9	
		With brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

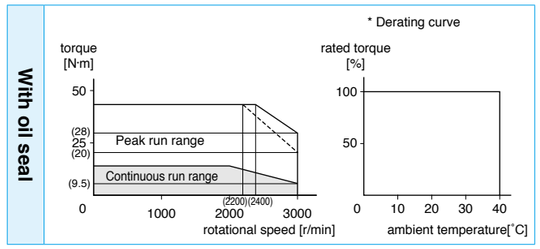
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “positioning type”. Detail of model designation, refer to P.11.

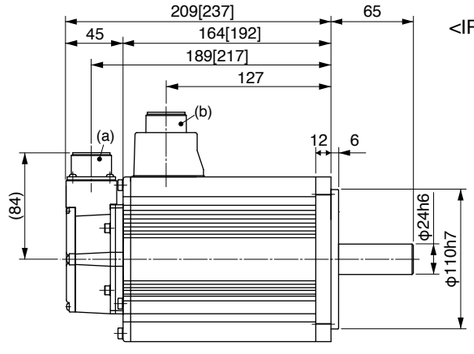
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

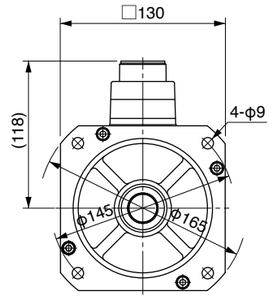


Dimensions

(For IP67 motor, refer to P.134.)

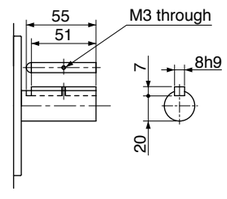


<IP65>



Mass: Without brake/ 11.0 kg
With brake/ 12.6 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MDME 4.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MDME404GC□	MDME404SC□
	IP67		MDME404G1□	MDME404S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (kW)			4.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			57.3	
Rated current (A(rms))			10.6	
Max. current (A(o-p))			45	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×2		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		37.6	
	With brake		38.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

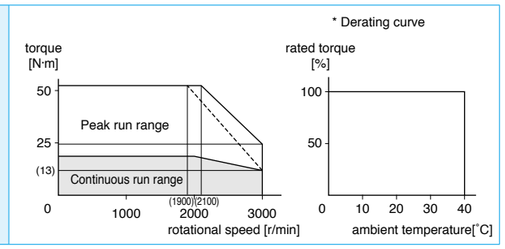
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

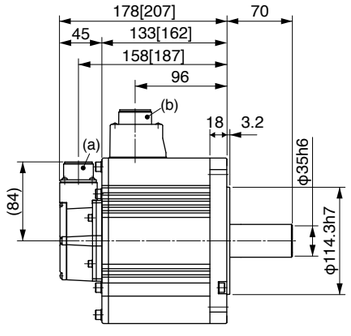


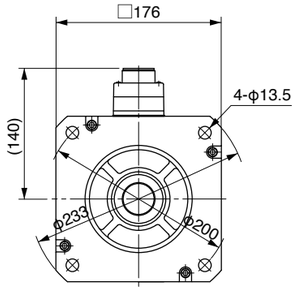
Dimensions

(For IP67 motor, refer to P.134.)

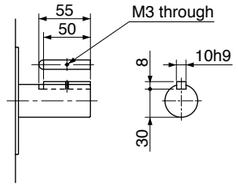
Mass: Without brake/ 15.5 kg
With brake/ 18.7 kg

<IP65>





Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MDME 5.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MDME504GC□	MDME504SC□
	IP67		MDME504G1□	MDME504S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			23.9	
Momentary Max. peak torque (N·m)			71.6	
Rated current (A(rms))			13.0	
Max. current (A(o-p))			55	
Regenerative brake frequency (times/min) Note)1	Without option		120	
	DV0PM20049×2		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		48.0	
	With brake		48.8	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

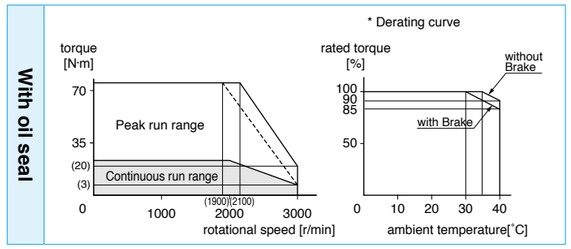
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

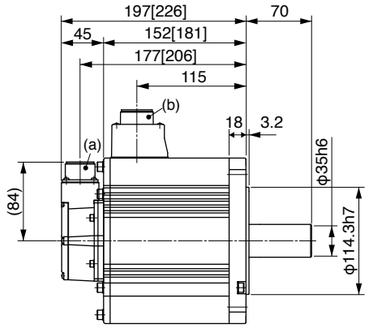


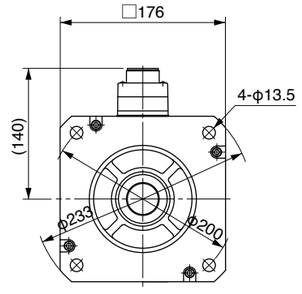
Dimensions

(For IP67 motor, refer to P.134.)

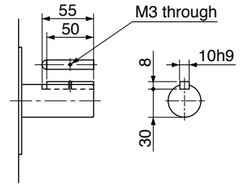
Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg

<IP65>





Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MDME 7.5kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MDME754G1□	MDME754S1□
Applicable driver *2	Model No.	A5 series	MGDHTB4A2	
		A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (kW)			7.5	
Rated torque (N·m)			47.8	
Momentary Max. peak torque (N·m)			119	
Rated current (A(rms))			22	
Max. current (A(o-p))			83	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×3		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		101	
	With brake		107	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

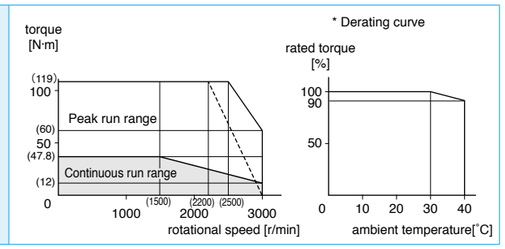
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

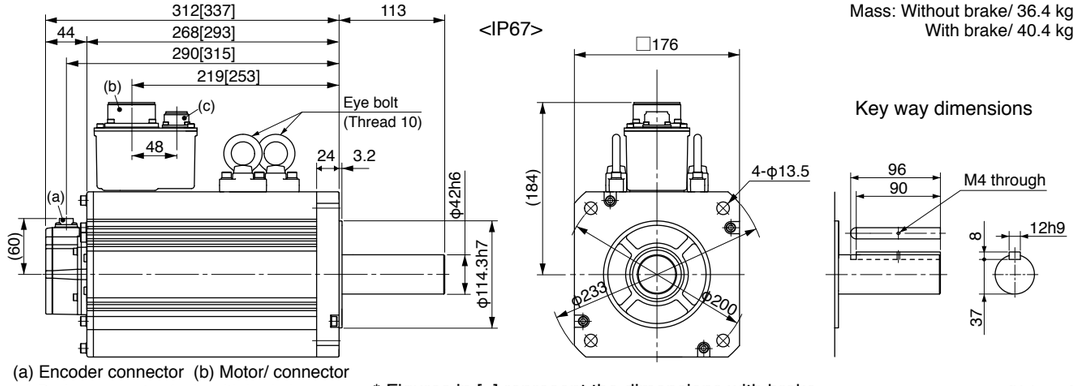
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.41.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 36.4 kg
With brake/ 40.4 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MDME 11.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MDMEC14G1□	MDMEC14S1□
Applicable driver *2	Model No.	A5 series	MHDHTB4A2	
		A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			17	
Rated output (kW)			11.0	
Rated torque (N·m)			70	
Momentary Max. peak torque (N·m)			175	
Rated current (A(rms))			27.1	
Max. current (A(o-p))			101	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20059		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		212	
	With brake		220	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

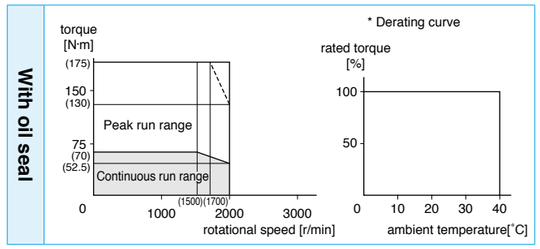
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

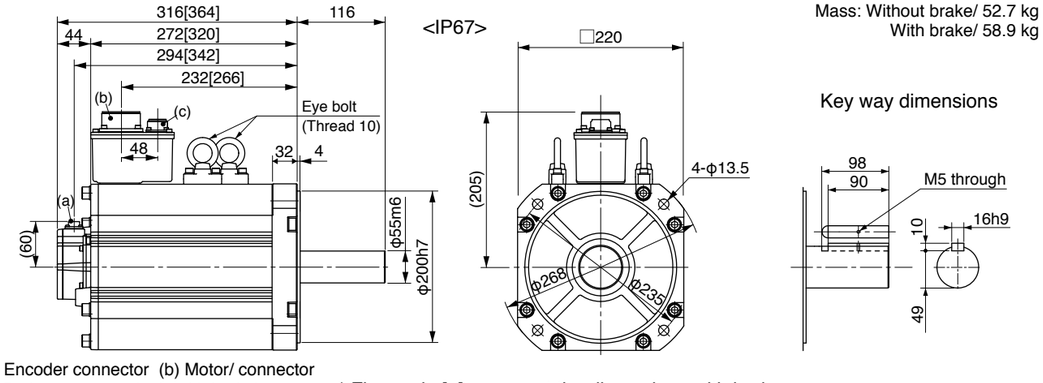
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 52.7 kg
With brake/ 58.9 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

400V MDME 15.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		–	–
	IP67		MDMEC54G1□	MDMEC54S1□
Applicable driver *2	Model No.	A5 series	MHDHTB4A2	
		A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			22	
Rated output (kW)			15.0	
Rated torque (N·m)			95.5	
Momentary Max. peak torque (N·m)			224	
Rated current (A(rms))			33.1	
Max. current (A(o-p))			118	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20059		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		302	
	With brake		211	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

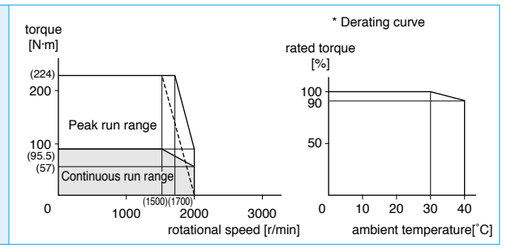
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

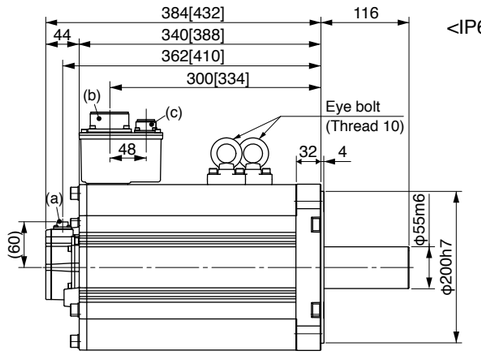
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

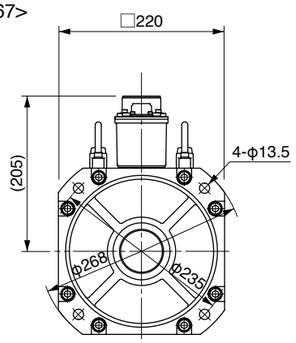
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

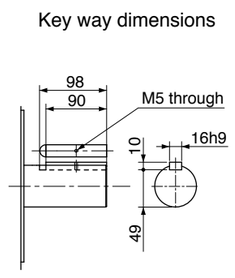
With oil seal



Dimensions







Mass: Without brake/ 70.2 kg
With brake/ 76.3 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

400V MFME 1.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400V	
Motor model *1	IP65		–	–
	IP67		MFME154G1□	MFME154S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.4	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			3.8	
Max. current (A(o-p))			16	
Regenerative brake frequency (times/min) Note)1	Without option		100	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)	Without brake		18.2	
	With brake		23.5	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	7.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	35 or less
Exciting current (DC) (A)	0.83±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

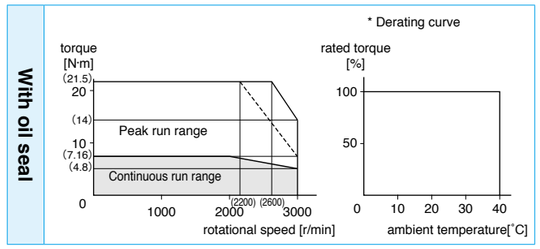
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

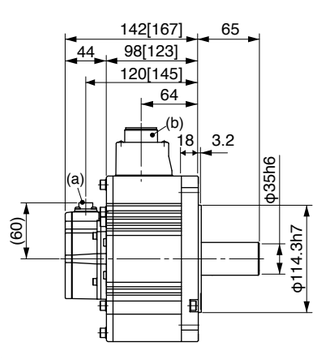
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

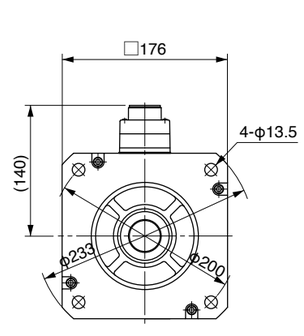
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

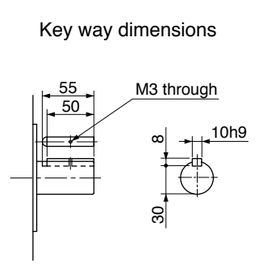
With oil seal



Dimensions







Mass: Without brake/ 9.5 kg
With brake/ 12.5 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MFME 2.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MFME254G1□	MFME254S1□
Applicable driver *2	Model No.	A5 series	MEDHT4430	
		A5E series	MEDHT4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.9	
Rated output (kW)			2.5	
Rated torque (N·m)			11.9	
Momentary Max. peak torque (N·m)			30.4	
Rated current (A(rms))			6.7	
Max. current (A(o-p))			29	
Regenerative brake frequency (times/min) Note)1		Without option	75	
		DV0PM20049	No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	35.8	
		With brake	45.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	21.6 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

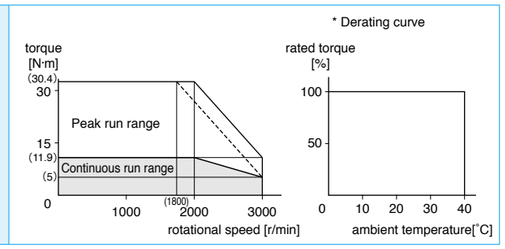
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

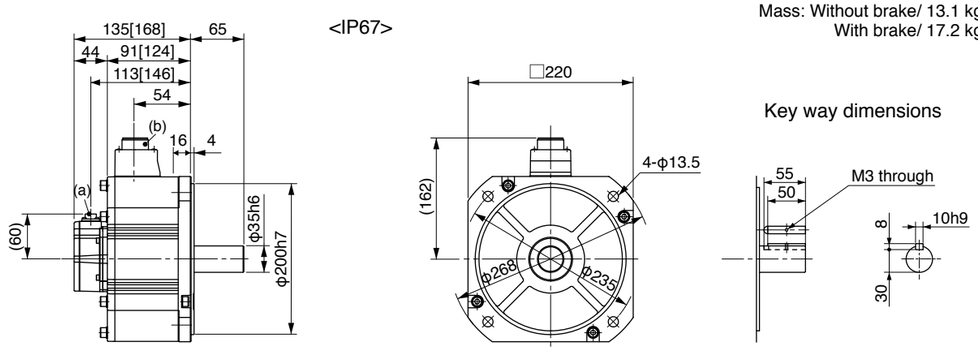
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

Mass: Without brake/ 13.1 kg
With brake/ 17.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MFME 4.5kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MFME454G1□	MFME454S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.9	
Rated output (kW)			4.5	
Rated torque (N·m)			21.5	
Momentary Max. peak torque (N·m)			54.9	
Rated current (A(rms))			12.4	
Max. current (A(o-p))			53	
Regenerative brake frequency (times/min) Note)1		Without option	67	
		DV0PM20049×2	375	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	63.1	
		With brake	70.9	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	31.4 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

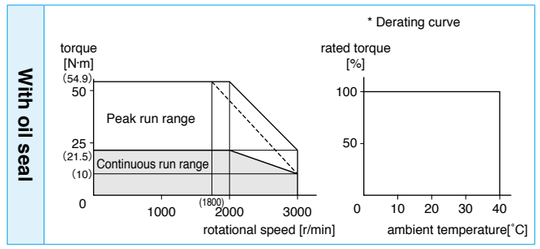
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

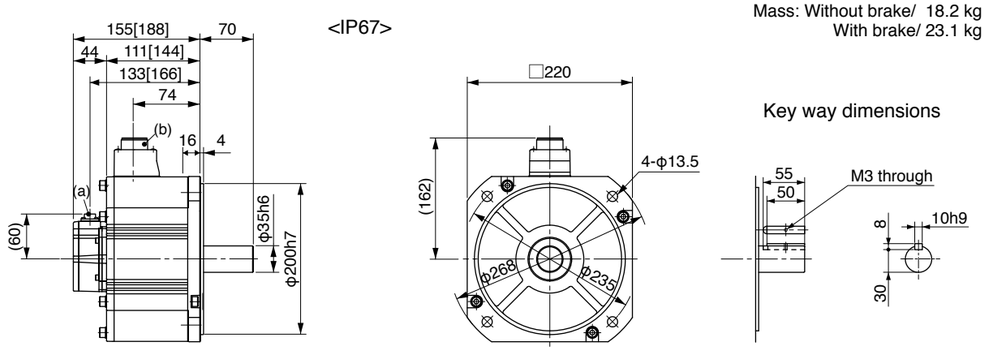
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

Mass: Without brake/ 18.2 kg
With brake/ 23.1 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MGME 0.9kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MGME094GC□	MGME094SC□
		IP67	MGME094G1□	MGME094S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			0.9	
Rated torque (N·m)			8.59	
Momentary Max. peak torque (N·m)			19.3	
Rated current (A(rms))			3.8	
Max. current (A(o-p))			12	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20048	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	6.70	
		With brake	7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

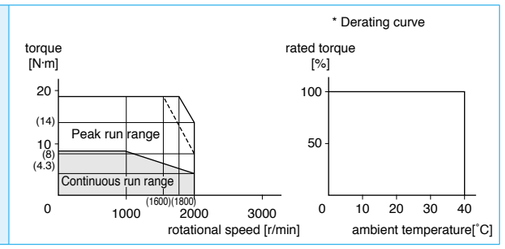
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	686
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

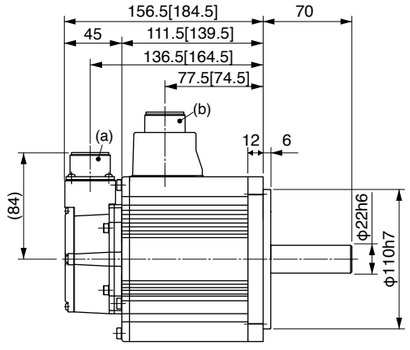
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

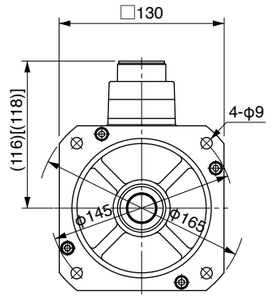


Dimensions

(For IP67 motor, refer to P.134.)

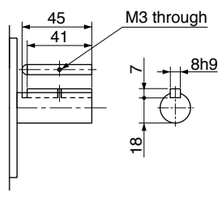


<IP65>



Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MGME 2.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MGME204GC□	MGME204SC□
		IP67	MGME204G1□	MGME204S1□
Applicable driver *2	Model No.	A5 series	MFDHT5440	
		A5E series	MFDHT5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			3.8	
Rated output (kW)			2.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			47.7	
Rated current (A(rms))			8.5	
Max. current (A(o-p))			30	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049×2	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	30.3	
		With brake	31.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

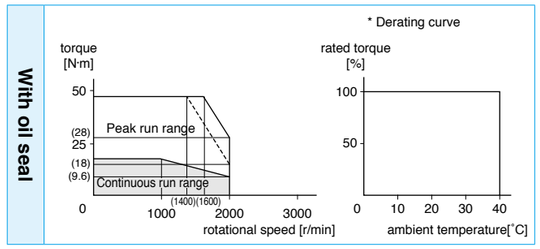
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

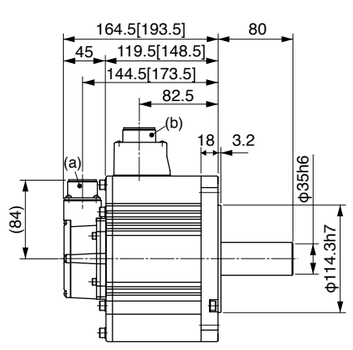
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

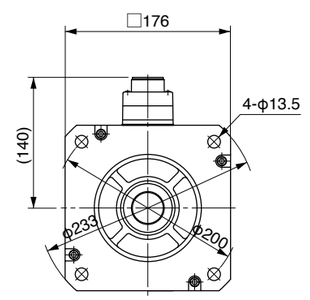


Dimensions

(For IP67 motor, refer to P.134.)

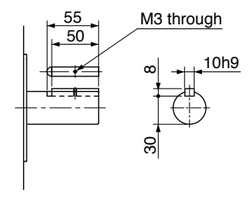


<IP65>



Mass: Without brake/ 14.0 kg
With brake/ 17.5 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MGME 3.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MGME304GC□	MGME304SC□
		IP67	MGME304G1□	MGME304S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			28.7	
Momentary Max. peak torque (N·m)			71.7	
Rated current (A(rms))			11.3	
Max. current (A(o-p))			40	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049×2	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	48.4	
		With brake	49.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

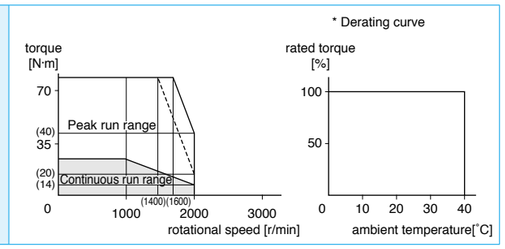
- For details of Note 1 to Note 5, refer to P.137.
- Dimensions of Driver, refer to P.40.

*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

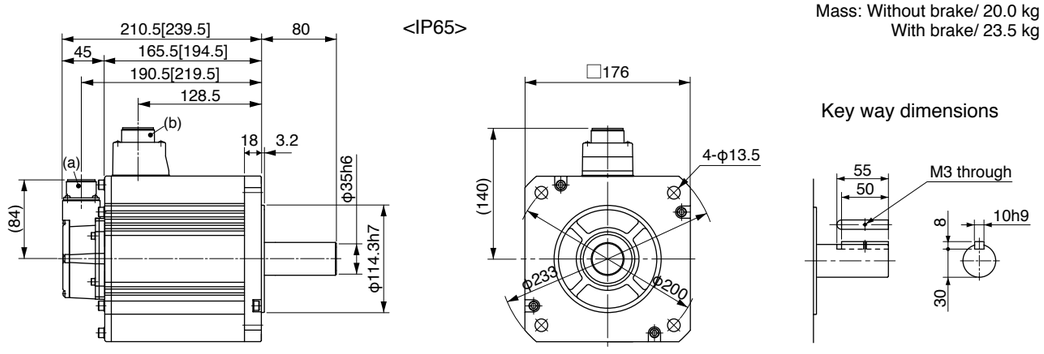
With oil seal



Dimensions

(For IP67 motor, refer to P.134.)

Mass: Without brake/ 20.0 kg
With brake/ 23.5 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MGME 4.5kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MGME454G1□	MGME454S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			4.5	
Rated torque (N·m)			43.0	
Momentary Max. peak torque (N·m)			107	
Rated current (A(rms))			14.8	
Max. current (A(o-p))			55	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049×2	No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	79.1	
		With brake	84.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

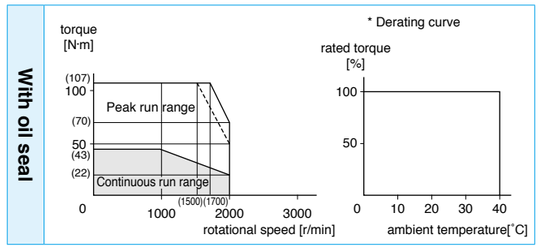
- For details of Note 1 to Note 5, refer to P.137.
- Dimensions of Driver, refer to P.40.

*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

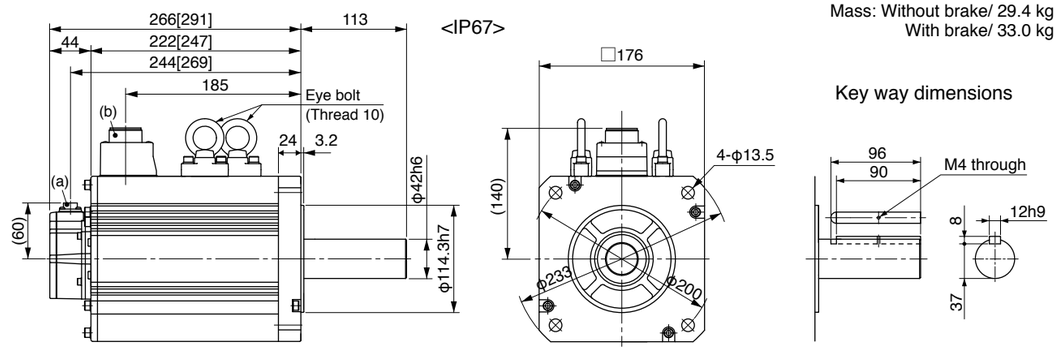
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

Mass: Without brake/ 29.4 kg
With brake/ 33.0 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MGME 6.0kW [Middle inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		–	–
	IP67		MGME604G1□	MGME604S1□
Applicable driver *2	Model No.	A5 series	MGDHTB4A2	
		A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (kW)			6.0	
Rated torque (N·m)			57.3	
Momentary Max. peak torque (N·m)			143	
Rated current (A(rms))			19.4	
Max. current (A(o-p))			74	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×3		No limit Note)2	
Rated rotational speed (r/min)			1000	
Max. rotational speed (r/min)			2000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		101	
	With brake		107	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

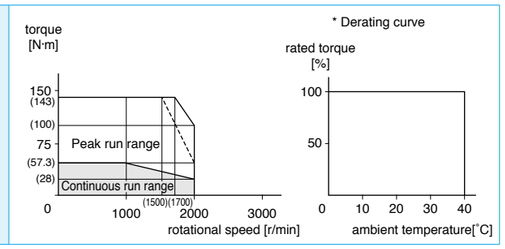
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1764
	Thrust load A, B-direction (N)	588

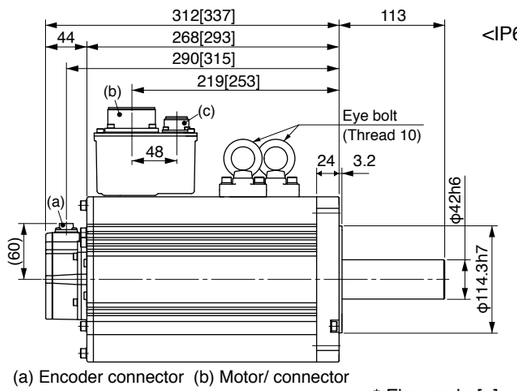
• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.41.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

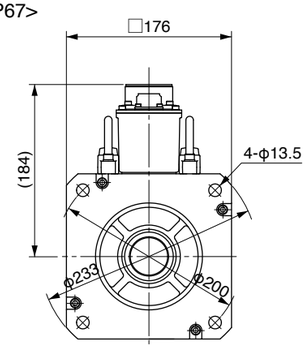
Torque characteristics (at AC200V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

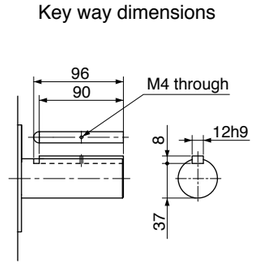
With oil seal



Dimensions







Mass: Without brake/ 36.4 kg
With brake/ 40.4 kg

(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 1.0kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1	IP65		MHME104GC□	MHME104SC□
	IP67		MHME104G1□	MHME104S1□
Applicable driver *2	Model No.	A5 series	MDDHT2412	
		A5E series	MDDHT2412E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (kW)			1.0	
Rated torque (N·m)			4.77	
Momentary Max. peak torque (N·m)			14.3	
Rated current (A(rms))			2.9	
Max. current (A(o-p))			12	
Regenerative brake frequency (times/min) Note)1	Without option		83	
	DV0PM20048		No limit Note)2	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		24.7	
	With brake		26.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

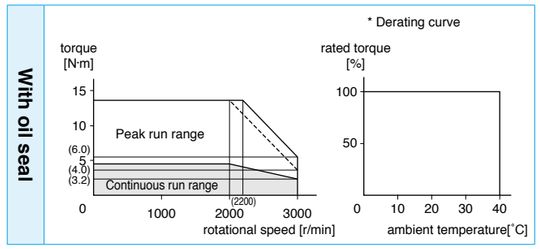
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

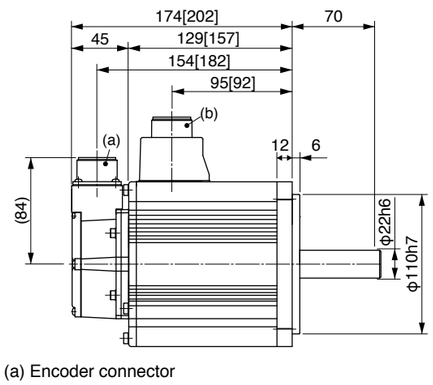
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

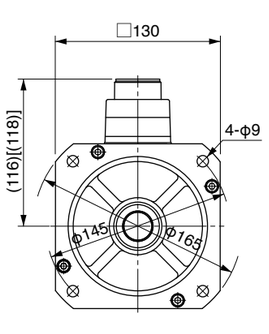
With oil seal

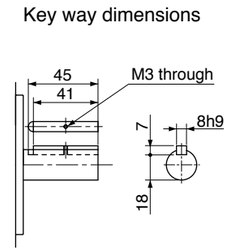


Dimensions

(For IP67 motor, refer to P.135.)







Mass: Without brake/ 6.7 kg
With brake/ 8.1 kg

(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 1.5kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MHME154GC□	MHME154SC□
		IP67	MHME154G1□	MHME154S1□
Applicable driver *2	Model No.	A5 series	MDDHT3420	
		A5E series	MDDHT3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (kW)			1.5	
Rated torque (N·m)			7.16	
Momentary Max. peak torque (N·m)			21.5	
Rated current (A(rms))			4.7	
Max. current (A(o-p))			20	
Regenerative brake frequency (times/min) Note)1		Without option	22	
		DV0PM20048	130	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	37.1	
		With brake	38.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

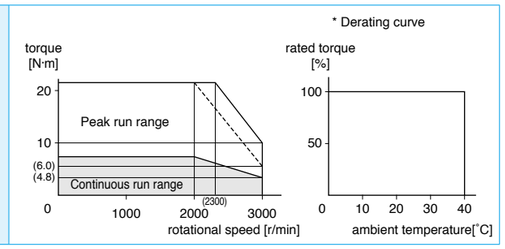
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.39.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

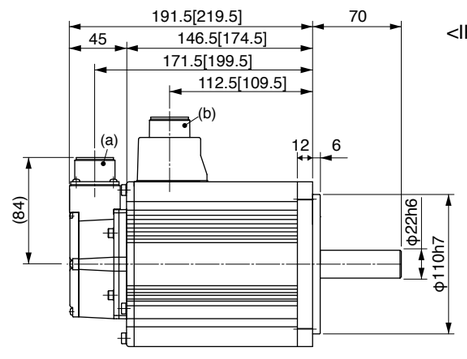
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal

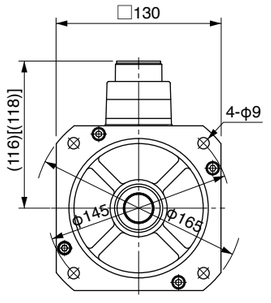


Dimensions

(For IP67 motor, refer to P.135.)

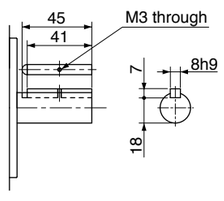


<IP65>



Mass: Without brake/ 8.6 kg
With brake/ 10.1 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 2.0kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MHME204GC□	MHME204SC□
		IP67	MHME204G1□	MHME204S1□
Applicable driver *2	Model No.	A5 series	MEDHT4430	
		A5E series	MEDHT4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (kW)			2.0	
Rated torque (N·m)			9.55	
Momentary Max. peak torque (N·m)			28.6	
Rated current (A(rms))			5.5	
Max. current (A(o-p))			24	
Regenerative brake frequency (times/min) Note)1		Without option	45	
		DV0PM20048	142	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor ($\times10^{-4}$kg·m^2)		Without brake	57.8	
		With brake	59.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

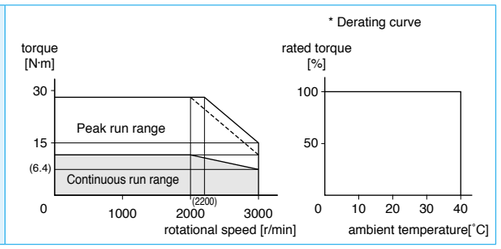
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

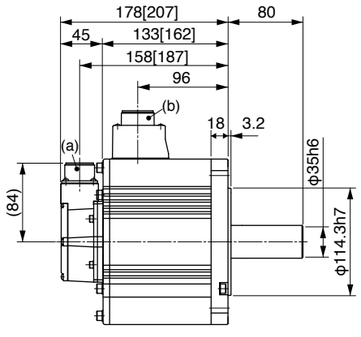
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.135.)



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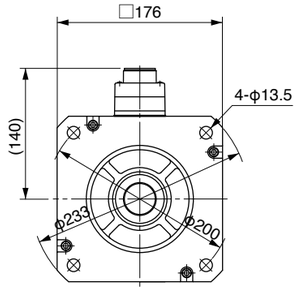
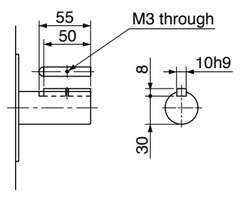


Mass: Without brake/ 12.2 kg
With brake/ 15.5 kg

Key way dimensions



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 3.0kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MHME304GC□	MHME304SC□
		IP67	MHME304G1□	MHME304S1□
Applicable driver *2	Model No.	A5 series	MFDHT5440	
		A5E series	MFDHT5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (kW)			3.0	
Rated torque (N·m)			14.3	
Momentary Max. peak torque (N·m)			43.0	
Rated current (A(rms))			8.0	
Max. current (A(o-p))			34	
Regenerative brake frequency (times/min) Note)1		Without option	19	
		DV0PM20049×2	142	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	90.5	
		With brake	92.1	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

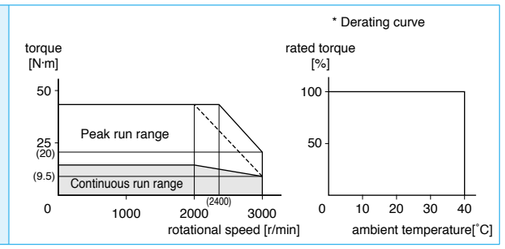
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

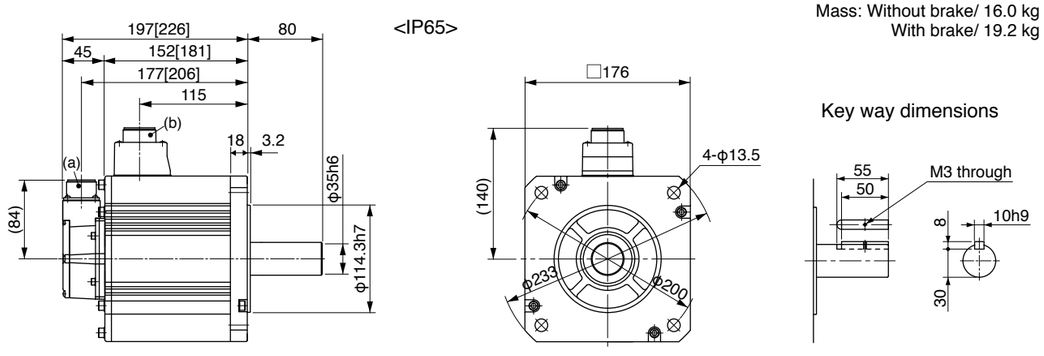
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 16.0 kg
With brake/ 19.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 4.0kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MHME404GC□	MHME404SC□
		IP67	MHME404G1□	MHME404S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (kW)			4.0	
Rated torque (N·m)			19.1	
Momentary Max. peak torque (N·m)			57.3	
Rated current (A(rms))			10.5	
Max. current (A(o-p))			45	
Regenerative brake frequency (times/min) Note)1		Without option	17	
		DV0PM20049×2	125	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)		Without brake	112	
		With brake	114	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized.
Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

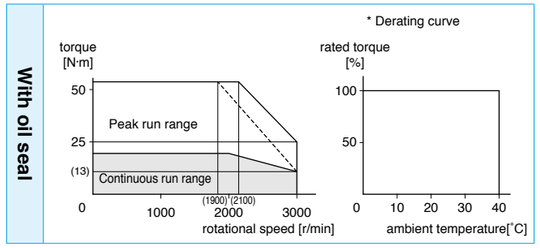
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

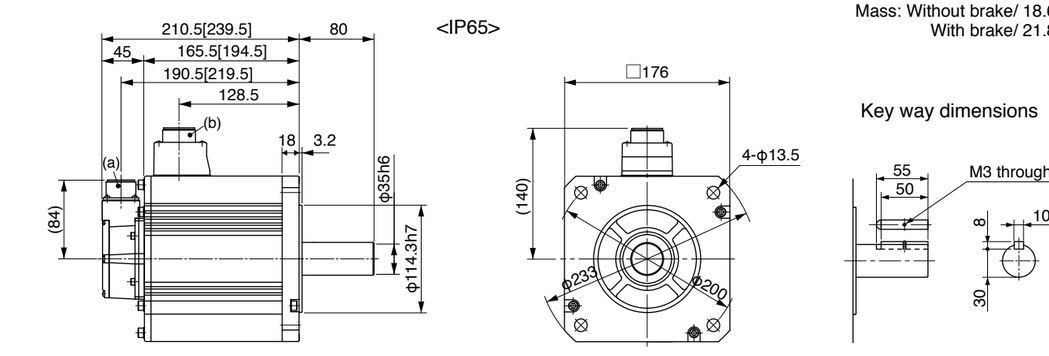
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 5.0kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	MHME504GC□	MHME504SC□
		IP67	MHME504G1□	MHME504S1□
Applicable driver *2	Model No.	A5 series	MFDHTA464	
		A5E series	MFDHTA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (kW)			5.0	
Rated torque (N·m)			23.9	
Momentary Max. peak torque (N·m)			71.6	
Rated current (A(rms))			13.0	
Max. current (A(o-p))			55	
Regenerative brake frequency (times/min) Note)1	Without option		10	
	DV0PM20049×2		76	
Rated rotational speed (r/min)			2000	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		162	
	With brake		164	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

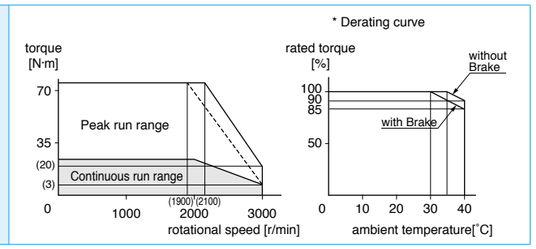
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.40.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

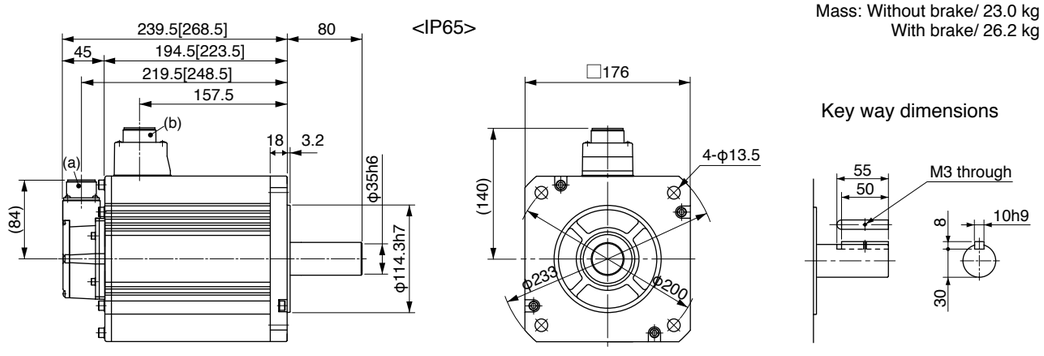
With oil seal



Dimensions

(For IP67 motor, refer to P.135.)

Mass: Without brake/ 23.0 kg
With brake/ 26.2 kg



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 7.5kW [High inertia, Middle capacity]

Specifications

			AC400V	
Motor model *1		IP65	–	–
		IP67	MHME754G1□	MHME754S1□
Applicable driver *2	Model No.	A5 series	MGDHTB4A2	
		A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (kW)			7.5	
Rated torque (N·m)			47.8	
Momentary Max. peak torque (N·m)			119	
Rated current (A(rms))			22.0	
Max. current (A(o-p))			83	
Regenerative brake frequency (times/min) Note)1	Without option		No limit Note)2	
	DV0PM20049×3		No limit Note)2	
Rated rotational speed (r/min)			1500	
Max. rotational speed (r/min)			3000	
Moment of inertia of rotor (×10⁻⁴kg·m²)	Without brake		273	
	With brake		279	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.137)

(This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10%
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

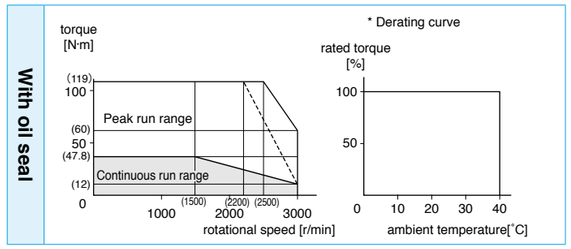
• Permissible load (For details, refer to P.137)

During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

• For details of Note 1 to Note 5, refer to P.137.
• Dimensions of Driver, refer to P.41.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

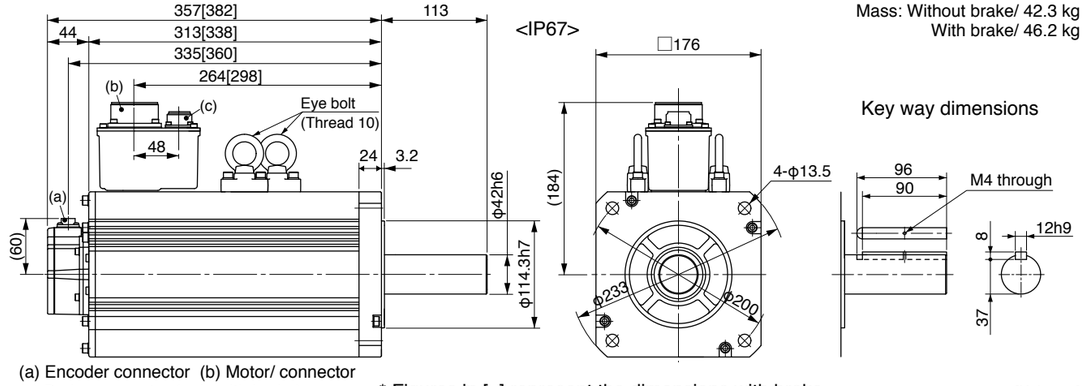
Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

With oil seal



Dimensions

Mass: Without brake/ 42.3 kg
With brake/ 46.2 kg



(a) Encoder connector (b) Motor/ connector
(c) Brake connector (only with brake)

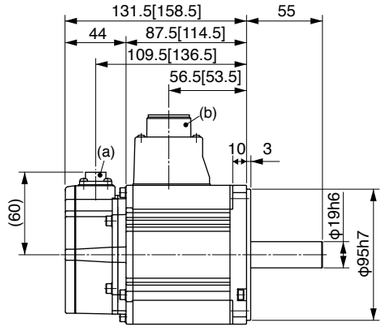
* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

• MSME084□1 ✻

[Unit: mm]

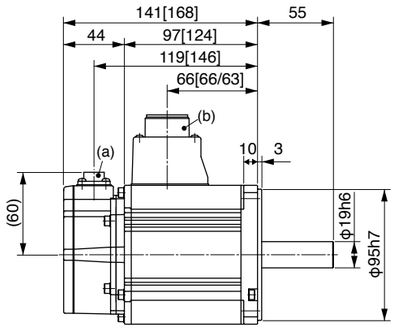


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MSME10□□1 ✻

[Unit: mm]

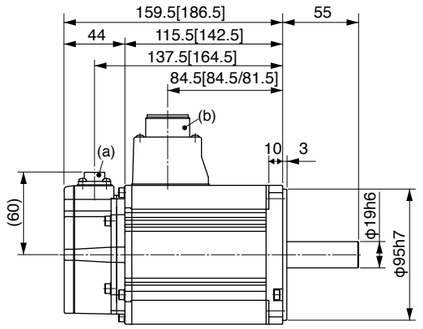


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MSME15□□1 ✻

[Unit: mm]

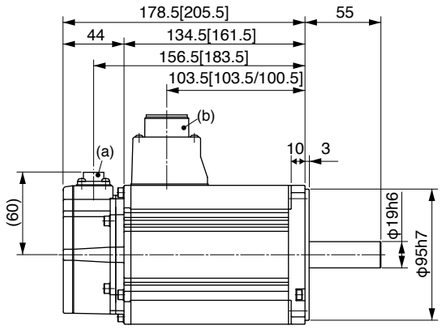


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MSME20□□1 ✻

[Unit: mm]

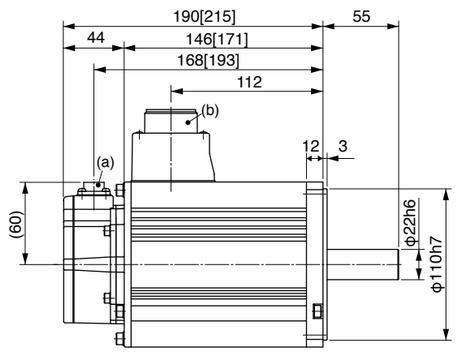


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MSME30□□1 ✻

[Unit: mm]

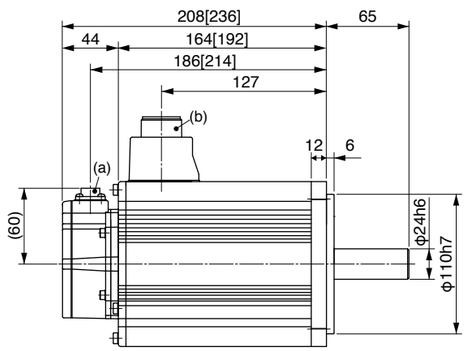


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MSME40□□1 ✻

[Unit: mm]



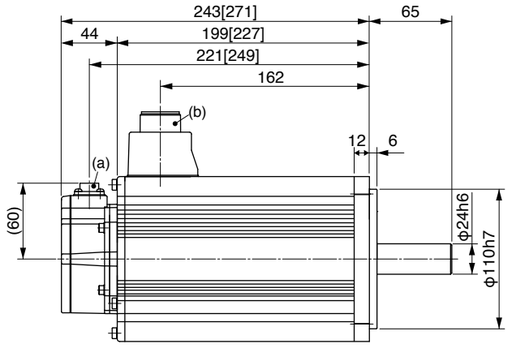
(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

* For motor specifications, refer to IP65 motor page.

• MSME50□□1 ✻

[Unit: mm]

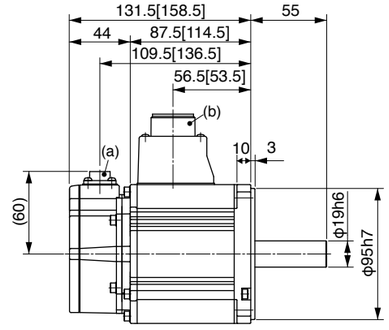


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME044□1 ✻

[Unit: mm]

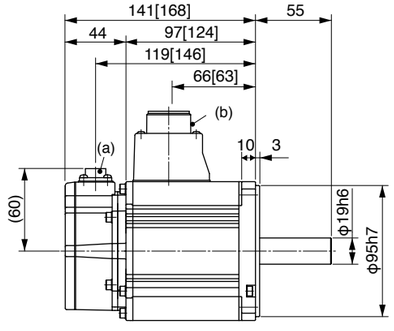


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME064□1 ✻

[Unit: mm]

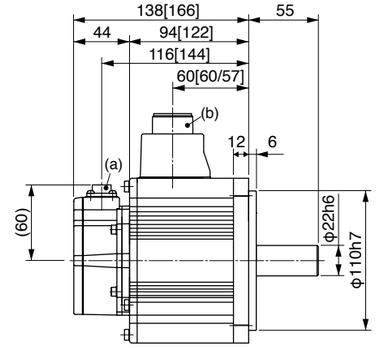


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME10□□1 ✻

[Unit: mm]

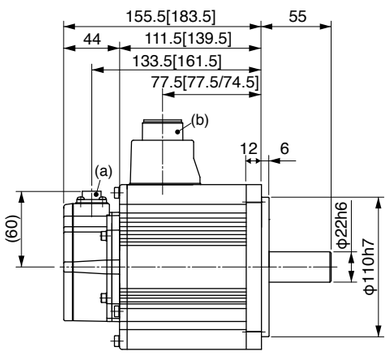


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MDME15□□1 ✻

[Unit: mm]

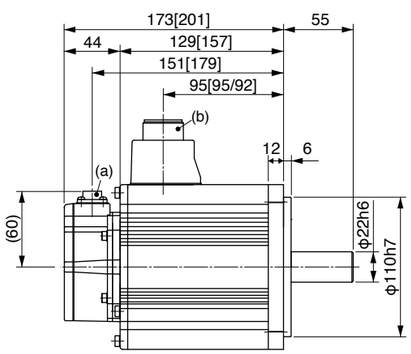


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MDME20□□1 ✻

[Unit: mm]



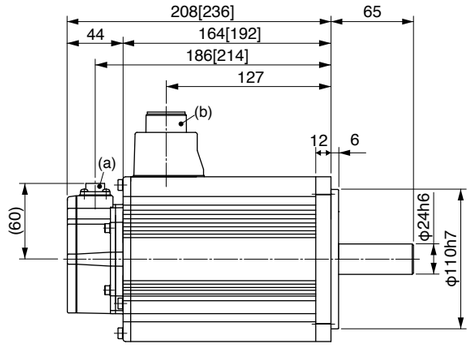
(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

* For motor specifications, refer to IP65 motor page.

• MDME30□□1＊

[Unit: mm]

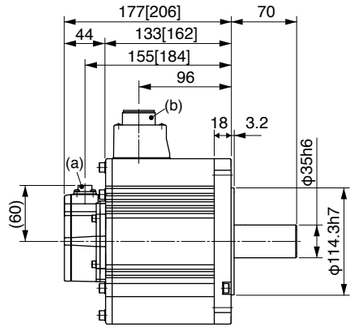


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME40□□1＊

[Unit: mm]

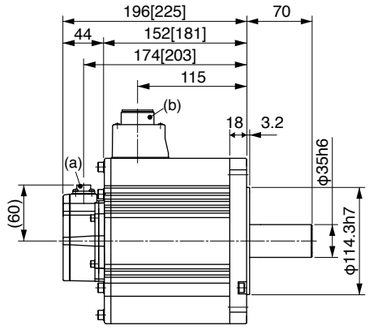


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME50□□1＊

[Unit: mm]

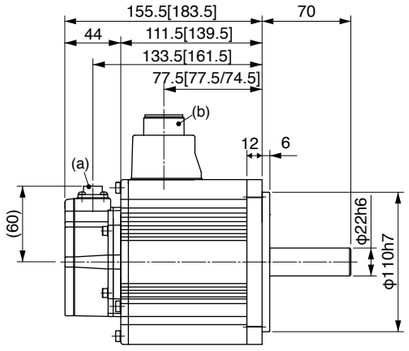


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MGME09□□1＊

[Unit: mm]

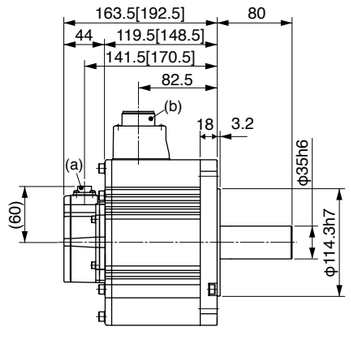


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MGME20□□1＊

[Unit: mm]

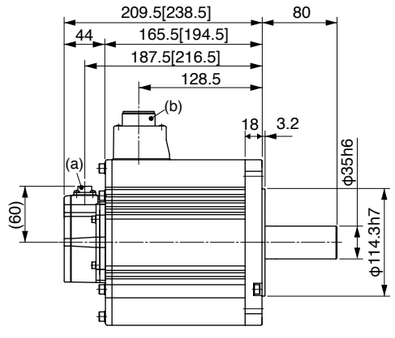


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MGME30□□1＊

[Unit: mm]



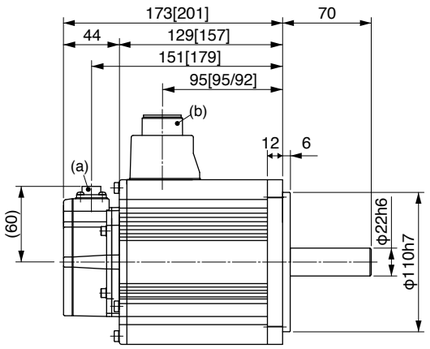
(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

* For motor specifications, refer to IP65 motor page.

• MHME10□□1＊

[Unit: mm]

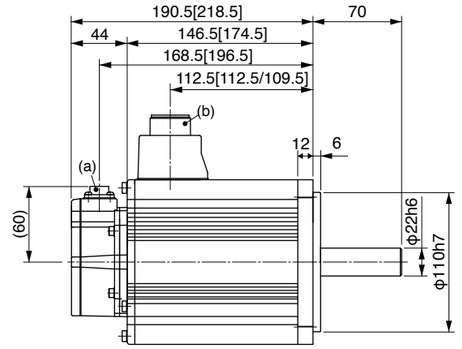


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MHME15□□1＊

[Unit: mm]

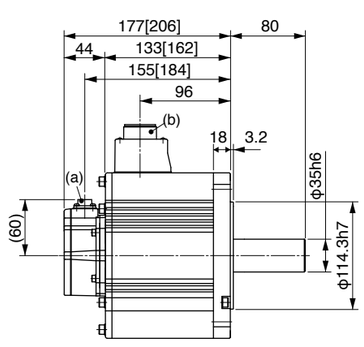


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200V and right figure is for 400V.

• MHME20□□1＊

[Unit: mm]

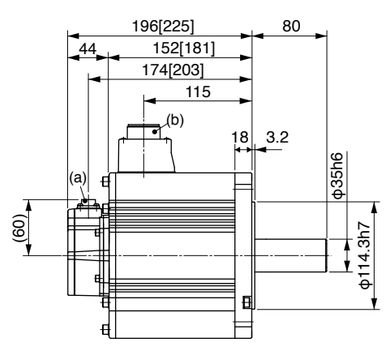


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MHME30□□1＊

[Unit: mm]

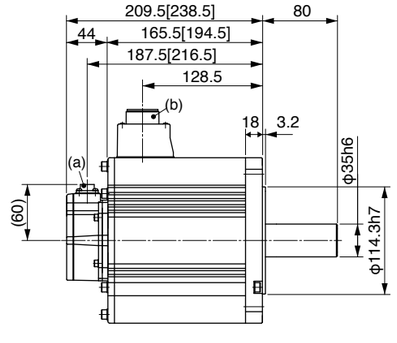


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MHME40□□1＊

[Unit: mm]

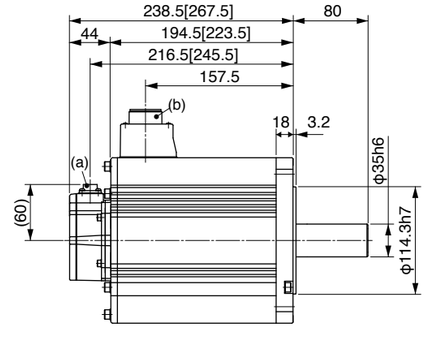


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MHME50□□1＊

[Unit: mm]



(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

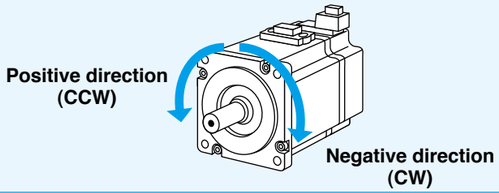
* For motor specifications, refer to IP65 motor page.

Environmental Conditions

Item		Conditions
Ambient temperature *1		0˚C to 40˚C (free from freezing)
Ambient humidity		20% to 85% RH (free from condensation)
Storage temperature *2		–20˚C to 65˚C (Max.temperature guarantee: 80˚C for 72 hours free from condensation*5)
Storage humidity		20% to 85% RH (free from condensation*5)
Vibration	Motor only	50W to 5.0kW : Lower than 49m/s^2 (5G) at running, 24.5m/s^2 (2.5G) at stall 6.0kW to 15.0kW : Lower than 24.5m/s^2 (2.5G) at running, 24.5m/s^2 (2.5G) at stall
Impact	Motor only	Lower than 98m/s^2 (10G)
Enclosure rating (Motor only)	IP65 *3	MSMD, MHMD (except rotating portion of output shaft and readwire end.)
		M * ME (IP65 motor: 0.9kW or more) (except rotating portion of output shaft and connecting pin part of the motor connector and the encoder connector)
	IP67 *3*4	M * ME IP67 motor (except rotating portion of output shaft and connecting pin part of the motor connector and the encoder connector)
Altitude		Lower than 1000m

*1 Ambient temperature to be measured at 5cm away from the motor.
*2 Permissible temperature for short duration such as transportation.
*3 These motors conform to the test conditions specified in EN standards (EN60529, EN60034-5). Do not use these motors in application where water proof performance is required such as continuous wash-down operation.
*4 This condition is applied when the connector mounting screw are tightened to the recommended tightening torque.
*5 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

<Note>
Initial setup of rotational direction:
positive = CCW and negative = CW.
Pay an extra attention.



Notes on [Motor specification] page

Note) 1. **[At AC100V of power voltage]**
Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC115V (at 100V of the main voltage).
  If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

[At AC200V of power voltage]
Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230V (at 200V of the main voltage).
  If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/230) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

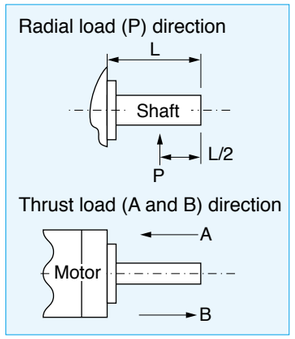
[At AC400V of power voltage]
Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC460V (at 400V of the main voltage).
  If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/460) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

Note) 2. If the effective torque is within the rated torque, there is no limit in generative brake.
Note) 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
Note) 4. Releasing time values represent the ones with DC-cutoff using a varistor.
Note) 5. The 17-bit absolute encoder can also be used as a 17-bit incremental encoder.

Permissible Load at Output Shaft

The radial load is defined as a load applied to the output shaft in the right-angle direction. This load is generated when the gear head is coupled to the machine using a chain, belt, etc., but not when the gear head is directly connected to the coupling. As shown in the right figure, the permissible value is determined based on the load applied to the L/2 position of the output shaft. The thrust load is defined as a load applied to the output shaft in the axial direction.

Because the radial load and thrust load significantly affect the life of the bearing, take care not to allow the load during operation to exceed the permissible radial load and thrust load shown in the table below.



Built-in Holding Brake

In the applications where the motor drives the vertical axis, this brake would be used to hold and prevent the work (moving load) from falling by gravity while the power to the servo is shut off.

Use this built-in brake for "Holding" purpose only, that is to hold the stalling status. Never use this for "Brake" purpose to stop the load in motion.

• Output Timing of BRK-OFF Signal
- For the brake release timing at power-on, or braking timing at Servo-OFF/Servo-Alarm while the motor is in motion, refer to the Operating Instructions (Overall).
- With the parameter, Pr4.38 (Setup of mechanical brake action while the motor is in motion), you can set up a time between when the motor enters to a free-run from energized status and when BRK-OFF signal turns off (brake will be engaged), when the Servo-OFF or alarm occurs while the motor is in motion. For details, download a copy of the instruction manual from our website.

<Note>
1. The lining sound of the brake (chattering and etc.) might be generated while running the motor with built-in brake, however this does not affect any functionality.
2. Magnetic flux might be generated through the motor shaft while the brake coil is energized (brake is open). Pay an extra attention when magnetic sensors are used nearby the motor.

• Specifications of Built-in Holding Brake

Motor series	Motor output	Static friction torque N·m	Rotor inertia x 10^{-4} kg·m^2	Engaging time ms	Releasing time ms	Exciting current DC A (at cool-off)	Releasing voltage	Permissible work (J) per one braking	Permissible total work x 10^3J	Permissible angular acceleration rad/s^2
MSMD	50W, 100W	0.29 or more	0.002	35 or less	20 or less	0.3	DC1V or more	39.2	4.9	30000
	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	
	750W	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
MSME	50W, 100W	0.29 or more	0.002	35 or less	20 or less	0.3	DC1V or more	39.2	4.9	30000
	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	
	750W(200V)	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
	750W(400V)	2.5 or more	0.33	50 or less	15 or less (100)	0.7	DC2V or more	392	490	10000
	1.0kW, 1.5kW, 2.0kW	7.8 or more				0.81				
	3.0kW	11.8 or more		80 or less						
	4.0kW, 5.0kW	16.2 or more	1.35	110 or less	50 or less (130)	0.9		1470	2200	
MDME	400W(400V), 600W(400V)	2.5 or more	1.35	50 or less	15 or less	0.7	DC2V or more	392	490	10000
	1.0kW	4.9 or more		80 or less	70 or less (200)	0.59		588	780	
	1.5kW, 2.0kW	13.7 or more		100 or less	50 or less (130)	0.79		1176	1500	
	3.0kW	16.2 or more		110 or less		0.9		1470	2200	
	4.0kW, 5.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	7.5kW	58.8 or more		150 or less	50 or less	1.4				5000
	11.0kW, 15.0kW	100 or more	7.1	300 or less	140 or less	1.08		2000	4000	3000
MFME	1.5kW	7.8 or more	4.7	80 or less	35 or less	0.83	DC2V or more	1372	2900	10000
	2.5kW	21.6 or more	8.75	150 or less	100 or less	0.75		1470	1500	
	4.5kW	31.4 or more							2200	
MGME	0.9kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79	DC2V or more	1176	1500	10000
	2.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	3.0kW	58.8 or more		150 or less	50 or less (130)	1.4				
	4.5kW, 6.0kW				50 or less					5000
MHMD	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36	DC1V or more	137	44.1	30000
	750W	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
MHME	1.0kW	4.9 or more	1.35	80 or less	70 or less (200)	0.59	DC2V or more	588	780	10000
	1.5kW	13.7 or more		100 or less	50 or less (130)	0.79		1176	1500	
	2.0kW～5.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	7.5kW	58.8 or more		150 or less	50 or less	1.4				5000

- Excitation voltage is DC24V±10% (Large type motor) and DC24V±5% (Small type motor).
- Releasing time values represent the ones with DC-cutoff using a varistor.
  Values in ( ) represent those measured by using a diode (V03C by Hitachi, Ltd.)
- Above values (except static friction torque, releasing voltage and excitation current) represent typical values.
- Backlash of the built-in holding brake is kept ±1˚or smaller at ex-factory point.
- Service life of the number of acceleration/deceleration with the above permissible angular acceleration is more than 10 million times. (Life end is defined as when the brake backlash drastically changes.)

Motor types with gear reducer

MSME
100W to 750W

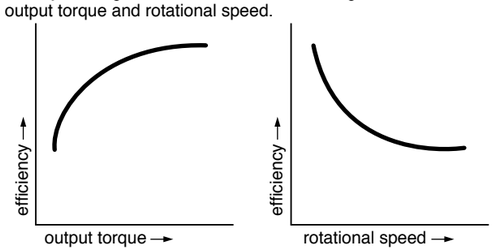
MSMD
100W to 750W

MHMD
200W to 750W

Reduction ratio	Motor output (W)				Type of reducer
	100	200	400	750	
1/5	●	●	●	●	For high precision
1/9	●	●	●	●	
1/15	●	●	●	●	
1/25	●	●	●	●	

* MHMD 100W is not prepared.

Efficiency of the gear reducer show the following inclination in relation to output torque and rotational speed.



Specifications of motor with gear reducer

Items		Specifications
Gear reducer	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer
	Composition of gear	Planetary gear
	Gear efficiency	65% to 85%
	Lubrication	Grease lubrication
	Rotational direction at output shaft	Same direction as the motor output shaft
	Mounting method	Flange mounting
	Permissible moment of inertia of the load (conversion to the motor shaft)	10 times or smaller than rotor moment of inertia of the motor
	Protective structure	IP44 (at gear reducer)
Environment	Ambient temperature	0 to 40°C (free from condensation)
	Ambient humidity	85%RH (free from condensation) or less
	Vibration resistance	49m/s^2 or less (at motor frame)
	Impact resistance	98m/s^2 or less

Model designation/ The combination of the driver and the motor

* For combination of elements of model number, refer to Index.

Model designation

M S M E 0 1 1 G 3 1 N

Symbol	Type
MSMD	Low inertia 100W to 750W
MSME	Low inertia 100W to 750W
MHMD	High inertia 200W to 750W

Motor rated output

Symbol	Specifications
01	100W
02	200W
04	400W
08	750W

Voltage specifications

Symbol	Rated output
1	100V
2	200V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wire
G	Incremental	20-bit	1,048,576	5
S	Absolute	17-bit	131,072	7

* S: can be used in incremental.

Motor types with gear reducer

Symbol	Reduction ratio	Motor output (W)				Type of reducer
		100	200	400	750	
1N	1/5	●	●	●	●	For high precision
2N	1/9	●	●	●	●	
3N	1/15	●	●	●	●	
4N	1/25	●	●	●	●	

* MHMD 100W is not prepared.

Motor structure

Symbol	Shaft	Holding brake	
	Key way	without	with
3	●	●	
4	●		●

The combination of the driver and the motor

Motor output	100V		200V	
	Part No. of motor with reducer	Single phase, 100V Part No. of driver	Part No. of motor with reducer	3-phase, 200V Part No. of driver
100W	MSME011□□□N MSMD011□□□N	MADHT1107 MADHT1107E	MSME012□□□N MSMD012□□□N	MADHT1505 MADHT1505E
200W	MSME021□□□N MSMD021□□□N MHMD021□□□N	MBDHT2110 MBDHT2110E	MSME022□□□N MSMD022□□□N MHMD022□□□N	MADHT1507 MADHT1507E
400W	MSME041□□□N MSMD041□□□N MHMD041□□□N	MCDHT3120 MCDHT3120E	MSME042□□□N MSMD042□□□N MHMD042□□□N	MBDHT2510 MBDHT2510E
750W	—	—	MSME082□□□N MSMD082□□□N MHMD082□□□N	MCDHT3520 MCDHT3520E

* Motor specifications enter to □□□ of the motor model number. Refer to “Model designation”.

Table of motor specifications

Table of motor specifications

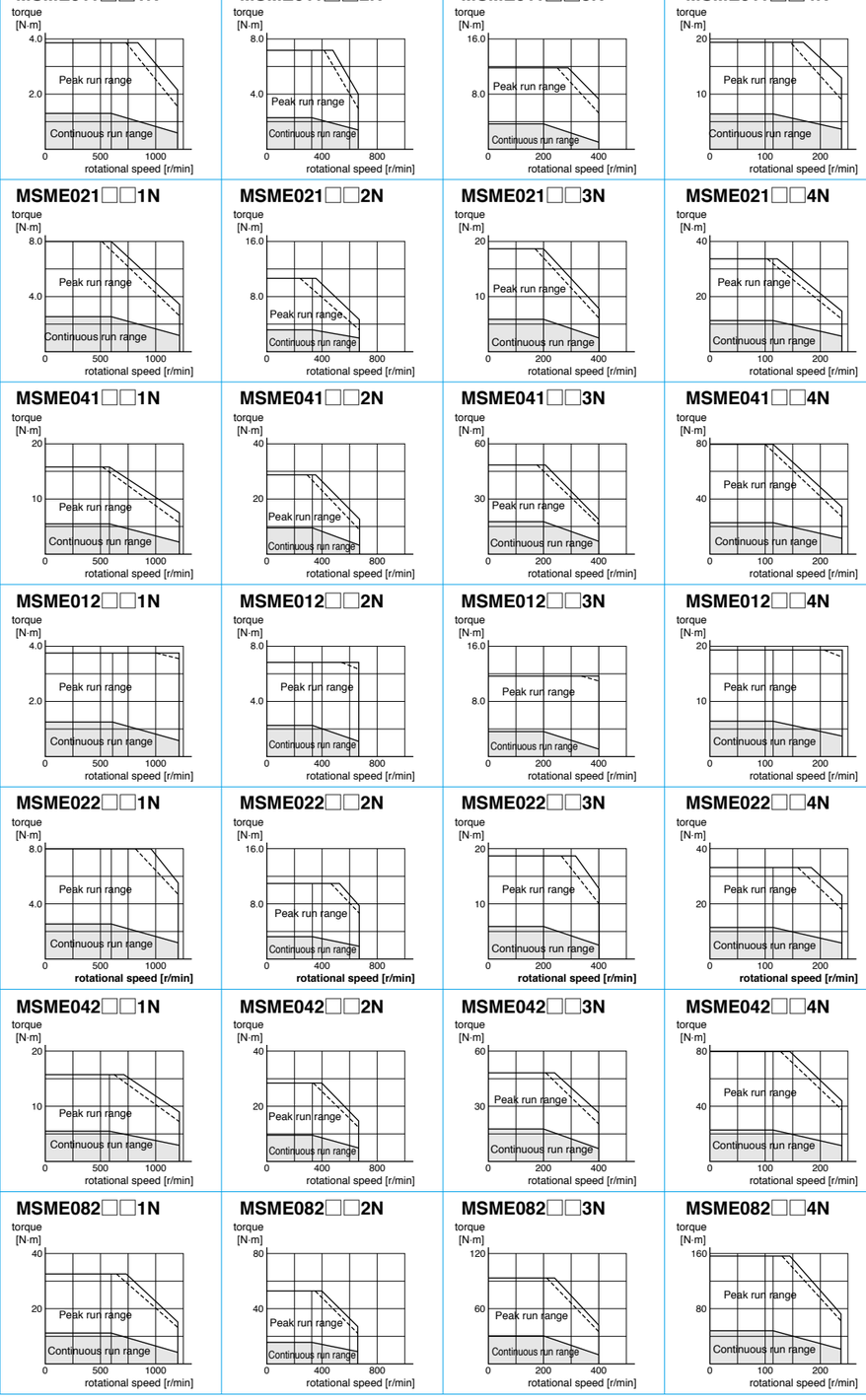
	Model	Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	Moment of inertia (motor + reducer/ converted to motor shaft)		Mass		Permissible radial load	Permissible thrust load
									w/o brake	w/ brake	w/o brake	w/ brake		
		(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J(×10⁻⁴kg·m²)		(kg)		(N)	(N)
MSME Low inertia	MSME01 □□□ 1N	100	1/5	75	600	1200	1.18	3.72	0.091	0.094	1.0	1.2	490	245
	MSME01 □□□ 2N		1/9	80	333	666	2.25	6.86	0.0853	0.0883	1.0	1.2	588	294
	MSME01 □□□ 3N		1/15	80	200	400	3.72	11.4	0.086	0.089	1.15	1.35	784	392
	MSME01 □□□ 4N		1/25	80	120	240	6.27	19.0	0.0885	0.0915	2.15	2.35	1670	833
	MSME02 □□□ 1N	200	1/5	170	600	1200	2.65	8.04	0.258	0.278	1.5	1.92	490	245
	MSME02 □□□ 2N		1/9	132	333	666	3.72	11.3	0.408	0.428	2.48	2.9	1180	588
	MSME02 □□□ 3N		1/15	132	200	400	6.27	18.8	0.44	0.46	2.88	3.3	1470	735
	MSME02 □□□ 4N		1/25	140	120	240	11.1	33.3	0.428	0.448	2.88	3.3	1670	833
	MSME04 □□□ 1N	400	1/5	340	600	1200	5.39	16.2	0.623	0.643	2.9	3.3	980	490
	MSME04 □□□ 2N		1/9	332	333	666	9.51	28.5	0.528	0.548	2.9	3.3	1180	588
	MSME04 □□□ 3N		1/15	332	200	400	15.8	47.5	0.56	0.58	3.3	3.7	1470	735
	MSME04 □□□ 4N		1/25	332	120	240	26.4	79.2	0.56	0.58	4.4	4.8	2060	1030
	MSME082 □□ 1N	750	1/5	672	600	1200	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSME082 □□ 2N		1/9	635	333	666	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSME082 □□ 3N		1/15	635	200	400	30.4	91.2	1.57	1.67	6.1	6.9	1760	882
	MSME082 □□ 4N		1/25	635	120	240	50.7	152	1.52	1.62	6.1	6.9	2650	1320
MSMD Low inertia	MSMD01 □□□ 1N	100	1/5	75	600	1000	1.18	3.72	0.091	0.094	1.02	1.23	490	245
	MSMD01 □□□ 2N		1/9	80	333	555	2.25	6.86	0.0853	0.0883	1.02	1.23	588	294
	MSMD01 □□□ 3N		1/15	80	200	333	3.72	11.4	0.086	0.089	1.17	1.38	784	392
	MSMD01 □□□ 4N		1/25	80	120	200	6.27	19.0	0.0885	0.0915	2.17	2.38	1670	833
	MSMD02 □□□ 1N	200	1/5	170	600	1000	2.65	8.04	0.258	0.278	1.54	2.02	490	245
	MSMD02 □□□ 2N		1/9	132	333	555	3.72	11.3	0.408	0.428	2.52	3	1180	588
	MSMD02 □□□ 3N		1/15	132	200	333	6.27	18.8	0.44	0.46	2.92	3.4	1470	735
	MSMD02 □□□ 4N		1/25	140	120	200	11.1	33.3	0.428	0.448	2.92	3.4	1670	833
	MSMD04 □□□ 1N	400	1/5	340	600	1000	5.39	16.2	0.623	0.643	2.9	3.4	980	490
	MSMD04 □□□ 2N		1/9	332	333	555	9.51	28.5	0.528	0.548	2.9	3.4	1180	588
	MSMD04 □□□ 3N		1/15	332	200	333	15.8	47.5	0.56	0.58	3.3	3.8	1470	735
	MSMD04 □□□ 4N		1/25	332	120	200	26.4	79.2	0.56	0.58	4.4	4.9	2060	1030
	MSMD082 □□ 1N	750	1/5	672	600	900	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSMD082 □□ 2N		1/9	635	333	500	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSMD082 □□ 3N		1/15	635	200	300	30.4	91.2	1.57	1.67	6.1	6.9	1760	882
	MSMD082 □□ 4N		1/25	635	120	180	50.7	152	1.52	1.62	6.1	6.9	2650	1320
MHMD High inertia	MHMD02 □□□ 1N	200	1/5	170	600	1000	2.65	8.04	0.538	0.568	1.68	2.12	490	245
	MHMD02 □□□ 2N		1/9	132	333	555	3.72	11.3	0.688	0.718	2.66	3.1	1180	588
	MHMD02 □□□ 3N		1/15	132	200	333	6.27	18.8	0.72	0.75	3.06	3.5	1470	735
	MHMD02 □□□ 4N		1/25	140	120	200	11.1	33.3	0.708	0.738	3.06	3.5	1670	833
	MHMD04 □□□ 1N	400	1/5	340	600	1000	5.39	16.2	1.033	1.063	3.1	3.5	980	490
	MHMD04 □□□ 2N		1/9	332	333	555	9.51	28.5	0.938	0.968	3.1	3.5	1180	588
	MHMD04 □□□ 3N		1/15	332	200	333	15.8	47.5	0.97	1.0	3.5	3.9	1470	735
	MHMD04 □□□ 4N		1/25	332	120	200	26.4	79.2	0.97	1.0	4.6	5.0	2060	1030
	MHMD082 □□ 1N	750	1/5	672	600	900	10.7	32.1	2.223	2.323	4.6	5.4	980	490
	MHMD082 □□ 2N		1/9	635	333	500	18.2	54.7	2.16	2.26	5.9	6.7	1470	735
	MHMD082 □□ 3N		1/15	635	200	300	30.4	91.2	2.21	2.31	6.3	7.1	1760	882
	MHMD082 □□ 4N		1/25	635	120	180	50.7	152	2.16	2.26	6.3	7.1	2650	1320

* Motor specifications enter to □□□ of the motor model number. Refer to “Model designation”.

Torque Characteristics of Motor

MSME series (100W to 750W)

Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100V	100W	MSME011□□1N	MSME011□□2N	MSME011□□3N	MSME011□□4N
	200W	MSME021□□1N	MSME021□□2N	MSME021□□3N	MSME021□□4N
	400W	MSME041□□1N	MSME041□□2N	MSME041□□3N	MSME041□□4N
200V	100W	MSME012□□1N	MSME012□□2N	MSME012□□3N	MSME012□□4N
	200W	MSME022□□1N	MSME022□□2N	MSME022□□3N	MSME022□□4N
	400W	MSME042□□1N	MSME042□□2N	MSME042□□3N	MSME042□□4N
	750W	MSME082□□1N	MSME082□□2N	MSME082□□3N	MSME082□□4N

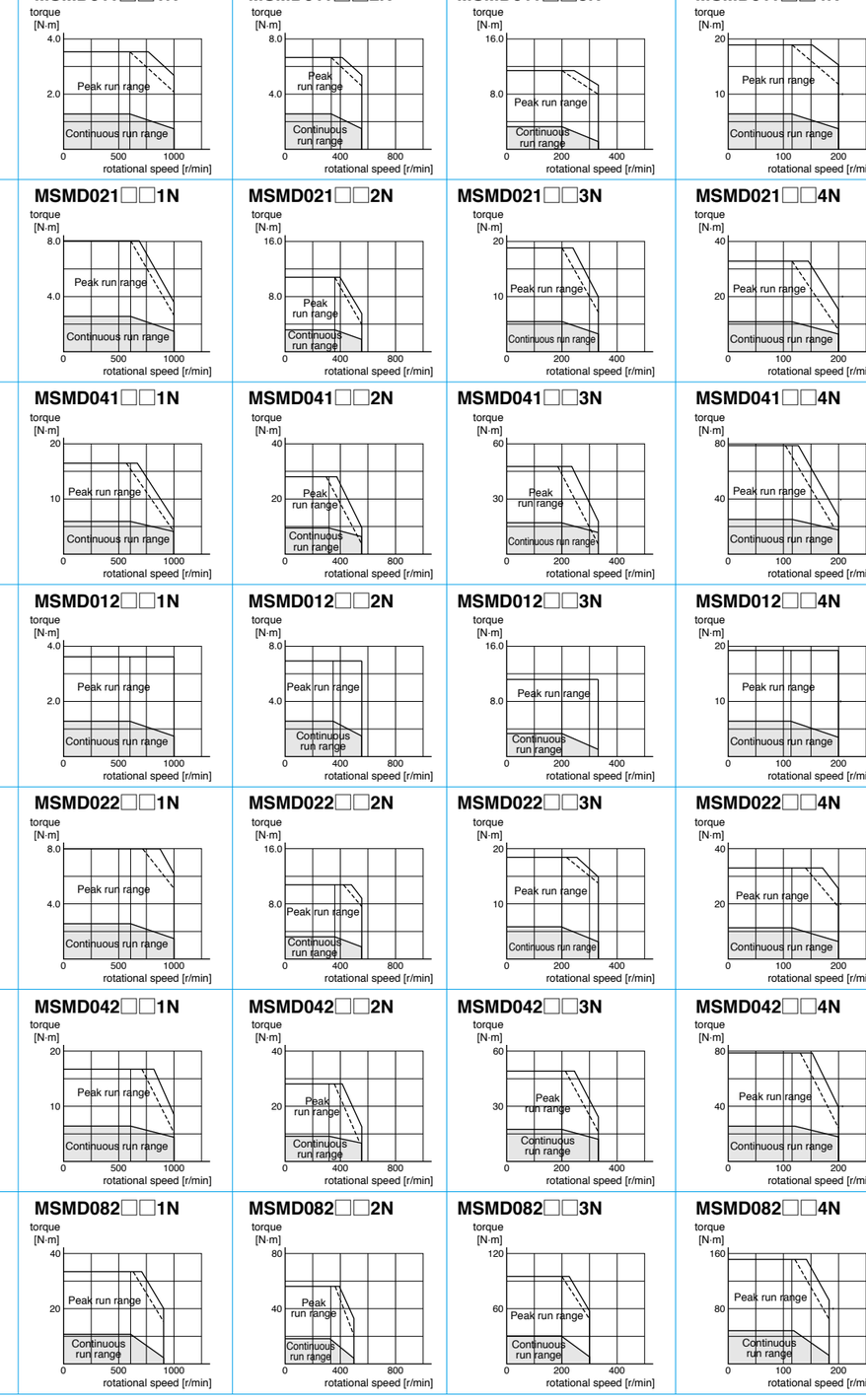


Dotted line represents the torque at 10% less supply voltage.

Torque Characteristics of Motor

MSMD series (100W to 750W)

Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100V	100W	MSMD011□□1N	MSMD011□□2N	MSMD011□□3N	MSMD011□□4N
	200W	MSMD021□□1N	MSMD021□□2N	MSMD021□□3N	MSMD021□□4N
	400W	MSMD041□□1N	MSMD041□□2N	MSMD041□□3N	MSMD041□□4N
200V	100W	MSMD012□□1N	MSMD012□□2N	MSMD012□□3N	MSMD012□□4N
	200W	MSMD022□□1N	MSMD022□□2N	MSMD022□□3N	MSMD022□□4N
	400W	MSMD042□□1N	MSMD042□□2N	MSMD042□□3N	MSMD042□□4N
	750W	MSMD082□□1N	MSMD082□□2N	MSMD082□□3N	MSMD082□□4N

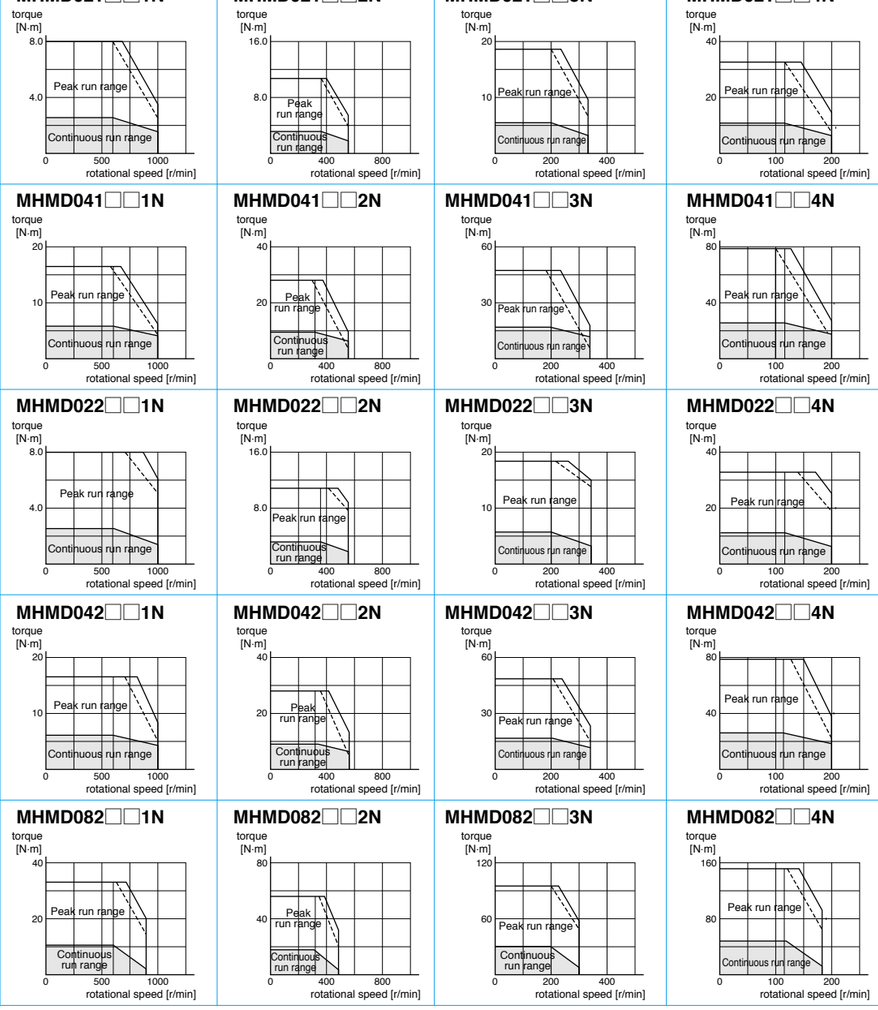


Dotted line represents the torque at 10% less supply voltage.

Torque Characteristics of Motor

MHMD series (200W to 750W)

Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100V	200W	MHMD021□□1N	MHMD021□□2N	MHMD021□□3N	MHMD021□□4N
	400W	MHMD041□□1N	MHMD041□□2N	MHMD041□□3N	MHMD041□□4N
200V	200W	MHMD022□□1N	MHMD022□□2N	MHMD022□□3N	MHMD022□□4N
	400W	MHMD042□□1N	MHMD042□□2N	MHMD042□□3N	MHMD042□□4N
	750W	MHMD082□□1N	MHMD082□□2N	MHMD082□□3N	MHMD082□□4N

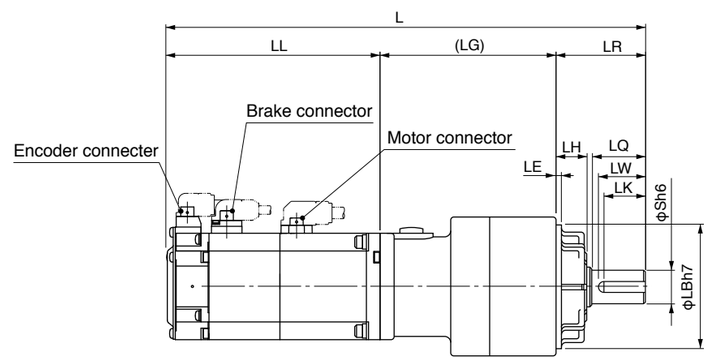


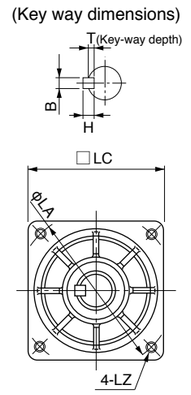
Dotted line represents the torque at 10% less supply voltage.

Dimensions of Motor

MSME series

[Unit: mm]





* The figure represents the dimentions with brake.

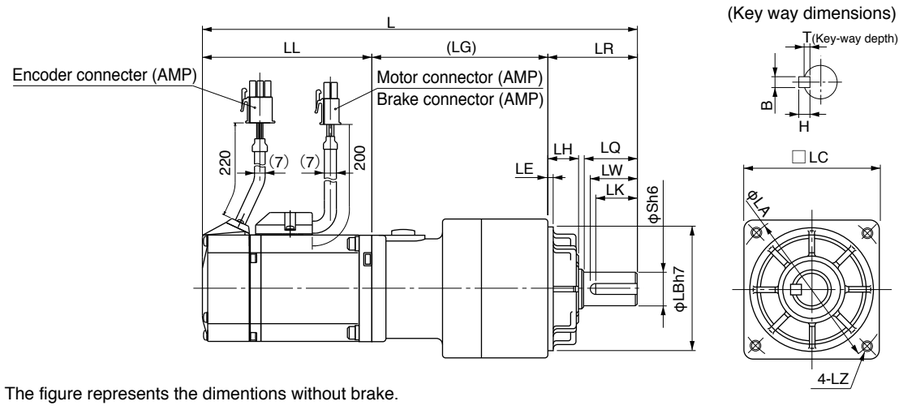
Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LW	(LG)	LE	Key way B×H×LK	T
MSME01□□□1N	100	1/5	191.5	92	32	20	52	50	60	12	10	M5 Depth 12	18	67.5	3	4×4×16	2.5
			221.5	122													
MSME01□□□2N		1/9	191.5	92													
			221.5	122													
MSME01□□□3N		1/15	202	92										78			
			232	122													
MSME01□□□4N		1/25	234	92	50	30	78	70	90	19	17	M6 Depth 20	26	92		6×6×22	3.5
			264	122													
MSME02□□□1N	200	1/5	184	79.5	32	20	52	50	60	12	10	M5 Depth 12	18	72.5		4×4×16	2.5
			220.5	116													
MSME02□□□2N		1/9	219	79.5	50	30	78	70	90	19	17	M6 Depth 20	26	89.5	3	6×6×22	3.5
			255.5	116													
MSME02□□□3N		1/15	229.5	79.5										100			
			266	116													
MSME02□□□4N		1/25	229.5	79.5													
			266	116													
MSME04□□□1N	400	1/5	238.5	99										89.5			
			275	135.5													
MSME04□□□2N		1/9	238.5	99													
			275	135.5													
MSME04□□□3N		1/15	249	99										100			
			285.5	135.5													
MSME04□□□4N		1/25	264	99	61	40	98	90	115	24	18	M8 Depth 20	35	104	5	8×7×30	4
			300.5	135.5													
MSME082□□1N	750	1/5	255.7	112.2	50	30	78	70	90	19	17	M6 Depth 20	26	93.5	3	6×6×22	3.5
			291.7	148.2													
MSME082□□2N		1/9	270.7	112.2	61	40	98	90	115	24	18	M8 Depth 20	35	97.5	5	8×7×30	4
			306.7	148.2													
MSME082□□3N		1/15	283.2	112.2										110			
			319.2	148.2													
MSME082□□4N		1/25	283.2	112.2													
			319.2	148.2													

Upper column: without brake
Lower column: with brake

Dimensions of Motor

MSMD series

[Unit: mm]



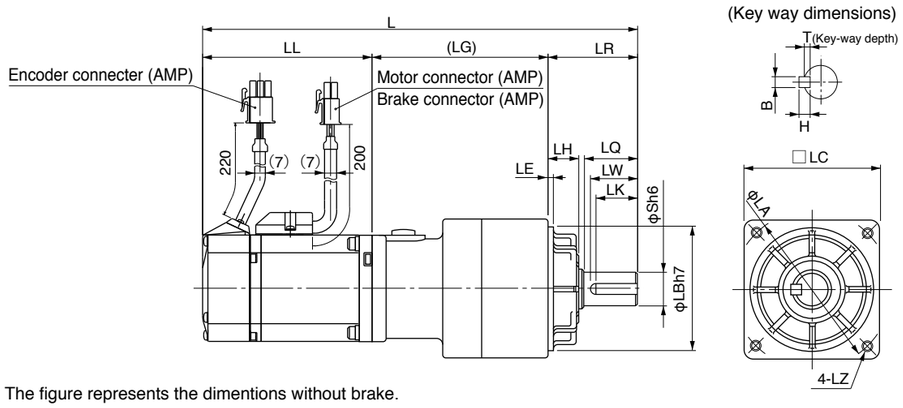
* The figure represents the dimentions without brake.

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LW	(LG)	LE	Key way B×H×LK	T
MSMD01□□□1N	100	1/5	191.5	92	32	20	52	50	60	12	10	M5 Depth 12	18	67.5	3	4×4×16	2.5
			221.5	122													
MSMD01□□□2N		1/9	191.5	92													
			221.5	122													
MSMD01□□□3N		1/15	202	92										78			
			232	122													
MSMD01□□□4N		1/25	234	92	50	30	78	70	90	19	17	M6 Depth 20	26	92		6×6×22	3.5
			264	122													
MSMD02□□□1N	200	1/5	184	79.5	32	20	52	50	60	12	10	M5 Depth 12	18	72.5		4×4×16	2.5
			220.5	116													
MSMD02□□□2N		1/9	219	79.5	50	30	78	70	90	19	17	M6 Depth 20	26	89.5		6×6×22	3.5
			255.5	116													
MSMD02□□□3N		1/15	229.5	79.5										100			
			266	116													
MSMD02□□□4N		1/25	229.5	79.5													
			266	116													
MSMD04□□□1N	400	1/5	238.5	99										89.5			
			275	135.5													
MSMD04□□□2N		1/9	238.5	99													
			275	135.5													
MSMD04□□□3N		1/15	249	99										100			
			285.5	135.5													
MSMD04□□□4N		1/25	264	99	61	40	98	90	115	24	18	M8 Depth 20	35	104	5	8×7×30	4
			300.5	135.5													
MSMD082□□1N	750	1/5	255.7	112.2	50	30	78	70	90	19	17	M6 Depth 20	26	93.5	3	6×6×22	3.5
			292.7	149.2													
MSMD082□□2N		1/9	270.7	112.2	61	40	98	90	115	24	18	M8 Depth 20	35	97.5	5	8×7×30	4
			307.7	149.2													
MSMD082□□3N		1/15	283.2	112.2										110			
			320.2	149.2													
MSMD082□□4N		1/25	283.2	112.2													
			320.2	149.2													

Upper column: without brake
Lower column: with brake

MHMD series

[Unit: mm]



* The figure represents the dimentions without brake.

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LW	(LG)	LE	Key way B×H×LK	T
MHMD02□□□1N	200	1/5	203.5	99	32	20	52	50	60	12	10	M5 Depth 12	18	72.5	3	4×4×16	2.5
			240	135.5													
MHMD02□□□2N		1/9	238.5	99	50	30	78	70	90	19	17	M6 Depth 20	26	89.5		6×6×22	3.5
			275	135.5													
MHMD02□□□3N		1/15	249	99										100			
			285.5	135.5													
MHMD02□□□4N		1/25	249	99													
			285.5	135.5													
MHMD04□□□1N	400	1/5	258	118.5										89.5			
			294.5	155													
MHMD04□□□2N		1/9	258	118.5													
			294.5	155													
MHMD04□□□3N		1/15	268.5	118.5										100			
			305	155													
MHMD04□□□4N		1/25	283.5	118.5	61	40	98	90	115	24	18	M8 Depth 20	35	104	5	8×7×30	4
			320	155													
MHMD082□□1N	750	1/5	270.7	127.2	50	30	78	70	90	19	17	M6 Depth 20	26	93.5	3	6×6×22	3.5
			307.7	164.2													
MHMD082□□2N		1/9	285.7	127.2	61	40	98	90	115	24	18	M8 Depth 20	35	97.5	5	8×7×30	4
			322.7	164.2													
MHMD082□□3N		1/15	298.2	127.2										110			
			335.2	164.2													
MHMD082□□4N		1/25	298.2	127.2													
			335.2	164.2													

Upper column: without brake
Lower column: with brake

EC Directives/Conformity to UL Standards

EC Directives

The EC Directives apply to all such electronic products as those having specific functions and have been exported to EU and directly sold to general consumers. Those products are required to conform to the EU unified standards and to furnish the CE marking on the products.
However, our AC servos meet the relevant EC Directives for Low Voltage Equipment so that the machine or equipment comprising our AC servos can meet EC Directives.

EMC Directives

MINAS Servo System conforms to relevant standard under EMC Directives setting up certain model (condition) with certain locating distance and wiring of the servo motor and the driver. And actual working condition often differs from this model condition especially in wiring and grounding. Therefore, in order for the machine to conform to the EMC Directives, especially for noise emission and noise terminal voltage, it is necessary to examine the machine incorporating our servos.

Conformity to UL Standards

Observe the following conditions of (1) and (2) to make the system conform to UL508C (E164620).

(1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1.
(e.g. Install in the control box with IP54 enclosure.)

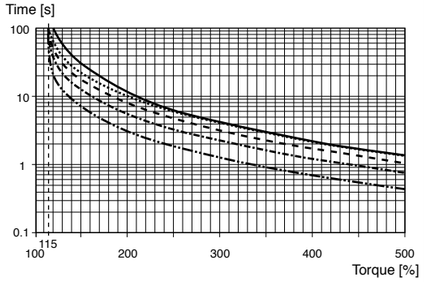
(2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed Ⓤ marked) between the power supply and the noise filter.
For rated current of circuit breaker and fuse, refer to P.14 “Driver and List of Applicable Peripheral Equipments”.
Use a copper cable with temperature rating of 75˚C or higher.

(3) Over-load protection level
Over-load protective function will be activated when the effective current exceeds 115% or more than the rated current based on the time characteristics (see the graph). Confirm that the effective current of the driver does not exceed the rated current.
Set up the peak permissible current with Pr0.13 (Setup of 1st torque limit) and Pr5.22 (Setup 2nd torque limit).

Overload protection time characteristics

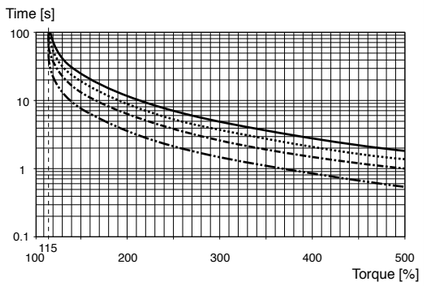
• Motor type: M□ME

MSME 50W
MSME 100W(100V)
MSME 100W(200V)
MSME 200W
MSME 400W
MSME 750W(200V)
MSME 750W(400V), 1.0kW to 5.0kW
MDME 400W to 15.0kW
MHME 1.0kW to 7.5kW
MGME 0.9kW to 6.0kW



• Motor type: M□MD

MSMD 50W
MSMD 100W(100V)
MSMD 100W(200V)
MSMD 200W
MHMD 200W
MSMD 400W
MHMD 400W
MSMD 750W
MHMD 750W



Conformed Standards

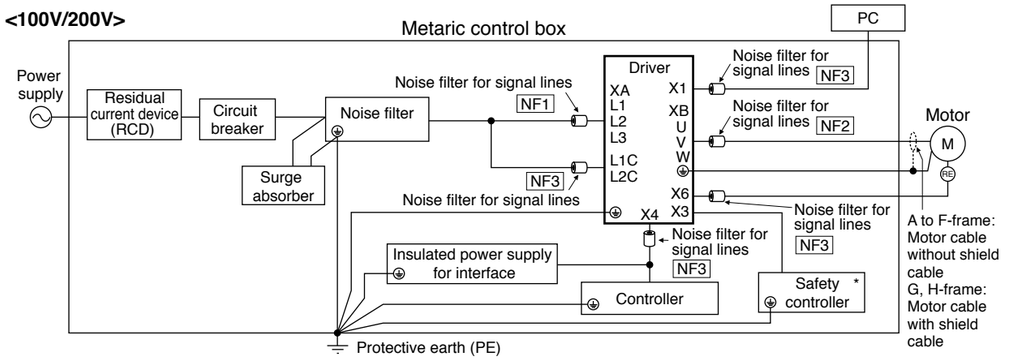
For details, refer to P.9.

Composition of Peripheral Equipments

Installation Environment

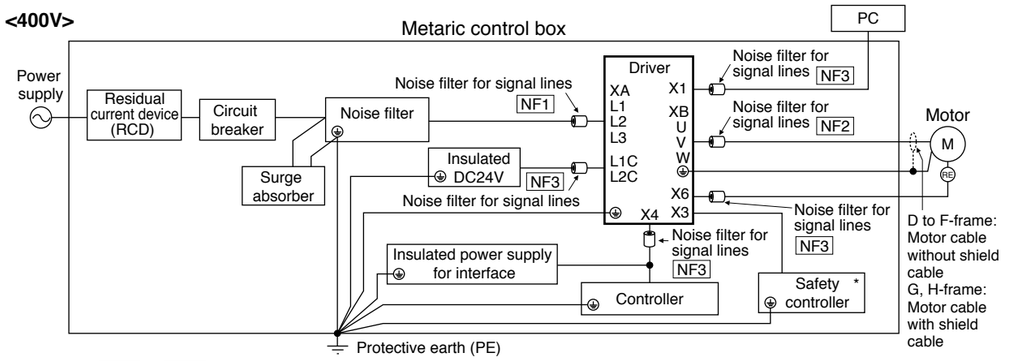
Use the servo driver in the environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)

<100V/200V>



For NF1 to NF3, refer to the Table “Noise Filter for Signal Line” (page 154).
* A5E is not provided with X3 terminal.

<400V>



For NF1 to NF3, refer to the Table “Noise Filter for Signal Line” (page 154).
* A5E is not provided with X3 terminal.

<Caution>

Use options correctly after reading Operating Instructions of the options to better understand the precautions.
Take care not to apply excessive stress to each optional part.

Power Supply

100V type : (A to C-frame)	Single phase, 100V	+ 10% − 15%	to	120V	+ 10% − 15%	50/60Hz
200V type : (A to D-frame)	Single/3-phase, 200V	+ 10% − 15%	to	240V	+ 10% − 15%	50/60Hz
200V type : (E to H-frame)	3-phase, 200V	+ 10% − 15%	to	230V	+ 10% − 15%	50/60Hz
400 V type (Main power supply): (D to H-frame)	3-phase, 380V	+ 10% − 15%	to	480V	+ 10% − 15%	50/60Hz

400 V type (Control power supply): DC 24V ±15%
(D to H-frame)

(1) This product is designed to be used in over-voltage category (installation category) III of EN 61800-5-1:2007.
(2) Use an insulated power supply of DC12 to 24V which has CE marking or complies with EN60950.

Composition of Peripheral Equipments

Circuit Breaker

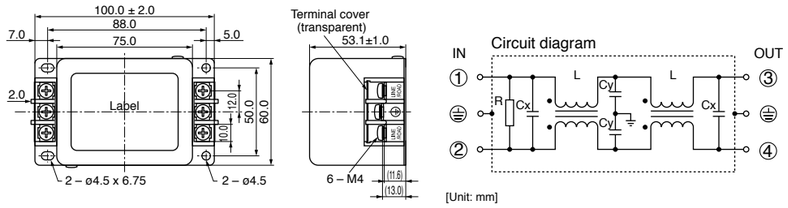
Install a circuit breaker which complies with IEC Standards and UL recognized (Listed and marked) between power supply and noise filter.
The short-circuit protection circuit on the product is not for protection of branch circuit.
The branch circuit should be protected in accordance with NEC and the applicable local regulations in your area.

Noise Filter

When you install one noise filter at the power supply for multi-axes application, contact the manufacturer of the noise filter. If noise margin is required, connect 2 filters in series to emphasize effectiveness.

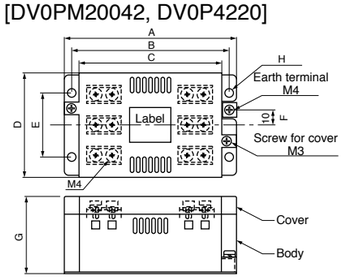
• Options

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P4170	Single phase 100V, 200V	SUP-EK5-ER-6	A and B-frame	Okaya Electric Ind.

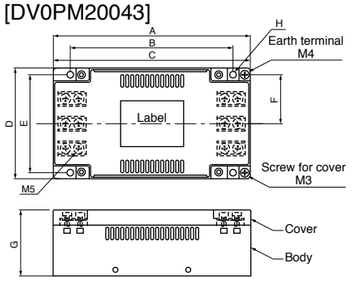


Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0PM20042	3-phase 200V	3SUP-HU10-ER-6	A and B-frame	Okaya Electric Ind.
	Single phase 100V, 200V 3-phase 200V		C-frame	
DV0P4220	Single/3-phase 200V	3SUP-HU30-ER-6	D-frame	
DV0PM20043	3-phase 200V	3SUP-HU50-ER-6	E-frame	

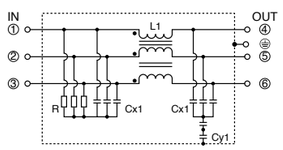
[DV0PM20042, DV0P4220]



[DV0PM20043]



Circuit diagram

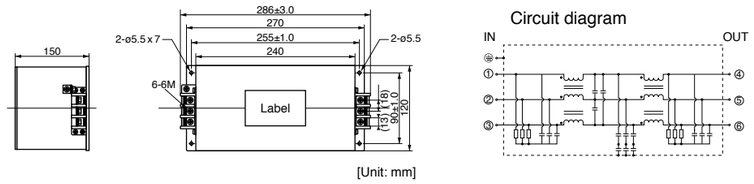


[Size] [Unit: mm]

	A	B	C	D	E	F	G	H
DV0PM20042	115	105	95	70	43	10	52	5.5
DV0P4220	145	135	125	70	50	10	52	5.5
DV0PM20043	165	136	165	90	80	40	54	5.5

For single phase application, use 2 terminals among 3 terminals, leaving the remaining terminal unconnected.

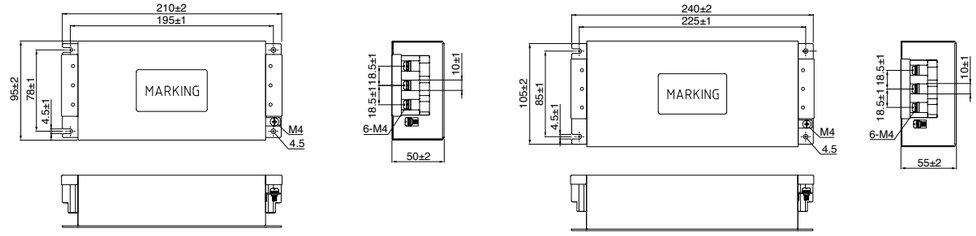
Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P3410	3-phase 200V	3SUP-HL50-ER-6B	F-frame	Okaya Electric Ind.



• Recommended components

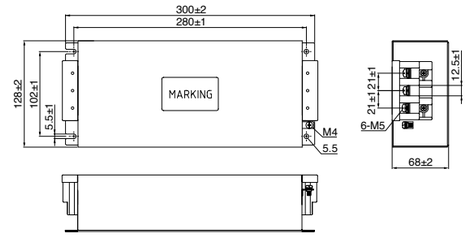
Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
RTHN-5010	3-phase 200V	10	A, B, C-frame	TDK-Lambda Corp.
RTHN-5030		30	D-frame	
RTHN-5050		50	E, F-frame	

[RTHN-5010]



[RTHN-5030]

[RTHN-5050]



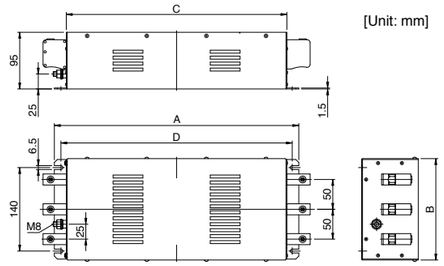
<Remarks>

- Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- For detailed specification of the filter, contact the manufacturer.
- When two or more servo drivers are used with a single noise filter at the common power source, consult with the noise filter manufacturer.

Composition of Peripheral Equipments

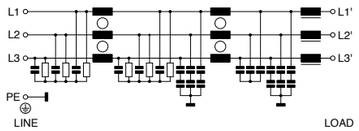
Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
FS5559-60-34	3-phase 200V	60	G-frame	Schaffner EMC, Inc.
FS5559-80-34		80	H-frame	
FN258L-16-07	3-phase 400V	16	D, E-frame	
FN258L-30-07		30	F-frame	
FN258-42-07		42	G, H-frame	
FN258-42-33		42		

[FS5559-60-34, FS5559-80-34]



[Unit: mm]

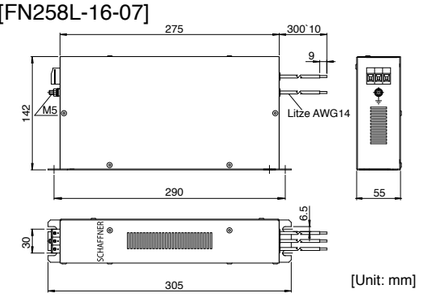
Circuit diagram



[Size]

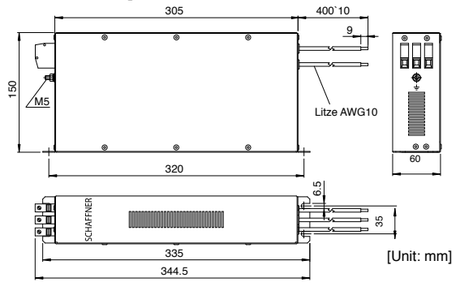
	A	B	C	D
FS5559-60-34	410	170	370	388
FS5559-80-34	460	180	420	438

[FN258L-16-07]



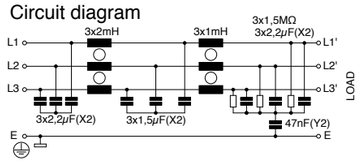
[Unit: mm]

[FN258L-30-07]

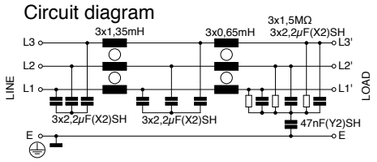


[Unit: mm]

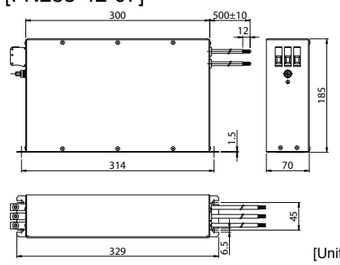
Circuit diagram



Circuit diagram

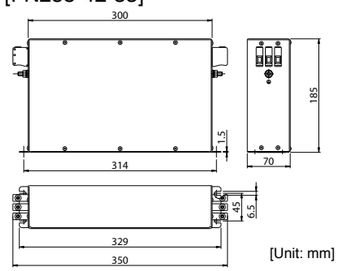


[FN258-42-07]



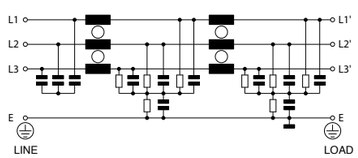
[Unit: mm]

[FN258-42-33]



[Unit: mm]

Circuit diagram



<Remarks>

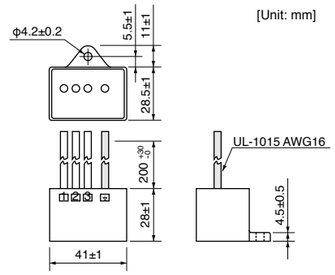
- Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- For detailed specification of the filter, contact the manufacturer.
- When two or more servo drivers are used with a single noise filter at the common power source, consult with the noise filter manufacturer.

Surge Absorber

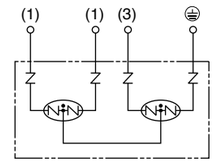
Provide a surge absorber for the primary side of noise filter.

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Manufacturer
DV0P1450	3-phase 200V	R·A·V-781BXZ-4	Okaya Electric Ind.
DV0PM20050	3-phase 400V	R·A·V-801BXZ-4	

[Unit: mm]



Circuit diagram



Option part No.	Voltage specifications for driver	Manufacturer's part No.	Manufacturer
DV0P4190	Single phase 100V, 200V	R·A·V-781BWZ-4	Okaya Electric Ind.

[Unit: mm]

Circuit diagram

Composition of Peripheral Equipments

Noise Filter for Signal Lines

Install noise filters for signal lines to all cables (power cable, motor cable, encoder cable and interface cable)

Symbol*1	Cable Name	100V/200V Amp. frame symbol	400V Amp. frame symbol	Option part No.	Manufacturer's part No.	Manufacturer	Qty.
NF1	Power cable	A, B, C, D	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
		E, F	—	Recommended components	RJ8035	KK-CORP.CO.JP	1
		G, H	G, H	Recommended components	RJ8095	KK-CORP.CO.JP	1
NF2	Motor cable	A, B, C, D, E, F	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
		G, H	G, H	Recommended components	T400-61D	MICROMETALS	1
NF3	• 24V Power cable • Encoder cable • Interface cable • USB cable • Control power cable	Common (to all frames)		DV0P1460	ZCAT3035-1330	TDK Corp.	4

*1 For symbols, refer to the Block Diagram “Installation Environment” (page 149).

<Remarks>

To connect the noise filter to the connector XB connection cable, adjust the sheath length at the tip of the cable, as required.

<Caution>

Fix the signal line noise filter in order to prevent excessive stress to the cables.

<Fig.2: Dimensions>

Part No.	Current	100kHz (μH)	Size [Unit: mm]							
			A	B	C	D1	D2	Core thickness	E	F
RJ8035	35A	9.9±3	170	150	23	80	53	24	R3.5	7
RJ8095	95A	7.9±3	200	180	34	130	107	35	R3.5	7

Fig.1: DV0P1460(Option)

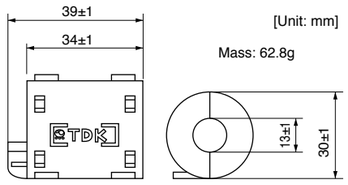


Fig.2: RJ8035, RJ8095 (Recommended components)

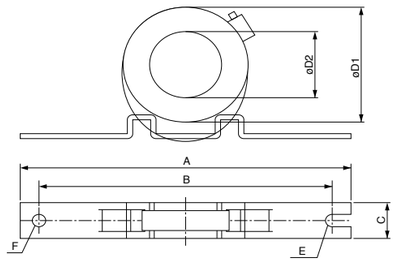
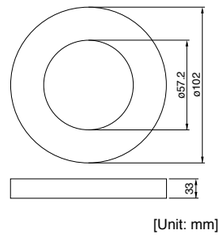


Fig.3: T400-61D (Recommended components)



Residual current device

Install a type B Residual current device (RCD) at primary side of the power supply.

Type B: Residual current device which detects a direct-current ingredient.

Grounding

(1) Connect the protective earth terminal (⏚) of the driver and the protective earth terminal (PE) of the control box without fail to prevent electrical shocks.

(2) Do not make a joint connection to the protective earth terminals (⏚). 2 terminals are provided for protective earth.

<Note>

For driver and applicable peripheral equipments, refer to P.14 "Driver and List of Applicable Peripheral Equipments".

Cable part No. designation

Encoder cable

1	2	3	4	5	6	7	8	9	10	11	12
M	F	E	C	A	0	0	5	0	M	J	D

Type classification

MFECA: Encoder cable

Cable length

0030	3m
0050	5m
0100	10m
0200	20m

Cable type

E	PVC cable with shield by Oki Electric Cable Co., 0.20mm² × 4P(8-wire), 3P(6-wire)
M	Hitachi Cable, Ltd. Highly bendable type
T	Hitachi Cable, Ltd. Standard bendable type

Cable end (Encoder side)

A	Tyco Electronics connector
J	Japan Aviation Electronics Industry, Ltd. connector (Direction of motor shaft)
K	Japan Aviation Electronics Industry, Ltd. connector (Opposite direction of motor shaft)
S	“S” shaped cannonplug
T	Japan Aviation Electronics Industry, Ltd. plug connector

Cable end (Driver side)

D	Connector (Incremental)
E	Connector (Absolute)
M	Connector (MSMD, MHMD)

Motor cable, Brake cable

1	2	3	4	5	6	7	8	9	10	11	12
M	F	M	C	A	0	0	5	2	N	J	D

AC servo motor cable

Type classification

A	Standard
B	Special
⋮	Design order

Cable length

003	3m
005	5m
010	10m
020	20m

Sectional area of cable core

0	0.75mm²
1	1.25mm²
2	2.0mm²
3	3.5mm²

Cable end at driver side

D	Rod terminal
T	Clamp terminal

Cable end at motor side

C	S type cannon plug
E	Tyco Electronics connector
J	Japan Aviation Electronics Industry, Ltd. connector (Direction of motor shaft)
K	Japan Aviation Electronics Industry, Ltd. connector (Opposite direction of motor shaft)

Cable type

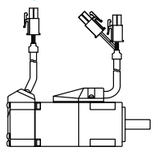
E	ROBOTOP 4-wire by Daiden Co., Ltd.
F	ROBOTOP 6-wire by Daiden Co., Ltd.
G	ROBOTOP 2-wire by Daiden Co., Ltd.
N	4-wire by Hitachi Cable, Ltd. (Highly bendable type)
R	4-wire by Hitachi Cable, Ltd. (Standard bendable type)
P	2-wire by Hitachi Cable, Ltd. (Highly bendable type)
S	2-wire by Hitachi Cable, Ltd. (Standard bendable type)

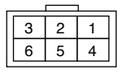
Specifications of Motor connector

- **When the motors of <MSMD, MHMD> are used, they are connected as shown below.**

Connector: Made by Tyco Electronics (The figures below show connectors for the motor.)

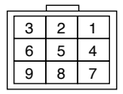
Connector for encoder





172168-1
20-bit Incremental

PIN No.	Application
1	NC
2	PS
3	$\overline{PS}$
4	E5V
5	E0V
6	FG(SHIELD)



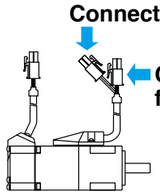
172169-1
17-bit Absolute

PIN No.	Application
1	BAT+
2	BAT–
3	FG(SHIELD)
4	PS
5	$\overline{PS}$
6	NC
7	E5V
8	E0V
9	NC

<Remarks> Do not connect anything to NC.

Connector for brake

Connector for motor



<Connector for motor>

172167-1

PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
4	Ground

<Connector for brake>

172165-1

PIN No.	Application
1	Brake
2	Brake

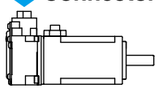
* Electromagnetic brake is a nonpolar device.

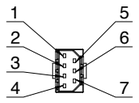
- **When the motors of <MSME (50 W to 750 W (200V))> are used, they are connected as shown below.**

Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

* Do not remove the gasket supplied with the junction cable connector. Securely install the gasket in place. Otherwise, the degree of protection of IP67 will not be guaranteed.

Connector for encoder





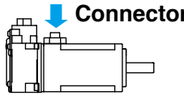
JN6CR07PM2

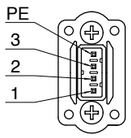
20-bit Incremental PIN No.	Application	17-bit Absolute PIN No.	Application
1	FG(SHIELD)	1	FG(SHIELD)
2	—	2	BAT–
3	E0V	3	E0V
4	$\overline{PS}$	4	$\overline{PS}$
5	—	5	BAT+
6	E5V	6	E5V
7	PS	7	PS

Tightening torque of the screw (M2) 0.19 to 0.21 N·m

* Be sure to use only the screw supplied with the connector, to avoid damage.

Connector for motor





JN8AT04NJ1

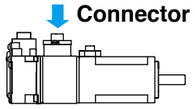
PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
PE	Ground

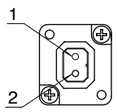
Tightening torque of the screw (M2) 0.085 to 0.095 N·m (screwed to plastic)

* Be sure to use only the screw supplied with the connector, to avoid damage.

[Motor with brake]

Connector for brake





JN4AT02PJM-R

PIN No.	Application
1	Brake
2	Brake

* Electromagnetic brake is a nonpolar device.

Tightening torque of the screw (M2) 0.19 to 0.21 N·m

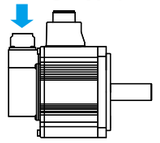
* Be sure to use only the screw supplied with the connector, to avoid damage.

- **When the motors of <MSME (750W(400V), 1.0 kW to 5.0 kW), MDME, MGME, MHME> are used, they are connected as shown below.**

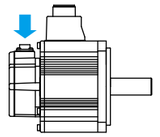
Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

• Connector for encoder

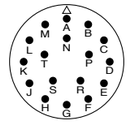
IP65 motor
Connector for encoder
(Large type)



IP67 motor
Connector for encoder
(Small type)



<Encoder connector for IP65 motor>



N/MS3102A20-29P

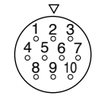
20-bit Incremental

PIN No.	Application
A	NC
B	NC
C	NC
D	NC
E	NC
F	NC
G	E0V
H	E5V
J	FG(SHIELD)
K	PS
L	$\overline{PS}$
M	NC
N	NC
P	NC
R	NC
S	NC
T	NC

17-bit Absolute

PIN No.	Application
A	NC
B	NC
C	NC
D	NC
E	NC
F	NC
G	E0V
H	E5V
J	FG(SHIELD)
K	PS
L	$\overline{PS}$
M	NC
N	NC
P	NC
R	NC
S	BAT–
T	BAT+

<Encoder connector for IP67 motor>



JN2AS10ML3-R

20-bit Incremental

PIN No.	Application
1	E0V
2	NC
3	PS
4	E5V
5	NC
6	NC
7	$\overline{PS}$
8	NC
9	FG(SHIELD)
10	NC

17-bit Absolute

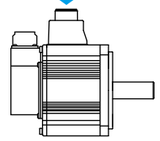
PIN No.	Application
1	E0V
2	NC
3	PS
4	E5V
5	BAT–
6	BAT+
7	$\overline{PS}$
8	NC
9	FG(SHIELD)
10	NC

<Remarks>
Do not connect anything to NC.

• Connector for motor/brake

[0.9kW to 5.0kW]

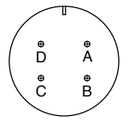
Connector for motor/brake



<with Brake>

* Electromagnetic brake is a nonpolar device.

<without Brake>



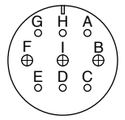
JL04V-2E20-4PE-B-R

- MSME 750W(400V), 1.0kW to 2.0kW
- MDME 400W (400V), 600W (400V), 1.0kW to 2.0kW
- MGME 0.9kW
- MHME 1.0kW to 1.5kW

JL04HV-2E22-22PE-B-R

- MSME 3.0kW to 5.0kW
- MDME 3.0kW to 5.0kW
- MGME 2.0kW to 4.5kW
- MHME 2.0kW to 5.0kW

PIN No.	Application
A	U-phase
B	V-phase
C	W-phase
D	Ground

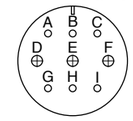


JL04V-2E20-18PE-B-R

[200V]

- MSME 1.0kW to 2.0kW
- MDME 1.0kW to 2.0kW
- MFME* 1.5kW
- MGME 0.9kW
- MHME 1.0kW to 1.5kW

PIN No.	Application
G	Brake
H	Brake
A	NC
F	U-phase
I	V-phase
B	W-phase
E	Ground
D	Ground
C	NC



JL04V-2E24-11PE-B-R

[200V]

- MSME 3.0kW to 5.0kW
- MDME 3.0kW to 5.0kW
- MFME* 2.5kW, 4.5kW
- MGME 2.0kW to 4.5kW
- MHME 2.0kW to 5.0kW

[400V]

- MSME 750W, 1.0kW to 5.0kW
- MDME 400W, 600W, 1.0W to 5.0kW
- MFME* 1.5kW to 4.5kW
- MGME 0.9kW to 4.5kW
- MHME 1.0kW to 5.0kW

PIN No.	Application
A	Brake
B	Brake
C	NC
D	U-phase
E	V-phase
F	W-phase
G	Ground
H	Ground
I	NC

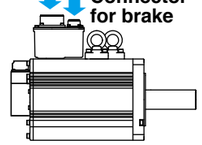
∗ MFME is common to with or without brake.

<Remarks>
Do not connect anything to NC.

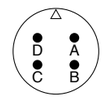
[6.0kW or more]

Connector for motor

Connector for brake



<Motor>

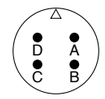


JL04V-2E32-17PE-B-R

- MDME 7.5kW to 15.0kW
- MGME 6.0kW
- MHME 7.5kW

PIN No.	Application
A	U-phase
B	V-phase
C	W-phase
D	Ground

<Brake>



N/MS3102A 14S-2P

- MDME 7.5kW to 15.0kW
- MGME 6.0kW
- MHME 7.5kW

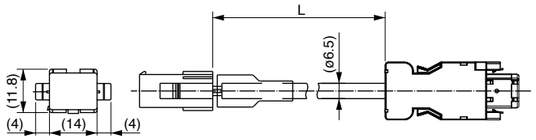
PIN No.	Application
A	Brake
B	Brake
C	NC
D	NC

* Electromagnetic brake is a nonpolar device.

Junction Cable for Encoder

* It doesn't correspond to IP65 and IP67.

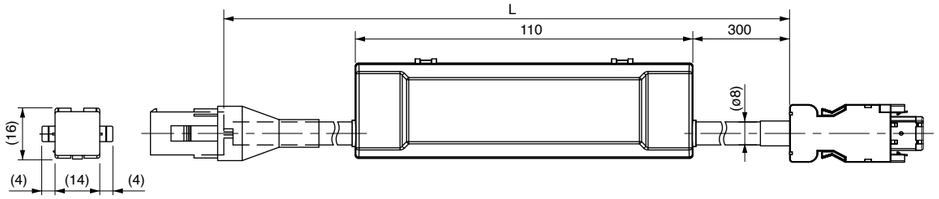
Part No.	MFECA0 * * 0EAM	Compatible motor output	MSMD 50W to 750W, MHMD 200W to 750W
Specifications	For 20-bit incremental encoder (Without battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172160-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20mm²×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

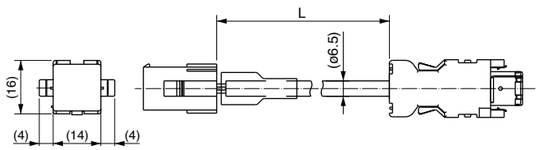
Part No.	MFECA0 * * 0EAE	Compatible motor output	MSMD 50W to 750W, MHMD 200W to 750W
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172161-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20mm²×4P (8-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAE
5	MFECA0050EAE
10	MFECA0100EAE
20	MFECA0200EAE

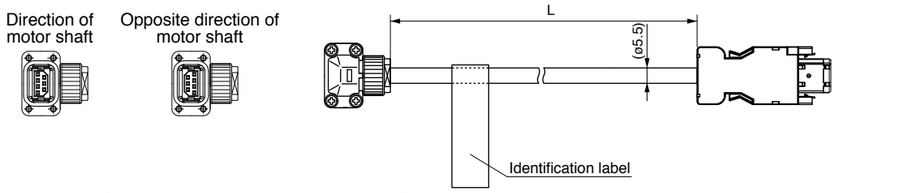
Part No.	MFECA0 * * 0EAD	Compatible motor output	MSMD 50W to 750W, MHMD 200W to 750W
Specifications	For 17-bit incremental encoder (Without battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172161-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20mm²×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAD
5	MFECA0050EAD
10	MFECA0100EAD
20	MFECA0200EAD

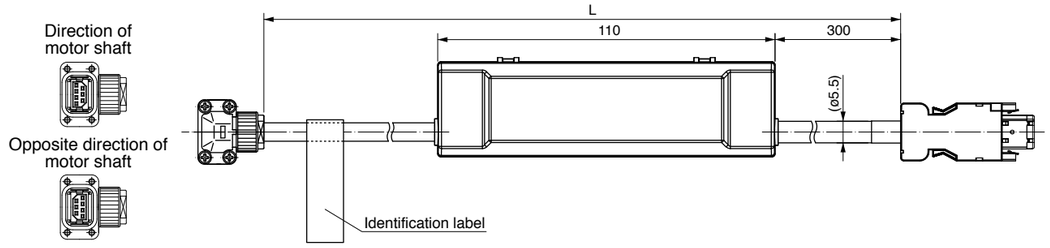
Part No.	MFECA0 * * 0MJD (Highly bendable type, Direction of motor shaft) MFECA0 * * 0MKD (Highly bendable type, Opposite direction of motor shaft) MFECA0 * * 0TJD (Standard bendable type, Direction of motor shaft) MFECA0 * * 0TKD (Standard bendable type, Opposite direction of motor shaft)	Compatible motor output	MSME 50W to 750W(200V)
Specifications	For 20-bit incremental encoder (Without battery box) * 17bit-use is possible		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN6FR07SM1	Japan Aviation Electronics Ind.
Connector pin	LY10-C1-A1-10000	
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

L (m)	Part No.(ex.)
3	MFECA0030MJD
5	MFECA0050MJD
10	MFECA0100MJD
20	MFECA0200MJD

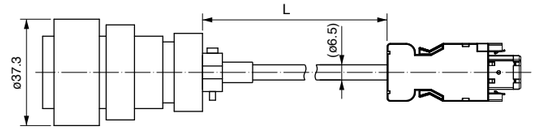
Part No.	MFECA0 * * 0MJE (Highly bendable type, Direction of motor shaft) MFECA0 * * 0MKE (Highly bendable type, Opposite direction of motor shaft) MFECA0 * * 0TJE (Standard bendable type, Direction of motor shaft) MFECA0 * * 0TKE (Standard bendable type, Opposite direction of motor shaft)	Compatible motor output	MSME 50W to 750W(200V)
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN6FR07SM1	Japan Aviation Electronics Ind.
Connector pin	LY10-C1-A1-10000	
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

L (m)	Part No.(ex.)
3	MFECA0030MJE
5	MFECA0050MJE
10	MFECA0100MJE
20	MFECA0200MJE

Part No.	MFECA0 * * 0ESD	Compatible motor output	MDME 400W(400V), MDME 600W(400V) MSME 750W(400V) 0.9kW to 15.0kW (IP65 Motor)
Specifications	For 20-bit incremental encoder (Without battery box)		



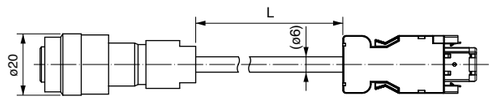
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation Electronics Ind.
Cable clamp	N/MS3057-12A	
Cable	0.2mm² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ESD
5	MFECA0050ESD
10	MFECA0100ESD
20	MFECA0200ESD

Junction Cable for Encoder

* It doesn't correspond to IP65 and IP67.

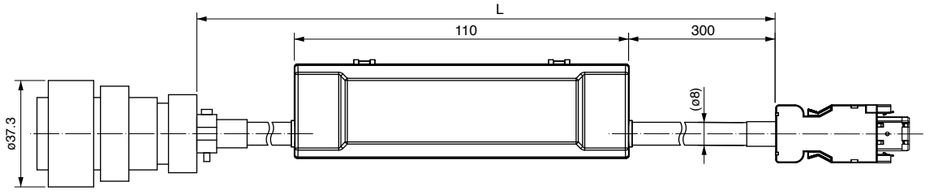
Part No.	MFECA0 * * 0ETD	Compatible motor output	MDME 400W(400V), MDME 600W(400V), MSME 750W(400V) 0.9kW to 15.0kW (IP67 Motor)
Specifications	For 20-bit incremental encoder (Without battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation Electronics Ind.
Connector pin	JN1-22-22S-PKG100	
Cable	0.2mm^2×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ETD
5	MFECA0050ETD
10	MFECA0100ETD
20	MFECA0200ETD

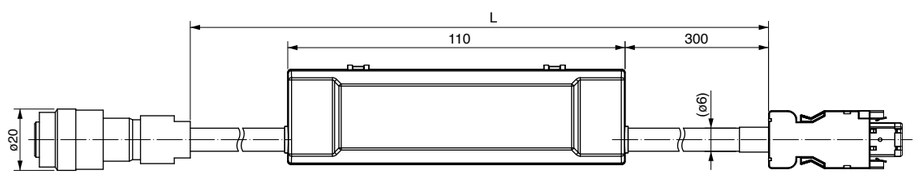
Part No.	MFECA0 * * 0ESE	Compatible motor output	0.9kW to 5.0kW (IP65 Motor)
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation Electronics Ind.
Connector pin	JN1-22-22S-PKG100	
Cable	0.2mm^2 ×4P (8-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ESE
5	MFECA0050ESE
10	MFECA0100ESE
20	MFECA0200ESE

Part No.	MFECA0 * * 0ETE	Compatible motor output	MDME 400W(400V), MDME 600W(400V) MSME 750W(400V) 0.9kW to 15.0kW (IP67 Motor)
Specifications	For 17-bit absolute encoder (With battery box)		



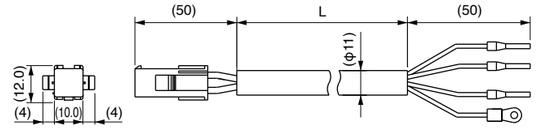
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation Electronics Ind.
Connector pin	JN1-22-22S-PKG100	
Cable	0.2mm^2 ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ETE
5	MFECA0050ETE
10	MFECA0100ETE
20	MFECA0200ETE

Junction Cable for Motor (Without brake)

* It doesn't correspond to IP65 and IP67.

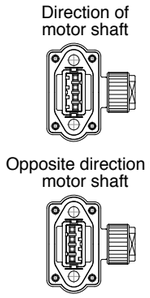
Part No.	MFMCA0 * * 0EED	Applicable model	MSMD 50W to 750W, MHMD 200W to 750W

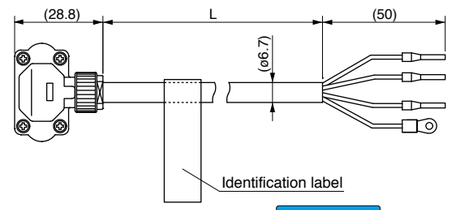


Title	Part No.	Manufacturer
Connector	172159-1	Tyco Electronics
Connector pin	170366-1	
Rod terminal	AI0.75-8GY	Phoenix Contact
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0030EED
5	MFMCA0050EED
10	MFMCA0100EED
20	MFMCA0200EED

Part No.	MFMCA0 * * 0NJD (Highly bendable type, Direction of motor shaft)	Applicable model	MSME 50W to 750W(200V)
	MFMCA0 * * 0NKD (Highly bendable type, Opposite direction of motor shaft)		MSME 200W to 750W(200V)
	MFMCA0 * * 0RJD (Standard bendable type, Direction of motor shaft)		MSME 50W to 750W(200V)
	MFMCA0 * * 0RKD (Standard bendable type, Opposite direction of motor shaft)		MSME 200W to 750W(200V)



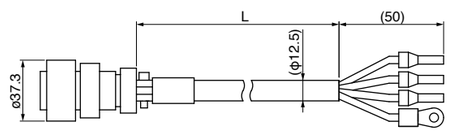


Caution Motor cable for opposite direction of motor shaft cannot be used with a motor 50W and 100W.

Title	Part No.	Manufacturer
Connector	JN8FT04SJ1	Japan Aviation Electronics Ind.
Connector pin	ST-TMH-S-C1B-3500	
Rod terminal	AI0.75-8GY	Phoenix Contact
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG18 4-wire (ø6.7)	Hitachi Cable, Ltd.

L (m)	Part No.(ex.)
3	MFMCA0030NJD
5	MFMCA0050NJD
10	MFMCA0100NJD
20	MFMCA0200NJD

Part No.	MFMCA0 * * 2ECD	Applicable model	MFME 1.5kW(200V)



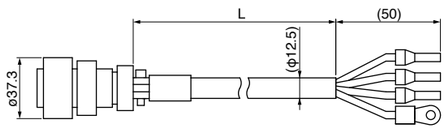
Title	Part No.	Manufacturer
Connector	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0032ECD
5	MFMCA0052ECD
10	MFMCA0102ECD
20	MFMCA0202ECD

Junction Cable for Motor (Without brake)

* It doesn't correspond to IP65 and IP67.

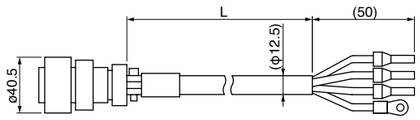
Part No.	MFMCD0 * * 2ECD	Applicable model	MSME 750W(400V), 1.0kW to 2.0kW, MDME 400W(400V), 600W(400V), 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW (All model 200V and 400V commonness)



Title	Part No.	Manufacturer
Connector	JL04V-6A20-4SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCD0032ECD
5	MFMCD0052ECD
10	MFMCD0102ECD
20	MFMCD0202ECD

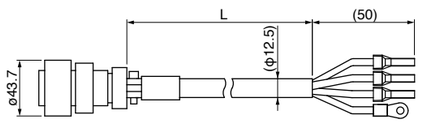
Part No.	MFMCE0 * * 2ECD	Applicable model	MHME 2.0kW (200V and 400V commonness)



Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCE0032ECD
5	MFMCE0052ECD
10	MFMCE0102ECD
20	MFMCE0202ECD

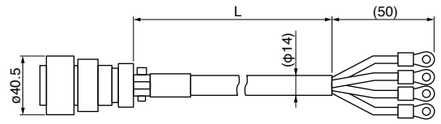
Part No.	MFMCF0 * * 2ECD	Applicable model	MFME 1.5kW(400V), 2.5kW(200V and 400V commonness)



Title	Part No.	Manufacturer
Connector	JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2428CK(17)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCF0032ECD
5	MFMCF0052ECD
10	MFMCF0102ECD
20	MFMCF0202ECD

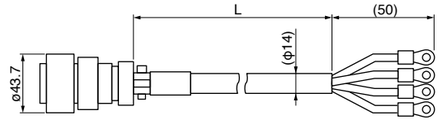
Part No.	MFMCA0 * * 3ECT	Applicable model	MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MHME 3.0kW to 5.0kW, MGME 2.0kW to 4.5kW (All model 200V and 400V commonness)



Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 3.5mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0033ECT
5	MFMCA0053ECT
10	MFMCA0103ECT
20	MFMCA0203ECT

Part No.	MFMCD0 * * 3ECT	Applicable model	MFME 4.5kW (200V and 400V commonness)



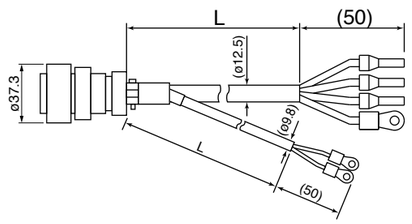
Title	Part No.	Manufacturer
Connector	JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2428CK(17)-R	
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 3.5mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCD0033ECT
5	MFMCD0053ECT
10	MFMCD0103ECT
20	MFMCD0203ECT

Junction Cable for Motor (With brake)

* It doesn't correspond to IP65 and IP67.

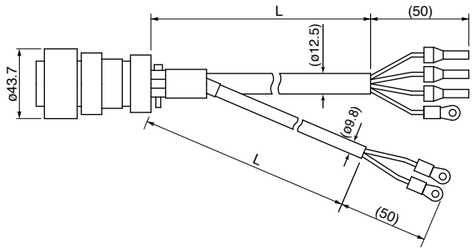
Part No.	MFMCA0 * * 2FCD	Applicable model	MSME 1.0kW to 2.0kW(200V), MDME 1.0kW to 2.0kW(200V), MFME 1.5kW(200V), MHME 1.0kW(200V) to 1.5kW(200V) MGME 0.9kW(200V)



Title		Part No.	Manufacturer
Connector		JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp		JL04-2022CK(14)-R	
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	Earth	N2-M4	J.S.T Mfg. Co., Ltd.
	Brake	N1.25-M4	
Cable		ROBO-TOP 600V 0.75mm^2 and ROBO-TOP 600V 2.0mm^2 6-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0032FCD
5	MFMCA0052FCD
10	MFMCA0102FCD
20	MFMCA0202FCD

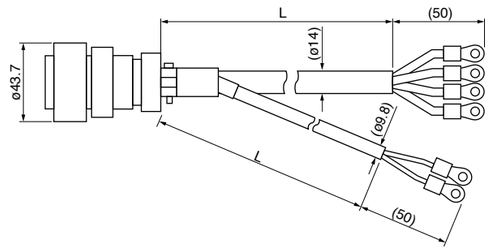
Part No.	MFMCE0 * * 2FCD	Applicable model	MSME 750W(400V) to 2.0kW(400V), MDME 400W(400V) to 2.0kW(400V), MFME 1.5kW(400V), 2.5kW(200V/400V), MGME 0.9kW(400V) MHME 1.0kW(400V), 1.5kW(400V), 2.0kW(200V/400V)



Title		Part No.	Manufacturer
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp		JL04-2428CK(17)-R	
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	Earth	N2-M4	J.S.T Mfg. Co., Ltd.
	Brake	N1.25-M4	
Cable		ROBO-TOP 600V 0.75mm^2 and ROBO-TOP 600V 2.0mm^2 6-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCE0032FCD
5	MFMCE0052FCD
10	MFMCE0102FCD
20	MFMCE0202FCD

Part No.	MFMCA0 * * 3FCT	Applicable model	MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MFME 4.5kW, MHME 3.0kW to 5.0kW MGME 2.0kW to 4.5kW (All model 200V and 400V commonness)



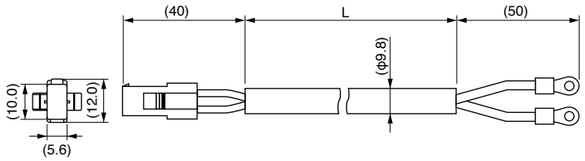
Title		Part No.	Manufacturer
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp		JL04-2428CK(17)-R	
Nylon insulated round terminal	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.
	Brake	N1.25-M4	
Cable		ROBO-TOP 600V 0.75mm^2 and ROBO-TOP 600V 3.5mm^2 6-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0033FCT
5	MFMCA0053FCT
10	MFMCA0103FCT
20	MFMCA0203FCT

Junction Cable for Brake

* It doesn't correspond to IP65 and IP67.

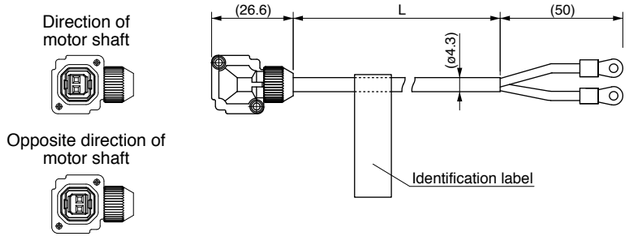
Part No.	MFMCB0 * * 0GET	Applicable model	MSMD 50W to 750W, MHMD 200W to 750W



Title	Part No.	Manufacturer
Connector	172157-1	Tyco Electronics
Connector pin	170366-1, 170362-1	
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm^2 2-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCB0030GET
5	MFMCB0050GET
10	MFMCB0100GET
20	MFMCB0200GET

Part No.		Applicable model	MSME 50W to 750W(200V)
	MFMCB0 * * 0PJT (Highly bendable type, Direction of motor shaft)		
	MFMCB0 * * 0PKT (Highly bendable type, Opposite direction of motor shaft)		
	MFMCB0 * * 0SJT (Standard bendable type, Direction of motor shaft)		
	MFMCB0 * * 0SKT (Standard bendable type, Opposite direction of motor shaft)		



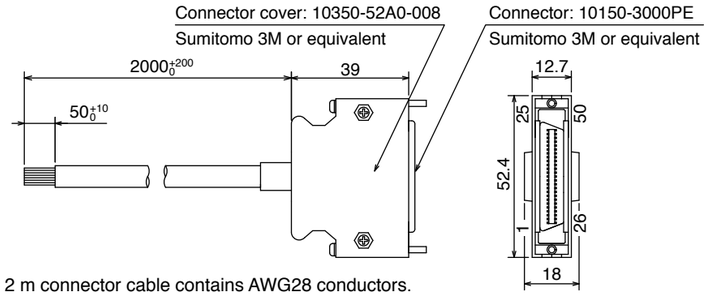
Title	Part No.	Manufacturer
Connector	JN4FT02SJMR	Japan Aviation Electronics Ind.
Connector pin	ST-TMH-S-C1B-3500	
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG22 2-wire (ø4.3)	Hitachi Cable, Ltd.

L (m)	Part No.
3	MFMCB0030PJT
5	MFMCB0050PJT
10	MFMCB0100PJT
20	MFMCB0200PJT

Cable for Interface

Cable for Interface

Part No.	DV0P4360



This 2 m connector cable contains AWG28 conductors.

• Table for wiring

Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color
1	Orange (Red1)	11	Orange (Black2)	21	Orange (Red3)	31	Orange (Red4)	41	Orange (Red5)
2	Orange (Black1)	12	Yellow (Black1)	22	Orange (Black3)	32	Orange (Black4)	42	Orange (Black5)
3	Gray (Red1)	13	Gray (Red2)	23	Gray (Red3)	33	Gray (Red4)	43	Gray (Red5)
4	Gray (Black1)	14	Gray (Black2)	24	Gray (Black3)	34	White (Red4)	44	White (Red5)
5	White (Red1)	15	White (Red2)	25	White (Red3)	35	White (Black4)	45	White (Black5)
6	White (Black1)	16	Yellow (Red2)	26	White (Black3)	36	Yellow (Red4)	46	Yellow (Red5)
7	Yellow (Red1)	17	Yel (Blk2)/Pink (Blk2)	27	Yellow (Red3)	37	Yellow (Black4)	47	Yellow (Black5)
8	Pink (Red1)	18	Pink (Red2)	28	Yellow (Black3)	38	Pink (Red4)	48	Pink (Red5)
9	Pink (Black1)	19	White (Black2)	29	Pink (Red3)	39	Pink (Black4)	49	Pink (Black5)
10	Orange (Red2)	20	–	30	Pink (Black3)	40	Gray (Black4)	50	Gray (Black5)

<Remarks>
Color designation of the cable e.g.) Pin-1 Cable color : Orange (Red1) : One red dot on the cable
The shield of this cable is connected to the connector shell but not to the terminal.

Interface conversion cable

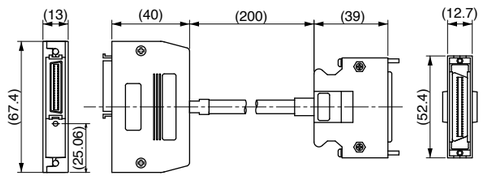
Part No.	DV0P4120, 4121, 4130, 4131, 4132

Interface cables for old product (XX series or V series) can be connected to the current product by using the connector conversion cable shown below.

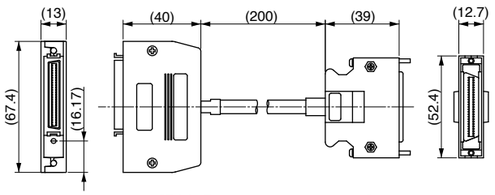
DV0P4120	MINAS XX → A5 series (A4, A series) for position control/ velocity control
DV0P4121	MINAS XX → A5 series (A4, A series) for torque control
DV0P4130	MINAS V → A5 series (A4, A series) for position control
DV0P4131	MINAS V → A5 series (A4, A series) for velocity control
DV0P4132	MINAS V → A5 series (A4, A series) for torque control

* For details of wiring, contact our sales department.

Converts 36-pin configuration to 50-pin.



[DV0P4120, 4121]



[DV0P4130, 4131, 4132]

Connector Kit

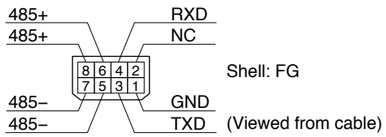
Connector Kit for Communication Cable (for RS485, RS232) (Excluding A5E Series)

Part No.	DV0PM20024

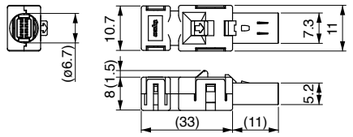
• **Components**

Title	Part No.	Manufacturer	Note
Connector	2040008-1	Tyco Electronics	For Connector X2 (8-pins)

• Pin disposition of connector, connector X2



• Dimensions



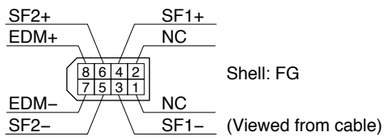
Connector Kit for Safety (Excluding A5E Series)

Part No.	DV0PM20025

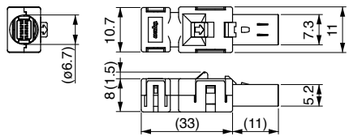
• **Components**

Title	Part No.	Manufacturer	Note
Connector	2013595-1	Tyco Electronics	For Connector X3 (8-pins)

• Pin disposition of connector, connector X3



• Dimensions



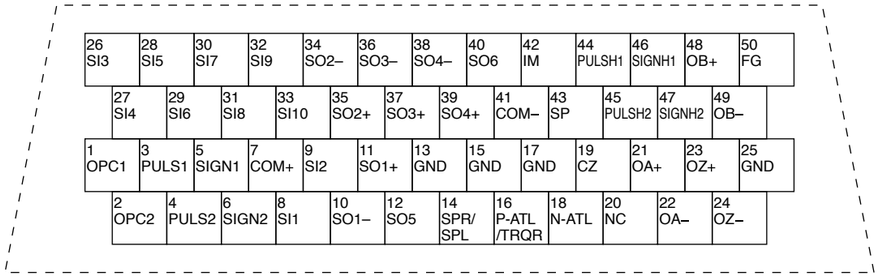
Connector Kit for Interface

Part No.	DV0P4350

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	10150-3000PE	1	Sumitomo 3M (or equivalent)	For Connector X4 (50-pins)
Connector cover	10350-52A0-008	1		

• Pin disposition (50 pins) (viewed from the soldering side)



1) Check the stamped pin-No. on the connector body while making a wiring.
2) For the function of each signal title or its symbol, refer to the operating manual.
3) Do not connect anything to NC pins in the above table.

<Remarks>
• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.183 "List of Peripheral Equipments".

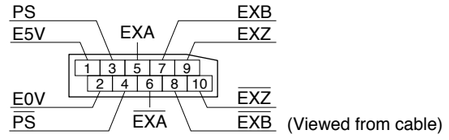
Connector Kit for External Scale (Excluding A5E Series)

Part No.	DV0PM20026

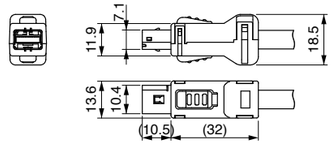
• **Components**

Title	Part No.	Manufacturer	Note
Connector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5 (10-pins)

• Pin disposition of connector, connector X5



• Dimensions



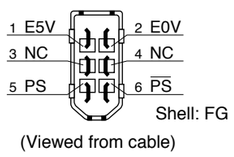
Connector Kit for Encoder

Part No.	DV0PM20010

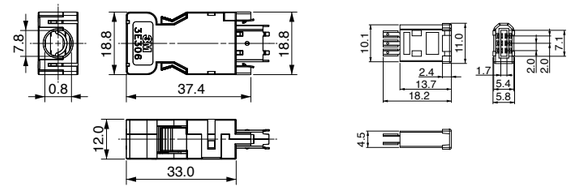
• **Components**

Title	Part No.	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)	For Connector X6
Shell kit	3E306-3200-008		

• Pin disposition of connector, connector X6



• Dimensions



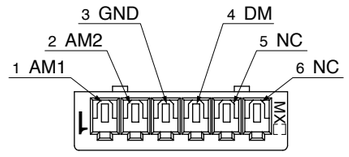
Connector Kit for Analog Monitor Signal

Part No.	DV0PM20031

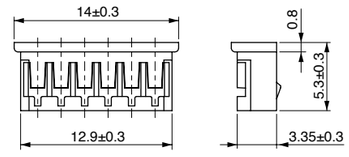
• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	510040600	1	Molex Inc	For Connector X7 (6-pins)
Connector pin	500118100	6		

• Pin disposition of connector, connector X7

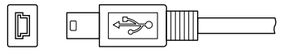


• Dimensions



<Remarks>
Connector X1: use with commercially available cable.

• Configuration of connector X1: USB mini-B



Connector Kit for Power Supply Input

Part No. **DV0PM20032** (For A to C-frame 100V, A to D-frame 200V: Single row type)

• **Components**

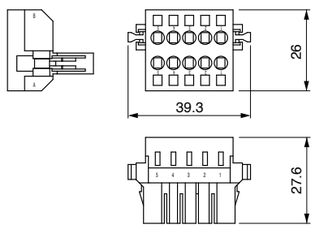
Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT	2		

Part No. **DV0PM20033** (For A to D-frame 200V: Double row type)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-C	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT	2		

• Dimensions



Part No. **DV0PM20044** (For E-frame 200V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Part No. **DV0PM20051** (For D-frame 400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAYGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Part No. **DV0PM20052** (For E-frame 400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAYGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Connector Kit for Control Power Supply Input

Part No. **DV0PM20053** (For D, E-frame 400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	02MJFAT-SAGF	1	J.S.T Mfg. Co., Ltd.	For Connector XD
Handle lever	MJFAT-0T	1		

Connector Kit for Regenerative Resistor Connection (E-frame)

Part No. **DV0PM20045** (For E-frame 200V/400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	04JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XC * Jumper wire is included.
Handle lever	J-FAT-OT-L	2		

Part No. **DV0PM20055** (For D-frame 400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	04JFAT-SAXGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XC
Handle lever	J-FAT-OT-L	2		

Connector Kit for Motor Connection (Driver side)

Part No. **DV0PM20034** (For A to C-frame 100V, A to D-frame 200V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	06JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XB * Jumper wire is included.
Handle lever	J-FAT-OT	2		

Part No. **DV0PM20046** (For E-frame 200V/400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Handle lever	J-FAT-OT-L	2		

Part No. **DV0PM20054** (For D-frame 400V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Handle lever	J-FAT-OT-L	2		

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

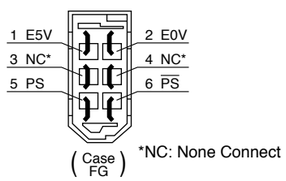
Connector Kit for Motor/Encoder Connection

Part No.	DV0P4290	Applicable model	MSMD 50W to 750W, MHMD 200W to 750W (absolute encoder type)

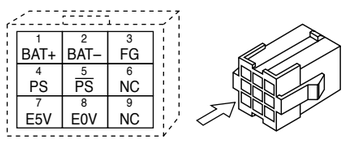
• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Connector	172161-1	1	Tyco Electronics	For Encoder cable (9-pins)
Connector pin	170365-1	9		
Connector	172159-1	1	Tyco Electronics	For Motor cable (4-pins)
Connector pin	170366-1	4		

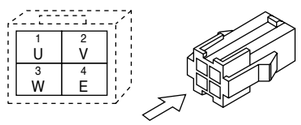
• Pin disposition of connector, connector X6



• Pin disposition of connector for encoder cable



• Pin disposition of connector for motor cable



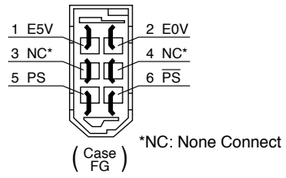
* When you connect the battery for absolute encoder, refer to P.177, "When you make your own cable for 17-bit absolute encoder"

Part No.	DV0P4380	Applicable model	MSMD 50W to 750W, MHMD 200W to 750W (incremental encoder type)

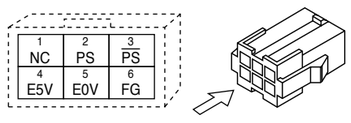
• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Connector	172160-1	1	Tyco Electronics	For Encoder cable (6-pins)
Connector pin	170365-1	6		
Connector	172159-1	1	Tyco Electronics	For Motor cable (4-pins)
Connector pin	170366-1	4		

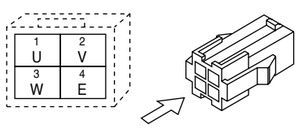
• Pin disposition of connector, connector X6



• Pin disposition of connector for encoder cable



• Pin disposition of connector for motor cable

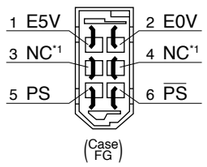


Part No.	DV0PM20035	Applicable model	MSME 50W to 400W(100V), 50W to 750W(200V)

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN6FR07SM1	1	Japan Aviation Electronics Ind.	For Encoder cable (7-pins)
Socket contact	LY10-C1-A1-10000	7		
Motor connector	JN8FT04SJ1	1	Japan Aviation Electronics Ind.	For Motor cable (4-pins)
Socket contact	ST-TMH-S-C1B-3500	4		

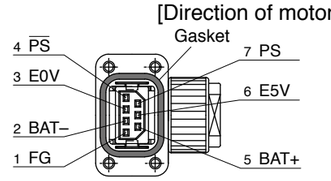
• Pin disposition of connector, connector X6



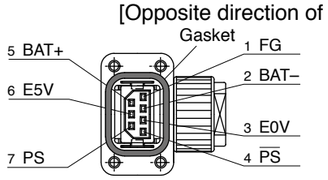
*1 NC: None Connect

• Pin disposition of connector for encoder cable

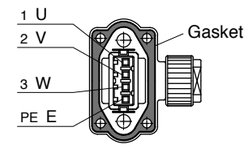
[Direction of motor shaft]

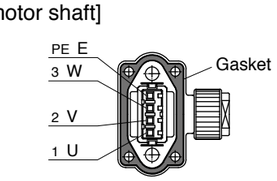


[Opposite direction of motor shaft]



• Pin disposition of connector for motor cable





* Pins 2 and 5 are left unused (NC) with an incremental encoder.

Remarks Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Part No.	DV0PM20036	Applicable model	<IP67 motor> MSME 750W (400V), 1.0kW to 2.0kW, MDME 400W (400V), 600W (400V), 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW (All model 200V and 400V commonness)	Without brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A-20-4SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1		

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.183 "List of Peripheral Equipments".

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	DV0P4310	Applicable model	<IP65 motor> MSME 1.0kW to 2.0kW, MDME 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW	Without brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation Electronics Ind.	For Encoder cable
Cable clamp	N/MS3057-12A	1		
Motor connector	N/MS3106B20-4S	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	N/MS3057-12A	1		

Part No.	DV0PM20037	Applicable model	<IP67 motor> MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MHME 2.0kW to 5.0kW, MGME 2.0kW to 4.5kW (All model 200V and 400V commonness)	Without brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A22-22SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1		

Part No.	DV0P4320	Applicable model	<IP65 motor> MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MHME 2.0kW to 5.0kW, MGME 2.0kW to 4.5kW	Without brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation Electronics Ind.	For Encoder cable
Cable clamp	N/MS3057-12A	1		
Motor connector	N/MS3106B22-22S	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	N/MS3057-12A	1		

Part No.	DV0PM20038	Applicable model	<IP67 motor> MSME 1.0kW to 2.0kW, MDME 1.0kW to 2.0kW MFME 1.5kW (Common to with/ without brake), MHME 1.0kW to 1.5kW, MGME 0.9kW (All model 200V)	With brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A20-18SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1		

Part No.	DV0P4330	Applicable model	<IP65 motor> MSME 1.0kW to 2.0kW, MDME 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW	With brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation Electronics Ind.	For Encoder cable
Cable clamp	N/MS3057-12A	1		
Motor connector	N/MS3106B20-18S	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	N/MS3057-12A	1		

Part No.	DV0PM20039	Applicable model	<IP67 motor> (200V) MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MFME 2.5kW to 4.5kW (Common to with/ without brake), MHME 2.0kW to 5.0kW, MGME 2.0kW to 4.5kW (400V) MSME 750W to 5.0kW, MDME 400W to 5.0kW MFME 1.5kW to 4.5kW (Common to with/ without brake), MHME 1.0kW to 5.0kW, MGME 0.9kW to 4.5kW	With brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A24-11SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-2428CK(17)-R	1		

Part No.	DV0P4340	Applicable model	<IP65 motor> MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MHME 2.0kW to 5.0kW, MGME 2.0kW to 4.5kW	With brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation Electronics Ind.	For Encoder cable
Cable clamp	N/MS3057-12A	1		
Motor connector	N/MS3106B24-11S	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	N/MS3057-16A	1		

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.183 "List of Peripheral Equipments".

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	DV0PM20056	Applicable model	<IP67 motor> MDME 7.5kW to 15.0kW MGME 6.0kW, MHME 7.5kW	Without brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-32CK(24)-R *	1		

* Cable cover size: Φ22 to Φ25. Cable core material is not specified. The user can select the cable compatible with the connector to be used.

Part No.	DV0PM20057	Applicable model	<IP67 motor> MDME 7.5kW to 15.0kW MGME 6.0kW, MHME 7.5kW	With brake

• **Components**

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation Electronics Ind.	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5		
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation Electronics Ind.	For Motor cable
Cable clamp	JL04-32CK(24)-R *	1		
Brake connector	N/MS3106B14S-2S	1	Japan Aviation Electronics Ind.	For Brake cable
Cable clamp	N/MS3057-6A	1		

* Cable cover size: Φ22 to Φ25. Cable core material is not specified. The user can select the cable compatible with the connector to be used.

Connector Kit for Motor/Brake Connection

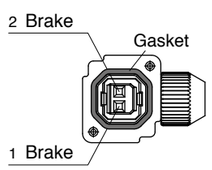
Part No.	DV0PM20040

• **Components**

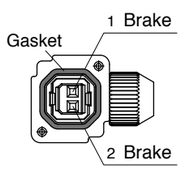
Title	Part No.	Number	Manufacturer	Note
Connector	JN4FT02SJM-R	1	Japan Aviation Electronics Ind.	For brake cable
Handle lever	ST-TMH-S-C1B-3500	2		

• Pin disposition of connector for brake cable

[Direction of motor shaft]



[Opposite direction of motor shaft]



<Remarks>

Secure the gasket in place without removing it from the connector.
Otherwise, the degree of protection of IP67 will not be guaranteed.

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.183 "List of Peripheral Equipments".

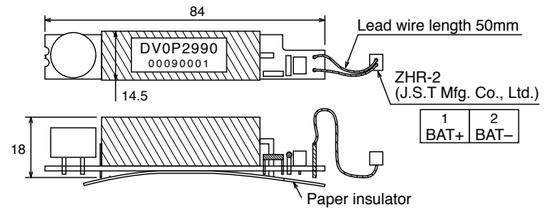
Battery for Absolute Encoder

*** A5E series does not support to absolute encoder.**

Battery for Absolute Encoder

Part No.	DV0P2990

• Lithium battery: 3.6V 2000mAh

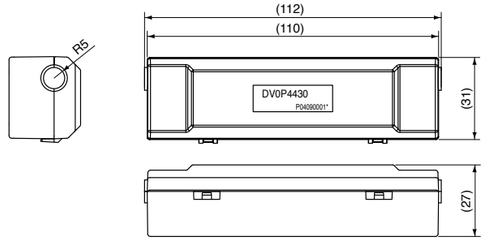


<Caution>

This battery is categorized as hazardous substance, and you may be required to present an application of hazardous substance when you transport by air (both passenger and cargo airlines).

Battery Box for Absolute Encoder

Part No.	DV0P4430



When waking a cable for 17-bit absolute encoder by yourself

When you make your own cable for 17-bit absolute encoder, connect the optional battery for absolute encoder, DV0P2990 as per the wiring diagram below. Connector of the battery for absolute encoder shall be provided by customer as well.

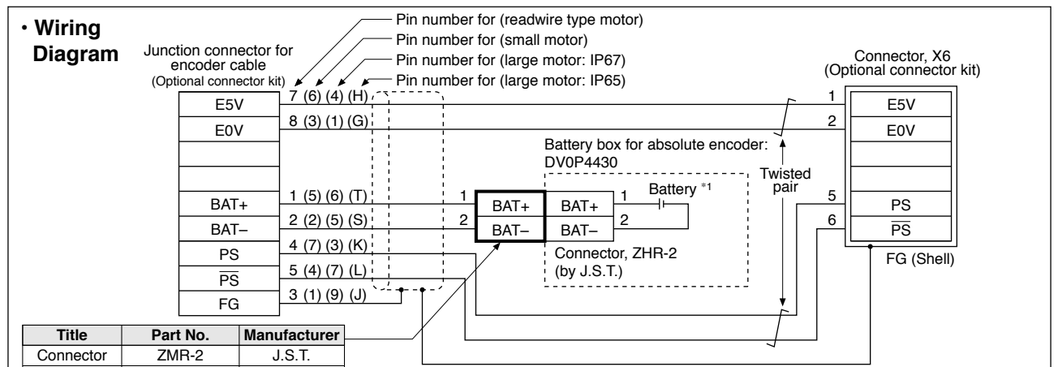
<Caution>

Install and fix the battery securely. If the installation and fixing of the battery is not appropriate, it may cause the wire breakdown or damage of the battery.
Refer to the instruction manual of the battery for handling the battery.

• **Installation Place of Battery**

1) Indoors, where the products are not subjected to rain or direct sun beam.
2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
3) Well-ventilated and humid and dust-free place.
4) Vibration-free place

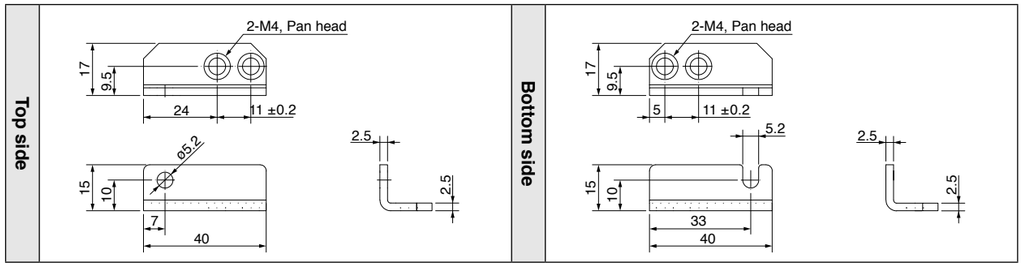
• **Wiring Diagram**



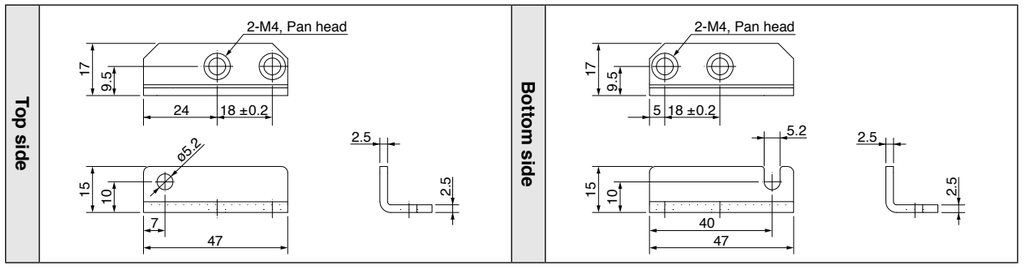
Title	Part No.	Manufacturer
Connector	ZMR-2	J.S.T.
Connector pin	SMM-003T-P0.5	J.S.T.
Clamping Jig	YRS-800	J.S.T.

Mounting Bracket

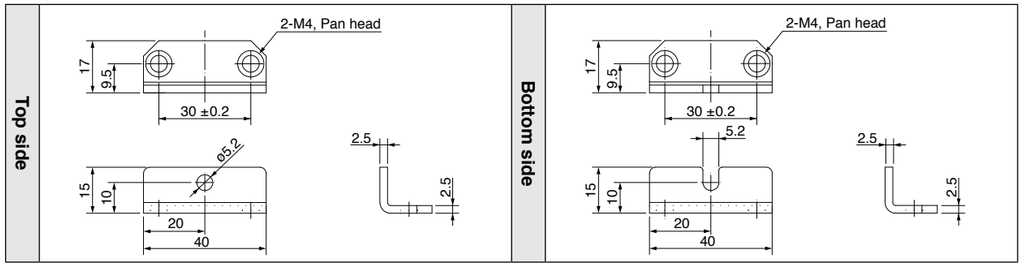
Part No.	DV0PM20027	Frame symbol of applicable driver	A-frame	Mounting screw	M4 × L6 Pan head 4pcs



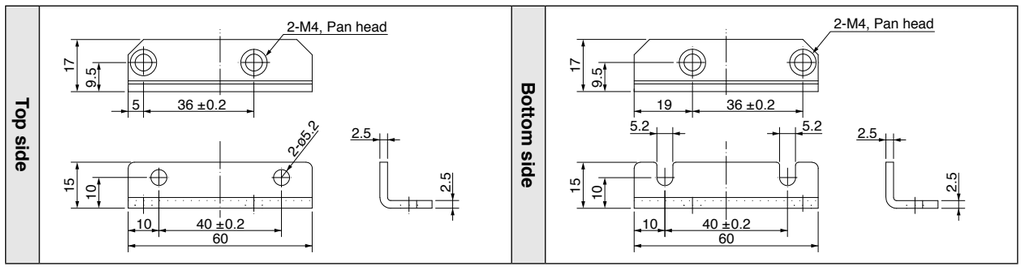
Part No.	DV0PM20028	Frame symbol of applicable driver	B-frame	Mounting screw	M4 × L6 Pan head 4pcs



Part No.	DV0PM20029	Frame symbol of applicable driver	C-frame	Mounting screw	M4 × L6 Pan head 4pcs



Part No.	DV0PM20030	Frame symbol of applicable driver	D-frame	Mounting screw	M4 × L6 Pan head 4pcs

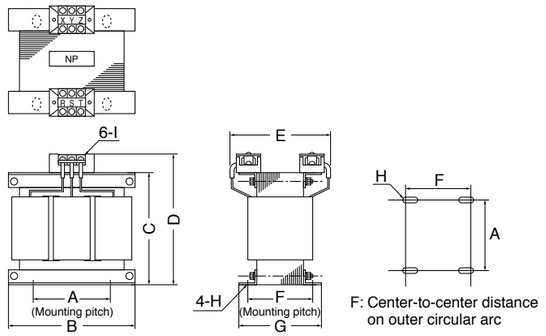


<Caution>

For E, F and G-frame, it is possible to make both a front end and back end mounting by changing the mounting direction of L-shape bracket (attachment).

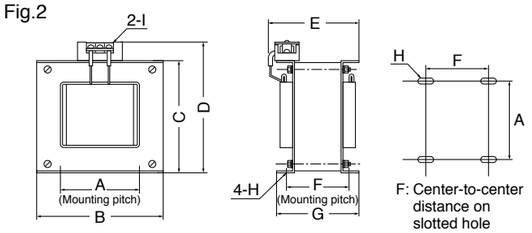
Reactor

Fig.1



F: Center-to-center distance on outer circular arc

Fig.2



F: Center-to-center distance on slotted hole

	Part No.	A	B	C	D	E (Max)	F	G	H	I	Inductance (mH)	Rated current (A)
Fig.1	**DV0P220**	65±1	125±1	(93)	136Max	155	70+3/–0	85±2	4-7ϕ×12	M4	6.81	3
	DV0P221	60±1	150±1	(113)	155Max	130	60+3/–0	75±2	4-7ϕ×12	M4	4.02	5
	DV0P222	60±1	150±1	(113)	155Max	140	70+3/–0	85±2	4-7ϕ×12	M4	2	8
	DV0P223	60±1	150±1	(113)	155Max	150	79+3/–0	95±2	4-7ϕ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160Max	155	84+3/–0	100±2	4-7ϕ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160Max	170	100+3/–0	115±2	4-7ϕ×12	M5	0.557	25
Fig.2	**DV0P227**	55±0.7	80±1	66.5±1	110Max	90	41±2	55±2	4-5ϕ×10	M4	4.02	5
	DV0P228	55±0.7	80±1	66.5±1	110Max	95	46±2	60±2	4-5ϕ×10	M4	2	8
	DV0PM20047	55±0.7	80±1	66.5±1	110Max	105	56±2	70±2	4-5ϕ×10	M4	1.39	11

* For application, refer to P.16 to 23 “Table of Part Numbers and Options”.

Harmonic restraint

Harmonic restraint measures are not common to all countries. Therefore, prepare the measures that meet the requirements of the destination country.

With products for Japan, on September, 1994, “Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system” and “Guidelines for harmonic restraint on household electrical appliances and general-purpose articles” established by the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (the ex-Ministry of International Trade and Industry). According to those guidelines, the Japan Electrical Manufacturers’ Association (JEMA) have prepared technical documents (procedure to execute harmonic restraint: JEM-TR 198, JEM-TR 199 and JEM-TR 201) and have been requesting the users to understand the restraint and to cooperate with us. On January, 2004, it has been decided to exclude the general-purpose inverter and servo driver from the “Guidelines for harmonic restraint on household electrical appliances and general-purpose articles”. After that, the “Guidelines for harmonic restraint on household electrical appliances and general-purpose articles” was abolished on September 6, 2004.

We are pleased to inform you that the procedure to execute the harmonic restraint on general-purpose inverter and servo driver was modified as follows.

1. All types of the general-purpose inverters and servo drivers used by specific users are under the control of the “Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system”. The users who are required to apply the guidelines must calculate the equivalent capacity and harmonic current according to the guidelines and must take appropriate countermeasures if the harmonic current exceeds a limit value specified in a contract demand. (Refer to JEM-TR 210 and JEM-TR 225.)
2. The “Guidelines for harmonic restraint on household electrical appliances and general-purpose articles” was abolished on September 6, 2004. However, based on conventional guidelines, JEMA applies the technical documents JEM-TR 226 and JEM-TR 227 to any users who do not fit into the “Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system” from a perspective on enlightenment on general harmonic restraint. The purpose of these guidelines is the execution of harmonic restraint at every device by a user as usual to the utmost extent.

<Remarks> When using a reactor, be sure to install one reactor to one servo driver.

External Regenerative Resistor

Part No.	Manufacturer's part No.	Specifications					Activation temperature of built-in thermostat
		Resistance	cable core outside diameter	Weight	Rated power (reference) *1		
					Free air	with fan 1 m/s	
		Ω	mm	kg	W	W	
DV0P4280	RF70M	50	ϕ1.27 (AWG18 stranded wire)	0.1	10	25	140±5˚C B-contact Open/Close capacity (resistance load) 1A 125VAC 6000 times 0.5A 250VAC 10000 times
DV0P4281	RF70M	100		0.1	10	25	
DV0P4282	RF180B	25		0.4	17	50	
DV0P4283	RF180B	50		0.2	17	50	
DV0P4284	RF240	30		0.5	40	100	
DV0P4285	RH450F	20		1.2	52	130	
DV0PM20048	RF240	120		0.5	35	80	
DV0PM20049	RH450F	80		1.2	65	190	
DV0PM20058	RH450F × 6	3.3	— *2	16	— *3	780	
DV0PM20059	RH450F × 6	13.3	— *2	16	— *3	1140	

Manufacturer : Iwaki Musen Kenkyusho

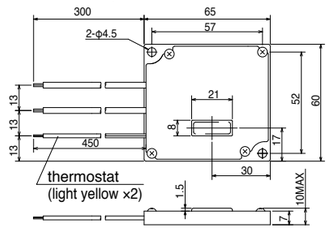
*1 Power with which the driver can be used without activating the built-in thermostat.
A built-in thermal fuse and a thermal protector are provided for safety.
The circuit should be so designed that the power supply will be turned off as the thermal protector operates.
The built-in thermal fuse blows depending on changes in heat dissipation condition, operating temperature limit, power supply voltage or load.
Mount the regenerative resistor on a machine operating under aggressive regenerating condition (high power supply voltage, large load inertia, shorter deceleration time, etc.) and make sure that the surface temperature will not exceed 100°C.
Attach the regenerative resistor to a nonflammable material such as metal.
Cover the regenerative resistor with a nonflammable material so that it cannot be directly touched.
Temperatures of parts that may be directly touched by people should be kept below 70°C.

*2 Terminal block with screw tightening torque as shown below.
T1, T2, 24V, 0V, E : M4 : 1.2 to 1.4N·m
R1, R2 : M5 : 2.0 to 2.4N·m
Use the cable with the same diameter as the main circuit cable. (Refer to P.14).

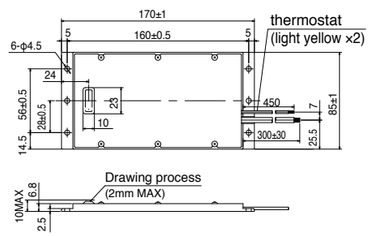
*3 With built-in fan which should always be operated with the power supply connected across 24 V and 0 V.

Frame	Power supply		
	Single phase, 100V	Single phase, 200V 3-phase, 200V	3-phase, 400V
A	DV0P4280	DV0P4281 (50W, 100W) DV0P4283 (200W)	—
B	DV0P4283	DV0P4283	
C	DV0P4282		
D	—	DV0P4284	DV0PM20048
E		DV0P4284 × 2 in parallel or DV0P4285	DV0PM20049
F		DV0P4285 × 2 in parallel	DV0PM20049 × 2 in parallel
G		DV0P4285 × 3 in parallel	DV0PM20049 × 3 in parallel
H		DV0P4285 × 6 in parallel or DV0PM20058	DV0PM20049 × 6 in parallel or DV0PM20059

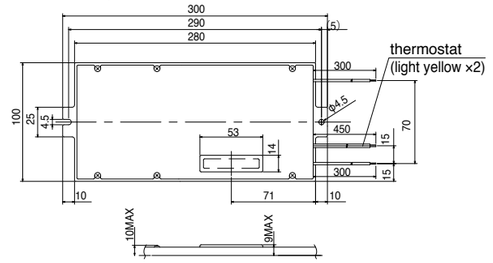
DV0P4280, DV0P4281



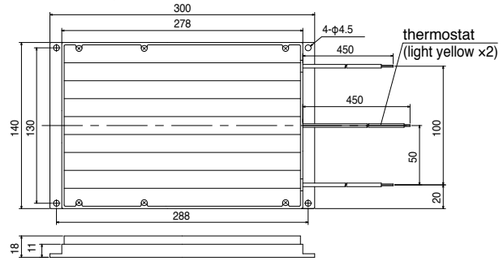
DV0P4282, DV0P4283



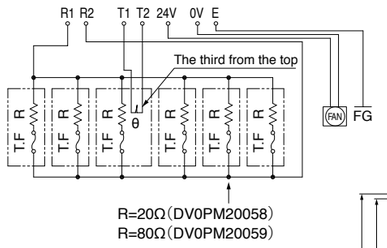
DV0P4284, DV0PM20048



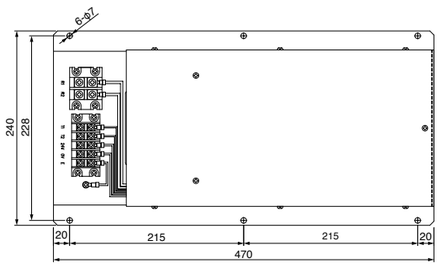
DV0P4285, DV0PM20049

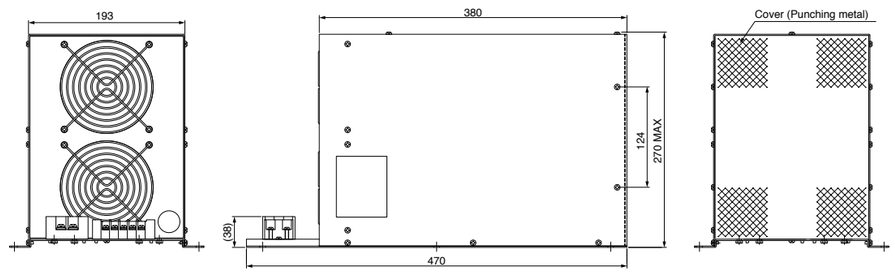


DV0PM20058, DV0PM20059



Circuit diagram





<Remarks>
Thermal fuse is installed for safety. Compose the circuit so that the power will be turned off when the thermostat is activated. The thermal fuse may blow due to heat dissipating condition, working temperature, supply voltage or load fluctuation.
Make it sure that the surface temperature of the resistor may not exceed 100˚C at the worst running conditions with the machine, which brings large regeneration (such case as high supply voltage, load inertia is large or deceleration time is short) Install a fan for a forced cooling if necessary.

<Caution>
Regenerative resistor gets very hot.

Take preventive measures for fire and burns.
Avoid the installation near inflammable objects, and easily accessible place by hand.

Surge Absorber for Motor Brake

Motor		Part No.	Manufacturer
MSMD	50W to 750W	Z15D271 or TNR15G271K	SEMITEC Corporation or NIPPON CHEMI-CON CORPORATION
MSME	50W to 750W		
	750W (400V) 1.0kW to 5.0kW	Z15D151	SEMITEC Corporation
MDME	400W (400V), 600W (400V)		
	1.0kW to 3.0kW	NVD07SCD082	KOA Corporation
	4.0kW to 7.5kW	Z15D151	SEMITEC Corporation
	11kW, 15kW	NVD07SCD082	KOA Corporation
MFME	1.5kW		
	2.5kW, 4.5kW		
MGME	0.9kW to 6.0kW	Z15D151	SEMITEC Corporation
MHMD	200W to 750W	Z15D271 or TNR15G271K	SEMITEC Corporation or NIPPON CHEMI-CON CORPORATION
MHME	1.0kW, 1.5kW	NVD07SCD082	KOA Corporation
	2.0kW to 7.5kW	Z15D151	SEMITEC Corporation

List of Peripheral Equipments

Manufacturer	Tel No. / Home Page	Peripheral components
Panasonic Corporation Eco Solutions Company	http://panasonic.net/es/	Circuit breaker
Panasonic Corporation Industrial Devices Company	http://panasonic.net/id/	Surge absorber PLC
Iwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
NIPPON CHEMI-CON CORPORATION	+81-3-5436-7711 http://www.chemi-con.co.jp/e/index.html	Surge absorber for holding brake
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	
KOA Corporation	+81-42-336-5300 http://www.koanet.co.jp/en/index.htm	
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	Noise filter for signal lines
MICROMETALS (Nisshin Electric Co., Ltd.)	+81-4-2934-4151 http://www.nisshin-electric.com/	
KK-CORP.CO.JP	+81-184-53-2307 http://www.kk-corp.co.jp/	
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter
Japan Aviation Electronics Industry, Ltd.	+81-3-3780-2717 http://www.jae.co.jp/e-top/index.html	Connector
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/WW2/Country/	
Tyco Electronics	+81-44-844-8052 http://www.te.com/ja/home.html	
Japan Molex Inc.	+81-462-65-2313 http://www.molex.co.jp	
J.S.T. Mfg. Co., Ltd.	+81-45-543-1271 http://www.jst-mfg.com/index_e.php	
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable
Mitutoyo Corporation	+81-44-813-8236 http://www.mitutoyo.co.jp/eng/	External scale
Magnescale Co., Ltd.	+81-463-92-7973 http://www.mgscale.com/mgs/language/english/	
MicroE Systems	+1-781-266-5700 http://www.microesys.com/	
Renishaw plc	+44 1453 524524 www.renishaw.com	
Fagor Automation S.Coop	+34-943-719-200 http://www.fagorautomation.com	
Schaffner EMC, Inc.	+81-3-5712-3650 http://www.schaffner.jp/	Noise filter
TDK-Lambda Corporation	+81-3-5201-7140 http://www.tdk-lambda.com/	

* The above list is for reference only. We may change the manufacturer without notice.

MEMO

Contents

Setup support software “PANATERM”

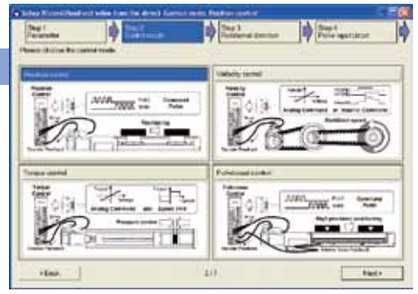
Next generation support tool fully loaded with advanced functions

Introduction to new setup support software “PANATERM”

• Monitoring, setting and analyzing through a PC

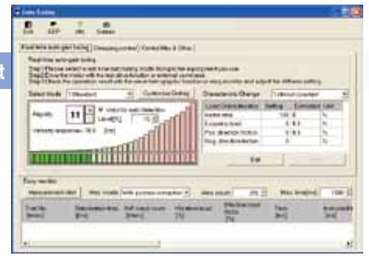
- High speed accessing between the driver and PC via USB communication
- Multilingualization (English, Japanese, Chinese and Korean)
- Supporting OS:
  Windows® XP SP3 (32-bit Ver.), Windows® VISTA SP1 (32-bit Ver.), Windows® 7 (32-bit Ver., 64-bit Ver.)

Setup



The initial setup becomes easy by the wizard screen.

Adjustment

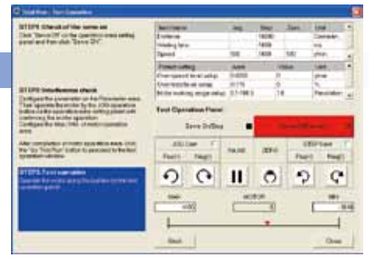


Addition of gain adjustment screen for automatic stiffness reduction during oscillation

Monitor

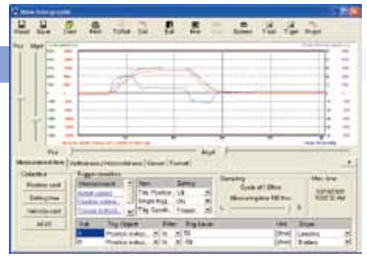
Universal monitor with recording/reproducing capability

Trial run



Trial run program that limits operating range assures safe test sequence.

Analysis



High-performance waveform graphical display covers a wider range of measuring objects.

Others

- Fit gain function
- Frequency response measurement
- Troubleshooting
- Analog input adjustment
- Z-phase searching
- Alarm monitoring
- Functionality enhancement by using external tool

Hardware configuration

Personal computer	CPU	Pentium III 512MHz or more
	Memory	256MB or more (512MB recommended)
	Hard disk capacity	Vacancy of 512MB or more recommended
	OS	Windows® XP SP3 (32-bit Ver.), Windows® VISTA SP1 (32-bit Ver.) Windows® 7 (32-bit Ver., 64-bit Ver.) (English, Japanese, Chinese or Korean version)
	Serial communication port	USB port
Display	Resolution	1024 × 768pix or more (desirably 1024 × 768)
	Number of colors	24bit colors (TrueColor) or more

Please download from our web site and use after install to the PC.
http://industrial.panasonic.com/ww/i_e/25000/motor_fa_e/motor_fa_e.html

AC servo motor capacity selection software
Option selection software for AC servo motor

AC servo motor capacity selection software

We have prepared PC software “M-SELECT” for AC servo motor capacity selection.
Consult our sales representative or authorized distributor.

• Three-step selection

1. Select components and specified values

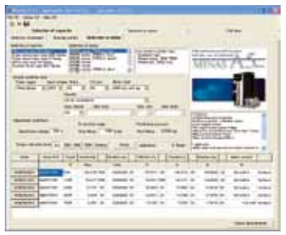
Select appropriate mechanical parameter items and fill them with parameter values derived from the real machine. To simulate the target machine as practical as possible, use maximum number of parameters available.

2. Enter operation pattern

Input the planned operation pattern that will contain [speed and rotation standard] or [absolute position standard] with optional settings such as S-acceleration/deceleration.

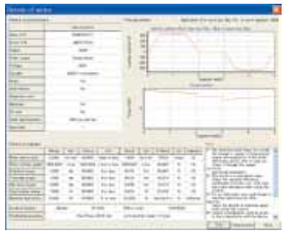
3. Select the motor

When the data required in step 1 and 2 above have been input, the software lists the motors, which will be appropriate to use with your machine. Select the motor that is best suitable for your machine application.



Details of motor

Once the motor is selected, specifications of the motor and amplifier, and details of reason for determination are displayed and may be printed out.



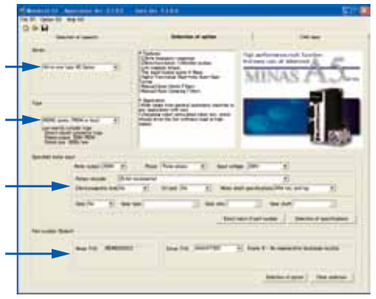
Option selection software for AC servo motor

We have prepared PC software to enable fast, easy, and correct option selection, a complicated job without the software.

• Two procedures for option selection

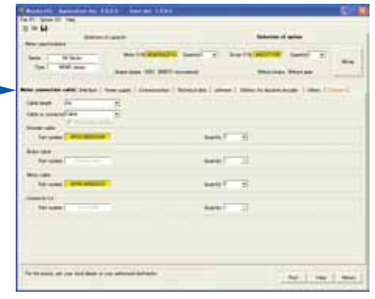
1. Selection according to driver series and motor type

Suitable option can be selected by selecting driver series, motor type and motor specification through pulldown menu.



2. Entry of model number

If you know the model number based on the servo motor and driver currently used, enter the model number.



Result of selection

Tab sheet specific to each of option model numbers is used for easier identification of the desired option.

* When you are using the motor capacity selection software, simply press [Option Selection] tab and the screen as shown right will appear.

Please download from our web site and use after install to the PC.
http://industrial.panasonic.com/ww/i_e/25000/motor_fa_e/motor_fa_e.html

Organization of the system of units

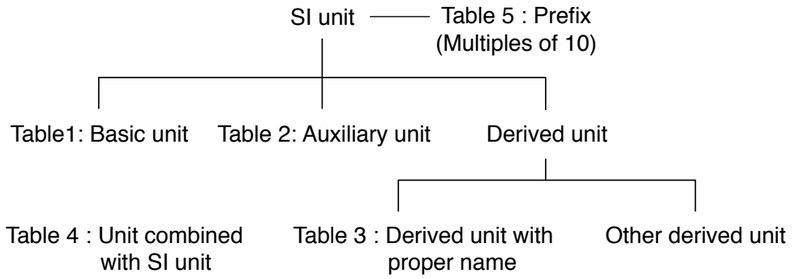


Table1: Basic unit

Quantity	Name of unit	Symbol of unit
Length	meter	m
Weight	kilogram	kg
Time	second	s
Current	ampere	A
Thermodynamic temperature	kelvin	K
Amount of substance	mol	mol
Luminous intensity	candela	cd

Table 2: Auxiliary unit

Quantity	Name of unit	Symbol of unit
Plane angle	radian	rad
Solid angle	steradian	sr

Table 3: Major derived unit with proper name

Quantity	Name	Symbol of unit	Derivation from basic unit, auxiliary unit or other derived unit
Frequency	hertz	Hz	1 Hz = 1 s^{-1}
Force	newton	N	1 N = 1 kg·m/s^2
Pressure, Stress	pascal	Pa	1 Pa = 1 N/m^2
Energy, Work, Amount of heat	joule	J	1 J = 1 N·m
Amount of work, Work efficiency, Power, Electric power	watt	W	1 W = 1 J/s
Electric charge, Amount of electricity	coulomb	C	1 C = 1 A·s
Electric potential, Potential difference, Voltage, Electromotive force	volt	V	1 V = 1 J/C
Electrostatic capacity, Capacitance	farad	F	1 F = 1 C/V
Electric resistance	ohm	Ω	1 Ω = 1 V/A
Electric conductance	siemens	S	1 S = 1 $Ω^{-1}$
Magnetic flux	weber	Wb	1 Wb = 1 V·s
Magnetic flux density, Magnetic induction	tesla	T	1 T = 1 Wb/m^2
Inductance	henry	H	1 H = 1 Wb/A
Degree centigrade (Celsius)	degree centigrade (Celsius) / degree	˚C	t ˚C = (t+273.15) K
Luminous flux	lumen	lm	1 lm = 1 cd·sr
Illuminance	lux	lx	1 lx = 1 lm/m^2

Table 4: Unit combined with SI unit

Quantity	Name	Symbol of unit
Time	minute	min
	hour	h
	day	d
Plane angle	degree	°
	minute	'
	second	"
Volume	liter	l, L
Weight	ton	t

Table 5: Prefix

Multiples powered to unit	Prefix	
	Name	Symbol
10^{18}	exa	E
10^{15}	peta	P
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto	h
10	deca	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	femto	f
10^{-18}	atto	a

Major compatible unit

Quantity	Symbol of conventional unit	Symbol of SI unit and compatible unit	Conversion value
Length	μ (micron)	μm	1 μ = 1 μm (micrometer)
Acceleration	Gal	m/s^2	1 Gal = 10^{-2} m/s^2
	G	m/s^2	1 G = 9.80665 m/s^2
Frequency	c/s, c	Hz	1 c/s = Hz
Revolving speed, Number of revolutions	rpm	s^{-1} or min^{-1}, r/min	1 rpm = 1 min^{-1}
Weight	kgf	–	Same value
Mass	–	kg	
Weight flow rate	kgf/s	–	Same value
Mass flow rate	–	kg/s	
Specific weight	kgf/m^3	–	Same value
Density	–	kg/m^3	
Specific volume	m^3/kgf	m^3/kg	Same value
Load	kgf	N	1 kgf = 9.80665 N
Force	kgf	N	1 kgf = 9.80665 N
	dyn	N	1 dyn = 10^{-5} N
Moment of force	kgf-m	N·m	1 kgf-m = 9.806 N·m
Pressure	kgf/cm^2	Pa, bar (1) or kgf/cm^2	1 kgf/cm^2 = 9.80665 x 10^4 Pa = 0.980665 bar
	at (Engineering atmospheric pressure)	Pa	1 at = 9.80665 x 10^4 Pa
	atm (Atmospheric pressure)	Pa	1 atm = 1.01325 x 10^5 Pa
	mH_2O, mAq	Pa	1 mH_2O = 9.80665 x 10^3 Pa
	mmHg	Pa or mmHg (2)	1 mmHg = 133.322 Pa
	Torr	Pa	
Stress	kgf/mm^2	Pa or N/m^2	1 kgf/mm^2 = 9.80665 x 10^6 Pa =9.80665 x 10^6 N/m^2
	kgf/cm^2	Pa or N/m^2	1 kgf/cm^2 = 9.80665 x 10^4 Pa = 9.80665 x 10^4 N/m^2
Elastic modulus	kgf/m^2	Pa or N/m^2	1 kgf/m^2 = 9.80665 Pa = 9.80665 N/m^2
			1 kgf/cm^2 = 9.80665 x 10^4 N/m^2
Energy, Work	kgf-m	J (joule)	1 kgf·m = 9.80665 J
	erg	J	1 erg = 10^{-7} J
Work efficiency, Power	kgf-m/s	W (watt)	1 kgf-m/s = 9.80665 W
	PS	W	1 PS = 0.7355 kW
Viscosity	PP	Pa·s	1 P = 0.1 Pa·s
Kinetic viscosity	St	mm^2/s	10^{-2} St = 1 mm^2/s
Thermodynamic temperature	K	K (kelvin)	1 K = 1 K
Temperature interval	deg	K (3)	1 deg = 1 K
Amount of heat	cal	J	1 cal = 4.18605 J
Heat capacity	cal/˚C	J/K (3)	1 cal/˚C = 4.18605 J/K
Specific heat, Specific heat capacity	cal/ (kgf·˚C)	cal/ (kgf·K)(3)	1 cal/ (kgf·˚C) = 4.18605 J/ (kg·K)
Entropy	cal/K	J/K	1 cal/K = 4.18605 J/K
Specific entropy	cal/ (kgf·K)	J/(kg·K)	1 cal/ (kgf·K) = 4.18605 J/ (kg·K)
Internal energy (Enthalpy)	cal	J	1 cal = 4.18605 J
Specific internal energy (Specific enthalpy)	cal/kgf	J/kg	1 cal/kgf = 4.18605 J/kg
Heat flux	cal/h	W	1 kcal/h = 1.16279 W
Heat flux density	cal/ (h·m^2)	W/m^2	1 kcal/ (h·m^2) = 1.16279 W/m^2
Thermal conductivity	cal/ (h·m·˚C)	W/ (m·K) (3)	1 kcal/ (h·m·˚C) = 1.16279 W/ (m·K)
Coefficient of thermal conductivity	cal/ (h·m^2·˚C)	W/ (m^2·K) (3)	1 kcal/ (h·m^2·˚C) = 1.16279 W/ (m^2·K)
Intensity of magnetic field	Oe	A/m	1 Oe = 10^3 / (4π) A/m
Magnetic flux	Mx	Wb (weber)	1 Mx = 10^{-8} Wb
Magnetic flux density	Gs,G	T (tesla)	1 Gs = 10^{-4} T

Note
(1) Applicable to liquid pressure. Also applicable to atmospheric pressure of meteorological data, when “bar” is used in international standard.
(2) Applicable to scale or indication of blood pressure manometers.
(3) “˚C” can be substituted for “K”.

Flow of motor selection

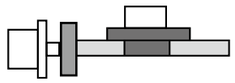
Flow of motor selection

1. Definition of mechanism to be driven by motor.

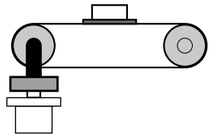
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<Typical mechanism>

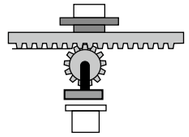
Ball screw mechanism



Belt mechanism

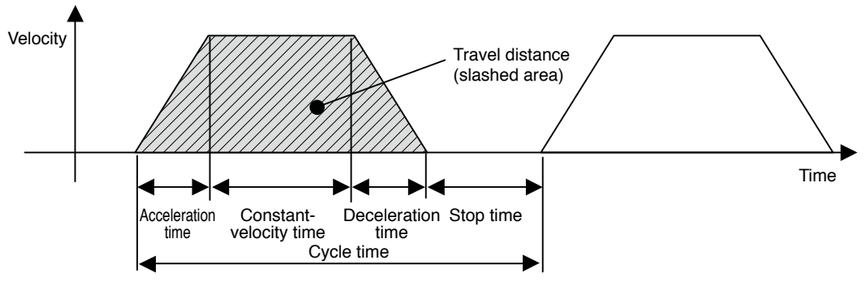


Rack & pinion, etc.



2. Definition of operating pattern.

Acceleration/deceleration time, Constant-velocity time, Stop time, Cycle time, Travel distance



Note) Selection of motor capacity significantly varies depending on the operating pattern.
The motor capacity can be reduced if the acceleration/deceleration time and stop time are set as long as possible.

3. Calculation of load inertia and inertia ratio.

Calculate load inertia for each mechanical component. (Refer to "General inertia calculation method" described later.)
Divide the calculated load inertia by the inertia of the selected motor to check the inertia ratio.
For calculation of the inertia ratio, note that the catalog value of the motor inertia is expressed as "× 10^{-4}kg·m^2".

4. Calculation of motor velocity

Calculate the motor velocity from the moving distance, acceleration / deceleration time and constant-velocity time.

5. Calculation of torque

Calculate the required motor torque from the load inertia, acceleration/deceleration time and constant-velocity time.

6. Calculation of motor

Select a motor that meets the above 3 to 5 requirements.

Description on the items related to motor selection

Description on the items related to motor selection

1. Torque

(1) Peak torque

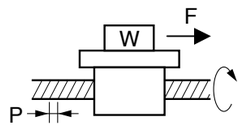
Indicate the maximum torque that the motor requires during operation (mainly in acceleration and deceleration steps). The reference value is 80% or less of the maximum motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

(2) Traveling torque, Stop holding torque

Indicates the torque that the motor requires for a long time. The reference value is 80% or less of the rated motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

Traveling torque calculation formula for each mechanism

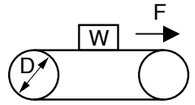
Ball screw mechanism



Traveling torque $T_f = \frac{P}{2\pi\eta}(\mu g W + F)$

W : Weight [kg]
P : Lead [m]
F : External force [N]
η : Mechanical efficiency
μ : Coefficient of friction
g : Acceleration of gravity 9.8[m/s^2]

Belt mechanism



Traveling torque $T_f = \frac{D}{2\pi\eta}(\mu g W + F)$

W : Weight [kg]
P : Pulley diameter [m]
F : External force [N]
η : Mechanical efficiency
μ : Coefficient of friction
g : Acceleration of gravity 9.8[m/s^2]

(3) Effective torque

Indicates a root-mean-square value of the total torque required for running and stopping the motor per unit time. The reference value is approx. 80% or less of the rated motor torque.

$$Trms = \sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times td}{tc}}$$

T_a : Acceleration torque [N·m]
T_f : Traveling torque [N·m]
T_d : Deceleration torque [N·m]
t_a : Acceleration time [s]
t_b : Constant-velocity time [s]
t_d : Deceleration time [s]
t_c : Cycle time [s] (Run time + Stop time)

2. Motor velocity

Maximum velocity

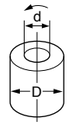
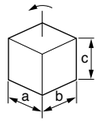
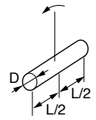
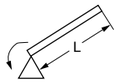
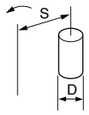
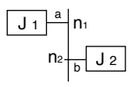
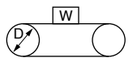
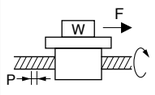
Maximum velocity of motor in operation: The reference value is the rated velocity or lower value.
When the motor runs at the maximum velocity, you must pay attention to the motor torque and temperature rise. For actual calculation of motor velocity, see "Example of motor selection" described later.

Description on the items related to motor selection

3. Inertia and inertia ratio

Inertia is like the force to retain the current moving condition.
Inertia ratio is calculated by dividing load inertia by rotor inertia.
Generally, for motors with 750 W or lower capacity, the inertia ratio should be “20” or less. For motors with 1000 W or higher capacity, the inertia ratio should be “10” or less.
If you need quicker response, a lower inertia ratio is required.
(For example, when the motor takes several seconds in acceleration step, the inertia ratio can be further increased.)

General inertia calculation method

Shape	J calculation formula	Shape	J calculation formula
Disk 	$J=\frac{1}{8}WD^2$ [kg·m²] W : Weight [kg] D : Outer diameter [m]	**Hollow cylinder** 	$J=\frac{1}{8}W(D^2+d^2)$ [kg·m²] W : Weight [kg] D : Outer diameter [m] d : Inner diameter [m]
Prism 	$J=\frac{1}{12}W(a^2+b^2)$ [kg·m²] W : Weight [kg] a, b, c : Side length [m]	**Uniform rod** 	$J=\frac{1}{48}W(3D^2+4L^2)$ [kg·m²] W : Weight [kg] D : Outer diameter [m] L : Length [m]
Straight rod 	$J=\frac{1}{3}WL^2$ [kg·m²] W : Weight [kg] L : Length [m]	**Separated rod** 	$J=\frac{1}{8}WD^2+WS^2$ [kg·m²] W : Weight [kg] D : Outer diameter [m] S : Distance [m]
Reduction gear 	Inertia on shaft "a" $J=J_1+(\frac{n_2}{n_1})^2 J_2$[kg·m²] n_1 : A rotational speed of a shaft [r/min] n_2 : A rotational speed of b shaft [r/min]		
Conveyor 	$J=\frac{1}{4}WD^2$ [kg·m²] W : Workpiece weight on conveyor [kg] D : Drum diameter [m] * Excluding drum J	**Ball screw** 	$J=J_B+\frac{W\cdot P^2}{4\pi^2}$ [kg·m²] W : Weight [kg] P : Lead J_B : J of ball screw

If weight (W [kg]) is unknown, calculate it with the following formula:

Weight W[kg]=Density ρ [kg/m³] x Volume V[m³]

Density of each material

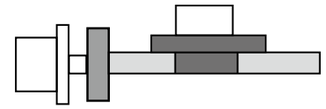
Iron ρ =7.9 x 10³ [kg/m³] Aluminum ρ =2.8 x 10³ [kg/m³]

Brass ρ =8.5 x 10³ [kg/m³]

To drive ball screw mechanism

To drive ball screw mechanism

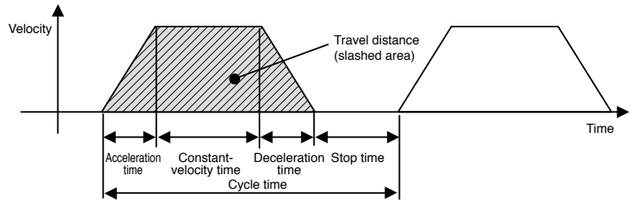
1. Example of motor selection for driving ball screw mechanism



Workpiece weight W_A = 10 [kg]
Ball screw length B_L = 0.5 [m]
Ball screw diameter B_D = 0.02 [m]
Ball screw lead B_P = 0.02 [m]
Ball screw efficiency $B\eta$ = 0.9
Travel distance 0.3[m]
Coupling inertia Jc = 10 x 10^{-6} [kg·m²] (Use manufacturer-specified catalog value, or calculation value.)

2. Running pattern :

Acceleration time ta = 0.1 [s]
Constant-velocity time tb = 0.8 [s]
Deceleration time td = 0.1 [s]
Cycle time tc = 2 [s]
Travel distance 0.3[m]



3. Ball screw weight

$$B_W = \rho \times \pi \times \left(\frac{B_D}{2}\right)^2 \times B_L = 7.9 \times 10^3 \times \pi \times \left(\frac{0.02}{2}\right)^2 \times 0.5$$
$$= 1.24 \text{ [kg]}$$

4. Load inertia

$$J_L = J_C + J_B = J_C + \frac{1}{8}B_W \times B_D^2 + \frac{W_A \cdot B_P^2}{4\pi^2}$$
$$= 0.00001 + (1.24 \times 0.02^2) / 8 + 10 \times 0.02^2 / 4\pi^2$$
$$= 1.73 \times 10^{-4} \text{ [kg·m²]}$$

5. Provisional motor selection

In case of MSME 200 W motor : $J_M = 0.14 \times 10^{-4}$ [kg·m²]

6. Calculation of inertia ratio

J_L / J_M = 1.73 x 10^{-4} / 0.14 x 10^{-4} Therefore, the inertia ratio is "12.3" (less than "30")
(In case of MSME 100 W motor: J_M = 0.051 x 10^{-4} Therefore, the inertia ratio is "33.9".)

7. Calculation of maximum velocity (Vmax)

$$\frac{1}{2}\times\text{Acceleration time}\times V_{max}+\text{Constant-velocity time}\times V_{max}+\frac{1}{2}\times\text{Deceleration time}\times V_{max} = \text{Travel distance}$$
$$\frac{1}{2} \times 0.1 \times V_{max} + 0.8 \times V_{max} + \frac{1}{2} \times 0.1 \times V_{max} = 0.3$$
$$0.9 \times V_{max} = 0.3$$
$$V_{max} = 0.3 / 0.9 = 0.334 \text{ [m/s]}$$

8. Calculation of motor velocity (N [r/min]) Ball screw lead per resolution: B_P = 0.02 [m]

N = 0.334 / 0.02 = 16.7 [r/s]
= 16.7 × 60 = 1002 [r/min] < 3000 [r/min] (Rated velocity of MSME 200W motor)

9. Calculation of torque

Traveling torque $T_f = \frac{B_P}{2\pi B\eta}(\mu g W_A + F) = \frac{0.02}{2\pi \times 0.9}$ (0.1×9.8×10+0)
$= 0.035$ [N·m]

Acceleration torque $T_a = \frac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Acceleration time [s]}}$ + Traveling torque
$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} + 0.035$
$= 0.196 + 0.035 = 0.231$ [N·m]

To drive ball screw mechanism Example of motor selection

Deceleration torque $T_d = \dfrac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Deceleration time}[s]}$ – Traveling torque

$= \dfrac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} - 0.035$

$= 0.196 - 0.035 = 0.161\ [N \cdot m]$

10. Verification of maximum torque

Acceleration torque = $T_a = 0.231\ [N \cdot m] < 1.91\ [N \cdot m]$ (Maximum torque of MSME 200 W motor)

11. Verification of effective torque

$$T_{rms} = \sqrt{\frac{T_a^2 \times t_a + T_f^2 \times t_b + T_d^2 \times t_d}{t_c}}$$

$$= \sqrt{\frac{0.231^2 \times 0.1 + 0.035^2 \times 0.8 + 0.161^2 \times 0.1}{2}}$$

$= 0.067\ [N \cdot m] < 0.64\ [N \cdot m]$ (Rated torque of MSME 200 W motor)

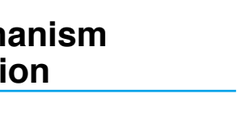
12. Judging from the inertia ratio calculated above, selection of 200 W motor is preferable, although the torque margin is significantly large.

Example of motor selection

Example of motor selection for timing belt mechanism

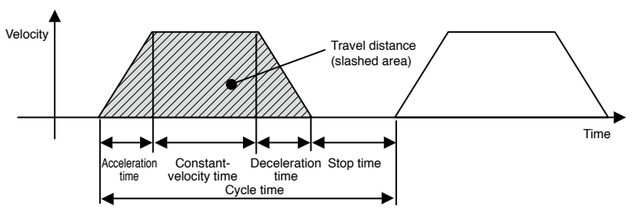
1.Mechanism

Workpiece weight	W_A	= 2[kg] (including belt)
Pulley diameter	P_D	= 0.05[m]
Pulley weight	W_P	= 0.5[kg] (Use manufacturer-specified catalog value, or calculation value.)
Mechanical efficiency	$B\eta$	= 0.8
Coupling inertia	J_C	= 0 (Direct connection to motor shaft)
Belt mechanism inertia	J_B	
Pulley inertia	J_P	



2. Running pattern

Acceleration time	t_a	= 0.1[s]
Constant-velocity time	t_b	= 0.8[s]
Deceleration time	t_d	= 0.1[s]
Cycle time	t_c	= 2[s]
Travel distance	1[m]	



3. Load inertia $J_L = J_C + J_B + J_P$

$= J_C + \dfrac{1}{4} W_A \times P_D^2 + \dfrac{1}{8} W_P \times P_D^2 \times 2$

$= 0 + \dfrac{1}{4} \times 2 \times 0.05^2 + \dfrac{1}{8} \times 0.5 \times 0.05^2 \times 2$

$= 0.00156 = 15.6 \times 10^{-4}\ [kg \cdot m^2]$

4. Provisional motor selection

In case of MSME 750 W motor : $J_M = 0.87 \times 10^{-4}\ [kg \cdot m^2]$

5. Calculation of inertia ratio

$J_L / J_M = 15.6 \times 10^{-4} / 0.87 \times 10^{-4}$ Therefore, the inertia ratio is "17.9" (less than "20")

Example of motor selection

6. Calculation of maximum velocity (Vmax)

$\frac{1}{2} \times$Acceleration time$\times$Vmax+Constant-velocity time$\times$Vmax+$\frac{1}{2} \times$Deceleration time$\times$Vmax=Travel distance

$\dfrac{1}{2} \times 0.1 \times Vmax + 0.8 \times Vmax + \dfrac{1}{2} \times 0.1 \times Vmax = 1$

$0.9 \times Vmax = 1$

$Vmax = 1 / 0.9 = 1.111[m/s]$

7. Calculation of motor velocity (N [r/min])

A single rotation of pulley : $\pi \times P_D = 0.157[m]$

$N = 1.111 / 0.157 = 7.08[r/s]$

$= 7.08 \times 60 = 424.8[r/min] < 3000[r/min]$ (Rated velocity of MSME 750 W motor)

8. Calculation of torque

Traveling torque $T_f = \dfrac{P_D}{2\eta}(\mu g W_A + F) = \dfrac{0.05}{2 \times 0.8}(0.1 \times 9.8 \times 3 + 0)$

$= 0.061[N \cdot m]$

Acceleration torque $T_a = \dfrac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Acceleration time}[s]}$ + Traveling torque

$= \dfrac{(15.6 \times 10^{-4} + 0.87 \times 10^{-4}) \times 2\pi \times 7.08}{0.1} + 0.061$

$= 0.751 + 0.061 = 0.812[N \cdot m]$

Deceleration torque $T_d = \dfrac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Deceleration time}[s]}$ – Traveling torque

$= \dfrac{(15.6 \times 10^{-4} + 0.87 \times 10^{-4}) \times 2\pi \times 7.08}{0.1} - 0.061$

$= 0.751 - 0.061 = 0.69[N \cdot m]$

9. Verification of maximum torque

Acceleration torque $T_a = 0.812[N \cdot m] < 7.1[N \cdot m]$ (Maximum torque of MSME 750 W motor)

10. Verification of effective torque

$$T_{rms} = \sqrt{\frac{T_a^2 \times t_a + T_f^2 \times t_b + T_d^2 \times t_d}{t_c}}$$

$$= \sqrt{\frac{0.812^2 \times 0.1 + 0.061^2 \times 0.8 + 0.69^2 \times 0.1}{2}}$$

$= 0.241\ [N \cdot m] < 2.4\ [N \cdot m]$ (Rated torque of MSME 750 W motor)

11. Judging from the above calculation result, selection of MSME 750W motor is acceptable.

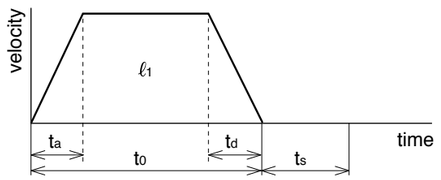
Request Sheet for Motor Selection

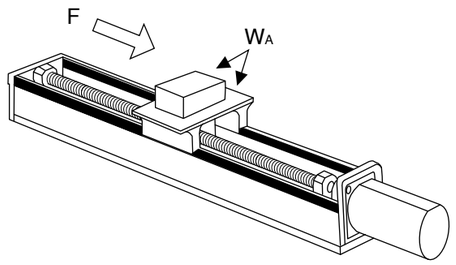
Request for Motor Selection Ⅰ : Ball screw drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	ℓ_1:	mm
2) Cycle time	t_0:	s
(Fill in items 3) and 4) if required.)		
3) Acceleration time	t_a:	s
4) Deceleration time	t_d:	s
5) Stopping time	t_s:	s
6) Max. velocity	V:	mm/s
7) External force	F:	N
8) Positioning accuracy of the work load	±	mm
9) Total weight of the work load and the table	W_A:	kg
10) Power supply voltage		V
11) Diameter of the ball screw		mm
12) Total length of the ball		mm
13) Lead of the ball screw		mm
14) Traveling direction (horizontal, vertical etc.)		

Running pattern





2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

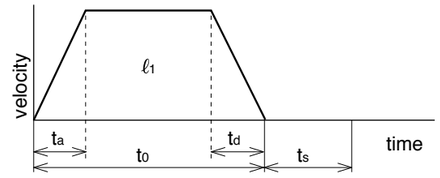
Request Sheet for Motor Selection

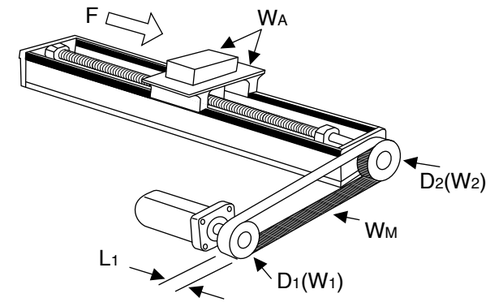
Request for Motor Selection Ⅱ : Timing pulley + Ball screw drive

1. Driven mechanism and running data

			Motor side	Ball screw side
1) Travel distance of the work load per one cycle	ℓ_1:	mm	15) Diameter of the pulley	D_1: mm	D_2: mm
2) Cycle time	t_0:	s	16) Weight of the pulley	W_1: kg	W_2: kg
(Fill in items 3) and 4) if required.)			(or item 17) and 18))		
3) Acceleration time	t_a:	s	17) Width of the pulley	L_1: mm	
4) Deceleration time	t_d:	s	18) Material of the pulley		
5) Stopping time	t_s:	s	19) Weight of the belt	W_M: kg	
6) Max. velocity	V:	mm/s			
7) External force	F:	N			
8) Positioning accuracy of the work load	±	mm			
9) Total weight of the work load and the table	W_A:	kg			
10) Power supply voltage		V			
11) Diameter of the ball screw		mm			
12) Total length of the ball screw		mm			
13) Lead of the ball screw		mm			
14) Traveling direction (horizontal, vertical etc.)					

Running pattern





2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

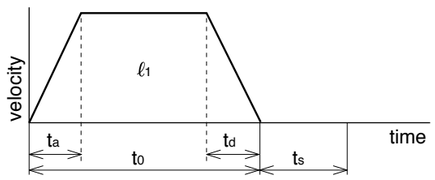
Request Sheet for Motor Selection

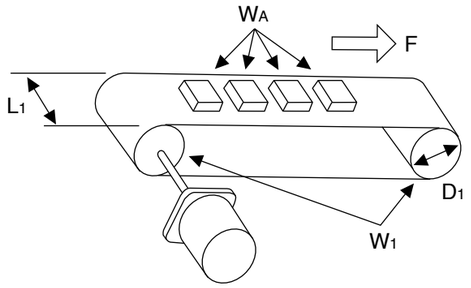
Request for Motor Selection Ⅲ : Belt drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	ℓ_1:	mm
2) Cycle time	t_0:	s
(Fill in items 3) and 4) if required.)		
3) Acceleration time	t_a:	s
4) Deceleration time	t_d:	s
5) Stopping time	t_s:	s
6) Max. velocity	V:	mm/s
7) External force	F:	N
8) Positioning accuracy of the work load	±	mm
9) Total weight of the work load	W_A:	kg
10) Power supply voltage		V
11) Weight of the belt	W_M:	kg
12) Diameter of the driving pulley	D_1:	mm
13) Total weight of the pulley	W_1:	kg

Running pattern





(or item 14) and 15))

14)Width of the pulley	L_1:	mm
15) Material of the pulley		
16) Traveling direction (horizontal, vertical etc.)		

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

Request Sheet for Motor Selection

Request for Motor Selection Ⅳ : Timing pulley + Belt drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	ℓ_1:	mm
2) Cycle time	t_0:	s
(Fill in items 3) and 4) if required.)		
3) Acceleration time	t_a:	s
4) Deceleration time	t_d:	s
5) Stopping time	t_s:	s
6) Max. velocity	V:	mm/s
7) External force	F:	N
8) Positioning accuracy of the work load	±	mm
9) Total weight of the work load and the table	W_A:	kg
10) Power supply voltage		V
11) Weight of motor site belt	W_M:	kg

	Motor side		Belt side	
12) Diameter of the pully	D_1:	mm	D_2:	mm
13) Weight of the pulley	W_1:	kg	W_2:	kg

(or item 14) and 15))

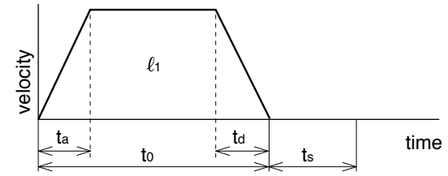
14) Width of the belt	L_1:	mm
15) Material of the pulley		

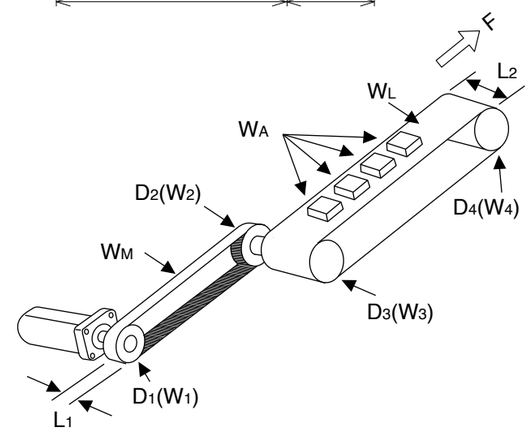
	Motor side		Belt side	
16) Diameter of the pulley	D_3:	mm	D_4:	mm
17) Weight of the pulley	W_3:	kg	W_4:	kg

(or item 18) and 19))

18) Width of the pulley	L_2:	mm
19) Material of the pulley		
20) Weight of the belt	W_L:	kg
21) Traveling direction (horizontal, vertical etc.)		

Running pattern





2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

Request Sheet for Motor Selection

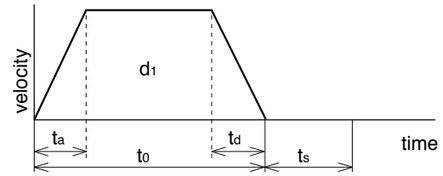
Request for Motor Selection Ⅴ : Turntable drive

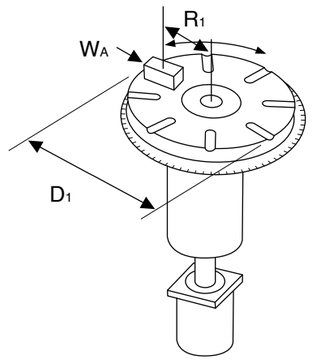
1. Driven mechanism and running data

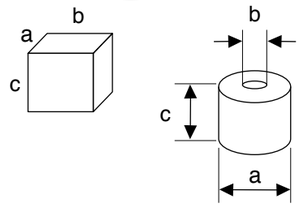
1) Travel distance of the work load per one cycle	d_1:	deg	
2) Cycle time	t_0:	s	
(Fill in items 3) and 4) if required.)			
3) Acceleration time	t_a:	s	
4) Deceleration time	t_d:	s	
5) Stopping time	t_s:	s	
6) Max. rotational speed of the table	v:	deg/s	
(or)	V:	r/s	
7) Positioning accuracy of the work load	±	deg	
8) Weight of one work load	W_A:	kg	
9) Driving radius of the center of gravity of the work	R_1:	mm	
10) Diameter of the table	D_1:	mm	
11) Mass of the table	W_1:	kg	
12) Diameter of the table support	T_1:	mm	
13) Power supply voltage		V	

		Prism		Cylinder
14) Dimensions of the work load	a:	mm	a:	mm
	b:	mm	b:	mm
	c:	mm	c:	mm
15) Number of work loads		pcs		

Running pattern







2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

	Company name :
	Department/Section :
	Name :
	Address :
	Tel :
	Fax :
	E-mail address:

Request Sheet for Motor Selection

Request for Motor Selection Ⅵ : Timing pulley + Turntable drive

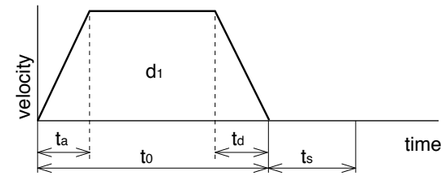
1. Driven mechanism and running data

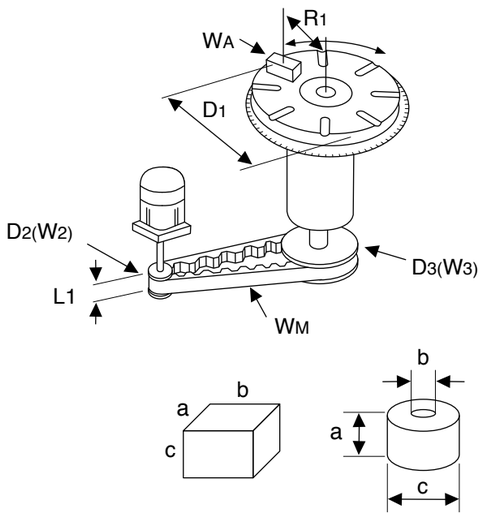
1) Travel distance of the work load per one cycle	d_1:	deg	
2) Cycle time	t_0:	s	
(Fill in items 3) and 4) if required.)			
3) Acceleration time	t_a:	s	
4) Deceleration time	t_d:	s	
5) Stopping time	t_s:	s	
6) Max. rotating speed of the table	v:	deg/s	
(or)	V:	r/s	
7) Positioning accuracy of the work load	±	deg	
8) Weight of one work load	W_A:	kg	
9) Driving radius of the center of gravity of the work	R_1:	mm	
10) Diameter of the table	D_1:	mm	
11) Mass of the table	W_1:	kg	
12) Diameter of the table support	T_1:	mm	
13) Power supply voltage		V	

		(Prism)		(Cylinder)
14) Dimension of the work load	a:	mm	a:	mm
	b:	mm	b:	mm
	c:	mm	c:	mm
15) Number of work loads		pcs		

		Motor side		Turntable side
16) Diameter of the pulley	D_2:	mm	D_3:	mm
17) Weight of the pulley	W_2:	kg	W_3:	kg
(or item 18) and 19))				
18) Width of the pulley	L_1:	mm		
19) Material of the pulley				
20) Weight of the belt	W_M:	kg		

Running pattern





2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

	Company name :
	Department/Section :
	Name :
	Address :
	Tel :
	Fax :
	E-mail address:

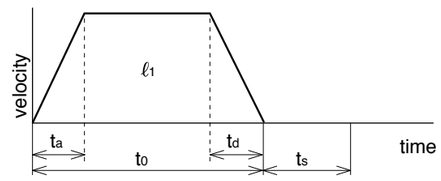
Request Sheet for Motor Selection

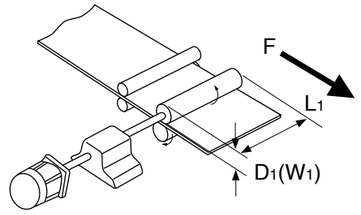
Request for Motor Selection Ⅶ : Roller feed drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	ℓ_1:	mm
2) Cycle time	t_0:	s
(Fill in items 3) and 4) if required.)		
3) Acceleration time	t_a:	s
4) Deceleration time	t_d:	s
5) Stopping time	t_s:	s
6) Max. velocity	v:	mm/s
7) External pulling force	F:	N
8) Positioning accuracy of the work load	±	mm
9) Number of rollers		pcs
10) Power supply voltage		V
11) Diameter of the roller	D_1:	mm
12) Mass of the roller	W_1:	kg

Running pattern





(or item 13) and 14))

13) Width of the roller	L_1:	mm
14) Material of the roller		

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

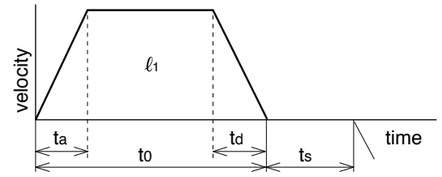
Request Sheet for Motor Selection

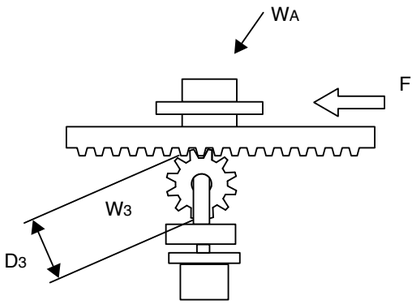
Request for Motor Selection Ⅷ : Driving with Rack & Pinion

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	ℓ_1:	mm
2) Cycle time	t_0:	s
(Fill in items 3) and 4) if required.)		
3) Acceleration time	t_a:	s
4) Deceleration time	t_d:	s
5) Stopping time	t_s:	s
6) Max. velocity	V:	mm/s
7) External force	F:	N
8) Positioning accuracy of the work load	±	mm
9) Total weight of the work load	W_A:	kg
10) Power supply voltage		V
11) Diameter of the pinion	D_3:	mm
12) Mass of the pinion	W_3:	kg
13) Traveling direction (horizontal, vertical, etc)		

Running pattern



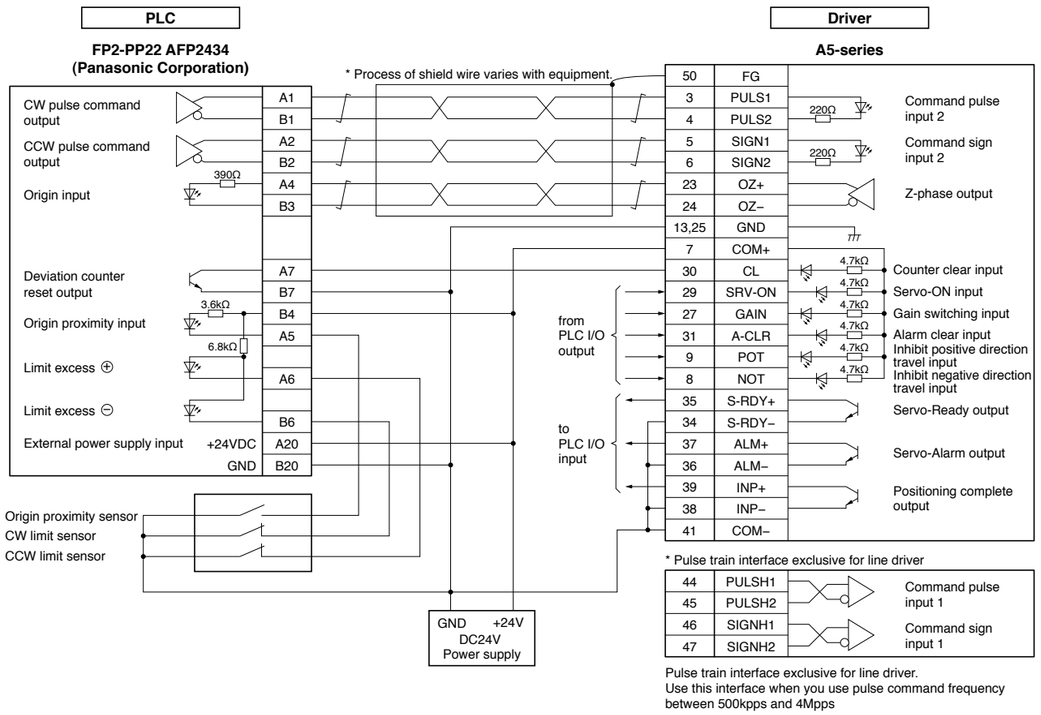


2. Other data

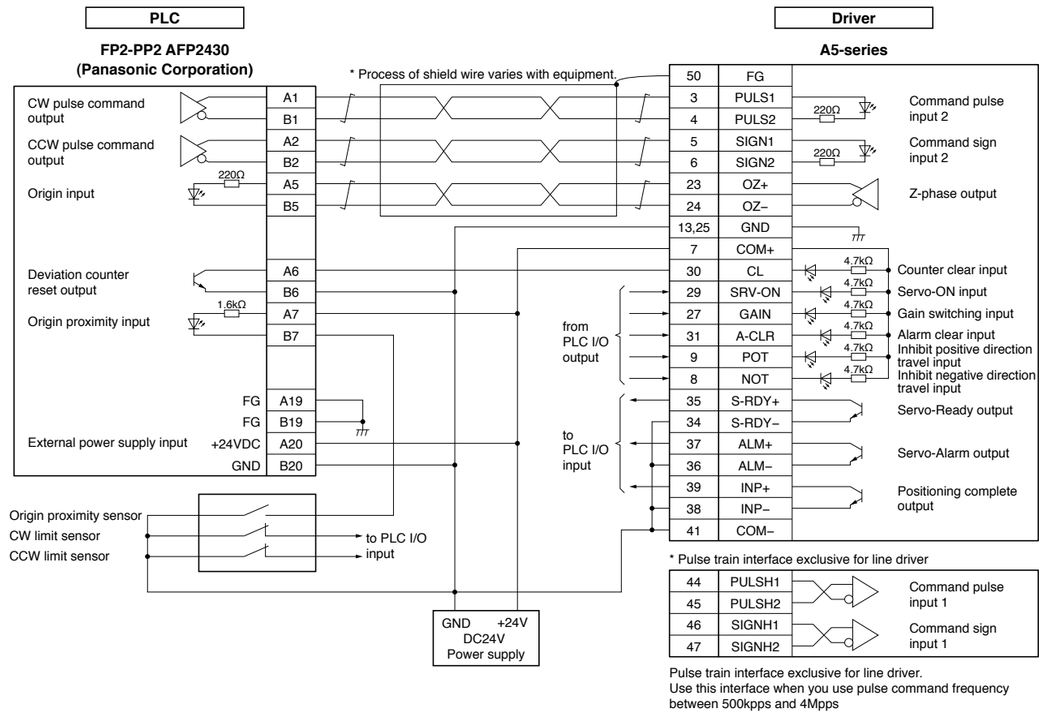
(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

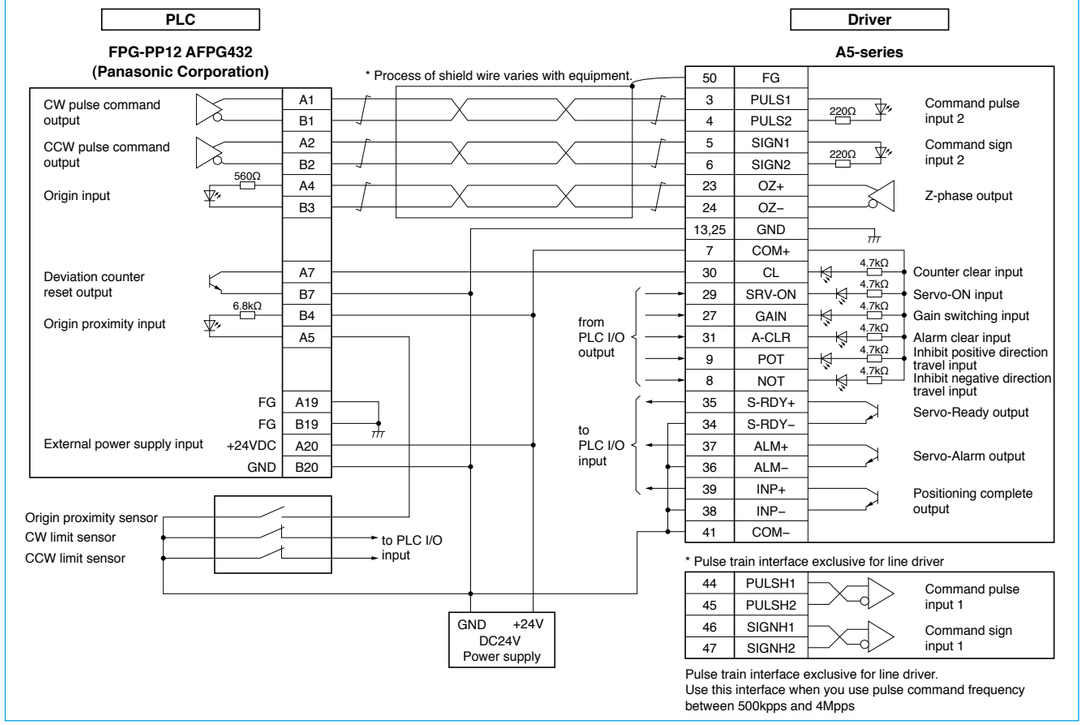
Connection between MINAS A5 and FP2-PP22 AFP2434 (Panasonic Corporation)



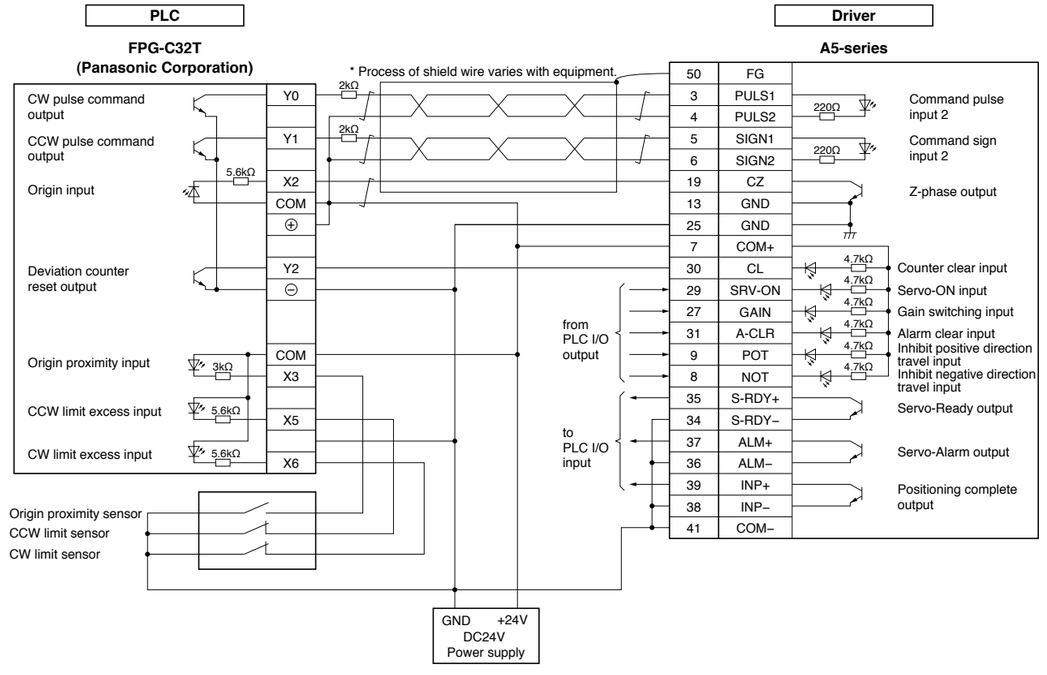
Connection between MINAS A5 and FP2-PP22 AFP2430 (Panasonic Corporation)



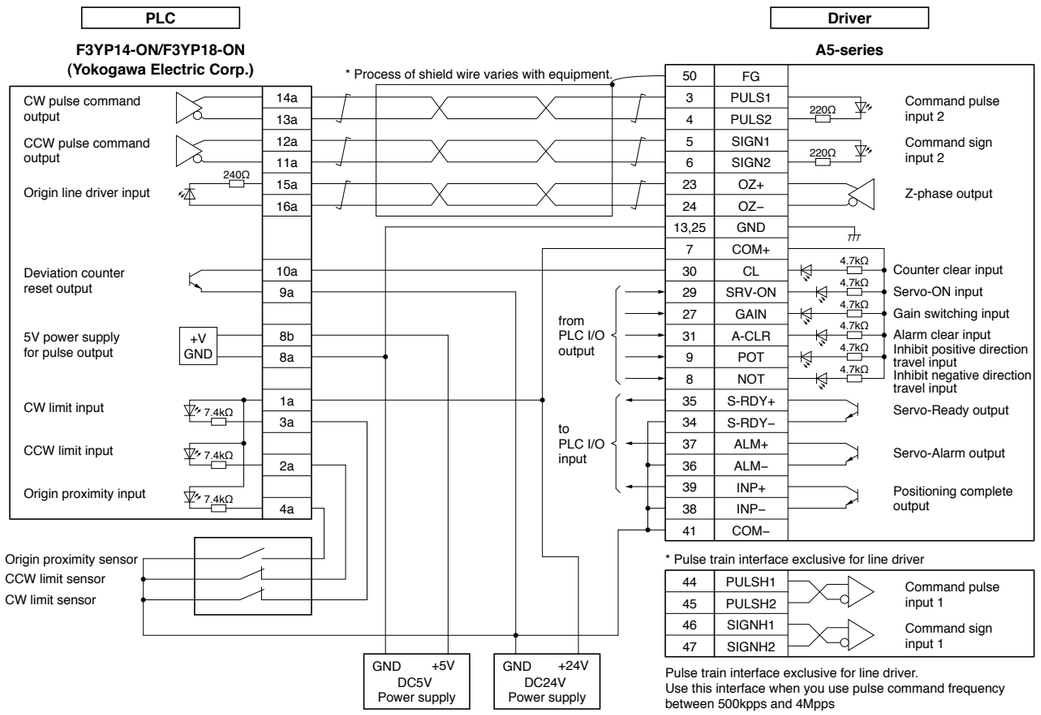
Connection between MINAS A5 and FPG-PP12 AFPG432 (Panasonic Corporation)



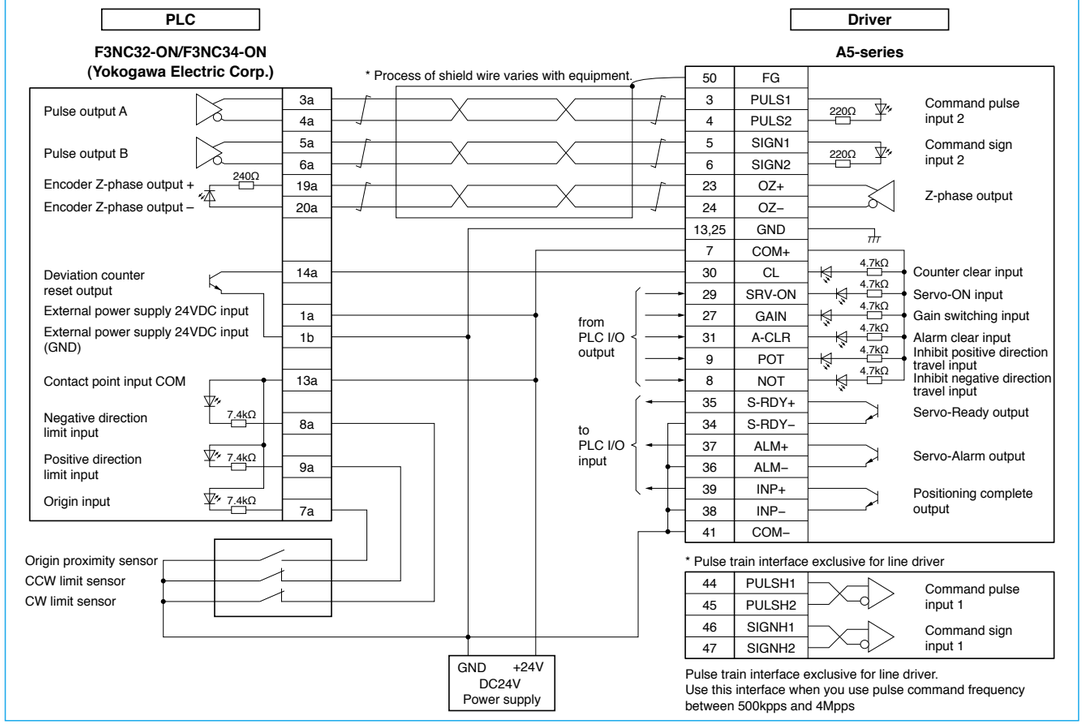
Connection between MINAS A5 and FPG-C32T (Panasonic Corporation)



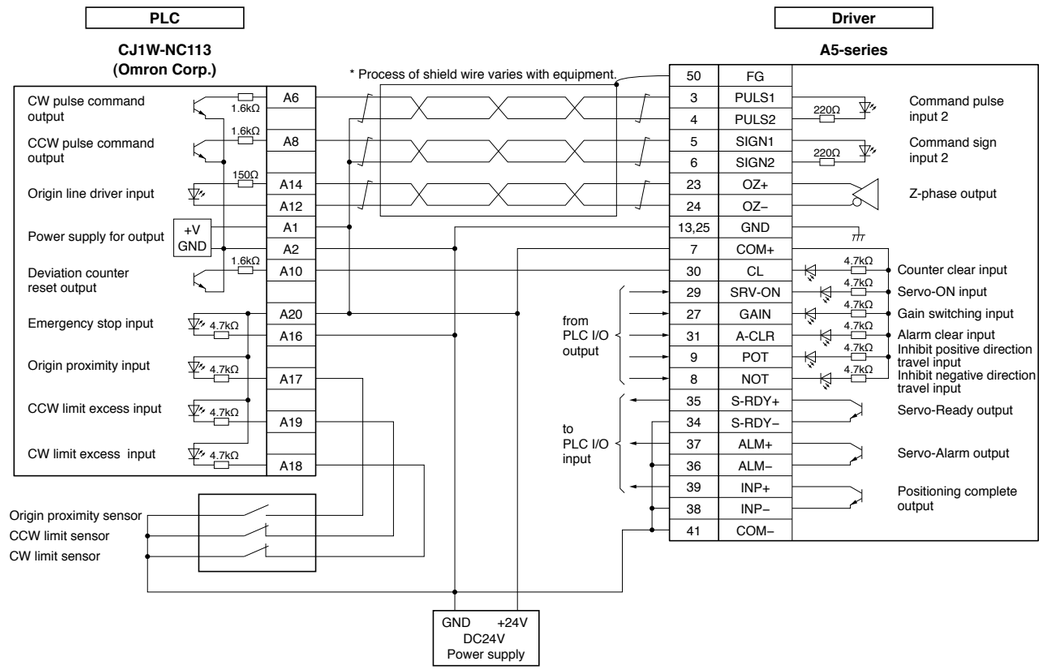
Connection between MINAS A5 and F3YP14-ON/F3YP18-ON (Yokogawa Electric Corp.)



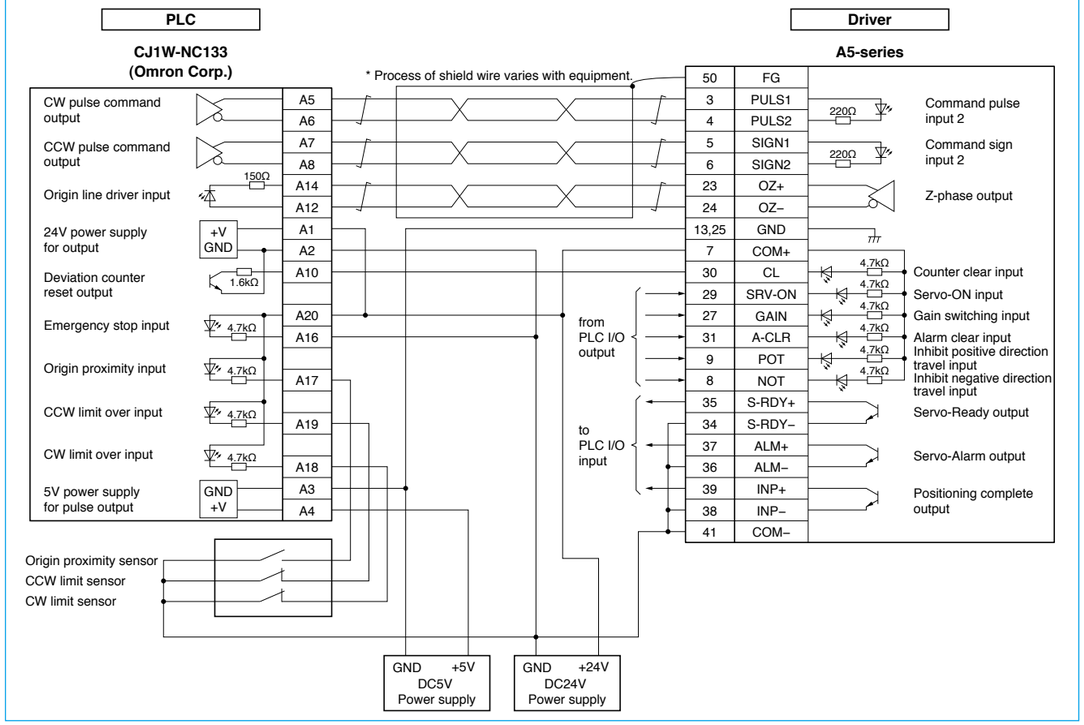
Connection between MINAS A5 and F3NC32-ON/F3NC34-ON (Yokogawa Electric Corp.)



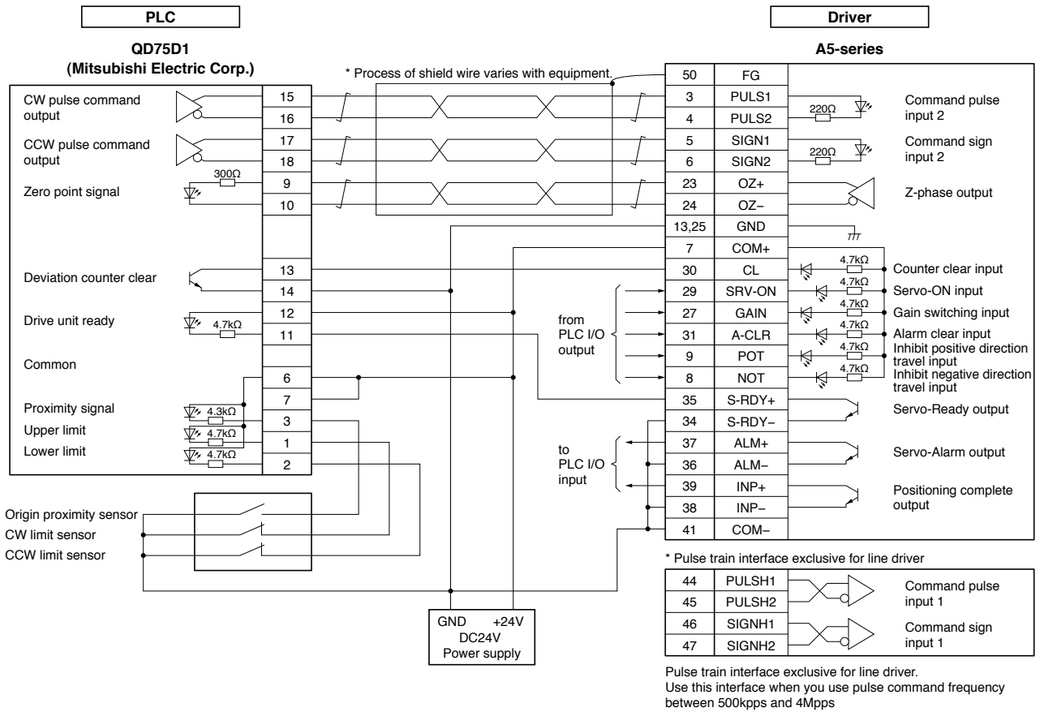
Connection between MINAS A5 and CJ1W-NC113 (Omron Corp.)



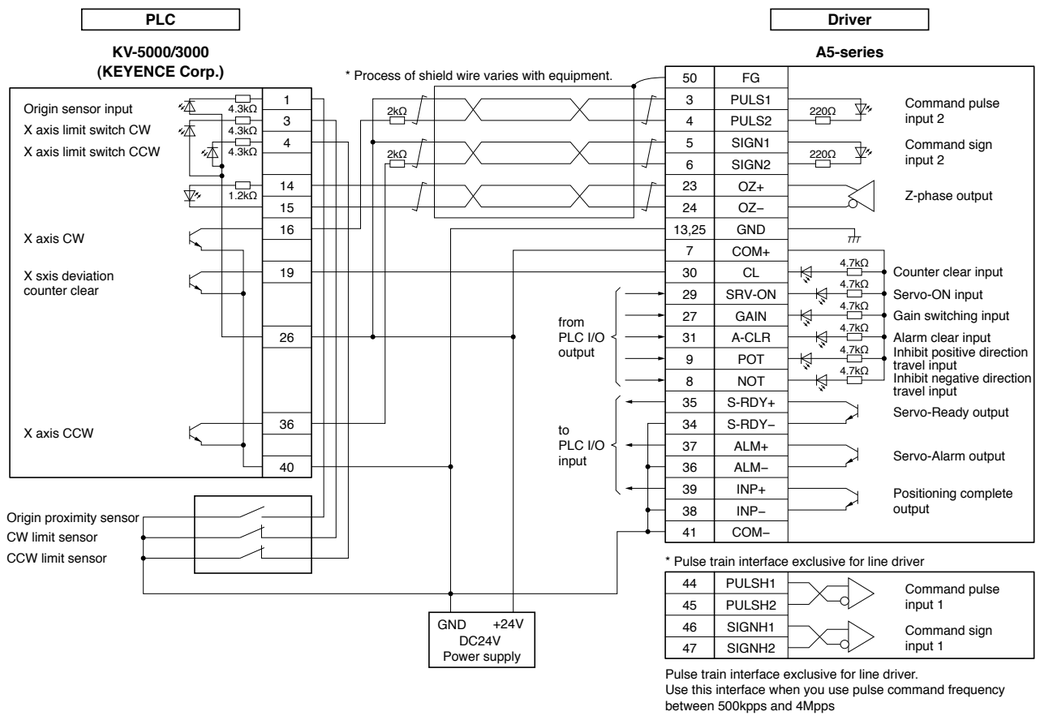
Connection between MINAS A5 and CJ1W-NC133 (Omron Corp.)



Connection between MINAS A5 and QD75D1 (Mitsubishi Electric Corp.)



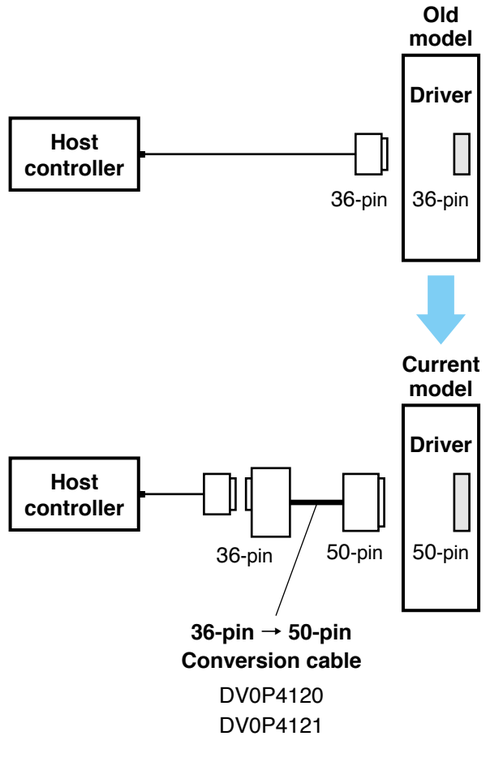
Connection between MINAS A5 and KV-5000/3000 (KEYENCE Corp.)



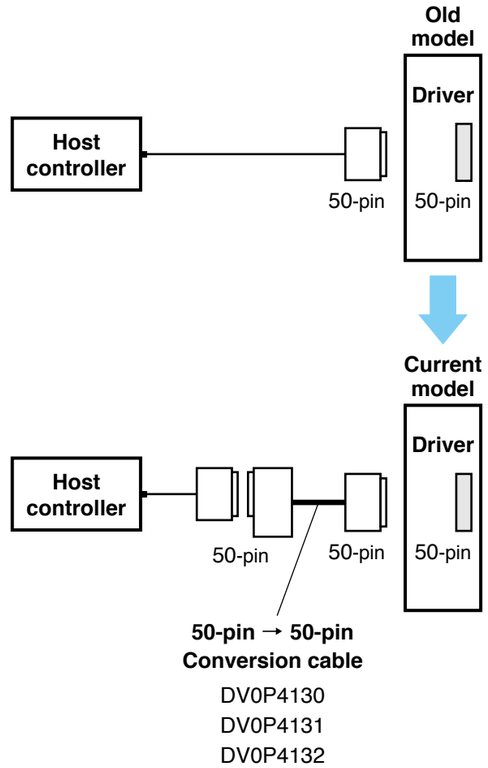
Replacing old model servo driver with MINAS A5 series

For easier replacement of old driver (MINAS X/XX/V series) with A5 series, use the interface conversion connector.

〈36-pin → 50-pin〉



〈50-pin → 50-pin〉



When selecting the cable, refer to the table below because the part number of the cable is specific to the control mode of the old model.

Old model	Control mode	Conversion cable part No.	Conversion wiring table
X series XX series (36-pin)	Position/velocity control	DV0P4120	Page F26
	Torque control	DV0P4121	
V series (50-pin)	Position control	DV0P4130	Page F27
	Velocity control	DV0P4131	
	Torque control	DV0P4132	Page F28

* For external dimensions, refer to P. 167.

Conversion wiring table

Pin No. on Old Model	DV0P4120			DV0P4121		
	Pin No. on Current Model	Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol
1	23	Z-phase output	OZ+	23	Z-phase output	OZ+
2	24	Z-phase output	OZ–	24	Z-phase output	OZ–
3	13	Signal ground	GND	13	Signal ground	GND
4	19	Z-phase output	CZ	19	Z-phase output	CZ
5	4	Command pulse input 2	PULS2	4	Command pulse input 2	PULS2
6	3	Command pulse input 2	PULS1	3	Command pulse input 2	PULS1
7	6	Command pulse sign input 2	SIGN2	6	Command pulse sign input 2	SIGN2
8	5	Command pulse sign input 2	SIGN1	5	Command pulse sign input 2	SIGN1
9	33	Command pulse inhibition input	INH	33	Command pulse inhibition input	INH
10	26	Speed zero clamp input	ZEROSPD	26	Speed zero clamp input	ZEROSPD
11	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+
12	29	Servo-ON input	SRV-ON	29	Servo-ON input	SRV-ON
13	30	Deviation counter clear input	CL	30	Deviation counter clear input	CL
14	14	Speed command input	SPR	NC		
15	15	Signal ground	GND	15	Signal ground	GND
16	43	Speed monitor output	SP	43	Speed monitor output	SP
17	25	Signal ground	GND	25	Signal ground	GND
18	50	Frame ground	FG	50	Frame ground	FG
19	21	A-phase output	OA+	21	A-phase output	OA+
20	22	A-phase output	OA-	22	A-phase output	OA-
21	48	B-phase output	OB+	48	B-phase output	OB+
22	49	B-phase output	OB–	49	B-phase output	OB–
23	NC			NC		
24	NC			NC		
25	39	Positionning complete output Speed arrival output	COIN+ AT-SPEED+	39	Positionning complete output Speed arrival output	COIN+ AT-SPEED+
26	37	Servo-Alarm output	ALM+	37	Servo-Alarm output	ALM+
27	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+
28	34	Positionning complete output (–) Speed arrival output (–)	COIN– AT-SPEED–	34	Positionning complete output (–) Speed arrival output (–)	COIN– AT-SPEED–
	36	Servo-Alarm output (–)	ALM–	36	Servo-Alarm output (–)	ALM–
	38	Servo-Ready output (–)	S-RDY–	38	Servo-Ready output (–)	S-RDY–
	41	Power supply for control signal (–)	COM–	41	Power supply for control signal (–)	COM–
29	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL
30	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL
31	31	Alarm clear input	A-CLR	31	Alarm clear input	A-CLR
32	32	Control mode switching input	C-MODE	32	Control mode switching input	C-MODE
33	18	CW direction torque limit input	CWTL	18	CW direction torque limit input	CWTL
34	16	CCW direction torque limit input	CCWTL	14	Torque command input	TRQR
35	17	Signal ground	GND	17	Signal ground	GND
36	42	Torque monitor output	IM	42	Torque monitor output	IM

* “NC” is no connect.

Pin No. on Old Model	DV0P4130			DV0P4131		
	Pin No. on Current Model	Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol
1	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL
2	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL
3	3	Command pulse input 2	PULS1	NC		
4	4	Command pulse input 2	PULS2	NC		
5	5	Command pulse sign input 2	SIGN1	NC		
6	6	Command pulse sign input 2	SIGN2	NC		
7	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+
8	NC			NC		
9	NC			NC		
10	NC			NC		
11	11	External brake release signal	BRK-OFF+	11	External brake release signal	BRK-OFF+
12	12	Zero-speed detection output signal	ZSP	12	Zero-speed detection output signal	ZSP
13	13	Torque in-limit signal output	TLC	13	Torque in-limit signal output	TLC
14	NC			14	Speed command input	SPR
15	15	Signal ground	GND	15	Signal ground	GND
16	16	CCW direction torque limit input	CCWTL	16	CCW direction torque limit input	CCWTL
17	17	Signal ground	GND	17	Signal ground	GND
18	18	CW direction torque limit input	CWTL	18	CW direction torque limit input	CWTL
19	19	Z-phase output	CZ	19	Z-phase output	CZ
20	NC			NC		
21	21	A-phase output	OA+	21	A-phase output	OA+
22	22	A-phase output	OA-	22	A-phase output	OA-
23	23	Z-phase output	OZ+	23	Z-phase output	OZ+
24	24	Z-phase output	OZ-	24	Z-phase output	OZ-
25	50	Frame ground	FG	50	Frame ground	FG
26	26	Speed zero clamp input	ZEROSPD	26	Speed zero clamp input	ZEROSPD
27	27	Gain switching input	GAIN	27	Gain switching input	GAIN
28	NC			33	Selection 1 input of internal command speed	INTSPD1
29	29	Servo-ON input	SRV-ON	29	Servo-ON input	SRV-ON
30	30	Deviation counter clear input	CL	NC		
31	31	Alarm clear input	A-CLR	31	Alarm clear input	A-CLR
32	32	Control mode switching input	C-MODE	32	Control mode switching input	C-MODE
33	33	Command pulse inhibition input	INH	NC		
34	NC			NC		
35	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+
36	NC			NC		
37	37	Servo-Alarm output	ALM+	37	Servo-Alarm output	ALM+
38	NC			NC		
39	39	Positionning complete output	COIN+	39	Speed arrival output	AT-SPEED+
40	40	Torque in-limit signal output	TLC	40	Torque in-limit signal output	TLC
41	10	External brake release signal (–)	BRK-OFF–	10	External brake release signal (–)	BRK-OFF–
	34	Positionning complete output (–)	COIN–	34	Speed arrival output (–)	AT-SPEED–
	36	Servo-Alarm output (–)	ALM–	36	Servo-Alarm output (–)	ALM–
	38	Servo-Ready output (–)	S-RDY–	38	Servo-Ready output (–)	S-RDY–
	41	Power supply for control signal (–)	COM–	41	Power supply for control signal (–)	COM–
42	42	Torque monitor output	IM	42	Torque monitor output	IM
43	43	Speed monitor output	SP	43	Speed monitor output	SP
44	25	Signal ground	GND	25	Signal ground	GND
45	25	Signal ground	GND	25	Signal ground	GND
46	25	Signal ground	GND	25	Signal ground	GND
47	NC			NC		
48	48	B-phase output	OB+	48	B-phase output	OB+
49	49	B-phase output	OB–	49	B-phase output	OB–
50	50	Frame ground	FG	50	Frame ground	FG

* “NC” is no connect.

Connection between Driver and Controller

Replacing old model servo driver with MINAS A5 series

Pin No. on Old Model	DV0P4132		
	Pin No. on Current Model	Signal Name	Symbol
1	8	CW over-travel inhibit input	CWL
2	9	CCW over-travel inhibit input	CCWL
3	NC		
4	NC		
5	NC		
6	NC		
7	7	Power supply for control signal (+)	COM+
8	NC		
9	NC		
10	NC		
11	11	External brake release signal	BRK-OFF+
12	12	Zero-speed detection output signal	ZSP
13	13	Torque in-limit signal output	TLC
14	NC		
15	15	Signal ground	GND
16	16	Torque command input	TRQR
17	17	Signal ground	GND
18	18	CW direction torque limit input	CWTL
19	19	Z-phase output	CZ
20	NC		
21	21	A-phase output	OA+
22	22	A-phase output	OA-
23	23	Z-phase output	OZ+
24	24	Z-phase output	OZ-
25	50	Frame ground	FG
26	26	Speed zero clamp input	ZEROSPD
27	27	Gain switching input	GAIN
28	NC		
29	29	Servo-ON input	SRV-ON
30	NC		
31	31	Alarm clear input	A-CLR
32	32	Control mode switching input	C-MODE
33	NC		
34	NC		
35	35	Servo-Ready output	S-RDY+
36	NC		
37	37	Servo-Alarm output	ALM+
38	NC		
39	39	Speed arrival output	AT-SPEED+
40	40	Torque in-limit signal output	TLC
41	10	External brake release signal (–)	BRK-OFF–
	34	Speed arrival output (–)	AT-SPEED–
	36	Servo-Alarm output (–)	ALM–
	38	Servo-Ready output (–)	S-RDY–
	41	Power supply for control signal (–)	COM–
42	42	Torque monitor output	IM
43	43	Speed monitor output	SP
44	25	Signal ground	GND
45	25	Signal ground	GND
46	25	Signal ground	GND
47	NC		
48	48	B-phase output	OB+
49	49	B-phase output	OB–
50	50	Frame ground	FG

* “NC” is no connect.

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Sales Office

[Panasonic Sales Office of Motors]

(Apr.01.2012)

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